มหาวิทยาลัยหาดใหญ่
HATYAI UNIVERSITY

“ รายงานสืบเนื่องจากการประชุม ”

การประชุมหาดใหญ่วิชาการ ระดับชาติและนานาชาติ ครั้งที่ 16









The 16th Hatyai National & International Conference Proceeding

“ 16 พฤษภาคม 2568 “

รายงานสืบเนื่องจากการประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ครั้งที่ 16

The 16th Hatyai National and International Conference Proceeding

วันศุกร์ที่ 16 พฤษภาคม 2568

รูปแบบการประชุม: Online และ Onsite Conference

จัดโดย

มหาวิทยาลัยหาดใหญ่

อำเภอหาดใหญ่ จังหวัดสงขลา

@ข้อความและบทความในเอกสารการประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ครั้งที่ 16
เป็นแนวคิดของผู้เขียนมิใช่เป็นความคิดเห็นของคณะผู้จัดทำ และมิใช่ความรับผิดชอบ
ของมหาวิทยาลัยหาดใหญ่ @ไม่สงวนสิทธิ์การคัดลอก แต่ให้อ้างอิงแสดงที่มา

คำนำ

มหาวิทยาลัยหาดใหญ่ ร่วมกับ สำนักงานปลัดกระทรวงการอุดมศึกษา วิทยาศาสตร์ วิจัยและนวัตกรรม (สป.อว.) สำนักงานการวิจัยแห่งชาติ (วช.) และสมาคมสถาบันอุดมศึกษาเอกชนแห่งประเทศไทยในพระราชูปถัมภ์ สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี (สสอท.) จัดการประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ครั้งที่ 16 ในวันศุกร์ที่ 16 พฤษภาคม 2568 โดยมีวัตถุประสงค์เพื่อเป็นเวทีทางวิชาการให้กับ คณาจารย์ นักวิจัย นักวิชาการตลอดจนนักศึกษา ได้มีโอกาสเผยแพร่ผลงานวิจัย การถ่ายทอด และแลกเปลี่ยนองค์ความรู้ ตลอดจนการสร้างประสบการณ์ด้านการวิจัยสร้างแรงกระตุ้นให้เกิดแนวคิดในการพัฒนาองค์ความรู้ด้านการวิจัย และสร้างเครือข่ายความร่วมมือด้านการวิจัยระหว่างมหาวิทยาลัยกับหน่วยงานภายนอก

การประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ครั้งที่ 16 ดำเนินการจัดในรูปแบบ Hybrid โดยมีการนำเสนอผลงาน 2 รูปแบบ คือ Onsite และ Online เพื่อให้สอดคล้องกับความต้องการของผู้เข้าร่วมประชุม โดยการประชุมครั้งนี้มีบทความวิจัยจากคณาจารย์ นักวิจัย นักวิชาการ และนักศึกษา ทั้งภาครัฐและเอกชน เข้าร่วมนำเสนอ จำนวนทั้งสิ้น 139 บทความ ประกอบด้วยบทความที่นำเสนอในรูปแบบ Onsite จำนวน 61 บทความ และรูปแบบ Online จำนวน 78 บทความ ซึ่งบทความวิจัยทุกเรื่องได้ผ่านการคัดเลือก ประเมินคุณภาพทางวิชาการ และแก้ไขตามคำแนะนำจากผู้ทรงคุณวุฒิไม่น้อยกว่า 3 คน จากหลากหลายสถาบัน ที่มีความเชี่ยวชาญเฉพาะสาขา

คณะผู้จัดการประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ครั้งที่ 16 ขอขอบคุณ คณาจารย์ นักวิจัย นักวิชาการ และนักศึกษา ที่ส่งบทความวิจัยเข้าร่วมนำเสนอ ตลอดจนแขกผู้มีเกียรติที่เข้าร่วมประชุม และขอขอบคุณ วิทยากรบรรยายพิเศษ ผู้ทรงคุณวุฒิ และคณะกรรมการดำเนินโครงการทุกท่านที่ช่วยให้การประชุมหาดใหญ่วิชาการฯ ครั้งนี้ สำเร็จลุล่วงตามวัตถุประสงค์ของโครงการด้วยดี หากมีข้อผิดพลาดประการใดต้องขออภัยมา ณ โอกาสนี้

สารจากอธิการบดี

การประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ได้ดำเนินการจัดอย่างต่อเนื่องมาเป็นปีที่ 16 และยังคงได้รับเกียรติจากสำนักงานปลัดกระทรวงการอุดมศึกษา วิทยาศาสตร์ วิจัยและนวัตกรรม (สป.อว.) สำนักงานการวิจัยแห่งชาติ (วช.) สมาคมสถาบันอุดมศึกษาเอกชนแห่งประเทศไทย ในพระราชูปถัมภ์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี (สสอท.) เป็นหน่วยงานร่วมในการจัดประชุมอย่างต่อเนื่องด้วยดีเสมอมา

บทความวิจัยที่เข้าร่วมนำเสนอในการประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ครั้งที่ 16 ทุกบทความได้รับการประเมินคุณภาพทางวิชาการจากผู้ทรงคุณวุฒิอย่างน้อย 3 คน จากหลากหลายสถาบันตามความเชี่ยวชาญเฉพาะสาขา โดยมหาวิทยาลัยหาดใหญ่ มีความมุ่งมั่นให้ผลงานวิชาการที่ผ่านการนำเสนอในการประชุมวิชาการฯ ครั้งนี้ ก่อให้เกิดประโยชน์ทางวิชาการอย่างกว้างขวาง สามารถนำไปใช้อ้างอิง ต่อยอดการวิจัย และสร้างองค์ความรู้ใหม่ที่มีคุณค่าในอนาคต

ในนามของมหาวิทยาลัยหาดใหญ่ ขอขอบคุณกระทรวงการอุดมศึกษา วิทยาศาสตร์ วิจัยและนวัตกรรม (อว.) สำนักงานการวิจัยแห่งชาติ (วช.) สมาคมสถาบันอุดมศึกษาเอกชนแห่งประเทศไทย ในพระราชูปถัมภ์ สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี (สสอท.) ตลอดจนผู้ทรงคุณวุฒิประเมินบทความ วิทยากรบรรยายพิเศษ ผู้ทรงคุณวุฒิประจำห้องประชุมกลุ่มย่อย และผู้เข้าร่วมประชุมฯ ทุกท่านที่มีส่วนร่วมสนับสนุนให้การประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ครั้งที่ 16 ดำเนินการสำเร็จลุล่วงตามวัตถุประสงค์ที่กำหนดไว้ทุกประการ

(ผู้ช่วยศาสตราจารย์ ดร.วิทวัส ดิษยะศริน สัตยารักษ์)
อธิการบดีมหาวิทยาลัยหาดใหญ่

การประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ครั้งที่ 16
วันศุกร์ที่ 16 พฤษภาคม 2568
ณ ห้องประชุม Blue Ocean Hall อาคารคณะบริหารธุรกิจ
มหาวิทยาลัยหาดใหญ่ อำเภอหาดใหญ่ จังหวัดสงขลา

08.30 - 09.00 น.	ผู้เข้าร่วมประชุมแบบ Onsite ลงทะเบียนเข้าร่วมพิธีเปิด ณ ห้องประชุม Blue Ocean Hall ผู้เข้าร่วมประชุมแบบ Online ร่วมรับชมพิธีเปิดผ่าน Page Facebook: https://www.facebook.com/rdofhu
09.00 - 09.20 น.	พิธีเปิด - กล่าวรายงาน โดย รองศาสตราจารย์ทัศนีย์ ประธาน ผู้ช่วยอธิการบดีฝ่ายวิจัย - กล่าวต้อนรับและกล่าวเปิด โดย ผู้ช่วยศาสตราจารย์ ดร.วิทวัส ดิษยะศริน สัตยารักษ์ อธิการบดีมหาวิทยาลัยหาดใหญ่
09.20 - 09.30 น.	รับชมวิดีทัศน์แสดงผลงานวิจัยของมหาวิทยาลัยหาดใหญ่
09.30 - 11.30 น.	บรรยายพิเศษ เรื่อง “มหาวิทยาลัยในยุคดิจิทัลกับการปฏิรูปเพื่ออนาคตของประเทศ” โดย ศาสตราจารย์ ดร.พีระพงศ์ ทีฆสกุล ผู้อำนวยการศูนย์วิจัยมลพิษทางอากาศและผลกระทบต่อสุขภาพ คณะวิศวกรรมศาสตร์ มหาวิทยาลัยสงขลานครินทร์ ประธานคณะอนุกรรมการด้านการพลิกโฉมมหาวิทยาลัย
11.30 - 12.00 น.	รับชมการนำเสนอผลงานวิจัยภาคโปสเตอร์
12.00 - 13.00 น.	รับประทานอาหารกลางวัน
13.00 น. เป็นต้นไป	นำเสนอผลงานวิจัยภาคบรรยายแบบ Onsite และภาคบรรยายแบบ Online ***(ระดับชาติ)* จำนวน 100 บทความ** - มนุษยศาสตร์ - สังคมศาสตร์ - การศึกษา - บริหารธุรกิจและการท่องเที่ยว - วิทยาศาสตร์ (สุขภาพ/เทคโนโลยี) ***(ระดับนานาชาติ)* จำนวน 39 บทความ** - Education - Social Science

หมายเหตุ กำหนดการอาจมีการเปลี่ยนแปลงตามความเหมาะสม

ผู้ทรงคุณวุฒิพิจารณาบทความ

ผู้ทรงคุณวุฒิระดับนานาชาติ

Dr. Ema Nurmaya S.E., M.M.		Ahmad Dahlan University
Dr. Muhammaddavood	Bilraman	Fatoni University
Dr. Kanokwan	Watkins	Independent Researcher
Dr. Khanungnit	Hnuchek	Independent Researcher
Professer Dr. Mohd Sofian Bin Omar Fauzee		INTI International University
Dr. Patcharee	Sumethokul	Nakhon Si Thammarat Rajabhat University
Asst. Prof. Dr. Woralak	Bancha	Prince of Songkla University
Asst. Prof. Dr. Klangjai	Sangwichitr	Prince of Songkla University
Dr. Natika	Chaiyanupong	Prince of Songkla University
Dr. Khanchai	Wongchana	Prince of Songkla University
Dr. Ekkapon	Phairot	Songkhla Rajabhat University
Dr. Chakadee	Waiyavutti	Thaksin University
Dr. Suwimol	Jungjit	Thaksin University
Assoc. Prof. Dr. Muhammad	Syafei, M.Pd	Universitas Muria Kudus
Asst. Prof. Dr. Titis	Sulistyowati	Universitas Muria Kudus
Professor Dr. Purwo Susongko, S.Pd.,M.Pd		Universitas Negeri Semarang
Assoc. Prof. Dr. Ahmad	Hanfan, M. M.	Universitas Pancasakti Tegal
Assoc. Prof. Dr. Dien Noviany Rahmatika SE MM Ak CA		Universitas Pancasakti Tegal
Assoc. Prof. Dr. Yoga	Prihatin	Universitas Pancasakti Tegal
Assoc. Prof. Dr. Nik Ramli Nik Abdul Rashid		Universiti Teknologi MARA
Asst. Prof. Dr. Ahmad Edwin Mohamed		Universiti Utara Malaysia
Assoc. Prof. Dr. Mazida Binti Ahmad		Universiti Utara Malaysia
Assoc. Prof. Dr. Charas	Attiwittayaporn	Hatyai University
Assoc. Prof. Dr. Niran	Chullasap	Hatyai University
Assoc. Prof. Dr. Praman	Tepsongkroh	Hatyai University
Assoc. Prof. Dr. Wan	Dechpichai	Hatyai University
Asst. Prof. Dr. Thienchai	Phankhong	Hatyai University
Dr. Anob	Kanthacha	Hatyai University

Dr. Chadchom	Ratsameemonthon	Hatyai University
Dr. Chutima	Wangbenmad	Hatyai University
Dr. Farida	Sasha	Hatyai University
Dr. Kanit	Sripaoraya	Hatyai University
Dr. Krirk	Kisawadkorn	Hatyai University
Dr. Nutsana	Na Phayap	Hatyai University
Dr. Patipat	Kittichokwattana	Hatyai University
Dr. Siriluck	Thongpoon	Hatyai University
Dr. Sumontha	Wongngam	Hatyai University

ผู้ทรงคุณวุฒิระดับชาติ

ศ.ดร.สมเกียรติ	งามประเสริฐสิทธิ์	จุฬาลงกรณ์มหาวิทยาลัย
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ดร.ณัฐพงศ์	ตันติวิวัฒนพันธ์	จุฬาลงกรณ์มหาวิทยาลัย
ศ.น.ท.ดร.สุมิตร	สุวรรณ	มหาวิทยาลัยเกษตรศาสตร์
รศ.ดร.จิตตินันท์	บุญสถิรกุล	มหาวิทยาลัยเกษตรศาสตร์
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รศ.ดร.สิริวรรณ	นันทจันทูล	มหาวิทยาลัยเกษตรศาสตร์
ผศ.ดร.ธนพร	ขจรผล	มหาวิทยาลัยเกษตรศาสตร์
รศ.ดร.กฤตพา	แสนชัยธร	มหาวิทยาลัยขอนแก่น
รศ.ดร.ธิดาเดียว	มยุรีสวรรค์	มหาวิทยาลัยขอนแก่น
รศ.ดร.ยุวรัตน์	เงินเย็น	มหาวิทยาลัยขอนแก่น

รศ.ดร.ศิริพร	ปรุงวิทยา	มหาวิทยาลัยขอนแก่น
รศ.ดร.ศิริพร	คำสะอาด	มหาวิทยาลัยขอนแก่น
รศ.ดร.เสาวนี	สิริสุขศิลป์	มหาวิทยาลัยขอนแก่น
ผศ.ดร.ก่อพงษ์	พลโยราช	มหาวิทยาลัยขอนแก่น
ผศ.ดร.กิตติพงษ์	สอนล้อม	มหาวิทยาลัยขอนแก่น
ผศ.ดร.นัดดา	คำนิยม	มหาวิทยาลัยขอนแก่น
ผศ.ดร.วิรัช	วงศ์ภินันท์วัฒนา	มหาวิทยาลัยขอนแก่น
ศ.ดร.ณวิทย์	อ่องแสวงชัย	มหาวิทยาลัยเชียงใหม่
รศ.ดร.จักรกฤษณ์	วังราษฎร์	มหาวิทยาลัยเชียงใหม่
รศ.ดร.จิราภรณ์	เตชะอุดมเดช	มหาวิทยาลัยเชียงใหม่
รศ.ดร.นฤมล	กิมภากรณ์	มหาวิทยาลัยเชียงใหม่
รศ.ดร.บุญรอด	โชติวชิรา	มหาวิทยาลัยเชียงใหม่
รศ.ดร.มานะชัย	รอดชื่น	มหาวิทยาลัยเชียงใหม่
รศ.ดร.สันต์	สุวัจฉราภินันท์	มหาวิทยาลัยเชียงใหม่
ผศ.ดร.กาญจนา	ดำริห์	มหาวิทยาลัยเชียงใหม่
ผศ.ดร.ชนิดา	สุวรรณประสิทธิ์	มหาวิทยาลัยเชียงใหม่
ผศ.ดร.ปิยะวรรณ	บุญโพธิ์	มหาวิทยาลัยเชียงใหม่
ผศ.ดร.สิริมา	เชียงเชาว์ไว	มหาวิทยาลัยเชียงใหม่
รศ.ดร.จิดาภา	พรยิ่ง	มหาวิทยาลัยทักษิณ
รศ.ดร.เจษฎา	นกน้อย	มหาวิทยาลัยทักษิณ
รศ.ปพนธีร์	ธีระพันธ์	มหาวิทยาลัยทักษิณ
รศ.ยอดชาย	พรหมอินทร์	มหาวิทยาลัยทักษิณ
ผศ.ชลีรัตน์	มเหสักขกุล	มหาวิทยาลัยทักษิณ
ผศ.ดร.สุรสิทธิ์	ศรีสมุทร	มหาวิทยาลัยทักษิณ
ผศ.ดร.อนิวัช	แก้วจำนงค์	มหาวิทยาลัยทักษิณ
รศ.ดร.เกรียงไกร	แซมสีม่วง	มหาวิทยาลัยเทคโนโลยีราชมงคล
ผศ.ดร.รสริน	เจิมไธสง	มหาวิทยาลัยเทคโนโลยีราชมงคล
ผศ.กฤษณา	คงเลิศยศ	มหาวิทยาลัยเทคโนโลยีราชมงคลกรุงเทพ
รศ.ดร.ณัฐชา	เพ็ชร์ยิ้ม	มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี

รศ.รัตนฤทธิ์	จันทรรังสี	มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี
ผศ.ดร.เทอดพงษ์	แดงสี	มหาวิทยาลัยเทคโนโลยีราชมงคลพระนคร
รศ.ดร.จารุวัฒน์	เจริญจิต	มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย
ผศ.ดร.ณัฐพล	แก้วทอง	มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย
ผศ.ณรงค์ชัย	ชูพูล	มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย
ผศ.ดร.ชื่นสุมณ	ยิ้มถิน	มหาวิทยาลัยเทคโนโลยีราชมงคลสุวรรณภูมิ
รศ.ดร.อดิศักดิ์	สุวิทวัส	มหาวิทยาลัยเทคโนโลยีสุรนารี
ผศ.ดร.ชนิศา	มณีรัตนรุ่งโรจน์	มหาวิทยาลัยเทคโนโลยีสุรนารี
ผศ.ดร.ศุภกฤษฎิ์	นิวัฒนากูล	มหาวิทยาลัยเทคโนโลยีสุรนารี
ศ.ดร.ธีระ	สินเดชารักษ์	มหาวิทยาลัยธรรมศาสตร์
รศ.ดร.จันทิมา	อังคพณิชกิจ	มหาวิทยาลัยธรรมศาสตร์
รศ.ดร.เฉลิมวุฒิ	ศรีพรหม	มหาวิทยาลัยธรรมศาสตร์
รศ.ดร.เทพปัญญา	เจริญรัตน์	มหาวิทยาลัยธรรมศาสตร์
รศ.ดร.นริสา	เก่งตรง บดีรัฐ	มหาวิทยาลัยธรรมศาสตร์
รศ.ดร.มนวิกา	ผดุงสิทธิ์	มหาวิทยาลัยธรรมศาสตร์
รศ.ดร.ศิริเพ็ญ	เปสี	มหาวิทยาลัยธรรมศาสตร์
รศ.ดร.อรรถสิทธิ์	พานแก้ว	มหาวิทยาลัยธรรมศาสตร์
รศ.กุลนารี	เสือโรจน์	มหาวิทยาลัยธรรมศาสตร์
ผศ.ดร.อรจิรา	สิทธิศักดิ์	มหาวิทยาลัยธรรมศาสตร์
รศ.ดร.ภูมิ	โชคเหมาะ	มหาวิทยาลัยธุรกิจบัณฑิตย์
รศ.นัศพ์ชาณัณ	ชินปัญช์ธนะ	มหาวิทยาลัยธุรกิจบัณฑิตย์
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รศ.ดร.ชุลีกร	ด่านยุทธศิลป์	มหาวิทยาลัยนเรศวร
รศ.ดร.ณัฐกานต์วดี	คำภิระแปง	มหาวิทยาลัยนเรศวร
รศ.ดร.รัชฎา	วิริยะพงศ์	มหาวิทยาลัยนเรศวร
รศ.ดร.ศศิมา	เจริญกิจ	มหาวิทยาลัยนเรศวร
รศ.ดร.อาจินต์	สงทับ	มหาวิทยาลัยนเรศวร
ดร.อรจิรา	อัจฉริยไพบูลย์	มหาวิทยาลัยนเรศวร

รศ.ดร.สุชาดา	พงศ์กิตติวิบูลย์	มหาวิทยาลัยบูรพา
ผศ.ดร.ณรงค์	พลีรักษ์	มหาวิทยาลัยบูรพา
ผศ.ดร.ศรีสุดา	นิเทศน์ธรรม	มหาวิทยาลัยบูรพา
รศ.ดร.ภัทรา	บุรารักษ์	มหาวิทยาลัยพะเยา
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ผศ.ดร.ทัตดาว	ภาษีผล	มหาวิทยาลัยมหาสารคาม
รศ.ดร.กัญญารัตน์	โคจร	มหาวิทยาลัยมหาสารคาม
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ผศ.ดร.กรรณิกา	มพุช	มหาวิทยาลัยราชภัฏวไลยอลงกรณ์
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รศ.ดร.ภัทรายุ	แต่บรรพกุล	มหาวิทยาลัยศรีนครินทรวิโรฒ
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รศ.ดร.กันตพร	ยอดใชย	มหาวิทยาลัยสงขลานครินทร์
รศ.ดร.เกษตรชัย	และหีม	มหาวิทยาลัยสงขลานครินทร์
รศ.ดร.เกื้ออนันต์	เตชะโต	มหาวิทยาลัยสงขลานครินทร์
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รศ.ดร.ชยุต	นันทดุสิต	มหาวิทยาลัยสงขลานครินทร์
รศ.ดร.ธรรมรัตน์	พนิชยากุล	มหาวิทยาลัยสงขลานครินทร์
รศ.ดร.พิเชษฐ์	เปียร์กลิ่น	มหาวิทยาลัยสงขลานครินทร์
รศ.ดร.ภาณุวัฒน์	ภักดีอักษร	มหาวิทยาลัยสงขลานครินทร์
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ผศ.ดร.น้ำทิพย์	ตระกูลเมฆี	มหาวิทยาลัยสงขลานครินทร์
ผศ.ดร.พัชรวลัย	ใจสมุทร	มหาวิทยาลัยสงขลานครินทร์
ผศ.ดร.ระพีพรรณ	เผ่าชู	มหาวิทยาลัยสงขลานครินทร์
ผศ.ดร.วิภาดา	เถาธรรมพิทักษ์	มหาวิทยาลัยสงขลานครินทร์
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ผศ.ดร.อภิชญา	แก้วอุทัย	มหาวิทยาลัยสงขลานครินทร์
ดร.ปองพชร	ธาราสุข	มหาวิทยาลัยสงขลานครินทร์
รศ.ดร.เกวลิน	ต่อปัญญาชาญ	มหาวิทยาลัยสุโขทัยธรรมาธิราช
รศ.ดร.อารยา	ประเสริฐชัย	มหาวิทยาลัยสุโขทัยธรรมาธิราช
ผศ.ดร.ปานทิพย์	รัตนศิลป์กัลชาญ	มหาวิทยาลัยหัวเฉียวเฉลิมพระเกียรติ
ผศ.ดร.วีรพันธุ์	ศิริฤทธิ์	วิทยาลัยเชียงราย
ผศ.ดร.กิตติพร	เนาว์สุวรรณ	วิทยาลัยพยาบาลบรมราชชนนี สงขลา
ผศ.ดร.วราภรณ์	คล้ายประยงค์	สถาบันการจัดการปัญญาภิวัฒน์
รศ.ดร.วัลลภ	ฤทธิม์ บัวชุม	สถาบันเทคโนโลยีพระจอมเกล้าเจ้าคุณทหารลาดกระบัง
ผศ.ดร.ศิริจันทร์	เจียรพุฒิ	สถาบันเทคโนโลยีพระจอมเกล้าเจ้าคุณทหารลาดกระบัง
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รศ.ดร.วัน	เดชพิชัย	มหาวิทยาลัยหาดใหญ่
รศ.ทัศนีย์	ประธาน	มหาวิทยาลัยหาดใหญ่
ผศ.ดร.เก็ตถวา	บุญปราการ	มหาวิทยาลัยหาดใหญ่
ผศ.ดร.จุฑามาศ	วิศาลสิงห์	มหาวิทยาลัยหาดใหญ่
ผศ.ดร.เธียรชัย	พันธ์คง	มหาวิทยาลัยหาดใหญ่
ผศ.ดร.นวรัตน์	ไวชมภู	มหาวิทยาลัยหาดใหญ่
ผศ.ดร.พล	เหลืองรังษี	มหาวิทยาลัยหาดใหญ่
ผศ.ดร.วรลักษณ์	ลลิตศศิวิมล	มหาวิทยาลัยหาดใหญ่
ผศ.ดร.วิทวัส	ดิษยะศริน สัตยารักษ์	มหาวิทยาลัยหาดใหญ่
ผศ.ดร.วิวัฒน์	จันทร์กิ่งทอง	มหาวิทยาลัยหาดใหญ่

ผศ.เจริญเนตร	แสงดวงแข	มหาวิทยาลัยหาดใหญ่
ผศ.นิติยา	ศรีพูล	มหาวิทยาลัยหาดใหญ่
ผศ.พิชญา	สุวรรณโน	มหาวิทยาลัยหาดใหญ่
ผศ.วรา	บุญพันธ์	มหาวิทยาลัยหาดใหญ่
ดร.อริสรา	บุญรัตน์	มหาวิทยาลัยหาดใหญ่

ผู้ทรงคุณวุฒิประจำห้องประชุมย่อย

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ระดับชาติ

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กลุ่ม 1 มนุษยศาสตร์

ประธาน:	รองศาสตราจารย์ทัศนีย์ ประธาน
รองประธาน:	ผู้ช่วยศาสตราจารย์นิติยา ศรีพูล
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กลุ่ม 2 สังคมศาสตร์

ประธาน:	รองศาสตราจารย์ ดร.ธนวิทย์ บุตรอุดม
รองประธาน:	รองศาสตราจารย์เทพกร พิทยาภินันท์
เลขานุการ:	อาจารย์คารม บัวผัน

กลุ่ม 3 การศึกษา (1)

ประธาน:	รองศาสตราจารย์ ดร.มณฑา จำปาเหลือง
รองประธาน:	ดร.อุบลรัตน์ ศรีวิเชียรอำไพ
เลขานุการ:	อาจารย์มัรวรรณ นาแว

กลุ่ม 4 การศึกษา (2)

ประธาน:	ดร.ชุติมา ทัศโร
รองประธาน:	ผู้ช่วยศาสตราจารย์พิชญา สุวรรณโน
เลขานุการ:	อาจารย์ลินินล์ มนตรี

กลุ่ม 5 การศึกษา (3)

ประธาน:	รองศาสตราจารย์มนตรี มีเนียม
รองประธาน:	ดร.ศัจนันท์ แก้วงศ์ศรี
เลขานุการ:	อาจารย์เครือวัลย์ ทองหนูนุ้ย

กลุ่ม 6 บริหารธุรกิจและการท่องเที่ยว

ประธาน:	ผู้ช่วยศาสตราจารย์ ดร.เธียรชัย พันธ์คง
รองประธาน:	ดร.จักรเกียรติ์ เมธานัย
เลขานุการ:	อาจารย์ศุภลักษณ์ กาสาวพัฒร์

กลุ่ม 7 วิทยาศาสตร์และเทคโนโลยี

ประธาน:	ผู้ช่วยศาสตราจารย์ ดร.สุทธิสา ยาอีด
รองประธาน:	ดร.สิทธิกร แซ่หล่อ
เลขานุการ:	อ.สันทัด พรหมแท่น

Onsite

กลุ่ม 1 สังคมศาสตร์ (1)

ประธาน: ดร.นิวัตน์ สวัสดิ์แก้ว
รองประธาน: ผู้ช่วยศาสตราจารย์ ดร.วิสุทธิณี ธานีรัตน์
เลขานุการ: อาจารย์พิทยาภรณ์ พัฒโน

กลุ่ม 2 สังคมศาสตร์ (2)

ประธาน: รองศาสตราจารย์ ดร.บูฆอรี ยีหมะ
รองประธาน: ผู้ช่วยศาสตราจารย์ ดร.นุกูล ชิ้นฟัก
เลขานุการ: อาจารย์หมัดเฟาซี รูบามา

กลุ่ม 3 การศึกษา (1)

ประธาน: รองศาสตราจารย์ ดร.วัน เดชพิชัย
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เลขานุการ: อาจารย์พัชรินทร์ เสริมการดี

กลุ่ม 4 การศึกษา (2)

ประธาน: ผู้ช่วยศาสตราจารย์ ดร.นวรัตน์ ไวชมภู
รองประธาน: ดร.ชณัฐ พรหมศรี
เลขานุการ: อาจารย์กนกอร กุลถิรวงศ์

กลุ่ม 5 การศึกษา (3)

ประธาน: ผู้ช่วยศาสตราจารย์ ดร.ประภาศ ปานเจี้ยง
รองประธาน: ดร.สุมณฑา วงศ์งาม
เลขานุการ: อาจารย์ญดา บุญเลิศ

กลุ่ม 6 บริหารธุรกิจและการท่องเที่ยว

ประธาน: ผู้ช่วยศาสตราจารย์ ดร.วิวัฒน์ จันทร์กิ่งทอง
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เลขานุการ: นางสาวจิราพัชร ขอพรรณเลิศ

กลุ่ม 7 วิทยาศาสตร์และเทคโนโลยี

ประธาน: ผู้ช่วยศาสตราจารย์ ดร.อำนาจ เปาะทอง
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เลขานุการ: อาจารย์จักรกฤษณ์ หมั่นวิชา

กลุ่ม 8 วิทยาศาสตร์สุขภาพ

ประธาน: ผู้ช่วยศาสตราจารย์ ดร.ปุณยนุช รุธิรโก
รองประธาน: ดร.อนุกูล เกียรติขวัญบุตร
เลขานุการ: ดร.วรางคณา ณ พัทลุง

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So-058	เรื่อง	ผลกระทบทางเศรษฐกิจของนักท่องเที่ยวชาวจีนในประเทศไทย: การวิเคราะห์เชิงประจักษ์ด้วยตารางปัจจัยการผลิตและผลผลิตด้านการท่องเที่ยว *โดย* สุมณี ศุภกรโกศัย, ศุภเจตน์ จันทร์สาส์น, นิธิวดี จรรยาสวัสดิ์ และ ไห่หนิง หลี่	694 - 707
So-072	เรื่อง	การรีไซเคิลน้ำมันประกอบอาหารใช้แล้วจากครัวตลาดสู่การผลิตน้ำมันเชื้อเพลิงอากาศยานยั่งยืนภายใต้โมเดลเศรษฐกิจ BCG *โดย* เก็ตถวา บุญปราการ, เจตน์สฤษฎ์ สังขพันธ์, ไกรษร วงศ์พรัด, นันทรัฐ สุริโย และนันทิยารัตน์ สุริโย	708 - 721
So-075	เรื่อง	การออกแบบปรับปรุงภูมิทัศน์แหล่งเรียนรู้ แหล่งท่องเที่ยว ทางธรรมชาติและวัฒนธรรม ชุมชนเกาะใหญ่ อำเภอกระแสสินธุ์ จังหวัดสงขลา เพื่อส่งเสริมการท่องเที่ยว *โดย* ปิยาภรณ์ อรมุต, เสริมศักดิ์ สัญญาโณ และ เจนจิรา ขุนทอง	722 - 736
So-082	เรื่อง	กลยุทธ์ส่วนบุคคลและองค์กรในการเพิ่มพูนพลังกายและพลังใจเพื่อป้องกันภาวะหมดไฟในการทำงาน *โดย* อินทิรา อัศรภัชรกุล, นิศารัตน์ เสนขำ, ฮิลมีย์ ดาโหะ, ปกรณ์ ลิ้มโยธิน, นุกูล ชิ้นฟัก และ ปฏิพัฒน์ กิตติโชควัฒนา	737 - 750
So-083	เรื่อง	นวัตกรรมการสื่อสารเพื่อการเปลี่ยนแปลง: การสร้างชุมชนที่ยั่งยืนในยุคดิจิทัล *โดย* อีนัส หะยีด๊ะ, ศิศิรา กอเดร์, บัสซาม กาเต็มมะดี, ศิรเกียรติ ไชยชนะ, เจตน์สฤษฎ์ สังขพันธ์, นิวัตน์ สวัสดิ์แก้ว, ยรรยง คชรัตน์ และ เก็ตถวา บุญปราการ	751 - 761
So-092	เรื่อง	ปัจจัยที่ส่งผลต่อความรู้ทางการเกษตรของเกษตรกรผู้นำศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา *โดย* วรรณฤดี บุญรัศมี และ ปองพชร ธาราสุข	762 - 775
So-093	เรื่อง	การจัดการระบบสารสนเทศทางภูมิศาสตร์ สำหรับการพัฒนาเส้นทางการท่องเที่ยวชุมชนเชิงอาหารอย่างยั่งยืน กรณีศึกษา ตำบลท่าข้าม จังหวัดสงขลา *โดย* สุรวัช หมู่เก็ม	776 - 786
So-104	เรื่อง	ปัจจัยที่มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงจังหวัดสงขลา *โดย* อภิญญา แซ่ใช่ และ ปองพชร ธาราสุข	787 - 803

- กลุ่มการศึกษา

Ed-001	เรื่อง	การสังเคราะห์งานวิจัยเกี่ยวกับการปรับพฤติกรรมของเด็กที่มีภาวะออทิซึมสเปคตรัมระหว่างปี พ.ศ. 2557-2567 *โดย* คาลอส บุญสุภา และ ชนิดา มิตรานันท์	804 - 816
Ed-002	เรื่อง	ผลของโปรแกรมการเสริมสร้างสติต่อความสามารถทางปัญญาในการจัดการพฤติกรรมในเด็กวัยอนุบาล *โดย* สุวัฒณี เลิศคุณากรณ์ และ สุภสิรี จันทวรินทร์	817 - 831
Ed-004	เรื่อง	การพัฒนาแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ. 2562 ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู *โดย* สาโรช สอาดเอี่ยม, ธัญวลัย คงวุฒิ, ยูกิ ทาคาฮาชิ และ พิมพ์ทอง สังสุทธิพงศ์	832 - 844
Ed-007	เรื่อง	การพัฒนาแบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภาด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู *โดย* นฤมล สายะบุตร, เดช สาระจันทร์, อังษณีภรณ์ ศรีคำสุข และ พิมพ์ทอง สังสุทธิพงศ์	845 - 859
Ed-008	เรื่อง	การพัฒนาผลสัมฤทธิ์ทางการเรียนรายวิชาภาษาอังกฤษ เรื่องสภาพอากาศ โดยใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H นักเรียนระดับชั้นประถมศึกษาปีที่ 3 *โดย* ปภังกร หมัดตะทวี, อาภาภัทร ทองจินดา และ พล เหลืองรังษี	860 - 873
Ed-009	เรื่อง	รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการ และห้องเรียนกลับด้านเพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 *โดย* รสิกกานต์ สุขทรัพย์สร้าง, เมธี ดิสวัสดิ์ และ สุธาสินี บุญญาพิทักษ์	874 - 889
Ed-011	เรื่อง	การส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษาสถาบันการอาชีวศึกษาภาคกลาง 3 *โดย* กิจจา บานชื่น, ดวงตา อินทรนาค, แมน เชื้อบางแก้ว และ วรฑา ไชยาวรรณ	890 - 903
Ed-012	เรื่อง	การศึกษาคุณภาพของเอกสารเอกสารคำสอนวิชามนุษยสัมพันธ์ในองค์การ (17 - 4000 -1613) สำหรับ	904 - 911

		นักศึกษาเทคโนโลยีบัณฑิต วิทยาลัยเทคนิคสมุทรปราการ *โดย* กิจจา บานชื่น, ดวงตา อินทรนาค, ณรัณ ศรีวิหะ และ วรฑา ไชยาวรรณ	
Ed-013	เรื่อง	การพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) ตามแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล นักเรียนชั้นประถม ศึกษาปีที่ 1 *โดย* ปิยะมาศ ทองวงศ์, เสาวภาคย์ ทิพย์สงคราม และ พล เหลืองรังษี	912 - 924
Ed-014	เรื่อง	การพัฒนาทักษะการอ่านภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 4 โดยใช้สื่อคำศัพท์พื้นฐาน *โดย* สุชาดา จิตถนอม, ชญาณ์นันท์ ศรีใหม, อังสุมาลี ชลธารสฤษฎ์, พล เหลืองรังษี และ เชษฎา ดำเกลี้ยง	925 - 938
Ed-016	เรื่อง	การพัฒนาชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 *โดย* ชญาภา ศรีรุจี, กาญจิรายุ์ บุญจันทร์, ศิวกร วิริยะบุญญาเกียรติ และ พล เหลืองรังษี	939 - 952
Ed-017	เรื่อง	การศึกษาผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษ เรื่อง สัตว์ โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) นักเรียนชั้นประถมศึกษาปีที่ 1 *โดย* ณัฐฐา จุลสานะ, จุฑามาศ ขวัญมี และ พล เหลืองรังษี	953 - 965
Ed-018	เรื่อง	การพัฒนาความสามารถการเล่นเปียโนโดยใช้สื่อมัลติมีเดีย นักเรียนชั้นอนุบาลปีที่ 3 *โดย* ณัฐพงษ์ เซ่งซ้าย, ชาญวิทย์ ผุดผ่อง และ พล เหลืองรังษี	966 - 976
Ed-022	เรื่อง	การพัฒนาแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 *โดย* ทักษพร ศรีจันทร์, ปิยธิดา นพรัตน์ และ พล เหลืองรังษี	977 - 991
Ed-025	เรื่อง	การสร้างสื่อเสริมประกอบการสอนที่มีรูปทรงนูนในวิชาสังคมศึกษา สำหรับผู้พิการทางสายตา กรณีศึกษา โรงเรียนสอนคนตาบอดธรรมสากล หาดใหญ่ *โดย* พลากร พันธุ์มณี	992 - 1001

Ed-027	เรื่อง	การพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม ด้วยเทคนิค STAD ร่วมกับเกมนักเรียนชั้นประถมศึกษา ศูนย์การเรียนรู้ระดับตำบลแหลมโพธิ์ *โดย* ฟ้าใส นิษร, ภัทรวดี เขียวจันทร์, พล เหลืองรังษี และ เชษฎา ดำเกลี้ยง	1002 - 1014
Ed-030	เรื่อง	แนวทางการส่งเสริมการจัดการเรียนรู้เชิงรุก โดยใช้หลักการนิเทศ 4 ร่วม ตามแนวทางศาสตร์พระราชาของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 *โดย* เรวดี เชาวนาสัย	1015 - 1029
Ed-031	เรื่อง	การพัฒนารูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียน ในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต *โดย* เรวดี เชาวนาสัย	1030 - 1043
Ed-032	เรื่อง	แนวปฏิบัติที่เป็นเลิศ ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 *โดย* เรวดี เชาวนาสัย, ชลกานต์ เหรัมพกุล และ ณัฐรียา หมัดอาดัม	1044 - 1056
Ed-033	เรื่อง	การพัฒนาผลสัมฤทธิ์ทางการเรียนการงานอาชีพ เรื่อง ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืชด้วยวิธีการจัดการเรียนรู้ผ่านการทำงาน นักเรียนชั้นมัธยมศึกษาปีที่ 4 โรงเรียนพะตงวิทยามูลนิธิ จังหวัดสงขลา *โดย* พรรณพัชร อรัญดร, กัญญภัทร ทิ้งน้ำรอบ, พล เหลืองรังษี, เชษฎา ดำเกลี้ยง	1057 - 1070
Ed-034	เรื่อง	การพัฒนาผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ เรื่อง การแก้โจทย์ปัญหาการคูณ โดยใช้เทคนิค KWDL นักเรียนชั้นประถมศึกษาปีที่ 3 โรงเรียนชาตรีวิทยา จังหวัดสงขลา *โดย* วราภรณ์ บำเพ็ญ, วัชรากร วัชรมานะกุล, นพวรรณ หนูทอง และ พล เหลืองรังษี	1071 - 1082
Ed-035	เรื่อง	การพัฒนาผลสัมฤทธิ์ทางการเรียนเรื่องการขายออนไลน์ โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติของนักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 สาขาวิชาการตลาด	1083 - 1094

		โดย สุธาทิพย์ อ่อนวัช, ธัญญลักษณ์ แซ่ลิ่ม และ พล เหลืองรังษี	
Ed-044	เรื่อง	การใช้เกมคำศัพท์เพื่อพัฒนาการเรียนรู้คำศัพท์เทคนิคทางจุลชีววิทยาของนักศึกษาระดับปริญญาตรี มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย วิทยาเขตนครศรีธรรมราช พื้นที่ทุ่งใหญ่ *โดย* ไพลิน บุญลิปตานนท์, วันวิสาข์ เพ็ชรรัตน์มุณี, อภิรดี โพธิพงศา และ อุไรวรรณ เพ็ชรกูล	1095 - 1107
Ed-050	เรื่อง	การพัฒนาทักษะการอ่านจับใจความสำคัญ ด้วยชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเทศบาล ๑ (สังขวิทย์) จังหวัดตรัง *โดย* อัจฉรา เทศขำ, รัชฎพร ในทอน, และ เสนีย์ ชอบงาม	1108 - 1117
Ed-054	เรื่อง	การพัฒนาสมรรถนะความเป็นครูตามมาตรฐานวิชาชีพครูโดยการจัดการเรียนรู้ตามหลักสูตรบูรณาการหลักปรัชญาของเศรษฐกิจพอเพียงของนักศึกษาสาขาการศึกษาปฐมวัย ชั้นปีที่ 4 คณะศึกษาศาสตร์ มหาวิทยาลัยราชธานี *โดย* สมร ทวีบุญ, ศันสนีย์ บุญเฉลียว, ศุภรดา วงษ์แก้ว และ วลีรัตน์ ฉิมน้อย	1118 - 1132
Ed-056	เรื่อง	ผลการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD ต่อความสามารถในการแก้ปัญหาและผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ฯ ภูเก็ต *โดย* ณัฐพล เชาว์ภัทรพล, อนุวัตร จิรวัฒนพาณิช และ อนุรักษ์ วีรประเสริฐสกุล	1133 - 1148
Ed-060	เรื่อง	การศึกษาผลสัมฤทธิ์ทางการเรียนและความสามารถในการแก้ปัญหาทางคณิตศาสตร์จากการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 โรงเรียนภูเก็ตวิทยาลัย *โดย* ฮัซซัน หลังปูเต๊ะ, อนุวัตร จิรวัฒนพาณิช และ กันตภน ชัยเสนา	1149 -1161
Ed-062	เรื่อง	ผลการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P ที่มีต่อทักษะการคิดสังเคราะห์ของเด็กปฐมวัย	1162 - 1172

		โดย นนทชนนปภพ ปาลินทร และ อำไพ สวัสดิราช	
Ed-063	เรื่อง	การวิจัยในชั้นเรียน: การพัฒนาทักษะการอ่านโน้ตระบบโดเคลื่อนที่ด้วยแบบฝึก Move Do Flow ของนิสิตกลุ่มเครื่องมือเอกขับร้อง ชั้นปีที่ 3 สาขาวิชาดุริยางคศาสตร์ คณะศิลปกรรมศาสตร์ มหาวิทยาลัยทักษิณ	1173 - 1187
		โดย สุภาพร ฉิมหนู	
Ed-067	เรื่อง	การศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์และผลสัมฤทธิ์ทางการเรียน ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ ภูเก็ต จังหวัดภูเก็ต ที่ได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E)	1188 - 1201
		โดย วรรณนิษา มรกต, อนุวัตร จิรวัฒนพาณิช และ อนุรักษ์ วีรประเสริฐสกุล	
Ed-068	เรื่อง	การพัฒนาผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน โดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบฝึกทักษะ สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 3 โรงเรียนหาดใหญ่วิทยาลัย ๒ จังหวัดสงขลา	1202 - 1214
		โดย ศิรญา เต็มรัตน์, ศรีสุดา หนูชัยแก้ว และ เสงี่ยม บุบผะโก	
Ed-078	เรื่อง	การศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์และผลสัมฤทธิ์ทางการศึกษาเรื่อง ร้อยละ โดยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) ของนักเรียนชั้นประถมศึกษาปีที่ 5 โรงเรียน อบจ. บ้านนาบอน	1215 - 1224
		โดย สุดารัตน์ ดังเด็น, อนุวัตร จิรวัฒนพาณิช และ ภานุพงศ์ อิ่งสืบเชื้อ	
Ed-080	เรื่อง	การพัฒนาความสามารถในการแก้ปัญหาทางคณิตศาสตร์และผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 5 ตามกรอบแนวคิดของโพลยา โดยการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน	1225 - 1235
		โดย ฮุสนา เจะนิ และ กันตภน ชัยเสนา	
Ed-086	เรื่อง	การพัฒนาแบบฝึกทักษะ “วังพญาพาเพลิน” โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ของนักเรียนชั้นประถมศึกษาปีที่ 4	1236 - 1252

		โดย อามานี จะปะกียา, สมิทธ์ชาต์ พุมมา และ วิทวัฒน์ ขัตติยะมาน	
Ed-087	เรื่อง	การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” เพื่อพัฒนาทักษะการอ่านและการเขียนของนักเรียนชั้นประถมศึกษาปีที่ 5 *โดย* ศศินิภา รัฐภูมิภักดิ์, สมิทธ์ชาต์ พุมมา และ นพเก้า ณ พัทลุง	1253 - 1266
Ed-088	เรื่อง	แรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 *โดย* อดิพงศ์ บาสะนุง และ นวรัตน์ ไวชมภู	1267 - 1284
Ed-095	เรื่อง	การพัฒนาทักษะการอ่านและการเขียนคำภาษาไทยโดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา *โดย* เสาวรัตน์ แซ่เฮ่า, วิชุนา สัตยารักษ์, ฐานันท์ ตั้งรุจิกุล และ วิภาวี มณีเนตร	1285 - 1297
Ed-103	เรื่อง	การสร้างหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด เพื่อพัฒนาทักษะการอ่านจับใจความสำคัญของนักเรียนชั้นมัธยมศึกษาปีที่ 3 *โดย* จิราทิพย์ ไชยนวล, ปรียารัตน์ เชาวลิตประพันธ์ และ วิทวัฒน์ ขัตติยะมาน	1298 - 1313
Ed-105	เรื่อง	การสร้างหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” เพื่อพัฒนาความสามารถในการอ่านจับใจความด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H สำหรับนักเรียนระดับชั้นประถมศึกษาปีที่ 6 *โดย* เฉลิมขวัญ ทองสุก, พัชลินจ์ จีนนุ่น และ วิทวัฒน์ ขัตติยะมาน	1314 - 1333
Ed-106	เรื่อง	การพัฒนาชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 *โดย* นัซมา เจะมิง และ ฟูไดละห์ ดือมอง	1334 - 1349
Ed-107	เรื่อง	สมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่	1350 - 1364

		โดย สุพรรณี หมาดยุโส๊ะ, พรเพ็ญ อำนวยกิจ, เจนณรงค์ พินลานทุ่ม, เชษฎา ดำเกลี้ยง และ จิตรพงษ์ เจริญจิตร	
- กลุ่มบริหารธุรกิจและการท่องเที่ยว			
Bu-010	เรื่อง	การพัฒนาต้นแบบพาณิชย์อิเล็กทรอนิกส์ของร้านค้าชุมชนบ้านพรุ อำเภอหาดใหญ่ จังหวัดสงขลา *โดย* วรรณิดา ไชยการณ์, วีนา หาญณรงค์, จิตรพงษ์ เจริญจิตร, ภานุพงศ์ สงศรีเกตุ และ อภิชญา เกื้อกูล	1365 - 1376
Bu-015	เรื่อง	การฟื้นฟูอนุรักษ์ภูมิปัญญางานจักสานย่านลิเภาบ้านม้าเงย ตำบลป่าชิง อำเภอจะนะ จังหวัดสงขลา *โดย* ดวงฤดี อุทัยหอม, กรกมล ซุ้นสุวรรณ, สิริกาญจน์ สีดำ, เอกชัย แซ่พุ่น, กุลธิรา แซ่โซว และ จุฑามาศ พรหมมนตรี	1377 - 1389
Bu-020	เรื่อง	แนวทางการพัฒนาการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลา: กรณีศึกษาหลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง *โดย* นธี เหมมันต์ และ ชญาน์ทัต เอี่ยวเรืองสุรัติ	1390 - 1406
Bu-021	เรื่อง	กลยุทธ์เพื่อการส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา *โดย* ชญาน์ทัต เอี่ยวเรืองสุรัติ และ นธี เหมมันต์	1407 - 1419
Bu-028	เรื่อง	การศึกษาปัจจัยที่ส่งผลต่อสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏนครศรีธรรมราช *โดย* ชลธิชา เจยุภักดิ์, ธันยพร ศรีบุษย์, กุลวดี จันทร์วิเชียร และ เตชิตา สุทธิรักษ์	1420 - 1434
Bu-052	เรื่อง	คุณภาพการให้บริการตามความคิดเห็นของผู้ใช้บริการการไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี *โดย* อารีวรรณ สีชุม, ทัศนียา บัวเพ็ชร, กรีฑารัตน์ พริกบางงอน, ประกายดาว สวัสดิพันธ์ และ ศิริวรรณ ธรรมโรง	1435 - 1450
Bu-079	เรื่อง	แรงจูงใจในการทำงานที่ส่งผลต่อความภาคภูมิใจในตนเองของผู้สูงอายุ ในชุมชนธารโต จังหวัดยะลา ประเทศไทย *โดย* ชัยนันท์ ปัญญาวุทโส, สุชาดา ศรีเชื้อ และ ชวนพิศ เจยาคม	1451 - 1466
Bu-085	เรื่อง	ปัจจัยที่มีอิทธิพลต่อการตัดสินใจเลือกซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ของนักศึกษามหาวิทยาลัยหาดใหญ่	1467 - 1480

		โดย จักรเกียรติ์ เมธานัย, ฟาริดา ซาซา, ธนพงษ์ วุ่นแสง, จิตรลดา พันธุ์พณาสกุล, ฐิติกานต์ ศิริจันทร์, นูรมี โละมะ, ดียานา วาโต, บุษรา เร๊ะเบ็ญหมุด และ นภัสวรรณ ธนอภิรดี	
Bu-096	เรื่อง	ความสัมพันธ์ระหว่างปัจจัยส่วนบุคคลของผู้ใช้บริการกับคุณภาพการให้บริการร้านแบล็ค แคนยอนสถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี *โดย* วรรณ์เพ็ญ มะลิงาม, สวรินทร์ เอียลอด และ นรารัตน์ เกื้อทอง	1481 - 1491
Bu-098	เรื่อง	การพัฒนาแผนการตลาดธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพของวิสาหกิจชุมชนตะวันฉาย จังหวัดระยอง ด้วยกระบวนการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม *โดย* ณชภัทร พิชญมหุตม์, ปิ่นฑ์ปรากรม เวียงจันทร์, สรารัตน์ ปกป้อง, สุประวีณ์ คำประสิทธิ์, สิทธิชัย ท่านมุข, ชิชญา แผ้วพลสง และ รสริน สลาลัย	1492 - 1508
Bu-099	เรื่อง	ปัจจัยส่วนประสมทางการตลาดที่มีผลต่อการตัดสินใจซื้ออิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชนในตำบลหนองตะพาน อำเภอบ้านค่าย จังหวัดระยอง *โดย* ณชภัทร พิชญมหุตม์, ปิ่นฑ์ปรากรม เวียงจันทร์ และ สรารัตน์ ปกป้อง	1509 - 1522
- กลุ่มวิทยาศาสตร์			
ScH-026	เรื่อง	ปัจจัยที่มีอิทธิพลต่อความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพและพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุในจังหวัดนครศรีธรรมราช *โดย* นพมาศ โกศล และ หทัยรัตน์ ตัลยารักษ์	1523 - 1538
ScH-038	เรื่อง	ความสัมพันธ์ระหว่างปัจจัยการทำงาน ภาวะสุขภาพกับคุณภาพการนอนของผู้สูงอายุที่ทำสวนยางพาราในอำเภอทุ่งสง จังหวัดนครศรีธรรมราช *โดย* วรัญญา ปานเมือง, สุคนธา ศิริ, สันต์ สุวรรณมณี และ จิราลักษณ์ นนทารักษ์	1539 - 1554
ScH-039	เรื่อง	พฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา สาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่ *โดย* ขนิษฐา ยอดไทร, ยัสมี สาแม็ง, รุสมาลีน สอหมาน, อามีเนาะ ตาสา และ อดิศักดิ์ หวานใจ	1555 - 1571

ScH-064	เรื่อง	ความสัมพันธ์ระหว่างปัจจัยเสี่ยงที่มีผลต่อพฤติกรรมการใช้บุหรี่ไฟฟ้าของนักศึกษาชั้นปีที่ 3 คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยหาดใหญ่ *โดย* สิทธิกร แซ่หล่อ, ซูบารีย๊ะ มอลอ, ซารีนา ดือราแม, พรรธน์ชญมน เกตุรุ่ง และ อัถพงศ์ ปิ่นทองพันธ์	1572 - 1586
ScH-071	เรื่อง	การนำแนวทางการบริหารคุณภาพเชิงความเสี่ยงมาใช้ผ่านการบูรณาการ Sigma Metrics และการวางแผนการควบคุมคุณภาพในห้องปฏิบัติการเคมีคลินิก: การศึกษาย้อนหลัง *โดย* ณัฐธิดา ผิวจันทร์ และ ธารารัตน์ ขาวเขียว	1587 - 1603
ScH-074	เรื่อง	ความรู้และปัจจัยที่เกี่ยวข้องกับประสบการณ์การตรวจคัดกรองรอยโรคมะเร็งช่องปากของทันตแพทย์ไทยที่จบมาแล้วไม่เกิน 5 ปี *โดย* นรภัทร์ รอบรู้, หัชชา ศรีปลั่ง และ ดวงพร เกิดผล	1604 - 1619
ScH-081	เรื่อง	ผลของยาพอกสมุนไพรลดอาการปวดเข่าในผู้สูงอายุ หมู่บ้านคลองนุ้ย ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา *โดย* พรรธน์ชญมน เกตุรุ่ง, ฟาดีละฮ์ ดอเลาะ, นิอัสมาอ์ มูดี, ลุกมาน สือรี, อัถพงศ์ ปิ่นทองพันธ์ และ สิทธิกร แซ่หล่อ	1620 - 1629
ScH-091	เรื่อง	การพัฒนารูปแบบกิจกรรมเพื่อส่งเสริมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อมโดยกระบวนการวินิจฉัยชุมชนอย่างมีส่วนร่วมของนักศึกษาอนุปริญญา สาขาวิชาสาธารณสุขชุมชน วิทยาลัยชุมชนสงขลา กรณีศึกษา หมู่ 6 ตำบลทุ่งหวัง อำเภอเมือง จังหวัดสงขลา *โดย* สุธิชา ราชพงศ์, นูรัยดา เพ็งเจ, ซัลวาณี อุเหยะ, ณัฏฐณิชา วรรณมณี และ กฤษณวรรณ เสวีพงศ์	1630 - 1647
ScH-097	เรื่อง	การประเมินความเสี่ยงจากการทำงานโรงพักขยะอันตราย: กรณีศึกษาโรงพยาบาลเทพา ตำบลเทพา จังหวัดสงขลา *โดย* สุทธิสา ยาอีด, นัสริน ฮาเบ, นุรอัสมะห์ ปูละ, นิฮาฟีซัน เจ๊ะยูโซ๊ะ, จิตรพงษ์ เจริญจิตร, ธีรภัทร์ ตันกุลโรจน์ และ ธิวาริ โอภิธากร	1648 - 1660
ScH-102	เรื่อง	การดื้อต่อเทมีฟอสของลูกน้ำยุงลายบ้าน (Aedes aegypti) จากพื้นที่จังหวัดสระบุรีระหว่างการรายงานผู้ป่วยไข้เลือดออก	1661 - 1673

		โดย ธนรัตน์ ชีวเรืองโรจน์, ทวี สายวิชัย, วนฤทธิ์ จิตสมัย, ธันวดี คล่องแคล่ว, ธนวัฒน์ ชัยพงศ์พัชรา และ เศรษฐพงศ์ เหล่าจันทร์	
ScT-006	เรื่อง	การพยากรณ์จำนวนคดีอุบัติเหตุจราจรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต โดยใช้เทคนิคการปรับให้เรียบ *โดย* รจนา อ่าวน้ำ, วิมลณัฐ สุขพล และ ประไพพิมพ์ สุรเชษฐคมสัน	1674 - 1686
ScT-041	เรื่อง	กรณีศึกษาความคลาดเคลื่อนของเครื่องมือวัดอัตราการไหลแบบกังหันของก๊าซธรรมชาติในสถานีส่งจ่ายก๊าซธรรมชาติ *โดย* ภานุพงศ์ ศิริวัน และ มาลี สันติคุณาภรณ์	1687 - 1698
ScT-042	เรื่อง	การจำลองกระบวนการผลิตไบโอดีเซลและไฮโดรเจนโดยใช้น้ำเสียจากการสกัดน้ำมันปาล์มในประเทศไทย *โดย* กมลวรรณ แนวอินทร์, วีรชัย อัศวเมธาพันธ์ และ วรณี มังคละศิริ	1699 - 1714
ScT-043	เรื่อง	การศึกษาการทดสอบความแม่นยำของระบบตรวจวัดมลพิษแบบอัตโนมัติด้วยมาตรฐานอเมริกาและอังกฤษ: กรณีศึกษาโรงไฟฟ้า *โดย* ประเสริฐ สุระขันธ์, วีรชัย อัศวเมธาพันธ์ และ วรณี มังคละศิริ	1715 - 1730
ScT-046	เรื่อง	ประสิทธิภาพของการสร้างอนุมูลอิสระของออกซิเจน (ROS) ด้วยฟองโอโซน *โดย* วิเชียร ศิริพรม, อภิรดี ยิ่งประยูร และ อรรถพล เชยศุภเกตุ	1731 - 1740
ScT-047	เรื่อง	การเปรียบเทียบประสิทธิภาพของแบบจำลอง ARIMA และ Facebook Prophet ในการวิเคราะห์อนุกรมเวลาเพื่อการพยากรณ์ปริมาณการใช้ไฟฟ้าภาคครัวเรือนในประเทศไทย *โดย* พงศ์พัฒน์ ฉายศิริพันธ์, ณรงค์ฤทธิ์ สุคนธสิงห์, อรรณพ กางกั้น และ ศรัญธร มั่งมี	1741 - 1753
ScT-049	เรื่อง	การเปรียบเทียบประสิทธิภาพของโมเดลพยากรณ์ปริมาณฝุ่น PM2.5 ในกรุงเทพมหานคร ระหว่าง SARIMA และ XGBoost *โดย* ศรัญธร มั่งมี, และ พงศ์พัฒน์ ฉายศิริพันธ์	1754 - 1768
ScT-053	เรื่อง	การสังเคราะห์น้ำมันชีวภาพจากกากกาแฟและกากชาร่วมกับน้ำมันเครื่องเก่าด้วยกระบวนการไพโรไลซิสที่ใช้เปลือกไข่เป็นตัวเร่งปฏิกิริยา	1769 – 1784

		โดย ธเนษฐ เคหาบาล และ มาลี สันติคุณาภรณ์	
ScT-059	เรื่อง	การพัฒนาระบบม่านพรางแสงด้วยเทคโนโลยีอินเทอร์เน็ตของสรรพสิ่ง สำหรับโรงเรือนเพาะปลูก *โดย* จิตรพงษ์ เจริญจิตร, เจริญ รุ่งกลิ่น, จักรกฤษณ์ หมั่นวิชา, นาตยา โชติกุล, ฐานันท์ ตั้งรุจิกุล, พยุหพล รัตนพงศ์สงวน, ธัชตะวัน ชนะกูล และ สุพรรณี หมาดยุโส๊ะ	1785 - 1801
ScT-061	เรื่อง	การศึกษาเปรียบเทียบแบบจำลองโครงข่ายปฏิปักษ์เชิงกำเนิดในการสร้างภาพความละเอียดสูงเพื่อการตรวจจับวัตถุขนาดเล็ก *โดย* ภัทรชนน สกุลคู และ อัครินทร์ ไพบูลย์พานิช	1802 - 1816
ScT-069	เรื่อง	การโคลนยีนและศึกษาคุณลักษณะของยีน tolQ และ motA จากแบคทีเรีย Zymomonas mobilis *โดย* ธนวัตน์ เตื่อประโคน, ปรีย์กมล กลั่นฤทธิ์, สุดารัตน์ ถนนแก้ว และ พรเทพ ถนนแก้ว	1817 - 1827
ScT-070	เรื่อง	การผลิตสารบีตาแซนทินจากเซลล์แขวนลอยของต้นสร้อยไก่ และการประเมินฤทธิ์ต้านอนุมูลอิสระ *โดย* บัณฑิตา สร้อยสระน้อย, ฐาปกรณ์ แสงอรุณ และ ปรีย์กมล กลั่นฤทธิ์	1828 - 1841
ScT-084	เรื่อง	การพัฒนาวิธีการประมาณการกักเก็บคาร์บอนของป่าเต็งรังด้วยอากาศยานไร้คนขับและการเรียนรู้ของเครื่อง *โดย* ธีรวงศ์ เหล่าสุวรรณ, สาธิต แสงประดิษฐ์, ทินกร อังคะฮาด, นฤเศรษฐ์ ประเสริฐศรี, ธนัทเดช โรจนกุศล, จุมพล อิสระวิสุทธิ์ และ พัชรินทร์ เสริมการดี	1842 - 1857
ScT-090	เรื่อง	การพัฒนาระบบต้นแบบการตรวจจับ และแจ้งเตือนการสูบบุหรี่ กรณีศึกษา ม. หาดใหญ่ *โดย* เจริญ รุ่งกลิ่น, จิตรพงษ์ เจริญจิตร และ จักรกฤษณ์ หมั่นวิชา	1858 - 1872







(ระดับนานาชาติ)

Education Group

Effects of Storytelling on EFL Young Learners' Vocabulary Knowledge and Learning Motivation: A Case Study in Thailand

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Abstract

This paper focuses on exploring the effects of storytelling on EFL young learners' vocabulary knowledge and their learning motivation. The study participants comprised 40 fifth-grade students at a primary school under Bangkok Metropolitan Administration (BMA), in Bangkok, Thailand, who were recruited to participate in the study by means of a purposive sampling method. Three research instruments consisted of storybooks, a vocabulary knowledge test, and the Attitude/Motivation Test Battery. Ten storybooks were used as a treatment via the storytelling technique given to the participants. A vocabulary knowledge test was utilized to measure the participants' vocabulary knowledge, and the Attitude/Motivation Test Battery was employed to reveal the participants' attitude/motivation after learning through the technique. A t-test was used to analyze the data gained before and after the participants received the treatment. The findings significantly show the impacts of the storytelling method on both students' English vocabulary knowledge and learning motivation. The results obtained will be a guideline for language teachers at a primary level on how storytelling can be integrated into an English language class of EFL young learners to boost the students' language progress.

Keywords: Storytelling, Vocabulary Knowledge, Motivation, EFL Young Learners, Bangkok Metropolitan Administration (BMA)

Introduction

Storytelling refers to a process which helps the narrator convey his or her content to the audience by using both linguistic and imagery means (McDrury & Alterio, 2003). Storytelling has been known as one of the most traditional forms of communication, and it has been used in several domains such as in the field of entertainment, culture, and education (Lucarevschi, 2016). In the realm of language teaching, at various educational levels, including a primary level, storytelling can be considered as an academic tool to bring about learners' language improvement (Isbell et

al., 2004) in many aspects such as reading abilities and vocabulary knowledge. Besides its pedagogical implications, storytelling can be counted as a motivation instrument to encourage learners' academic motivation in the participation in their language learning process.

Several scholars state that storytelling is a technique which helps expand language learners' vocabulary knowledge. That is, the method gives learners an opportunity to acquire and practice innovative words while they are listening to the stories (Stachurska, 2013). According to Mart (2012), learners' listening combined with the narrator and the learners' physical activities occurring in the storytelling activity can cause learners' inspiration in learning new vocabulary. Apart from that, learners' feelings and emotion stimulated when they are listening to the story have a strong impact on the process of their vocabulary learning (Eck, 2006). That is why language learners can broaden their lexicon through the storytelling method.

Such an influence of storytelling on young learners' vocabulary knowledge can be seen in related previous literature. For instance, Trostle and Hicks (1998) found that the 7–11-year-old students in the experimental group learning through the storytelling method had significantly higher scores on measures of story comprehension and vocabulary than those in the control group. In the same way, the findings are in line with those gained from a study undertaken by Özdemir (2015) in primary school in Türkiye. To be specific, the 8th-grade students in the experimental group learning through the storytelling technique achieved significantly higher scores in the immediate recall, the recognition tests, and the delayed-recall than those in the control group learning those same words through the current implemented English curriculum. Similarly, findings from a research study conducted by Huang (2006) show that the storytelling method could enhance Taiwanese sixth grade students' word recall and reading comprehension.

In addition to its impact on vocabulary knowledge, researchers discovered an effect of storytelling on primary school students' motivation. To illustrate, listening directs learners' attention via fun activities and formal learning (Shin & Crandall, 2014). This leads to learners' understanding and engagement in the message delivered. Also, as Wajnryb (2003) elaborated, the message and its meaning conveyed through the storytelling technique are a powerful tool to help involve language learners in the language learning process, and this eventually helps enhance the abilities of learners in that foreign language.

Literature in the past reveals the importance of storytelling in increasing language learners' motivation, one of the key psychological constructs in English instruction, referring to a factor that makes learners willingly allocate their time to a certain academic task (Filgona et al., 2020) which involves both subjective expectations as well

as incentive values (anticipated consequences such as reactions of significant others, and interest in activity) (Schrader & Helmke, 2015). Liu et al. (2018) found that the digital storytelling method could boost Taiwanese sixth-grade students' motivation, particularly their extrinsic goal orientation and elaboration. Based on what Alemi et al. (2022) discovered, an impact of digital storytelling on young EFL learners' motivation can be clearly seen. To sum up, the literature review mentioned above helps demonstrate how the storytelling method plays an important part in increasing young learners' learning motivation in a foreign language setting.

Owing to the benefits of storytelling, the technique has been applied in English language classes for various groups of students, including young learners who have coped with challenges in learning English vocabulary as can be seen in several research studies. For instance, Rosyada and Apoko (2023) found that Indonesean young learners encountered difficulties within learning English vocabulary in terms of the pronunciation of new vocabulary, accurate spelling, usage of word meanings, and retention or memorization of innovative words. Similarly, Surmanov and Azimova (2020) revealed that young learners in Uzbekistan faced problems in learning vocabulary. The challenges were pronouncing words, different grammatical forms of innovative words, selecting proper meaning of words, using words in different contexts, and understanding words which are idiomatic.

Despite the empirical evidence on the role of storytelling in young learners' vocabulary knowledge as well as on their learning motivation, findings from research studies on the effects of the approach on both two mentioned factors can be rarely seen. To help shed some light on it, the present study was undertaken to find out whether the storytelling technique could develop vocabulary knowledge and learning motivation of young learners at a primary level in Thailand.

Objectives

1. To examine the effect of storytelling on vocabulary knowledge of EFL young learners at a primary school under Bangkok Metropolitan Administration (BMA).
2. To explore the effect of storytelling on learning motivation of EFL young learners at a primary school under Bangkok Metropolitan Administration (BMA).

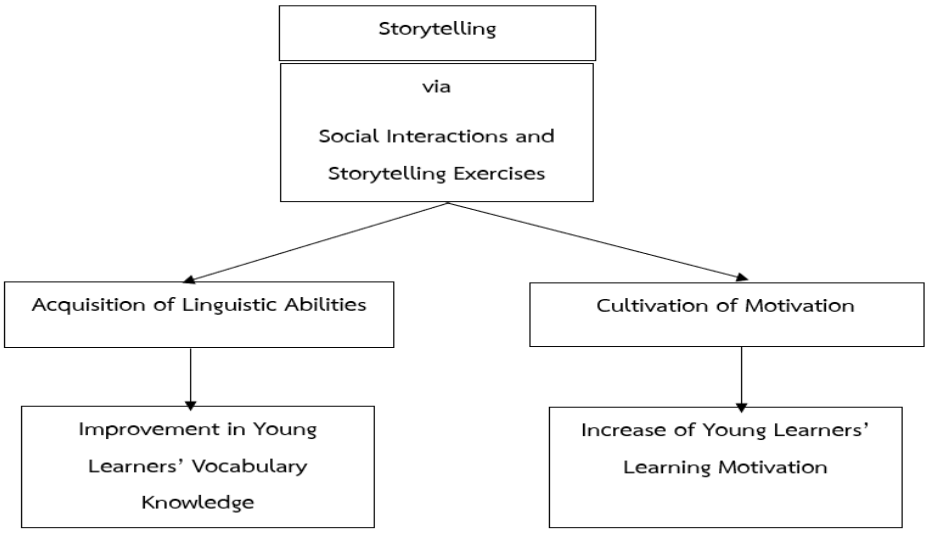
Hypotheses

H1: The post-test meant score of vocabulary knowledge of EFL young learners at a primary school under Bangkok Metropolitan Administration (BMA) was higher than the pre-test mean score of vocabulary knowledge of EFL young learners at a primary school under Bangkok Metropolitan Administration (BMA).

H2: The post-test mean score of learning motivation of EFL young learners at a

primary school under Bangkok Metropolitan Administration (BMA) was higher than the pre-test mean score of learning motivation of EFL young learners at a primary school under Bangkok Metropolitan Administration (BMA).

Concept theory framework



The figure shows the concept theory framework of the study. That is, the storytelling method, which was implemented via social interactions between the narrator of the story (the teacher) and the actor in the roleplay (the students) as well as the audience (the students), was the highlight of the present study. Based on the theories/principles on acquisition of linguistic abilities and cultivation of motivation, the students' vocabulary knowledge and learning motivation were anticipated to significantly increase after the students had learned through the ten lessons.

Methodology

This study was an experimental study which was implemented in a Thai context. It aims to investigate the effects of storytelling on EFL young learners' vocabulary knowledge and learning motivation.

Participants

This research was conducted among 40 fifth-grade students at a primary school in Bangkok, Thailand. The group of participants was an intact group of the study, and it was obtained to participate in this research by using a purposive sampling method. The participants contained both male and female students, and they were at the age ranging from 10 to 11 years old. Their proficiency of English language could be considered as that of a beginners' level.

Instrumentation

Three instruments were used to gain data, namely, stories, a vocabulary knowledge test, and the Attitude/Motivation Test Battery (AMTB).

The first research instrument was ten storybooks which were selected based on the level of the students' English language proficiency, and the themes of the stories chosen were like those of the units included in their course book. Specifically, the themes of the stories concerned general themes such as colors, fruits, food, animals, and hobbies.

The second tool was a vocabulary knowledge test containing 30 items. It was developed by researchers and used as both a pre- and a post-test to assess the participants' vocabulary knowledge which they learned from the ten storybooks.

The third instrument was a questionnaire called the Attitude/Motivation Test Battery (AMTB) that was employed to measure the primary motivational level of the learners. The original version of AMTB was created by Gardner (1958) and revised by Gardner and Lambert (1972) later. The questionnaire was adapted to suit the age of the participants and the context of study. The modified version comprised 39 items which consist of five content areas: 'Interest in Foreign Languages' (9 items), 'Attitudes toward learning English' (10), 'English Class Anxiety' (5 items), 'Motivational Intensity' (9 items), and 'Desire to Learn English' (6 items).

Data Collection and Data Analysis

The data were collected in the second semester of Academic Year 2022. As for the storytelling lesson, each of the ten stories, which was used in the ten-week treatment, was read by the teacher, who was one of the researchers, and then the meanings of the new vocabulary chosen were taught. After that, some grammatical points are explained in the context of the story. The students received subsequent practice to ensure the students' thorough understanding toward the key vocabulary. Next, the story was narrated by the teacher while the students were acting out the story. During this step, comprehension questions were asked to confirm the students' understanding of the story. In the last step, the students were asked to collaborate with their partner to retell the story to the whole class. Besides, a vocabulary knowledge test and the AMTB in a hardcopy version were distributed to the students before and after learning through the lessons to measure their vocabulary knowledge and learning motivation. Descriptive statistics, namely, mean score and standard deviation, were used to show available information in the dataset (Bobbit, 2023) and to portray how far from the mean score the average participant is (Andrade, 2020), respectively. Also, inferential statistics, a t-test, was employed to reveal whether there was an effect of the storytelling technique on the participants' vocabulary knowledge and learning motivation.

Results

Table 1: Pre- and post-test of a vocabulary knowledge test

	Mean (n = 40)	*SD*	*Mean Differences*	*t*	*df*	*Sig (2-tailed)*
Pre-test	16	4.3677	8	0.0592	39	.005**
Post-test	24	2.7872				

***p < 0.05*

Table 1 shows the students' pre-, and post-test mean score for the vocabulary test before and after the treatment. The post-test mean score (X = 24) was higher than the pre-test means score (X = 18) with the statistical significance (t (39) = 0.0592 p < 0.05). Besides, the standard deviation of the pre-test mean score was 4.3677, and that of the post-test mean score was 2.7872. This suggests that there was a smaller dispersion of the scores around the mean in a distribution after learning through the treatment. Consequently, it can be said that the storytelling method influenced the students' vocabulary knowledge.

Table 2: Pre- and post-test of an AMTB

	Mean (n = 40)	*SD*	*Mean Differences*	*t*	*df*	*Sig (2-tailed)*
Pre-test	25	0.6824	11	0.1052	39	.005**
Post-test	36	0.4938				

***p < 0.05*

According to Table 2, the students' mean score for the AMTB before and after learning through the lesson. The mean score of the students' learning motivation after the treatment (X = 36) was significantly higher than the mean score of the students' learning motivation before the treatment (X = 25) with the statistical significance (t (39) = 0.1052 p < 0.05). Apart from that, the standard deviation of the pre-test mean score of the participants' learning motivation was 0.6824, and that of the post-test mean score of the participants' learning motivation was 0.4938. This shows a smaller dispersion of the scores around the mean in a distribution of the students' learning motivation after learning through the treatment. Hence, the storytelling method had an impact on the students' learning motivation.

Conclusions and Discussion

Conclusions

The current research places an emphasis on examining the impacts of storytelling on EFL young learners' vocabulary knowledge and learning motivation. With evident statistical proof, it was confirmed that storytelling had an influence on the participants' vocabulary knowledge and learning motivation. This helps demonstrate the role of the storytelling method on young learners' cognitive and affective advancement in the field English language teaching. The findings can shed some light on the application of the technique in an English language classroom, which is beneficial for English language teachers and course developers in other educational contexts.

Discussion and Implications of the Study

Discussion of the Study

First, based on the findings from the present research, storytelling influenced EFL young learners' vocabulary knowledge. This indicates an influence of the storytelling method on young learners' English vocabulary knowledge, and it in accordance with what a number of scholars have stated. To be precise, Mart (2021) explains that storytelling activities can cause learners' inspiration in learning new vocabulary while they are listening to the story and experiencing their own physical activities such as acting out. Moreover, the method can strengthen learners' process of their vocabulary learning (Eck, 2006). The finding gained corresponds with that found from other research studies. Trostle and Hicks (1998) revealed that the 7–11-year-old students in the experimental group learning through storytelling achieved significantly better scores in story comprehension and vocabulary when compared with students in the control group. Similarly, Özdemir (2015) asserted that the 8th-grade students in the experimental group learning through the storytelling method attained significantly higher scores in the three vocabulary tests, namely, the immediate recall, the recognition tests, and the delayed-recall, than the students in the control group learning the similar words through the normal English curriculum. The findings of the studies mentioned above are consistent with that disclosed from another research. Huang (2006) discovered that storytelling could enhance Taiwanese sixth grade students' word recall as well as their reading comprehension.

Besides, another finding from the current study shows that storytelling influenced EFL young learners' learning motivation. This could be explained by the importance of storytelling on English learning motivation. Simply put, listening to a story can attract direct learners' attention by means of fun activities (Shin & Crandall, 2014). Such an experience can bring about learners' understanding and involvement in the message conveyed. Thus, the message students gained from listening to the story can be an

influential tool which assists them to be equipped with foreign language success. The findings from this research are in line with that could be seen from other related studies. For example, according to Liu et al. (2018), the digital storytelling method could increase Taiwanese sixth-grade students' motivation, especially, their extrinsic goal orientation and elaboration. Alemi et al. (2022) also reported on the influence of digital storytelling on young learners' motivation in an EFL setting.

With respect to the two main findings of this study, the storytelling method is advantageous in enhancing vocabulary knowledge and their learning motivation of young English language learners. In so doing, the storytelling technique can be used as a basis to develop a story-based lesson or course. Yet, to be successful in implementing it, teachers and course developers are supposed to take an account on selecting stories that are of student's interest and suit their age as well as their English language proficiency. If not, storytelling cannot make any change in terms of learners' vocabulary knowledge and their learning motivation (Safdarian & Ghyasi, 2013). Furthermore, teachers should be trained in how to use a story in a classroom. Since making storytelling interesting in class involves several factors such as how to organize ideas and how to use their pitch and tone, it is vital for teachers to bear such elements in mind while designing a storytelling lesson and applying it in class.

Implications of the Study

Because this research is limited to exploring the effect of storytelling on young learners' vocabulary knowledge. Further research is recommended to be conducted among participants at other educational levels, such as those at secondary school or college. Also, it is suggested to investigate such an effect on other dependent cognitive variables such as grammatical knowledge or oral communication skills of young learners. In addition, due to the limitation of the study, which was a one-group pretest-posttest design, further research may adopt a two-group experimental design which comprises one experimental group and one control group.

References

Alemi, M., Givi, S. S., & Rezanejad, A. (2022). The role of digital storytelling in EFLstudents' writing skills and motivation. Language Teaching Research Quarterly, 32, 16–35. https://doi:10.32038/ltrq.2022.32.02

Andrade, C. (2020). Understanding the difference between standard deviation and standard error of the mean and knowing when to use which. Indian Journal of Psychological Medicine, 42(4), 409-410. https://doi.org/10.1177/0253717620933419

Bobbit, Z. (2023). Advantages & disadvantages of using mean in statistics. Statology. https://www.statology.org/advantages-disadvantages-of-mean-in-statistics/

Eck, J. (2006). An analysis of the effectiveness of storytelling with adult learners in supervisory management. A research paper submitted in partial fulfillment of the requirement of the Master of Science Degree in Career and Technical Education. University of Wisconsin-Stout. Retrieved from https://core.ac.uk/reader/5066850.

Filgona, J., Sakiyo, J., Gwany, D. M., & Okoronka, A. U. (2020). Motivation in learning. Asian Journal of Education and Social Studies, 10(4), 16-37. doi: 10.9734/AJESS/2020/v10i430273

Gardner, R. C. (1958). Social psychology and second- language learning: The role of attitudes and motivation. London: Edward Arnold. Gardner, R., & Lambert, W. (1972). Attitudes and motivation in second language learning. Rowley: Newbury House.

Huang, H. L. (2006). The effects of storytelling on EFL young learners' reading comprehension and word recall. English Teaching & Learning, 30(3), 51-74. Retrieved from https://core.ac.uk/download/pdf/13433348.pdf

Isbell, R., Sobol, J., Lindauer, L., & Lowrance, A. (2004). The effects of storytelling and story reading on the oral language complexity and story comprehension of young children. Early Childhood Education Journal, 32(3), 157-163. https://doi.org/10.1023/B:ECEJ.0000048967.94189.a3

Liu, K. P., Tai, S. J. D., & Liu, C. C. (2018). Enhancing language learning through creation: The effect of storytelling on student learning motivation a performance in a school English course. Education Tech Research Dev, 66, 913-935. https://doi.org./10.1007.s11423-018-9592-z

Lucarevschi, R. (2016). The role of storytelling in language learning: A literature review. Working Papers of the Linguistics Circle of the University of Victoria, 26(1), 24–44. Retrieved from https://journals.uvic.ca/index.php/WPLC/article/view/15309

Mart, C. T. (2012). Encouraging Young Learners to Learn English through Stories. English Language Teaching, 5(5), 101-106. https://doi:10.5539/elt.v5n5p101

McDrury, J., & Alterio, M. (2003). Learning through storytelling in higher education. Sterling, VA: Kogan Page Limited.

Özdemir, O. (2015). The effects of storytelling and role playing on young learners vocabulary learning and retention. INESJOURNAL, 2(4), 530-548. Retrieved from https://dergipark.org.tr/tr/download/article-file/562706

Rosyada, A., & Apoko, W. (2023). Investigating English vocabulary difficulties and its learning strategies of lower secondary school students. JOLLT (Journal of Languages and Language Teaching), 11(3), 489-501. doi: https://doi.org/10.33394/jollt.v%vi%i.840

Safdarian, Z., & Ghyasi, M. (2013). The influence of storytelling on elementary level students: A triangulated study among foreign language learners. International Journal of English and Education, 2(3), 78-89.

Schrader, F. W., & Helmke, A. (2015). School achievement: Motivational determinants and processes. In J. D. Wright (Ed.), International Encyclopedia of the Social & Behavioral Sciences (2nd Edition) (pp. 48–54). Elsevier Ltd. https://doi.org/10.1016/B978-0-08-097086-8.26055-8

Shin, J. K., & Crandall, J. A. (2014). Teaching young learners English: From theory to practice**.** Mason, OH: Cengage Learning.

Stachurska, S. (2013). Exploiting storytelling in a young learners' classroom. Retrieved from https://core.ac.uk/download/pdf/71986674.pdf

Surmanov, S., & Azimova, M. (2020). Analysis of difficulties in vocabulary acquisition. Journal of Legal Studies, 6(1), 144-153. doi: 10.33394/jollt. v11i3.8404

Trostle, S., & Hicks, S. J. (1998). The effects of storytelling versus story reading on comprehension and vocabulary knowledge of British primary school children. Reading Improvement, 35(3), 127-136.

Wajnryb, R. (2003). Stories: Narrative activities in the language classroom. Cambridge: Cambridge University Press.

A Correlational-Comparative Study of Teachers' Perceptions of Administrative Support and Job Satisfaction According to Their Tenure: A Case Study of Two Private High Schools in Maharaungmyae Township of Mandalay, Myanmar

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Abstract

This study examines the relationship between teachers' perceptions of administrative support and job satisfaction, focusing on tenure in two private high schools in Maharaungmyae Township, Mandalay, Myanmar. Grounded in Methner's (2013) framework on administrative support and Herzberg's (1959) Two-Factor Theory, the study employs Methner's Administrative Support Survey (MASS) and items developed by Anderson (2017) based on Herzberg's theory. A total of 138 teachers participated, divided into two tenure groups: fewer than five years and more than five years of experience. Findings show that while both groups perceived elevated levels of administrative support, early-career teachers (1–5 years) reported slightly higher support ($M = 3.97$, $SD = 0.55$) than their experienced counterparts (6+ years: $M = 3.91$, $SD = 0.54$). However, teachers with over five years of experience exhibited significantly greater job satisfaction. A strong positive correlation emerged between administrative support and job satisfaction (1–5 years: $r = 0.671$, $p < 0.001$; 6+ years: $r = 0.733$, $p < 0.001$), reinforcing administrative support as a key driver of teacher satisfaction, regardless of tenure. These findings underscore the need for differentiated support strategies: mentorship and professional development for early-career teachers, and recognition, autonomy, and leadership opportunities for experienced educators.

Keywords: Teachers, Administrative Support, Job Satisfaction, Tenure

Introduction

Teachers have a key role in education by sharing knowledge, encouraging critical thinking, and helping students reach their potential. It is essential to understand the several factors that affect teachers in their work. Teacher tenure, job satisfaction, and administrative support are key factors that influence the quality of education (Smith, 2024).

Teacher job satisfaction refers to teachers' attitudes, feelings, and perceptions about their work. It is a key part of the education system because it affects motivation, commitment, and well-being, which impacts the quality of education (Huang et al., 2020). Teacher job satisfaction is influenced by factors such as tenure and administrative support, which affect the overall learning environment (Huang et al., 2018). Teachers who are satisfied and feel supported are more likely to stay motivated and deliver effective education.

Research shows that job satisfaction among teachers differs across countries and regions. In developed countries, teachers often report high job satisfaction due to positive relationships with students, a sense of purpose, and classroom autonomy (Skaalvik & Skaalvik, 2017). In developing countries, factors such as low pay, large class sizes, and insufficient resources often lower teachers' job satisfaction (Crossman & Harris, 2006).

Administrative support refers to the help teachers receive from school administrators, such as principals and vice principals. This support may include professional development, mentoring, communication, and assistance with resources and workload (Grissom, 2011). Other forms of support include teamwork, emotional encouragement, and collaboration. A study by Toropova et al. (2021) found that school conditions, including student discipline, teacher cooperation, and manageable workloads, are linked to higher teacher job satisfaction. Teachers with administrative support are often more effective and satisfied in their roles (Eisenman, 2019).

Teacher tenure usually refers to job security and protection from arbitrary dismissal for experienced teachers (Hassel et al., 2011). Tenure provides stability and allows teachers to focus on their teaching without fear of losing their job (Hanushek et al., 2004). For this study, tenure refers to the number of years teachers have worked in selected schools, without including job security or dismissal protection.

The study suggested that teachers with more tenure may feel more satisfied due to increased confidence, mastery of skills, and a sense of achievement (Klassen & Chiu, 2010). However, the study showed that teachers with many years of experience might face burnout or reduced satisfaction if they lack professional development or face challenges like policy changes or shifting student enrollment (Skaalvik & Skaalvik, 2011).

Teacher job satisfaction in Myanmar is influenced by many factors. Research shows that teachers in developing countries, including Myanmar, often experience similar factors of satisfaction and dissatisfaction. According to Sahito and Vaisanen (2019), satisfaction is linked to aspects like socio-economic conditions, fair salaries, promotion opportunities, positive work environments, and support from the community and colleagues. Dissatisfaction, however, is often caused by poor management, lack of trust, non-transparent systems, work-life imbalance, insufficient resources, and political interference.

In recent years, job satisfaction among teachers in Myanmar has been a concern. Studies suggest that teachers in Myanmar report low levels of satisfaction due to external factors. Teachers have been influenced and impacted by the political climate, affecting the education system and teacher satisfaction (San, 2021). Aung (2021) and Lay (2020) noted a negative correlation between job performance and job satisfaction among Myanmar teachers. Experienced teachers often leave the profession due to low satisfaction, limited career advancement, and poor working conditions. Soe et al. (2023) found that longer-serving teachers in Myanmar are more likely to experience dissatisfaction and leave their roles. This creates challenges for the education sector, especially as Myanmar struggles with limited funding, outdated curricula, and insufficient teacher professional development (Thein & Beach, 2018). By exploring the factors influencing teacher job satisfaction, the research seeks to provide insights that can inform strategies and policies to improve education in Myanmar.

Objectives

The following research objectives form the basis of this study:

1. To find the level of teachers' perceptions of administrative support according to their tenure at the two private high schools in Maharaungmyae township of Mandalay, Myanmar.
2. To find the level of teachers' perceptions of job satisfaction according to their tenure at the two private high schools in Maharaungmyae township of Mandalay, Myanmar.
3. To determine whether there is a significant relationship between teachers' perceptions of administrative support and job satisfaction, according to their tenure at the two private high schools in Maharaungmyae township of Mandalay, Myanmar.
4. To determine whether there is a significant difference between teachers' perceptions of administrative support according to their tenure at the two private high schools in Maharaungmyae township of Mandalay, Myanmar.
5. To determine whether there is a significant difference between teachers' perceptions of job satisfaction, according to their tenure at the two private high schools in Maharaungmyae township of Mandalay, Myanmar.

Research Hypotheses

The hypotheses for this study are:

1. There is a meaningful relationship between teachers' perceptions of administrative support and their job satisfaction according to their tenure at

the two private high schools in Maharaungmyae township of Mandalay, Myanmar, at a significant level of .05.

2. There is a significant difference between teachers' perceptions of administrative support according to their tenure at the two private high schools in Maharaungmyae township of Mandalay, Myanmar, at a significance level of .05.
3. There is a significant difference between teachers' perceptions of job satisfaction, according to their tenure at the two private high schools in Maharaungmyae township of Mandalay, Myanmar, at a significance level of .05.

Theoretical Framework

This study uses Methner's (2013) framework to define and measure Administrative Support. To collect data, it utilized Methner's Administrative Support Survey (MASS). For the variable of Job Satisfaction, the study adopted Herzberg's (1959) Two-Factor Theory as a guiding framework. The following sections explain these theories in detail.

Administrative Support (Methner, 2013)

Methner (2013) emphasized the importance of the relationship between teachers and principals, which he identified as a key factor in effective leadership. This relationship, called administrative support, is linked to positive outcomes for both the school and its students. Methner described administrative support as the assistance principals provide to teachers, both formally and informally, to help them improve their teaching and learning practices. Methner outlined five dimensions of administrative support: Instructional Improvement, Feedback, Discourse, Reflection and Growth, and Anxiety.

1. Instructional Improvement

This refers to how school administrators help teachers improve classroom instruction. Administrators play a crucial role in evaluating the resources and strategies provided to enhance teaching and learning (Cherasaro et al., 2015). Administrators aim to identify areas for improvement and adjust tools, materials, and approaches to create a better learning environment (Cherasaro et al., 2015).

2. Feedback

Feedback refers to communication between administrators and teachers after observing classroom activities or reviewing student performance data. According to Brookhart (2017), this process includes constructive advice to improve instructional methods and classroom management. Feedback plays a critical role in

promoting teacher growth by fostering meaningful discussions about teaching practices and encouraging reflective learning. By offering specific, actionable recommendations, administrators can help teachers refine their techniques and enhance the overall quality of education (Brookhart, 2017).

3. Discourse

Discourse focuses on the quality of discussions between administrators and teachers about teaching and learning. Methner (2013) highlights that these conversations often focus on educational concepts and strategies, encouraging collaboration and the exchange of ideas. These discussions help teachers and administrators develop a shared understanding of educational goals (Methner, 2013).

4. Reflection and Growth

This dimension looks at how administrators encourage teachers to reflect on their practices and pursue professional development. According to Rushing (2022) Support from administrators may include providing resources, training, and mentorship to promote self-assessment and continuous improvement. By promoting reflective practices, administrators help teachers identify strengths and areas for growth, creating a culture of lifelong learning and professional enhancement (Rushing, 2022).

5. Anxiety

This dimension addresses the stress or uneasiness teachers may feel in their relationship with administrators. Shai Fuxman (2024) emphasizes that addressing these anxieties involves creating an environment that encourages open dialogue and collaboration. Identifying and alleviating concerns helps to foster trust and improve communication between teachers and administrators. A supportive environment can help improve teacher-administrator relationships and enhance communication (Shai Fuxman, 2024).

The Two-factor Theory (Hertzberg, 1959)

The Two-Factor Theory, also called the Motivation-Hygiene Theory, was first introduced by Hertzberg, Mausner, and Snyderman in 1959 in their book The Motivation to Work. Hertzberg later expanded the work in 1966 in Work and the Nature of Man. This theory is considered important for understanding job satisfaction. The information in this section is based on Alshmemri et al. (2017) since the original text by Hertzberg is no longer available.

The main idea of the Two-Factor Theory is that job satisfaction and dissatisfaction come from two different types of factors: motivation factors and hygiene factors. Motivation factors are intrinsic (related to the job itself), while hygiene factors are extrinsic (related to the work environment). Motivation

factors increase job satisfaction. If they are absent, it does not cause dissatisfaction, but the job lacks satisfaction. Hygiene factors reduce dissatisfaction. However, improving them does not necessarily create job satisfaction.

1. Motivation Factors

Motivation factors are intrinsic factors related to the job itself. These factors lead to job satisfaction and motivation when present but do not cause dissatisfaction if absent (Herzberg, 1959). They are directly tied to an employee's sense of achievement and fulfillment in their work. According to Herzberg's (1959) theory, Motivation Factors include the following aspects:

1.1 Achievement

This refers to completing a perplexing task or solving a problem. When employees see the positive results of their work, they feel a sense of achievement (Hackman & Oldham, 1976). Negative achievement occurs when they do not make progress, which can reduce motivation and satisfaction (Herzberg et al., 1959).

1.2 Recognition

This refers to the recognition employees receive when they are praised or rewarded for accomplishing work or goals (Herzberg, 1966; Saari & Judge, 2004). Recognition enhances motivation by reinforcing employees' value within the organization (Wang et al., 2020).

1.3 Tasks

This refers to the nature of job tasks and how they impact employee satisfaction. Boring or excessively difficult tasks can reduce motivation; while engaging and meaningful work enhances job satisfaction (Crossman & Harris, 2006). Jobs that allow creativity and autonomy tend to be more fulfilling (Hackman & Oldham, 1976).

1.4 Responsibility

Responsibility refers to both job responsibility and authority. Employees who are given more control over their work and decision-making experience higher satisfaction (Herzberg et al., 1959; Vroom, 1964). This responsibility fosters a sense of ownership and accountability, leading to increased motivation (Lunenburg & Ornstein, 2000).

1.5 Advancement

Advancement refers to career progression and opportunities for promotion (Maslow, 1943; Weiss et al., 1967). Employees with clear paths for growth and professional development are more likely to feel motivated and satisfied in their roles (Gagné & Deci, 2005).

2. Hygiene Factors

Hygiene factors are extrinsic factors related to the job environment and

conditions. These factors do not lead to job satisfaction when present, but their absence causes dissatisfaction (Herzberg, 1959). Hygiene factors are necessary to prevent dissatisfaction, but they do not actively improve motivation or satisfaction.

2.1 Policies and Administration

Organizational policies, communication structures, and administrative practices affect how employees perceive their work environment (Herzberg, 1959; Maslow, 1943). Clear, fair, and transparent policies enhance satisfaction, while bureaucratic or inconsistent policies lead to frustration (Skaalvik & Skaalvik, 2011).

2.2 Manager Relations

The competence and fairness of supervisors, including their ability to delegate, teach, and guide employees, play a crucial role in job satisfaction (Herzberg et al., 1959). Positive supervision enhances motivation, while poor leadership contributes to dissatisfaction (Vroom, 1964).

2.3 Working Conditions

The physical work environment, including factors like space, safety, tools, ventilation, and temperature, significantly affects job satisfaction (Hackman & Oldham, 1976). Poor working conditions can lead to stress and dissatisfaction, even if other job aspects are positive (Skaalvik & Skaalvik, 2017).

2.4 Salary

Salary refers to compensation, including wages, bonuses, and benefits, which is a fundamental hygiene factor (Herzberg et al., 1959). Fair and competitive pay prevents dissatisfaction but does not necessarily increase job satisfaction beyond a certain point (Saari & Judge, 2004).

2.5 Interpersonal Relations

Relationships with supervisors, colleagues, and subordinates play a key role in workplace satisfaction (Herzberg, 1966; Wang et al., 2020). Positive social interactions at work contribute to a supportive environment and overall job satisfaction.

2.6 Job Security

Job security refers to the assurance that an employee will not face unexpected job loss. Stability in employment fosters trust and reduces anxiety, which is essential for maintaining satisfaction (Herzberg et al., 1959). Conversely, uncertainty about job stability can lead to significant dissatisfaction (Skaalvik & Skaalvik, 2011).

Concept theory framework

This study examines the relationship between teachers' perceptions of administrative support, job satisfaction, and their tenure. Tenure is treated as an independent variable, while administrative support and job satisfaction are the dependent variables. Figure 1 shows the conceptual framework of the study.

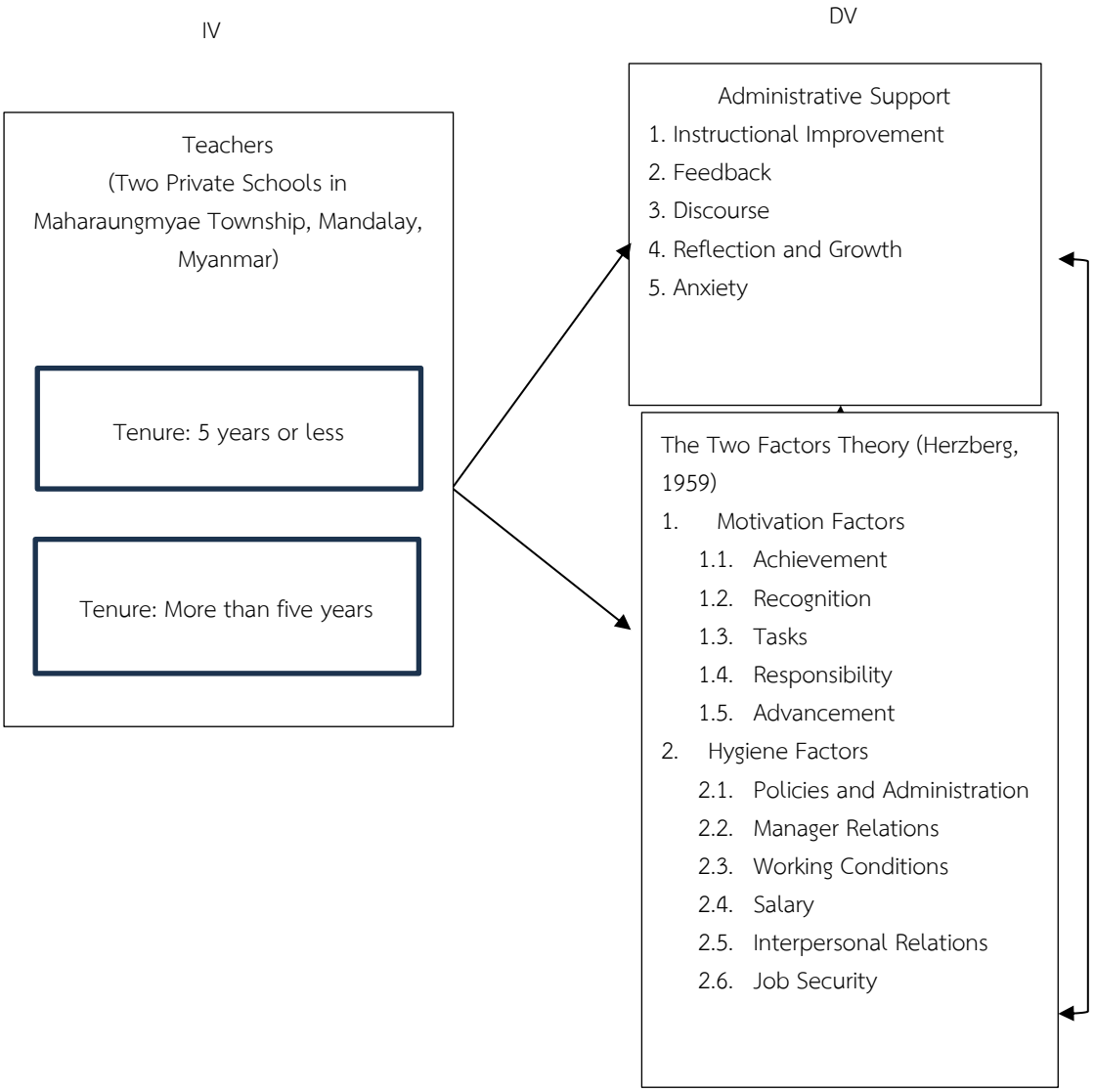


Figure 1: Conceptual Framework of the Study

Materials and Methods

This research aimed to investigate the relationship between teachers' perceptions of administrative support and their levels of job satisfaction, with the influence of their tenure in two private high schools in Maharaungmyae Township, Mandalay, Myanmar. The study was a quantitative correlational comparative research study. Specifically, it used data analysis of using the mean score and the standard deviation, the Pearson correlation

coefficient (r) as the statistical method. The Pearson correlation coefficient measured the strength and direction of the linear relationship between two variables, in this case, teachers' perceptions of administrative support and job satisfaction, with the influence of their tenure. A survey instrument was utilized to collect data.

Population and Sample

This study utilized total population sampling, a purposive sampling technique that uses the entire population meeting certain criteria. The total population was 138 teachers who worked at the two target schools. They included kindergarten to grade 12 teachers working in the 2023-2024 academic year.

Research Instrument

The survey was comprised of items from Methner's Administrative Support Survey (MASS) and items related to Hertzberg's Two-factor Theory. The questions for job satisfaction were adapted from Anderson's (2017) interview questions on assessing job satisfaction based on Herzberg's Two-factor Theory. Response criteria for the items in the questionnaire were selected on a 5-level Likert-type scale. The survey was translated from English into the Myanmar language. A back-translation from the Myanmar version into English was done to confirm the translation's accuracy.

Validity and Reliability for Administrative Support

Methner (2013) Administrative Support Survey (MASS) has been used in other studies with similar contexts, such as the research by Phyu and Banks (2018), which reported that the survey has content validity. Since their study was conducted in Myanmar and in a similar context, it supports the idea that the content of the MASS is relevant and applicable. Other studies, like those by Chen (2019) and Lay and Ye (2022), have also used the MASS successfully.

For this study, Cronbach's Alpha was used to determine the internal consistency of the items in the questionnaire. According to Taber (2017), alpha scores of .70 or higher are generally considered good. The MASS was reported to have a Cronbach's Alpha score of .89. Therefore, the reliability of the original instrument items is confirmed. Table 1 shows the reliability scores from previous studies.

Table 1: Alpha Coefficients of Five Domains (Administrative Support)

Description	Researcher	Cronbach's Alpha
Administrative Support	Methner (2013)	.89
	Phyu (2016)	.86
	Chen (2019)	.86
	Current Study	.93

Validity and Reliability for Job Satisfaction

For the questions related to job satisfaction, the researcher adapted original interview questions from Anderson (2017), which were based on Herzberg's Two-factor Theory. This adaptation was necessary to convert the open-ended interview format into Likert-type items, allowing for a more structured and quantifiable assessment of teachers' job satisfaction. The validity of the instrument was assessed using the Item Objective Congruence (IOC) index, which measures how well each question aligns with the study's objectives. Three experts reviewed the items, and those with an IOC score of 0.67 or higher were accepted, ensuring strong content validity (Tavakol & Dennick, 2011). Most items received a perfect score of 1.00, indicating an important level of expert agreement that the questions effectively measure job satisfaction, motivator factors, and hygiene factors. One item, which scored 0.33, was rejected, demonstrating a rigorous validation process that ensures the accuracy and relevance of the questionnaire. Therefore, it was decided to remove this item from the final. There are 13 items as an adapted version of Anderson's (2017) questionnaire, which is based on Herzberg's Two-Factor Theory to find out the level of Job Satisfaction.

Results

The findings indicated that teachers across both tenure groups perceive administrative support positively. Teachers with 1–5 years of experience rated their overall administrative support with a high mean score of 3.97 (SD = 0.55), particularly appreciating Instructional Improvement (M = 4.13) and Feedback (M = 4.05). Teachers with more than five years of experience also reported strong perceptions of administrative support, with a slightly lower overall mean score of 3.91 (SD = 0.54). This group similarly valued Instructional Improvement (M = 4.12) and Feedback (M = 4.05). While the overall ratings were slightly higher among teachers with less experience, the results demonstrate that both groups generally find the support provided by their school leaders to be strong and effective. Tables 2 and 3 summarize these findings.

Table 2: Teachers' Perceptions of Administrative Support for Teachers with less than five years of Tenure (N=64)

Sub-category	M	SD	Interpretation
Instructional Improvement	4.13	.54	High
Feedback	4.05	.59	High
Discourse	3.98	.74	High
Reflection and Growth	4.05	.60	High
Anxiety	3.65	.63	High
Overall Administrative Support	**3.97**	**.55**	**High**

Table 3: Teachers' Perceptions of Administrative Support for Teachers with 6 Year and Above of Tenure (N=74)

Sub-category	M	SD	Interpretation
Instructional Improvement	4.12	.62	High
Feedback	4.05	.61	High
Discourse	3.91	.72	High
Reflection and Growth	3.90	.55	High
Anxiety	3.56	.58	High
Overall Administrative Support	**3.91**	**.54**	**High**

Job satisfaction was rated highly by both groups of teachers but showed a notable increase with tenure. Teachers with 1–5 years of experience gave their overall job satisfaction a mean score of 4.02 (SD = 0.63), with General Satisfaction (M = 4.13) and Hygiene Factors (M = 3.99) receiving particularly high ratings. Teachers with more than five years of experience reported a higher mean score for overall job satisfaction at 4.29 (SD = 0.46). This group gave the highest rating to General Satisfaction (M = 4.49), followed by Hygiene Factors (M = 4.20). These findings suggest that job satisfaction tends to grow as teachers gain more experience in their roles. Tables 4 and 5 show these results.

Table 4: Teachers' Perceptions of Job Satisfaction for Teachers with less than five years of Tenure (N=64)

Sub-category	M	SD	Interpretation
General Satisfaction	4.13	.76	High
Motivator Factors	3.93	.62	High
Hygiene Factors	3.99	.71	High
Overall, Job Satisfaction	**4.02**	**.63**	**High**

Table 5: Teachers' Perceptions of Job Satisfaction for Teachers with 6 Years and Above of Tenure (N=74)

Sub-category	M	SD	Interpretation
General Satisfaction	4.49	.58	High
Motivator Factors	4.18	.50	High
Hygiene Factors	4.20	.51	High
Overall, Job Satisfaction	**4.29**	**.46**	**High**

Correlation analysis revealed a significant positive relationship between perceptions of administrative support and job satisfaction for both tenure groups. For teachers with 1–5 years of experience, the correlation was strong ($r(62) = .671$, $p < .001$), indicating that newer teachers rely heavily on administrative support to feel satisfied and secure in their jobs. For teachers with more than five years of experience, the correlation was slightly stronger ($r(72) = .733$, $p < .001$), highlighting the ongoing importance of administrative support in maintaining job satisfaction among experienced teachers. These results emphasize the critical role of administrative support in fostering job satisfaction across all levels of experience. Table 6 shows these results.

Table 6: Multiple Correlation Between Teachers' Perceptions of Administrative Support and Job Satisfaction by Their Tenure

Tenure			TAS	TJS
1-5 year	TAS	Pearson Correlation	_	_
		Sig. (2-tailed)	_	_
		N	64	_
	TJS	Pearson Correlation	.671**	_
		Sig. (2-tailed)	.000	_
		N	64	64
6 and above year	TAS	Pearson Correlation	_	_
		Sig. (2-tailed)	_	_
		N	74	_
	TJS	Pearson Correlation	.733**	_
		Sig. (2-tailed)	.000	_
		N	74	74

**. Correlation is significant at the 0.01 level (2-tailed).
TAS refers to Teachers' Perception of Job Satisfaction According to Their Tenure.
TJS refers to Teachers' Perception of Job Satisfaction According to Their Tenure.

An independent samples t-test was used to compare perceptions of administrative support and job satisfaction between the two groups. While the analysis showed no significant difference in perceptions of administrative support between the two groups ($M = 3.97$, $SD = 0.55$ for 1–5 years; $M = 3.91$, $SD = 0.54$ for more than five years; $t(136) = 0.64$, $p = .526$, Cohen's $d = 0.11$), job satisfaction did show a significant difference. Teachers with more than five years of experience had a higher mean score for job satisfaction ($M = 4.30$, $SD = 0.46$) compared to those with 1–5 years of experience ($M = 4.02$, $SD = 0.63$), with the

difference being statistically significant (t (136) = -2.95, p = .004, Cohen's d = 0.50). This medium-sized size indicates a noticeable increase in job satisfaction for more experienced teachers. See Table 7.

Table 7: Comparison of Teachers' Perception of Administrative Support by Tenure (=138)

Tenure	N	M	SD	SE	t	df	p	Mean Difference	95% CI for Mean Difference	Cohen's d
1-5 years	64	3.97	0.55	0.069	0.64	136	.526	0.059	(-0.13, 0.24)	0.11
6 and above years	74	3.91	0.54	0.063						

Note: N = number of participants; M= Mean; SD = Standard Deviation; SE = standard error of the mean; CI – confidence interval

An independent samples T-test was also conducted to examine whether teachers' perceptions of job satisfaction varied significantly according to their tenure. This statistical test was used to compare the means of two separate groups to determine if there is a significant difference between them. The analysis included two tenure groups: those with less than five years and those with more than five years of experience. The descriptive statistics revealed that teachers with less than five years of experience had a mean score of M = 4.02, SD = 0.63, whereas teachers with 6 and above years of experience had a higher mean score of M = 4.30, SD = 0.46. The independent samples t-test indicated that this difference was statistically significant, t (136) = -2.95, p = .004, Cohen's d = 0.50. Cohen's d is a statistical measure used to describe the strength or magnitude of the difference between the two groups' means. According to interpretation thresholds, the effect size (Cohen's d = 0.50) obtained indicated a medium effect. This means that the difference in the two groups is noticeable, but not large and could possibly be observable between the two groups, who are somewhat different but still share the same perceptions. Table 8 shows these results.

Table 8: Comparison of Teachers' Perception of Job Satisfaction by Tenure (N=138)

Tenure	N	M	SD	SE	t	df	p	Mean Difference	95% CI for Mean Difference	Cohen's d
1-5 years	64	4.02	0.63	0.078	-2.95	136	.004	0.059	(-0.46, -0.09)	0.50
6 and above years	74	4.30	0.46	0.054						

Note: N = number of participants; M= Mean; SD = Standard Deviation; SE = standard error of the mean; CI – confidence interval

In summary, teachers across both tenure groups perceive administrative support positively, with no significant differences based on experience. However, job satisfaction is significantly higher among teachers with longer tenure, suggesting that experience contributes to greater fulfillment and stability in their roles. The strong positive relationship between administrative support and job satisfaction further highlights the importance of effective and supportive administration in fostering a positive working environment for teachers.

Conclusions and Discussion

Positive Perceptions of Administrative Support

The findings revealed that teachers with less than five years of tenure and those with more than five years of tenure had similar positive perceptions of administrative support. Both groups reported feeling well-supported by the administration, suggesting that the schools have effective administrative practices that provide for the needs of all teachers, regardless of their level of experience. Both groups benefit from equitable administrative practices, such as professional development opportunities, mentoring, and consistent communication, which ensure that teachers, whether new or experienced, feel valued and supported. This indicates that the administration at these schools provides a uniform level of support, fostering a sense of inclusivity and equal treatment for all teachers. These results align with Methner's (2013) framework, which emphasizes the importance of administrative practices such as feedback, reflection, and growth in fostering a supportive teaching environment.

The findings suggest several important points for school leaders. Less-tenured teachers rely heavily on support but also teachers with more tenure like instructional

improvement and feedback, so providing clear guidance, regular feedback, and mentorship programs is essential to help them feel confident and capable in their roles (Callahan, 2016). For teachers with more tenure, maintaining dedicated support in these areas is equally important to keep them motivated and satisfied. Giving them opportunities to mentor less-tenured teachers or take on leadership roles could also help them feel valued and foster their professional growth (Beutel & Spooner-Lane, (2009). The results also align with Distributed Leadership Theory, which suggests that shared leadership responsibilities between administrators and teachers create a more inclusive and engaging work environment (Donley, Detrich, States, & Keyworth, 2020).

The consistent positive ratings across both groups highlight the importance of reliable and effective leadership practices. School administrators should ensure that support systems are well-organized and meet the needs of teachers at all experience levels. This can also improve teacher retention by creating a supportive work environment where all teachers feel appreciated and encouraged. This is especially true in the context of Myanmar where teachers often feel that they are not supported, especially in areas of professional development by their institutions (Borg et al., 2018; Nyunt & Ye, 2019).
Since both teachers with less and more tenure value similar types of support, schools can promote collaboration by encouraging teachers to share their experiences and strategies. This could strengthen the teaching community and create a more positive work atmosphere for everyone. Overall, these findings show that strong administrative support plays a key role in improving teacher satisfaction and performance.

Positive Perceptions of Job Satisfaction

Job satisfaction was also rated highly by both groups, with teachers with more tenure reporting greater overall satisfaction. Teachers with less tenure felt satisfied with general aspects of their jobs, including basic working conditions and professional growth opportunities. However, teachers with longer tenure showed even higher levels of satisfaction, particularly in areas such as general job fulfillment and job stability. These results suggest that job satisfaction tends to increase with experience. This result supports Herzberg's (1959) Two-Factor Theory, which suggests that teachers with more tenure may derive greater satisfaction from intrinsic motivators such as achievement, recognition, and responsibility. In contrast, less-tenured teachers might still be navigating extrinsic challenges such as workload adjustment and role clarity, which could contribute to slightly lower satisfaction levels.

The findings suggest that schools should focus on supporting both teachers with less and more tenure to improve job satisfaction. Less-tenured teachers are happy with basic working conditions and opportunities for growth, so schools should continue to provide clear career pathways, training, and a supportive environment to help them

succeed early in their careers (Edinger & Edinger, 2018). For teachers with more tenure, higher satisfaction levels, especially with job stability and fulfillment, show that tenure brings a sense of security and contentment. Additionally, Maslow's Hierarchy of Needs Theory (1943) helps explain this trend, as teachers with more tenure are more likely to have fulfilled their basic and security needs, allowing them to focus on higher-level psychological and self-actualization needs, thereby enhancing their job satisfaction. However, the results also highlight the need for tailored interventions for early-career teachers to enhance their job satisfaction. Mentorship, targeted feedback, and opportunities for professional growth are critical strategies to address this gap. The schools can build on this by offering leadership roles, advanced training, and recognition to keep teachers with more tenure motivated (Hulpia et al., 2009).

Overall, the increase in satisfaction with experience highlights the importance of creating a positive work environment that evolves with teachers' needs over time. Schools can use these insights to develop policies and practices that support teachers at all stages of their careers, ensuring they stay engaged and committed to their roles. This approach can lead to a more satisfying and stable teaching workforce.

Positive Relationships Between Administrative Support and Job Satisfaction

The correlation analysis showed a strong positive relationship between perceptions of Administrative Support and Job Satisfaction for both groups. The findings show that administrative support is very important for teachers' job satisfaction, no matter how much experience they have. This result underscores the pivotal role of administrative support in shaping teachers' job satisfaction, as highlighted in the studies by Skaalvik and Skaalvik (2017) and Daly and Dee (2006). Teachers who perceive their administrators as supportive are more likely to feel valued, motivated, and engaged in their roles, leading to higher satisfaction levels.

Teachers shared personal insights into their experiences with administrative support. Many long-tenured teachers noted that consistent, constructive feedback from school leaders encouraged their professional growth and commitment to the institution. On the other hand, some early-career teachers felt that feedback was too general and lacked actionable steps, making it difficult for them to improve their performance. These real-world experiences highlight the importance of individualized support and tailored administrative strategies. This means schools should focus on giving them regular feedback, clear guidance, and helpful resources to make their early years easier and more positive.

For teachers with more tenure, administrative support is still important. Even though they are more confident in their roles, they value leadership that listens to them, supports their needs, and gives them chances to grow. Keeping strong support systems in place helps teachers with more tenure stay satisfied and committed to their work. Other

studies have also highlighted the importance of administrative support and teacher job satisfaction. (Kilag, et al, 2023; Tickle et al., 2011.

Perceptions of Job Satisfaction Between Tenure Groups

When comparing perceptions of administrative support between the two groups, no significant differences were found, indicating that both less tenured and teachers with more tenure feel similarly supported. However, Job Satisfaction differed between the groups, with teachers with more tenure reporting noticeably higher levels of satisfaction. This suggests that tenure plays a role in shaping overall job fulfillment and stability.
The findings suggest several important implications for schools. Since both groups feel similarly supported by administrative practices, it highlights the importance of maintaining consistent and effective leadership for all teachers, regardless of their experience. This consistency ensures that teachers feel equally valued and supported throughout their careers.

However, the noticeable difference in job satisfaction between the two groups suggests that tenure has a positive relationship with teachers' feelings of fulfillment and stability. Schools should recognize that as teachers gain more experience, their needs and expectations may shift. Providing opportunities for leadership, advanced training, and professional growth can help sustain and enhance satisfaction for teachers with more tenure (Torres, 2019).

For less-tenured teachers, efforts should focus on ensuring that administrative support continues to meet their needs while providing resources to help them grow into their roles. Addressing the evolving needs of both groups can create a more supportive and fulfilling environments for all teachers, improving retention and overall workplace morale (Dias-Lacy & Guirguis, 2017).

Study Limitations

While this study provides useful insights into how teachers feel about administrative support and job satisfaction, there are some limitations to consider.
First, the research was done in only two private high schools in Maharaungmyae Township, Mandalay, Myanmar. Because it focuses on a specific area and only private schools, the findings might not represent the experiences of teachers in other regions or in public schools. This means the results might not apply to all teachers across Myanmar.

Second, the number of teachers who took part was relatively small-138 in total. If the study included more schools and a wider range of teachers, the data might be stronger and could lead to different conclusions. The small sample size makes it harder to say that the findings are true for all teachers.

Third, the study used questionnaires where teachers reported their own feelings and opinions. This self-reported information can be influenced by personal biases or the desire to give answers that seem acceptable to others. Teachers might have given more positive responses because they were worried about privacy or negative consequences, which can affect how accurate the results are.

Fourth, the research was done at one point in time-it was a cross-sectional study. This means it doesn't show how teachers' perceptions might change over time or whether one thing causes another. Teachers' views on administrative support and job satisfaction might vary due to factors not captured in the study. A study that follows teachers over a longer period could give better insights into how these perceptions evolve.

Lastly, the study mainly looked at the relationship between administrative support, job satisfaction, and how long teachers have been teaching (tenure). It didn't consider other things that can affect job satisfaction, like salary, workload, class size, student behavior, or personal life situations. By not including these factors, the study might miss other important influences on how teachers feel about their jobs and the support they receive.

Recommendations

Based on the findings, several recommendations can improve teacher job satisfaction and administrative support in these schools. These include both policy and practical steps for teachers and administrators.

For school policies, the positive perceptions of administrative support suggest that current practices should continue. Schools should adopt policies ensuring consistent, fair support for all teachers and equal access to professional development, helping teachers stay updated on modern teaching methods. Formal mentorship programs can pair experienced teachers with newcomers, encouraging knowledge sharing (Callahan, 2016). Providing leadership opportunities, such as committee roles, keeps seasoned teachers motivated (Beutel & Spooner-Lane, 2009). Clear policies for regular communication ensure all teachers feel heard and valued.

Practically, administrators should offer regular feedback and constructive guidance, helping teachers identify strengths and areas for improvement (Ahea et al., 2016). Encouraging collaboration among teachers, through meetings or joint projects, builds a supportive community. Recognizing teachers' efforts and achievements can boost morale, while understanding that teachers' needs evolve with experience ensures ongoing support at every career stage.

Teachers can also play a role. They should engage in professional development and communicate their training needs to administrators. Schools should support teachers

who pursue further education. Mentorship programs foster professional growth and stronger staff relationships. Newer teachers should seek guidance from administrators and experienced colleagues, while veteran teachers can share expertise to benefit everyone. Staying involved in school activities can enhance a sense of belonging and fulfillment.

In conclusion, these recommendations build on existing strengths. By implementing supportive policies and practical measures, schools can enhance job satisfaction and cultivate a positive environment, ultimately improving student outcomes. Consistent support, professional growth opportunities, and recognition of teachers' changing needs lead to a more satisfied, stable teaching workforcec.

This study has some limitations. It focused on two private high schools in Maharaungmyae Township, Mandalay, Myanmar, so the findings may not represent other regions or public schools. The sample size was relatively small (138 teachers), limiting the generalizability of results. Data relied on self-reported questionnaires, which may be influenced by personal biases or privacy concerns. Because it was a cross-sectional study, it cannot show how perceptions change over time or indicate causality. Cultural factors unique to Myanmar may also have shaped responses, and the results may not transfer easily to other contexts. Additionally, the study did not consider factors like salary, workload, or student behavior, which can influence job satisfaction. More extensive research with larger samples, multiple school types, and additional variables is needed to gain a deeper understanding of teacher job satisfaction and administrative support.

References

Ahea, M. M. A. B., Ahea, M. R. K., & Rahman, I. (2016). The value and effectiveness of feedback in improving students' learning and professionalizing teaching in higher education. Journal of Education and Practice, 7(16), 38–41.

Beutel, D., & Spooner-Lane, R. (2009). Building mentoring capacities in experienced teachers. International Journal of Learning, 16(1), 1–10.

Borg, S., Clifford, I., & Htut, K. P. (2018). Having an EFFECT: Professional development for teacher educators in Myanmar. Teaching and Teacher Education, 72, 75–86.

Callahan, J. (2016). Encouraging retention of new teachers through mentoring strategies. Delta Kappa Gamma Bulletin, 83(1), 6–11.

Crossman, A., & Harris, P. (2006). Job satisfaction of secondary school teachers. Educational Management Administration & Leadership, 34(1), 29–46. https://doi.org/10.1177/1741143206059538

Daly, A. J., & Dee, J. R. (2006). Greener pastures: Faculty turnover intent in urban public universities. The Journal of Higher Education, 77(5), 776–803.

Dias-Lacy, S. L., & Guirguis, R. V. (2017). Challenges for new teachers and ways of coping

with them. Journal of Education and Learning, 6(3), 265–272.

Donley, J., Detrich, R., States, J., & Keyworth, R. (2020). Distributed leadership: Research and evidence. Journal of School Leadership, 30(2), 219–239.

Edinger, S. K., & Edinger, M. J. (2018). Improving teacher job satisfaction: The roles of social capital, teacher efficacy, and support. The Journal of Psychology, 152(8), 573–593.

Eisenman, L. T. (2019). Principal support: The role of principal support in teachers' job satisfaction and retention. Journal of Education and Practice, 10(3), 97–102.

Grissom, J. A. (2011). Can good principals keep teachers in disadvantaged schools? Linking principal effectiveness to teacher satisfaction and turnover in hard-to-staff environments. Teachers College Record, 113(11), 2552–2585. https://doi.org/10.1177/016146811111301102

Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2004). Why do public schools lose teachers? Journal of Human Resources, 39(2), 326–354. Huang, F. L., & Chung, H. (2018). Factors affecting job satisfaction among secondary school teachers: A path analysis. Educational Psychology, 38(2), 215-234.

Hassel, E. A., Kowal, J., Ableidinger, J., & Hassel, B. C. (2011). Teacher tenure reform: Applying lessons from the civil service and higher education. Public Impact.

Herzberg, F. (1959). The motivation to work. John Wiley & Sons.

Huang, X., Lam, S. F., & Snell, R. S. (2018). Job satisfaction of teachers: A meta-analysis of the relations with teacher characteristics, job characteristics, and work outcomes. Educational Psychology Review, 30(1), 67-95.

Hulpia, H., Devos, G., & Rosseel, Y. (2009). The relationship between the perception of distributed leadership in secondary schools and teachers' and teacher leaders' job satisfaction and organizational commitment. School Effectiveness and School Improvement, 20(3), 291–317.

Kilag, O. K. T., Angtud, R. M. A., Uy, F. T., Alvez, G. G. T., Zamora, M. B., Canoy, C. B., & Sasan, J. M. (2023). Exploring the relationships among work motivation, job satisfaction, administrative support, and performance of teachers: A comprehensive study. International Journal of Scientific Multidisciplinary Research, 1(3), 239–248.

Lay, N. M. H., & Ye, Y. (2022). A study of the relationship between teachers’ perceptions towards administrative support and their competence at the No. 1 Basic Education High School in Hpa-A Township, Karen State, Myanmar. Scholar: Human Sciences, 14(2), 32–32.

Maslow, A. H. (1943). A theory of human motivation. Psychological Review, 50(4), 370–396.

Methner, C. A. (2013). A qualitative study of the leadership practices of principals and their perceived impact on teacher job satisfaction and working conditions (Doctoral dissertation). Western Michigan University.

Nyunt, N. S., & Ye, Y. (2019). The relationship study of teachers' perceptions towards professional development and their job satisfaction at monastic primary school in Namlan, Hsipaw, Northern Shan State, Myanmar. Scholar: Human Sciences, 11(1), 1–1.

Sahito, Z., & Vaisanen, P. (2019). A literature review on teachers' job satisfaction in developing countries: Recommendations and solutions for the enhancement of the job. Review of Education, 8(1), 3–34. https://doi.org/10.1002/rev3.3159

San, S. (2021, June 16). Beyond the coup in Myanmar: Don't let the light of education be extinguished. Just Security. https://www.justsecurity.org/76921/beyond-the-coup-in-myanmar-dont-let-the-light-of-education-be-extinguished/

Skaalvik, E. M., & Skaalvik, S. (2017). Motivated for teaching? Associations with school goal structure, teacher self-efficacy, job satisfaction, and emotional exhaustion. Teaching and Teacher Education, 67, 152–160.

Skaalvik, E. M., & Skaalvik, S. (2017). Teacher job satisfaction and motivation to leave the teaching profession: Relations with school context, feeling of belonging, and emotional exhaustion. Teaching and Teacher Education, 27(6), 1029–1038.

Smith, T. M. (2024). The extent teachers' perceived level of principal servant leadership practices, years of teaching experience, and highest degree attained predicted the level of teacher job satisfaction in northeast Tennessee middle schools (Doctoral dissertation, Lincoln Memorial University).

Soe, P. P., Toe, S. Y., Hnin, Z. L., Thant, M. M., Latt, N. N., Htay, N. H. H., Aung, T. T., Sann, M., & Win, N. H. H. (2023). Job satisfaction among Myanmar working population, a cross-sectional study. PubMed, 85(3), 444–454. https://doi.org/10.18999/nagjms.85.3.444

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. International journal of medical education, 2, 53.

Thein, M. M., & Beach, D. (2018). Education in Myanmar: Challenges and opportunities. Compare: A Journal of Comparative and International Education, 48(5), 675–686.

Tickle, B. R., Chang, M., & Kim, S. (2011). Administrative support and its mediating effect on US public school teachers. Teaching and Teacher Education, 27(2), 342–349.

Torres, D. G. (2019). Distributed leadership, professional collaboration, and teachers' job satisfaction in US schools. Teaching and Teacher Education, 79, 111–123.

A Correlational Study of Teacher Burnout, Job Satisfaction, and Organizational Commitment: A Case Study of Four Jesuit Institutes in Myanmar

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Abstract

This study examines the interrelationships among teacher burnout, job satisfaction, and organizational commitment, factors that significantly influence teaching quality and student learning outcomes. A better understanding of these dynamics can help reduce burnout and foster a more supportive work environment for educators. A correlational analysis was conducted with 102 teachers from four Jesuit institutes in Myanmar, utilizing the Maslach Burnout Inventory-Educator Survey (MBI-ES), the Job Satisfaction Survey (JSS), and the Organizational Commitment Questionnaire (OCQ). The MBI-ES measured teachers' stress levels, while the JSS identified factors affecting job satisfaction, distinguishing motivator factors (e.g., recognition, achievement) from hygiene factors (e.g., working conditions, salary). OCQ assessed organizational commitment, shedding light on why teachers remain in their institutions. Findings revealed slightly low burnout levels ($M = 3.28$, $SD = 0.74$), high job satisfaction ($M = 3.95$, $SD = 0.61$), and strong organizational commitment ($M = 3.58$, $SD = 0.60$). Correlation analysis indicated that burnout did not significantly relate to organizational commitment, suggesting that while burnout affects teacher well-being, it does not directly impact institutional loyalty. However, job satisfaction showed a strong positive correlation with organizational commitment ($r = .679$, $p < .001$), emphasizing its critical role in retaining educators. These results highlight the importance of addressing job satisfaction through effective policies, improving teacher retention and institutional stability.

Keywords: Teacher Burnout, Job Satisfaction, Organizational Commitment

Introduction

Teacher burnout, job satisfaction, and organizational commitment are important factors influencing the overall functioning of schools. Teaching is often a demanding and stressful profession, which can result in burnout and decreased teaching quality, harming students' learning outcomes (Madigan & Kim, 2021). Studies consistently find that

teaching is highly stressful (Greenier et al., 2021; Herman et al., 2020; Johnson et al., 2005). According to Skaalvik and Skaalvik (2017), teachers experiencing burnout frequently feel less competent, leading to reduced job satisfaction. Understanding the relationship between burnout and job satisfaction is essential for addressing factors that influence teachers' professional well-being (Rai, 2022).

Job satisfaction is vital for enhancing both teacher performance and school effectiveness (Suchyadi, 2018). Satisfied teachers often devote additional effort to improving their instruction, producing better student outcomes, and showing greater loyalty to their schools. Organizational commitment represents the strength of an employee's connection to their institution (Winarsih & Fariz, 2021; Gopinath, 2020). Research indicates a strong link between job satisfaction and organizational commitment (Gopinath, 2020; Günlü et al., 2010; Saridakis et al., 2020).

At four Jesuit Institutes in Myanmar, interviews with teachers have revealed serious concerns about conflicts between colleagues, lack of support from peers, poor communication among staff, and not enough teachers (personal communication, February 2024). These issues have led to many teachers leaving their jobs in recent years due to stress, heavy workloads, and dissatisfaction with their work environment. Given these challenges, it is essential to investigate the relationships between teacher burnout, job satisfaction, and organizational commitment to address retention concerns and improve the working environment in these organizations.

This study explores how teacher burnout and job satisfaction relate to organizational commitment, guided by the Multidimensional Theory of Burnout (Maslach & Jackson, 1998), Herzberg's Two-Factor Theory (1959), and the Three-Component Model of Commitment (Meyer & Allen, 1991). Maslach and Susan Jackson developed the Multidimensional Theory of Burnout in 1981, Maslach later expanded in 1998, which identifies three key dimensions of burnout: emotional exhaustion, depersonalization, and personal accomplishment (Maslach et al., 2001). Emotional exhaustion means feeling very tired and drained because of work demands, making it hard to handle stress and workload. Depersonalization means becoming detached from students and colleagues, losing the unique qualities that make interactions engaging (Maslach et al., 2001). Personal accomplishment, on the other hand, occurs when teachers feel effective and competent in their roles.

Herzberg's Two-Factor Theory was developed in 1959 and builds on concepts from Maslow's hierarchy of needs. It emphasizes understanding the factors that contribute to workplace satisfaction and dissatisfaction, offering a framework to improve employee motivation and overall job satisfaction (Nickerson, 2023). Herzberg categorized the factors influencing job satisfaction into two groups: Hygiene Factors (extrinsic) and

Motivator Factors (intrinsic). Hygiene Factors include external conditions such as salary, work environment, job security, and relationships with colleagues.

Meyer and Allen (1984) introduced two key dimensions of organizational commitment: affection and continuance. In 1990, Allen and Meyer expanded their model by adding a third dimension: normative commitment. Affective commitment refers to an employee's positive emotional attachment to their organization. Continuance commitment focuses on the practical considerations that compel employees to stay, such as the financial, social, or career costs they would face if they left. Normative commitment refers to an employee's sense of moral obligation to remain with the organization. Together, these three dimensions form what is known as the Three-Component Model of Organizational Commitment, which provides a comprehensive framework for understanding why employees remain with their organizations.

Focusing on Jesuit schools in Myanmar, this study examines the connections among these factors to better understand how teacher burnout, job satisfaction influence organizational commitment in this context.

Literature Review

Burnout

Burnout, first identified by Freudenberger in 1974 and later expanded by Maslach in 1976, is common in people-focused professions, including teaching (Maslach et al., 2001). Teachers frequently interact with students, parents, and colleagues, making them especially susceptible to stress and burnout (Hakanen et al., 2006). Burnout consists of emotional exhaustion, depersonalization, and reduced personal accomplishment. Teachers experiencing prolonged stress often lose enthusiasm for their work, diminishing both teaching quality and student engagement (Hoglund et al., 2015; Madigan & Kim, 2021; Thakur, 2013). Addressing the causes of burnout requires supportive policies and professional development opportunities that help foster a positive work environment.

Job Satisfaction

Teacher job satisfaction reflects the degree to which teachers feel personally and professionally fulfilled. It influences their teaching quality, longevity in the profession, and willingness to invest in their students (Bogler & Nir, 2012; Toropova et al., 2021). Schools that support teachers—through recognition, involvement in decision-making, and strong leadership—can enhance satisfaction (Taylor & Tashakkori, 1994; Yılmaz & Ceylan, 2011). Unsatisfied teachers may negatively affect student learning and classroom climate, while teacher turnover harms student-teacher relationships and educational continuity (Ronfeldt et al., 2013). Herzberg's Two-Factor Theory (1959) helps explain the

factors contributing to teacher job satisfaction, distinguishing between motivators (e.g., recognition, achievement) and hygiene factors (e.g., working conditions, pay).

Organizational Commitment

Organizational commitment describes an employee's emotional attachment to and identification with their institution (Mathieu & Zajac, 1990). Highly committed teachers are more likely to stay, contribute positively to school culture, and enhance overall performance (Akiri & Ugborugbo, 2009). The Three-Component Model of Commitment (Allen & Meyer, 1991) includes effective, continuance, and normative dimensions, providing a comprehensive understanding of why employees remain. Research in Myanmar shows that teachers struggle with low job satisfaction, high burnout, and limited professional opportunities (Aung, 2021; Htway & Myo Thein, 2020; Lin & Tint, 2021). Few studies have examined these issues in Jesuit schools, and this investigation aims to clarify the factors influencing teacher well-being and organizational commitment in this context.

Objectives

The following are the research objectives addressed by this study:

1. To determine the levels of teacher burnout at four Jesuit institutes in Myanmar.
2. To determine the levels of teachers' job satisfaction at four Jesuit institutes in Myanmar.
3. To determine the levels of teachers' organizational commitment at four Jesuit institutes in Myanmar.
4. To determine whether there is a sincere relationship between teacher burnout and job satisfaction and organizational commitment at four Jesuit institutes in Myanmar.

Hypothesis

There is a sincere relationship between teacher burnout and job satisfaction and organizational commitment at the four Jesuit institutes in Myanmar, at a significance level of .05.

Concept theory framework

This study examined the relationship between teacher burnout and job satisfaction, and organizational commitment at Jesuit Institutes in Myanmar. The theoretical framework for this study included three theories: the Multidimensional Theory of Burnout (Maslach & Jackson, 1998), Herzberg's Two-Factor Theory (1959), and the Three-Component Model of Commitment (Allen & Meyer, 1991).

The Multidimensional Theory of Burnout defines burnout as emotional exhaustion, depersonalization, and a sense of personal accomplishment, all of which can have a negative impact on teachers' motivation and engagement. Herzberg's Two-Factor Theory differentiates between motivators (like recognition and opportunities for professional growth) and hygiene factors (such as salary and working environments), both of which influence job satisfaction. Additionally, the Three-Component Model of Commitment defines effective, continuance, and normative commitment, explaining how teachers remain committed to their institutions.

The study investigated how burnout may result in decreased job satisfaction, which can weaken organizational commitment, while increased job satisfaction may enhance commitment, even in the face of burnout challenges. Figure 1 shows the conceptual framework of the study.

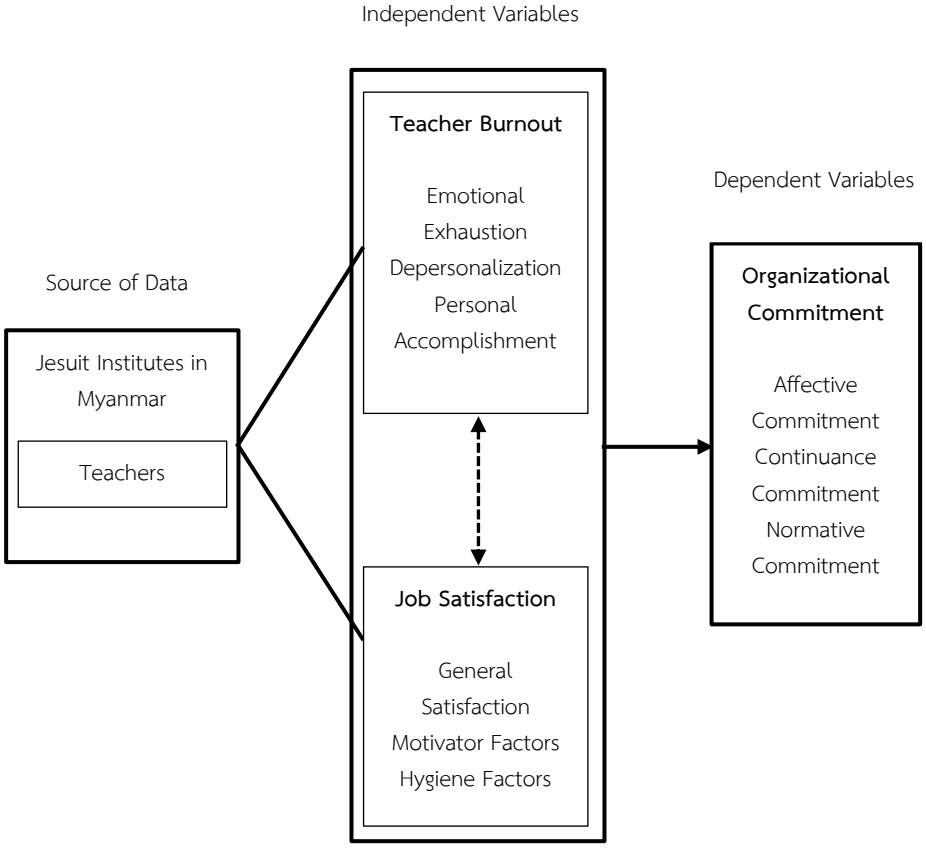


Figure 1: Conceptual Framework of the Study

Materials and Methods

This quantitative correlational study aimed to examine the relationships among teachers' burnout, job satisfaction, and organizational commitment at four Jesuit institutes in Myanmar. Data were collected using a survey that combined three

established instruments: the Maslach Burnout Inventory–Educator Survey (MBI-ES), the Job Satisfaction Survey (JSS), and the Organizational Commitment Questionnaire (OCQ).

The MBI-ES was employed to measure the level of teachers' job burnout, consisted of 22 items, and participants rated their level of agreement using a seven-point Likert scale ranging from 1 (I never thought of this) to 7 (I thought this every day). In this study, Cronbach's Alpha reliability coefficient of the MBI-ES was .77. For its constructs, the coefficients were .82 for emotional exhaustion, .71 for depersonalization, and .77 for personal accomplishment.

The JSS were adapted from a study by Andersson (2017), which employed open-ended qualitative questions to assess job satisfaction based on Herzberg's two-factor Theory. To convert the open-ended questions into Likert-type questions answerable on a scale, the researcher reworded the questions and validated them using the Item-Objective Congruence (IOC). Three experts were asked to validate that the revised questions were properly converted and retained the same meaning. After validation by the experts, two items (question 2 and question 3) among the 14 questions were removed due to a lack of unanimous agreement. Twelve items were rated from 1 (strongly disagree) to 5 (strongly agree). The Cronbach's Alpha reliability coefficient of the JSS for this study was .89. For its constructs, general satisfaction, motivator factors, and hygiene factors, the coefficients were .87, .82, and .84, respectively.

The OCQ was used to assess the level of teacher commitment, consisting of 18 items, and participants rated their level of agreement on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The Cronbach's Alpha reliability coefficient of the OCQ for this study was .89. For its constructions, the coefficients were .91 for affective commitment, .70 for continuance commitment, and .82 for normative commitment.

Descriptive statistics (mean and standard deviation) measured the levels of burnout, job satisfaction, and organizational commitment. A multiple correlation coefficient analysis was then conducted to determine the relationships among these three variables. The study included the entire population of teachers from the four Jesuit institutes, using a total population sampling method. A total of 102 teachers (80 females and 22 males) participated as respondents.

Results

Research Objective One focused on measuring the level of teacher burnout. Emotional exhaustion had an overall mean score of 2.47 (SD = 1.03), interpreted as moderately low. Depersonalization had an overall mean score of 2.25 (SD = 1.14), also interpreted as moderately low. In contrast, personal accomplishment scored 4.84 (SD =

1.27), which was interpreted as slightly high. The overall burnout score was 3.28 (SD = 0.74), interpreted as slightly low. These findings suggest that while teachers experienced some emotional fatigue, they still maintained a positive sense of accomplishment in their work. Table 1 summarizes the overall means, standard deviations, and interpretations of burnout and its subscales according to teachers' responses from four Jesuit institutes in Myanmar.

Table 1: The Overall Means, Standard Deviations, and Interpretations for Level of Teachers' Burnout and Subscales at Four Jesuit Institutes in Myanmar (N = 102)

Burnout	M	SD	Interpretation
Emotional Exhaustion	2.47	1.03	Moderately low
Depersonalization	2.25	1.14	Moderately low
Personal Accomplishment	4.84	1.27	Slightly high
Overall (Burnout)	3.28	0.74	Slightly low

Research Objective Two explored teacher job satisfaction. General satisfaction had an overall mean score of 4.15 (SD = 0.84), interpreted as high. Motivator factors, such as recognition and meaningful work, had a mean score of 4.00 (SD = 0.66), also interpreted as high. Hygiene factors, including salary, working conditions, and job security, scored 3.89 (SD = 0.71), which was interpreted as high. The overall job satisfaction score was 3.95 (SD = 0.61), indicating that teachers felt satisfied with their jobs and their work environment. Table 2 summarizes the overall means, standard deviations, and interpretations of job satisfaction and its subscales according to teachers' responses of all institutes.

Table 2: The Overall Means, Standard Deviations, and Interpretations for Level of Teachers' Job Satisfaction and Subscales at Four Jesuit Institutes in Myanmar (N=102)

Job Satisfaction	M	SD	Interpretation
General Satisfaction	4.15	0.84	High
Motivator Factors	4.00	0.66	High
Hygiene Factors	3.89	0.71	High
Overall (Job satisfaction)	3.95	0.61	High

Research Objective Three assessed teacher organizational commitment. Affective commitment scored 3.91 (SD = 0.86), interpreted as high, while normative commitment scored 3.55 (SD = 0.73), also interpreted as high. Continuance commitment had a lower mean score of 3.28 (SD = 0.61), interpreted as moderate. The overall organizational commitment score was 3.58 (SD = 0.60), which was interpreted as high. These results reflect a strong emotional connection and sense of duty among teachers toward their

institutions, with practical considerations playing a moderate role. Table 3 summarizes the overall means, standard deviations, and interpretations of organizational commitment and its subscales according to teachers' responses from four Jesuit institutes in Myanmar.

Table 3: The Overall Means, Standard Deviations, and Interpretations for Level of Teachers' Organizational Commitment and Subscales (N=102)

Organizational Commitment	M	SD	Interpretation
Affective Commitment	3.91	0.86	High
Continuance Commitment	3.28	0.61	Moderate
Normative Commitment	3.55	0.73	High
Overall (Organizational commitment)	3.58	0.60	High

Research Objective Four examined the relationships between teacher burnout, job satisfaction, and organizational commitment. The analysis showed no significant correlation between teacher burnout and organizational commitment ($r = .069$, $p = .493$). However, a strong positive correlation was found between teacher job satisfaction and organizational commitment ($r = .679$, $p < .001$), highlighting job satisfaction as a key factor in fostering organizational commitment. Burnout was not significantly related to organizational commitment, making it unsuitable for further multiple correlation analysis. As shown in Table 4, an examination of the bivariate correlations among the variables in this study revealed that teacher burnout was not significantly correlated with organizational commitment ($r = .069$, $p = .493$). However, an examination of the research findings revealed that teacher job satisfaction correlated positively, significantly, and strongly with organizational commitment ($r = .679$, $p = <.001$), at a significant level of .05. According to Table 4, only one of the two independent variables (i.e., teacher job satisfaction) is significantly correlated with the dependent variable (i.e., organizational commitment). As a result, only one independent variable (i.e., teacher job satisfaction) cannot be considered for the calculation of further correlational analysis. Therefore, the hypothesis for this study is not supported.

Table 4: Bivariate Correlations Between Teacher Burnout, Job Satisfaction, and Organizational Commitment at the Target Four Jesuit Institutes in Myanmar

Variables	1	2	3
1. Teacher Burnout	_		
2. Teacher Job Satisfaction	-.004 (.965)	_	
3. Teacher Organizational Commitment	.069 (.493)	.679* (<.001)	_

Note. *Denotes a statistically significant relationship (statistical significance level set at p = .05, two-tailed). p-values appear within parentheses below the correlation coefficients.

The findings indicate that teacher burnout levels were low, while job satisfaction and organizational commitment were high at the target institutes. Teachers reported high satisfaction with their roles and a strong connection to their organizations, particularly through emotional and normative commitment. The significant correlation between job satisfaction and organizational commitment emphasizes the importance of maintaining supportive and fulfilling work environments. However, there was a lack of correlation between burnout and job satisfaction.

Conclusions and Discussion

Teachers' Perceptions of Burnout

Moderate-to-low emotional exhaustion and depersonalization, combined with slightly high personal accomplishment, suggest that teachers face manageable stress. This indicates a supportive environment where teachers are not severely strained, reflecting effective institutional strategies to mitigate burnout. Safari (2020) found that higher job satisfaction—stemming from fair pay, good conditions, promotions, professional growth, and supervision—reduces burnout. Similarly, Oginyi et al. (2018) reported that low job stress, normal work engagement, and supportive conditions positively influence satisfaction.

Slightly high personal accomplishment enhances motivation, job satisfaction, and engagement, benefiting classroom performance and student outcomes. Madigan and Kim (2021) noted that lower burnout correlates with better academic achievement and motivation. Teachers with reduced emotional exhaustion and depersonalization can better connect with students, manage challenges, and foster a positive learning environment. This, in turn, improves student performance and teacher retention.

Despite these favorable findings, the presence of moderate stress in some teachers calls for ongoing support. Providing mental health resources, peer support, and

reasonable workloads can help maintain low burnout. Fabelico and Afalla (2020) stressed that fostering personal accomplishment can further reduce burnout.

Overall, Jesuit institutions create a supportive environment that keeps burnout low and well-being high. Continuous efforts to address teachers' emotional and professional needs will help maintain these positive results.

Teachers' Perceptions of Job Satisfaction

High overall job satisfaction, including both motivators (recognition, meaningful work) and hygiene factors (salary, conditions, security), suggests that teachers find their roles fulfilling and well-supported. This encourages greater commitment, engagement, and performance. Bha and Ye (2020) observed equivalent results in Myanmar's monastic schools. Baroudi et al. (2022) also found that extrinsic factors strongly influence satisfaction in less developed contexts.

Such positive conditions help retain teachers and ensure stable, effective instruction that benefits students. Institutions should continue offering professional development, recognizing achievements, and maintaining favorable conditions. Regular satisfaction assessments can identify emerging issues and enable timely responses.

In short, high job satisfaction reflects a supportive work environment that promotes teacher well-being, motivation, and performance, strengthening the educational community.

Teachers' Perceptions of Organizational Commitment

High effective and normative commitment, along with moderate continuance commitment, suggests that teachers remain for emotional and ethical reasons rather than necessity. This commitment fosters positive classroom climates, student outcomes, and collaborative school cultures. Tschannen-Moran and Barr (2004) confirmed that emotionally engaged teachers create supportive learning environments. Similarly, Cho and Kwan (2012) found that shared faith and values enhance teachers' intrinsic motivation, loyalty, and identification with their school.

The strong link between job satisfaction and organizational commitment shows the need to maintain supportive and fulfilling work environments to retain and motivate teachers. This finding highlights the importance of job satisfaction in fostering strong organizational commitment among teachers. Bashir and Gani (2020) found that university teachers in Northern India showed stronger commitment to their institutions when they were more satisfied with their jobs, indicating a significant positive relationship. However, the absence of a strong relationship between burnout and organizational commitment implies that even stressed teachers remain loyal due to emotional bonds or ethical considerations. Alignment with Jesuit values may contribute to this sustained dedication.

Overall, these results highlight a positive organizational culture in which teachers' engagement and commitment support institutional effectiveness and student success.

Recommendations

The following recommendations are made for teachers and school administrators. Recommendations are also made at the policy level for school systems and governments to encourage a focus on teacher well-being.

The study found that teachers did not have important levels of burnout and felt happy and connected to their schools. Nonetheless, practical actions and clear policies are important to keep these positive feelings. For example, teachers can learn to manage stress, practice mindfulness, and join professional development programs to feel more confident and relaxed at work (Leiter & Maslach, 2016). They can also form support groups to share problems and celebrate successes, which helps them feel happier and more supported.

School administrators have a strong influence on teacher motivation. They can create programs that reward teachers' hard work, making teachers feel valued. Improving work conditions, like reducing heavy tasks and providing enough time and resources, can also help teachers feel more satisfied (Hakanen et al., 2006). Mentoring for both new and experienced teachers help them feel connected, and flexible work schedules can let teachers balance work and personal life better. By focusing on keeping teachers happy and less stressed, these Jesuit schools can ensure that their teachers stay motivated and committed. Simple actions, like recognizing arduous work and offering growth opportunities, along with supportive policies, can improve teachers' well-being and help the entire school community.

On a larger scale, schools and government policy makers should prioritize teacher well-being. They can offer wellness programs, mental health support, and regularly check teachers' stress and satisfaction levels. Implementing those practices can address teachers' needs and enhance their job satisfaction, commitment, and well-being. Establishing career paths can help teachers grow and become leaders or specialists is also beneficial (Day & Gu, 2010). Training school leaders to show care and understanding can improve teachers' happiness and commitment (Leithwood et al., 2020). Conducting Surveys can help schools and policymakers identify problems and make better policies.

Future research can look at how burnout, satisfaction, and commitment change over time, or how they differ in various places. Studies on ways to reduce stress and improve satisfaction can help schools and policymakers choose the best strategies.

A limitation of this study is that it collected data from only four Jesuit institutions. This makes it harder to say that the results would hold true for many different people or situations. The study also used correlational statistics, which means although relationships were found between two of the variables, conclusive causality cannot be determined. There may also be other factors, which were not measured, that influenced the results. Another limitation is the use of survey methods. Surveys depend on people's self-reports, and sometimes people may not remember correctly or may try to answer in a way that makes them look better. Without other types of data collection is difficult to check if the survey answers are accurate. In the future, using more types of data, studying different contexts, and trying different research designs could help create stronger and more reliable conclusions.

References

Akiri, A. A., & Ugborugbo, N. M. (2009). Teachers' effectiveness and students' academic performance in public secondary schools in Delta State, Nigeria. Studies on Home and Community Science, 3(2), 107-113. https://doi.org/10.1080/09737189.2009.11885284

Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of effective, continuance and normative commitment to the organization. Journal of Occupational Psychology, 63(1), 1-18. http://dx.doi.org/10.1111/joop.1990.63.issue-1

Andersson, S. (2017). Assessing job satisfaction using Herzberg's two-factor theory: A qualitative study between US and Japanese insurance employees. IAFOR Journal of Business & Management, 2(1). https://doi.org/10.22492/ijbm.2.1.02

Aung, N. W. (2021). The influence of work motivation factors on teachers' job satisfaction and performance in private high schools, Myanmar. Journal of Management Science Chiangrai Rajabhat University, 16(2), 86-105.

Baroudi, S., Tamim, R., & Hojeij, Z. (2022). A quantitative investigation of intrinsic and extrinsic factors influencing teachers' job satisfaction in Lebanon. Leadership and Policy in Schools, 21(2), 127-146. https://doi.org/10.1080/15700763.2020.1734210

Bashir, B., & Gani, A. (2020). Testing the effects of job satisfaction on organizational commitment. Journal of Management Development, 39(4), 525-542. https://doi.org/10.1108/jmd-07-2018-0210

Bha, U. A. T., & Ye, Y. (2020). The relationship between teachers' competence and their job satisfaction at Phaung Daw Oo Monastic Education High School, in Mandalay Division, Myanmar. Scholar: Human Sciences, 12(1), 103-103.

Bogler, R., & Nir, A. E. (2012). The importance of teachers perceived organizational support to job satisfaction: What's empowerment got to do with it? Journal of Educational Administration, 50(3), 287-306. https://doi.org/10.1108/09578231211223310

Cho, R., & Kwan, Y. (2012). The relationship between the Catholic teacher's faith and commitment in the Catholic high school. Journal of Catholic Education, 15(2), 117-139. https://doi.org/10.15365/joce.1502022013

Day, C., & Gu, Q. (2010). The new lives of teachers. London: Routledge. https://doi.org/10.4324/9780203847909

Fabelico, F., & Afalla, B. (2020). Perseverance and passion in the teaching profession: Teachers' grit, self-efficacy, burnout, and performance. Journal of Critical Reviews. 7(11), 108-119. https://doi.org/10.31838/jcr.07.11.17

Freudenberger, H. J. (1974). Staff burnout. Journal of Social Issues, 30(1), 159-165. https://doi.org/10.1111/j.1540-4560.1974.tb00706.x

Gopinath, R. (2020). Impact of job satisfaction on organizational commitment among the academic leaders of Tamil Nadu universities. Gedrag & Organisatie Review, 33(2), 2337-2349. https://doi.org/10.37896/gor33.02/241

Greenier, V., Derakhshan, A., & Fathi, J. (2021). Emotion regulation and psychological well-being in teacher work engagement: a case of British and Iranian English language teachers. System, 97, 102446. https://doi.org/10.1016/j.system.2020.102446

Günlü, E., Aksaraylı, M., & Perçin, N. Ş. (2010). Job satisfaction and organizational commitment of hotel managers in Türkiye. International Journal of Contemporary Hospitality Management, 22(5), 693-717. https://doi.org/10.1108/09596111011053819

Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. Journal of School Psychology, 43(6), 495–513. https://doi.org/10.1016/j.jsp.2005.11.001

Herman, K. C., Reinke, W. M., & Eddy, C. L. (2020). Advances in understanding and intervening in teacher stress and coping: the coping-competence-context theory. Journal of School Psychology, 78, 69–74. https://doi.org/10.1016/j.jsp.2020.01.001

Hoglund, W. L., Klingle, K. E., & Hosan, N. E. (2015). Classroom risks and resources: Teacher burnout, classroom quality and children's adjustment in high needs elementary schools. Journal of School Psychology, 53(5), 337-357. https://doi.org/10.1016/j.jsp.2015.06.002

Htway, Y. N., & Myo Thein, K. (2020). Social comparison of in-service teachers and their effects on adjustment and emotions. Journal of Myanmar Academic Arts Sciences, 18(9), 47-66.

Johnson, S., Cooper, C., Cartwright, S., Donald, I., Taylor, P., & Millet, C. (2005). The experience of work-related stress across occupations. Journal of Managerial Psychology, 20(2), 178–187. https://doi.org/10.1108/02683940510579803

Leiter, M. P., & Maslach, C. (2016). Latent burnout profiles: An original approach to understanding the burnout experience. Burnout Research, 3(4), 89-100. https://doi.org/10.1016/j.burn.2016.09.001

Leithwood, K., Harris, A., & Hopkins, D. (2020). Seven strong claims about successful school leadership revisited. School Leadership and Management, 40(1), 5-22. https://doi.org/10.1080/13632434.2019.1596077

Linn, M. W., & Tint, N. M. (2021). The relationship between secondary school teachers' job satisfaction and their attitude towards teaching profession. AsTEN Journal of Teacher Education, 5(1), 16-28. https://doi.org/10.56278/asten.v5i1.1768

Madigan, D. J., & Kim, L. E. (2021). Does teacher burnout affect students? A systematic review of its association with academic achievement and student-reported outcomes. International Journal of Educational Research, 105, 101714. https://doi.org/10.1016/j.ijer.2020.101714

Maslach, C. (1998). A multidimensional theory of burnout. Theories of Organizational Stress, 68-85. https://doi.org/10.1093/oso/9780198522799.003.0004

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. Journal of Organizational Behavior, 2(2), 99-113. https://doi.org/10.1002/job.4030020205

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. Annual Review of Psychology, 52(1), 397-422. https://doi.org/10.1146/annurev.psych.52.1.397

Mathieu, J. E., & Zajac, D. M. (1990). A review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment. Psychological Bulletin, 108(2), 171-194. https://doi.org/10.1037//0033-2909.108.2.171

Meyer, J. P., & Allen, N. J. (1984). Testing the" side-bet theory" of organizational commitment: Some methodological considerations. Journal of Applied Psychology, 69(3), 372-378. https://doi.org/10.1037/0021-9010.69.3.372

Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of organizational commitment. Human Resource Management Review, 1(1), 61-89. http://dx.doi.org/10.1016/1053-4822(91)90011-Z

Nickerson, C. (2023, September 28). Herzberg's two-factor theory of motivation-hygiene. Reviewed by S. McLeod, PhD. Simply Psychology. https://www.simplypsychology.org/herzbergs-two-factor-theory.html

Oginyi, C., Mbam, S., Nwoba, E., & Nwankwo, D. (2018). Occupational stress, work engagement and work environment as predictors of job satisfaction among primary

school teachers in Ebonyi State, Nigeria. European Journal of Social Sciences, 56(2), 160-171.

Rai, S. (2022). A Correlational Study between job burnout & job satisfaction (Doctoral dissertation, Dublin, National College of Ireland).

Ronfeldt, M., Loeb, S., & Wyckoff, J. (2013). How teacher turnover harms student achievement. American Educational Research Journal, 50(1), 4-36. https://doi.org/10.3102/0002831212463813

Safari, I. (2020). A study on the relationship between burnout and job satisfaction of Iranian EFL teachers working in universities and schools. Journal on Efficiency and Responsibility in Education and Science, 13(4), 164-173. http://dx.doi.org/10.7160/eriesj.2020.130401

Saridakis, G., Lai, Y., Muñoz Torres, R. I., & Gourlay, S. (2020). Exploring the relationship between job satisfaction and organizational commitment: an instrumental variable approach. The International Journal of Human Resource Management, 31(13), 1739-1769. https://doi.org/10.1080/09585192.2017.1423100

Skaalvik, E. M., & Skaalvik, S. (2017). Still motivated to teach. A study of school context variables, stress, and job satisfaction among teachers in senior high school. Social Psychology of Education, 20(1), 15-37. https://doi.org/10.1007/s11218-016-9363-9

Suchyadi, Y., &. N. (2018). The relationship between principal supervision in increasing the job satisfaction of private junior high school teachers in East Bogor District. JHSS (Journal of Humanities and Social Studies), 2(1), 26-29. https://doi.org/10.33751/jhss.v2i1.818

Taylor, D. L., & Tashakkori, A. (1994). Predicting teachers' sense of efficacy and job satisfaction using school climate and participatory decision making. Paper presented at the Annual Meeting of the Southwest Educational Research Association, San Antonio, TX.

Thakur, S. S. (2013). To study the relationship between burnout and effectiveness of primary school teachers. International Indexed & Referred Journal, 3(30), 15–16.

Toropova, A., Myrberg, E., & Johansson, S. (2021). Teacher job satisfaction: the importance of school working conditions and teacher characteristics. Educational Review, 73(1), 71-97. https://doi.org/10.1080/00131911.2019.1705247

Tschannen-Moran, M., & Barr, M. (2004). Fostering student learning: The relationship between collective teacher efficacy and student achievement. Leadership and Policy in Schools, 3(3), 189-209. https://doi.org/10.1080/15700760490503706

Winarsih, T., & Fariz, F. (2021). The effect of job satisfaction on organizational commitment and work discipline. Budapest International Research and Critics

Institute (BIRCI-Journal): Humanities and Social Sciences, 4(1), 1328-1339. https://doi.org/10.33258/birci.v4i1.1759

Yılmaz, A., & Ceylan, Ç. B. (2011). İlköğretim okul yöneticilerinin liderlik davranış düzeyleri ile öğretmenlerin iş doyumu ilişkisi. Kuram ve Uygulamada Eğitim Yönetimi, 2(2), 277-394.

The Development of English-Speaking Skills Using TPRS (Teaching Proficiency through Reading and Storytelling) for Second-Grade Students

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Abstract

The purposes of this research are to 1) Assess Grade 2 students' spoken English proficiency against an 80% performance benchmark following the implementation of the TPRS (Teaching Proficiency through Reading and Storytelling) teaching technique. 2) Examine the satisfaction level of Grade 2 students with the use of TPRS. The sample group, obtained from purposive sampling consisted of eight students in Grade 2, studying in the second term of academic year 2024 at Wonder Valley International School, southern Thailand. The research tools employed were: 1) An eight-hour lesson plan incorporating TPRS activities that lasted for 8 teaching periods. 2) An English-speaking skills rubric scoring assessment. 3) Student Satisfaction Survey on learning English through the TPRS technique. The statistics used for data analysis in this study included Chi-square, mean and standard deviation. Research findings have revealed that students' spoken English proficiency significantly exceeded the 80% criterion ($p < .05$) following the implementation of TPRS in class. Students rated the TPRS method with a mean score of 4.22 out of 5, reflecting high satisfaction with the learning approach, where 5 represents the highest level of satisfaction.

Keywords: TPRS, English-Speaking Skills, Storytelling

Introduction

Driven by an increasingly globalized economy, English language proficiency has for several years been considered a top educational priority for Thai parents from all economic backgrounds. Parents consider English to be important for the future career and business opportunities for their children, broadening their perspective and global outlook. According to the Basic Education Core Curriculum B.E. 2551 (A.D. 2008) the Thai government too acknowledges this, making English a compulsory subject throughout the entire basic national curriculum (Ministry of Education, 2008). This widespread enthusiasm to learn English led to a proliferation of various English as a second language tutoring

centers as well as international schools across the country. Despite the prevalence of these educational institutes, the development of spoken English language skills amongst Thai students continue to face challenges, particularly in the context of international schools in Thailand.

In such schools, there are notable differences in terms of academic performance between students whose parents speak English to them and those whose parents do not. The latter often fall behind in their English scores, particularly in spoken English, which then impacts other areas of academic development, as most academic subjects build on language foundations (Charoenlap (2017). Drawing from experience as a former teacher at an international school, the researcher observed that although these children possess strong cognitive abilities and articulate well in their native language, they face more challenges with vocabulary acquisition, spoken fluency and articulation of academic concepts and abstract ideas, particularly when compared to peers who have greater exposure to English at home. These children also tend to underperform in other subjects as well which prevents them from being able to reach their potential in other areas.

Such discrepancies in spoken English performance between students with English-speaking parents and those without highlights the need for a more effect pedagogical intervention. To address such challenges, this study aims to explore the implementation of Teaching Proficiency through Reading and Storytelling (TPRS) as an instructional intervention for the above-mentioned group of students.

TPRS has been highly researched and practiced across the second language teaching world. Several research have shown, how it outperformed other methods in teaching second language (Muzammil, 2015). TPRS is said to offer a natural and effective approach to second language acquisition, particularly well-suited for young learners due to its engaging methodology (Argenio, 2022). Therefore, TPRS exhibits potential in compensating for limited exposure to English at home by providing a more immersive and interactive learning experience for international school students within the classroom setting.

Objectives

1. To assess the spoken English language skills of second-grade students after the implementation of the TPRS teaching technique with an 80% performance criterion.
2. To study the satisfaction level of second-grade students with learning English using the TPRS technique.

Hypotheses

1. Second-grade students will achieve at least 80% proficiency in spoken English language skills after being taught using the TPRS teaching technique.
2. Second-grade students will report an important level of satisfaction with learning English through the TPRS teaching technique.

Concept Theory Framework

What is TPRS?

TPRS is a second language acquisition method developed by Blain Ray, a teacher in the lates 1980s. Ray developed TPRS after using Jame Asher's TPR method. He found that while it worked very well with concrete words, it fell short when dealing with abstract terms and concepts. According to TPRS researcher Lichtman (2015), researchers generally "identify the method based on core concepts such as the co-construction of a story with students, using high frequency vocabulary, and providing lots of input in the target language with small amounts of translation for clarity". This method, she contrasts with the use of "traditional" teaching that focus on a grammar-based syllabus, textbooks and exercises demanding student output, grammatical accuracy, and teaching a larger set of (often thematically organized) vocabulary."

In TPRS classes, students rely on exposure to the target language, contextualization (language is given in a context that facilitates understanding of unknown words and grammar), and repetition, in an organic process that seeks to mimic the way children learn their first language. The TPRS class feels less like a lesson and more like a conversation. It encourages active participation during the lesson and enhanced listening skills (Octaviani & Hesmatantya 2018).

Lichtman (2018) explained that TPRS normally involves three stages of learning. The first stage (Show) involves establishing meaning in which the teacher introduces new vocabulary through action, visuals, or translation in student's first language. The second stage (Tell) involves asking children to create personalized stories along with the teacher using the words learnt and then acting them out in class. This gives students multiple opportunities for repetition in a positive learning environment (Kara & Eveyik, 2019). The last stage (Read) involves reading where students are encouraged to process aural input to written input. TPRS encourages active participation during the lesson and enhances listening skills (Octaviani & Hesmatantya, 2018).

Previous Studies on TPRS

TPRS researcher Karen Lichtman argues in her book that "TPRS shows the clearest advantage for the acquisition of vocabulary and grammar, as well as the development of

reading and speaking skills. Additionally, TPRS outperforms other methods on rate of learning; students in TPRS classes get more language and more skills than in traditional classes" (Argenio, 2022).

Meeboon (2024) published research indicating that Grade 1 students in Thailand who learned English through the TPRS method achieved significantly higher performance scores in spoken English skills compared to when they did not use this method.

Bulan (2021) conducted a study in Türkiye investigating the effect of the TPRS method on vocabulary acquisition among third-grade students. The findings concluded that TPRS was effective in enhancing the students' vocabulary acquisition.

Kara and Eveyik (2019) studied the effects of TPRS on four-year-old kindergarten students and found that it had a positive impact on both recall and retention of receptive and productive vocabulary. They noted that the method collaborates well with young learners because it uses storytelling and repetition—techniques that support how children naturally acquire language. Their study also offered helpful suggestions for adapting TPRS to better fit the needs of young learners.

Davidheiser who worked on the integration of grammar instruction with TPRS at college level reported in 2001 that TPRS improves pronunciation and vocabulary memory, reduces anxiety, and promotes active learning and is beneficial for distinct types of learners (Muzammil, 2015).

Theoretical Framework

To really understand TPRS one needs to consider the theories that support it. TPRS is rooted in Krashen's Input Hypothesis and Comprehensible Input approach to teaching language.

Krashen's Comprehensible Input Hypothesis argues that 1) speaking is a result of acquisition and not its cause. Speech cannot be taught directly but emerges on its own because of building competence via comprehensible input. 2) If input is understood by the student, and there is enough of it, the necessary grammar is automatically provided. "This means that the language teacher need not attempt to deliberately teach the next structure along the natural order- it will be provided in just the right quantities and automatically reviewed if the student receives enough comprehensible input" (Mitchell, Myles & Marsden 2013).

In practice Krashen argues that learners best acquire a new language when they are exposed to language that is just above their current proficiency but still understandable, which helps promote natural language learning.

In classroom practice, language is always context specific, presented mostly through stories in a way that students enjoy, and understand, using gestures, visuals and

sometimes translation into the student's native language. The focus is on students acquiring or absorbing the language naturally. Students then show comprehension through physical responses and simple answers. When words are introduced, teachers ensure students understand the meaning of words and phrases before expecting them to use those words. This allows time for children to build confidence and does not put pressure on them to provide a spoken "output" when they still don't understand. Vocabulary is taught systematically through repeated exposure in the form of stories, co-created by students and the teacher.

Conceptual Framework

This research follows the conceptual framework as shown in this image:

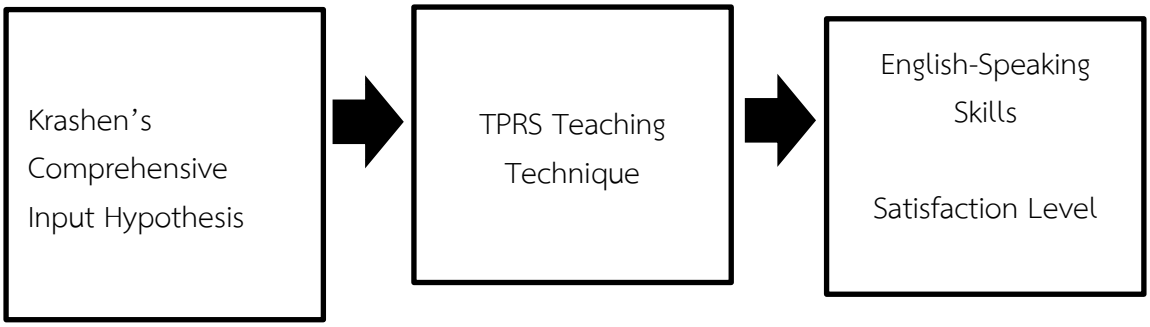


Figure 1: Conceptual Framework

Materials and Methods

Research Design

This study employs a quantitative and experimental research approach with a single sample group. The Chi-square statistical test is used to determine the significance level with data collected one time after the implementation of TPRS method in class (thus employing a One-Group Post-Test Only Design).

Table 1: One Group Post-Test Only Design

Sampling	Group	Pre-test	Tested Item	Post-Test
-	E	-	X	o

E denotes Experimental Group
X denotes Teaching approach using TPRS
O denotes English Speaking Skill Assessment

Population and Sample Group

The population for this study consists of fourteen Grade 2 students at Wonder Valley International School, Phatong Subdistrict, Hat Yai District, Songkhla Province, studying in the second semester of the 2025 academic year.

The sample group comprised eight Grade 2 students from Wonder Valley International School, selected through purposive sampling during the second semester of the 2024 academic year. The researcher intentionally selected these students due to their limited exposure to English at home, which negatively impacted their spoken English performance in class, resulting in scores significantly below the pass criterion.

Research Tools

1. A Lesson plan incorporating TPRS activities that consists of eight- 60 minutes teaching periods.
2. English Speaking Skills Assessment Form used to assess each student individually at the end of the final session. The total score given was 30 points. The expected performance criterion was 80% of the total points, which equals 24 points.
   The evaluation criteria covered six aspects of speaking ability. These criteria include 1. Pronunciation, 2. Fluency, 3. Vocabulary Usage, 4. Grammar & sentence structure, 5. Comprehensibility, 6. Overall Confidence. Each criterion was then rated on a 5-point scale (1 = Needs Improvement, 5 = Excellent) to provide a structured evaluation of individual student's speaking performance.
3. Student Satisfaction Survey on Learning English through the TPRS Technique

The survey uses a 5-point Likert scale to measure students' satisfaction with learning English through the TPRS technique. After refining the wording for a more formal tone, the satisfaction levels are as follows:

1. Least satisfied (in student friendly language the term "Not happy at all" was used)
2. Less satisfied (in student friendly language the term "Not so good" was used)
3. Moderately satisfied (in student friendly language the term "Okay" was used)
4. Highly satisfied (in student friendly language the term "Happy" was used)
5. Most satisfied (in student friendly language the term Super Happy was used)

Research tools number 1 and 3 were reviewed by experts to ensure. Three experts provided feedback and evaluated the alignment between the assessment rubrics, the learning objectives, as well as the alignment between the satisfaction criteria and learning objectives. The Index of Item-Objective Congruence (IOC) was calculated to confirm the consistency and appropriateness of the tools.

Data Collection

Data for this study was collected from a purposive sampling group with the following details:

1. The researcher conducted teaching activities using the TPRS lesson plan for eight teaching periods, each lasting 60 minutes, totaling 8 hours over a 2-month period.
2. After completing all eight teaching periods, the researcher assessed each child's English-speaking skills using a rubric scoring method mentioned above.
3. Finally, the researcher asked the children complete a satisfaction survey to evaluate their perception of the TPRS learning process and their feelings about using spoken English after learning through storytelling.

Data Analysis

After collecting data using the above-mentioned tools, the researcher analyzed the data as follows:

1. Analyzed the learning achievement of Grade 2 students after learning through the TPRS method, comparing it to the 80% criterion using Chi-square statistics in SPSS.
2. Analyzed the satisfaction questionnaire regarding the TPRS teaching method, utilizing percentage, mean ($\bar{X}$), and standard deviation (S.D.). The researcher evaluated the mean scores based on the following criteria:
   Mean scores 4.51 - 5.00: Indicated the highest level of satisfaction.
   Mean scores 3.51 - 4.50: Indicated an important level of satisfaction.
   Mean scores 2.51 - 3.50: Indicated a moderate level of satisfaction.
   Mean scores 1.51 - 2.50: Indicated a low level of satisfaction.
   Mean scores 1.00 - 1.50: Indicated the lowest level of satisfaction.

Results

Table 2: Chi-Square Test Findings

Test Results	n	χ^2	Asymp. Sig.
Pass	7	4.500	0.017
Fail	1		

** $p < 0.05$

From Table 2, it was observed that seven students scored above the criteria, while one student scored below the expected level. The p-value from the Chi-Square test was 0.017, which is below the acceptable significance level of 0.05. This indicated that the results were statistically significant at the 5% significance level.

Table 3: Satisfaction Survey Findings

Evaluation Items	$\bar{X}$	S.D.	Interpretation
1. Satisfaction towards acting out the story together in class	4.13	0.83	High level
2. Satisfaction towards helping to create a story in class with peers	4.38	0.52	High level
3. Satisfaction towards understanding the context of the story in English	4.00	0.76	High level
4. Satisfaction towards creating your own gestures and movements during the story to represent the words learnt	4.38	0.74	High level
5. Satisfaction towards learning English through drawings and stories	4.38	0.52	High level
6. Satisfaction towards your own ability to remember/recall new English Words after learning them through stories	4.25	0.46	High level
7. Satisfaction towards being able to pronounce more accurately after the TPRS lessons compared to before	3.86	0.35	High level
8. Satisfaction with your teacher's involvement in class	4.86	0.46	Highest level
9. Satisfaction towards being able to speak fluently using longer sentences than	3.75	0.46	High level
10. Satisfaction about being able to recite stories in English now compared to before?	4.25	0.46	High level
Total	**4.22**	**0.40**	High level

From Table 3, it was found that Grade 2 students' satisfaction with teaching using the TPRS method had a mean score of 4.22, indicating a "high level of satisfaction".

Conclusions and Discussion

In conclusion, this study revealed that the implementation of the TPRS teaching method significantly improved Grade 2 students' spoken English proficiency and resulted in high satisfaction with the learning approach. Statistical analysis showed that the selected group of grade two students' spoken English proficiency scores significantly surpassed the predetermined 80% criterion following TPRS intervention ($p < .05$). And students rated the method with high satisfaction.

The findings also confirm the importance of language learning theories that highlight contextualized language inputs, incorporating visuals, movement, and active co-creation of content by both students and teachers, as more effective methods for enhancing second language skills compared to memorization and rote learning.

English teachers at international schools can use this second language learning method to improve the spoken skills of students with limited exposure to English at home, helping them catch up with their peers. Similarly, teachers at Thai schools can also apply this method to help their students speak more fluently and confidently in general.

Limitations and suggestions for further research

This study has some limitations that need to be acknowledged for further research to develop on. The main limitation of this study was the small sample size selected due to a required reason. Further research with a larger sample size or a different research design may be needed to more accurately assess the impact of the TPRS technique on improving spoken English skills in students speaking English as second language. Secondly, the duration of the study (8 hours in total) may not be enough to fully guarantee the effectiveness of the method. Hence further research with an extended duration is recommended, as developing language skills requires more time than acquiring knowledge.

References

Argenio, L. (2022, November 28) What Is TPRS? A Look at the Language Acquisition Strategy That's Growing in Popularity. Bridge Education group. https://bridge.edu/tefl/blog/tprs/

Bulan, N., & Kasapoglu, K. (2021). An investigation of the effect of TPRS on vocabulary acquisition among third graders. Journal of Language and Linguistic Studies, 17(Special Issue 1), 645-662.

Charoenlap, P. (2017). Parental involvement in their children's English language learning: The case of parents working at a state enterprise [master's independent study, Thammasat University]. Thammasat University Digital Repository. https://ethesisarchive.library.tu.ac.th/thesis/2017/TU_2017_5921040365_9024_7178.pdf

Florez, M. (1999). The plot thickens: Beginning level English language learners as strategists (Practitioner research Briefs, 1999–2000 report series). Charlottesville.

Kara, K., & Eveyik, E. (2019). Effects of TPRS on young learners' vocabulary acquisition. Advances in Language and Literary Studies, 10(1), 135-146. https://doi.org/10.7575/aiac.alls.v.10n.1p.135

Lichtman, K. (2015). Research on TPR Storytelling (2015). Retrieved from https://www.researchgate.net/publication/316597307_Research_on_TPR_Storytelling_2015.

Lichtman, K. (2018). Teaching proficiency through reading and storytelling (TPRS): An input-based approach to second language instruction (1st ed.). Routledge. https://doi.org/10.4324/9781315208022

Meeboon, W. (2024). Development of English-Speaking Skills Taught by Using Total Physical Response and Storytelling (TPRS) Teaching Method of Grade 1 Primary School Students. Journal of Modern Learning Development, 9(11), 464–474. retrieved from https://so06.tci-thaijo.org/index.php/jomld/article/view/278164.

Ministry of Education. (2008). Curriculum content for foreign language learning, as per the Basic Education Core Curriculum of 2008.

Mitchell, R., Myles, F., & Marsden, E. (2013). Second language learning theory (3rd ed.). Routledge

Muzammil, L., & Andy, A. (2015). Improving Speaking Skill by Using Teaching Proficiency Through Reading and Storytelling (TPRS).

Octaviani, A., & Hesmatantya, V. (2018). Using Teaching Proficiency Through Reading and Storytelling (TPRS) in Teaching English for Young Learners. Tell: Teaching of English Language and Literature Journal, 6(2), 78–87. https://doi.org/10.30651/tell.v6i2.2134

Development of a Multiple-Choice Test on the Concept of Friction Force Direction

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Abstract

The conception of the direction of friction force would fit into the idea that "the direction of friction force acting on an object is opposite to the relative motion of the object with the surface". For high-school students, this definition is sometimes simplified to several versions, such as opposite to the object's motion, opposite to an exerted force, or opposite to the object's acceleration, which leads to many misconceptions. To detect the misconception that could occur in high-school students, a conceptual multiple-choice test on the direction of friction force was created. The test consists of 16 items covering seven misconceptions: Friction is (1) always opposite to the direction of the motion, (2) in the same direction as motion, (3) always opposite to the direction of the external force, (4) in the same direction as the applied force, (5) always opposite to the direction of acceleration, (6) always horizontal, and (7) always opposite to the direction of rotational motion. After the designed questions were assessed with a sample group of 637 grade 11–12 science and math students from three schools, it was found that most of the items fell within the acceptable range of classical test analysis but received a low Cronbach's alpha value of 0.46. However, the test provides more insightful information when analyzed based on the choices students make.

Keywords: Conceptual Test, Direction of Friction, Friction Force, Multiple-Choice Test, Physics Concept

Introduction

A general definition suggests that the friction force is a force associated with the relative motion between surfaces (Serway & Jewett, 2004; Knight, 2017). Although the concept appears simple, understanding it is not easy. Several misconceptions related to the friction force have been reported. In the work of Kızılcık et al. (2021), up to 42 different misconceptions were found, including seven related to the direction of friction force. In Thailand, Prasitpong and Chitaree (2010) also reported misconceptions about friction force among high-school students, some of which match the misconceptions identified by

Kızılcık et al. (2021).

One powerful tool to assess misconceptions for improving instruction is the conceptual multiple-choice test. Several existing tests on frictional force have been developed, such as the one by Besson, Borghi, De Ambrosis, and Mascheretti (2010). Another was developed by Cari, Wulandari, Aminah, Handhika, and Nugraha (2019). Chia (1996) also created one, and in Thailand, there is the work of Prasitpong (2012). However, most existing conceptual multiple-choice tests cover various aspects of friction, such as type, magnitude, and direction, all in one test. The problem lies in the fact that each aspect can contain various models of misconceptions. Kızılcık et al. (2021) also mentioned this in the suggestions of their work: whoever wants to create a conceptual multiple-choice test for the friction force next should focus on one aspect rather than covering everything in a single test.

In Thailand, there have been a few reports about developing the friction force conceptual multiple-choice test. The recent one was from the work of Prasitpong (2012), which still covers various aspects. Hence, the determination to create a conceptual test focusing on only one aspect of friction force was motivated. This study focuses on the aspect of the direction of friction.

Objective

To develop a conceptual multiple-choice test that can probe misconceptions about the direction of friction among high-school students.

Concept theory framework

1. The concept of friction force

In the work of Develi and Namdar (2019), the authors conducted a review of physics books to determine the appropriate concept for frictional force. Their study concludes that the concept of friction force can simply be stated as “a force that prevents sliding” (Develi & Namdar, 2019, p. 97). However, it is emphasized in the paper that this is a briefly simplified concept. The true cause of friction force lies on a microscopic scale, involving the bonding of molecules between the object and the surface. In the general case, to find the direction of friction, a common statement, “the friction force on an object is opposite to its motion or impending motion relative to the surface” (Serway & Jewett, 2004, p. 133), is usually used. This similar common statement is also mentioned in Knight (2017).

2. Alternative concepts of the direction of the friction force

Kızılcık et al. (2021) studied the alternative concepts of friction force by gathering 42 associated papers. For the aspect of the direction of the friction force, they reported a list of misconception models as shown in Table 1, which in this paper will be referred to by the abbreviated names.

Table 1: Misconception models about the direction of the friction force

The misconception models	**Description** (Kızılcık et al., 2021)
Opposite to Motion	Friction is always opposite to the direction of the motion.
Same with Motion	Friction is in the same direction as the object's motion.
Opposite to External Force	Friction is always opposite to the direction of the external force.
Same with External Force	Friction is in the same direction as the applied force.
Opposite to Acceleration	Friction is always opposite to the direction of the object's acceleration.
Always Horizontal	There is no friction force in the vertical direction. Friction is always horizontal.
Opposite to Rotational Motion	Friction is always opposite to the direction of rotational motion.

3. Conceptual multiple-choice tests

"Effective instruction requires more than dedication and subject knowledge; it requires technical knowledge about how students think and learn" (Hestenes, Wells, & Swackhamer, 1992, p. 2). Several approaches can be applied to assess students' knowledge or concepts. One of the most effective methods is interviewing students; however, this process is time-consuming and requires considerable effort (Thongchai, 2009; Hestenes et al., 1992; Engelhardt, 2009).

An alternative approach has been created: the conceptual multiple-choice test. The conceptual multiple-choice test can be designed to prove students' underlying concepts. They can emphasize conceptual reasoning and reveal common misconceptions held by students. In the field of physics education, several well-known conceptual multiple-choice tests have been developed. The Force Concept Inventory (FCI) (Hestenes et al., 1992) is one of the most frequently mentioned. Other notable conceptual multiple-choice tests include the Force and Motion Conceptual Evaluation (FMCE) (Thornton & Sokoloff, 1998), the Energy and Momentum Conceptual Survey (EMCS) (Singh & Rosengrant, 2003), etc. These conceptual multiple-choice tests are typically designed for specific physics topics, and most are limited to probing only the concepts they were originally designed to assess.

Engelhardt (2009) has examined the typical methods used to create conceptual multiple-choice tests. The steps can be summarized as follows:

1. Recognize the need for the test: Determine the problem or the need for developing a new conceptual multiple-choice test.
2. Formulate the objectives: Clearly define the instructional objectives related to the domain of knowledge.
3. Construct test items: Develop test items carefully and thoughtfully.
4. Content validation (should be checked with Steps 2 and 3): Ensure the test content is valid, meaning it accurately measures the intended concepts.
5. Reliability check (should be checked with Step 3): Various analyses are conducted to evaluate its reliability. These include basic statistical analysis, item analysis, and reliability testing, such as internal consistency measures like Cronbach's alpha.
6. Distribution: The complete and finalized test is reported for use.

Thongchai (2009) also follows a similar process in developing his conceptual survey on mechanical waves. His development test process is based on the framework proposed by Crocker and Algina (1986). The test in this study was developed using a process like Engelhardt (2009).

Materials and Methods

1. Forming a test

In designing the test, 16 items were assigned to cover seven misconception models from Kızılcık et al. (2021). Some items were sourced from existing friction force concept tests, and some were newly created, ensuring they trigger the targeted misconceptions. Since the test focuses on direction, all items share the same choices: directional arrows (→, ←, ↑, ↓, ↖, ↘), "There is no friction force," and "Other".

2. Test validation

The content validation was conducted by physics experts at Mahidol University, while the clarity validation was conducted by a sample group in the pilot study to ensure that test-takers correctly understand the questions.

3. Sample group

The test was administered to 637 Grade 11–12 science and math students from three schools. All of them had already studied friction forces in Grade 10. The research was conducted during physics classes. The researcher guided the students on the rules for taking the test and provided a 2B pencil or eraser if needed. The test took 25–30 minutes to complete and required no calculations. Students were not provided with the answers by the researcher until every student in the sample group had completed the test.

4. Data analysis

The test's quality was assessed using the Difficulty Index, Discrimination Index, and Cronbach's Alpha. The Difficulty Index measures how easy an item is; 0.3–0.8 is the acceptable range (Hernandez, 2009). Discrimination Index evaluates how well an item differentiates high-ability and low-ability students; values above 0.24 are acceptable (D'Sa & Visbal-Dionaldo, 2017). Cronbach's Alpha measures test reliability and internal consistency. It should be more than 0.7 (Tongchai, 2009).

Results

1. The test

The last version of the test consists of a total of 16 items. The references come from the following sources: The direction of friction force worksheet used in first-year Physics at Mahidol University (Emarat & Arayathanitkul, 2022), Besson et al. (2010), Prasitpong and Chitaree (2010), and Cari et al. (2019). Each item is assigned to a misconception listed in Table 2.

Table 2: The misconception models and their items

The misconception models	items
Opposite to Motion	5, 13
Same with Motion	2, 3, 10
Opposite to External Force	6, 14
Same with External Force	1, 7*
Opposite to Acceleration	4
Always Horizontal	7*, 8
Opposite to Rotational Motion	9, 11, 12, 15, 16

*Item 7 was originally intended for the "Always Horizontal" model, but it was later determined that it could also be used to assess the "Same with External Force" model.

All items follow the same design pattern: determining the misconception model to probe, using a trigger related to that misconception, and providing the choice that students with that misconception are likely to select.

To illustrate this, item 7 from the "Always Horizontal" misconception model will be explained as an example. The situation for item 7 is shown in Figure 1a. It presents a simple scenario where a box is being held against a wall. The trigger in this case is that the object can only move vertically rather than horizontally, which is an unusual setup in frequent problem exercises. If a student holds the "Always Horizontal" misconception model, they will select the choice "There is no friction force".

Another example is item 1 from the "Same with External Force" model. Figure 1b shows the scenario for this item, where a box is being pushed by an applied force, but the box has not yet started moving. The trigger here is the applied force. If a student holds the "Same with External Force" misconception model, they will choose the option that represents the direction in which the force is exerted.

The full test in the Thai language can be accessed from reference #19.

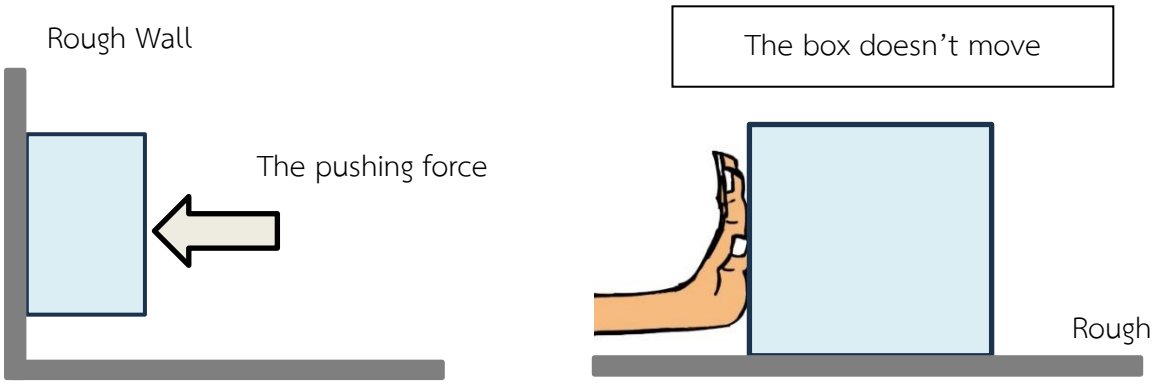


Figure 1a: Item 7

Figure 1b: Item 1

Figure 1: Examples of the situation in the test.

2. Classical test theory analysis

The bar graph of the Difficulty Index and Discrimination Index is shown in Figures 2 and 3, respectively. The two indices were attained from analyzing the data of the sample group.

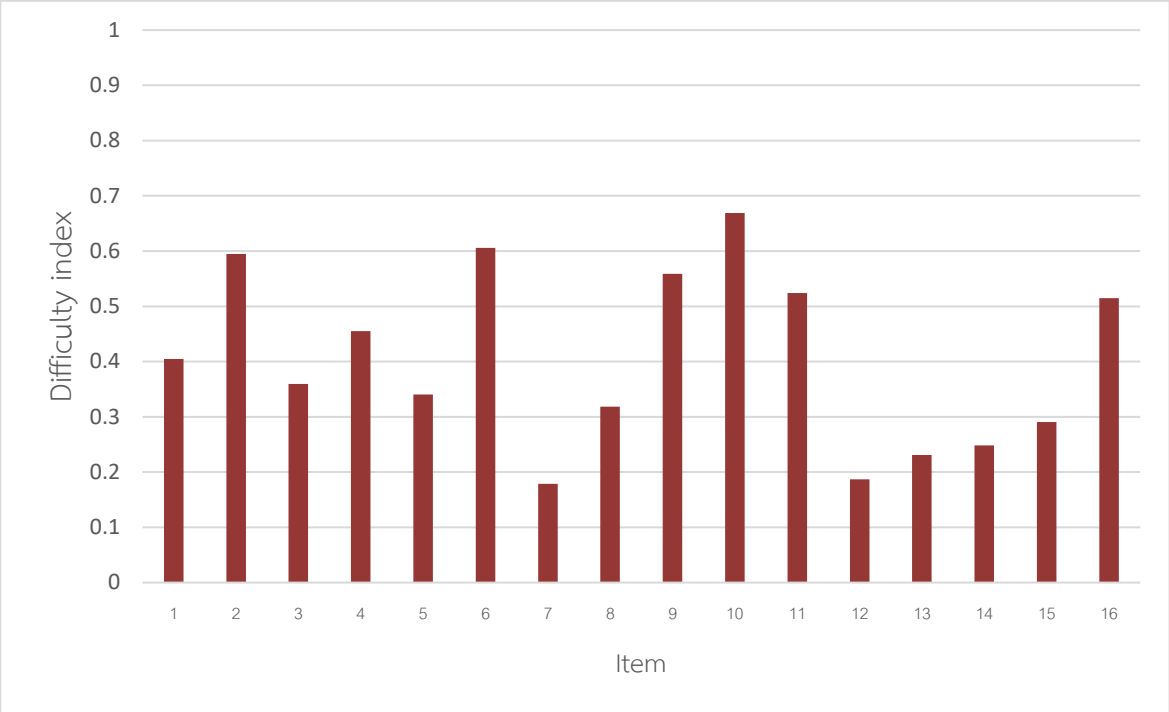


Figure 2: The bar plot of the Difficulty Index value of each item.

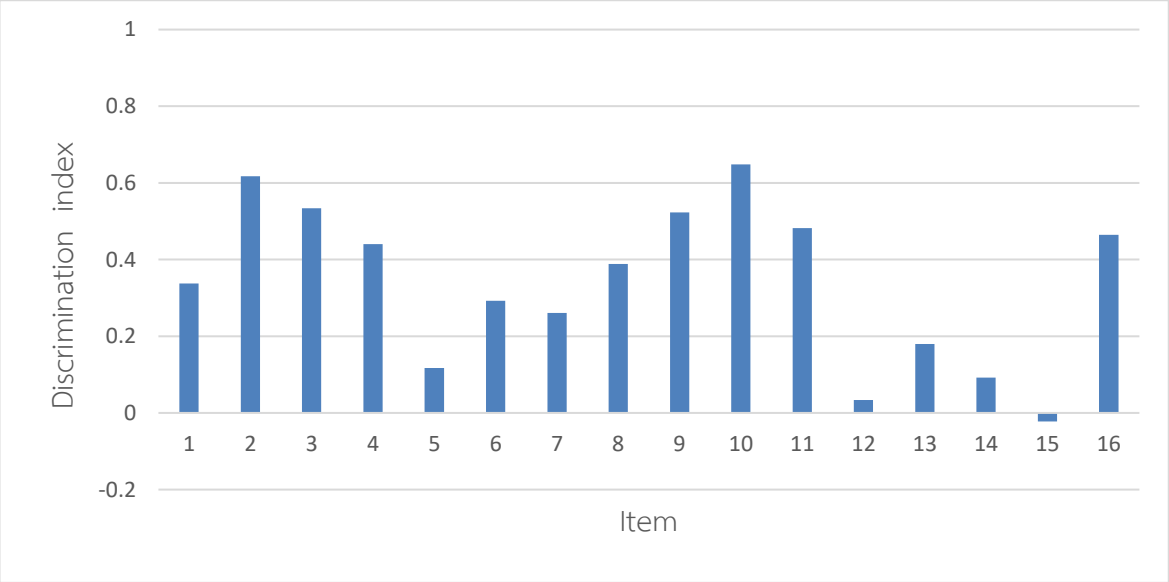


Figure 3: The bar plot of the Discrimination Index value of each item.

It can be seen from Figure 2 that most items had appropriate values, except for items 7, 12, 13, 14, and 15, which had low difficulty values. This can be explained by the nature of item 7, which involves the "Same with External Force" and "Always Horizontal" misconceptions. It triggers multiple concept models, resulting in distinct types of responses, leading to low correctness. Similarly, for items 12–15, many students were affected by the "Opposite to Motion" misconception, causing them to select incorrect answers and contributing to low correctness. Additionally, Items 5, 12, 13, 14, and 15 had poor discrimination index values (see Figure 3). This can be attributed to the fact that low-ability students often answered items 5, 14, and 15 correctly due to the "Same with Motion" misconception, which unintentionally led them to the correct choice. In the case of item 12, both high-ability and low-ability students applied the same misconception, "Opposite to Motion", leading to consistently low correctness and poor discrimination.

For the test reliability, Cronbach's Alpha had a value of 0.46, indicating poor internal consistency, which was expected due to the test measuring seven different misconceptions.

3. Using the test to assess students' understanding

This analysis aims to provide an overview of the statistical results for the groups of items assigned to each misconception. The mean percentage is the average of the scores in each misconception model divided by the full scores of that group and multiplied by 100. The SD percentage is the standard deviation of the average scores converted into a percentage. The SE percentage, which is the standard error of the average scores, is also converted into a percentage. The result is shown in Table 3.

Table 3: The basic statistics of each misconception model

Misconception model	Mean %	SD %	SE %
Opposite to Motion	28.6	33.5	1.3
Same with Motion	54.1	36.2	1.4
Opposite to External Force	42.7	30.5	1.2
Same with External Force	29.2	33.0	1.3
Opposite to Acceleration	45.5	49.8	2.0
Always Horizontal	24.9	33.4	1.3
Opposite to Rotational Motion	41.5	20.1	0.8

Most students struggle with the "Opposite to Motion," "Same with External Force," and "Always Horizontal" misconceptions, as shown by their low mean percentages.

In a deeper examination by checking the choices that students tend to choose, the "Opposite to Motion" misconception model is expected, as students frequently

choose the direction opposite to the object's motion.

For the “Always Horizontal” model, most students were incorrect because they selected "There is no friction force," which is associated with the “Always Horizontal” misconception.

For the “Same with External Force” model, an interesting concern emerged, particularly in item 1 (see Figure 1b). This item was designed to capture the “Same with External Force” misconception. Surprisingly, instead of selecting the direction that is the same as the external force, students tended to choose "There is no friction force". This trend contributed to a lower correctness percentage.

To explain this, one assumption arises: "Because there is no visible motion, students might assume that there is no friction force". If this explanation is true, a concerning issue will emerge in item 7 in Figure 1a, which also falls under the “Same with External Force” misconception model. However, the concern here is not about the “Same with External Force” misconception because, in item 7, the option indicating the same direction as the external force still existed and was selected by a considerable number of students. The real concern lies in the perspective of the “Always Horizontal” model. The question arises whether students chose "There is no friction force" in this item due to the “Always Horizontal” misconception or if they were influenced by a newly observed misconception, which could be called “No Motion, No Fiction.”

Conclusions and Discussion

In this conceptual multiple-choice test development, the approach of probing the seven misconceptions based on Kızılcık et al. (2021) which are Friction to be (1) always opposite to the direction of motion, (2) in the same direction as the motion, (3) always opposite to the direction of the external force, (4) in the same direction as the applied force, (5) always opposite to the direction of acceleration, (6) always horizontal, and (7) always opposite to the direction of rotational motion, resulted in 16 items. These 16 items passed the content validation from physics experts at Mahidol University and were confirmed for clear readability through testing with a pilot sample group. After being administered to the target group, the results showed that most items fell within the acceptable range for the Difficulty Index and Discrimination Index. The items that fall outside the acceptable range are still not a problem since these indices only consider the correct answer, while this test is designed to analyze the choices students select instead. Therefore, the Difficulty Index and Discrimination Index are not entirely suitable for judging the problem. Additionally, since classical test theory has limitations due to its indices being dependent on the sample, applying this test to a different group might yield different results. Therefore, considering the use of the Rasch model may be more suitable for

further analysis.

Another discussion point is in using the test to assess students' understanding. The high-school students from the sample group tend to have the "Opposite to Motion," "Same with External Force," and "Always Horizontal" misconceptions, shown by the mean percentage scores that are lower than others. However, caution is needed when interpreting the results for the "Same with External Force" and "Always Horizontal" models. The low percentage of correctness in these two groups might be due to a hidden misconception, which can be called "No Motion, No Friction." This misconception relates to the phrase "there is no friction force if the object does not move." In the further development of the test, considering modifications of the "Always Horizontal" items, including the movement to the objects could be a more effective way to reduce this 'No Motion, No Friction' misconception effect.

Therefore, the test needs further development. While using the current version of the test with the sample group, the author found that several items were still not appropriate. For example, items in the "Opposite to Rotational Motion" model may be removed from the test since high-school students in Thailand do not encounter this situation frequently in their curriculum. Additionally, the "Opposite to Acceleration" model may need more items added to ensure greater confidence in assessing this misconception. These issues will be revised to create a new and improved version.

References

Besson, U., Borghi, L., De Ambrosis, A., & Mascheretti, P. (2010). A three-dimensional approach and open-source structure for the design and experimentation of teaching-learning sequences: The case of friction. International Journal of Science Education, 32(10), 1289–1313 https://doi.org/10.1080/09500690903023350

Cari, C., Wulandari, P. S., Aminah, N. S., Handhika, J., & Nugraha, D. A. (2019). Students' understanding level of friction force direction concept on rolling object. In Journal of Physics: Conference Series, 1153(1), 1-9. https://doi.org/10.1088/1742-6596/1153/1/012150

Chia, T. C. (1996). Common misconceptions in frictional force among university physics students. Teaching and Learning, 16(2), 107–116.

Crocker, L., & Algina, J. (1986). Introduction to classical and modern test theory. Holt, Rinehart, and Winston.

Develi, F., & Namdar, B. (2019). Defining friction force: A proposed solution to a textbook problem. Journal of Education in Science, Environment and Health, 5(1), 91–101. https://doi.org/10.21891/jeseh.487399

D'Sa, J. L., & Visbal-Dionaldo, M. L. (2017). Analysis of multiple-choice questions: Item

difficulty, discrimination index and distractor efficiency. International Journal of Nursing Education, 9(3), 109-114.

Emarat, N., & Arayathanikul, K. (2022). The direction of friction worksheet [Unpublished teaching material]. SCPY157, Mahidol University.

Engelhardt, P. V. (2009). An introduction to classical test theory as applied to conceptual multiple-choice tests. Physical Review Physics Education Research, 2(1), 1–40. https://doi.org/10.1119/revperv2.1.2

Hernandez, R. (2009). Comparison of the item discrimination and item difficulty of the quick-mental aptitude test using CTT and IRT methods. The International Journal of Educational and Psychological Assessment, 1(1), 12-18.

Hestenes, D., Wells, M., & Swackhamer, G. (1992). Force concept inventory. The Physics Teacher, 30(3), 141–158. https://doi.org/10.1119/1.2343497

Kızılcık, H. Ş., Aygün, M., Şahin, E., Önder-Çelikkanlı, N., Türk, O., Taşkın, T., & Güneş, B. (2021). Misconceptions about solid friction. Physical Review Physics Education Research, 17(2), 023107. https://doi.org/10.1103/physrevphyseducres.17.023107

Knight, R. D. (2017). Physics for scientists and engineers: A strategic approach with modern physics (4th ed.). Pearson.

Prasitpong, S., & Chitaree, R. (2010). What Thai students think about directions and types of frictional forces. AIP Conference Proceedings, 1263(1), 66-69. https://doi.org/10.1063/1.3479895

Prasitpong, S. (2012). The frictional force learning module is based on hands-on and interactive lecture demonstration approaches (Doctoral dissertation, Mahidol University).

Serway, R. A., & Jewett, J. W. (2004). Physics for scientists and engineers with modern physics (6th ed.). Brooks Cole.

Singh, C., & Rosengrant, D. (2003). Multiple-choice test of energy and momentum concepts. American Journal of Physics, 71(6), 607–617. https://doi.org/10.1119/1.1571832

Thornton, R. K., & Sokoloff, D. R. (1998). Assessing student learning of Newton's laws: The force and motion conceptual evaluation and the evaluation of active learning laboratory and lecture curricula. American Journal of Physics, 66(4), 338-352. https://doi.org/10.1119/1.18863

Tongchai, A. (2009). Development of a conceptual survey in mechanical waves (Doctoral dissertation, Mahidol University).

Full test in Thai language. (n.d.). [PDF document]. Retrieved April 26, 2025, from https://drive.google.com/file/d/1fwmbPrF1hbpV1t7MwAY69GGgceTbrI0b/view?usp=sharing

Data-Driven Learning (DDL) and Its Effectiveness in Teaching Preposition Collocations to Thai High School Students

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Abstract

This study explores the effectiveness of Data-Driven Learning (DDL) in enhancing preposition collocational knowledge of EFL learners implementing a corpus-based DDL approach, utilizing the Corpus of Contemporary American English (COCA) as a resource for instructional materials. A group of 37 Grade 11 Thai EFL students participated in the study, engaging in a structured DDL instruction over multiple sessions. A pre-test and post-test were administered to assess students' accuracy in collocation use, while a questionnaire was used to examine their attitudes toward learning through DDL. The results indicated a statistically significant improvement in students' collocational accuracy, suggesting that DDL facilitated an understanding and more precise usage of prepositional collocations. Furthermore, most participants expressed positive attitudes toward DDL, finding it engaging and beneficial for learning collocations in context. A few students nonetheless found independent pattern identification through DDL challenging. This study suggests that while DDL is effective for collocation learning, prompting students' prior knowledge of collocation and incorporating guided instruction alongside DDL may optimize learning outcomes and support diverse learning preferences.

Keywords: Data-Driven Learning, Preposition Collocations, Thai EFL Students

Introduction

Effective communication is crucial for English language learners (ELLs) as it enables them to express their messages and share their ideas. Moreover, it helps them avoid misunderstandings while enhancing their ability to articulate their thoughts clearly in both spoken and written forms. To develop effective communication skills, learners must first grasp the core principles of sentence construction. That is, it is essential for them to acquire a functional knowledge of grammar tailored to their individual needs for their accurate and effective communication (Mehmonova, 2022).

Even though teaching grammar components does not necessarily aim to make learners grammarians, it helps them communicate effectively (Weaver, 2018 cited in

Chiekezie, 2021). Understanding grammar indeed means understanding the language (Chiekezie, 2021; Mehmonova, 2022). Even so, in the language classroom, it was still discovered that learners encountered difficulties related to the structures of the language. One of the most recurring issues is the proper use of collocational patterns, specifically those involving preposition combinations. Recently, several studies (e.g., Chuenchaichon, 2022; Qamariah & Wahyuni, 2020; Suraprajit, 2021; Yusuf et al., 2021) have shown that frequent errors include the addition of unnecessary preposition and the omission of the necessary preposition. However, the causes of these errors are multifaceted. A major contributing factor is the influence of learners' first language (L1), where structural disparities between languages can result in incorrect assumptions about English collocations (Hashemi et al., 2012). Another significant source is the insufficient knowledge of collocations (Boonraksa & Naisena, 2022; Thongvitit & Thumawongsa, 2017), often resulting from limited exposure to authentic language use or a lack of explicit teaching (Dokchandra, 2019).

As extensively documented, collocational knowledge is essential for English as a foreign language (EFL) students, as it enhances their communicative competence. Effective use of collocations contributes to more natural and accurate language production, allowing learners to express their ideas with precision and fluency. Since collocations are a core aspect of native-like speech patterns, their appropriate use helps learners sound more natural and intelligible in both spoken and written communication (Tian & Della Amirulloh, 2024). Without sufficient collocational knowledge, EFL learners may struggle with unnatural or incorrect word combinations. Moreover, a strong grasp of collocations allows students to understand phraseological units when their meanings are not from individual components. These fixed expressions often pose a challenge for learners due to their non-literal meanings. In fact, a word in isolation may lack clarity, as words do not occur independently in natural language (Stubbs, 2001). Also, collocations account for a significant portion of daily communication, appearing in both spoken and written discourse, with a large percentage of what people say and hear daily (Hill, 2000). Therefore, students should receive appropriate instruction to support their learning and acquisition of collocational knowledge.

As stated earlier, students continue to face difficulties in learning preposition collocation patterns. To address this challenge, effective teaching methods such as explicit teaching and Data-Driven Learning (DDL) utilizing language corpora have been suggested (He & Xie, 2024; Liu & Gablasova, 2023). Evidently, DDL allows students to analyze actual language data, helping them understand language patterns through exposure to real-life language usage (Muftah, 2023). Unlike traditional methods (e.g., rote memorization, grammar translation, dictionary-based learning) as they do not promote natural language

acquisition or meaningful use, DDL is believed to provide students with the opportunity to actively engage with language input, fostering a deeper and more meaningful learning experience (Chambers, 2010). By analyzing multiple instances of collocations in their authentic usage, learners can develop an automatic use of the collocations they are learning (Yuvayapan & Yükselir, 2021). Research further suggests that presenting collocations in diverse and meaningful contexts helps students identify recurring patterns and apply them accurately in their speech and writing (Lindquist, 2018; Muftah, 2023).

Given the limitations of traditional methods and the growing recognition of DDL's benefits, this study adopts a DDL approach to assist Thai EFL students improve their preposition collocation knowledge. While DDL has been widely implemented in university-level English instruction due to its effectiveness for learners with advanced L2 proficiency, there remains a noticeable gap in research on its application in high school language learning. This gap suggests the need for further exploration of how DDL can be tailored to younger learners or those at lower proficiency levels. Additionally, existing research on data-driven vocabulary learning has primarily focused on word meanings rather than contextual usage, including collocations. While collocations are sometimes mentioned in vocabulary instruction, they are often not the primary focus, highlighting the necessity for further studies in this area (Li et al., 2024). Building on the identified challenges and pedagogical recommendations, this study addresses the following research questions:

1. For Thai high school students, is there a statistically significant difference in pre- and post-test accuracy scores after using DDL to learn preposition collocations?
2. What are the Thai high school students' attitudes and feedback on the use of DDL in preposition collocation learning?

Hypotheses

1. H1: Students who undergo DDL instruction will show a statistically significant improvement in preposition collocation accuracy.
2. H2: Thai high school students will demonstrate a generally cheerful outlook toward the use of Data-Driven Learning (DDL) in learning preposition collocations.

Purposes of the Study

This study aims to investigate the effectiveness of Data-Driven Learning (DDL) in enhancing Thai high school students' knowledge and usage of English preposition collocations, with a focus on verb–preposition and adjective–preposition combinations. Specifically, the purposes of this study are as follows:

1. To examine the effectiveness of DDL in improving students' accuracy in using prepositional collocations in English. This will be assessed by comparing pre-test and post-test scores following a DDL instruction.
2. To explore students' attitudes toward learning preposition collocations through the DDL approach, including their engagement with paper-based concordance lines and their perceived benefits or challenges.

Literature Review

1. Preposition Collocation and its Learning.

Collocations consist of words that tend to appear together in language with regularity and predictability (Lewis et al., 2000). However, Sinclair (1991) presents a different view, suggesting that collocations can also follow unpredictable patterns, making them more context-dependent but less formulaic. While Lewis et al. (2000) emphasizes the structured and systematic nature of collocations, Sinclair (1991) highlights their dynamic and sometimes unexpected combinations. This divergence in perspectives underscores the complexity of collocations, as they can exhibit both fixed and semi fixed patterns. Despite this, grammatical collocations encompass several types. As a subcategory of collocations, prepositional collocations involve the combination of a content word with a function word—most commonly a preposition—or other grammar structures, namely clauses or infinitives (See Benson et al., 1997).

In contemporary English language teaching, there is an increasing emphasis on the importance of using collocations accurately and appropriately (Demir, 2017), as enhances both comprehension and production skills, enabling more precise and natural expression (Tian & Della Amirulloh, 2024). Despite their massive significance, collocations still pose challenges for EFL learners. Research has highlighted persistent issues such as incorrect word pairings: omission of necessary prepositions and addition of unnecessary prepositions (Chuenchaichon, 2022; Qamariah & Wahyuni, 2020; Suraprajit, 2021). Considering this, one of the most prominent sources of these errors is first language interference, where structural differences between L1 and English create incorrect assumptions about collocation patterns (Hashemi et al., 2012). For instance, learners whose native languages do not require prepositions in certain verb collocations may mistakenly omit them in English (e.g., I am waiting my mother instead of I am waiting for my mother). Conversely, learners may also add prepositions unnecessarily due to direct translation from their L1, leading to incorrect assumptions. For example, while English uses good at something, some learners might incorrectly use good in something if their native language follows a different structure. Moreover, limited exposure to authentic language input further exacerbates these issues, as many learners rely on textbooks rather than encountering collocations in

natural spoken or written discourse. It has been found that some teachers predominantly use English textbooks as their primary resource (Boontam & Phoocharoensil, 2016), even though these materials occasionally contain language that is not actually used in real communication (Mindt, 1996, cited in McEnery & Xiao, 2011). Taking these issues into account, these teaching and learning methods are not entirely applicable or appropriate for the students. Contextualized learning and repeated exposure to authentic collocations through DDL therefore are seen as efficient strategies for enhancing learners' ability to use collocations accurately (Lindquist, 2018; Muftah, 2023).

2. Data-Driven Learning (DDL) on Collocation Learning

Collocation learning is a critical aspect of language acquisition, and Data-Driven Learning (DDL) has emerged as a classroom approach for helping learners identify and internalize collocational patterns. The application of DDL, commonly referred to as applying corpora in language learning, is prevalently associated with Tim Johns' pioneering work. Johns (1991) proposed that learners should actively engage as researchers of the target language, while teachers serve as facilitators and coordinators of their linguistic inquiry. DDL emphasizes human interaction with authentic machine-generated data, enabling students to recognize language patterns in real-world language use (O'Keeffe & McCarthy, 2022). To facilitate collocation learning, DDL can be implemented through either computer-based or paper-based approaches, depending on classroom context and learner proficiency and/or experience with their independent searches (Chujo et al., 2012; Huang, 2014). Computer-based DDL provides learners with direct access to large corpora and interactive tools that facilitate real-time language analysis. This approach is particularly beneficial for learners who are comfortable navigating digital resources. On the other hand, paper-based DDL, which involves the use of printed concordance lines and structured worksheets, can be more suitable for learners in environments with limited access to digital tools or for those at lower proficiency levels who may find corpus software overwhelming, but it may may be limited in interactivity and data range.

In this study, paper-based DDL was implemented to enhance students' collocation learning, allowing them to engage with the chosen corpus data under the teacher's guidance based on the student's learning objectives. To ensure that the material is suitable for students' proficiency levels, teachers can modify concordance lines and adjust collocational input to prevent cognitive overload (Römer, 2011). Both computer-based and paper-based DDL provide valuable opportunities for learners to observe and acquire collocations in authentic language use (Saeedakhtar et al., 2020). By being exposed to corpus data, students develop greater awareness of natural word combinations, which contributes to improved accuracy, fluency, and overall communicative competence in English (Chambers, 2010; Lindquist, 2018; Satake, 2022). This exposure to real-life language

use allows learners to observe recurrent collocational patterns and gain a deeper understanding of language in context (He & Xie, 2024).

3. Recent Research on DDL for Collocation Learning

DDL has been recognized as an effective method for teaching collocations, particularly in addressing challenges associated with preposition usage. Studies have shown that learners who engage with corpus-based materials demonstrate improved accuracy in collocation use, as they develop an automatic recognition of word pairings through repeated exposure (Yuvayapan & Yükselir, 2021). Furthermore, DDL promotes learner autonomy by allowing students to actively explore and verify language usage rather than passively receiving information. By encouraging learners to discover language patterns inductively, this approach has been acknowledged for its role in boosting linguistic awareness and fostering independence, as noted by Johns (1991) (Kwarikunda et al., 2022). Indeed, several studies have examined the impact of DDL on collocation learning in EFL settings, consistently highlighting its effectiveness in improving learners' collocational competence. For instance, Saeedakhtar et al. (2020) found that both computer-based and paper-based DDL were equally effective regarding the use of verb-preposition collocation. Similarly, Satake (2022) demonstrated that students learning collocations through DDL produced a greater number of the collocations than those relying on dictionaries, reflecting DDL's role in fostering collocational awareness. Additionally, Çekiç (2022) compared DDL to deductive learning and found that while both methods improved collocation knowledge, DDL users retained more collocations and engaged in deeper processing. However, He and Xie (2024) noted that despite DDL's positive impact on noun collocation retention, some learners expressed uncertain or negative perceptions, suggesting a need for deeper investigation into participants' perspectives.

Considering the above studies, though many existing studies focus on word meanings, fewer have examined collocations as a primary learning target. Among those that do, most emphasize noun-verb and adjective-noun lexical combinations, with prepositional collocations receiving comparatively less attention, despite their vital role in accurate language use. Besides, data-driven vocabulary learning has primarily been implemented at the university level, as DDL is believed to be more efficient for learners with higher L2 proficiency. Nevertheless, research on its practical application in high school settings remains limited, particularly regarding collocation learning (Li et al., 2024). Building on the findings from recent existing research, this present study seeks to contribute to the literature by examining the effectiveness of DDL for teaching prepositional collocations to Thai EFL learners by addressing the research gaps related to high school students and preposition-focused collocation learning focusing on verb and adjective preposition collocations, and students' attitudes toward learning through DDL.

Methodology

1. Participants of the Study

The participants of this study were Grade 11 students from Hatyai Wittayalai 2 School, Hatyai District, Songkhla Province. A purposive sampling method was employed to select students with low proficiency in English, as determined by the school's standardized English assessment. A total of 37 students participated in the study. The selection process ensured that the participants were suitable for addressing the study's objectives by focusing on learners who were expected to benefit most from explicit instruction in preposition collocations.

2. Instruments

2.1 The selected corpus

The Corpus of Contemporary American English (COCA) was utilized as the primary resource for creating exercises aimed at teaching preposition collocations. It provides real-world language usage across diverse contexts, including fiction, academic texts, spoken language, newspapers, and magazines, making it an ideal tool for exposing learners to authentic collocational patterns. The corpus allowed students to observe verb-preposition and adjective-preposition combinations in naturally occurring language.

2.2 Teaching materials

Materials on prepositional collocations were developed to align with the students' learning objectives. While the targeted collocations were drawn from the students' coursebook, additional authentic examples from COCA were incorporated to enhance the accuracy and contextual relevance of the exercises. The materials included four exercises, each consisting of ten items. The first part required students to fill in each gap with the correct preposition, while the second part asked them to write their own sentences using the collocations from the first part. These activities aimed to reinforce both recognition and productive use of collocations.

2.3 pre-and post-tests

A pre-test and post-test were administered to measure students' knowledge of verb- and adjective-preposition collocations before and after DDL. The tests were 50 minutes long and comprised three sections with a total of 15 items. The first part required students to fill in each gap with the correct preposition. The second part involved selecting and inserting the correct verb or adjective + preposition collocation. The third part required students to correct errors in prepositional collocations. The tests were validated by three experts, and their Index of Item-Objective Congruence (IOC) score was 1.00, confirming the high validity of the tests.

2.4 Attitude Questionnaire

A 10-item questionnaire was adapted from previous research (Pan, 2024; Tosun & Sofu, 2023) to assess participants' attitudes and feedback on the learning experience. The questionnaire was administered immediately after the post-test to capture students' reflections on their experience using DDL. The questionnaire consisted of three sections. The first section collected general information about the participants. The second section contained five-point Likert scale items (Strongly Agree = 5 to Strongly Disagree = 1) to examine students' attitudes regarding the usefulness of DDL and the challenges faced while learning collocations through DDL. The last section included an open-ended question to allow students to provide additional comments and suggestions about their learning experience.

3. Data Collection Procedure

The data was collected during the second semester of the academic year 2024, between December and February, in a fundamental English class. Each week, a 50-minute session was allocated for DDL instruction. The research procedure was divided into three main stages: planning and preparation, teaching and experimentation, and post-experimentation.

3.1 Planning and Preparation

COCA was selected as the reference corpus for the study. Learning activities were designed to focus on verb- and adjective-preposition collocations. The materials were carefully developed to incorporate both corpus-based examples and structured practice exercises to facilitate students' gradual understanding of collocational patterns. Prior to implementation, the materials underwent a review by language experts to confirm their suitability for the learners' proficiency level and ensure alignment with the research objectives.

3.2 Teaching and Experimentation

A pre-test was administered to measure students' initial understanding of verb- and adjective-preposition collocations. This was followed by an introduction to the topic, where one of the researchers, as the teacher, explained the key principles of collocations and provided examples to illustrate their use in different contexts. The instruction emphasized how prepositions function in collocational patterns and how meaning can change depending on the prepositional choice.

The DDL approach was implemented by guiding students through the analysis of language data from the designed materials. Students were encouraged to identify common prepositions that frequently appear in verb- and adjective-preposition collocations, recognizing patterns through repeated exposure. To reinforce understanding, students engaged in structured exercises that required them to match verbs and adjectives with

their appropriate prepositions and construct sentences using the collocations they identified.

Throughout the activities, the teacher observed the students' interactions with the exercises and their ability to recognize and apply collocations correctly. Interventions were provided as needed, particularly when students raised their hands to seek clarification or assistance. The teacher facilitated discussions to help students reflect on their learning, encouraging them to articulate their reasoning behind specific prepositional choices.

3.3 post-experimentation

Following the completion of the DDL instruction, the post-test was administered to measure students' learning gains in the collocations after learning. The results of the post-test were analyzed to determine the effectiveness of the DDL approach in improving students' collocational competence. Afterwords, the students were asked to provide their attitudes and feedback on their experiences through questionnaire implementation.

4. Data Analysis

The pre-test and post-test results were analyzed using statistical software to determine the improvement in students' ability to use preposition collocations correctly. The data was analyzed using a paired sample t-test and was conducted to identify whether the differences between the pre-test and post-test scores were statistically significant. Following that, the effect size was calculated to determine the magnitude of the DDL approach's effect on student learning.

Responses from the Likert-scale questionnaire were analyzed using descriptive statistics, including percentages, to determine students' attitudes of the usefulness and challenges of learning prepositional collocations through DDL. Open-ended responses were qualitatively analyzed to identify recurring themes and suggestions for improvement.

Results

This section presents the findings based on data collected from pre- and post-writing tests, as well as the attitude questionnaire.

1. Pre-test and post-test results

Table 1 demonstrates a substantial improvement in students' collocational knowledge after engaging in DDL.

Table 1: Pre-test and post-test results

Test	N	$\bar{x}$	S. D.	Paired difference means	Minimum	Maximum	Sig. (2-tailed)	Cohen's d
Pre-test	37	4.84	2.75	9.48	0	10	.00	0.87
Post-test	37	14.32	0.74		13	15		

* Significant at 0.05

As illustrated in Table 1, a statistically significant difference was found when comparing the pre-test ($\bar{x}$ = 4.84, SD = 2.75) and the post-test ($\bar{x}$ = 14.32, SD = 0.74), with 9.48 of score difference ($p < 0.05$). The large effect size (d = 0.87) was also found, indicating a substantial impact of the DDL treatment on students' learning outcomes (Cohen, 1988).

The results from the paired-sample t-test, as shown in this table, indicated a practically and statistically significant difference between the pre-test and post-test scores, suggesting a notable improvement in students' performance after learning the collocations through DDL.

2. Questionnaire results

The data collected from the questionnaire revealed the students' attitudes toward the usefulness and the challenges of DDL, as can be seen in figure 1 and 2.

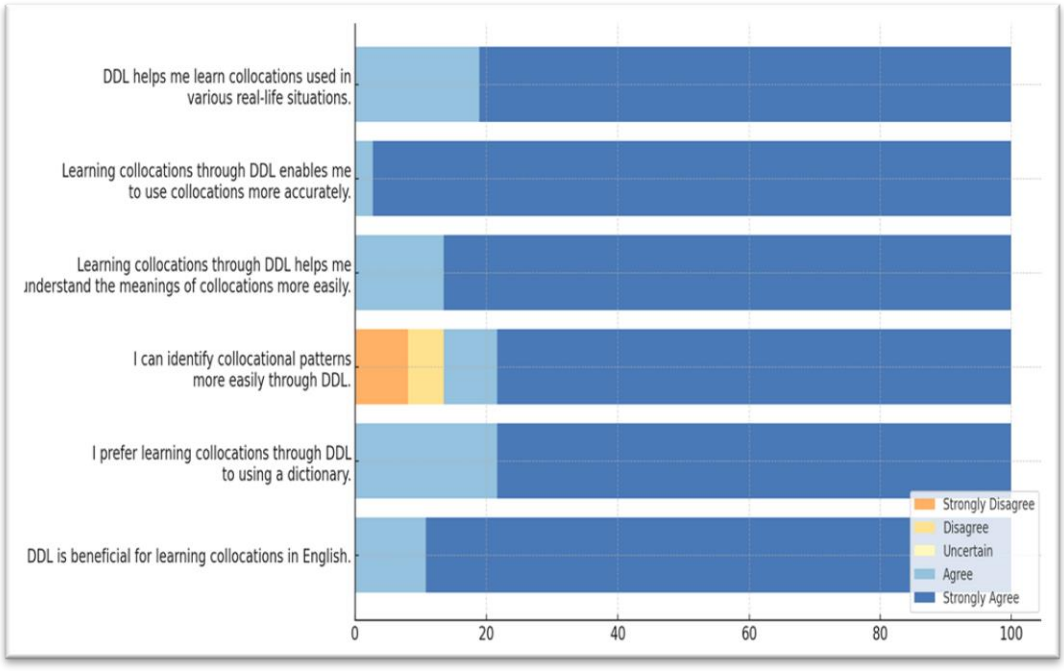


Figure 1: Students' Attitudes Toward the Usefulness of DDL

In response to the usefulness of DDL, the findings indicate that most students held positive attitudes toward its effectiveness. That is, 97.30% of students strongly agreed that learning collocations through DDL helped them to use collocations more accurately. In consistent with this, 89.19% of the students believed that DDL was beneficial for learning collocations in English. Additionally, a substantial percentage of students acknowledged that DDL helped them understand the meanings of collocations more easily (86.49%) and learn collocations used in various real-life situations (81.08%). Furthermore, 78.38% of students stated that they preferred learning collocations through DDL to using a dictionary. Although most students responded positively to the usefulness of DDL, a small number (8.10%) Strongly expressed disagreement with the statement that they could identify collocational patterns more easily through DDL.

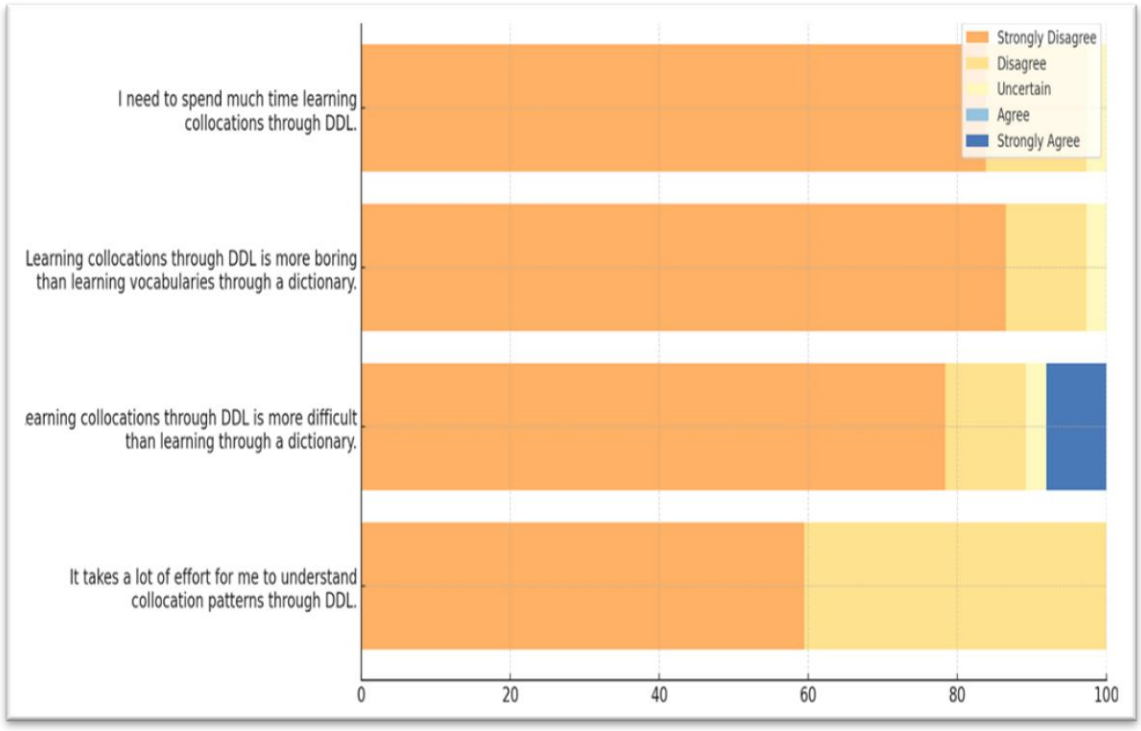


Figure 2: Students' Attitudes Toward the Challenges of DDL

Regarding the attitudes toward the challenges of DDL, the results indicate that a substantial majority of students (86.49%) strongly disagreed that learning collocations through DDL was more boring than learning through a dictionary. Likewise, 83.78% of students strongly disagreed that learning collocations through DDL required excessive time. In terms of difficulty, 78.38% of students strongly disagreed that learning collocations through DDL was more difficult than learning through a dictionary; however, 8.11% strongly agreed with this statement. When asked about the effort required to understand

collocational patterns, 59.46% of students strongly disagreed, further suggesting that most students did not find DDL particularly demanding.

Conclusions and Discussion

The results obtained from both the pre- and post-tests, as well as the questionnaire responses, highlighted the effectiveness of DDL in improving students' collocation knowledge in prepositional collocations. The statistically significant improvement in students' performance suggests that the implementation of paper-based DDL contributed to a notable improvement in their ability to use the collocations. These findings confirm that learners who engaged in DDL developed a practical grasp of the collocations, allowing them to apply these patterns more accurately in their language production. This aligns with Schmidt's (1990) Noticing Hypothesis, which emphasizes that language learners must consciously attend to linguistic patterns for acquisition to occur. Through DDL, students were repeatedly exposed to prepositional collocations in meaningful contexts, which may have facilitated their recognition of these structures. This finding also resonates with Chambers and O'Sullivan's (2004) perspective on autonomous learning, which highlights the importance of fostering self-directed learning in language acquisition. Through DDL, students could engage in autonomous examining of data, leading to self-discovery of collocational patterns. It was stated that learners are more likely to retain linguistic information when they discover it independently rather than through passive learning (Ellis, 2003). Unlike traditional deductive teaching methods, which present rules and rely on memorization, DDL allows learners to engage in inductive learning by discovering linguistic patterns on their own.

The students' positive attitudes toward DDL further validate its effectiveness as an instructional approach. A substantial majority of students found DDL useful, believing that it helped them to use collocations more accurately and was beneficial for learning collocations. These findings align with previous research (Yuvayapan & Yükselir, 2021; Saeedakhtar et al., 2020), which has demonstrated that DDL approach improves accuracy in collocation use. The ability to repeatedly observe collocations in different contexts can allow learners to internalize the patterns and use them more effectively in their own language output. These findings are also consistent with Satake (2022), who found that DDL leads to greater collocational awareness. The finding that a significant number of students preferred DDL to traditional dictionary-based learning methods suggests that DDL instruction is not only effective but also motivating for learners (He & Xie, 2024).

Although the majority favored DDL, a small number of students expressed a preference for dictionary to learn collocations. This might be attributed to differences in individual learning styles, where some learners feel more comfortable with structured and

defined explanations rather than the inductive approach of DDL. Additionally, some students may have faced difficulties due to insufficient knowledge of collocations (Boonraksa & Naisena, 2022). For these learners, dictionaries have possibly offered a sense of clarity and immediacy in understanding collocations, as opposed to the exploratory and discovery nature of DDL (Johns, 1991). However, it should be noted that traditional dictionaries often do not provide adequate support for collocation learning, as they typically focus on individual word definitions rather than word combinations. Many dictionaries allow users to search for isolated words rather than entire collocational parings, limiting their usefulness for learners who need to understand how words function together in natural discourse. This limitation suggests that while dictionaries can be helpful for vocabulary learning, they may not be the most effective tool for acquiring collocational knowledge. Besides, the results also indicate that the challenges typically associated with DDL, such as excessive time consumption and difficulty in understanding collocational patterns, were not significant concerns for most students. In this study, the students nonetheless worked with selected concordance lines from a massive corpus, simplifying the learning process and reducing the risk of overwhelming them. In any case, the teacher-guided implementation of DDL provided necessary scaffolding, ensuring students could navigate and interpret corpus data independently. By consulting the target corpus, teachers can also make pedagogical decisions to determine what to teach while utilizing the target corpus to develop authentic teaching materials (Römer, 2011).

Overall, with respect to the key findings, it was suggested that implementing DDL into classroom instruction can enhance EFL learners' collocational competence while fostering greater autonomy in language learning. However, given the challenges some students faced, further research is needed to explore ways to optimize DDL, particularly in terms of scaffolding, teacher facilitation, and blended approach. By refining the implementation of DDL, educators may maximize its potential in supporting students' ability to use collocations more naturally and accurately in real-world communication.

Recommendations

Based on the findings of this study, several practical recommendations can be made for effectively implementing DDL in English language classrooms to improve students' collocational competence:

1. For high school EFL learners with limited access to technology or less familiarity with corpus tools, paper-based DDL is a practical and effective option. Teachers can pre-select concordance lines from accessible corpora like COCA and present them in worksheet form, allowing students to focus on noticing patterns without the cognitive load of navigating digital interfaces.

2. To prevent confusion or cognitive overload, it is recommended that teachers carefully select examples of collocations, adjusting certain lines with overly complex grammar or vocabulary.
3. Before presenting corpus data, activate students' background knowledge related to the target collocations. This helps learners make meaningful connections and better anticipate patterns, increasing the effectiveness of DDL tasks.

This study highlights the potential of DDL as an effective approach for teaching preposition collocations in EFL contexts. The findings demonstrate that engaging students in DDL could benefit from emphasizing natural and context-rich usage, leading to improved accuracy and more natural language use. The study also highlights the positive effect of DDL, as most students found it to be useful for collocation learning, with many preferring it over traditional dictionary. Nevertheless, despite its benefits, this study acknowledges several limitations. Firstly, the sample size was small and limited to a specific group of EFL students, which may restrict the generalizability of the findings. Future research could examine how DDL affects learners across a wider range of language proficiencies and educational backgrounds. Secondly, some students experienced difficulties in independently identifying collocational patterns, suggesting that DDL may not be equally effective for all learners. Lower-proficiency students may require additional scaffolding and teacher guidance to fully benefit from DDL. Another limitation of this study is the possibility of researcher-teacher bias, as the researcher also served as the instructor during the implementation of the DDL. This dual role may have influenced students' responses, attitudes, or performance, either consciously or unconsciously. To minimize this bias, the researcher adhered strictly to a standardized lesson plan, used pre-developed instructional materials, and ensured that the same level of support was given to all participants. In addition, students were encouraged to provide honest and anonymous feedback through self-administered questionnaires without the presence of the researcher. Lastly, while this study focused on paper-based DDL, the integration of digital tools and interactive corpus software could further enhance students' ability to explore collocations effectively. Given these limitations, further studies should investigate ways to optimize DDL implementation, ensuring that it is adaptable to diverse classroom contexts and learner needs. By addressing these challenges, educators can maximize the potential of DDL in enhancing collocational competence and overall language proficiency among EFL learners.

References

Benson, M., Benson, E., & Ilson, R. (1997). The BBI dictionary of English word combinations. John Benjamins Publishing.

Boonraksa, T., & Naisena, S. (2022). A study on English collocation errors of Thai EFL students. English Language Teaching, 15(1), 164-177.

Boontam, P., & Phoocharoensil, S. (2016). Effectiveness of English preposition learning through data-driven learning (DDL) [Unpublished master's thesis]. Thammasat University.

Chambers, A. (2010). What is data-driven learning? In A. O'Keeffe & M. McCarthy (Eds.), The Routledge handbook of corpus linguistics (pp. 345–358). Routledge.

Chambers, A., & O'Sullivan, I. (2004). Corpus consultation and advanced learners' writing skills in French. ReCALL, 16(1), 158–172.

Chiekezie, P. N. (2021). Lexical collocations in the English sentences: An overview. Pinisi Journal of Art, Humanity and Social Studies, 1(1), 1–5.

Chuenchaichon, Y. (2022). An error analysis of written English paragraphs at lexical, syntactic, and paragraph levels made by Thai EFL non-English major students. 3L: Southeast Asian Journal of English Language Studies, 28(2), 96–108.

Chujo, K., Anthony, L., Oghigian, K., & Uchibori, A. (2012). Paper-based, computer-based, and combined data-driven learning using a web-based concordancer. Language Education in Asia, 3(2), 132–145.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Lawrence Erlbaum Associates.

Demir, C. (2017). Lexical collocations in English: A comparative study of native and non-native scholars of English. Journal of Language and Linguistic Studies, 13(1), 75-87.

Dokchandra, D. (2019). Thai EFL learners' collocational competence and their perceptions of collocational difficulty. Theory and Practice in Language Studies, 9(7), 776-784.

Ellis, R. (2003). Task-based language learning and teaching. Oxford University Press.

Firth, J. R. (1957). Papers in linguistics. Oxford University Press.

Hashemi, M., Azizinezhad, M., & Dravishi, S. (2012). The investigation of collocational errors in university students' writing majoring in English. Procedia-Social and Behavioral Sciences, 31, 555-558.

He, M., & Xie, Q. (2024). Empowering autonomy in language learning: The sustainable impact of data-driven learning on noun collocation acquisition. Humanities and Social Sciences Communications, 11(1), 1-14.

Hill, J. (2000). Revising priorities: From grammatical failure to collocational success. In M. Lewis (Ed.), Teaching collocation: Further developments in the lexical approach (pp. 47–69). Thomson Heinle.

Huang, Z. (2014). The effects of paper-based DDL on the acquisition of lexico-grammatical patterns in L2 writing. ReCALL, 26(2), 163-183.

Johns, T. (1991). Should you be persuaded: Two samples of data-driven learning materials. English Language Research Journal, 4, 1–16.

Kwarikunda, D., Schiefele, U., Muwonge, C. M., & Ssenyonga, J. (2022). Profiles of learners based on their cognitive and metacognitive learning strategy use: Occurrence and relations with gender, intrinsic motivation, and perceived autonomy support. Humanities and Social Sciences Communications, 9(1), 1–12.

Lewis, M. (Ed.). (2000). Teaching collocation: Further developments in the lexical approach. Thomson Heinle.

Li, L., Qi, X., Tang, X., & Wang, J. (2024). Effectiveness of high school students' DDL of verb–noun collocations in an EFL context. Frontiers in Educational Research, 7(3), 106–114.

Lindquist, H. (2018). Corpus linguistics and the description of English. Edinburgh University Press.

Liu, T., & Gablasova, D. (2023). Data-driven learning of collocations by Chinese learners of English: a longitudinal perspective. Computer Assisted Language Learning, 38(3), 612-637.

McEnery, T., & Xiao, R. (2011). What can a company offer in language teaching and learning? In E. Hinkel (Ed.), Handbook of research in second language teaching and learning (Vol. 2, pp. 364–380). Routledge.

Mehmonova, Y. C. (2022). Lexical and grammatical collocations in the English sentences. Eurasian Research Bulletin, 8, 43-47.

Muftah, M. (2023). Data-driven learning (DDL) activities: do they truly promote EFL students' writing skills development? Education and Information Technologies, 1–27.

Pan, Z. (2024). EFL learners' use of data-driven learning and their attitudes in the improvement of English-speaking skills. International Journal of Learning, Teaching and Educational Research, 23(8), 98–115.

Qamariah, H., & Wahyuni, S. (2020). An analysis of students' grammatical errors in writing English text in the second-grade students of SMK-SMTI Banda Aceh. Getsempena English Education Journal, 7(1), 58-71.

Saeedakhtar, A., Bagerin, M., & Abdi, R. (2020). The effect of direct and hands-off data-driven learning on low-intermediate learners' verb-preposition collocations. System, 91, 102268.

Schmidt, R. W. (1990). The role of consciousness in second language learning. Applied Linguistics, 11(2), 129–158.

Sinclair, J. (1991). Corpus, concordance, collocation. Oxford University Press.

Suraprajit, P. (2021). An analysis of errors in English essays written by Thai non-English major students. Theory and Practice in Language Studies, 11(1), 12-19.

Thongvitit, S., & Thumawongsa, N. (2017). A corpus-based study of English collocations found in the abstracts of research articles written by Thai EFL writers. International Journal of Social Science and Humanity, 7(12), 751–755.

Tian, L., & Della Amirulloh, R. (2024). L1 influence on EFL learners' use of English collocations. The Journal for Research and Practice in College Teaching, 9(1), 1–18.

Tosun, S., & Sofu, H. (2023). The effectiveness of data-driven vocabulary learning: Direct concordancing through a pedagogical corpus. Journal of Language and Education, 9(3), 176–190.

Yusuf, Y. Q., Mustafa, F., & Iqbal, R. M. (2021). An inquiry into grammatical errors in writing committed by high achieving EFL students. International Journal of Language Studies, 15(2), 1–22.

Yuvayapan, F., & Yükselir, C. (2021). Understanding Turkish EFL students' perceptions about collocations and investigating their collocational errors in descriptive and argumentative essays. International Journal of Curriculum and Instruction, 13(3), 2179–2194.

A Review of Vocabulary Learning Strategies Used by EFL Learners (2020-2024): Current Trends

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Abstract

Vocabulary learning strategies (VLSs), which are techniques or methods learners use to acquire innovative words (Riyantika, Hanafi, & Aini, 2024), have been found to influence language learning outcomes. This paper reviews several academic journals focused on the use of VLSs within the context of English as a foreign language (EFL), particularly in Asia. The review follows a three-phase process—identifying, screening, and reading—to provide a thorough overview of both theoretical discussions and empirical research on VLSs. It starts with defining VLSs, followed by an exploration of their classifications. It then reviews recent empirical studies (2020-2024) that classify the types of VLSs used, assess the frequency of these strategies, and examine the relationship between VLSs and vocabulary mastery. It also highlights factors affecting VLS use, such as motivation, gender differences, proficiency level, critical thinking skills, and the explicit instruction of VLSs, and discusses how these factors impact vocabulary acquisition. The results indicate inconsistencies in the use of VLSs among EFL learners. For instance, a study of 219 Saudi learners found that memory strategies were most preferred (Al-Khresheh & Al-Ruwaili, 2020), while a separate study of 42 Omani college students highlighted the frequent use of cognitive strategies (Behforouz & Ghaithi, 2022). In contrast, a study involving 180 Indonesian students revealed that metacognitive and encoding strategies were most used, with cognitive strategies being the least utilized (Mistar, 2023). The goal of this review is to offer insights that could help refine VLSs for more effective vocabulary learning.

Keywords: Vocabulary Learning Strategies, Classification, Learner-Based Factors, Explicit Vocabulary Instruction

Introduction

In the era of globalization, the international spread of language is inevitable, with English undoubtedly taking the lead. This involves three key components: pronunciation, vocabulary, and grammar. Among these, vocabulary stands out as the most essential and dynamic element (Bai, 2018). It plays a crucial role in language acquisition, significantly

impacting both the receptive and productive skills necessary for effective communication (Choo & Ng, 2024; Son & Ly, 2024; Al-Khresheh & Al-Ruwaili, 2020).

Vocabulary acquisition is a core element of language learning, essential for understanding all forms of communication and comprehension. For learners of English as a foreign language (EFL), mastering vocabulary is particularly crucial, as it directly affects their ability to read, write, speak, and understand the language effectively. Without a strong vocabulary foundation, even advanced grammatical knowledge may not suffice for successful real-world communication (Riyantika, Hanafi, & Aini, 2024). Conversely, limited vocabulary knowledge often leads to challenges in learning a second language (Chiew & Ismail, 2021). Effective vocabulary learning requires a comprehensive approach, encompassing not only the meaning of words but also their spelling, pronunciation, grammatical properties, connotations, morphological variations, and semantic relationships (Ghalebi, Sadighi, & Bagheri, 2020).

To support and enhance vocabulary acquisition, learners must employ effective vocabulary learning strategies (VLSs), which are integral to the broader category of language learning strategies (LLSs). Research on LLSs suggests that language aptitude alone is not sufficient for language success. Rather, it is the learners' effort and the specific strategies they use in acquiring and retaining vocabulary that play a significant role in their ability to master the language (Alahmad, 2020). Therefore, understanding and utilizing these strategies is essential for improving vocabulary skills and overall language proficiency.

The studies on strategies for vocabulary learning have evolved, as demonstrated by the large volume of recent research (e.g., Alahmad, 2020; Aljasir, 2025; Al-Khresheh & Al-Ruwaili, 2020; Behforouz & Ghaithi, 2022; Chiew & Ismail, 2021; Ghalebi et al., 2020; Riyantika et al., 2024; Son & Ly, 2024; Zuhairi & Mistar, 2023). However, these studies reveal inconsistencies regarding the intensity and effectiveness of vocabulary learning strategies (VLSs). Despite the wealth of research on this topic, there is a need for a comprehensive review to resolve these inconsistencies, synthesize the findings, and identify areas that require further investigation.

This review explores the classification of VLSs as proposed by influential scholars widely cited in the field. The aim is to examine the intensity of VLSs use among EFL and L2 learners in academic settings, particularly in Asian countries where English is taught as an L2. To provide deeper insights, the review includes empirical studies from 2020 to 2024 on VLSs usage, learner-based factors influencing VLSs use, and the impact of explicit vocabulary instruction on VLSs implementation. It is hypothesized that learners use a variety of VLSs with varying degrees of intensity, influenced by several key individual factors. Specifically, the review posits that motivation, age, language proficiency level, and the presence of explicit vocabulary instruction significantly impact the choice and

frequency of VLS use. Initiative-taking learners and those with higher language proficiency are expected to employ metacognitive and cognitive strategies more frequently and effectively. Similarly, older learners or those with more academic experience may rely more on strategic vocabulary learning approaches. Furthermore, the integration of explicit vocabulary teaching is hypothesized to enhance the use and effectiveness of specific strategies, particularly those that involve deeper processing. These hypotheses are formulated to guide the review of how individual and instructional variables shape strategy use and vocabulary acquisition outcomes.

The methodology for this review is structured in three phases: first, identifying relevant research articles; second, screening the abstracts of articles aligned with the review's scope; and third, conducting an intensive reading of the full articles. For identifying articles, a scope for the initial review and search strategy was determined, where the search term included 'VLSs' and 'EFL' using ERIC and Google Scholar databases.

Literature Review

Definition of VLSs

Vocabulary learning strategies play a crucial role in helping learners acquire and retain innovative words effectively. According to Qiufang (2003 as cited in Bai, 2018), learning strategies are defined as behaviors or actions that learners use to enhance the effectiveness of their learning. This definition emphasizes that the purpose of using strategies is to improve learning; strategies are actions or behaviors, not just thoughts. Therefore, vocabulary learning strategies can be defined as the behaviors or actions learners use to make vocabulary acquisition more effective. Other researchers have shown that vocabulary learning strategies are specific actions or techniques employed by learners to acquire new vocabulary. These strategies can range from simple methods, like rote memorization and repetitive practice, to more advanced techniques, such as using mnemonics, contextual learning, or multimedia resources. The effectiveness of these strategies varies significantly among learners, depending on factors such as individual learning styles, motivation, and prior knowledge (Riyantika, Hanafi, & Aini, 2024).

Classifications of VLSs

The classification of vocabulary learning strategies (VLSs) has been a major area of research in second language acquisition. Various scholars have proposed different frameworks for categorizing these strategies based on their approaches to vocabulary retention, recall, and use. This section reviews the key contributions of several researchers and their classifications of VLSs.

Influential scholars in the 1990s have proposed VLSs in numerous ways (Oxford, 1990; Schmit, 1997 & Nation, 1997 as cited in Son & Ly, 2024). In 1990, Rebecca Oxford

introduced Oxford's Taxonomy of Language learning strategies, a system that categorizes language learning strategies into cognitive strategies, which include methods like memory techniques; metacognitive strategies, which relate to planning and self-assessment; and social/ affective strategies, which involve activities such as seeking for help and coping with emotional elements such as anxiety during the learning process. Schmit, in 1997, categorized strategies into two broad types, discovery and consolidation strategies, and designated VLSs into five groups: determination, social, memory, cognitive, and metacognitive strategies. Learners employ Determination strategies without the assistance of others to figure out the meaning of a word by using strategies such as word class strategies, analyzing word components, guessing word meaning from context, and using a dictionary. For social strategies, learners can learn innovative words through interaction with others. Memory strategies involve imagination, group words, and collocation. Metacognitive describes how learners monitor, decide, and self-assess their learning process. Paul Nation introduced the taxonomy of vocabulary acquisition in 1997. It comprises of discovering meaning, consolidating form, and meaning, and using a word in context.

Gu and Johnson (1996) divide VLSs into four categories: metacognitive, cognitive, memory, and activation. According to them, metacognitive strategies are to recognize fundamental words for comprehension. Learners then look for strategies, methods, and techniques to learn these words appropriately. Learners apply several strategies to find out the meaning of the words. Cognitive strategies involve guessing, using a dictionary, and note-taking. Memory strategies relate to transferring a newly learned word from short to long-term memory and determining pronunciation and meaning. To make word lists, pay attention to pronunciation, code using visual and verbal clues, and revise are required. Activation strategies allow learners to apply innovative words in various situations.

According to Akbari and Tahririan (2009), VLSs are classified into two main groups: first, strategies for discovering the meaning of an innovative word (comprehension strategies), and second, strategies for consolidating a word once it has been encountered (learning/acquisition strategies). Comprehension strategies include determination strategies and transactional strategies. Determination strategies are further divided into three main sub-strategies: guessing a word's meaning from context, word analysis, and finding meaning from a dictionary. About transactional strategies, since asking for the meaning from teachers or classmates was not the method through which words were learned in social interactions, this strategy is referred to as a transactional strategy.

More recently, Hashemi and Hadavi (2015) attempted to investigate the VLSs among 185 Iranian medical science learners of English as a foreign language. They identified eight VLSs use categories: dictionary use, guessing, memory, study preference, autonomy, note taking, selective attention, and social strategies.

Overall, the classifications emphasize dissimilar stages of vocabulary learning, from discovering meanings and consolidating knowledge to using words effectively in context. Strategies vary from cognitive and metacognitive to social and memory-focused techniques, with some emphasizing independent learning and others promoting interaction with peers or instructors.

Empirical Research on VLSs

Researchers from different countries have studied the VLSs used by L2 or EFL learners while learning new vocabulary and the factors affecting or influencing their language acquisition from the past two decades until now. Therefore, it is impossible to address all existing studies in just one paper. This section selectively reviews recent studies, specifically from Asian countries such as China, Japan, Korea, Saudi Arabia, Iran, Oman, Thailand, Indonesia, Vietnam, and Malaysia, where English is learned as a foreign or second language published from 2020 onward. The selection of studies employed these criteria: 1) the studies were conducted in educational contexts regarding VLSs, 2) the studies involved vocabulary in English learning, and 3) the studies primarily related to English language learning as an L2 or a foreign language in Asian countries.

Research on VLSs Use

A huge body of studies have been done to explore what VLSs were employed while learners learning new vocabulary in academic contexts and mostly used a questionnaire regarding VLSs and an interview as an approach to find out the investigation. According to Zuhairi and Mistar (2023), the studies may be classified into two main categories: attempting to classify the type of VLSs and measure the extent of use of these strategies and assessing the relationship between VLSs and vocabulary mastery. This section reviews research among the first categories.

Several studies over recent years have explored vocabulary learning strategies (VLSs) across diverse learner populations, revealing variations in strategy use and effectiveness. In 2020, Al-Khresheh and Al-Ruwaili (2020) conducted a study on a group of 219 male and female Saudi learners of English to determine their uttermost favorite VLSs using a vocabulary learning strategies questionnaire consisting of 42 items. All participants were from the English department. The results of descriptive statistics revealed that memory strategies were the most preferable, while determination, social and metacognitive strategies were used moderately and ranked in the middle. Cognitive strategies were reported as the least used strategies among the participants. The

researchers explained that mnemonic tools for vocabulary learning are effective. They consist of methods such as creating acronyms, associating innovative words with images, synonyms, and other keywords. These methods assist language learners in linking innovative words together in their minds.

In the same year, Ghalebi et al. (2020) examined a sample of 218 EFL students on BA, MA, and Ph.D. s of English language studies at an Iranian university to find out if learners with diverse levels of academic degrees differ in using VLSs. Open-ended and closed-ended questionnaires on VLSs were applied as the research instrument. Results based on quantitative and qualitative analysis revealed that undergraduate and postgraduate students significantly differed in their usage of VLSs, but there was no significant difference between MA and Ph.D. students in VLSs use. Regarding the most frequently used VLSs, it found that postgraduate students used metacognitive strategies the most, while determination and memory strategies were found to be the most frequently used strategies by undergraduate students.

Also in 2020, Alahmad (2020) investigated VLSs and their relation to vocabulary size in 41 Saudi female undergraduate EFL learners using a questionnaire to measure the frequency of VLSs use and a vocabulary test size. Results showed that although the learners used 17 strategies with a high frequency, 14 of 16 items of VLSs correlated negatively with vocabulary size, implying that the more the learners used these strategies, the less their vocabulary mastery would be.

Moving to 2021, Thiendathong and Sukying (2021) investigated VLSs used by 491 Thai high school students in science, language, and English programs, compared the use of VLSs between these programs of study, and examined the relationship between different strategies. Two instruments, a 47-item questionnaire of VLSs and a semi-structured interview, were used. All participants were assigned to complete the questionnaire, but only 21 were selected for the interview session to collect qualitative data. The results indicated that determination strategies such as using a dictionary were used the most frequently. By contrast, memory strategies were employed the least. Regarding the use of VLSs between different study programs, it showed that the English program participants outperformed the science and language program participants in all VLSs. In terms of the relationship between VLSs, the results revealed a significant positive relationship among all VLSs, indicating that the participants are likely to use more than one strategy when learning vocabulary and may use all types of VLSs to acquire and learn vocabulary. Building on this, Wahyudin et al. (2021) supported similar findings through research involving 120 non-English major participants, who used cognitive strategies the most frequently. In other words, the participants use innovative words in a sentence to remember them from time to time.

In 2022, Behforouz and Ghaithi (2022) explored the VLSs use of 42 Omani college students learning English as a foreign language. To collect the required data, a VLSs questionnaire was employed. The analysis of the data revealed that cognitive strategies were highly employed by the Omani EFL students, followed by determination strategies, memory strategies, metacognitive strategies, and social strategies, respectively.

In 2023, Altalhab (2023) investigated the VLSs used by Saudi university students during their pair work. The participants were 40 Saudi male undergraduate students studying English as their major. Reading comprehension with multiple-choice questions and reading comprehension with filling in the gap were used as research instruments, and all the pairs' conversations were audio recorded. The results from examining the data and the transcripts of the pairs' conversations showed that the students used three main strategies to find the meaning of the new word during their pair work, i.e., using a dictionary, guessing the definition of a word from context, and asking for help from another student. In terms of preferences, it was found that using a dictionary was the most frequent strategy used, followed by guessing the meaning of a word, and the least used was asking the other student for their help with the meaning of unknown words. The researcher pointed out that the students preferred to use a resource that would lead them to the direct meaning of unknown words rather than guessing or asking another student. So, many students used their mobile phones to find word meanings.

Also in 2023, Ueno and Takeuchi (2023), by contrast, examined which VLSs are perceived as important and useful and how they are used by Japanese university students learning English as a foreign language. The researchers also investigated if higher and lower proficiency groups of students' perceptions and use of strategies vary. The participants were 40 first– to fourth-year Japanese students at three private universities in Japan studying English as their major. The participants were divided into two groups of higher (16) and lower (24) proficiency based on their English qualification. To measure the students' use of VLSs, an open-ended questionnaire was employed. The findings indicated that cognitive strategies related to word form, sound, association learning, and metacognitive strategies were perceived as important and useful and were employed frequently. Results from the two proficiency groups showed that the higher-proficiency group perceived metacognitive strategies as important, but these were not found in the lower-proficiency group.

In the same year, Zuhairi and Mistar (2023) examined the types of VLSs, the intensity of use, and their relationship with the vocabulary mastery of Indonesian EFL learners. The participants were 180 English education department students from three universities in Indonesia. A 50-item VLSs inventory and a 50-item vocabulary mastery were used as instruments and given to all participants. To categorize the VLSs use, Principal

Component Analysis (PCA), together with descriptive and correlational analyses, were employed. Six categories of VLSs, including cognitive, metacognitive, determination, memory, encoding, and activation strategies, were revealed in the study. It found that the students applied VLSs at a moderate level, with metacognitive and encoding strategies being employed the most and cognitive strategies being used the least. The six categories of strategies were significant predictors of vocabulary mastery, with metacognitive strategies being the best predictor.

All the above studies demonstrate that VLSs were applied by learners of English as a foreign language of different academic levels, ranging from high school to Ph.D., but with different frequencies of usage. Methodologically, these studies employed a range of approaches, questionnaires (Alahmad, 2020; Al-Khresheh & Al-Ruwaili, 2020; Behforouz & Ghaithi, 2022; Ghalebi, Sadighi, & Bagheri, 2020; Ueno & Takeuchi, 2023), questionnaire and interview (Thiendathong & Sukying, 2021), reading comprehension with multiple-choice questions and reading comprehension with filling in the gap (Altalhab, 2023) and VLSs inventory and vocabulary mastery (Zuhairi & Mistar, 2023). Despite the methodological diversity, these studies revealed the EFL learners' employing of VLSs in learning English vocabulary.

Research on Learner-Based Factors Influencing VLSs Use

Several learner-based factors have been found to have an impact on VLSs use in second or foreign language learning contexts, such as motivation (Lee, Ahn, & Lee, 2022), gender differences (Riyantika, Hanafi, & Aini, 2024), critical thinking skills (Soleimani, Aghazadeh, & Bolou, 2024), and proficiency level (Aljasir, 2025). This section reviews the effects of the aforementioned factors on VLSs use in that order.

Lee et al. (2022) investigated the relationship between language learning motivation, VLSs, and two components of second language vocabulary knowledge, i.e., vocabulary size and depth. 185 secondary-level Korean learners of English as a foreign language were given a questionnaire regarding their motivation (intrinsic motivation and extrinsic motivation) and VLSs use examining through 23-item VLSs questionnaire. Vocabulary size was assessed using Nation and Beglar's bilingual version of the Vocabulary Size Test, and vocabulary depth was assessed using the Word Association Test adapted from that of Read's. The results revealed that motivation directly predicted VLSs and vocabulary knowledge and indirectly predicted vocabulary knowledge via VLSs. Additionally, it was found that intrinsic motivation had a stronger influence on the use of VLSs and vocabulary knowledge than extrinsic motivation.

Riyantika et al. (2024) explored VLSs in learning innovative words for EFL learners regarding gender differences. The participants were 30 male and female students investigated through a questionnaire distributed via Google Forms and a semi-structured

interview. The results revealed differences in preferences in students' approaches to learning innovative words, representing wider cognitive and social learning patterns. Male students prefer visual and logical techniques, such as utilizing dictionaries, visual aids, and spaced repetition. These methods align with their visual-spatial learning style and their organized approach to memory retention. On the other hand, female students are more inclined towards social and contextual strategies, like collaborative learning, mnemonics, and digital tools, which complement their tendency for interactive and associative learning.

According to Soleimani et al. (2024), critical thinking is widely regarded as an essential concept in teaching and learning. Based on this, they conducted research to investigate the association between EFL learners' critical thinking capabilities and their VLSs across gender. The participants were a total of 140 Iranian male and female intermediate students from the Iran Language Institute in Urmia, Iran. The study used a survey approach, collecting data through the Preliminary English Test (PET) to homogenize students, Schmitt's VLSs questionnaire to identify the strategies they used, and Ennis' Cornell Critical Thinking Test to assess their critical thinking abilities. The study found a positive correlation between critical thinking and VLSs among Iranian EFL students, with male learners outperforming females in both areas. These findings support previous research showing that advanced critical thinking skills enhance vocabulary learning and that students with strong critical thinking abilities use a variety of learning strategies. The gender differences observed may be influenced by teaching methods and classroom culture, highlighting the importance of individual learning styles and preferences.

Aljasir (2025) examined 60 Saudi EFL learners' VLSs use based on their proficiency level using a demographic and background questionnaire, the think-aloud protocol, and a semi-structured interview. The learners were divided into two groups of beginner and advanced proficiency levels. The findings showed that beginner learners relied on basic memory and cognitive strategies, such as repetition, rote memorization, and bilingual dictionaries, which helped them achieve quick results and build foundational vocabulary. In contrast, advanced learners utilized more sophisticated strategies, like monolingual dictionaries, contextual guessing, and morphological analysis, which fostered a deeper understanding and long-term retention of new vocabulary.

In summary, motivation, gender, critical thinking capability, and language proficiency significantly affect how learners use vocabulary learning strategies. To highlight the findings of the above reviews, intrinsic motivation strongly influenced vocabulary learning strategies use and vocabulary knowledge, while extrinsic motivation had a weaker effect. Motivation directly predicted VLSs use and vocabulary knowledge. Male and female learners showed different preferences in VLSs use. Males favored visual and logical strategies (e.g., dictionaries, visual aids), while females preferred social and contextual

strategies (e.g., collaborative learning, mnemonics). Beginner learners relied on basic memory strategies like repetition and rote memorization, whereas advanced learners used more complex strategies, such as contextual guessing and morphological analysis, leading to deeper understanding and long-term retention. A positive correlation was found between critical thinking and VLSs use. Male learners outperformed females in both areas, suggesting that critical thinking skills enhance vocabulary learning and the use of diverse strategies.

Research on Explicit Instruction of VLSs

Recent research has highlighted the effectiveness of explicit instruction in vocabulary learning strategies for enhancing vocabulary acquisition and usage in English as a foreign language context. Studies by Nshiwi (2020) found that explicit instruction outperforms implicit methods in enhancing learners' vocabulary knowledge. These studies emphasize the value of explicit teaching approaches in improving vocabulary competence and reading skills among EFL learners. Similarly, Al-Ghazo and Ta'amneh (2022) as well as Choo and Ng (2024) demonstrate that targeted instruction through various platforms, such as MOOCs and video conferencing, leads to significant improvements in vocabulary usage and reading comprehension. The following section gives more details of these studies.

Nshiwi (2020) explored the impact of memory and cognitive strategies on vocabulary acquisition within the context of teaching English as a foreign language. It specifically examines the short-term effects of these strategies and investigates how EFL teachers incorporate them into their teaching, whether through implicit, explicit, or a combination of both methods. Using a mixed-methods approach, two primary tools were employed: a questionnaire to assess the memory and cognitive strategies used by both EFL teachers and intermediate learners and a vocabulary test to evaluate the effect of these strategies on vocabulary learning. The study involved a sample of 36 intermediate learners, divided into experimental (15 students) and control (21 students) groups, along with 30 EFL teachers. The data were analyzed descriptively and analytically. Results indicate that explicit instruction of memory and cognitive strategies significantly enhance vocabulary learning compared to implicit instruction.

Al-Ghazo and Ta'amneh (2022) came up with a similar finding in research examining the effect of implementing the contextual guessing strategies on improving the vocabulary competence and reading comprehension of sixty EFL learners enrolled in two classes of English courses, advanced reading, and summarizing. They were divided into two groups, 30 in the control group and 30 in the experimental group. The instruments were a 50-item vocabulary level test, which was used as a pre- and post-test for both groups, and a reading comprehension test. The experiment group was instructed with the procedures and ways of contextual guessing strategies: definition, similarity, restatement, surrounding

words, and punctuation marks. The study results showed a significant difference in learners' vocabulary competence and reading comprehension achievements between the control and experimental groups due to the treatment.

Choo and Ng (2024) examined the effects of online diversities on VLSs and vocabulary usage in writing via an open online course (MOOC) and video conferencing platforms. 94 undergraduate ESL learners majoring in sciences and arts and humanities were divided into two groups: MOOC group (50) and video conference group (44). 50 learners completed a five-week VLSs course on a MOOC, while 44 students learned from the instructor using Microsoft Teams. Data were analyzed through questionnaires and learners' compositions. The results from Lextutor's version of lexical frequency profiling and descriptive and inferential statistics showed a significant increase in usage in all categories of the VLSs (context clues, word formation, dictionary skills, mnemonics, and meta cognitive strategies) after the course for both groups. Furthermore, the effects of VLSs instruction on vocabulary usage could be reflected in both groups' writing.

Conclusions and Discussion

Vocabulary Learning Strategies (VLSs) have been a key area of research in second language acquisition, with various scholars proposing different classifications. These classifications include strategies such as metacognitive strategies (planning and self-assessment), cognitive strategies (memory techniques and note-taking), social strategies (interaction with others), discovery strategies (guessing meanings and using a dictionary), consolidation strategies (consolidating form and meaning), determination strategies (figuring out word meaning independently), activation strategies (applying new words in context), comprehension strategies (understanding new words), and learning/acquisition strategies (consolidating and retaining words). Each classification offers insights into the different approaches learners use to acquire and retain vocabulary effectively.

A review of empirical studies shows that recent research on VLSs has mainly focused on three key areas: the frequency or preference of use, the connection between VLSs and vocabulary proficiency, and the factors influencing VLS use, for example motivation, gender differences, proficiency level, critical thinking skills, and explicit vocabulary instruction. These topics are essential to current research and are likely to remain important in future studies. Considering these findings, future studies should examine underexplored learner-based variables, such as learning styles, self-regulation, language awareness, or digital literacy, and how these factors influence VLS usage and effectiveness. Further research should also investigate how learners respond to explicit instruction in VLSs, including whether this enhances long-term vocabulary retention and reading comprehension.

In the context of Thailand, English is considered a foreign language and holds a fundamental role as a core subject at all educational levels. According to Cheiw and Ismail (2021), achieving academic success requires learners to know and use appropriate vocabulary. In contrast, a lack of vocabulary recognition or expansion can slow down the learning process in a second language (L2), making it harder to understand the language flow. Building on this, explicit instruction in VLSs has been shown to be more effective than implicit approaches in enhancing both vocabulary competence and reading proficiency among EFL learners. In the context of VLSs, cognitive strategies focused on word form and associative learning, as well as metacognitive strategies, were identified by Japanese university students as particularly valuable. Furthermore, among the six categories of VLSs employed by Indonesian learners, metacognitive strategies emerged as the strongest predictor of vocabulary mastery (Al-Ghazo & Ta'amneh, 2022; Choo & Ng, 2024; Nshiwi, 2020; Ueno & Takeuchi, 2023; Zuhairi & Mistar, 2023). Therefore, to enhance the effectiveness of the learning process for EFL learners, it is recommended that Thai teachers explicitly introduce various effective VLSs, such as cognitive and metacognitive strategies, in classrooms to help students become familiar with and confidently use these strategies.

References

Akbari, Z., & Tahririan, M. H. (2009). Vocabulary learning strategies in an ESP context: The case of para/medical English in Iran. Asian EFL Journal, 11(1), 39-61.

Alahmad, G. (2020). Vocabulary learning strategies and their relation to vocabulary size in Saudi female undergraduate EFL learners. International Journal of Linguistics, Literature and Translation, 3(6), 218-223.

Al-Ghazo, A., & Ta'amneh, I. (2022). The impact of implementing contextual Guessing strategies on improving EFL learners' vocabulary competence and reading comprehension. World Journal of English Language, 12, 176-183.

Aljasir, N. (2025). Vocabulary learning strategies among Saudi EFL learners: a proficiency-level comparison using think-aloud protocols. Cogent Education, 12(1), 1-22.

Al-Khresheh, M. H., & Al-Ruwaili, S. F. (2020). An exploratory study on vocabulary learning strategies used by Saudi EFL learners. Journal of History Culture and Art Research, 9(2), 288-302.

Altalhab, S. (2023). Vocabulary learning strategies used by Saudi university students in pair work. International Journal of Education & Literature Studies, 11(1), 44-49.

Bai, Z. (2018). An analysis of English vocabulary learning strategies. Journal of Language Teaching and Research, 9(4), 849-855.

Behforouz, B., & Al Ghaithi, A. (2022). Omani EFL learners' vocabulary learning strategies.

Arab World English Journal, 13(1), 285-299.

Chiew, M. T. L., & Ismail, H. H. (2021). Exploring vocabulary learning strategies in a second language setting: A review. International Journal of Academic Research in Business & Social Sciences, 11(12), 1298-1309.

Choo, W. L., & Ng, L. L. (2024). Effects of MOOC and video conferencing deliveries on vocabulary usage and learning strategies. Journal of Education and Learning, 18(4), 1562-1571.

Ghalebi, R., Sadighi, F., & Bagheri, M. S. (2020). Vocabulary learning strategies: A comparative study of EFL learners. Cogent Psychology, 7(1), 1-12.

Gu, P., & Johnson, R. K. (1996). Vocabulary learning strategies and language learning outcomes. Language Learning, 46, 643-679.

Hashemi, Z., & Hadavi, M. (2015). Investigation of vocabulary learning strategies among EFL Iranian medical sciences students. Procedia - Social and Behavioral Sciences, 192, 629–637.

Lee, J. H., Ahn, J. J., & Lee, H. (2022). The role of motivation and vocabulary learning strategies in L2 vocabulary knowledge: A structural equation modeling analysis. Studies in Second Language Learning and Teaching, 12(3), 435-458.

Nshiw, D. (2020). The effect of different approaches to learning strategy instruction on vocabulary development. Indonesian Research Journal in Education, 4(1), 204-222.

Riyantika, N. P., Hanafi, H., & Aini, K. N. (2024). Vocabulary learning strategies in learning innovative words for EFL learners based on gender differences. Journal Penelitian Teknologi Informasi dan Sains, 2(3), 1-9.

Soleimani, M., Aghazadeh, Z., & Bolourchi, A. (2024). Dynamic interplay of critical Thinking and vocabulary learning strategies among Iranian EFL learners with the moderating role of gender. Journal of Applied Linguistics and Applied Literature: Dynamics and Advances, 12(1), 87-106.

Son, L. H., & Ly, T. M. (2024). An investigation of vocabulary learning strategies of ESP students. International Journal of TESOL & Education, 4(1), 1-17.

Thiendathong, P., & Sukying, A. (2021). Vocabulary learning strategies used by Thai high school students in Science, Language, and English Programs. Arab World English Journal, 12(2), 306-317.

Ueno, S., & Takeuchi, O. (2023). Which vocabulary learning strategies are important and useful for Japanese university students? A text-mining approach. Vocabulary Learning and Instruction, 12(1), 18-30.

Wahyudin, A. Y., Pustika, R., & Simamora, M. W. B. (2021). Vocabulary learning strategies of EFL students at Tertiary level. The Journal of English Literacy Education, 8(2),

101-112.

Zuhairi, A., & Mistar, J. (2023). Vocabulary learning strategies and vocabulary mastery by Indonesian EFL learners. World Journal of English Language, 13(8), 453-461.

Investigating the Attitudes to English Foreign Language Learning among First-Year Students at Hatyai University

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Abstract

This study examines the attitudes, behaviors, and preferences of first-year students at Hatyai University in Thailand in learning English as a foreign language. Survey findings reveal that students have a cheerful outlook toward English, recognizing its value for academic and real-world communication. Most actively engage in discussions and practice daily, favoring interactive methods such as group activities, role-playing, and integrated skill exercises. Technology, including videos, apps, and online tools, is highly valued for its engaging and supportive role, while traditional methods like grammar explanations and vocabulary drills remain important for structured learning. However, challenges persist, including fear of making mistakes, particularly in speaking and writing, which affects confidence, as well as frustration with difficult concepts. Despite these obstacles, many students adopt a growth mindset, using mistakes as learning opportunities. The study suggests that integrating real-world scenarios, leveraging technology, and offering low-pressure practice opportunities can enhance engagement and confidence. By balancing traditional and modern teaching approaches, educators can better support students in overcoming challenges and achieving their language learning goals in a positive and encouraging environment.

Keywords: English as a Foreign Language, Language Learning Approaches, Student Attitudes toward English

Introduction

The transition to university represents a pivotal stage for students, particularly those learning English as a Foreign Language (EFL). For first-year university students, proficiency in English is not only an academic necessity but also a critical skill for personal development, career advancement, and active participation in a globalized world. In Thailand, where English serves as a vital medium for international communication and economic progress, the significance of effective EFL education is undeniable. Research has consistently emphasized the role of English in enhancing socio-economic opportunities and fostering intercultural competence (Norton, 2000; Canagarajah, 1999).

Existing studies highlight the complex nature of language learning, which involves current academic challenges. Limited attention has been given to understanding how first-year university students perceive their journey of learning English—specifically their attitudes, motivations, and preferred approaches. This gap is particularly relevant in multilingual contexts like Thailand, where traditional rote-learning methods are gradually being replaced by communicative and interactive pedagogies (Hu, 2002; Butler, 2014).

Current research on this topic is being done in many countries to ascertain what contributes to students' attitude in learning EFL. One study by Arts Department of the University of Kufa in Iraq done in 2023, aimed to establish links between attitudes of students towards EFL learning according to age, gender, program of study and year of study. Their findings pointed out that students recognize the importance of English for academic, professional, and global communication. They are motivated by instrumental reasons such as future job opportunities and integrative reasons such as cultural interest. Students may also struggle with anxiety, lack of confidence and difficulties in mastering the language skills as well as their attitude may be shaped by societal views on English and English teaching methods.

The findings from the research stated above will aid in this research as it provides comparative insights with regards to EFL motivations and barriers as well as the pedagogical implications from the findings to make recommendations for the learning institution.

This study focuses on first-year students at Hatyai University, to explore their current attitudes and approaches to EFL learning. Using questionnaire surveys as the primary research method, it examines students' current attitudes toward language learning in an academic setting. The findings reveal that students have positive attitudes toward learning English but face challenges such as fear of making mistakes and adapting to university-level demands—issues frequently cited in existing literature (Kim, 2011; Hyland, 2006). These insights will inform recommendations for curriculum design and teaching strategies that address students' needs holistically.

This research contributes to the broader discourse on EFL education in higher education settings. It emphasizes the importance of fostering supportive and dynamic learning environments that empower students to overcome challenges and achieve their language learning objectives.

Objectives

1. To assess the attitudes of the first-year university students at Hatyai University toward learning English as a Foreign Language (EFL).
2. To identify the preferred learning methods and strategies used by first-year

university students in their EFL studies.

Research Questions

1. What are the attitudes of first-year university students at Hatyai University toward learning English as a Foreign Language (EFL)?
2. What are the preferred learning methods and strategies used by these students in their EFL studies?

Concept theory framework

This research investigates the attitudes, behaviors, and preferences of first-year university students at Hatyai University toward learning English as a Foreign Language (EFL). The framework posits that students' approaches to EFL learning are primarily influenced by their current perceptions and challenges. This study uses a questionnaire survey to examine the influence of these elements.

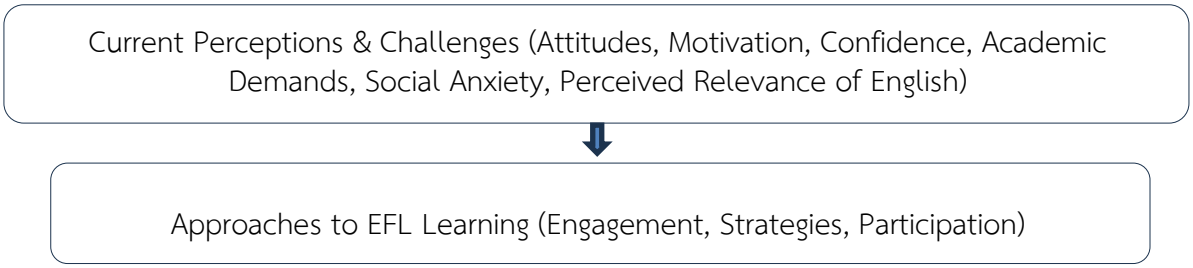


Figure 1: Research Framework

Materials and Methods

This study aims to investigate the current attitudes, behaviors, and preferences of first-year university students at Hatyai University toward learning English as a Foreign Language (EFL). To achieve this objective, a quantitative research approach using a survey questionnaire was employed. A descriptive survey design was utilized to gather data on students' perceptions and approaches to EFL learning. This design is appropriate for providing a snapshot of the current state of attitudes and practices within the specific population (Creswell, 2014). The study used a cross-sectional survey, administering the questionnaire at one point in time to collect data from the participants (Creswell, 2014).

The participants consisted of 146 first-year university students enrolled in various academic programs at Hatyai University. Participants were recruited from all classes that offered English as a Foreign Language and were instructed to complete the questionnaires honestly. The sampling strategy was convenience sampling, which involves selecting participants based on their availability and accessibility (Bryman, 2012).

A structured questionnaire was used as the primary data collection instrument.

The questionnaire consisted of closed-ended questions using Likert-scale items. The questionnaire addresses the students' attitudes toward the English classes, activities, motivation, and confidence levels in learning English. The questionnaire was piloted with a small group of students (n=10) to ensure clarity, relevance, and ease of completion. Based on feedback from the pilot study, minor adjustments were made to the wording and format of some questions.

The questionnaire used in this study was adapted from concepts and frameworks presented in Lightbown and Spada (2013)'s How Languages Are Learned. While Lightbown and Spada (2013) do not provide a single, ready-made questionnaire, their work informed the development of sections assessing students' attitudes, behaviors, preferences, and perceived challenges in EFL learning. Some modifications were made to include items relevant to the Hatyai University context and to address the research questions.

Ethical approval was obtained from the university's research ethics committee prior to data collection. The questionnaires were administered to participants during class time. Participation was voluntary, and students were informed about the purpose of the study and assured of the confidentiality of their responses. It took approximately 30 minutes to complete the questionnaire.

Quantitative data from the questionnaires were analyzed using descriptive statistics (e.g., frequencies, percentages, means, standard deviations) to summarize the characteristics of the sample and identify common patterns in students' attitudes and approaches to EFL learning.

The study's reliance on convenience sampling may limit the generalizability of its findings to other populations or contexts. Additionally, self-reported data from questionnaires may be subject to biases, such as social desirability bias. Future research should consider using larger, more diverse samples and incorporating qualitative methods to provide a richer understanding of students' experiences. Furthermore, student-teacher familiarity and the class environment may have influenced student responses, which should be considered when interpreting the results.

Results and Discussion

Table 1: A. The Demographic Data of 146 Research Participants

	Item	# of Students (146)	% Total Respondents
Gender	Male	32	21.9
	Female	114	78.1
Age	under 20	85	58.2

	Item	# of Students (146)	% Total Respondents
	21	37	25.3
	22	13	8.9
	23	6	4.1
	24	2	1.4
	25	2	1.4
	Over 25	1	0.7
Faculty of Study	Business Administration	17	11.6
	Law	4	2.7
	Education and Liberal Arts	99	67.8
	Science and Tech	6	4.1
	Political Science	0	0
	Communication Arts	19	19
	Didyasarin International College	1	1

The study involved 146 first-year students from various faculties at Hatyai University. Most participants were female (78.1%), with most students being under 20 years old (58.2%). The largest representation came from the Faculty of Education and Liberal Arts (67.8%), followed by Business Administration (11.6%) and Communication Arts (13%). The demographic data reflects a young, female student population, which is typical for first-year university students. The overrepresentation of students from the Education and Liberal Arts faculty may indicate a greater interest in language learning among these students or the larger size of this faculty within the university. However, the findings should be interpreted with caution, as the sample may not fully represent the broader student population, particularly older students, or those from other faculties.

Table 2: EFL Students' Attitude Towards English Language Learning (Behavioral Aspect)

	Mean	Standard Deviation	Level of Agreement
1. Consistency in Practice	4.01	0.87	Agree
"I practice my English skills (speaking, listening, reading, writing) every day, even if only for a short time."			
2. Participation in class	4.08	0.87	Agree

	Mean	Standard Deviation	Level of Agreement
"I actively participate in class discussions and activities to improve my English."			
3. Use of English Outside the Classroom	3.76	0.93	Neutral
"I try to use English in real-life situations, such as ordering food, asking for directions, or talking with friends."			
4. Seeking Help or Feedback	4.22	0.78	Agree
"When I don't understand something, I ask my teacher or peers for help or clarification."			
5. Self-Study Habits	3.96	0.89	Agree
"I set aside time to review class materials, complete homework, or study English on my own."			
Average	4.01	0.87	Agree

Students exhibited positive behavioral attitudes toward learning English. They reported consistent daily practice (mean = 4.01), active participation in class discussions (mean = 4.08), and a willingness to seek help or feedback when needed (mean = 4.22). These findings suggest that students are initiative-taking in their approach to language learning, recognizing the importance of regular practice and collaboration. However, the use of English outside the classroom received a slightly lower mean score (3.76), indicating that students may face challenges in applying their skills in real-life situations. This could be due to limited opportunities or confidence issues, which will be further discussed in the emotional attitudes section.

Table 3: EFL Students' Attitude Towards English Language Learning (Cognitive Aspect)

	Mean	Standard Deviation	Level of Agreement
1. Approach to Learning Vocabulary or Grammar	3.84	0.89	Agree
"I prefer to learn new vocabulary or grammar structures by memorizing rules and definitions."			
2. Problem-Solving with Challenging Texts	4.02	0.83	Agree
"When I encounter a challenging text or concept in English, I use resources like dictionaries or online tools to help me understand."			

	Mean	Standard Deviation	Level of Agreement
3. Practice Outside the Classroom	4.07	0.77	Agree
"I regularly practice my English skills outside the classroom by engaging in activities like watching movies, reading books, or speaking with others."			
4. Learning from Mistakes	4.05	0.86	Agree
"When I make a mistake in English, I reflect on it and try to learn from it to improve my skills."			
5. Staying Motivated	3.92	0.83	Agree
"I find it easy to stay motivated to learn English even when it feels difficult."			
Average	3.98	0.84	Agree

Students demonstrated a positive cognitive attitude toward EFL learning. They valued traditional methods such as memorizing vocabulary and grammar rules (mean = 3.84) but also embraced modern tools like dictionaries and online resources to solve problems (mean = 4.02). Additionally, students showed a strong preference for practicing English outside the classroom through activities like watching movies and reading books (mean = 4.07). This indicates a balanced approach to learning, combining foundational knowledge with practical application. Students also exhibited a growth mindset, as reflected in their willingness to learn from mistakes (mean = 4.05). However, maintaining motivation was slightly more challenging (mean = 3.92), suggesting that some students may need additional support to stay engaged, especially when faced with difficult concepts.

Table 4: EFL Students' Attitude Towards English Language Learning (Emotional Aspect)

	Mean	Standard Deviation	Level of Agreement
1. Confidence in Using English	3.53	1.03	Neutral
"I feel confident when speaking English in front of others."			
2. Anxiety or Nervousness	3.92	0.83	Agree
"I feel nervous or anxious when I have to speak English in class or with native speakers."			
3. Frustration with Challenges	3.71	0.97	Agree
"I feel frustrated when I don't understand something in English."			

	Mean	Standard Deviation	Level of Agreement
4. Enjoyment of Learning English	4	0.82	Agree
"I enjoy learning English and find it interesting."			
5. Fear of Making Mistakes	3.84	0.88	Agree
"I am afraid of making mistakes when speaking or writing in English."			
Average	3.80	0.91	Agree

The emotional aspect of EFL learning revealed a mix of positive and challenging experiences. While students reported important levels of enjoyment in learning English (mean = 4.00), they also expressed anxiety (mean = 3.92) and frustration (mean = 3.71) when faced with challenges. Fear of making mistakes was a significant barrier (mean = 3.84), particularly in speaking and writing. Confidence levels were neutral (mean = 3.53), with some students feeling more self-assured than others. These findings highlight the emotional complexities of language learning, where enjoyment and motivation coexist with anxiety and self-doubt. To address these challenges, educators should create a supportive environment that normalizes mistakes and provides low-pressure opportunities for practice.

Table 5: EFL Students' Attitude Towards English Language Learning (Teaching Methodology)

	Mean	Standard Deviation	Level of Agreement
1. Interactive Activities	3.92	0.88	Agree
"I learn better when the teacher includes interactive activities like group discussions, role-plays, or pair work."			
2. Use of Technology	4.12	0.81	Agree
"I find it helpful when the teacher uses technology (e.g., videos, online tools, or apps) to teach English."			
3. Grammar-Focused Instruction	3.99	0.81	Agree
"I prefer when the teacher explains grammar rules in detail and provides clear examples."			
4. Real-Life Contexts	3.94	0.80	Agree

	Mean	Standard Deviation	Level of Agreement
"I find it more useful when the teacher uses real-life situations (e.g., ordering food, job interviews) to teach English."			
5. Feedback and Correction	4.23	0.79	Agree
"I appreciate it when the teacher gives me immediate feedback and corrects my mistakes during class."			
Average	4.04	0.82	Agree

Students expressed strong preferences for interactive and technology-enhanced teaching methods. They valued interactive activities like group discussions and role-plays (mean = 3.92) and appreciated the use of technology, such as videos and online tools (mean = 4.12). Detailed grammar instruction (mean = 3.99) and real-life contexts (mean = 3.94) were also highly favored, as they provided clarity and practical relevance. Immediate feedback and correction from teachers received the highest agreement (mean = 4.23), indicating that students value guidance and opportunities for improvement. These findings suggest that a blended approach, combining traditional and modern methods, is most effective in engaging students and supporting their learning.

Table 6: EFL Students' Attitude Towards English Language Learning (Preferences of English Skills)

	Mean	Standard Deviation	Level of Agreement
1. Speaking	4.04	0.8	Agree
"I enjoy practicing speaking English because it helps me communicate better in real-life situations."			
2. Listening	3.96	0.85	Agree
"I find listening to English (e.g., podcasts, movies, or conversations) enjoyable and helpful for improving my language skills."			
3. Reading	3.97	0.84	Agree
"I enjoy reading English texts (e.g., books, articles, or news) because it helps me learn new vocabulary and ideas."			
4. Writing	3.92	0.77	Agree

	Mean	Standard Deviation	Level of Agreement
"I find writing in English (e.g., essays, emails, or journals) useful for organizing my thoughts and improving my grammar."			
5. Integrated Skills			
"I prefer activities that combine multiple skills, such as listening and speaking or reading and writing, because they feel more practical."	4.10	0.76	Agree
Average	4.00	0.80	Agree

Students showed a strong preference for integrated skills activities (mean = 4.10), which combine listening and speaking or reading and writing. They also enjoyed practicing speaking (mean = 4.04), listening (mean = 3.96), reading (mean = 3.97), and writing (mean = 3.92). These findings reflect a holistic approach to language learning, where students recognize the interconnectedness of different skills and their practical applications. The high agreement across all skill areas suggests that students are motivated to improve their overall proficiency, but they particularly value activities that simulate real-world communication.

Conclusions and Discussion

The findings of this study reveal that first-year students at Hatyai University are motivated and initiative-taking in their approach to EFL learning. They value both traditional and modern teaching methods, recognizing the importance of foundational knowledge as well as practical application. However, emotional barriers such as anxiety, frustration, and fear of making mistakes can hinder their progress, particularly in speaking and writing. These challenges are consistent with existing literature, which highlights the role of affective factors in language learning (Kim, 2011; Hyland, 2006).

To address these challenges, educators should focus on creating a supportive and engaging learning environment. Incorporating more interactive activities, leveraging technology, and using real-life scenarios can make learning more relevant and enjoyable. For instance, using online platforms for collaborative writing, creating, and sharing videos for speaking practice, or utilizing language learning apps for vocabulary acquisition. Additionally, providing immediate feedback and low-pressure practice opportunities can help students build confidence and reduce anxiety. For example, creating opportunities for students to practice speaking and writing in a non-graded setting, such as informal presentations or journal writing. By addressing both cognitive and emotional aspects of

learning, educators can better support students in achieving their language learning goals.

The study also highlights the importance of balancing traditional and modern teaching approaches. While students appreciate the structure and clarity provided by grammar-focused instruction, they also value the dynamic and engaging nature of technology-enhanced learning. A blended approach that combines these methods can cater to diverse learning preferences and help students develop both accuracy and fluency in English.

While the study provides valuable insights into EFL learning approaches at Hatyai University, it is important to acknowledge its limitations. The study's reliance on convenience sampling may limit the generalizability of its findings to other populations or contexts. Furthermore, student-teacher familiarity and the class environment may have influenced student responses, which should be considered when interpreting the results.

In conclusion, the findings of this study provide valuable insights into the attitudes, behaviors, and preferences of first-year EFL students at Hatyai University. By addressing the challenges identified and building on the positive attitudes and behaviors observed, educators can create a more effective and supportive learning environment that empowers students to achieve their language learning objectives.

This study examined the attitudes, behaviors, and preferences of first-year students at Hatyai University toward learning English as a Foreign Language (EFL). The findings reveal that students have a positive and initiative-taking approach to EFL learning, valuing English for both academic and real-world communication. They actively engage in daily practice, class participation, and self-study, and prefer interactive, technology-enhanced teaching methods. Traditional approaches, such as grammar instruction and vocabulary memorization, are also appreciated for building a durable foundation.

However, students face emotional challenges, including anxiety, frustration, and fear of making mistakes, particularly in speaking and writing. These barriers can hinder their confidence and willingness to practice, despite their overall enjoyment of learning English. To address these challenges, educators should create a supportive and low-pressure learning environment that normalizes mistakes and encourages growth.

A balanced approach combining traditional and modern teaching methods is recommended. Interactive activities, technology integration, and real-life scenarios can make learning more engaging and relevant. Immediate feedback and low-pressure practice opportunities can help build confidence and reduce anxiety. By addressing these emotional and cognitive challenges, educators can better support students in

achieving their language learning goals.

In conclusion, the findings of this study provide valuable insights into the attitudes and preferences of first-year EFL students at Hatyai University. By addressing the emotional and cognitive challenges identified and building on the positive behaviors and attitudes observed, educators can create a more effective and supportive learning environment. This, in turn, will empower students to achieve their language learning goals and prepare them for academic and real-world communication in an increasingly globalized world.

References

Al-Muslimawi, I. A. J., & Al-Shamarti, A. K. N. (2023). Attitudes of EFL Students towards English Language Learning: A Study at the College of Arts, University of Kufa. Tasnim International Journal for Human Social and Legal Sciences, (6), 386-397

Bryman, A. (2012). Social research methods (4th ed.). Oxford University Press.

Butler, Y. G. (2014). Reexamining the washback effect of high-stakes EFL tests in East Asia: A case study of university entrance exams in Korea. Language Testing, 31(2), 165– 186. https://doi.org/10.1177/0265532213499825

Canagarajah, A. S. (1999). Resisting linguistic imperialism in English teaching. Oxford University Press.

Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.). SAGE Publications.

Hu, G. (2002). Potential cultural resistance to pedagogical imports: The case of communicative language teaching in China. TESOL Quarterly, 36(1), 9–30. https://doi.org/10.2307/3588361

Hyland, K. (2006). English for academic purposes: An advanced resource book. Routledge.

Kim, Y. (2011). The relationship between anxiety and foreign language performance. Korean Journal of Applied Linguistics, 27(1), 1–23.

Lightbown, P. M., & Spada, N. (2013). How languages are learned (4th ed.). Oxford University Press.

Norton, B. (2000). Identity and language learning: Gender, ethnicity and educational change. Longman/Pearson Education.

The Impact of English Language Proficiency on Students' Interview Simulation Training Performance: A Qualitative Study

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Abstract

This qualitative study examines the impact of English language proficiency on the interview performance of 30 second-semester students (12 males, 18 females) enrolled in the Diploma in Logistics and Supply Chain Management program (Class DLS2B) at Seberang Perai Polytechnic, Penang. These students participated in a structured simulated interview training session as part of their coursework in the Introduction to Human Resource Management subject. In an increasingly competitive job market, proficiency in English plays a critical role in shaping students' confidence, communication effectiveness, and overall interview success. Data was collected through semi-structured and In-depth interviews, direct observations, and analysis of interview transcripts during the simulation training. The findings reveal that students with higher English proficiency demonstrated greater self-confidence, provided well-structured and detailed responses, and engaged more effectively with interviewers. In contrast, students with lower proficiency exhibited visible anxiety, hesitancy in articulation, and difficulty structuring their answers, leading to weaker interview performance. These findings underscore the importance of integrating targeted English language training within interview preparation programs, especially for students with limited proficiency. Recommendations include enhanced English communication workshops, additional interactive language-based simulations, and personalized language support to better equip students for real-world job interviews.

Keywords: English Language Proficiency, Simulated Interview, Training Student Confidence, Communication Effectiveness, Job Interview Performance

Introduction

In this era of globalization, English plays a crucial role in education and employment. As an international language or Lingua Franca, proficiency in English not only increases students' chances of success in an academic environment but also provides an advantage in the increasingly competitive world of work. Interviews are a crucial element frequently used as an assessment in the job search process. Therefore, effective

communication in English significantly influences students' performance in simulated interviews, which serves as valuable preparation for real-life interviews. This study aims to investigate the extent to which English language proficiency affects students' performance in simulated interviews in the context of higher education, as well as the challenges faced by students with low English language proficiency.

However, there are significant differences in English proficiency among students, which are often influenced by educational background, social environment, and early exposure to the language. Students who are more fluent in English are usually more confident and fluent during interviews, while those who are less proficient may face difficulties in conveying ideas and answering questions well. Therefore, effective interview training should pay attention to improving English proficiency as one of the key aspects in ensuring satisfactory performance by the student.

This study is important as it can provide insight into how English proficiency affects the effectiveness of interview training simulations, as well as help researchers and educators understand the factors that can improve students' preparation for real interviews soon. Therefore, the results of this study are expected to guide educational institutions in planning more comprehensive and effective training programs.

Objectives

1. To assess the impact of English proficiency on student performance in simulated interview training: This study aims to identify how the level of English proficiency affects students' self-confidence, communication fluency, and ability to provide accurate and detailed answers during simulated interview sessions.
2. To investigate the challenges faced by students with low English proficiency in interview training: This study will examine the challenges faced by students with limited English proficiency and how these challenges affect their performance during interview training.
3. To identify the relationship between language skills and the effectiveness of interview training: This study will investigate how interview training can enhance student performance, particularly for those with low English proficiency, and examine the impact of language proficiency on the effectiveness of the training.
4. To provide recommendations to strengthen interview training with an emphasis on English proficiency: This study aims to provide practical recommendations to institutions of higher learning on ways to improve student's English skills in their preparation for real-world interviews.

Concept theory framework

English proficiency plays a significant role in students' performance during mock interview training. Recent studies conducted between 2020 and 2024 have highlighted the connection between language skills and success during the interview process.

English Proficiency and Interview Performance

A study by Hossain (2021) highlighted that high English proficiency increases students' self-confidence during interviews, enabling them to deliver answers in more clarity and detail. On the other hand, students with low English proficiency often face difficulties in communicating their ideas effectively.

Challenges of Students with Low English Proficiency

According to a study by Tan (2022), students with lower English proficiency tend to experience greater stress during interviews because they struggle to answer questions accurately or provide convincing responses. This difficulty not only affects students' self-confidence but also their overall performance during the interview session.

The Relationship between Language Skills and the Effectiveness of Interview Training

A study by Abdullah (2023) showed that effective interview training requires students to have a good command of English, as it increases the effectiveness of the training. In this study, students who received interview training involving the use of English showed a significant improvement in their performance.

English Proficiency in the Context of Education and Career

A study by Al-Khaja (2016) showed that English proficiency is important for students' success in the working environment. This study emphasized that the ability to communicate well in English not only affects academic performance but also provides an advantage in job interviews. The English used in interviews impacts students' ability to explain their skills and experiences more clearly and convincingly.

A study by Hossain (2019), which discussed the effect of English proficiency on communication skills in interviews, found that students who are fluent in English performed better in interviews, as they were more confident and easily conveyed ideas in detail. On the other hand, students who were weak in language proficiency often hesitated and faced difficulties in presenting their answers.

Challenges Faced by Students with Low English Proficiency

Several studies have also examined the challenges faced by students with low English proficiency in interviews. A study by Tan (2017) stated that students with lower English proficiency tend to experience greater stress during interviews because they struggle to answer questions accurately or provide convincing responses. This difficulty not only affects students' self-confidence but also their overall performance during the

interview session.

In addition, a study conducted by Azizah et al. (2020) showed that these language challenges can cause students to feel uncomfortable and marginalized during the interview process. This may make it difficult for them to demonstrate their true abilities and demonstrate their potential. Students who face language difficulties are also more likely to give short or detailed answers, which reduces their chances of being selected.

Relationship Between Language Skills and Effectiveness of Interview Training

Research by Abdullah (2018) showed that effective interview training requires students to have a good command of English, as it increases the effectiveness of the training. In this study, students who received interview training that involved the use of English showed a significant improvement in their performance. Training that emphasized language skills helped students to be better prepared for real interview situations.

Another study by Kumar et al. (2017) found that interview simulation training that integrated English proficiency provided significant benefits to students. This training not only improved their communication skills but also helped them to be better prepared to face the pressures of real interviews. Therefore, English proficiency was seen as a key factor in improving interview training performance.

Overall, recent studies have shown that English proficiency has a significant impact on students' performance in interview training. Students who are more proficient in English tend to be more confident, able to answer questions more clearly and perform better in simulated interviews. On the other hand, students who are less proficient in English often face great challenges in conveying ideas and communicating effectively. Therefore, interview training that focuses more on English proficiency can improve students' performance, better preparing them for the world of work that is increasingly dependent on language skills.

Materials and Methods

This study uses a qualitative approach to investigate the impact of English proficiency on students' performance in simulated interview training. This approach was chosen because it allowed the researcher to dive into the experiences, perceptions, and challenges faced by students during simulated interview training, as well as gain a deeper understanding of how English proficiency affects their performance. The following are the main components of the study methodology:

1. Study Design

This study uses a case study design where the focus is on students undergoing simulated interview training. This approach allows for in-depth research into individual experiences in a limited and specific context. Case studies are also suitable for studying

factors that influence student performance in simulated interview situations that vary based on language proficiency.

2. Population and Sample

The population of this study consists of 30 second-semester students (12 males, 18 females) who are pursuing a Diploma in Logistics and Supply Chain Management, Class DLS2B, at Seberang Perai Polytechnic. These students were selected because they are currently undergoing training in interview simulation as part of their Introduction to Human Resource Management course. The relevance of this selection lies in the study's focus on the impact of English proficiency on interview performance, as these students are preparing for professional careers where English communication skills play a crucial role. A total of 30 students participated in the study, providing qualitative data through direct observation and structured interviews during their simulation training sessions. Their performance and challenges were analyzed to assess the correlation between English language skills and interview confidence, fluency, and overall success in simulated job interviews.

3. Data Collection Methods

Three main methods were used to collect data in this study:

• Semi-structured and In-depth Interview: Semi-structured interviews were conducted with each participant to obtain their views, experiences, and challenges faced during the simulated interview training. These interviews provided space for students to share their experiences regarding English proficiency and how it affected their performance in the simulated interview. Questions focused on students' experiences during interview training, perceptions of their English proficiency, and perceived strengths or weaknesses.

Sample question: *"Can you describe a time during the mock interview when you struggled or felt confident due to your English ability?"*

• Classroom Observation: Direct observation was conducted during the actual simulation sessions. Key indicators included fluency, coherence, body language, and responsiveness. This observation also helped the researcher observe the students' behaviour and interactions during the interview session. Observational data captured moments of hesitation, code-switching, or lack of comprehension.

• Documentation and Transcript Review: Audio and video recordings or transcripts of the simulated interviews were analyzed for patterns in language use, structure of responses, and interview feedback to see how students with distinct levels of English proficiency answered questions and conveyed ideas during the simulated interviews.

4. Research Instruments

The research instruments consisted of two parts:

• Interview Question List: A list of open-ended questions was used during the in-depth interviews to obtain information about the student's experiences and perceptions of English proficiency and their performance in the simulated interviews.

• Observation Protocol: A specially designed observation protocol was used to record important aspects during the interview session, such as communication fluency, self-confidence, and difficulties faced by students in using English.

5. Data Analysis

The data obtained from the interviews, observations, and documentation were analyzed using a thematic analysis approach. This process involved categorizing the data into key themes related to the impact of English proficiency on students' interview performance. Each theme was analyzed in depth to identify emerging patterns or trends in the relationship between English proficiency and students' performance in interview training.

6. Study Limitations

• Sample limitations: This study only involved a Diploma in Logistics and Supply Chain Management, Class DLS2B, at Seberang Perai Polytechnic. which may not reflect the views and experiences of students across the country.

• Context limitations: Only simulated interview training at one institution were analyzed, so the study results may not be generalizable to all types of interview training at various institutions.

7. Significance of the Study

The methodology of this study has provided an opportunity to understand in more depth how English proficiency affects students' performance in interview training, as well as the challenges faced by students with low English proficiency. The findings of this study can provide recommendations to educators on how to improve students' English skills in interview training to prepare them for the world of work.

Results

Key Findings with Direct Participant Quotations

1. English Proficiency and Self-Confidence

"I felt more relaxed because I could understand the question and answer fluently... I wasn't worried about grammar." (Participant A, Male)

Students with higher proficiency appeared comfortable maintaining eye contact and using more complex vocabulary, while others showed signs of discomfort.

2. Communication Challenges

"I know the answer in Malay, but in English, I don't know how to explain properly." (Participant G, Female)

Common issues included incorrect tense usage, limited vocabulary, and long pauses.

3. Effects of Simulation Training

"After three practice interviews, I felt more ready. I started to use more English words and practiced answering questions at home." (Participant K, Female)

Even low-proficiency students gained confidence through repetition, though improvement was slower compared to more proficient peers.

4. Observation Insights

Students with high proficiency used structured responses (e.g., STAR technique), while others gave short, vague answers or switched to Malay midway.

The findings of this study were obtained based on in-depth interviews, direct observations during simulated interview training, and analysis of interview transcript documentation conducted with students. Overall, this study found that English proficiency significantly impacts students' performance in simulated interview training. The following are the main findings obtained from this study:

4.1 The Influence of English Proficiency on Students' Self-Confidence Level

Students with high English proficiency showed higher levels of self-confidence during simulated interview training. They were more prepared and able to communicate fluently, which in turn helped them provide more accurate and detailed answers. On the other hand, students with low English proficiency tended to feel less confident and hesitant in presenting their answers. Many participants with lower English proficiency expressed feelings of fear or anxiety about answering interview questions, which affected their performance in the simulation.

4.2 Difficulty in Communication and Language Fluency

Students with low English proficiency had difficulty communicating their ideas clearly and systematically. Many of them took longer to find the right words and organize their ideas well during the interview. Difficulties in sentence structure and grammar also often hindered understanding between students and the simulated interviewer. This situation caused most students who were not proficient in English to feel stressed during the interview session and experienced a decrease in the quality of their answers.

4.3 Challenges Faced by Students with Low English Proficiency

Students with low English proficiency reported several challenges in the simulated interview, including:

• Limitations in Word Selection: They had difficulty choosing the right words and organizing sentences correctly. This made their communication less effective.

• Uncertainty in Answering Questions: Students who are less proficient in English often appear hesitant or unsure in answering, especially when the questions asked are technical.

• Decreased Confidence: Limited English can often lead to a lack of confidence in students, which negatively impacts their performance in mock interviews.

4.4 Positive Effects of Simulation Training on Students with Low English Proficiency

Although students with low English proficiency face challenges, these mock interview training provide them with opportunities to practice and improve their communication skills. Several students have reported a boost in their self-confidence and fluency after participating in several mock training sessions. This shows that even if their English proficiency is not yet fully developed, consistent practice can help students improve their performance in real interview sessions.

4.5 Relationship Between English Proficiency and the Effectiveness of Simulation Training

This study found that students with better English proficiency tend to be more likely to accept feedback from interviewers and make improvements in mock interviews. On the other hand, students who are weak in English show less progress due to their difficulty in understanding and applying the feedback received. However, for students with lower English proficiency levels, additional support such as specialized guidance or English training can increase the effectiveness of their simulation training.

4.6 Suggestions for Improving Interview Training Based on English Proficiency

Based on the study findings, there are several suggestions for improving simulated interview training in higher education institutions:

• Emphasis on English Proficiency: Higher education institutions can offer additional courses or workshops to strengthen students' English proficiency, especially for those with low English proficiency.

• More Interactive Interview Training: Provide more simulated interview training sessions with

Conclusions and Discussion

This study examined the impact of English proficiency on students’ performance in simulated interview training. Based on the findings, English proficiency plays a significant role in increasing students’ self-confidence, fluency in communication, and ability to provide accurate and detailed answers during simulated interview sessions. Students with better English proficiency performed better in interview training, while those with less

proficiency faced challenges such as lack of confidence, lack of fluency in communication, and difficulty in organizing ideas precisely.

Despite these challenges, this study also found that simulated interview training provided students with opportunities to improve their communication skills, especially for those with low English proficiency. Additional support through English tutoring, more interactive training, and more detailed feedback can help improve students' performance in interview training.

Overall, this study shows that English proficiency significantly impacts the effectiveness of interview training. Therefore, higher education institutions need to pay more attention to improving students' English language skills, such as providing the necessary support to help students who are less proficient in English to overcome the challenges they face during simulated interview training. With these steps, students will be better prepared to face real-world interviews and succeed in their future careers.

The study on the impact of English proficiency on students' performance during simulated interview training has led to several recommendations for enhancing both the experience and outcomes of this training, particularly concerning language proficiency. These recommendations aim to help students improve their communication skills, increase self-confidence, and overcome the challenges faced by those with low English proficiency.

1. Increase Emphasis on English Language Skills in the Curriculum

Higher education institutions can introduce more specific courses or modules on English language skills for interview purposes. This course can focus on aspects such as grammar, vocabulary, and speaking skills that are more practical for interview situations. In addition, teaching interview question-answering techniques in English can help students practice and improve the way they convey their ideas clearly and accurately.

2. Workshops and Periodic Training in Interview Skills

Institutions can provide periodic workshops and interview training sessions to help students practice interviewing in English. These training sessions should include simulations of different interview scenarios, such as group interviews and technical interviews, allowing students to practice in a more dynamic environment. In addition, emphasizing communication exercises that involve non-verbal language such as facial expressions and body language can also improve their overall communication skills.

3. English Language Support for Students with Low Proficiency

Institutions can offer specialized support or tutoring classes for students with lower English proficiency. These classes can help students improve their basic English proficiency, especially in aspects relevant to interviews, such as asking and answering questions in a professional context. Additionally, providing online modules that allow students to study independently outside of class can also be beneficial.

4. Use of Technology in Interview Training

Integrating technology into simulated interview training can have a positive impact. For example, online interview platforms allow students to practice interviews in a more flexible environment. Additionally, technology can be used to provide video analysis of interviews, enabling students to review their performance and receive structured feedback from instructors or peers.

5. Improved Feedback Training

Interviewers or interview training facilitators should provide more detailed and specific feedback on aspects of students' English proficiency during simulated interview sessions. This feedback should include practical suggestions for improving grammar, fluency, and word choice. For example, emphasizing more accurate vocabulary usage and techniques for overcoming nervousness can help students develop their skills more effectively.

6. Creating a Supportive Learning Environment

Creating a friendly and supportive environment in simulated interview sessions is important for increasing students' confidence. Interviewers should provide encouragement and moral support to students during the interview session so that they feel more comfortable speaking in English. A less stressful environment can reduce anxiety and help students communicate more clearly and confidently.

7. Training to Improve Social and Interaction Skills

Training social skills is also important to help students interact better in interviews. situations. Courses that focus on developing people skills and oral communication in English can help students improve their fluency in conversation and make them more confident when interacting in real interviews.

8. Providing More Accessible English Learning Resources

Alongside formal courses, institutions can provide more accessible English learning resources, such as mobile apps or online learning portals. These resources enable students to study and practice at their convenience, allowing them to continuously improve their language proficiency outside of classroom hours.

9. Encouraging Peer Collaboration

Interview training programs can encourage peer collaboration, where students can conduct simulated interviews in pairs. In this situation, students can give each other feedback on aspects of English and their performance. This can create a more collaborative learning environment and help students to improve their communication skills.

10. Evaluation and Continuous Improvement of Interview Training Programs

Finally, it is important to conduct periodic evaluations of the effectiveness of the simulated interview training conducted. By considering feedback from students and

interviewers, the program can be improved to better meet the needs of students and provide them with better preparation for real-world interviews. By implementing these recommendations, higher education institutions can improve students' simulated interview training experiences, as well as help them improve their English proficiency in a professional context. In this way, students can be better prepared for real interviews and develop the communication skills needed to succeed in the world of work.

References

Abdullah, N. A., & Lee, L. H. (2021). The role of English language proficiency in the academic and career success of Malaysian university students. Journal of Language and Education, 37(2), 45-58.

Ahmad, S. A., & Mustaffa, S. S. (2020). Improving interview skills through simulation: A case study of polytechnic students. International Journal of Education and Practice, 9(4), 121-134.

Chia, L. H., & Tan, K. L. (2022). The relationship between English language proficiency and job interview performance: A study among Malaysian graduates. Journal of Educational Research, 45(1), 15-28.

Darmawan, A., & Samsudin, M. (2020). Challenges faced by students with low English proficiency during job interviews. Malaysian Journal of Applied Linguistics, 10(2), 98-112.

Hashim, R., & Chong, S. (2020). Language skills and employability: The impact of English proficiency on job interview outcomes in Malaysia. International Journal of Linguistics and Literature, 8(1), 24-37.

Kaur, G., & Hassan, R. (2021). The role of soft skills in enhancing students' performance in simulated interviews: A review of current practices. Journal of Vocational Education and Training, 31(3), 74-88.

Noor, S. S., & Ahmad, Z. (2020). English proficiency and communication skills: A comparative study of students from different academic disciplines. Asian Journal of Language and Communication, 6(2), 59-71.

Rahman, A. Z., & Ismail, A. R. (2022). The effectiveness of interview simulation training in enhancing English communication skills among university students. Journal of Education and Learning, 55(3), 129-141.

Sulaiman, M., & Cheong, L. W. (2020). Enhancing students' employability through language skills development: A case study in the Malaysian higher education context. Journal of Applied Education Research, 8(1), 45-59.

Wong, P. T., & Tan, T. Y. (2021). Evaluating the impact of English language proficiency on job interview performance: Perspectives from Malaysian graduates. International Journal of Higher Education, 10(5), 88-101.







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Social Science Group

Gender Wage Discrimination and Occupational Crowding in Thailand's Labor Market

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Abstract

This study examines gender wage discrimination and occupational crowding in Thailand's labor market, focusing on male-dominated and female-dominated industries such as construction and healthcare. Despite Thailand's advancements in addressing gender inequality, significant wage disparities persist due to occupational crowding, where one gender is concentrated in certain professions. Using data from the Thai Labor Force Surveys of 2018, 2020, and 2022, and employing the Bergmann Occupational Crowding Index and Oaxaca-Blinder Decomposition, this study shows that occupational crowding significantly impacts wage disparities. In construction, a 1-unit increase in male overcrowding reduces wages by 4.9%, while in healthcare, a 1-unit increase in female overcrowding decreases wages by 63.55%, highlighting the extreme undervaluation of female-dominated roles. The Oaxaca-Blinder Decomposition indicates that 80.41% of the wage gap in construction and 66.22% in healthcare is due to gender discrimination. The findings underscore the persistent societal biases and structural barriers that limit gender wage parity, necessitating targeted policies to address occupational segregation and wage inequality.

Keywords: Gender Wage Discrimination, Occupational Crowding, Wage Disparity, Labor Market, Oaxaca-Blinder Decomposition

Introduction

Thailand has made significant strides in promoting gender equality through government initiatives and international commitments, particularly under Sustainable Development Goal 5 (SDG 5). These efforts have led to notable progress in narrowing the gender gap across multiple sectors. However, persistent gender disparities continue to exist, particularly in industries that exhibit occupational crowding—a phenomenon where a particular gender is overrepresented in specific professions, leading to wage disparities and unequal career opportunities. This gender-based labor market segregation remains a critical barrier to achieving wage equality, particularly in male-dominated industries like construction and female-dominated sectors such as healthcare.

Thailand's Global Gender Gap Index (GGI) has gradually improved over recent years, rising from 0.694 in 2017 to 0.720 in 2024. However, despite this overall progress, wage disparities within male- and female-dominated industries have remained stagnant, suggesting that structural labor market barriers and societal biases continue to hinder gender pay equity. Political representation of women has contributed to Thailand's recent GGI ranking improvements—jumping from 73rd-79th place between 2017 and 2023 to 65th place in 2024—but economic participation and wage equality indicators have not shown consistent progress.

A key factor contributing to these wage disparities is occupational crowding, which refers to the concentration of men or women in specific professions, often leading to unequal pay scales and restricted career progression opportunities. In male-dominated sectors like construction, men overwhelmingly occupy higher-paying roles, often justified by physical job demands, skill-based hierarchies, and entrenched gender norms favoring male workers. Conversely, in female-dominated professions such as healthcare, women constitute many workers, yet they face lower wages and fewer leadership opportunities, reflecting the systemic undervaluation of traditionally female professions. These gendered labor patterns not only perpetuate wage disparities but also reinforce economic mobility restrictions, making it difficult for women to transition into high-paying, male-dominated fields and for men to enter traditionally female professions without stigma.

Empirical studies have long demonstrated a clear link between occupational segregation and gender wage disparities. Research shows that industries with a high concentration of female workers tend to offer lower wages than male-dominated fields (England, 1992; Cohen & Huffman, 2003). This wage gap is driven by multiple structural factors, including employer biases, the societal devaluation of feminized occupations, and systemic barriers limiting women's access to high-paying roles. In Thailand, while some industries have shown improvements in wage equality, construction and healthcare remain sectors where gender-based wage differentials persist, primarily due to occupational crowding (Kaewsria & Tongthong, 2013). Furthermore, labor force surveys reveal that while women in government jobs often earn equal or higher wages than men, women in the private sector continue to earn significantly less—highlighting persistent gender wage inequality in Thailand's labor market.

This study investigates gender wage discrimination through the lens of occupational crowding, using the construction and healthcare industries as case studies. Specifically, it examines how gender segregation within male- and female-dominated fields influences wage disparities and assesses the extent to which occupational crowding contributes to persistent gender inequality. By analyzing wage structures,

employment trends, and career progression barriers in these sectors, this study aims to provide evidence-based insights into the structural challenges that sustain gendered wage gaps. The findings will contribute to policy discussions on occupational segregation, wage equity, and strategies for fostering a more inclusive labor market in Thailand.

Objectives

To study the effect of occupational crowding on wage disparity in male-dominated and female-dominated industries

Concept theory framework

To analyze occupational crowding and wage discrimination, we use the wage equation incorporating psychic wage discrimination.

$$W^* = W(1 - D_j)$$

Where W^*= Psychic wage (the perceived wage value considering discrimination)

W = Monetary wage (actual wage paid by the employer)

Dj = Discrimination coefficient for employee j

The discrimination coefficient Dj represents the level of wage discrimination experienced by an employee due to gender-based biases in the labor market. If $Dj > 0$, then the actual perceived wage W^* for the discriminated group is lower than the monetary wage.

Occupational crowding is a form of labor market segregation, where men and women are funneled into different industries or job roles, leading to wage suppression in female-dominated jobs. The occupational crowding hypothesis suggests that when a particular group (e.g., women) is concentrated in specific jobs, the excess supply of workers in that job depresses wages relative to male-dominated fields.

The wage impact of occupational crowding can be modeled as:

$$Wf = Wm(1 - Dj)$$

Where Wf = Wage for a worker in a female-dominated occupation

Wm = Wage for a worker in a male-dominated occupation

Dj = Discrimination coefficient (higher in female-dominated sectors). In male-dominated fields (low Dj), the wage gap is smaller or non-existent. In female-dominated fields (high Dj), wages are lower due to crowding and undervaluation of female labor. The equation captures the psychic wage gap caused by discrimination in the labor market. Occupational crowding reinforces wage suppression in female-dominated jobs, leading to systematic wage inequalities. Both employee-based and customer-based discrimination contribute to gender-based occupational segregation, which in turn creates lower wages in female-majority fields.

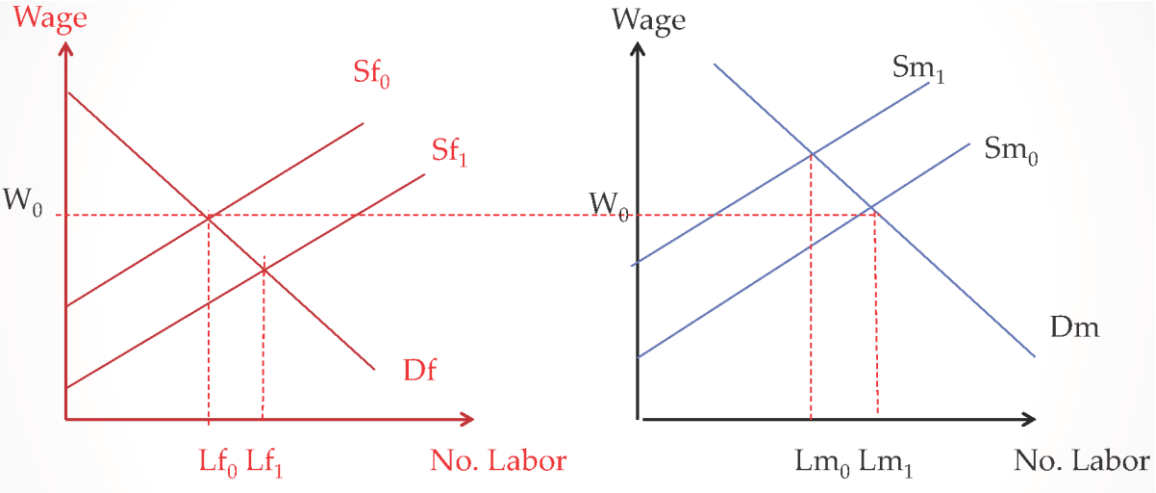


Figure 1: Taste of Discrimination and Occupational Crowing

This figure illustrates the concept of Taste of Discrimination in the labor market, showing how occupational segregation and wage disparities emerge between male- and female-dominated jobs. As more men enter female-dominated fields, increased labor supply suppresses wages, reinforcing gender-based pay disparities. Conversely, when men exit male-dominated jobs, reduced labor supply drives wages higher, widening the gender wage gap. Employers in male-dominated industries may raise wages to retain male workers, while female-dominated jobs remain lower-paying due to oversupply. These patterns reflect occupational crowding, where gender-based job segregation influences wage structures.

Research on gender segregation and occupational crowding highlights how socio-cultural norms, education, workplace discrimination, and labor market structures shape occupational opportunities for men and women. While these factors manifest differently in developed and developing countries, they create similar barriers to gender equality in the workplace. In developing countries like Thailand, women are overrepresented in low-paying roles such as clerical work and caregiving, while men dominate technical fields like construction and engineering. These patterns arise from cultural norms and industrial strategies that reinforce gender-specific roles, such as the perceived suitability of women for export-oriented manufacturing jobs (Son, 2007; Tangchonlatip et al., 2008). Conversely, in developed countries, occupational segregation is particularly evident in STEM fields, where entrenched gender norms and workplace cultures continue to marginalize women, limiting career advancement and widening pay gaps (Kaewsria & Tongthong, 2013; Limani & Sodergren, 2023).

Across both contexts, occupational segregation results in unequal economic benefits and disadvantages. Male-dominated sectors tend to offer higher wages and leadership opportunities but may also have physically demanding conditions and workplace cultures that discourage female participation (Limani & Sodergren, 2023). In contrast, female-dominated industries like healthcare and education provide more stable employment but are often undervalued, characterized by lower wages, and limited career growth opportunities (Jitkaew, 2019). Gender norms further reinforce these disparities by devaluing women's work, perpetuating wage gaps and occupational segregation (Son, 2007). While developed countries have introduced policies such as anti-discrimination laws and STEM initiatives to address workplace gender inequality, structural barriers like the glass ceiling persist, limiting women's access to leadership positions (Hegewisch & Barsi, 2020; Fromea et al., 2006). In developing countries, efforts focus on reducing disparities in labor-intensive industries through improved access to education and work-life balance policies, yet deep-rooted cultural norms remain a significant barrier (Tangchonlatip et al., 2008; Kosaikanont, 2019).

Despite women's increasing educational attainment worldwide, occupational segregation and wage gaps persist, highlighting the need for structural reforms beyond education alone. Policies aimed at reducing workplace discrimination, promoting gender diversity in non-traditional careers, and addressing occupational crowding are crucial to bridging gender gaps in both developed and developing economies (Booth et al., 2002; Paweenawat & Liao, 2019).

Materials and Methods

The Bergmann Occupational Crowding Index is a widely used tool to measure occupational segregation by assessing the overrepresentation or underrepresentation of specific demographic groups in certain occupations. Occupational crowding occurs when workers from certain groups (e.g., gender, race) are disproportionately concentrated in specific jobs, which limits employment opportunities in other fields and often leads to wage suppression due to an oversupply of labor (Bergmann, 1974).

Originally developed to study racial discrimination in the U.S. labor market, the Bergmann Index has since been adapted for analyzing gender disparities in labor markets worldwide. The methodology compares the share of male or female workers in each occupation to their representation in the overall workforce, adjusting for educational attainment and skill requirements (Blau & Kahn, 2017).

The Bergmann Index is typically applied under two conditions: (1) Less segregated occupations – where the workforce is balanced in gender composition. (2) Highly segregated occupations – where one gender dominates the field, contributing to wage

disparities and career stagnation. By measuring occupational crowding, the index provides a quantitative assessment of how labor market segregation influences gender wage gaps, particularly in male-dominated (e.g., construction) and female-dominated (e.g., healthcare) sectors (England, 1992; Cohen & Huffman, 2003).

The Oaxaca-Blinder decomposition is a widely used econometric method for analyzing wage differentials between groups. It decomposes the gender wage gap into two components: (1) Endowment Effect (Explained Part) – Differences due to observable factors, such as education, experience, or industry choice. (2) Treatment Effect (Unexplained Part) – Differences that remain after controlling for observable factors, often attributed to wage discrimination (Oaxaca, 1973; Blinder, 1973).

To begin, the Mincer Earnings Function is estimated, which models wages based on education, experience, and other characteristics:

$$ln(wage_i) = \beta_0 + \beta_1 Education_i + \beta_2 Experience_i + \beta_3 Experience_i^2 + X_i\alpha + \epsilon_i$$

Where $ln(wage_i)$ = Natural logarithm of wages for individual ii.

$Education_i$ = Dummy variables for different education levels (reference: Less than Elementary).

$Experience_i$ = Potential work experience (age - years of schooling - 6).

X_i = Additional control variables, including regional dummies (e.g., Bangkok, Northern, Northeastern regions), Marital status (reference: Widowed, Divorced, or Separated), Establishment size, Log of Gross Provincial Product (GPP) per capita, and Survey year dummies (reference: 2018).

The Oaxaca-Blinder decomposition then estimates the gender wage gap:

$$\Delta = \overline{ln(wage_m)} - \overline{ln(wage_f)}$$

This difference (Δ) is split into:

1. Endowment Effect (Explained Part): Accounts for differences in education, experience, and other observed characteristics.

$$\Delta^E = (\bar{X}_m - \tilde{X}_f)'\beta_m$$

2.Treatment Effect (Unexplained Part): Represents differences in returns to characteristics, often linked to discrimination.

$$\Delta^T = \bar{X}_f'(\beta_m - \beta_f)$$ ○

By applying the Oaxaca-Blinder decomposition to construction and healthcare sectors, this study identifies gender-based wage discrimination and occupational crowding effects.

Using econometric methods, we analyze data from the Thai Labour Force Survey for the years 2016, 2018, 2020, and 2022. The Thai Labor Force Survey (LFS) consists of quarterly surveys capturing employment trends, wages, and workforce dynamics (National Statistical Office of Thailand, 2022). Quarter 3 (July - September) is widely used

in labor market studies due to seasonal workforce patterns, particularly in the agricultural sector. Key reasons for selecting Quarter 3 data include: (1) Reducing Bias from Seasonal Migration: Agricultural workers migrate seasonally between rural and urban areas. During the rainy season (Q3), rural workers return home, making it easier to classify labor into urban vs. rural categories. Using data from other quarters may misclassify temporary urban workers, distorting labor market analysis (Sussangkarn & Chalamwong, 1996). (2)Capturing Stable Workforce Trends: Q3 provides a more stable picture of permanent employment, minimizing distortions from short-term agricultural work. Many labor market studies in Thailand rely on Q3 data for analyzing long-term employment trends (Warunsiri & McNown, 2010). By using Q3 data, this study ensures greater accuracy in identifying structural labor market disparities, particularly gender wage gaps in construction and healthcare.

Results

This study analyzes Thailand's Labor Force Survey (LFS) data to examine gender wage disparities in the construction and healthcare sectors, two industries that exhibit contrasting gender compositions. By applying the Bergmann Occupational Crowding Index and Oaxaca-Blinder decomposition, this research quantifies the extent of occupational segregation and wage discrimination within these industries.

In the construction sector, which is traditionally male dominated, 80.41% of the wage gap can be attributed to gender discrimination, while educational differences account for the remaining disparity. Women's lower educational attainment contributes to this gap, particularly among those with general or academic upper secondary education, vocational or higher technical education, and lower secondary education, explaining 3.25%, 3.71%, and 4.36% of the wage differential, respectively. However, certain factors help mitigate this gap. Holding a bachelor's degree reduces the wage disparity by 13.18%, while living in regions with higher Gross Provincial Product (GPP) per capita narrows it by 6.41%. Despite these mitigating factors, the unexplained portion of the wage gap remains primarily linked to gender discrimination. These findings align with international studies on male-dominated industries, which highlight the significant wage suppression and career stagnation that women face in such fields (De Ruijter et al., 2003; Gibson et al., 2018).

Conversely, the healthcare sector, which is female dominated, still exhibits a wage gap, with 66.22% of it attributed to gender discrimination. Other influential factors include work experience, which contributes 3.39% to the wage gap, and higher educational attainment, particularly at the bachelor's degree level or above, which paradoxically increases the wage gap by 16.88%. This suggests that despite higher

qualifications, women in healthcare do not experience proportional wage increases, due to the undervaluation of female-dominated professions. On the other hand, vocational or higher technical education and general or academic upper secondary education help reduce the wage gap by 4.98% and 2.51%, respectively. Additionally, factors such as the squared value of work experience, which accounts for diminishing wage returns over time, and temporal changes, particularly in 2022, also contribute to narrowing the wage gap. These findings reflect global trends in female-dominated sectors, where despite elevated levels of female representation, wage disparities persist due to structural biases and barriers to career advancement. The glass ceiling effect remains prevalent, preventing women from reaching higher-paying leadership positions (Boonsom, 2013; Sheridan, 1997).

Regional differences further highlight the complexity of gender wage disparities. Studies in Poland's construction sector, for example, suggest that sector-specific policies and labor protections can influence wage discrimination, as Strawinski et al. (2018) found lower levels of wage inequality in this field. Similarly, while some studies indicate that men in female-dominated professions face wage penalties (Liao & Paweenawat, 2020), others argue that they can negotiate higher salaries due to their perceived leadership potential in feminized workplaces (Crothers et al., 2010).

Discrimination remains a pervasive issue in Thailand's labor market, particularly in industries characterized by gender segregation. However, the findings of this study suggest that education and economic growth can help reduce wage gaps, though these factors alone are insufficient without targeted policy interventions. Increasing women's participation in higher-paying technical roles, addressing gender biases in salary negotiations and promotions, and strengthening legal frameworks to ensure wage equity across industries are necessary steps toward achieving gender wage parity. By integrating occupational crowding analysis with economic decomposition models, this study provides an empirical foundation for future labor market reforms aimed at reducing gender wage disparities in Thailand.

Table 1: Oaxaca-Blinder Decomposition of wage disparities in the construction sector

Model Construction

Model	Construction							
	Overall		Female-Overrepresented		Proportional		Male-Overrepresented	
	Log points	% of gap	Log points	% of gap	Log points	% of gap	Log points	% of gap
Male wage	3.8388***		3.9056***		3.7877***		4.0216***	
Female wage	3.7653***		4.0225***		3.6800***		4.2063***	
Difference	0.0735***	100.00%	-0.1168***	100.00%	0.1077***	100.00%	-0.1847***	100.00%
Explained	-0.0395***	-53.74%	-0.2701***	231.25%	0.0211*	19.59%	-0.4852***	262.70%
Unexplained	0.1130***	153.74%	0.1533***	-131.25%	0.0866***	80.41%	0.3005***	-162.70%
Explained Effect								
Primary Education	0.0005	0.68%	0.0024	-2.05%	-0.0001	-0.09%	0.0593*	-32.11%
Lower Secondary Education	0.0067***	9.12%	0.0113*	-9.67%	0.0047***	4.36%	0.0438	-23.71%
General/Academic Upper Secondary Education	0.0044***	5.99%	0.0054*	-4.62%	0.0035***	3.25%	-0.0636	34.43%
Vocational or Higher Technical Education	0.0036***	4.90%	0.0004	-0.34%	0.0040***	3.71%	0.0365**	-19.76%
Diploma	0.0012*	1.63%	-0.0057	4.88%	0.0019*	1.76%	0.0308	-16.68%
Bachelor's Degree and Above	-0.0400***	-54.42%	-0.0894***	76.54%	-0.0142***	-13.18%	-0.2801***	151.65%
Work Experience	-0.0171***	-23.27%	0.0513***	-43.92%	-0.0209***	-19.41%	0.0042	-2.27%
Work Experience Squared	0.0100***	13.61%	-0.0315***	26.97%	0.0116**	10.77%	-0.0065	3.52%
Central	0.0002	0.27%	0.0016	-1.37%	-0.0000	0.00%	-0.0007	0.38%
Northern	0.0063***	8.57%	-0.0066**	5.65%	0.0095***	8.82%	-0.0117	6.33%
Northeastern	-0.0047***	-6.39%	-0.0219**	18.75%	-0.0020*	-1.86%	-0.0306	16.57%
Southern	0.0002	0.27%	-0.0101**	8.65%	0.0032	2.97%	-0.0045	2.44%
Municipal Area Dummy Variable	-0.0004	-0.54%	0.0007	-0.60%	-0.0001	-0.09%	-0.0158	8.55%
Single	-0.0017	-2.31%	-0.0033	2.83%	0.0021	1.95%	-0.0252	13.64%
Married	0.0017	2.31%	0.0008	-0.68%	-0.0001	-0.09%	0.0014	-0.76%
5 - 9 Persons	0.0013**	1.77%	-0.0040	3.42%	0.0014**	1.30%	0.0917**	-49.65%
10 - 19 Persons	-0.0027***	-3.67%	-0.0002	0.17%	-0.0046***	-4.27%	-0.0128	6.93%
20 - 29 Persons	-0.0024***	-3.27%	-0.0008	0.68%	-0.0021***	-1.95%	-0.0021	1.14%
30 - 49 Persons	-0.0018*	-2.45%	0.0021	-1.80%	-0.0013*	-1.21%	-0.0429	23.23%
50 - 100 Persons	-0.0036***	-4.90%	-0.0021	1.80%	-0.0023***	-2.14%	-0.0280	15.16%
101 - 199 Persons	-0.0012**	-1.63%	0.0022	-1.88%	-0.0017**	-1.58%	0.0043	-2.33%
Over 200 Persons	-0.0002	-0.27%	0.0002	-0.17%	-0.0002	-0.19%	-0.0031	1.68%
Logarithm of Gross Provincial Product per Capita	-0.0129***	-17.55%	-0.0328***	28.08%	-0.0069***	-6.41%	0.0096	-5.20%
2020	0.0001	0.14%	0.0008	-0.68%	-0.0002	-0.19%	-0.0013	0.70%
2022	0.0004	0.54%	0.0001	-0.09%	0.0009*	0.84%	-0.0052	2.82%
Number of males	35,476		12,679		21,984		452	
Number of females	6,854		1,113		5,617		107	

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.
Source: Calculated by the author using data from the 3rd quarter Thai Labor Force Surveys of 2018, 2020, and 2022, conducted by the National Statistical Office

Table 2: Oaxaca-Blinder Decomposition of wage disparities in the health sector

Model	Human health and social work activities sector							
	Overall		Female-Overrepresented		Proportional		Male-Overrepresented	
	Log points	% of gap	Log points	% of gap	Log points	% of gap	Log points	% of gap
Male wage	4.4192***		4.1639***		4.8807***		4.4539***	
Female wage	4.2829***		4.0758***		4.3505***		4.5028***	
Difference	0.1363***	100.00%	0.0880**	100.00%	0.5302***	100.00%	-0.0490	100.00%
Explained	0.0316	23.18%	0.0953**	108.30%	0.1791***	33.78%	-0.0927	189.18%
Unexplained	0.1047***	76.82%	-0.0073	-8.30%	0.3511***	66.22%	0.0438	-89.39%
Explained Effect								
Primary Education	0.0001	0.07%	-0.0038	-4.32%	-0.0003	-0.06%	-0.0090	18.37%
Lower Secondary Education	0.0110*	8.07%	0.0171	19.43%	-0.0050	-0.94%	0.0047	-9.59%
General/Academic Upper Secondary Education	-0.0032	-2.35%	0.0233	26.48%	-0.0133	-2.51%	-0.0193	39.39%
Vocational or Higher Technical Education	-0.0050	-3.67%	-0.0075	-8.52%	-0.0264**	-4.98%	0.0233	-47.55%
Diploma	0.0098	7.19%	0.0072	8.18%	-0.0055	-1.04%	-0.0036	7.35%
Bachelor's Degree and Above	-0.0410*	-30.08%	-0.0782***	-88.86%	0.0895**	16.88%	-0.0906	184.90%
Work Experience	0.0385*	28.25%	-0.0016	-1.82%	0.0180	3.39%	0.0692	-141.22%
Work Experience Squared	-0.0159	-11.67%	0.0203	23.07%	-0.0097	-1.83%	-0.0222	45.31%
Central	0.0038	2.79%	0.0011	1.25%	0.0061	1.15%	-0.0012	2.45%
Northern	-0.0011	-0.81%	-0.0009	-1.02%	0.0026	0.49%	-0.0020	4.08%
Northeastern	0.0022	1.61%	0.0077	8.75%	0.0039	0.74%	-0.0038	7.76%
Southern	0.0042*	3.08%	0.0089	10.11%	0.0014	0.26%	0.0004	-0.82%
Municipal Area Dummy Variable	0.0033*	2.42%	0.0058	6.59%	0.0007	0.13%	-0.0064	13.06%
Single	0.0012	0.88%	0.0097	11.02%	0.0034	0.64%	-0.0068	13.88%
Married	0.0057*	4.18%	-0.0005	-0.57%	0.0021	0.40%	0.0036	-7.35%
5 - 9 Persons	-0.0149***	-10.93%	-0.0333***	-37.84%	-0.0019	-0.36%	0.0022	-4.49%
10 - 19 Persons	0.0001	0.07%	-0.0010	-1.14%	-0.0002	-0.04%	-0.0001	0.20%
20 - 29 Persons	0.0044	3.23%	0.0053	6.02%	0.0010	0.19%	0.0018	-3.67%
30 - 49 Persons	0.0007	0.51%	0.0091	10.34%	0.0057	1.08%	-0.0072	14.69%
50 - 100 Persons	0.0099*	7.26%	0.0184*	20.91%	0.0022	0.41%	-0.0014	2.86%
101 - 199 Persons	0.0309***	22.67%	0.0530***	60.23%	0.0103	1.94%	0.0031	-6.33%
Over 200 Persons	0.0036	2.64%	0.0148	16.82%	0.0002	0.04%	-0.0055	11.22%
Logarithm of Gross Provincial Product per Capita	0.0042	3.08%	0.0078	8.86%	0.0052	0.98%	-0.0077	15.71%
2020	-0.0030	-2.20%	-0.0048	-5.45%	-0.0039	-0.74%	0.0010	-2.04%

Model	Human health and social work activities sector							
	Overall		Female-Overrepresented		Proportional		Male-Overrepresented	
	Log points	% of gap	Log points	% of gap	Log points	% of gap	Log points	% of gap
2022	-0.0028	-2.05%	0.0020	2.27%	-0.0085	-1.60%	0.0017	-3.47%
Number of males	502		222		126		108	
Number of females	2,472		1,046		926		480	

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.
Source: Calculated by the author using data from the 3rd quarter Thai Labor Force Surveys of 2018, 2020, and 2022, conducted by the National Statistical Office

Conclusions and Discussion

The study highlights gender wage disparities in Thailand's construction and healthcare sectors, revealing how occupational segregation and discrimination contribute to economic inequality. In construction, where men overwhelmingly dominate, the wage gap remains stark, with 80.41% of the disparity attributed to discrimination. Women's lower educational attainment further exacerbates this gap, though factors such as a bachelor's degree or higher and residence in economically developed regions help mitigate wage differences. However, despite these compensatory factors, gender bias remains deeply entrenched, limiting women's access to higher-paying technical roles and leadership opportunities. In contrast, the healthcare sector, which is female-dominated, exhibits a wage gap where 66.22% is due to gender-based discrimination. Unlike construction, where education helps narrow wage differences, healthcare presents a paradox: higher educational attainment among women does not translate into proportional wage benefits. In fact, the wage gap increases by 16.88% for those with a bachelor's degree or higher, reflecting structural biases that continue to undervalue female-dominated professions. Conversely, vocational, and technical education has a mitigating effect, reducing the wage gap by 4.98%.

These findings align with global research on occupational crowding, where industries that are highly feminized tend to experience wage suppression due to the perceived lower value of women's work. Studies from developed and developing countries alike suggest that gender norms, societal expectations, and institutional biases perpetuate these inequalities. In Poland, for example, Strawinski et al. (2018) found lower levels of discrimination in the construction sector, indicating that industry-specific policies and legal frameworks can influence wage structures. Similarly, research on feminized professions suggests that while some men in female-dominated fields face wage penalties (Liao & Paweenawat, 2020), others may be able to negotiate higher salaries due to their perceived leadership potential (Crothers et al., 2010). Addressing

these wage disparities requires strategic policy interventions at multiple levels. At the individual level, increasing women's access to education in science, technology, engineering, and mathematics (STEM) fields is critical to breaking gender-based occupational segregation. Expanding vocational training programs for women in male-dominated industries, such as construction, could provide a pathway for greater participation in higher-paying roles. In corporate and institutional settings, policies promoting mentorship, leadership development, and gender-equitable salary structures are necessary to eliminate barriers to career progression in the healthcare sector.

On a broader policy scale, the government must implement sector-specific wage equity measures and reinforce anti-discrimination labor laws. Sweden, for example, has successfully reduced gender-based pay gaps by implementing transparent wage-setting policies and strong parental leave protections, which encourage gender equality in the workforce. Moldova's policies promoting women in leadership roles have also contributed to reducing occupational segregation. Thailand could adapt similar approaches by integrating gender-sensitive employment policies into labor market reforms, ensuring that wage disparities are not only acknowledged but systematically addressed.

Additionally, regional economic strategies play a crucial role in reducing gender-based wage gaps. Women in underdeveloped regions often face limited access to high-paying employment opportunities, exacerbating disparities. Encouraging regional investment in female-dominated industries, providing incentives for businesses to recruit women into higher-wage roles, and integrating gender-responsive budgeting into national development plans are all potential solutions.

In conclusion, while education and economic policies can alleviate some aspects of wage disparity, they are not sufficient to eradicate systemic discrimination. A multifaceted approach—encompassing legislative action, corporate accountability, and societal change—is necessary to foster an equitable labor market. By addressing discrimination at its root, dismantling occupational segregation, and promoting wage transparency, Thailand can take significant strides toward closing the gender wage gap and ensuring equal economic opportunities for all.

References

Bergmann, B. (1974). Occupational segregation, wages, and profits when employers discriminate by race or sex. Eastern Economic Journal, 1(2), 103–110.

Bergmann, B. F. (1971). The effect on white incomes of discrimination in employment. Journal of Political Economy, 79(2), 294–313. https://doi.org/10.1086/259741

Blau, F. D., & Kahn, L. M. (2017). The gender wage gap: Extent, trends, and explanations.

Journal of Economic Literature, 55(3), 789–865. https://doi.org/10.1257/jel.20160995

Blinder, A. S. (1973). Wage discrimination: Reduced form and structural estimates. Journal of Human Resources, 8(4), 436–455. https://doi.org/10.2307/144855

Boonsom, A. (2013). Causal effects of organizational performance on choosing of leaders: Gender and perceived suitability of leader as moderated by trait and history of leader (master's thesis, Chulalongkorn University). Retrieved from Chulalongkorn University Library archives.

Booth, A., Frank, J., & Blackaby, D. (2002). Outside offers and the gender pay gap: Empirical evidence from the UK academic labour market. The Economic Journal, 115(501), 81–107. https://doi.org/10.1111/j.1468-0297.2005.00965.x

Connolly, S., & Long, S. (2008). Glass ceilings – thicker at the top? Evidence on career progression for scientists from the UK. Discussion Paper No. 2008-1, The UEA Economics Research Centre.

Crothers, L. M., Schmitt, A. J., Hughes, T. L., Lipinski, J., Theodore, L. A., Radliff, K., & Ward, S. (2010). Gender differences in salary in a female-dominated profession. Gender in Management: An International Journal, 25(7), 605–626. https://doi.org/10.1108/17542411011081392

De Ruijter, J. M. P., & Huffman, M. L. (2003). Gender composition effects in the Netherlands: A multilevel analysis of occupational wage inequality. Social Science Research, 32(3), 312–334. https://doi.org/10.1016/S0049-089X(03)00003-4

De Ruijter, J. M., van Doorne-Huiskes, A., & Schippers, J. J. (2003). Size and causes of the occupational gender wage-gap in the Netherlands. European Sociological Review, 19(4), 345–360. https://doi.org/10.1093/esr/19.4.345

England, P. (2005). Gender inequality in labor markets: The role of motherhood and segregation. Social Politics: International Studies in Gender, State & Society, 12(2), 264–288. https://doi.org/10.1093/sp/jxi011

England, P., Farkas, G., Kilbourne, B. S., & Dou, T. (1998). Explaining occupational sex segregation and wages: Findings from a model with fixed effects. American Sociological Review, 53(4), 544–558. https://doi.org/10.2307/2095851

Fromea, P. M., Alfeldb, C. J., Ecclesc, J. S., & Barberd, B. L. (2006). Why don't they want a male-dominated job? An investigation of young women who changed their occupational aspirations. Educational Research and Evaluation, 12(4), 359–372. https://doi.org/10.1080/13803610600765786

Hegewisch, A., & Barsi, Z. (2020, March). The gender wage gap by occupation 2019 and by race and ethnicity. Institute for Women's Policy Research. IWPR #C490.

http://www.iwpr.org

Jitkaew, N. (2019). STEM pathways: How Thai culture and gender stereotypes affect female career experiences in STEM occupations (Master's thesis, Thammasat Institute of Area Studies, Thammasat University). [Ref. code: 25626166040011MTE]

Kaewsria, N., & Tongthong, T. (2013). Professional development of female engineers in the Thai construction industry. Procedia - Social and Behavioral Sciences, 88, 291–298. https://doi.org/10.1016/j.sbspro.2013.08.508

Kosaikanont, R. (2019). Gender and the future of work in Thailand. FES Thailand Office.

Liao, L., & Paweenawat, S. W. (2020). Is there a wage penalty for occupational feminization? Evidence from Thai labor market. Economics Bulletin, 40(3), 2143–2153.

Limani, D., & Sodergren, M. C. (2023, November 7). Where women work: Female-dominated occupations and sectors. ILOSTAT. https://ilostat.ilo.org

Macpherson, D. A., & Hirsch, B. T. (1995). Wages and gender composition: Why do women's jobs pay less? Journal of Labor Economics, 13(3), 426–471. https://doi.org/10.1086/298374

Martin, P., & Barnard, A. (2013). The experience of women in male-dominated occupations: A constructivist grounded theory inquiry. SA Journal of Industrial Psychology/SA Tydskrif vir Bedryfsielkunde, 39(2), Art. 1099, 12 pages. https://doi.org/10.4102/sajip.v39i2.1099

Oaxaca, R. (1973). Male-female wage differentials in urban labor markets. International Economic Review, 14(3), 693–709. https://doi.org/10.2307/2525981

Paweenawat, S., & Liao, L. (2019). Gender wage gaps in Thailand: Trends and determinants. Asian Economic Journal, 33(2), 135–157. https://doi.org/10.1111/asej.12184

Polachek, S. W. (1981). Occupational self-selection: A human capital approach to sex differences in occupational structure. Review of Economics and Statistics, 63(1), 60–69. https://doi.org/10.2307/1924218

Son, H. H. (2007). Occupational segregation and gender discrimination in labor markets: Thailand and Viet Nam. ERD Working Paper Series No. 108. https://www.adb.org/publications/occupational-segregation-gender-discrimination-thailand-viet-nam

Sorensen, E. (1990). The crowding hypothesis and comparable worth. Journal of Human Resources, 55, 55–89. https://doi.org/10.2307/145742

Strawinski, P., Majchrowska, A., & Broniatowska, P. (2018). Occupational segregation and wage differences: The case of Poland. International Journal of Manpower, 39(3),

378–397. https://doi.org/10.1108/IJM-07-2016-0141

Sussangkarn, C., & Chalamwong, Y. (1996). Thailand development strategies and their impacts on labor markets and migration. Development Strategy, Employment, and Migration, OECD, Paris.

Tangchonlatip, K., Punpuing, S., Chamratrithirong, A., Guest, P., Curran, S., & Rachapaetayakom, J. (2008). Migration and gender-based occupational segregation in Bangkok. Mahidol University.

The Causal Relationship between Consumer Attitude, Personal Traits, and Buying Behavior for Food or Beverage in Green Package

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Abstract

The aim of this research is to examine the relationship between several elements of green packaging, consumers' attitudes, and personal elementary traits with customer purchasing behavior for food or beverages. Based on a quantitative and exploratory approach, the authors have collected data from 1,003 respondents through an online survey based on social media platform and 35 interviews for result confirmation in Bangkok. Confirmative factor analysis and structural equation model are used to trace this relationship among these factors. It is argued that the relationship between the elements of green packaging and consumers' attitudes has influenced the customers' decision to buy a particular food or beverage product, while it has not directly influenced elementary traits with buying. However elementary traits and attitudes have positively influenced buying. Especially innovation and sustainability domains, both of which have strongly influenced consumer buying behavior in the food or beverage market. In addition, the composition of green packaging has influenced consumers' attitude in unusual ways. With practical implications, consumers have unusual backgrounds, lifestyles and food cultures, and contextual society is determinate factor in each nation. Therefore, marketing practices are sensitive to implementation.

Keywords: Attitude, Consumer Behavior, Elementary Trait, Green Packaging, Sustainability

Introduction

Nowadays, the polluted environment is a global crisis problem that all people must be concerned with our circumstances such as greenhouse effect, global warming, raining out of season, dangerous flooding, dust PM 2. 5, forest firing, including toxic chemicals in the surrounding impacts the living things in this world. The terrestrial, marine and air ecosystems are out of balance from human behaviors. It leads to an unbalanced

good life of human beings with other infected diseases such as COVID 19, respiratory disease, and others.

This toxic environment is the main factor that awaked every sector, both government and enterprising collaborated in action taking and accelerating for solutions with better living. It is considerable concerning issues today. Not only are entrepreneurs concerned, but also all people should cooperate in organic products with green packaging consuming. It is the obligations in social responsibility altogether. According to the 17 UN sustainable development goals (SGD) is the blueprint of civilized peace, people, and plant (3Ps), herewith, goal number 12 regards in responsible consumption and production and goal number 3 regards in good health and well – being (United Nations, 2024) namely, healthy environment for all.

Moreover, entrepreneurs can decrease the cost of production, strategic marketing, and operation process through bio economy, circular economy and green economy with modern technology and creative innovation. Many companies support campaigns to care for the environment, therefore awaken consciousness in consumers' attitudes, purchasing behavior (Peattie, 1995). Bazoche et al. (2008) have recommended that data, knowledge, and attitude are cored factors to adjust peoples' behavior in consuming and life living in society.

Objectives

The aim of this study is to focus on the several components of package, attitude, and the big 5 personal traits and their roles in shaping attitude toward sustainable consumption that leads to buying consumers in food or drink bundle with green packaging.

Concept theory framework

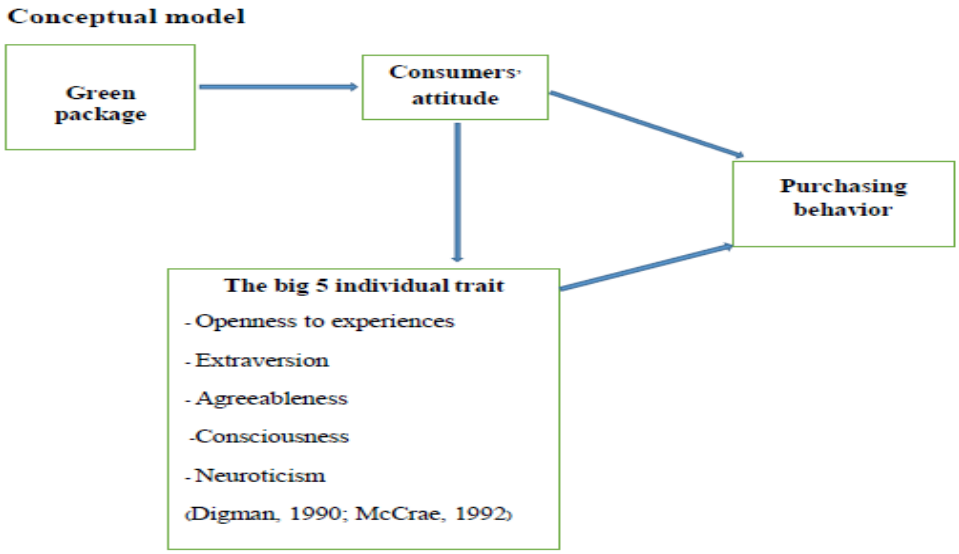


Figure 1: Concept theory framework

Materials and Methods

Respondents and Data collection

This research was surveyed in Bangkok province with non – probability convenience sampling techniques by used conveniences sampling. This studied started from June - Sept 2023 by distributed in 1,200 questionnaires and screened out in uncompleted questionnaires, it's collected 1,003 questionnaires for data analysis which respondents' age between 18 – 59 years old.

These respondents' data are female (57.7%), male (42.3%), age are 18-19 years old (46.9), 20-38 (40%), and 39-59 years old (13.2%). Table 1 shows details of the demographic data as the following:

Table 1: Demographic data

Details		Number of respondents	Number of respondents (%)
Gender	Female	579	57.7%
	Male	424	42.3 %
Ages (years old)	Gen Z 18-19	470	46.9%
Details		Number of respondents	Number of respondents (%)
	Gen Y 20-38	401	40%
	Gen X 39-59	132	3.2%
Educational level	Below bachelor	147	14.7%
	Bachelor	731	72.9%
	Master	99	9.9%
	Ph.D.	26	2.6%

This surveyed questionnaire was depicted into 8 elements about package are brand image, product protection, quality, sustainability, innovation, product storage, product information, and economic aspect. It was designed into 6 parts are.

1). Demographic details

2-3). Consumers' attitudes to green packaging

4). Personal traits with green packaging

5). Purchasing experiences with green packaging

6). Alternatives with green packaging in the future

The structural measured questionnaire by using Likert scale was classified through 5 points; 1 stands for strongly disagreement, 5 stands for strongly agree.

Methodology

A conducting of mixed methods by using quantitative and qualitative (Schoonenboom & Johnson, 2017) Surveyed with 1,200 population, respondents are 1,003 sampling through online survey based on social media platform and 35 interviewing for result confirmation. Descriptive analysis and confirm factor analysis (CFA) were taken with this model by using a two-stage structural equation and examined construct validity and discriminant validity of each aspect with structural equation model (SEM) in secondly (Chaudhuri & Holbrook, 2001).

Data analysis

This research analyses data into 4 parts as the following are.

1). Consumes' attitude in 8 elements of package such as storage, innovation, sustainability, product information, protection, beauty, economy, and branding.

2). Consumers' attitude with green packaging

3). Elementary traits with green packaging

4). Buying behavior with green packaging

Finally, it provides information about green consumer, herewith alternatives recommendations about green packaging design and green marketing.

Results

The aim of this study is to focus on the several components of package, attitude, and the big 5 personal traits. This conceptual model is examined in the reliability and validity in studied constructs are indicated in table2, figure 2 and 3. Herewith the key reliability and validity index in term of Cronbach's alpha, composite reliability (CR), average variance explained (AVE) values and factor loading are studied. (Hair et al., 2010)

Confirm factor analysis (CFA)

4.1 Consumers' perception in 8 elements of green package

Table 2: Elements of green package

Elements of green package		X	SD	Skewness.	Knr.
Protection	Product protection	4.40	0.69	-0.84	0.13
	Nutrient reserved	4.43	0.73	-0.94	-0.23
	Feature maintaining	4.22	0.76	-0.61	-0.38
	X	4.35	0.73	-0.67	-0.22
Convenience	Light weight	4.09	0.82	-0.30	-1.12
	Easily for consumption	4.32	0.73	-0.75	-0.10
	Convenient portability	4.14	0.82	-0.59	-0.32
	X	4.18	0.79	-0.29	-0.78
Product storage	Food or beverage containing	4.30	0.75	-0.66	-0.51
	Shelf-life expansion	4.26	0.83	-1.03	1.02
	Space arrangement decreasing	4.02	0.90	-0.70	0.16
	X	4.19	0.83	-0.63	0.29
Information	Logo, trademark, brand name	4.08	0.88	-0.64	-0.34
	Nutrition description	4.30	0.79	-0.81	-0.05
	Expiry/ manufacture date	4.56	0.67	-1.26	0.39
	Price / barcode	4.28	0.74	-0.64	-0.41
	X	4.31	0.77	-0.54	-0.49
Sustainability	Nontoxic environment	4.29	0.79	-0.76	-0.27

Elements of green package		X	SD	Skewness.	Knr.
	Recycle package	4.10	0.88	-0.56	-0.65
	Redeem package	4.02	0.91	-0.54	-0.41
	X	4.14	0.86	-0.37	-0.78
Economy	Cost of production saving	4.15	0.91	-0.95	0.60
	Cost of marketing saving	4.02	0.90	-0.68	0.10
	Valued added	4.18	0.79	-0.72	0.18
	X	4.12	0.86	-0.76	0.66
Branding	Brand image adding	4.16	0.80	-0.66	0.07
	Brand loyalty	4.14	0.85	-0.73	0.17
	Beauty	4.16	0.80	-0.54	-0.37
	X	4.15	0.82	-0.41	-0.58
Innovation	Different from others	4.18	0.81	-0.60	-0.46
	Modern design	4.17	0.85	-0.71	-0.24
	Creative idea	4.23	0.83	-0.79	-0.19
	X	4.19	0.83	-0.58	-0.41

From table 2 it is revealed that packaging is the powerful thing that has the substantial impact toward purchasing, not only beauty, but cover in many different valuable constructs as well. Expired and manufactured data have the highest significance with x= 4.56, product protection has the high significance x= 4.35, product information has the second highest significance x= 4.31, product storage and product innovation are x= 4.19, whiles convenience is x= 4.18, sustainability construct is x= 4.14, and economy aspect is x= 4.12 respectively.

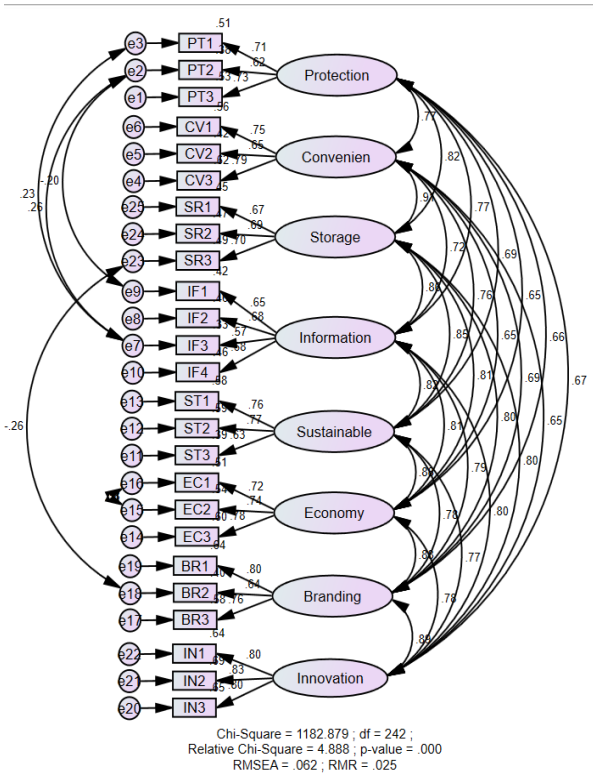


Figure 2: Origin CFA elements of package

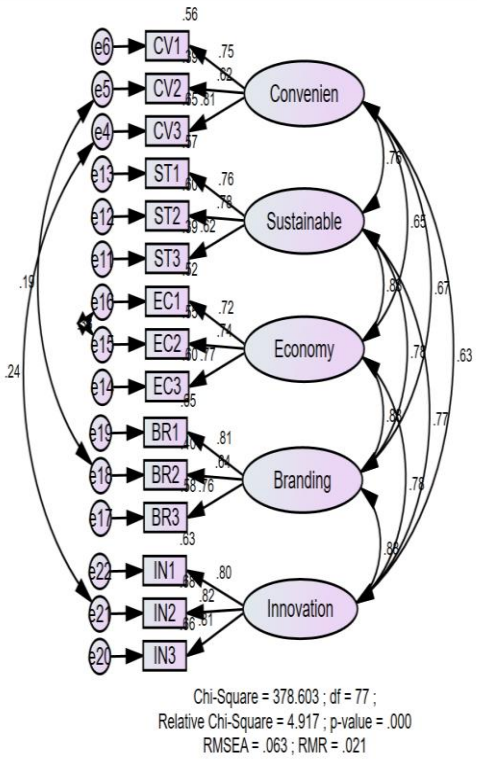


Figure 3: Revised CFA of element of package

Table 3: Results of factor loading and composition reliability of Green Package

Construct Validity	Initial	Revised	SMC	AVE	CR	Cronbach's Alpha
PT1	0.711	-	-	-	-	0.943
PT2	0.620	-	-	-	-	0.944
PT3	0.730	-	-	-	-	0.942
CV1	**0.750**	**0.749**	**0.672**	**0.533**	**0.772**	**0.942**
CV2	0.647	0.620	0.535	-	-	0.943
CV3	0.788	0.808	0.668	-	-	0.941
SR1	0.667	-	-	-	-	0.942
SR2	0.688	-	-	-	-	0.941
SR3	0.703	-	-	-	-	0.942
IF1	0.651	-	-	-	-	0.943
IF2	0.679	-	-	-	-	0.942
IF3	0.570	-	-	-	-	0.942
IF4	0.677	-	-	-	-	0.942

Construct Validity	Initial	Revised	SMC	AVE	CR	Cronbach's Alpha
ST1	**0.759**	**0.756**	**0.624**	**0.555**	**0.789**	**0.941**
ST2	0.767	0.775	0.768	-	-	0.941
ST3	0.628	0.622	0.825	-	-	0.943
EC1	**0.717**	**0.722**	**0.818**	**0.555**	**0.789**	**0.942**
EC2	0.737	0.739	0.803	-	-	0.941
EC3	0.777	0.774	0.626	-	-	0.941
BR1	**0.802**	**0.808**	**0.633**	**0.545**	**0.781**	**0.941**
BR2	0.636	0.635	0.730	-	-	0.942
BR3	0.760	0.761	0.636	-	-	0.941
IN1	**0.797**	**0.796**	**0.654**	**0.657**	**0.852**	**0.941**
IN2	0.829	0.822	0.726	-	-	0.941
IN3	0.804	0.813	0.685	-	-	0.941

Figures 4 and 5 and Table 3 show that AVE is more than 0.5, CR is more than 0.7. Fornell and Larcker (1981) and Diamantopoulos and Siguaw (2000) indicated that latent variable can explain valid and reliable observable variable of green package in terms of the convenience, sustainability, economy, branding, including innovation.

Consumers' attitude with green package

From table 4 (AT1 - AT6) consumers' attitudes are shown about consumers' attitudes have influenced toward green package that include healthy, environment caring, innovative, conservative, frugal, and brand loyalty, respectively.

Table 4: Results of factor loading and composition reliability of Attitude.

	Initial	Revised	SMC	AVE	CR	Cronbach's Alpha
AT1	0.593	0.564	0.561	**0.552**	**0.880**	0.880
AT2	0.777	0.776	0.802	-	-	0.855
AT3	0.736	0.718	0.649	-	-	0.860
AT4	0.779	0.787	0.941	-	-	0.857
AT5	0.756	0.758	0.603	-	-	0.859
AT6	0.821	0.827	0.829	-	-	0.850
PS1	0.795	0.799	0.559	**0.571**	**0.869**	0.832

	Initial	Revised	SMC	AVE	CR	Cronbach's Alpha
PS2	0.759	0.757	0.602	-	-	0.839
PS3	0.787	0.792	0.646	-	-	0.831
PS4	0.752	0.749	0.723	-	-	0.840
PS5	0.677	0.676	0.568	-	-	0.855

It shows that AVE is more than 0.5, CR is more than 0.7. Fornell and Larcker (1981) and Diamantopoulos and Siguaw (2000) indicated that latent variable can explain valid and reliable observable variable of consumers' attitude and elementary traits have toward the green package.

Personal traits with green package

From table 4 (PS 1 – PS 5) as personal traits are shown about five personal traits has influenced toward green package that included neuroticism, openness to experience, extroversion, consciousness, and agreeableness, respectively.

In addition, this research studied validity and reliability index of each construct as factors loading, Cronbach's alpha, CFI, and average variance extracted (AVE) in figure 4 and 5.

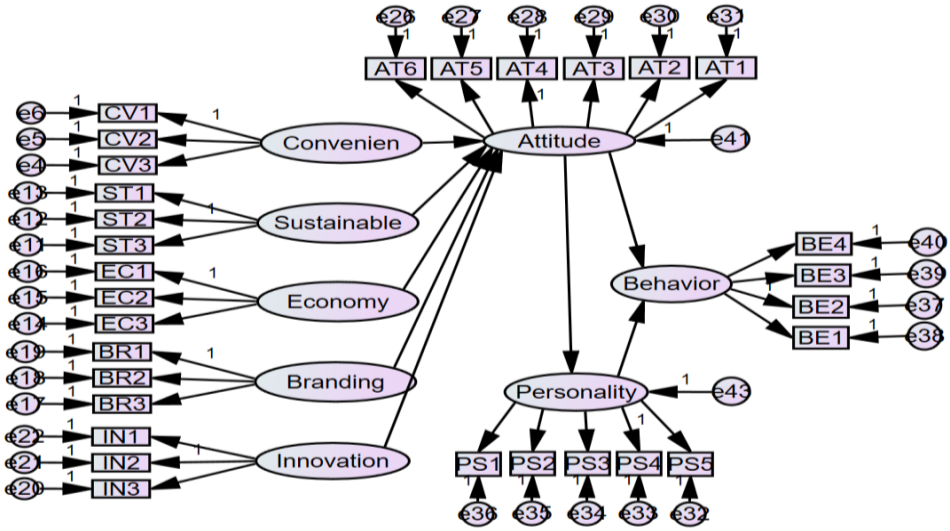


Figure 4. CFA of elements of package, consumer's attitude, and traits

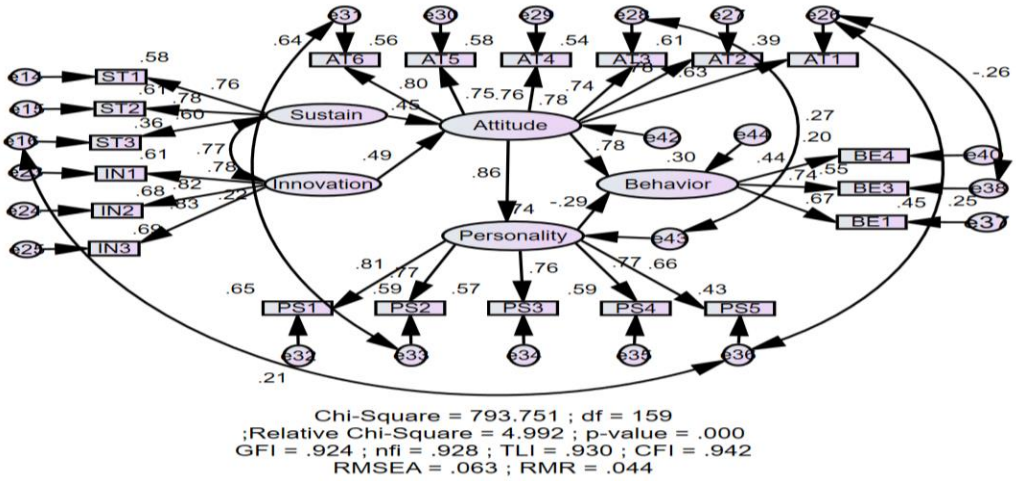


Figure 5. SEM of consumer's attitude, and purchasing in green package

The innovation and sustainability aspect are higher than the critical level of 7 that indicates that innovation and suitability aspect of green packaging have strongly influenced with attitude and purchasing. However, personal traits are not directly influenced by food or drink in green packaging.

Table 5: Regression weights

	P	Result
Sustainability → consumers' attitude	***	Accepted
Innovation of consumers' attitude	***	Accepted
Attitude → personality	***	Accepted
Attitude → purchasing	***	Accepted
Personal trait → purchasing	.149	Rejected

From table 5 it shows that p - value are sustainability and innovation aspect, these two aspects less than .01 are significant that have strongly and directly influenced with consumers purchased decision making, whiles big five personal traits do not have impact with purchasing directly.

Conclusions and Discussion

Marketing and managerial implications

As previously mentioned, the 17 UN sustainable development goals (SGD) convey the importance of environment caring, well – being of human and civilization. This research studied segments of green package in several aspects that influenced with purchasing of food or beverage, and these results are focused on package designing in terms of innovation and sustainability. Both are the core elements that marketers ought to consider about these concepts in package investment. Now with marketing planning at 7 Ps, package is one of the essential factors of marketing mix. Not only beauty appealing but also value adding in environmental context can increase consumer awareness and brand equity.

Furthermore, companies should focus on sustainability – driven innovations. In packaging to enhance consumer trust and brand loyalty. Green packaging strategies should align with consumer attitudes toward sustainability to improve market competitiveness.

Referring to research results is indicated that the big five personal traits are openness to experiences, extraversion, agreeableness, consciousness, and, neuroticism do not have directly influenced with purchasing, although it does not have strongly impact with decision making, but personal traits have direct influenced with personal attitudes in environment consciousness and friendly consumption with their healthy (Digman, 1990; McCrae, 1992).

Research Limitations and Future Recommendations

Specifically, this research has surveyed in Thailand, the results about attitude, traits, and trends in society are dynamics and different from other community, thus we can't concluded that the big five personal traits are not directly with their purchasing behavior about food or beverage in green packaging such as extraverted person who want to express with others his own lifestyle in his society, or even agreeable people who want to show off their fashionable trend about friendly eco system with their shopping rather than their real attitude or concerning.

Culture context is the principal factor to change human personality and daily life spending, exactly it covers their money spending and social status expression. Therefore, this paper provides realistic recommendations to entrepreneurs in their brand building.

Consumers' attitude, perception, personality, and behavior are the criteria in business doing. Lastly, innovation and sustainability should be driven in any marketing activities for implementation today. Advanced technology can grow in a good environment that enterprising sector and government sector should integrated in policy controlling in production, distribution and selling healthy products or friendly service providing to all people.

References

Ackaah, W., Kanton, A. T., & Osei, K. K. (2024). Factors influencing consumers' intentions to purchase electric vehicles in Ghana. Transportation Letters, 14(9), 1031–1042. https://doi.org/10.1080/19427867.2021.199082

Bazoche, P., Deola, C., and Soler, L. (2008). An experimental study of wine consumers' willingness to pay for environmental characteristics. Paper presented at the 12th Congress of the European Association of Agricultural Economists. Retrieved from www.legrenelle-environment.fr/grenelle-environment.

Chaudhuri, A., & Holbrook, M. B. (2001). The chain of effects from brand trust and brand affect to brand performance: The role of brand loyalty. Journal of Marketing, 65(2), 81–93. Retrieved from https://business.columbia.edu/sites/default/files-efs/pubfiles/593/The_Chain_of_Effects.pdf.

Diamantopoulos, A., & Siguaw, J. A. (2000). Introducing LISREL. Sage Publications.

Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. Annual Review of Psychology, 41, 417–440. https://doi.org/10.1146/annurev.ps.41.020190.002221

Fornell, C., and Larcker, D. F. (1981). Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. Journal of Marketing Research, 18, 382-388. http://dx.doi.org/10.2307/3150980

Fortune Business Insights. (2021). Green packaging. Retrieved from https://www.fortunebusinessinsights.com/green-packaging-market-105113.

Hair, J. F., Black, B. J., & Anderson, R. E. (2010). Multivariate data analysis (7th ed.). Prentice Hall.

McCrae, R. R. (1992). The five-factor model: Issues and applications. Journal of Personality, 60(2) [Special issue], 175–225. https://doi.org/10.1111/j.1467- 6494.1992.tb00970.x

Peattie, K. (1995). Environmental marketing management: Meeting the green challenge. Pitman Publishing.

United Nations. (2024). The Sustainable Development Goals Report 2024. https://unstats.un.org/sdgs/report/2024/

Sakshi, K. (2023). Sustainable packaging: A consumer's perspective [master's thesis, Jyväskylä University, School of Business and Economics].

Schoonenboom, J., & Johnson, R. B. (2017). How to construct mixed methods research design. Methodology, 43(2), 483–503. https://doi.org/10.1007/s11577-017-0454-1

The Organic Raw Milk Production Responding to the Bio Circular Green Economy Model in Saraburi Province, Thailand: From Beginning to Practice

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Abstract

Organic raw milk production is a key component of the Bio Circular Green Economy (BCG) Model in Saraburi Province, Thailand. The research objectives focused on factors affecting the technical efficiency and efficiency scales of the organic raw milk production in Saraburi province base area. The quantitative research was applied. The study population was 1,260 dairy farmers in Saraburi province. The purposive sampling technique was applied. With the inclusion criteria of farmers who operated their dairy product with BCG model, it turned out to be 390 samples. The primary data was collected from dairy farmers applying the questionnaire as a data collection tool. The Stochastic Production Frontier Analysis (SPFA) was exploited to determine the estimated parameters, factors affecting Technical Efficiency (TE) of organic raw milk production. The findings showed that variable costs and fixed costs of organic raw milk production in the base area of Saraburi Province had a positive impact on organic raw milk output with statistical significance at the 99 percent and 95 percent levels, respectively. This indicated that an increase in variable costs leads to an increase in organic raw milk production. The average technical efficiency (TE) score for organic raw milk production was 0.845, indicating a prominent level of efficiency. According to the results of the Stochastic Production Frontier model, efficiency scores ranged from high to extremely high. Specifically, 210 producers (53.846 percent) demonstrated high technical efficiency, while 146 producers (37.436 percent) achieved exceedingly high technical efficiency. The successfulness of organic raw milk production is driven by the adoption of technology and innovation and creating environmentally friendly farm practices for long-term sustainability.

Keywords: Organic Raw Milk, Bio Circular Green Economy Model, Technical Efficiency

Introduction

The inclusion of organic raw milk production within Thailand's Bio-Circular Green Economy (BCG) Model marks a strategic shift towards sustainable development, balancing economic growth, environmental protection, and social welfare. This initiative has evolved

from concept to practice. The BCG Model in Thailand emphasizes efficient use of biological resources, promotes the circular economy, and addresses environmental issues. It aligns with the country's commitment to sustainable development and the United Nations' Sustainable Development Goals (SDGs). Organic raw milk production fits seamlessly into this framework, as it prioritizes natural farming methods, minimizes chemical use, and supports sustainable agricultural practices (National Economic and Social Development Council, 2024).

Nowadays, Thailand's Bio-Circular Green Economy (BCG) Model aims for sustainability by incorporating biological, circular, and green principles into economic development. It focuses on efficient resource use, low-carbon initiatives, and minimizing waste, all in line with the country's commitment to the United Nations' Sustainable Development Goals (SDGs) (National Economic and Social Development Council, 2024).

Organic raw milk production is a key component of the BCG Model, supporting eco-friendly farming practices, lowering greenhouse gas emissions, and promoting social well-being. This article explores the development of organic milk production in Thailand, tracing its origins and its integration into the BCG framework (National Economic and Social Development Council, 2024).

The beginning of organic raw milk production has been emerged with the health and sustainability trends of Thai people. In the past decade, Thai consumers have become more health-conscious, leading to a growing demand for organic and chemical-free food products, including milk (Kaewwongsa et al., 2022). This shift in consumer preferences has accelerated the adoption of organic farming practices.

The Thai government, in partnership with NGOs and agricultural cooperatives, has supported organic farming initiatives. Policies from the Ministry of Agriculture and Cooperatives have focused on promoting sustainable livestock farming and providing certification programs (Ministry of Agriculture and Cooperatives, 2019).

With the economic Potential, the export market for organic dairy products has created opportunities for farmers to transition to organic practices, driven by the potential for premium pricing and access to niche markets (Food and Agriculture Organization, 2024)

The implementation in practice of Thai organic raw milk production has effectively been incorporated into the BCG Model through the following practices: 1) the organic farming practices which expressed as farmers adopted organic practices by removing the use of chemical fertilizers, antibiotics, and synthetic pesticides. The cows are provided with organic-certified feed and allowed to graze on free-range grass, promoting animal welfare (Kaewwongsa et al., 2020), 2) the circular economy integration explicated with the implementation of manure recycling. Cow manure is converted into organic fertilizers, minimizing waste and improving soil health (Ministry of Agriculture and Cooperatives, 2019).

Biogas Production: Livestock waste is transformed into biogas, a renewable energy source, which is either used for farming activities or sold locally (United Nations Development , 2021), 3) community-based models was functioned as Cooperatives like the Thai Dairy Cooperative Federation (TDCF) assist farmers in accessing resources, exchanging knowledge, and consolidating organic products to improve market access (Food and Agriculture Organization, 2020), 4) organic raw milk production assessed to the certification and market development. Certified organic raw milk is sold under organic labels both locally and internationally, with certifications from organizations such as the Organic Agriculture Certification Thailand (ACT). Niche markets, including health-conscious consumers and high-end exports, contribute to driving sales (National Economic and Social Development Council, 2024)

Despite its success, the production of organic raw milk faces several challenges with the excessive cost of production. Farmers faced significant expenses when shifting from conventional to organic farming including the costs of organic feed and certification (Kaewwongsa et al., 2020). Another issue was expressed as knowledge and skill gaps. Smallholder farmers often lacked the technical knowledge needed to adopt sustainable practices, making the transition difficult (Ministry of Agriculture and Cooperatives, 2024). Also, the organic sector struggles to compete with lower-priced conventional milk, hindering its growth.

To strengthen the synergy between organic raw milk production and the BCG Model with technology adoption. Farmers were introduced smart farming technologies to boost efficiency and lower production costs along with enhanced subsidies, training programs, and financial support to assist farmers in transitioning to organic practices (United Nations Development, 2021). Also, the consumer awareness was launched public campaigns that emphasize the health and environmental advantages of organic milk.

At the present time, Thailand's organic raw milk production is in line with the principles of the Bio-Circular Green Economy (BCG) Model by promoting sustainable agricultural practices, aiding rural communities, and supporting environmental conservation. With targeted policy support and market expansion, organic milk production could be a key driver in Thailand's path toward sustainable development.

Since, organic raw milk production was implanted and supported by the Royal Thai government in many places around Thailand. Saraburi province located in the central part of Thailand was one of several provinces of implemented area base. Bank for Agriculture and Agricultural Cooperatives (2025) reported that the growth of organic raw milk production in Saraburi Province, following the Bio-Circular-Green Economy model, has promoted sustainability within the raw milk sector. Farmers in the area have received assistance in adopting chemical-free and contaminant-free dairy farming practices, resulting

in a monthly output of 129,600 kilograms of organic raw milk. This increase in production has also led to higher earnings for farmers, as they can sell their organic milk at a premium price compared to conventional milk. Saraburi Province is the leading dairy-producing region in Thailand, where some farmers have transitioned to organic practices.

Successfulness in this sector is driven by the adoption of technology and innovation in cattle breeding and rearing, prioritizing animal welfare, and creating environmentally friendly farm practices for long-term sustainability. Farmers are encouraged to enhance self-reliance, minimize dependence on imported materials, and focus on producing high-quality animal feed. Meanwhile, the government is urged to provide support and raise awareness about the benefits of consuming organic milk (Bank for Agriculture and Agricultural Cooperatives, 2025).

Addressing the research, the aim of this research paper attempted to measure the technical efficiency (TE) of organic raw milk production in Saraburi province base area to make sure that the organic raw milk production project supported by the Royal Thai Government obtained the technical efficiency (TE) for the project implementation which also made the confirmation that this project met the requirement of TE for the on-going project supporting by the Royal Thai Government. Theatrically, the stochastic production frontier was adopted as the tool for TE measurement. Technical efficiency (TE) refers to the ability of a production unit, such as a farm, to produce the maximum output (raw milk) from a given set of inputs such as feed, labor, and capital. In the context of raw milk production, measuring technical efficiency helps identify whether dairy farmers are utilizing resources optimally and where improvements can be made to enhance productivity. (Kaewwongsa, P., et al, 2020).

The research results could be applied to support organic raw milk production which offered several benefits of higher nutritional value, free from synthetic hormones, antibiotics, and pesticides leading to sustainable farming practices. The integration of the Bio-Circular-Green (BCG) Economy Model into organic raw milk production obtained several advantages such as the enchantment of animal health, the research results would support and drive into probiotic-rich dairy products, bio-fermentation, and value-added organic dairy products. Cows in good health require fewer antibiotics, resulting in cleaner and safer milk. Transforms cow manure into organic fertilizer or biogas, creating a sustainable waste cycle.

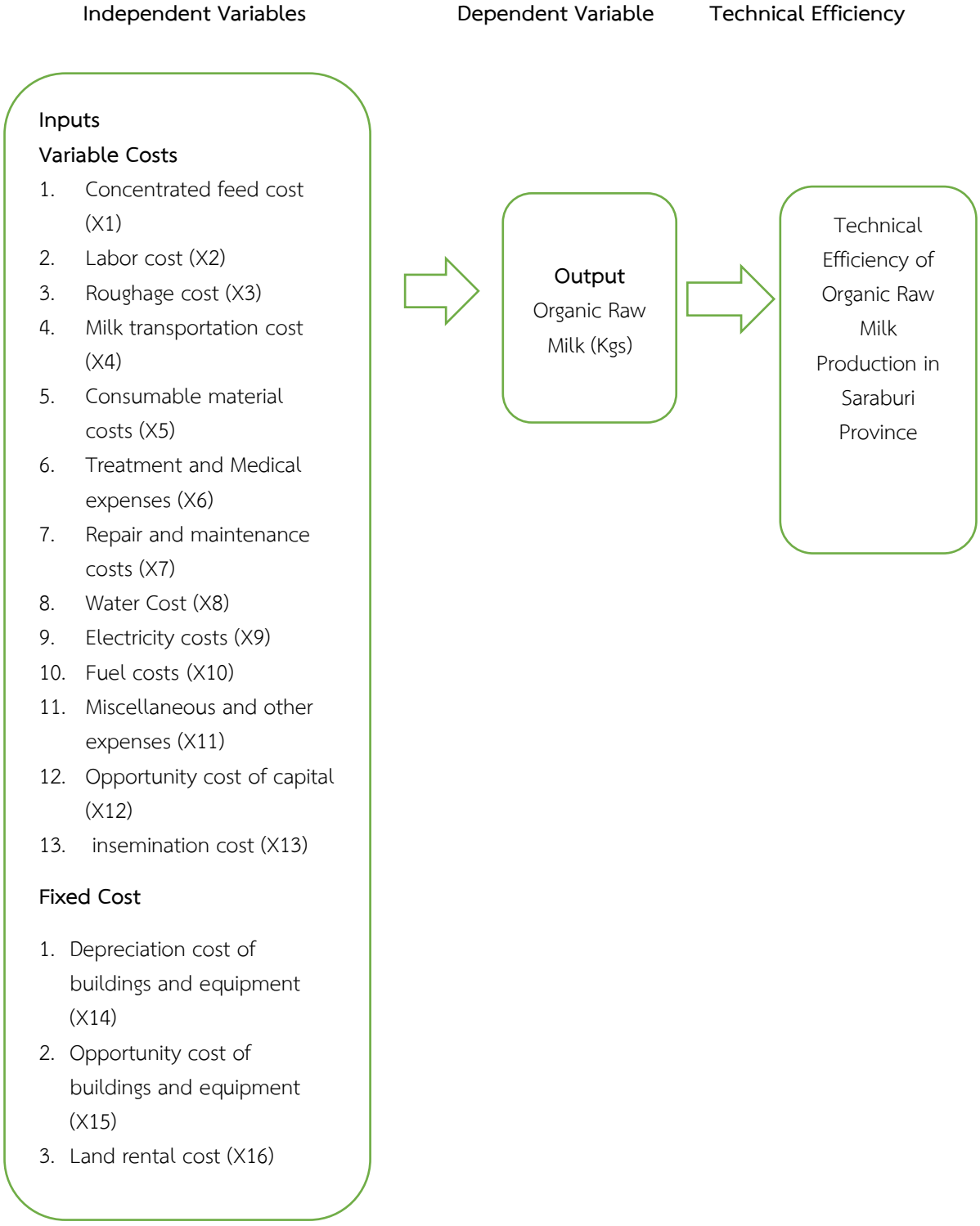
Objectives

The research objective was focused on factors affecting the measurement of technical and scale Efficiency of the organic raw milk production in Saraburi province base area.

Hypothesis

Dairy farmers who performed organic raw milk production responding to BCG model achieved technical efficiency.

Concept theory framework



Materials and Methods

The methodology was survey research applying the econometric methodology to estimate the organic raw milk production efficiency in Saraburi Province, Thailand exploiting the Stochastic Production Frontier Model to determine factors and the level of technical efficiency affecting the organic raw milk production efficiency.

Data Collection

The study population was composed of 1,260 dairy farmers in Saraburi province. The research in this study collects primary data obtained from the online questionnaire survey of organic raw milk producers in Saraburi province area base. The purposive sampling technique was applied as the inclusion criterion of dairy farmers who performed their organic raw milk production for over 2 years continuously. It turned out of 390 farmers which covered 13 districts in Saraburi province.

Table 1: Number of Samples of organic raw milk producers in Saraburi province area base

Districts in Saraburi Province	Number of Samples (Dairy Farmers' Households)
1. Mueang Saraburi	30
2. Kaeng Khoi	30
3. Nong Khae	30
4. Wihan Daeng	30
5. Nong Saeng	30
6. Ban Mo	30
7. Don Phut	30
8. Nong Don	30
9. Phra Phutthabat	30
10. Sao Hai	30
11. Muak Lek	30
12. Wang Muang	30
13. Chaloem Phra Kiat	30
Total	**390**

Source: The Researcher 's Calculation

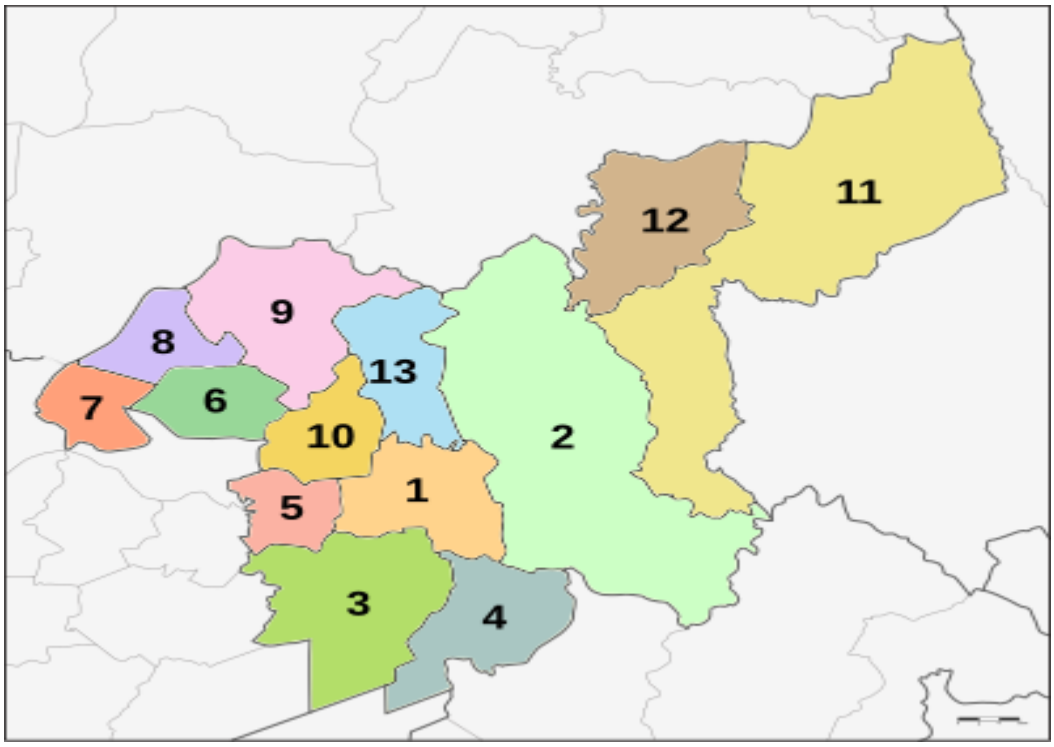


Figure 1: Map of Saraburi with 13 districts

Source: https://en.wikipedia.org/wiki/Saraburi_province

According to Figure 1, the geographic of Saraburi province is composed of 13 districts where the primary data were collected from. Theses 13 districts are: 1) Mueang Saraburi, 2) Kaeng Khoi, 3) Nong Khae, 4) Wihan Daeng, 5) Nong Saeng, 6) Ban Mo, 7) Don Phut, 8) Nong Don, 9) Phra Phutthabat, 10) Sao Hai, 11) Muak Lek, 12) Wang Muang, and 13) Chaloem Phra Kiat. The primary data were collected from 13 districts with equal numbers of 30 respondents. It turned out of the total numbers of 390 samples as sample size (Table1.)

Data Analysis

The research used cross-sectional primary data, analyzed to meet its objectives as follows:

Quantitative analysis

The study applied the Stochastic Production Frontier (SPF) method to evaluate the technical production efficiency of organic raw milk production in Saraburi Province. The analysis involved parameter estimation using the Maximum Likelihood method to determine their efficiency levels within the stochastic production model framework.

$$y_i = f(x_i;\ \beta).exp\,(v_i - u_i) \qquad (1)$$

Where:

y_i is the output for the ith firm in terms of the natural logarithm.

x_i is a vector of inputs in terms of the natural logarithm?

β is a vector of parameters to be estimated.

v_i is the stochastic error term (assumed to be normally distributed).

u_i is the inefficiency term (usually assumed to be non-negative).

In this research work the Stochastic Production Frontier could be expressed as follows:

The output is expressed as:

y_i is the maize output for the ith household in terms of the natural logarithm?

The inputs are expressed as:

x_1 is a vector input of concentrated feed cost in terms of the natural logarithm?

x_2 is a vector input of labor cost in terms of the natural logarithm?

x_3 is a vector input of roughage cost in terms of the natural logarithm?

x_4 is a vector input of milk transportation cost in terms of the natural logarithm?

x_5 is a vector input of consumable material costs in terms of the natural logarithm?

x_6 Is a vector input of treatment and medical expenses in terms of the natural logarithm?

x_7 is a vector input of repair and maintenance costs in terms of the natural logarithm?

x_8 is a vector input of water cost in terms of the natural logarithm?

x_9 is a vector input of electricity costs in terms of the natural logarithm?

x_{10} Is there a vector input of fuel costs in terms of the natural logarithm?

x_{11} is a vector of miscellaneous and other expenses in terms of the natural logarithm?

x_{12} Is a vector input of opportunity cost of capitals in terms of the natural logarithm?

x_{13} is a vector of insemination cost in terms of the natural logarithm?

x_{14} is a vector of depreciation cost of buildings and equipment?
in terms of the natural logarithm

x_{15} is it a vector of opportunity cost of buildings and equipment?
in terms of the natural logarithm

x_{16} is a vector of land rental cost in terms of the natural logarithm?

β is a vector of parameters to be estimated.

v_i is the stochastic error term (assumed to be normally distributed).

u_i is the inefficiency term (usually assumed to be non-negative).

Results

Part1 The estimation of factors affecting technical production efficiency of organic raw milk production in Saraburi Province, Thailand

The estimation of parameters based on the Stochastic Production Frontier equation using the Maximum-Likelihood method is Table 2 as follows:

Table 2: Factors Affecting Technical Production Efficiency of Organic Raw Milk Producers in Phetchabun Province, Thailand

Dependent Variable (y) : Organic Raw Milk Production

(n. = 390)

Independent Variables	Estimated Parameters	Coefficients	t-value
Stochastic Frontier			
Constant term	β_0	-236.860	(39.252)
Concentrated feed cost (x_1)	β_1	34.270	(34.627)**
Labor cost (x_2)	β_2	54.670	(23.425)**
Roughage cost (x_3)	β_3	29.290	(18.602)**
Milk transportation cost (x_4)	β_4	19.481	(23.146)**
Consumable material costs (x_5)	β_5	11.546	(22.462)*
Treatment and Medical expenses (x_6)	β_6	23.264	(32.164)*
Repair and maintenance costs (x_7)	β_7	16.412	(24.126)*
Water Cost (x_8)	β_8	18.641	(32.621)*
Electricity costs (x_9)	β_9	16.142	(41.213)**
Fuel costs (x_{10})	β_{10}	21.245	(19.143)**

Independent Variables	Estimated Parameters	Coefficients	t-value
Miscellaneous and other expenses (x_{11})	β_{11}	24.168	(22.463)*
Opportunity cost of capital (x_{12})	β_{12}	18.246	(23.164)**
Insemination cost (x_{13})	β_{13}	20.412	(18.154)*
Depreciation cost of buildings and equipment (x_{14})	β_{14}	26.156	(18.942)*
Opportunity cost of buildings and equipment (x_{15})	β_{15}	18.641	(19.126)**
Land rental cost (x_{16})	β_{16}	12.461	(23.246)*

**Statistical Significance at 99 percent

*Statistical Significance at 95 percent

Noted: Variables were expressed in a Natural logarithm form

According to table 2, the statistical results expressed that both variable costs and fixed cost of organic raw milk production in Saraburi province base area had positive impact on the organic raw milk production at the 99 and 95 percent Statistical Significance, respectively. This indicated that the increase of all variable cost of organic raw milk would increase the organic raw milk production as well. In this research outcomes, the variable costs were comprised of 13 factors which were: concentrated feed, labor cost, roughage, milk transportation cost, consumable material costs, treatment and Medical expenses, repair and maintenance costs, water cost, electricity cost, fuel costs, miscellaneous and other expenses, opportunity cost of capital and insemination cost. The fixed costs were composed of 3 factors which were the depreciation cost of buildings and equipment, opportunity cost of buildings and equipment and land rental cost.

Table 3: The level of technical efficiency of the organic raw milk in Saraburi Province, Thailand

(n=390)

Level of Technical Efficiency	Technical Efficiency Value	Number of Farmers	Percentage
Extremely low	(0.0000 - 0.5000)	2	0.513
Low	(0.5001 - 0.6000)	10	2.564
Moderate	(0.6001 - 0.8000)	22	5.641
High	(0.8001 - 0.9000)	210	53.846
Very High	(0.9001 - 0.9999)	146	37.436
Total		390	100.000
Maximum	0.921		
Minimum	0.438		
Average	0.845		

Source: The Researcher's Calculation

According to table 3, the technical efficiency scores of organic raw milk production in Saraburi province of Thailand were ranged from 0.438 to 0.921. The average efficiency score expressed as 0.845 which was in the high technical efficiency score. The research findings from the Stochastic Production Frontier model revealed that the efficiency scores for organic raw milk production ranged from high to exceedingly high. There were 210 producers of organic raw milk production in the prominent level of Technical Efficiency which accounted for 53.846 percent. Also, there were 146 producers of organic raw milk production at an exceedingly high level of technical efficiency, which accounted for 37.436 percent. In addition, there were 2, 10 and 22 producers of organic raw milk production in extremely low, low, and moderate levels of technical efficiency which accounted for 0.513, 2.564 and 5.641 percent, respectively.

Conclusions and Discussion

Organic raw milk production plays a vital role in the BCG Model, fostering sustainable farming methods, reducing greenhouse gas emissions, and enhancing social welfare. This article delves into the evolution of organic milk production in Thailand, highlighting its origins and incorporation into the BCG framework.

This research aimed to evaluate the technical efficiency (TE) of organic raw milk production in the base area of Saraburi Province. The goal was to ensure that the organic raw milk production project, supported by the Royal Thai Government, achieved the required TE for effective project implementation. Additionally, the evaluation confirmed

that the project met the necessary TE standards for its continued government support. To achieve this, the stochastic production frontier method was employed as the primary tool for measuring technical efficiency. The statistical analysis revealed that both variable costs and fixed costs of organic raw milk production in the base area of Saraburi Province had a positive impact on organic raw milk output, with statistical significance at the 99 percent and 95 percent levels, respectively. This indicates that an increase in variable costs leads to an increase in organic raw milk production.

The research findings identified 13 factors contributing to variable costs: concentrated feed, labor costs, roughage, milk transportation costs, consumable materials, treatment and medical expenses, repair and maintenance costs, water costs, electricity costs, fuel costs, miscellaneous expenses, opportunity cost of capital, and insemination costs. Fixed costs were categorized into three components: depreciation of buildings and equipment, opportunity costs of buildings and equipment, and land rental costs. The research found that the average technical efficiency (TE) score for organic raw milk production was 0.845, indicating a prominent level of efficiency. According to the results of the Stochastic Production Frontier model, efficiency scores for organic raw milk production ranged from high to exceedingly high. Specifically, 210 producers (53.846 percent) demonstrated high technical efficiency, while 146 producers (37.436 percent) achieved exceedingly high technical efficiency.

The research findings were consistent with the study of Madau, F.A., Furesi, R. and Pulina, P. (2024) who studied technical efficiency and total factor productivity changes in European dairy farm sectors focusing the organic dairy farms. In according with Linehan, K., Patangia, D.V. Ross, R.P., and Stanton, C. (2024) found that milk is one of the most valuable products in the food industry with most milk production throughout the world being carried out using conventional management, which includes intensive and traditional systems. The intensive use of fertilizers, antibiotics, pesticides and concerns regarding animal health and the environment have given increasing importance to organic dairy and dairy products in the last two decades. The research findings were consistent with the study of Grodkowski, G. et al. (2024) who studied organic milk production and dairy farming constraints and prospects under the laws of the European Union who addressed that consumers are increasingly opting for organic farming products, driven by the belief that organic farming avoids the use of pesticides and antibiotics while ensuring optimal living conditions for animals. The differences between organic and conventional dairy cattle housing systems focused on welfare assessment, breed selection, and product quality. Their findings indicated that cows raised in organic systems experience better welfare compared to those in conventional systems. In addition, the research findings were consistent with Yu, Z. et al. (2023) who conducted their research on production efficiency

of raw milk and its determinants: Application of Combining Data Envelopment Analysis and Stochastic Frontier Analysis. They found that raw milk production efficiency is significantly influenced by several factors, including the proportion of concentration to roughage consumption, medical and epidemic prevention investment, the price of raw milk, the wage level, and fixed assets.

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References

Bank for Agriculture and Agricultural Cooperatives. (2025). Developing Organic Raw Milk under the BCG Model for Comprehensive Farmer Income. Retrieved from https://www.gosmartfarmer.com.

Food and Agriculture Organization (FAO). (2024). The Future of Sustainable Dairy Production in Asia. Retrieved from www.fao.org

Grodkowski, G. et al. (2024). Organic Milk Production and Dairy Farming Constraints and Prospects under the Laws of the European Union. Animals, 13(9), 1457-1467.

Kaewwongsa, P., et al. (2020). Technical Efficiency of Dairy Farms in Thailand. Journal of Agricultural Economics and Development, 10(3), 89-102.

Kaewwongsa, P., et al. (2022). Transitioning Toward Organic Dairy Farming in Thailand. Journal of Sustainable Agriculture and Development, 12(3), 45-58.

Linehan, K., Patangia, D.V., Ross, R.P., & Stanton, C. (2024). Production, Composition and Nutritional Properties of Organic Milk: A Critical Review. Foods, 13(22), 550-564.

Madau, F.A., Furesi, R. & Pulina, P. (2024). Technical efficiency and total factor productivity changes in European dairy farm sectors. Agric Eco, 5(17), 224-268. (2017).

Ministry of Agriculture and Cooperatives. (2024). Guidelines for Sustainable Livestock Farming. Bangkok, Thailand. Retrieved from https://www.moac.go.th.

National Economic and Social Development Council. (2024). Thailand's Bio-Circular Green Economy Model: A Strategic Approach. Bangkok, Thailand. Retrieved from www.nesdc.go.th.

United Nations Development Thailand. (2021). Case Studies on Circular Economy in Thai Agriculture. Retrieved from www.th.undp.org.

Yu, Z.; Liu, H., Peng, H., Xia, Q., & Dong, X. (2023). Efficiency of Raw Milk and Its Determinants: Application of Combining Data Envelopment Analysis and Stochastic Frontier Analysis. Agriculture, 13(370), 245-268.

Wikipedia. (2024). Saraburi province. Retrieved www.en.wikipedia.org/Saraburi province.

The Measurement of Technical and Scale Efficiency of Maize Production of Agricultural Cooperatives in Loei Province, Thailand

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Abstract

Loei Province contributes significantly to Thailand's total maize output with production primarily focused on feed maize. The research objectives focused on measuring the technical and scale efficiency of maize production of agricultural cooperatives in Loei Province. The study population was 35 agricultural cooperatives. The purposive sampling technique was applied. It turned out of 10 agricultural cooperatives as the sample size. Data were collected from the Cooperative Auditing Department from 2020 to 2024. Technical and scale efficiency were examined by the Data Envelopment Analysis (DEA) model. The findings expressed that 6 out of 10 agricultural cooperatives achieved the technical efficiency of maize production with an efficiency score of 1.00 which expressed these agricultural cooperatives operated their maize production with technical efficiency. On the other hand, there were 4 out of the agricultural cooperatives who achieved the technical efficiency of maize production with an efficiency score of less than 1.00. This meant that these agricultural cooperatives operated maize production under the technical efficiency. There were 3 agricultural cooperatives, Tha Li Agricultural Cooperative Limited, Dan Sai Agricultural Cooperative Limited, and Na Duang Agricultural Cooperative Limited would decrease their inputs of maize production to get the maximum total revenue. On the other hand, there was only one agricultural cooperative, Tha Li Agricultural Cooperative Limited would increase their inputs of maize production to get the maximum total revenue. The findings would lead agricultural cooperatives to be the import area of maize production in Thailand.

Keywords: Technical Efficiency, Scale Efficiency, Maize Production, Agricultural Cooperatives

Introduction

Maize (Zea mays L.), also known as corn, is one of the most widely grown crops globally, with a crucial role in food security, livestock feed, and industrial applications. Research on maize production focuses on enhancing yield, combating pests and

diseases, and mitigating the effects of climate change (Pingali, 2001). In addition, maize is a staple food for more than 1 billion people worldwide. Its adaptability to diverse agro-climatic conditions and high yield potential make it a key crop for ensuring food security. In addition, maize contributes significantly to the livestock feed industry and biofuel production (Pingali, 2001; Farooq & Kadambot, 2009).

In Thailand, Maize is one of the major crops cultivated in Thailand, primarily used as animal feed, especially in the poultry and livestock industries. It ranks among the top export commodities for the country and plays a significant role in the agricultural economy. However, maize production in Thailand faces challenges related to land use, environmental sustainability, and global market competition (Food and Agriculture Organization, 2022). Maize contributes significantly to Thailand's agricultural sector, particularly as a feed crop for the growing poultry and livestock industries. In 2022, Thailand produced approximately 5 million tons of maize, with most of it consumed domestically to support the country's animal feed industry (Food and Agriculture Organization, 2022). Over 90% of maize produced in Thailand is used in animal feed industries. A smaller portion is exported to neighboring countries such as Vietnam and the Philippines. Maize starch is used in the production of food and beverages. (Rerkasem, 2016; Food and Agriculture Organization, 2022).

The major maize-growing regions in Thailand are Chiang Mai, Chiang Rai, and Nan the Northern region of Thailand leads in maize cultivation due to favorable soil and climatic conditions. In the Northeastern region of Thailand, Loei and Nakhon Ratchasima are also significant contributors. Also, in the Western region of Thailand, Kanchanaburi, and Tak are emerging regions for maize production (Rerkasem, 2016; Food and Agriculture Organization, 2022).

Loei, a province in northeastern Thailand, plays a significant role in the country's maize production. Known for its mountainous terrain, diverse climate, and fertile soils, Loei has emerged as one of the key regions for growing maize, primarily for animal feed. The province's maize farming contributes to Thailand's broader agricultural economy, especially in meeting the increasing demand for livestock feed (Office of Agricultural Economics, 2022).



Figure 1: Map of Loei Province, Thailand
Source: https://en.wikipedia.org/wiki/Loei_province

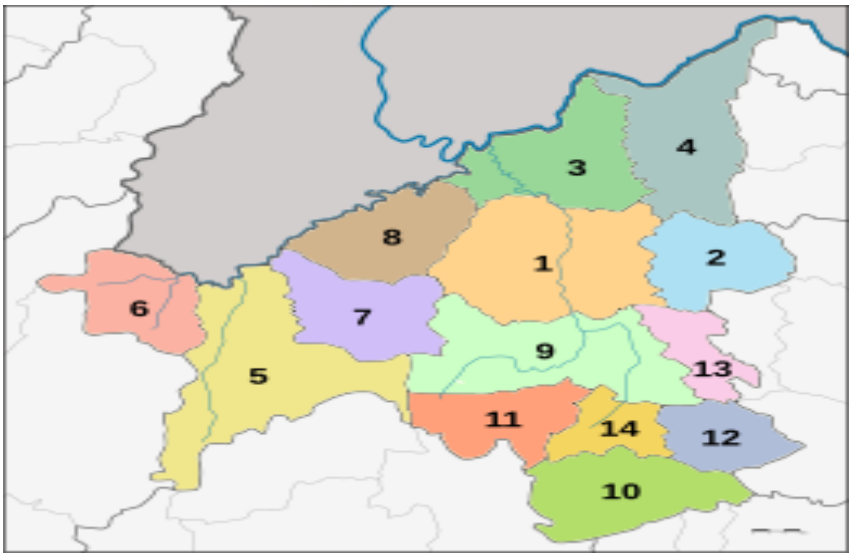


Figure 2: Map of 14 Districts in Loei Province, Thailand
Source: https://en.wikipedia.org/wiki/Loei_province

According to figure 2, Loei Province is comprised of 14 districts which are: 1) Mueang Loei, 2) Na Duang, 3) Chiang Khan, 4) Pak Chom, 5) Dan Sai, 6) Na Haeo, 7) Phu Ruea, 8) Tha Li, 9) Wang Saphung, 10) Phu Kradueng, 11) Phu Luang, 12) Pha Khao, 13) Erawan, and 14) Nong Hin.

Loei's geography and climate make it well-suited for maize farming. The province experiences a tropical savanna climate, characterized by a pronounced rainy season and a cooler dry season. Most maize in Loei is grown during the rainy season from May to October which provides the necessary water supply for crop growth. Due to its hilly topography, maize fields in Loei often utilize terrace farming to minimize soil erosion and improve water retention. Farmers cultivate hybrid maize seeds for higher yields, improved pest resistance, and suitability to Loei's environment. The province's soil, sandy loam, is ideal for maize cultivation, though consistent use of fertilizers and soil conditioners is needed to maintain fertility (Office of Agricultural Economics, 2022).

Loei contributes significantly to Thailand's total maize output, with production primarily focused on feed maize. The yield in Loei averages around 3.5 to 4 tons per hectare, depending on weather conditions and farming practices (Office of Agricultural Economics, 2022; Suwankiri & Pannangpetch, 2021).

This research evaluated the technical efficiency of maize production in Loei Province, Thailand, using Data Envelopment Analysis (DEA). DEA, a non-parametric linear programming method, is employed to estimate the efficiency levels of maize farms based on their input-output data. The study identifies the scale efficiency, pure technical efficiency, and overall technical efficiency of maize production through the agricultural cooperatives in Loei Province of Thailand.

In this research paper with the information mentioned, the researcher conducted the research paper of the measurement of technical and scale efficiency of maize production of agricultural cooperatives in Loei province, Thailand. This would give a better understanding of the technical efficiency of maize production in Loei province which is crucial for addressing production gaps and improving overall output. Technical efficiency refers to the ability of farmers to maximize output given a specific set of inputs and technologies (Farrell, 1957). The research results would be applied for the maize production guideline for agricultural cooperatives to improve their maize production with technical applied for the utilizing resources optimally to maximize output while minimizing waste of agricultural cooperatives performances. The maize production cost reduction which streamlined their processes of waste reduction and lowering production and operational expenses on maize production to achieve the maximum output level along with existing resources enhances maize production efficiency.

Objectives

The research objectives were to measure the technical and scale efficiency of maize production of agricultural cooperatives in Loei Province, Thailand.

Hypothesis

Agricultural cooperatives in Loei Province operated their maize production with technical efficiency expressing their scale efficiency of 1.00.

Concept theory framework

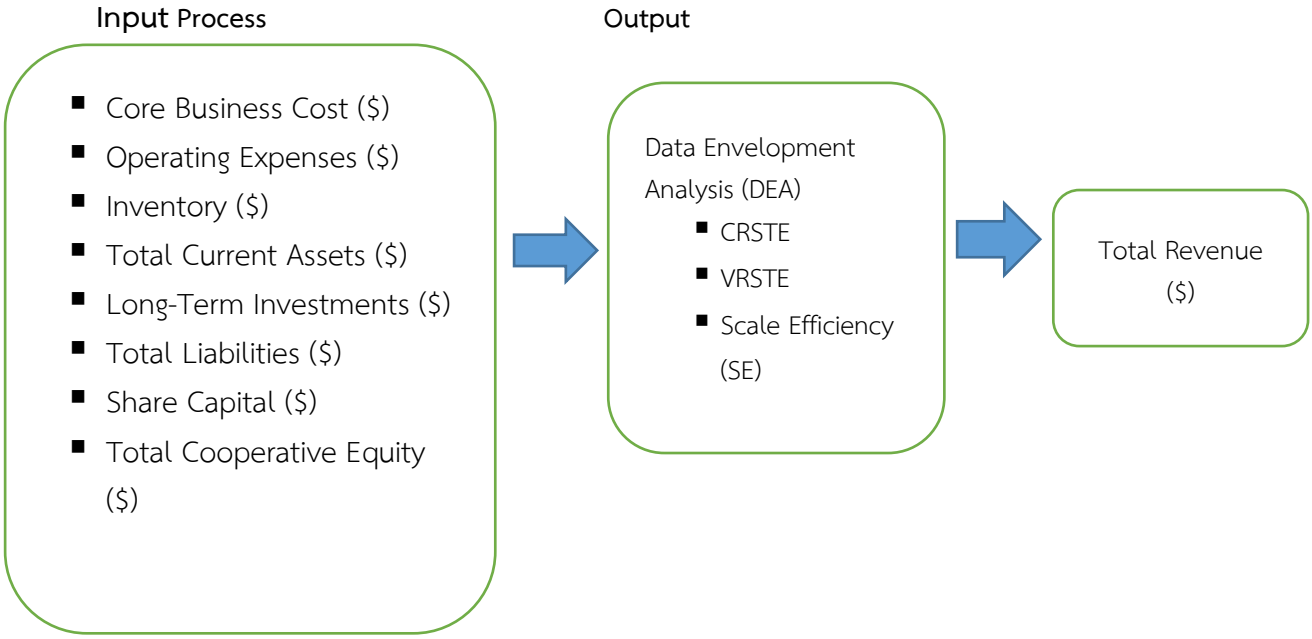


Figure 3: Conceptual framework

Research Methodology

The methodology was quantitative research applying the Data Envelopment Analysis (DEA) Model to measure the technical and scale efficiency of maize production of Agricultural Cooperatives in Loei Province, Thailand.

Data Collection

The study focused on a population of 35 agricultural cooperatives in Loei Province, Thailand. A purposive sampling method was used to select cooperatives that had been continuously producing maize for five years. Based on these criteria, 10 agricultural cooperatives were selected: Muang Loei Agricultural Cooperative Limited, Wang Saphung Agricultural Cooperative Limited, Phu Ruea Agricultural Cooperative Limited, Phu Kradueng Agricultural Cooperative Limited, Tha Li Agricultural Cooperative Limited, Dan Sai Agricultural Cooperative Limited, Na Duang Agricultural Cooperative Limited, Phu Luang Agricultural Cooperative Limited, Pha Khao Agricultural Cooperative Limited, and Erawan Agricultural Cooperative Limited.

Secondary data were obtained from the Cooperative Auditing Department's database for the period 2020–2024. The dataset included the following financial indicators: (1) total revenue, (2) core business costs, (3) operating expenses, (4) inventory,

(5) total current assets, (6) long-term investments, (7) total liabilities, (8) share capital, and (9) total cooperative equity. With five consecutive years of time-series data from 10 agricultural cooperatives, the study comprised a total of 50 observations.

Data Analysis

To evaluate the technical and scale efficiency of maize production among agricultural cooperatives in Loei Province, Thailand, the Data Envelopment Analysis (DEA) model was utilized as the analytical tool. The assessment included: (1) technical efficiency based on the Constant Returns to Scale (CRS) DEA (CRSTE), (2) technical efficiency based on the Variable Returns to Scale (VRS) DEA (VRSTE), and (3) Scale Efficiency (SE).

Results

In line with the research objectives, the technical and scale efficiency of maize production among agricultural cooperatives in Loei Province, Thailand, were measured as follows:

Table 1: The technical and scale efficiency of maize production among agricultural cooperatives in Loei Province, Thailand

Order	Cooperatives Name	CRSTE	VRSTE	Scale	Explanation
1	Muang Loei Agricultural Cooperative Limited	1.000	1.000	1.000	-
2	Wang Saphung Agricultural Cooperative Limited	1.000	1.000	1.000	-
3	Phu Ruea Agricultural Cooperative Limited	1.000	1.000	1.000	-
4	Phu Kradueng Agricultural Cooperative Limited	0.959	0.960	0.999	DRS
5	Tha Li Agricultural Cooperative Limited	0.917	0.928	0.988	IRS
6	Dan Sai Agricultural Cooperative Limited	0.894	1.000	0.894	IRS
7	Na Duang Agricultural Cooperative Limited	0.981	1.000	0.981	IRS
8	Phu Luang Agricultural Cooperative Limited	1.000	1.000	1.000	-
9	Pha Khao Agricultural Cooperative Limited	1.000	1.000	1.000	-
10	Erawan Agricultural Cooperative Limited	1.000	1.000	1.000	
	Average	0.975	0.989	0.986	

Source: Calculation

Note: CRSTE = technical efficiency from CRS DEA

VRSTE = technical efficiency from VRS DEA

Scale = scale efficiency = CRSTE/ VRSTE

According to Table 1, there were six out of 10 agricultural cooperatives in Loei province who achieved technical efficiency from Constant Return to Scale (CRS), technical efficiency from Variable Return to Scale (VRS), and Scale Efficiency (SE) of 1.00. The six agricultural cooperatives were comprised of 1) Muang Loei Agricultural Cooperative Limited, 2) Wang Saphung Agricultural Cooperative Limited, 3) Phu Ruea Agricultural Cooperative Limited, 4) Phu Luang Agricultural Cooperative Limited, 5) Pha Khao Agricultural Cooperative Limited, and 6) Erawan Agricultural Cooperative Limited.

There were four out of 10 agricultural cooperatives achieved technical efficiency from Constant Return to Scale (CRS), technical efficiency from Variable Return to Scale (VRS), and Scale Efficiency (SE) less than 1.00 which comprised 1) Phu Kradueng Agricultural Cooperative Limited, 2) Tha Li Agricultural Cooperative Limited, 3) Dan Sai Agricultural Cooperative Limited and 4) Na Duang Agricultural Cooperative Limited.

Phu Kradueng Agricultural Cooperative Limited achieved technical efficiency from Constant Return to Scale (CRS), technical efficiency from Variable Return to Scale (VRS), and Scale Efficiency (SE) of 0.959, 0.960, and 0.999, respectively. The result expressed that Phu Kradueng Agricultural Cooperative Limited would increase the use of maize production inputs which were 1) increasing in share capital, 2) total cooperatives equity, and 3) long-term investments. The share capital was expressed as the total amount of money that the agricultural cooperatives raised by issuing shares to its members or investors. It represents the financial contribution made by shareholders in exchange for ownership stakes in the organization. The total cooperatives equity functioned as the overall financial ownership value of agricultural cooperatives which included members' share capital, retained earnings, and other reserves. It represented the cooperative's net worth after deducting total liabilities from total assets. In addition, long-term investments indicated to assets or financial investments that a cooperative or business holds for an extended period, typically longer than one year. These may include stocks, bonds, real estate, or other investments intended to generate returns over time rather than for immediate use or resale.

The Li Agricultural Cooperative Limited achieved technical efficiency from Constant Return to Scale (CRS), technical efficiency from Variable Return to Scale (VRS), and Scale Efficiency (SE) of 0.917, 0.928, and 0.988, respectively.

Dan Sai Agricultural Cooperative Limited achieved technical efficiency from Constant Return to Scale (CRS), technical efficiency from Variable Return to Scale (VRS),

and Scale Efficiency (SE) of 0.894, 1.000, and 0.894, respectively.

Na Duang Agricultural Cooperative Limited achieved technical efficiency from Constant Return to Scale (CRS), technical efficiency from Variable Return to Scale (VRS), and Scale Efficiency (SE) of 0.981, 1.000, and 0.981, respectively.

The three above agricultural cooperatives in Loei Province would decrease the inputs of maize production which were 1) core business cost, 2) operating expenses, 3) inventory, 4) total current assets, and 5) total liabilities.

The decrease in the core business cost indicated the total expenses related to the agricultural cooperative's main operations. This included costs such as raw materials, production expenses, labor, and other essential expenditures necessary to sustain the primary business activities.

The decrease in operating expenses was expressed to the costs incurred in the day-to-day operations of agricultural cooperatives. These expenses included salaries, rent, utilities, administrative costs, and other overhead expenses necessary to maintain business activities but were not directly tied to production.

The decrease in inventory indicated the goods, raw materials, and products that agricultural cooperatives hold for production, resale, or daily operations. It included finished products ready for sale, work-in-progress items, and raw materials used in production.

The decrease in total current assets included the sum of all short-term assets that a cooperative can convert into cash or use within one year. These typically included cash and bank deposits, accounts receivable (money owed by customers), inventory (raw materials, work-in-progress, and finished goods), Short-term investments, prepaid expenses (payments made in advance for future expenses), total current assets were crucial for assessing a cooperatives' liquidity and ability to meet short-term financial obligations.

Conclusions and Discussion

Maize (Zea mays L.), commonly known as corn, is one of the world's most extensively cultivated crops, playing a vital role in food security, animal feed, and various industrial uses. Studies on maize production primarily aim to improve yield, manage pests and diseases, and address the challenges posed by climate change.

In Thailand, maize is a key agricultural crop primarily grown for use as animal feed, particularly in the poultry and livestock industries. It is also one of the country's major export commodities, contributing significantly to the agricultural sector and overall economy.

Loei, a province in northeastern Thailand, is an important hub for maize production. With its mountainous landscape, diverse climate, and fertile soil, the region has become a key area for cultivating maize, for use as animal feed.

There were six out of 10 agricultural cooperatives in Loei Province who achieved a technical efficiency score of 1.00 across all three efficiency measures: Constant Returns to Scale (CRS) technical efficiency, Variable Returns to Scale (VRS) technical efficiency, and Scale Efficiency (SE). The six agricultural cooperatives were comprised of 1) Muang Loei Agricultural Cooperative Limited, 2) Wang Saphung Agricultural Cooperative Limited, 3) Phu Ruea Agricultural Cooperative Limited, 4) Phu Luang Agricultural Cooperative Limited, 5) Pha Khao Agricultural Cooperative Limited, and 6) Erawan Agricultural Cooperative Limited.

There were four out of 10 agricultural cooperatives that demonstrated technical efficiency below 1.00 in Constant Return to Scale (CRS), technical efficiency in Variable Return to Scale (VRS), and Scale Efficiency (SE). These cooperatives include: 1) Phu Kradueng Agricultural Cooperative Limited, 2) Tha Li Agricultural Cooperative Limited, 3) Dan Sai Agricultural Cooperative Limited, and 4) Na Duang Agricultural Cooperative Limited.

The result indicated that Phu Kradueng Agricultural Cooperative Limited should enhance its use of maize production inputs. Li Agricultural Cooperative Limited, Dan Sai Agricultural Cooperative Limited, and Na Duang Agricultural Cooperative Limited would decrease core business costs, operating expenses, inventory, and total current assets to get the maximum total revenue for agricultural cooperatives.

The research results were consistent with Phuphisith, Gheewala, and Sampattagul (2022) who conducted their study on the promotion of sustainable maize production in Northern Thailand, the country's largest maize-producing region, is crucial to securing the supply of the nation's feed manufacturing, as well as protecting environmental resources, enhancing social welfare, and improving the livelihoods of farmers and communities. According to Chaovanapoonphola and Somyana (2020) who studied the production efficiency of maize farmers under contract farming in Laos PDR found that the efficiency of contract maize farmers in Lao PDR was on average 0.85 and that the main factors affecting maize production efficiency were the age and education level of the farmer and area of planted land. The research outcomes also were consistent with Khongdee, Hilger, Pansak, and Cadisch (2022) who conducted their works on optimizing maize sowing under irregular rainfall distribution in northern Thailand: A model approach for improved decision-making. Also, the research findings were consistent with Charoenratan, Anukul, and Rosset (2021) found that Northern Thailand was the center of several controversies surrounding changing cropping patterns, related to deforestation

driven by the expansion of maize mono-cropping by peasant farmers.

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References

Chaovanapoonphola, Y, & Somyana, W. (2020). Production efficiency of maize farmers under contract farming in Laos PDR. Kasetsart Journal of Social Sciences, 41(1), 104–109.

Charoenratan, S., Anukul, C, & Rosset, P. M. (2021). Food sovereignty and food security: Livelihood strategies pursued by farmers during the maize monoculture boom in Northern Thailand. Sustainability, 13(17), 9821-9835.

Farooq, M., Wahid, A., & Kadambot, H. M. S. (2009). Drought stress in plants: An overview. Agronomy for Sustainable Development. DOI: 10.1007/978-3-642-32653-0_1

Farrell, M. J. (1957). Measurement of productive efficiency. Journal of the Royal Statistical Society, 120(3), 253-290.

Food and Agriculture Organization. (2022). Agricultural Outlook 2022-2031: Southeast Asia. Retrieved from https://www.fao.org/home/en.

Khongdee, N., Hilger, T., Pansak, W., & Cadisch, G. (2022). Optimizing maize sowing under irregular rainfall distribution in northern Thailand: A model approach for improved decision-making. Field Crops Research, 20(278), 112-146.

Office of Agricultural Economics. (2022). Agricultural Statistics of Thailand 2022. Retrieved from https://www.oae.go.th/.

Phuphisith, S., Gheewala, S. H., & Sampattagul, S. (2022). Assessing environmentally sustainable practices of smallholder highland farmers: A case study of maize production in Northern Thailand. Clean Technology Environment Policy, 24(12), 1159 –1172.

Pingali, P. L. (2001). The role of maize in food systems of developing countries. Retrieved from https://www.fao.org/home/en.

Rerkasem, K. (2016). Challenges of maize production in Thailand. Agriculture and Food Security Journal, 24(12), 126-138.

Suwankiri, W., Pannangpetch, K., & Jitsanguan, T. (2021). Climate change impacts on maize production in Northern Thailand. Journal of Agricultural Science, 13(4), 56-67.

Wikipedia. (2025). Loei province. Retrieved from https://www.wikipedia.org/en /Loei_province.

Do Different Levels of Environmental Dynamism Shape the Effectiveness of Strategic Renewal in Driving Project Performance?

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Abstract

Strategic renewal is essential for organizational success, particularly in improving project performance, but its effectiveness depends on environmental factors. While research has explored strategic renewal, the role of environmental dynamism in moderating this relationship remains underexamined. This study addresses that gap by analyzing how environmental dynamism influences the impact of strategic renewal on project performance. A quantitative approach was used, gathering data from 200 operational managers and senior personnel overseeing project teams in various Thai industries. The data were analyzed using SPSS Process Macro, employing regression techniques, and bootstrapping to assess hypotheses. Instrument validity and reliability were confirmed through Confirmatory Factor Analysis (CFA), Cronbach's Alpha, and Composite Reliability. Findings indicate that strategic renewal positively affects project performance, but its effectiveness varies with environmental dynamism. Organizations in stable environments benefit more from strategic renewal, while highly dynamic settings show diminishing returns. This suggests that organizations should tailor renewal strategies to improve environmental conditions to optimize project outcomes. The study contributes to strategic management literature by providing empirical evidence on the context-dependent nature of strategic renewal. Future research should focus on sustainable renewal strategies, such as innovation and corporate venturing, in dynamic environments.

Keywords: Strategic Renewal, Project Performance, Environmental Dynamism, Organizational Adaptability, Competitive Advantage

Introduction

Strategic renewal is essential for organizations aiming to revitalize their capabilities, business models, and strategic direction to sustain long-term competitiveness (Schmitt et al., 2018). For instance, IBM's strategic renewal is demonstrated through its transition from a hardware manufacturer to a provider of cloud computing services, aligning with evolving technological trends (O'Reilly III & Tushman, 2013). Similarly, Apple underwent a strategic renewal by shifting from a niche computer producer to a dominant player in consumer electronics (Christensen et al., 2016). However, its effectiveness is often shaped by external

factors, particularly environmental dynamism. Environmental dynamism, defined by rapid and unpredictable changes in the external environment, plays a significant role in how organizations adapt their strategies (Lumpkin & Dess, 2001). Organizations must develop strong dynamic capabilities in highly volatile environments to manage uncertainties and maintain a competitive advantage. These capabilities are crucial in involving strategic renewal in organizational performance (Richard et al., 2019; Taghizadeh et al., 2024). Given the growing complexity of market dynamics, technological disruptions, and regulatory shifts, organizations must continuously reassess and adapt strategies to align with external conditions (Teece, 2007). This study draws on Dynamic Capabilities Theory and Organizational Learning Theory to explore the role of strategic renewal in improving organizational performance in the context of a project-based approach. While strategic renewal is widely recognized as a driver of organizational performance, its success is influenced by environmental conditions (Kearney & Morris, 2015). Organizations in volatile contexts must adapt more regularly, whereas those in stable conditions may have fewer renewal initiatives, yet must ensure alignment with slow market changes (Perini et al., 2024). However, strategic renewal alone may not be sufficient for sustained success. Therefore, to sustain a competitive edge, exploration is essential. This study contributes to existing literature by analyzing the effect of strategic renewal on project performance, investigating the moderating influence of environmental dynamism, and offering empirical insights to refine renewal strategies for improved competitiveness and project outcomes.

Objectives

1. To examine the relationship between strategic renewal and project performance, assessing its impact on project performance.
2. To examine the relationship between environmental dynamism and project performance.
3. To investigate the moderating role of environmental dynamism on the relationship between strategic renewal and project performance.
4. To examine the differential impact of strategic renewal on project performance under varying levels of environmental dynamism.

Theoretical Frameworks and Literature Review

Dynamic Capabilities Theory

The Dynamic Capabilities Theory serves as a fundamental framework for analyzing strategic renewal in competitive environments (Teece et al., 1997). This theory asserts that organizations achieve sustained competitive advantage by continuously identifying opportunities, strategically capitalizing on them, and dynamically reconfiguring resources in response to external environmental changes. Organizations that effectively revitalize

their strategies integrate, develop, and adjust both internal and external competencies to align with evolving market conditions (Teece, 2007). In contrast, dynamic capabilities are specifically designed to facilitate strategic change and align the organization with its external context (Zahra et al., 2006). Within strategic renewal, dynamic capabilities facilitate organizations' capacity to reconfigure their resource base and proactively adapt to technological disruptions and market uncertainties (Perini et al., 2024). The theory further supports the argument that organizations with strong dynamic capabilities are better equipped to manage environmental volatility, allowing them to adjust their strategic direction in uncertain conditions (Bhadra et al., 2024). Ultimately, organizations possessing robust dynamic capabilities, defined as the capacity to effectively reconfigure and redeploy resources, are demonstrably more proficient in sustaining long-term renewal efforts and driving continued organizational effectiveness (Schmitt et al., 2018).

Organizational Learning Theory

The Organizational Learning Theory provides a fundamental theoretical framework for comprehending strategic renewal, which the model explains how organizations acquire knowledge through four processes, including intuition, interpretation, integration, and institutionalization, which are essential for continuous adaptation and strategic renewal (Crossan et al., 1999). Additionally, underscores the important role of institutionalized learning, which allows organizations to balance the use of existing knowledge with the integration of new insights to drive renewal efforts (Lengnick-Hall & Inocencio-Gray, 2013). In rapidly changing environments, effective organizational learning ensures that strategic renewal is guided by synthesized knowledge and past experiences (Crossan & Berdrow, 2003). Furthermore, a fundamental aspect of organizational learning is the differentiation between single-loop and double-loop learning. Consequently, organizations must navigate single-loop and double-loop learning to facilitate renewal (Bloodgood et al., 2015; Ractham & Kantamara, 2011). Strategic renewal relies on the effective transfer of knowledge across different managerial levels as middle management plays a central role in translating strategic insights into actionable initiatives, although misalignment between leadership directives and operational realities often hinders renewal efforts (Floyd & Lane, 2000). Besides, strategic renewal, reconfiguration, or transformation of an organization’s core competencies and business strategies is facilitated through dynamic organizational learning mechanisms (Crossan & Berdrow, 2003). This process enhances an organization’s adaptability and fosters a culture of continuous improvement, ensuring that organizations remain competitive in an ever-evolving marketplace.

Project Performance

Project performance has long been a critical area of study, as it reflects how effectively projects achieve their objectives within key constraints such as time, budget, and quality (Bannerman, 2008). Within project teams, performance is crucial for achieving strategic goals and contributing to organizational benefits (Sawaia, 2022). Given the dynamic nature of project environments, a strategic approach to performance management is essential. This study focuses on defining strategic renewal as a shift in direction, content, capabilities, and processes, implemented through organizational projects (Pedersen et al., 2024). In this context, strategic renewal within project teams plays a pivotal role in leveraging resources and gaining competitive advantages (Weiss & Kanbach, 2023). Eventually, organizational success highlights the importance of strategic renewal in project teams, as it drives long-term growth and ensures sustainable performance (Pedersen et al., 2024).

The Impact of Strategic Renewal in the Project Team on Project Performance

Strategic renewal is the process by which organizations transform their strategic intent, capabilities, and business scope to sustain competitiveness and secure long-term survival (Albert et al., 2015; Hassan, 2025). Although related to concepts such as strategic change and corporate entrepreneurship, strategic renewal is conceptually distinct. While corporate entrepreneurship emphasizes business revitalization through innovation, strategic renewal focuses on reconfiguring an organization's existing core competencies to respond effectively to environmental shifts (D'Angelo et al., 2024). Strategic renewal contributes to improved project performance by fostering organizational adaptability and operational efficiency across both private and public sectors, indicating that this positive influence arises through mechanisms such as entrepreneurial orientation and organizational learning, both of which serve as essential drivers of successful renewal initiatives (Klammer et al., 2017). It also mediates the relationship between environmental conditions and organizational performance, enabling organizations to capitalize on favorable circumstances while mitigating adverse effects in turbulent settings (Kearney & Morris, 2015). Likewise, the connection between strategic orientation and strategic renewal further reinforces this performance-enhancing effect and suggests that this relationship is stronger when organizations demonstrate ambidexterity, meaning the ability to balance exploration and exploitation (Shah et al., 2020). Similarly, from a project-based perspective, strategic renewal often materializes through specific projects that act as catalysts for organizational change and innovation (Pedersen et al., 2024). Thus, the studies indicate that organizations capable of pursuing both stability and innovation simultaneously are better positioned to translate strategic renewal into performance gains.

Subsequently, hypotheses are proposed:

H1: Strategic renewal positively influences project performance.

Mechanisms Relating to Environmental Dynamism, Strategic Renewal in the Project Team, and Project Performance

Environmental dynamism, defined as the rate and unpredictability of changes in the external environment, is a critical factor influencing the relationship between strategic renewal and organizational performance, and it also plays a central role in shaping the relationship across various contexts (Mohammad, 2019; Richard et al., 2019). Existing studies indicate that in rapidly changing environments, dynamic capabilities are particularly important for small and medium enterprises (SMEs) to enhance organizational performance, as these capabilities enable organizations to adapt quickly to evolving market demands (Taghizadeh et al., 2024). Moreover, environmental dynamism further amplifies the effectiveness of green entrepreneurial orientation and boundary-spanning search, both of which are associated with sustainable performance in uncertain settings (Ye et al., 2022). Since organizational performance is driven by project outcomes, the following hypotheses are proposed:

H2: There is a relationship between environmental dynamism and project. performance.

However, the effectiveness of strategic approaches depends on environmental dynamism. A previous study found that strategic renewal mediates the relationship between environmental factors and performance, with its impact contingent on external conditions (Kearney & Morris, 2015). Likewise, business model renewal is more effective in moderately dynamic environments, while stable conditions may lack the impetus for renewal to drive performance gains (Heij et al., 2024). Similarly, strategic changes tend to yield greater performance improvements when environmental uncertainty is high, underscoring the need for organizations to align their strategic renewal efforts with external pressures (Chandra et al., 2023). In stable environments, environmental dynamism exerts a diminished influence on organizational innovation and performance, implying that strategic renewal is of lesser importance in such contexts due to the reduced need for adaptation (Paudel, 2019). These findings underscore the critical role of environmental dynamism in shaping the effectiveness of strategic renewal and its influence on project performance. Subsequently, hypotheses are proposed.

H3: There is a moderating effect of environmental dynamism on the relationship between strategic renewal and project performance.

H4: Strategic renewal has a stronger impact on project performance under high environmental dynamism than in low environmental dynamism.

Materials and Methods

The study adopted a quantitative research design to ensure methodology in the evaluation of measurement and structural models. Data were analyzed using AMOS to assess construct validity, reliability, and overall model fit through Confirmatory Factor Analysis (CFA) (Hair et al., 2010). Hypothesis testing was conducted using the SPSS Process Macro, employing regression-based techniques to examine moderation effects, and the Bootstrapping method, a resampling procedure that generates multiple samples with replacement, was utilized to estimate standard errors and construct confidence intervals, offering robustness with fewer parametric assumptions and mitigating the risk of type 1 error (Hayes, 2013; Rockwood & Hayes, 2020). Furthermore, a Simple Slope Analysis was conducted to prove the moderation effect across various levels of the moderator.

Research Framework

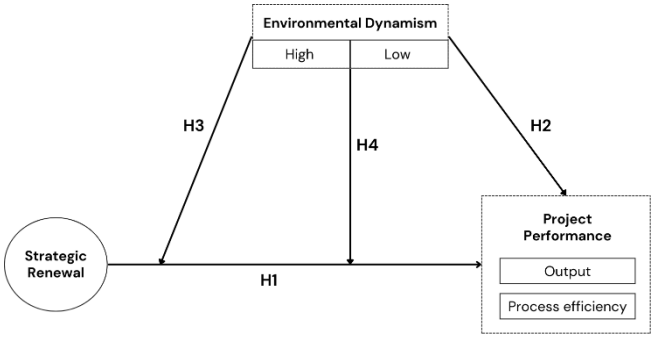


Figure 1: Conceptual Framework

Sample and Data Collection

The questionnaire was initially developed in English and subsequently translated into Thai by a professional translator proficient in both languages to ensure linguistic accuracy and cultural relevance. The study surveyed 250 operational managers and senior personnel overseeing functional and cross-functional project teams across diverse industries in Thailand over the past three years. Following data cleaning, the final sample size was reduced to 200 managers. It examined the effectiveness of strategic renewal on project performance across diverse levels of environmental dynamism. Data were collected via company emails, gathering operational strategies and project outcomes from multiple departments. The questionnaire also gathered demographic details, including gender, age, position, experience, team size, and business type.

Variable Measurement

All variables were measured on a seven-point Likert scale (1 = “strongly disagree” to 7 = “strongly agree”). Strategic renewal was assessed using a modified scale by focusing on actions such as divesting underperforming units, revising strategies, restructuring, and

introducing new practices (Chen et al., 2014). Project performance included process efficiency and output-related performance (Brettel et al., 2012), which comprised learning and capability development and output value and future potential. Environmental dynamism, reflecting external volatility (Jansen et al., 2006).

Control Variables

Age (over 40) was controlled, as older individuals may resist change, influencing renewal efforts and performance. Experience (over 5 years) was included, as experienced professionals often enhance efficiency. Business type (e.g., Public Sector, R&D, IT) was considered due to sectoral differences affecting renewal and performance. Team size (more than 5 members) was controlled, as larger teams may face coordination challenges but offer diverse expertise. These controls help ensure the validity of the results by reducing potential confounding effects.

Results

Descriptive Analysis and Sample Characteristics

Descriptive analysis using SPSS ensured data validity by identifying and removing outliers. The final sample of 200 managers show that the majority of respondents were aged 40–49 years old (31%), followed by 30–39 years old (26%), 50–59 years old (21.5%), 20–29 years old (19%), and 60 years old and above (2.5%). Females comprised (56.5%), males (43%), and (0.5%) preferred not to disclose their gender. Regarding job positions, 69.5% were in operational management, 16% in middle management, 8.5% in executive leadership, 5% in senior management, and 1% in other roles. Experience levels varied, with 58% having more than 10 years, 13.5% with 8–10 years, 13.5% with 5–7 years, 11.5% with 2–4 years, and 3.5% with 1 year or less. Team size distribution showed 34% in teams of 5 or fewer, 30.5% in teams of 6–10 members, 14.5% in teams of 11–15 members, 5% in teams of 16–20 members, and 16% in teams with more than 20 members. The data set categorizes businesses across various sectors, with Manufacturing and Production (37%) and IT & Telecommunication (18%), followed by Retail (13%), Construction (6.5%), and Finance (5.5%). Smaller sectors included the Public Sector (4.5%), Healthcare (3%), Import & Export (2.5%), and various others, each below 1.5%. The other category accounted for 3.5%, reflecting additional business types.

Confirmatory Factor Analysis (CFA)

The results of this measurement model indicate that the data was a good fit for the model, χ^2 = 160.238 (DF = 104), GFI = 0.916, NFI = 0.954, IFI = 0.983, CFI = 0.983, RMSEA = 0.052, RMR = 0.057 and p-value <0.001. A reasonable goodness-of-fit of the data was demonstrated by our model, as the fitness indices for the measurement model satisfied acceptable standards (Hair et al., 2010).

Validity and Reliability

The results show that all factor loadings exceeded 0.7, Composite reliability (CR) values were above 0.7, average variance extracted (AVE) values exceeded 0.5 for all constructs, and Cronbach's Alpha values exceeded the 0.6 threshold. Indicating strong convergent validity (Fornell & Larcker, 1981).

Table 1: Results of Validity and Reliability

Variables	CR	AVE	MSV	Cronbach's Alpha
Strategic renewal	0.91	0.73	0.54	0.90
Environmental dynamism	0.84	0.57	0.72	0.85
Project performance	0.90	0.82	0.72	0.96

Correlation Matrix

The results indicated that environmental dynamism strongly correlated with strategic renewal (γ = 0.57, p <.001) and project performance (γ = 0.72, p <.001), suggesting that dynamic environments drive strategic renewal efforts and improve project outcomes. Furthermore, strategic renewal was significantly associated with project performance (γ = 0.72, p <.001), indicating that renewal initiatives positively impact project success. Additionally, business types showed a moderate correlation with environmental dynamism (γ = 0.17, p <.05), highlighting sectoral differences in environmental variability. These findings emphasize the importance of strategic renewal and environmental dynamism in enhancing project performance.

Hypothesis Testing Results

The results of the path analysis and bootstrapping method indicated that strategic renewal had a positive and statistically significant effect on project performance (β = 0.99, p <0.001, 95% CI [0.45, 1.54]), thereby supporting H1. This finding suggested that organizations engaging in strategic renewal initiatives were more likely to achieve improved project performance outcomes. Likewise, the result revealed that environmental dynamism had a significant and positive effect on project performance (β = 1.00, p < 0.001, 95% CI [0.46, 1.53]), thus supporting H2. This finding demonstrates a significant positive correlation between environmental dynamism and project performance. As environmental dynamism increases, there is a corresponding improvement in project outcomes. Furthermore, the moderating role of environmental dynamism in the relationship between strategic renewal and project performance was statistically significant (β = -0.10, p <0.05, 95% CI [-0.20, 0.00]), supporting H3. This result indicated that the effect of strategic renewal on project performance varied depending on the degree of

environmental dynamism.

Concerning H4, contrary to the expectation that strategic renewal would have a stronger impact on project performance under high environmental dynamism however, the analysis reveals that the relationship between strategic renewal and project performance was weaker in high dynamism environments (β = -0.10, p <0.05, 95% CI [-0.20, 0.00]), thus not supporting H4. This diminishing effect reflects the heightened uncertainty and complexity in dynamic environments, which may disrupt the effective implementation of strategic renewal initiatives and limit their performance benefits. A conditional indirect effects analysis was conducted to further examine the influence of environmental dynamism across levels (low, moderate, and high). The effect size was smallest in low-dynamism environments (4.50, p <0.001), increased under moderate dynamism (5.50, p <0.001), and was highest under high dynamism (6.25, p <0.001). The result revealed that although strategic renewal remained advantageous, increasing levels of dynamism reduced the positive effect of strategic renewal on performance. Its marginal effectiveness declined potentially due to elevated uncertainty or adaptation pressures. Furthermore, the R-squared value of 0.70 indicated that the model accounted for 70% of the variance in project performance, with an F-statistic of 23.09, demonstrating a strong overall model fit.

Table 2: Results of Overall Hypotheses with Bootstrapping Analysis

Path Analysis	Coefficient (β)	Standard Error	t-value	p-value	95% CI	
					Lower	Upper
Strategic Renewal ⟶ Project Performance	0.99	0.28	3.58	<0.001	0.45	1.54
Environmental dynamism ⟶ Project Performance	1.00	0.27	3.66	<0.001	0.46	1.53
Moderator Effect ⟶ Project Performance	-0.10	0.05	-1.98	<0.05	-0.20	0.00
R-sq	0.70					
F	23.09					

Note: Moderator Effect = Strategic Renewal x Environmental Dynamism

Table 3: Result of Moderation Effect across Levels

Moderator Level		Effect Size	Standard Error (SE)	t-value	p-value	95% CI	
						LLCI	ULCI
Low	4.50	0.54	0.07	7.97	<0.001	0.41	0.68
Middle	5.50	0.44	0.05	8.84	<0.001	0.34	0.54
High	6.25	0.37	0.07	5.66	<0.001	0.24	0.50

The graph derived from the Simple Slope Analysis visually illustrates this moderating effect, showing that the slope representing the relationship between strategic renewal and project performance is steepest under conditions of high environmental dynamism, followed by moderate and low dynamism levels. Nonetheless, the negative interaction coefficient suggests that the slope's steepness could decrease as dynamism intensifies further, indicating that although strategic renewal continues to enhance project performance in turbulent environments, the incremental benefit of additional renewal efforts may decline as environmental uncertainty becomes excessively high.

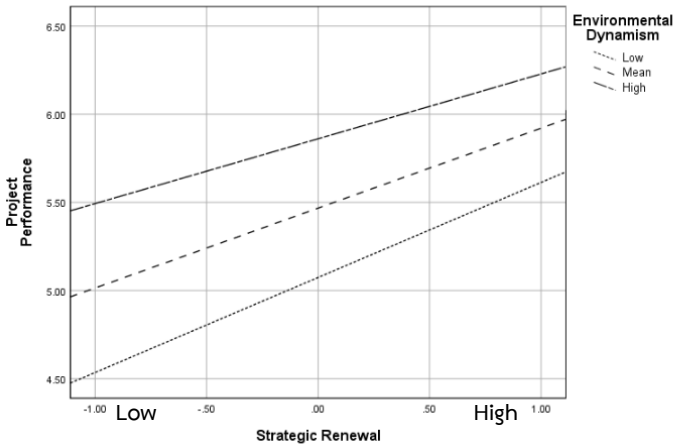


Figure 2: The Moderating Effect of Environmental Dynamism across Levels

Conclusions and Discussions

The findings of this study contribute to the growing body of literature on strategic renewal and project performance, particularly in dynamic environments, consistent with prior studies (Kearney & Morris, 2015; Pedersen et al., 2024; Shah et al., 2020). The results confirm that strategic renewal positively influences project performance (H1); organizations investing in renewal processes, such as updating strategies, adapting resources, and reconfiguring operations, are better positioned to achieve superior project outcomes. These efforts allow organizations to maintain alignment with shifting market demands and evolving technological landscapes, which enhances performance. Additionally, this study demonstrates a substantial positive relationship between environmental dynamism and

project performance (H2). Organizations operating in dynamic environments are more likely to achieve enhanced project outcomes, highlighting the critical role of adaptability. Subsequently, the moderating role of environmental dynamism on the strategic renewal-performance relationship is confirmed (H3). This highlights that the effectiveness of strategic renewal is context-dependent, varying according to the degree of external environmental turbulence (Mohammad, 2019; Richard et al., 2019; Taghizadeh et al., 2024; Ye et al., 2022). In dynamic environments, strategic renewal equips organizations with the agility to respond to unpredictable changes, whereas in stable settings, renewal fosters process improvements and incremental innovations (Kearney & Morris, 2015).

Nevertheless, the nature of this moderation effect deviates from initial expectations, which suggested that strategic renewal would have a stronger impact on project performance in high environmental dynamism (H4). Instead, the analysis showed a weaker effect in dynamic environments. This indicates that as environmental dynamism rises, the positive effect of strategic renewal on performance decreases. While strategic renewal remains advantageous, its marginal benefits lessen in the face of high environmental uncertainty, which aligns with prior studies suggesting that in highly volatile contexts, the costs and complexities associated with continuous adaptation may offset the benefits of renewal efforts (Heij et al., 2024). Correspondingly, excessive environmental turbulence can overwhelm an organization's capacity to implement strategic changes effectively, resulting in reduced performance gains despite ongoing renewal efforts (Ashmos et al., 2000). In contrast, in stable environments, organizations can implement renewal strategies in a more structured manner, facing fewer disruptions and less uncertainty, which facilitates more effective performance improvements (Kearney & Morris, 2015). In addition, the Simple Slope Analysis and graphical representations effectively demonstrate the moderating effects on project performance, which is significantly influenced by environmental conditions, as evidenced by the findings of this study. The study reveals that while strategic renewal strengthens project performance, its impact is contingent on the level of environmental dynamism. The steepest slope appears in highly dynamic environments, indicating a strong positive relationship; however, the negative interaction coefficient suggests diminishing marginal returns as dynamism intensifies further. This finding underscores that although strategic renewal becomes increasingly valuable in turbulent contexts, there exists a threshold beyond which its effectiveness plateaus or even declines. The study confirms that strategic renewal is a key driver of project performance, though its benefits vary across different environmental conditions. It is most effective in moderately dynamic environments, where it fosters optimal performance gains. In contrast, in contexts of extreme dynamism, the marginal benefits of renewal efforts decline, suggesting that excessive turbulence may undermine their

effectiveness since the costs and disruptions associated with continuous adaptation, including resource reallocation, workforce retraining, and organizational restructuring, may outweigh the potential benefits (Salloum et al., 2022). In such contexts, frequent adjustments introduce inefficiencies, reduce strategic coherence, and increase operational complexity, limiting the positive impact of renewal efforts. Consequently, organizations operating in highly dynamic environments must carefully balance the benefits of strategic renewal with the risks and costs of excessive adaptation. In stable environments, strategic renewal remains beneficial, though its impact is more incremental. These insights challenge the assumption of a universally linear relationship between strategic renewal and performance, emphasizing instead a context-dependent dynamic.

By advancing the literature on strategic management and project performance, these findings provide practical implications for organizations. To maximize performance outcomes, organizations must calibrate their renewal efforts based on environmental conditions, ensuring that strategies enhance adaptability and innovation without overextending resources in volatile settings.

Limitations and Future Research Suggestions

While this study offers meaningful insights into the relationship between strategic renewal and project performance, several limitations must be acknowledged. First, strategic renewal alone may not be sufficient for long-term organizational success, existing studies suggest that sustainable competitive advantage requires a broader intrapreneurial approach that includes innovation and corporate venturing (Kuratko & Morris, 2018). Future studies should explore how integrating these components enhances project performance and whether their combined effects create a more resilient organizational framework. Second, this study may underestimate the broader impact of strategic renewal, as organizations often implement renewal efforts across multiple sections simultaneously. Future studies should investigate whether executing strategic renewal initiatives across several projects concurrently enhances overall performance and adaptability. Understanding the synergies between multiple renewal projects could provide deeper insights into how organizations sustain competitive advantage through simultaneous strategic adjustments. Additionally, this study examines strategic renewal within a specific environmental context, emphasizing the moderating role of environmental dynamism. However, other external factors, such as technological advancements, regulatory shifts, and market disruptions, may also influence the effectiveness of renewal strategies. Future studies should adopt a more comprehensive framework to assess how multiple environmental contingencies interact with strategic renewal to shape performance outcomes. Furthermore, the cross-sectional study design limits the ability to track long-

term effects. Strategic renewal is a continuous process, and its impact on performance may evolve over time. Longitudinal studies could provide valuable insights into how renewal efforts sustain or diminish their effectiveness under changing market conditions. Furthermore, a limitation arises when strategic renewal is implemented only after a project has demonstrated success. In fast-paced business environments, delayed adaptation may cause renewal efforts to lag market trends, rendering them less effective. Future studies should explore the implications of timing in strategic renewal and assess how organizations can proactively align renewal initiatives with evolving environmental conditions to maintain competitiveness. Lastly, while this study highlights the diminishing returns of strategic renewal in highly dynamic environments, further exploration of non-linear and threshold effects is warranted. Investigating whether renewal strategies reach a point where additional efforts yield diminishing or even negative returns could enhance decision-making for managers seeking to optimize resource allocation.

By addressing these limitations, future studies can contribute to a more holistic understanding of strategic renewal, particularly by examining its interplay with innovation and venturing as essential components of intrapreneurship. Such an approach could provide organizations with a more comprehensive framework for sustaining long-term.

References

Albert, D., Kreutzer, M., & Lechner, C. (2015). Resolving the paradox of interdependency and strategic renewal in activity systems. Academy of Management Review, 40(2), 210-234.

Ashmos, D. P., Duchon, D., & McDaniel, R. R. (2000). Organizational responses to complexity: The effect on organizational performance. Journal of Organizational Change Management, 13(6), 577-595.

Bannerman, P. L. (2008). Defining project success: A multilevel framework. International Journal of Project Management, 26(1), 61-70.

Bhadra, K., Kamalanabhan, T., & Singh, S. K. (2024). Evolution of dynamic capabilities for business sustainability performance: Evidence from the Indian manufacturing sector. Business Strategy and the Environment.

Bloodgood, J. M., Hornsby, J. S., Burkemper, A. C., & Sarooghi, H. (2015). A system dynamics perspective of corporate entrepreneurship. Small Business Economics, 45(2), 383-402.

Brettel, M., Mauer, R., Engelen, A., & Küpper, D. (2012). Corporate effectuation: Entrepreneurial action and its impact on R&D project performance. Journal of Business Venturing, 27(2), 167-184.

Chandra, B., Siagian, Y., Santosa, W., & Jurnali, T. (2023). The role of enterprise risk management in enhancing firm performance: Does strategic renewal really matters? International Journal of Science and Management Studies (IJSMS), 134-141.

Chen, Y., Tang, G., Jin, J., Xie, Q., & Li, J. (2014). CEO s' transformational leadership and product innovation performance: The roles of corporate entrepreneurship and technology orientation. Journal of Product Innovation Management, 31, 2-17.

Christensen, C. M., McDonald, R., Altman, E. J., & Palmer, J. (2016). Disruptive innovation: Intellectual history and future paths. Harvard Business School Cambridge, MA.

Crossan, M. M., & Berdrow, I. (2003). Organizational learning and strategic renewal. Strategic Management Journal, 24(11), 1087-1105.

Crossan, M. M., Lane, H. W., & White, R. E. (1999). An organizational learning framework: From intuition to institution. Academy of Management Review, 24(3), 522-537.

D'Angelo, S., Cavallo, A., Ghezzi, A., & Di Lorenzo, F. (2024). Understanding corporate entrepreneurship in the digital age: A review and research agenda. Review of Managerial Science, 18(12), 3719-3774.

Floyd, S. W., & Lane, P. J. (2000). Strategizing throughout the organization: Managing role conflict in strategic renewal. Academy of Management Review, 25(1), 154-177.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39-50.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate Data Analysis (7th ed.). Prentice Hall.

Hassan, H. H. (2025). The role of strategic renewal in achieving organizational survival. Journal of Management and Economics, 5(01), 14-31.

Hayes, A. F. (2013). Introduction to mediation, moderation, and conditional process analysis. In: New York: The Guilford Press.

Heij, C. V., Volberda, H. W., & Hollen, R. M. A. (2024). To replicate or to renew your business model? The performance effect in dynamic environments. Long Range Planning, 57(3), 102440.

Jansen, J. J., Van Den Bosch, F. A., & Volberda, H. W. (2006). Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. Management Science, 52(11), 1661-1674.

Kearney, C., & Morris, M. H. (2015). Strategic renewal as a mediator of environmental effects on public sector performance. Small Business Economics, 45, 425-445.

Klammer, A., Gueldenberg, S., Kraus, S., & O'Dwyer, M. (2017). To change or not to change–antecedents and outcomes of strategic renewal in SMEs. International Entrepreneurship and Management Journal, 13, 739-756.

Kuratko, D. F., & Morris, M. H. (2018). Corporate entrepreneurship: A critical challenge for educators and researchers. Entrepreneurship Education and Pedagogy, 1(1), 42-60.

Lengnick-Hall, C. A., & Inocencio-Gray, J. L. (2013). Institutionalized organizational learning and strategic renewal: The benefits and liabilities of prevailing wisdom. Journal of Leadership & Organizational Studies, 20(4), 420-435.

Lumpkin, G. T., & Dess, G. G. (2001). Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle. Journal of Business Venturing, 16(5), 429-451.

Mohammad, H. I. (2019). Mediating effect of organizational learning and moderating role of environmental dynamism on the relationship between strategic change and firm performance. Journal of strategy and management, 12(2), 275-297.

O'Reilly III, C. A., & Tushman, M. L. (2013). Organizational ambidexterity: Past, present, and future. Academy of Management Perspectives, 27(4), 324-338.

Paudel, S. (2019). Entrepreneurial leadership and business performance: Effect of organizational innovation and environmental dynamism. South Asian Journal of Business Studies, 8(3), 348-369.

Pedersen, C. L., Ritter, T., & Andersen, T. J. (2024). A project-based perspective on strategic renewal. Strategic Management Review, 5(3), 241-271.

Perini, L., Carneiro, J., & Miller, K. D. (2024). Strategic inertia and renewal: Contrasting responses to market changes. Long Range Planning, 57(3), 102441.

Ractham, V., & Kantamara, P. (2011). single-loop vs. double-loop learning: an obstacle or a success factor for organizational learning.

Richard, O. C., Wu, J., Markoczy, L. A., & Chung, Y. (2019). Top management team demographic‐faultline strength and strategic change: What role does environmental dynamism play? Strategic Management Journal, 40(6), 987-1009.

Rockwood, N. J., & Hayes, A. F. (2020). Mediation, moderation, and conditional process analysis: Regression-based approaches for clinical research. In The Cambridge handbook of research methods in clinical psychology. (pp. 396-414). Cambridge University Press.

Salloum, R. G., Wagner, T. H., Midboe, A. M., Daniels, S. I., Quanbeck, A., & Chambers, D. A. (2022). The economics of adaptations to evidence-based practices. Implement Sci Commun, 3(1), 100.

Sawaia, C. (2022). The PMO as performance driver for non-profit organizations: From operational data to strategic goals. Journal of Digital Inno-vation for Humanity, 3, 1-12.

Schmitt, A., Raisch, S., & Volberda, H. W. (2018). Strategic renewal: Past research, theoretical tensions and future challenges. International Journal of Management Reviews, 20(1), 81-98.

Shah, H. A., Yasir, M., Majid, A., Yasir, M., & Javed, A. (2020). Promoting strategic performance through strategic orientation and strategic renewal: A moderated mediation model. Management Decision, 58(2), 376-392.

Taghizadeh, S. K., Rahman, S. A., Nikbin, D., Radomska, M., & Maleki Far, S. (2024). Dynamic capabilities of the SMEs for sustainable innovation performance: Role of environmental turbulence. Journal of Organizational Effectiveness: People and Performance, 11(4), 767-787.

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28(13), 1319-1350.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. Strategic Management Journal, 18(7), 509-533.

Weiss, L., & Kanbach, D. K. (2023). Leveraging new business innovation for strategic renewal: An organizational framework for strategic corporate venturing. Creativity and Innovation Management, 32(2), 316-339.

Ye, F., Yang, Y., Xia, H., Shao, Y., Gu, X., & Shen, J. (2022). Green entrepreneurial orientation, boundary-spanning search and enterprise sustainable performance: The moderating role of environmental dynamism. Frontiers in Psychology, 13, 978274.

Zahra, S. A., Sapienza, H. J., & Davidsson, P. (2006). Entrepreneurship and dynamic capabilities: A review, model and research agenda. Journal of Management Studies, 43(4), 917-955.

The Impact of Job Satisfaction on Teachers' Loyalty in Vocational College: A Case Study of Guiyang Vocational College, China

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Abstract

This study delves into the realm of job satisfaction and teachers' loyalty within the vocational colleges of Guiyang, China. By employing quantitative research methodology, the study surveyed 600 teachers, receiving a high response rate that facilitated robust statistical analysis. The findings reveal a positive correlation between job satisfaction, encompassing job-related and personal factors, and teachers' loyalty, expressed through behavioral and attitudinal dimensions. Furthermore, the study contributes to the understanding of how job satisfaction impacts teachers' loyalty, drawing from Herzberg's two-factor theory and George Homans' social exchange theory. The results hold implications for vocational colleges seeking to enhance teacher loyalty by addressing factors that influence job satisfaction.

Keywords: Vocational College Teachers, Job Satisfaction, Teachers' Loyalty

Introduction

Vocational education has become increasingly important in the education system due to technological advancement and global competition, and it plays a vital role in producing skilled workers for the economic development of the country (Grishaeva et al., 2023). In China, the government has prioritized vocational education to meet the demands of the growing job market, which has led to significant growth in vocational education (Liu, 2023).

Teacher loyalty is a key factor in vocational education as it reflects teachers' commitment to the school and the quality of education provided. High teacher loyalty benefits students, institutional stability, and organizational culture (Zhou et al., 2024). It is well known that job satisfaction affects the loyalty of employees in all walks of life, and it also impacts teachers in vocational colleges by influencing their willingness to stay

in the school, their performance, and their contribution to the mission of the school (Luo, 2024).

However, there is a lack of research on the relationship between job satisfaction and teachers' loyalty in vocational colleges, especially in China (Qi et al., 2024). This study aims to fill this gap by conducting a case study of Guiyang Vocational and Technical College. The findings will contribute to the existing literature and provide practical insights for vocational college administrators and policy makers.

Objectives

1. To explore the job satisfaction, and teachers' loyalty in Guiyang vocational colleges, China.
2. To examine the impact of job satisfaction on teachers' loyalty to vocational colleges.

Concept theory framework

The term "job satisfaction" began with the book "Job Satisfaction" written by Hoppock, who first put forward the concept of job satisfaction, i.e., the subjective reflection of the psychological and physiological satisfaction of workers with environmental factors, that is, the subjective reflection of workers on the work situation (Cranny et al., 1992). Factors that impact job satisfaction can be divided into two broad categories: job-related factors and personal factors. Job-related factors include aspects related to the workplace environment, such as working conditions, relationships with co-workers, growth opportunities, recognition, and compensation. Personal factors include personal characteristics such as attitudes, motivation, and work-life balance (Aziri, 2011).

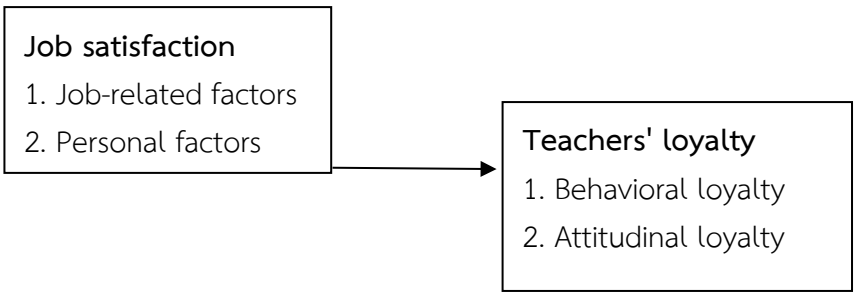
Teacher loyalty refers to the extent to which a teacher is loyal to an educational institution. Teacher loyalty can be viewed in terms of both behavioral and attitudinal aspects (Umi, 2024). For example, behavioral loyalty refers to a teacher's continued commitment to the school, such as staying in the school and performing teaching duties. Attitudinal loyalty may involve teachers' emotional and cognitive attachment to the school, such as trusting school leaders and feeling satisfied with the work environment (Ting & Yeh, 2013).

Studies on teaching have proved that job satisfaction has a significant impact on employee loyalty. The study confirms that there is a positive correlation between job satisfaction and employee loyalty, indicating that the higher the level of job satisfaction, the higher the level of employee loyalty to the organization (Azzahra et al., 2024). Therefore, increasing the level of job satisfaction of employees can effectively promote employee loyalty to the organization (Hadj, 2024).

Herzberg's two-factor theory, which suggests that job satisfaction and dissatisfaction are driven by two different sets of factors: hygiene factors (e.g., company policies, working conditions) and motivational factors (e.g., achievement, recognition) (Kim, 2024). Using this theory, we can identify specific job characteristics that may affect teacher satisfaction and loyalty.

Social exchange theory suggests that individuals engage in reciprocal exchange relationships and expect to be rewarded for their contributions (Ekeh, 1974). In the case of vocational education, teachers' loyalty may be influenced by their perceptions of fairness, support, and institutional recognition.

When teachers are satisfied with their jobs, they are more likely to be loyal to their vocational college. To explore the relationship between job satisfaction and teacher loyalty, the following research framework and hypotheses are proposed, supported by two-factor theory and social exchange theory:



H1: Job satisfaction has a positive impact on teachers' loyalty in the vocational college.

H2: Job-related factors have a positive impact on teachers' behavioral loyalty in the vocational college.

H3: Job-related factors have a positive impact on teachers' attitude towards loyalty in the vocational college.

H4: Personal factors have a positive impact on teachers' behavioral loyalty in the vocational college.

H5: Personal factors have a positive impact on teachers' attitudinal loyalty in the vocational college.

Materials and Methods

The quantitative research method was used in this study, and the target respondents were teachers at vocational colleges and universities in Guiyang City, totaling 3,570 people. The sample size was determined to be a robust sample of 360 persons according to the Taro Yamane formula (Yamane, 1973). To achieve a recovery rate of 60%, 600 questionnaires were distributed to the target teachers. This sample size

ensured high statistical power and generalizability of the findings. The randomized stratified sampling method was used in this study to improve the representativeness of the sample and reduce potential sampling bias.

Data collection was done using an online survey tool, and the questionnaire was sent to the target population through a website link. The survey was conducted over a two-week period to allow sufficient time to collect responses. A total of 600 valid responses were received with a response rate of 100%. The data was then analyzed using the SPSS program; descriptive statistics were used to summarize the data, Pearson correlation was used to assess the relationship between the variables, and multiple regression analysis was used to assess the research hypotheses. The reliability of the questionnaire was confirmed by Cronbach's alpha score of 0.931. The validity of the questionnaire was assessed by three reviewers using the Index of Content Validity (IOC) test with a score of 0.942. This indicates that the internal consistency of all the scales was high.

The questionnaire scoring and interpretation criteria were based on a Likert scale, which allowed for the conversion of respondents' answers into numbers for statistical analysis. The questionnaire has replied in five points on Likert, ranging from "1 = strongly disagree" to "5 = strongly agree". The rating scale is categorized as follows: Scores ranging from 4.21 to 5.00 indicate strong agreement, while scores between 3.41 and 4.20 reflect general agreement. Scores from 2.61 to 3.40 suggest a neutral stance, whereas scores ranging from 1.81 to 2.60 indicate disagreement. Finally, scores between 1.00 and 1.80 represent strong disagreement.

Results

1. Descriptive Statistics on Job Satisfaction and Teachers' Loyalty

Table 1: Descriptive statistics for job satisfaction

Question	Mean	Standard deviation	Level of perception
job-related factors	3.529	0.914	agree
1. The college working environment makes me feel satisfied.	3.567	1.162	agree
2. I have a very harmonious relationship with my colleagues.	3.488	1.211	agree
3. The job I am doing has a good future.	3.527	1.138	agree
4. When I do a respectable job, I get praise from my colleagues or superiors.	3.55	1.166	agree
5. I am satisfied with my work at X College.	3.515	1.164	agree

Personal factors	3.543	0.894	agree
6. My motivation and enthusiasm in my work are remarkably high.	3.532	1.139	agree
7. The job I am doing has a good development prospect.	3.543	1.155	agree
8. I think my work-life balance is good right now.	3.513	1.15	agree
9. I feel a sense of personal value and accomplishment in my work.	3.57	1.174	agree
10. I think the college provides enough support for personal development and growth.	3.558	1.166	agree
Job satisfaction	3.536	0.757	agree

Table 1 shows that the mean values for job-related and personal factors are 3.529 and 3.543, respectively, and the mean value for job satisfaction is 3.536, which are slightly above the mid-point of 3.5 on the 5-point scale, indicating that the teachers have an overall positive attitude towards these aspects and tend to 'agree' that they have a positive perception of job-related and personal factors, as well as overall job satisfaction.

able 2: Descriptive statistics of teachers' loyalty

Question	Mean	Standard deviation	Level of perception
Behavioral loyalty	3.462	0.962	agree
1. I often tell my friends and family that my college is an excellent organization.	3.503	1.25	agree
2. I want to move forward with the team I'm on.	3.493	1.211	agree
3. I am willing to make extra efforts to help me succeed in my career.	3.468	1.196	agree
4. I'm always keen to join the college team when they have spare time activities.	3.383	1.17	neutral
5. I have a lot of trust in the members of the college team.	3.463	1.205	agree
Attitudinal loyalty	3.555	0.868	agree
6. I think my current job is in line with my career plan and I have no plans to change jobs.	3.572	1.153	agree
7. I love what I'm doing.	3.525	1.102	agree

Question	Mean	Standard deviation	Level of perception
8. I am glad that I chose this college instead of other ones.	3.568	1.12	agree
9. I can feel the support and care of the college in my work.	3.58	1.16	agree
10. If the college is facing difficulties, I will make more efforts to tide over the difficulties with the college and not leave.	3.532	1.133	agree
Teachers' loyalty	3.509	0.771	agree

Table 2 shows that the mean values for behavioral loyalty and attitudinal loyalty are 3.462 and 3.555, respectively, while the overall mean for faculty loyalty is 3.509. These values are slightly above the mid-point of 3.5 on the 5-point scale, indicating that faculty is at the 'Agree' level of loyalty to the College.

2. Correlation Analysis

This study examined the impact of job satisfaction on teachers' loyalty. The results of the correlation analysis are shown in the table below:

Table 3: Analysis based on basic information about the population, gender, age, educational background, type of work and work experience in the organization.

Question	Mean	Standard deviation					
1.Your gender	1.46	0.50	1				
2. Your age group	2.70	0.88	0.01	1			
3.Your highest level of education	2.89	0.79	-0.08	0.02	1		
4.Your Job Category	1.61	0.79	0.00	0.15**	0.06	1	
5. Number of Service with the organization.	2.79	1.00	-0.04	0.76**	-0.02	0.10*	1

From the above table, it can be seen that the correlation coefficients between gender and age group, highest educational qualification, job category, and years of teaching experience are 0.01, -0.08, 0.00, and -0.04 respectively (all $p>0.05$), indicating that there is no significant correlation between gender and these variables. The

correlation coefficients between age group and job category and years of teaching were 0.15**, 0.76** (all p<0.01), indicating that there is a significant positive correlation between age group and these variables. The correlation coefficients between highest educational qualification and gender, age group, job category, and years of teaching experience were -0.08, 0.02, 0.06, and -0.02 (all p>0.05), respectively, indicating that there is no significant correlation between highest educational qualification and these variables. The correlation coefficient between job category and years of teaching experience was 0.10* (p<0.05), indicating a significant positive correlation between job category and years of teaching experience.

Table 4: Correlation between job satisfaction and teachers' loyalty

Variables	Mean	Standard deviation	Job satisfaction	Teachers' loyalty
Job satisfaction	3.536	0.757	1	
Teachers' loyalty	3.509	0.771	0.638**	1

As can be seen from the above table, the mean value of job satisfaction is 3.536 with a standard deviation of 0.757, the mean value of teachers' loyalty is 3.509 with a standard deviation of 0.771, and the correlation coefficient between job satisfaction and teachers' loyalty is 0.638, which is also highly significant (** denotes p<0.01), indicating that there is also a strong positive correlation between job satisfaction and teachers' loyalty. That is, the higher the job satisfaction, the higher the teachers' loyalty.

Table 5: Relationship between job satisfaction and teachers' loyalty

	Variables	X2.1	X2.1	Y1.1	Y1.2
X1.1	job-related factors	1			
X1.2	Personal factors	0.404**	1		
Y1.1	Behavioral loyalty	0.445**	0.425**	1	
Y1.2	Attitudinal loyalty	0.466**	0.471**	0.419**	1

From the above table, the correlation coefficients between work-related factors and personal factors, behavioral loyalty, and attitudinal loyalty are 0.404, 0.445, and 0.466 (all p<0.01), respectively, indicating a significant positive correlation between work-related factors and these variables. The correlation coefficients between personal factors and behavioral and attitudinal loyalty were 0.425, 0.471 (both p<0.01), indicating a significant positive correlation between personal factors and these variables. The correlation coefficient between behavioral loyalty and attitudinal loyalty is 0.419

($p<0.01$), indicating that there is a significant positive correlation between the two, i.e., the higher the employee's behavioral loyalty, the higher his attitudinal loyalty.

3. Regression Analysis

Table 6: Regression analysis of job satisfaction on behavioural loyalty

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
	B	Std.Error	Beta			
Constant	1.134	0.161	-	7.053	0.000**	-
X1 Job-related factors	0.344	0.040	0.326	8.538	0.000**	1.195
X2 Personal factors	0.315	0.041	0.293	7.655	0.000**	1.195
R2= 0.269, Adjusted R2= 0.267, F =110.073 Sig. =0.000***						

The F-statistic is 110.073, corresponding to a p-value of 0.000, which is much less than 0.01, which indicates that the model as a whole is significant, the coefficient of the job-related factors is 0.344, the standard error is 0.040, the standardized coefficient (Beta) is 0.326, the t-value is 8.538, and the p-value is 0.000**, which suggests that there is a significant and positive impact of the job-related factors on the behavioral loyalty . Personal factor coefficient is 0.315, standard error is 0.041, standardized coefficient (Beta) is 0.293, t-value is 7.655 and p-value is 0.000**, which indicates that personal factors also have a significant positive impact on behavioral loyalty.

Table 7: Regression analysis of job satisfaction on attitudinal loyalty

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
	B	Std. Error	Beta			
Constant	1.289	0.141	-	9.159	0.000**	-
X1 Job-related factors	0.313	0.035	0.329	8.881	0.000**	1.195
X2 Personal factors	0.328	0.036	0.338	9.109	0.000**	1.195
R2= 0.313, Adjusted R2= 0.310, F =135.699 Sig. =0.000***						

From the table above, the F-statistics are 135.699, corresponding to a p-value of 0.000, which is much less than 0.01, which indicates that the model is significant. The job-related factor coefficient is 0.313, the standard error is 0.035, the standardized coefficient (Beta) is 0.329, the t-value is 8.881, and the p-value is 0.000**, which suggests that the job-related factors have a significant positive impact on attitudinal loyalty. Personal factor coefficient is 0.328, standard error is 0.036, standardized coefficient (Beta) is 0.338, t-value is 9.109 and p-value is 0.000**, which indicates that personal factors also have a significant positive impact on attitudinal loyalty.

Conclusions and Discussion

All five hypotheses were supported in this study. H1 confirmed the positive impact of job satisfaction on teacher loyalty, which is consistent with previous research emphasizing work environment, collegiality, and career prospects (Tallam et al., 2019). H2 and H3 confirmed the impact of job-related factors on behavioral and attitudinal fidelity, emphasizing the importance of positive work environments (clear rules, colleague mutual understanding) in enhancing teachers' satisfaction and loyalty.

H4 and H5 introduce new insights through the impact of personal factors (e.g., work-life balance and personal values) on teacher loyalty. This line of research is in line with the emerging trend in the field of human resource management, which focuses on the role of individual differences and personal well-being in shaping employee attitudes and behaviors. It has been shown that a good work-life balance is essential for employee satisfaction and loyalty and that personal values and achievements significantly impact job satisfaction and organizational commitment (Yasin et al., 2024).

In conclusion, this study deepens our understanding of the relationship between job satisfaction and teacher loyalty in vocational colleges. Future studies can expand the sample size to include more vocational colleges in different regions and explore other potential factors that may impact this relationship, such as organizational culture and leadership style, to provide more comprehensive and in-depth insights into the development of vocational education.

References

Aziri, B. (2011). Job satisfaction: A literature review. Management Research and Practice, 3(4), 77-86. http://mrp.ase.ro/no34/f7.pdf

Azzahra, A. N., Darmawan, A., Widhiandono, H., & Rahmawati, I. Y. (2024). Organizational culture and job satisfaction towards organizational citizenship behavior (OCB): The role of loyalty as mediation. International Journal of Scientific Research and

Management (IJSRM), 12(12), 8165-8185. https://doi.org/10.18535/ijsrm/v12i12.em14

Cranny, C. J., Smith, P. C., & Stone, E. F. (1992). Job satisfaction: How people feel about their jobs and how they affect their performance. New York: Lexington Books.

Ekeh, P. P. (1974). Social exchange theory: The two traditions. Cambridge: Harvard University Press.

Grishaeva, Y. M., Gagarin, A. V., & Agraponova, N. L. (2023). Improving vocational education in the cognitive economy. Pedagogika. Voprosy Teorii I Praktiki, 8(9), 1001–1007. https://doi.org/10.30853/ped20230146

Hadj, K. (2024). The relationship between job satisfaction and employee loyalty: Case of Teaching-Researcher staff. Business Ethics and Leadership, 8(1), 15-27. https://doi.org/10.61093/bel.8(1).15-27.202

Kim, D. R. (2024). A study on the influence factors on job satisfaction of police officers: focused on Herzberg's Two-Factor theory. The Korean Society of Private Security, 23(1), 1-24. https://doi.org/10.56603/jksps.2024.23.1.1

Luo, R. (2024). The impact of teacher-student relationships on teachers' job satisfaction in a vocational college in Hubei, China. Pacific International Journal, 6(4), 71-75. https://doi.org/10.55014/pij.v6i4.478

Nagizade, P. (2024). Strategies for creating a positive supportive environment at school. Scientific Works, 91(1), 251-254. https://doi.org/10.69682/azrt.2024.91(1).251-254

Qi, L., Yee, C., Chan, B., & Fah, Y. (2024). Factors affecting employee loyalty among teachers in private vocational colleges in Guangzhou, China. Journal of Human Resource Development, 6(1), 54-62. https://doi.org/10.23977/jhrd.2024.060108

Tallam, M., Kiplangat, H. K., & Tikoko, B. (2019). Influence of the work environment on job satisfaction among public secondary school teachers in Nakuru West Sub County, Kenya. International Journal of Innovative Research and Development, 8(11), 79-84. https://doi.org/10.24940/ijird/2019/v8/i11/nov19006

Ting, S., & Yeh, L. (2013). Teacher loyalty of elementary schools in Taiwan: The contribution of gratitude and relationship quality. School Leadership and Management, 34(1), 85-101. https://doi.org/10.1080/13632434.2013.813453

Umi, A. I. (2024). Examining the impact of organizational culture on teachers' loyalty in vocational high schools. Retrieved from https://www.seejph.com/index.php/seejph/article/view/4147?utm_source=chatgpt.com. https://doi.org/10.70135/seejph.vi.4147

Yamane, T. (1973). Statistics: An introductory analysis. New York: Harper and Row. https://digilib.umsu.ac.id/index.php?p=show_detail&id=24636

Yasin, F. S., Muhaimin, A., & Suharyat, Y. (2024). peran nilai, sikap, dan kepuasan kerja dalam konteks organisasi. Nusra Jurnal Penelitian Dan Ilmu Pendidikan, 5(1), 124-131. https://doi.org/10.55681/nusra.v5i1.1866

Zhou, S., Slemp, G. R., & Vella-Brodrick, D. A. (2024). Factors associated with teacher wellbeing: A meta-analysis. Educational Psychology Review, 36(2), 63. https://doi.org/10.1007/s10648-024-09886-x

The Role of Authenticity, Storytelling, and Packaging Design in Enhancing Brand Experience and Preference in Srichand Branding: A Proposed Framework

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Abstract

This study explores these branding components in the context of Srichand, a Thai cosmetic brand known for its rich heritage and cultural significance. Through a comprehensive literature review, this study develops a conceptual framework that examines the interrelationships between brand story, perceived brand authenticity, brand package design, brand experience, and brand preference. The study provides practical implications for the cosmetics industry, particularly for heritage brands seeking to modernize while maintaining authenticity. By leveraging storytelling, authentic brand communication, and innovative packaging, brands like Srichand can create immersive experiences that enhance consumer trust and preference. While this study offers a theoretical foundation, future empirical research is recommended to validate the proposed framework and explore the impact of digital branding and sustainability on consumer preferences. The insights contribute to branding literature and provide strategic guidance for marketers looking to build stronger consumer connections and long-term brand success.

Keywords: Brand Story, Perceived Brand Authenticity, Brand Package Design, Brand Experience, Brand Preference

Introduction

The global cosmetics industry has expanded significantly over the past decade, driven by evolving consumer preferences, technological advancements, and a growing emphasis on self-care and personal grooming (Euromonitor International, 2022). In Thailand, this growth is fueled by rising disposable incomes, increased exposure to global beauty trends, and a cultural focus on skincare and beauty (Kasikorn Research Center, 2021). Thai consumers are highly discerning, seeking products that align with their expectations of quality, authenticity, and heritage. Among local brands, Srichand has established itself as a leading name by blending traditional Thai ingredients with modern

formulations to appeal to contemporary consumers. However, the brand faces intense competition from both international giants and emerging local players. Empirical studies indicate that while the Thai cosmetics industry benefits from strong government support and high domestic demand, there are notable gaps in firm strategy, structure, and rivalry, suggesting that the competitive landscape is still evolving and may lack the intensity seen in more mature markets (Jinachai & Anantachoti, 2017). To maintain its competitive edge, Srichand has strategically focused on brand storytelling, perceived authenticity, and packaging design. Effective brand storytelling reinforces the brand's heritage and deepens its emotional connection with consumers (Tiiri, 2024). Perceived authenticity, which fosters trust and loyalty, is a crucial factor in consumer decision-making (Morhart et al., 2015). Additionally, culturally resonant, and distinctive packaging design enhances brand recognition and influences purchase intention (Liu & Zhao, 2024). By integrating these elements, Srichand strengthens its brand identity and market position in the dynamic Thai cosmetics industry.

This study adopts a case study approach, focusing on Srichand, a Thai cosmetic brand with distinct heritage and cultural identity. While the conceptual framework offers valuable insights, its generalizability should be approached with caution, as Srichand's unique characteristics may not reflect those of other brands. Further research is needed to validate the framework in broader contexts.

Gap in Literature and Research Questions

Despite the rising importance of branding in the cosmetic industry, limited research has examined how brand story, perceived brand authenticity, and package design jointly influence brand experience and brand preference, especially in the context of Thai cosmetic brands like Srichand. While prior studies have explored these elements individually, their combined effects and interrelationships remain underexplored particularly in local heritage-driven brands that use cultural storytelling to build trust. This study addresses these gaps by investigating how these branding components shape consumer perceptions and preferences in Thailand's cosmetic market.

RQ1: How does brand story affect perceived authenticity, brand experience, and brand preference for Srichand cosmetics?

RQ2: What is the impact of perceived brand authenticity on brand experience and preference?

RQ3: How does package design influence perceived authenticity, brand experience, and brand preference?

RQ4: Does brand experience mediate the relationships between brand story, authenticity, package design, and brand preference?

Objectives

1. Synthesize existing research on the individual and combined effects of brand storytelling, perceived authenticity, and package design on consumer perceptions.
2. Propose a conceptual framework linking these branding elements to brand experience and preference.
3. Formulate hypotheses based on insights from previous studies to guide future empirical research.

Concept Theory

1. Brand Story

Brand storytelling strengthens consumer connections by combining rational and emotional appeals to convey a brand's origins, mission, and values. It fosters relatability through archetypes, creating deep emotional bonds (Moin, 2024). Engaging narratives capture attention, enhance memory retention, and build loyalty by aligning with individual experiences (Ahmed et al., 2024). A well-structured story with clear settings, characters, and conflicts simplifies brand messaging and reinforces long-term commitment (Huang & Guo, 2021).

Brand storytelling influences consumer preferences by evoking emotional responses through underdog and top dog narratives. It strengthens self-brand connections via transmedia storytelling (Granitz & Forman, 2015) and enhances recall and decision-making through narrative frameworks (Ben et al., 2019). Story-driven word-of-mouth is more impactful than factual lists, shaping lasting impressions and purchase decisions (Mucundorfeanu, 2018).

Brand storytelling shapes consumer perceptions by fulfilling psychological needs like self-identity and belonging (Tiiri, 2024). It offers symbolic benefits such as security and nostalgia, strengthening brand connections. Experiential benefits outweigh functional ones in building consumer-brand relationships (Ben et al., 2019). Narratives enhance memory retention and emotional engagement (Richardson et al., 2018), with emotional assessments driving brand experiences.

Brand storytelling shapes consumer perceptions of authenticity by offering meaningful narratives that emphasize self-transcendence, nostalgia, heritage, and cultural relevance, enhancing emotional connections and brand credibility (Fitri et al., 2023). Elements like humor, personal narratives from celebrities, and alignment with brand identity further strengthen authenticity, while inauthentic stories can erode trust (Eng, 2020). Based on the studies mentioned, the hypothesis of the research is as follows:

H1: Brand stories positively influence brand preference.

H2: Brand stories positively influence brand experience.

H3: Brand story positively influences perceived brand authenticity.

2. Perceived Brand Authenticity

Perceived Brand Authenticity (PBA) is crucial in shaping consumer-brand relationships, as it reflects a brand's perceived genuineness and truthfulness. It is not solely about factual accuracy but rather alignment with consumer expectations of authenticity (Nunes et al., 2021). PBA strengthens trust and emotional connections by resonating with consumers' self-concept (Morhart et al., 2015). It is viewed through constructivism (trust and expectations), objectivism (tangible qualities), and existentialism (deep personal connection) (Morhart et al., 2015). Key drivers include heritage, culture, sincerity, ethical actions, and moral values (Hamby et al., 2019).

Perceived brand authenticity builds trust and emotional connections, shaping consumer engagement (Rosado-Pinto et al., 2021). It depends on a brand's believability and alignment with consumer values. Genuine brand experiences enhance credibility, while misaligned narratives weaken trust (Huang & Guo, 2021). Historical continuity, cultural heritage, and craftsmanship reinforce authenticity, especially in luxury branding (Morhart & Malär, 2020). Thus, the research proposes:

H4: Perceived brand authenticity positively influences brand experience.

3. Brand Package Design

Brand package design shapes consumer perception through color, typography, and graphics, positioning and differentiating brands (Hussain, 2015). It enhances user experience, influences purchase decisions, and fosters brand recognition (Wang et al., 2024). Serving both functional and symbolic roles, packaging strengthens brand identity, engagement, and loyalty (Krishna et al., 2017).

Brand package design enhances consumer experiences through sensory, cognitive, and emotional engagement (Waheed et al., 2018). Visual elements influence trust and purchase intentions, while packaging strengthens brand identity and loyalty in the cosmetics industry. It also improves recognition and recall, reinforcing emotional connections and trust (Ghorbani & Westermann, 2025).

Brand package design influences consumer perception by attracting attention and conveying trust and identity. Size and shape impact appeal, with larger packaging seen as better value, while misleading designs deter purchases (Zhang, 2014). Visual imagery, processed faster than text, shapes brand beliefs and low-involvement decisions. Realistic images reinforce preference, strengthening brand identity and consumer trust (Zhang, 2014).

Packaging shapes consumer perceptions, reinforces authenticity, and builds trust, especially in low-involvement goods (Wang et al., 2024). Neo-retro designs evoke nostalgia, while biomorphic designs enhance sustainability perceptions (Vinitha et al., 2021). In the food industry, Front of Package (FOP) labeling boosts trust and quality perception (Moazzam et al., 2024). Digital branding, such as NFTs, faces authenticity challenges, with consumers valuing physical products more, especially in luxury brands (Kim et al., 2024). Taken together, these findings support the hypotheses that:

H6: Brand package design positively influences brand preference.

H5: Brand package design positively influences brand experience.

H7: Brand package design positively influences perceived brand authenticity.

4. Brand Experience

Brand experience shapes consumer perceptions through direct interactions, reinforcing promises and emotional connections (Kumar & Kaushik 2020). Engagement influences trust, satisfaction, and loyalty (Granitz, & Forman, 2015). Schmitt's (1999) five experiential dimensions sensory, emotional, intellectual, behavioral, and relational guide consumer reactions (Brakus et al., 2015). Beyond functional benefits, memorable experiences strengthen trust, preference, and loyalty (Zha et al., 2020).

Brand experience influences consumer perceptions by reinforcing promises and building emotional ties through direct product interactions (Kumar & Kaushik 2020). This engagement enhances trust, satisfaction, and loyalty (Granitz & Forman, 2015). Schmitt's (1999) dimensions sensory, emotional, intellectual, behavioral, and relational show how these experiences create lasting memories that transcend functional benefits (Zha et al., 2020).

Brand stories drive consumer preference by creating emotional connections and engagement (Dessart & Pitardi, 2019). Narratives evoke sensory, emotional, and cognitive responses that shape perceptions and loyalty (Brakus et al., 2015). Nostalgic stories boost authenticity and word-of-mouth. Psychological factors influence how stories resonate, with promotion-focused consumers favoring atypical stories and affective consumers preferring underdog narratives (Kao & Wu, 2019).

Perceived brand authenticity enhances trust, emotional bonds, and loyalty, shaping preference and purchase intent. Glocalization helps global brands stay relevant, while localness strengthens trust and sales (Hoskins & Griffin, 2021). In luxury markets, authenticity drives young adults' loyalty (Ligaraba et al., 2024). Genuine brand experiences mediate the link between authenticity and preference.

Brand package design shapes consumer perceptions and preferences (Liu & Zhao, 2024). Aesthetic elements like shape and graphics influence appeal and willingness to pay, sometimes surpassing brand name impact. Rounded edges enhance emotional

engagement, with men favoring X-axis curves (Michalski, 2024). Curved shapes evoke warmth (Zhang, 2014), while eye-tracking studies highlight contour and contrast in capturing attention. Therefore, based on the above literature review, the following hypotheses are proposed:

H8: Brand experience positively influences brand preference.

H9: Brand experience mediates the relationship between brand story and brand preference.

H10: Brand experience mediates the relationship between perceived brand authenticity and brand preference.

H11: Brand experience mediates the relationship between brand package design and brand preference.

5. Brand Preference

Brand preference reflects how consumers prioritize brands based on perception, self-expression, and personal values (Byun et al., 2018). A strong brand builds equity and boosts repeat purchases (Chauhan, 2023), with consumer experiences, information search, and brand awareness enhancing recall and differentiation. Shaped by cognitive, affective, and behavioral factors (Ebrahi et al., 2016), brand preference drives purchase behavior and guides strategic marketing for stronger loyalty, engagement, and market positioning (Islami et al., 2024).

6. Symbolic Interactionism

This study is also grounded in Symbolic Interactionism, a social psychological theory that explains how people derive meaning from symbols through social interactions. Applied to branding, this theory suggests that consumers do not simply evaluate products based on their functional attributes but assign deeper symbolic meanings to them through cultural and interpersonal contexts (Solomon, 1983). In the case of Srichand, a heritage cosmetic brand, elements such as brand storytelling and package design function as symbolic cues that consumers interpret based on personal and social experiences. For instance, traditional motifs in packaging or culturally resonant narratives may trigger associations of trust, nostalgia, or self-expression. These symbolic meanings, formed and reinforced through social discourse and cultural identity, contribute to consumers' overall perception of authenticity and preference for the brand. Symbolic Interactionism thus provides a valuable lens for understanding how brand elements acquire emotional and cultural significance that shapes consumer-brand relationships.

Materials and Methods

This study uses a literature review methodology to examine the relationships between brand story, perceived brand authenticity, brand package design, brand experience, and brand preference. By synthesizing theoretical and empirical research in

branding and consumer behavior, it proposes a conceptual framework and related hypotheses.

To inform H1–H3, studies on brand storytelling were reviewed, showing its impact on emotional engagement, brand connection, and authenticity (Moin, 2024; Ahmed et al., 2024; Fitri et al., 2023). H4 draws on literature emphasizing the role of authenticity in building trust and emotional bonds (Morhart et al., 2015; Huang & Guo, 2021).

H5–H7 are supported by research on how design elements like color and shape influence perception, authenticity, and experience (Waheed et al., 2018; Zhang, 2014; Vinitha et al., 2021). H8–H11 are guided by studies on brand experience and its mediating role in shaping preference (Ghorbani & Westermann, (2025); Granitz & Forman, 2015).

Finally, H12 is based on literature examining how brand preference forms through emotional value, loyalty, and identity (Byun et al., 2018; Islami et al., 2024), reinforcing its role as the model's outcome variable.

Given the conceptual nature of this study, the primary source of evidence is drawn from a systematic literature review (Carrera-Rivera et al., 2022). This method ensures a structured and comprehensive approach to identifying, analyzing, and synthesizing existing research related to brand story, perceived brand authenticity, brand package design, brand experience, and brand preference. By using clearly defined inclusion criteria and focusing on peer-reviewed academic articles, books, and conference proceedings, the study minimizes bias and enhances the reliability of its theoretical framework. The systematic review approach not only provides a durable foundation for hypothesis development but also identifies gaps in the existing literature, guiding future empirical research.

Results

This study synthesizes existing literature to develop a conceptual framework examining the relationships between brand story, perceived brand authenticity, brand package design, brand experience, and brand preference. The hypotheses were selected based on well-established branding research showing how emotional storytelling,

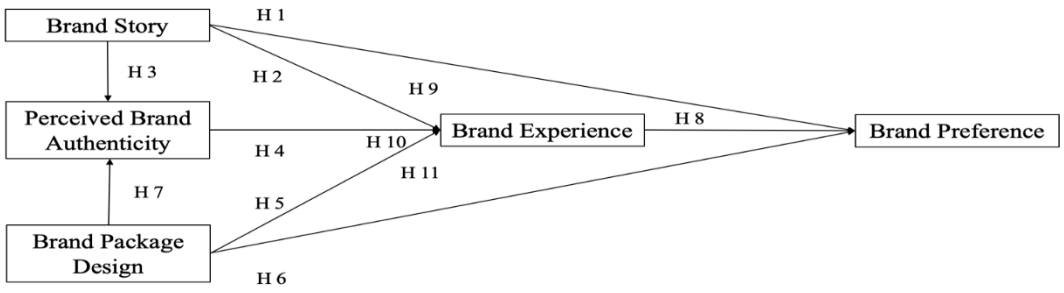


Figure 1: Research Framework

authentic brand signals, and impactful design shape consumer perceptions and behavior. These elements collectively reflect how consumers engage with brands on both emotional and experiential levels. The findings offer theoretical insights into the interplay of these factors, highlighting that brand preference emerges from a combination of narrative, authenticity, and sensory experiences. This integrated framework provides a clearer understanding of consumer-brand relationships and offers strategic direction for building stronger, more meaningful brand connections.

Through an analysis of prior studies, the research supports the following hypotheses:

H1: Brand stories positively influence brand preference.

H2: Brand stories positively influence brand experience.

H3: Brand story positively influences perceived brand authenticity.

H4: Perceived brand authenticity positively influences brand experience.

H5: Brand package design positively influences brand experience.

H6: Brand package design positively influences brand preference.

H7: Brand package design positively influences perceived brand authenticity.

H8: Brand experience positively influences brand preference.

H9: Brand experience mediates the relationship between brand story and brand preference.

H10: Brand experience mediates the relationship between perceived brand authenticity and brand preference.

H11: Brand experience mediates the relationship between brand package design and brand preference.

Conclusions and Discussion

This study proposes a conceptual framework to understand how brand preference the dependent variable is shaped by key branding elements. It identifies brand story, perceived authenticity, and package design as independent variables that influence consumer preference. These elements contribute to emotional engagement, trust, and visual appeal. Brand experience serves as a mediating variable, explaining how consumers internalize these brand cues through emotional, sensory, and behavioral responses. By synthesizing existing literature, the study highlights the role of experiential branding and emotional connections in shaping brand preference. Although conceptual, the study encourages future empirical research to assess the framework across unfamiliar cultures and product categories. It also recommends exploring digital branding and influencing marketing to better understand evolving consumer behavior in the cosmetics industry.

Recommendations

This study recommends future empirical research to validate the proposed conceptual framework and further examine the relationships between brand story, perceived brand authenticity, brand package design, brand experience, and brand preference. It would be valuable to explore how these relationships hold across different product categories and cultural contexts, especially in markets where heritage and digital transformation intersect. Moreover, future studies should investigate the impact of digital branding and sustainability on consumer preferences, as these factors are increasingly shaping modern brand perceptions and purchase decisions. Understanding how digital touch points and eco-conscious practices influence authenticity and preference will help refine branding strategies in both traditional and emerging sectors. The insights from this study contribute meaningfully to the branding literature and provide strategic guidance for marketers aiming to build stronger consumer connections and foster long-term brand success. By aligning brand storytelling, authenticity signals, and innovative packaging with evolving consumer values, brands can create more immersive and trustworthy experiences that drive loyalty and preference.

References

Ahmed, S., Sharif, T., Ting, D. H., & Sharif, S. J. (2024). Crafting emotional engagement and immersive experiences: Comprehensive scale development for and validation of hospitality marketing storytelling involvement. Psychology & Marketing, 41(7), 1514-1529.

Ben Youssef, K., Leicht, T., & Marongiu, L. (2019). Storytelling in the context of destination marketing: An analysis of conceptualizations and impact measurement. Journal of Strategic Marketing, 27(8), 696-713.

Brakus, J. J., Schmitt, B., & Zarantonello, L. (2015). Brand Experience. Cracking the Code: Leveraging Consumer Psychology to Drive Profitability: Leveraging Consumer Psychology to Drive Profitability, 159.

Byun, K. A. K., Jones, R. P., & Wooldridge, B. R. (2018). It is not always about brand: Design-driven consumers and their self-expression. Journal of Retailing and Consumer Services, 43, 296-303.

Carrera-Rivera, A., Ochoa, W., Larrinaga, F., & Lasa, G. (2022). How-to conduct a systematic literature review: A quick guide for computer science research. MethodsX, 9, 101895.

Chauhan, J. S. (2023). Brand Loyalty and Its Impact on Repeat Purchase Behaviour of Customers: A Cross-Sectional Study in the FMCG Context. Psychology and Education, 55(1), 684-692.

Dessart, L., & Pitardi, V. (2019). How stories generate consumer engagement: An exploratory study. Journal of business research, 104, 183-195.

Ebrahim, R., Ghoneim, A., Irani, Z., & Fan, Y. (2016). A brand preference and repurchase intention model: the role of consumer experience. Journal of Marketing management, 32(13-14), 1230-1259.

Eng, B., & Cheryl, B. J. (2020). Consumers and their celebrity brands: How personal narratives set the stage for attachment. The Journal of Product and Brand Management, 29(6), 831-847.

Euromonitor International. (2022). Global beauty and personal care trends. Euromonitor International.

Fitri, A., Izzah, A. M., Muffidah, C. R., Nabilah, Z. L., & Sjabadhyni, B. (2023). Manipulating consumer's behavior through product packaging: Role of short brand story. Review of Integrative Business and Economics Research, 12(4), 220-237.

Ghorbani, M., & Westermann, A. (2025). Exploring the role of packaging in the formation of brand images: a mixed methods investigation of consumer perspectives. Journal of Product & Brand Management, 34(2), 186-202.

Granitz, N., & Forman, H. (2015). Building self-brand connections: Exploring brand stories through a transmedia perspective. Journal of brand management, 22, 38-59.

Hamby, A., Brinberg, D., & Daniloski, K. (2019). It's about our values: How founder's stories influence brand authenticity. Psychology & Marketing, 36(11), 1014-1026.

Hoskins, J., J, C. V., & Griffin, A. (2021). How within-country consumer product (or brand) localness and supporting marketing tactics influence sales performance. European Journal of Marketing, 55(2), 565-592.

Huang, C., & Guo, R. (2021). The effect of a green brand story on perceived brand authenticity and brand trust: the role of narrative rhetoric. Journal of Brand Management, 28, 60-76.

Hussain, S., Ali, S., Ibrahim, M., Noreen, A., & Ahmad, S. F. (2015). Impact of product packaging on consumer perception and purchase intention. Journal of Marketing and Consumer Research, 10(1), 1-10.

Islami, M. M., Rahyuni, S., & Rukayyah, A. (2024). Strategic Branding: Building Market Positioning and Business Growth through Integrated Management Practices. Advances in Business & Industrial Marketing Research, 2(2), 110-122.

Jinachai, N., & Anantachoti, P. (2017). Exploring competitiveness of Thailand's cosmetic industry using Porter's diamond model. Thai Journal of Pharmaceutical Sciences, 40(4), 172–178.

Kao, D. T., & Wu, P. (2019). The impact of affective orientation on bank preference as moderated by cognitive load and brand story style. [Affective orientation on

bank preference] The International Journal of Bank Marketing, 37(5), 1334-1349.

Kasikorn Research Center. (2021). Thailand's cosmetics industry outlook. Kasikorn Research Center.

Kim, S. E., Jung, E. L., & Song-yi, Y. (2024). Effects of promotional bundles with non-fungible token (NFT) fashion on consumers' perceptions. Journal of Theoretical and Applied Electronic Commerce Research, 19(4), 3331.

Krishna, A., Cian, L., & Aydınoğlu, N. Z. (2017). Sensory aspects of package design. Journal of Retailing, 93(1), 43-54.

Kumar, V., & Kaushik, A. K. (2020). Building consumer–brand relationships through brand experience and brand identification. Journal of Strategic Marketing, 28(1), 39-59.

Li, L., Ming, H., Yang, R., & Luo, X. (2020). The impact of policy factors and users' awareness on electricity-saving behaviors: From the perspective of habits and investment. Sustainability, 12(12), 4815.

Ligaraba, N., Cheng, J., Ndungwane, N. F., & Nyagadza, B. (2024). Brand authenticity influences young adults' luxury sneakers brand preference: The mediating role of brand image. Future Business Journal, 10(1), 33.

Liu, L., & Zhao, H. (2024). Research on consumers' purchase intention of cultural and creative products—Metaphor design based on traditional cultural symbols. Plos one, 19(5), e0301678.

Michalski, R. (2024). The influence of product digital visual presentation on purchase willingness: Effects of roundedness axes and degree. Multimedia Tools and Applications, 83(1), 2173-2202.

Moazzam, M., Javed, H., Raziq, M. M., Waseem, M. A., & Khalid, M. K. (2024). How front-of-package labels, perceived food quality, brand loyalty, and consumer consciousness of nutritional value drive consumer satisfaction. Pakistan Journal of Commerce and Social Sciences, 18(3), 619-650.

Moin, S. M. A. (2024). Storytelling in marketing and brand communications. Taylor & Francis.

Morhart, F., & Malär, L. (2020). Authenticity in luxury branding. In Research handbook on luxury branding (pp. 190-207). Edward Elgar Publishing.

Morhart, F., Malär, L., Guèvremont, A., Girardin, F., & Grohmann, B. (2015). Brand authenticity: An integrative framework and measurement scale. Journal of Consumer Psychology, 25(2), 200-218.

Mucundorfeanu, M. (2018). The key role of storytelling is in the branding process. Journal of Media Research-Revista de Studii Media, 11(30), 42-54.

Nunes, J. C., Ordanini, A., & Giambastiani, G. (2021). The concept of authenticity: What it means to consumers. Journal of Marketing, 85(4), 1-20.

Oh, H., Prado, P. H. M., Korelo, J. C., & Frizzo, F. (2019). The effect of brand authenticity on consumer–brand relationships. Journal of Product & Brand Management, 28(2), 231-241.

Richardson, D. C., Griffin, N. K., Zaki, L., Stephenson, A., Yan, J., Curry, T., ... & Devlin, J. T. (2018). Measuring narrative engagement: The heart tells the story. BioRxiv, 351148.

Rosado-Pinto, F., Loureiro, S. M. C., & Bilro, R. G. (2020). How brand authenticity and consumer brand engagement can be expressed in reviews: a text mining approach. Journal of Promotion Management, 26(4), 457-480.

Solomon, M. R. (1983). The role of products as social stimuli: A symbolic interactionist perspective. Journal of Consumer Research, 10(3), 319–329. https://doi.org/10.1086/208971

Tiiri, E. (2024). Emotional Marketing through Storytelling: Building Brand Loyalty Across the Customer Journey.

Vinitha, V. U., Kumar, D. S., & Keyoor, P. (2021). Biomorphic visual identity of a brand and its effects: A holistic perspective. Journal of Brand Management, 28(3), 272-290.

Waheed, S., Khan, M. M., & Ahmad, N. (2018). Product packaging and consumer purchase intentions. Market Forces, 13(2).

Wang, F., Wang, Y., Han, Y., & Cho, J. H. (2024). Optimizing brand loyalty through user-centric product package design: A study of user experience in the dairy industry. Heliyon, 10(3).

Zha, D., Melewar, T. C., Foroudi, P., & Jin, Z. (2020). An assessment of brand experience knowledge literature: Using bibliometric data to identify future research direction. International Journal of Management Reviews, 22(3), 287-317.

Zhang, D. (2014). A cross-cultural exploration of children's preferences of package design: The US and China. Journal of International Consumer Marketing, 26(5), 391-404.

Exploring the Impact of Mass Communication, Brand Perception, Materialistic Values, and Brand Value on Purchase Intention in the Thai Skincare Market: A Proposed Framework

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Abstract

Thailand's skincare market is rapidly growing, driven by cultural emphasis on clear, youthful skin and influenced by Korean beauty trends. The market offers diverse products, from herbal remedies to global brands, boosted by e-commerce expansion. This paper explores how mass communication and materialistic values shape brand perception, brand value, and purchase intention. While previous research has explored these factors separately, there remains a need for a comprehensive framework that examines their interrelationships within the skincare market. This study addresses this gap by developing a conceptual framework that highlights the mediating role of brand value in the relationships between mass communication, materialistic values, and purchase intention in the skincare industry. This study contributes to marketing literature by integrating multiple theoretical perspectives and presenting a structured set of hypotheses for future empirical validation.

Keywords: Conceptual Framework, Skincare, Purchase Intention Model, Thailand

Introduction

Skincare is essential for personal care, focusing on skin health and appearance. Global advancements in dermatology, rising consumer awareness, and beauty trends have driven market growth, with personalized regimens becoming more common (Kim et al., 2020). In Thailand, the booming skincare industry reflects a cultural focus on clear, youthful skin. The market features both traditional herbal remedies and high-end international brands, with Korean beauty trends and e-commerce further boosting product accessibility and variety.

In addition to these market dynamics, brand value plays a leading role in influencing consumer decisions. Emotional connections, perceived quality, and symbolic meaning associated with skincare brands significantly shape consumer engagement and purchase intention. Including brand value in the study provides a more comprehensive

understanding of how marketing strategies impact consumer behavior in the Thai skincare industry.

In Thailand, skincare represents a rapidly growing industry, reflecting cultural emphasis on beauty and grooming. Thai consumers, particularly women, prioritize clear, radiant, and youthful skin, aligning with societal perceptions of beauty and well-being. The Thai skincare market is diverse, encompassing traditional herbal remedies and high-end international brands. The rising popularity of Korean beauty trends and the expansion of e-commerce platforms have further enhanced product accessibility and variety, contributing to the market's sustained growth.

Despite extensive research on purchase intention, gaps remain in skincare-specific insights particularly around emotional brand value and cultural influences on brand perception. Filling these gaps can help brands better align with evolving consumer expectations and media dynamics.

To address these gaps, the study proposes the following research questions:

RQ1. How does mass communication influence brand value brand perception, materialistic values, and purchase intention in the skincare industry?

RQ2. What role does brand value play in mediating the relationship between mass communication, brand perception, materialistic values, and purchase intention?

RQ3. How do materialistic values and brand perception shape consumer behavior in the context of skincare products?

Objectives

1. Develop a conceptual framework that examines the relationships among mass communication, brand perception, materialistic values, brand value, and purchase intention.
2. Formulate hypotheses based on a comprehensive literature review to explain how these factors influence purchase intention.
3. Contribute to the academic discourse on purchase intention by synthesizing key concepts and proposing a structured framework.

Concept theory framework

1. The Stimulus-Organism-Response (S-O-R) Theory

The Stimulus-Organism-Response (S-O-R) theory (Mehrabian & Russell, 1974) explains how external stimuli influences internal states and leads to behavioral outcomes. In skincare, mass communication, brand perception, and materialistic values function as stimuli shaping brand value an internal evaluation based on perceived quality, emotional connection, and symbolic meaning. Advertising and influencer

content enhances brand perception, while materialism increases the appeal of premium products. A strong brand value builds trust and loyalty, driving purchase intention. The S-O-R model offers a valuable framework for understanding how strategic communication shapes consumer behavior in the skincare market.

2. Mass Communication

Mass communication advertising builds brands using the "Big Idea" to engage audiences, with television offering broad reach and audiovisual impact. Public relations enhance credibility through stakeholder engagement (Schultz & Barnes, 1999). Digital platforms enable targeted messaging, while social media boosts engagement but faces negative feedback challenges (Kohli et al., 2015). Combining traditional and digital media optimizes brand perception.

Mass communication, particularly through television and social media, plays a significant role in fostering materialistic values. Television advertising often idealizes consumer lifestyles, encouraging individuals especially adolescents and children to associate happiness and success with the ownership of branded goods (Richins, 1993; Popovic Sevic et al., 2022). Social media further amplifies this effect by promoting constant social comparison and delivering targeted advertising that reinforces consumerist ideals. These platforms normalize material aspirations across diverse cultural contexts, contributing to the widespread internalization of materialistic values (Kim, 2022).

Mass communication shapes brand perception by fostering strong associations and awareness (He, 2022). It differentiates branded products, enhancing brand equity (Aaker, 1991). Social media expands brand reach and engagement, with platforms like Facebook enabling direct consumer interaction (Almestarihi et al., 2021). Celebrity endorsements and aspirational messaging reinforce brand associations, while repeated exposure builds trust and lasting impressions (Almestarihi et al., 2021).

Mass communication significantly influences consumer purchase intention by shaping brand perception and emotional connection (Martin & Bush, 2000). Persuasive messaging through media enhances brand familiarity and relevance, especially among youth. Kwon (2012) found that online mass communication creates favorable brand attitudes and boosts product value. It motivates purchase decisions when aligned with consumers' needs. Chen et al. (2021) further highlights that social media and influencer content directly impact purchase intention. Overall, mass communication serves as a powerful driver in encouraging consumer action.

Mass communication shapes brand value by influencing consumer perceptions and engagement. Television fosters affluent perceptions and reinforces brand value through normative behaviors (Kim, 2022). Social media amplifies this, enhancing loyalty

and willingness to pay a premium. Cultural branding, combining traditional and digital strategies, strengthens relevance in changing markets (Luo & Chen, 2024). Localized television news impacts brand equity, highlighting audience preferences in brand trust (Bakshi & Mishra, 2017). Thus, the following hypotheses are proposed:

H1: Mass communication positively influences materialistic values.

H2: Mass communication positively influences brand perception.

H3: Mass communication positively influences purchase intention.

H4: Mass communication positively influences brand value.

3. Brand Perception

Brand perception is shaped by individual experiences, emotions, and trust, influencing consumer behavior and preferences (Bao et al., 2011). Emotional connections and customer satisfaction drive engagement and loyalty (Lin & Lee, 2012). Marketing, digital engagement, and social media interactions also impact perception, enhancing trust but potentially harming it through negative experiences (Li & Nan, 2023). Brand perception is crucial for long-term success.

Brand perception shapes brand value through factors like quality, price, and emotional appeal (Steffl et al., 2024). In B2B, value co-creation strengthens brand performance, while country of origin and cultural nuances affect consumer perceptions (Hien et al., 2019). In luxury brands, evaluations of financial, functional, and social factors drive brand value (Hennigs et al., 2013). Social media deepens emotional connections, reinforcing brand value through engagement and storytelling. Positive brand perception enhances equity, loyalty, and market position. Thus, the following hypothesis is proposed:

H5: Brand perception positively influences brand value.

4. Materialistic Values

Materialism emphasizes possessions as central to well-being and success, influenced by internal desires and external factors like culture, peers, and media (Pupelis & Šeinauskiene, 2022). It involves acquisition centrality, happiness tied to possessions, and success linked to materialism (Richins, 1993). Materialism aligns with extrinsic goals (e.g., wealth, image) and self-enhancement motivations, while differing from intrinsic values (Schwartz, 1992). Socialization agents, like family and advertising, reinforce materialistic tendencies, which can have negative social effects (Tantawi, 2024).

Materialism drives individuals to use possessions for identity and social status, influencing their brand perceptions (Tantawi, 2024). Youth link branded goods to happiness and status but associate materialism with negative traits like arrogance. Cultural context, such as Turkish perceptions of Chinese brands, also affects this relationship. Materialism shapes consumer identity, particularly in fashion marketing

(Tuominen, 2023), and is reinforced early through peer influence and advertising, guiding brand perception.

Materialistic consumers seek brand prestige and social recognition, especially in luxury markets (Cleveland et al., 2015). In Thailand, materialism drives brand engagement, while value-conscious consumers prioritize quality. Materialism influences ethical consumption, with counterfeit purchases harming brand value. Cultural differences shape these behaviors, as Eastern consumers prioritize social recognition, while Western ones emphasize individuality (Ho et al., 2012; Srisomthavil & Assarut, 2018).

Materialistic values influence consumer behavior through media exposure and celebrity endorsements (Pupelis & Šeinauskiene, 2022), with admiration for celebrities shaping purchase intentions (Green et al., 2014). In markets like China, social pressure drives brand choices (Shi et al., 2016). Materialism impacts sustainability, as success-driven individuals buy green apparel, while face consciousness fuels counterfeit luxury purchases (Jiang et al., 2023). Traits like possessiveness and envy further shape purchasing attitudes (Richins, 1993). The following hypotheses are proposed:

H6: Materialistic values positively influence brand perception.

H7: Materialistic values positively influence brand value.

H8: Materialistic values positively influence purchase intention.

5. Brand Value

Brand value is the perceived worth of a brand that drives loyalty and profitability (Romdonny & Rosmadi, 2019). It arises from functional benefits like quality and differentiation as well as both practical and emotional (utilitarian and hedonic) advantages (Shi et al., 2021). Brand elements such as logos, colors, and slogans further enhance identity and engagement, supporting premium pricing and competitive differentiation (Aaker, 1991; He, 2022).

Brand value influences purchase intention by shaping consumer perceptions and engagement. Higher perceived value boosts intent in online and offline settings, especially in luxury markets, where quality, authenticity, and prestige drive purchases (Ko et al., 2019). Functional, experiential, and symbolic benefits enhance loyalty and willingness to pay premium prices, with quality, advertising, and endorsements playing key roles (Younus et al., 2015).

Brand value connects mass communication, brand perception, and materialism to purchase intention. Angelic brand names and religious priming strengthen psychological ties that drive purchases (Ilicic & Brennan, 2023). Social media marketing enhances brand awareness, image, and quality, influencing intent. In film, brand value

mediates eWOM and marketing strategies, converting efforts into consumer action (Jaya et al., 2024).

Brand value mediates the relationship between brand perception and purchase intention, converting positive perceptions into consumer actions. Brand love and emotional polarity in online reviews enhance brand value, which drives purchase decisions (Li & Nan, 2023). In luxury markets, functional, experiential, and symbolic brand perception strengthens brand value, leading to higher willingness to pay, brand loyalty, and recommendations (Ko et al., 2019). Social media engagement and perceived prestige further elevate brand perception, reinforcing brand value and influencing purchasing behavior (Nuzula & Wahyudi, 2022).

Materialistic values drive purchase intention, with brand value as a key mediator. Acquisition centrality and social recognition boost engagement with luxury brands, enhancing purchase intent (Srisomthavil & Assarut, 2018). Consumers value luxury brands for utilitarian, hedonic, and symbolic benefits, increasing willingness to buy (Ho et al., 2012). Brand prestige and perceived value link materialism to purchasing behavior (Nuzula & Wahyudi, 2022), while ethical consumption is influenced by brand quality. The following hypotheses are proposed:

H 9: Brand value positively influences purchase intention.

H 10: Brand value mediates the relationship between mass communication and purchase intention.

H 11: Brand value mediates the relationship between brand perception and purchase intention.

H 12: Brand value mediates the relationship between materialistic values and purchase intention.

6. Purchase Intention

Purchase intention reflects the likelihood of a consumer buying a product and is influenced by attitudes, subjective norms, and perceived control. Brand image, loyalty, and equity strongly affect purchase intention (He, 2022), as do online reviews, website quality, and emotional connections like brand love (Chen et al., 2021). Situational factors, such as product availability and financial constraints, also play a role. Understanding these factors helps marketers drive consumer commitment and engagement.

Materials and Methods

This study employs a conceptual approach using an extensive literature review to develop a theoretical framework and hypotheses. It synthesizes secondary data to examine the links among mass communication, brand perception, materialistic values,

brand value, and purchase intention. The resulting conceptual framework lays the groundwork for future empirical validation in branding and consumer behavior. The resulting conceptual framework not only identifies key variables and their proposed interactions but also serves as a foundation for future empirical research aimed at testing and validating these relationships in real-world contexts.

Results

The study presents a conceptual framework and hypotheses outlining the relationships among mass communication, brand perception, materialistic values, brand value, and purchase intention. Through a literature review, it identifies key theoretical linkages and proposes a framework illustrating their impact on consumer decision-making.

However, the framework could be further strengthened by explicitly linking each relationship and hypothesis to specific supporting theories, such as the Stimulus-Organism-Response (S-O-R) model for media influence, or brand equity theory for understanding the role of brand value. Doing so would provide a more solid theoretical foundation and enhance the academic rigor of the framework.

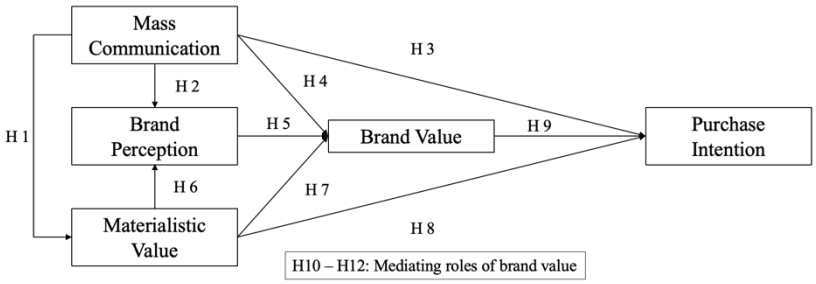


Figure 1: Research Framework

H1: Mass communication positively influences materialistic values.
H2: Mass communication positively influences brand perception.
H3: Mass communication positively influences purchase intention.
H4: Mass communication positively influences brand value.
H5: Brand perception positively influences brand value.
H6: Materialistic values positively influence brand perception.
H7: Materialistic values positively influence brand value.
H8: Materialistic values positively influence purchase intention.
H9: Brand value positively influences purchase intention.

H10: Brand value mediates the relationship between mass communication and purchase intention.

H11: Brand value mediates the relationship between brand perception and purchase intention.

H12: Brand value mediates the relationship between materialistic values and purchase intention.

Conclusions and Discussion

This study develops a conceptual framework that explores the relationships among mass communication, materialistic values, brand perception, brand value, and purchase intention in skincare market. By synthesizing existing literature, it highlights the mediating role of brand value in shaping consumer decision-making and brand engagement. The proposed hypotheses provide a structured understanding of how mass communication influences brand perception, how materialistic values drive consumer-brand interactions, and how brand value translates these influences into purchase intentions.

The study contributes to both academic research and marketing practice by bridging consumer psychology, brand equity, and mass communication theories into a holistic framework. Previous research that examines these variables in isolation, this framework offers an integrated perspective, emphasizing how brands can leverage mass communication, social influence, and materialistic tendencies to enhance brand positioning and consumer loyalty.

Importantly, the study suggests that materialistic values can be strategically incorporated into marketing by positioning skincare products as symbols of personal success, self-care, and social status. Brands may tailor messaging to resonate with consumers' aspirations for prestige and lifestyle enhancement, using premium branding, influencer endorsements, and exclusive packaging to appeal to material-driven segments.

Recommendations

Future research should empirically assess the proposed conceptual framework to validate the hypothesized relationships in real market contexts. Longitudinal or cross-cultural studies could help explore how materialistic values and media influence vary across consumer groups and regions. Practitioners are encouraged to use insights from this framework to design targeted marketing campaigns that align with consumers' emotional and symbolic brand preferences. Additionally, marketers should continuously

adapt their communication strategies to digital trends, ensuring their messaging remains relevant and resonates with evolving consumer values and behaviors.

References

Aaker, D. A. (1991). Managing brand equity: Capitalizing on the value of a brand name. Free Press.

Almestarihi, R., Al-Gasawneh, J., Al-Jabali, S., Gharaibeh, M., Enaizan, O., & Nusairat, N. M. (2021). The impact of social media marketing on brand equity: A systematic review. Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12(6), 4073-4088.

Bakshi, M., & Mishra, P. (2017). Drivers of brand equity of television news channels: Evidence from emerging market. Marketing Intelligence & Planning, 35(1), 147-162.

Bao, Y., Bao, Y., & Sheng, S. (2011). Motivating purchase of private brands: Effects of store image, product signatureness, and quality variation. Journal of Business Research, 64(2), 220–226.

Chen, Y., Wang, Q., & Xie, J. (2021). The role of online reviews in shaping purchase intention in e-commerce. Journal of Consumer Research, 47(3), 482-500.

Cleveland, M., Laroche, M., & Takahashi, I. (2015). The intersection of global consumer culture and national identity and the effect on Japanese consumer behavior. Journal of International Consumer Marketing, 27(5), 364-387.

Green, T., Griffith, J., Aruguete, M. S., Edman, J., & McCutcheon, L. E. (2014). Materialism and the tendency to worship celebrities. North American Journal of Psychology, 16(1), 33-42.

He, Z. (2022). Characterizing brand knowledge and identification as predictors of consumer-based brand equity: Mediating role of employee-based brand equity. Frontiers in Psychology, 13, 858619.

Hennigs, N., Wiedmann, K., Behrens, S., & Klarmann, C. (2013). Unleashing the power of luxury: Antecedents of luxury brand perception and effects on luxury brand strength. Journal of Brand Management, 20(8), 705-715.

Hien, N. N., Phuong, N. N., Tran, T. V., & Thang, L. D. (2019). The effect of country-of-origin image on purchase intention: The mediating role of brand image and brand evaluation. Management Science Letters, 9(8), 1205-1216.

Ho, J. C., Moon, H., Kim, H., & Yoon, N. (2012). Luxury customer value. Journal of Fashion Marketing and Management, 16(1), 81-101.

Ilicic, J., & Brennan, S. M. (2023). Angelic brand name priming: Saintly branded food influences brand healthfulness perceptions. European Journal of Marketing, 57(4), 1099-1129.

Jaya, F. A., Arief, M., & Suwitho. (2024). Decoding viewer behavior: A multi-faceted exploration of marketing mix, brand equity, e-WOM, and perceived value in Indonesia's film market. International Journal of Research in Business and Social Science, 13(1), 99-107.

Jiang, L., Annie, P. C., & Shan, J. (2023). The risk of embarrassment in buying luxury counterfeits: Do face-conscious consumers care? European Journal of Marketing, 57(8), 1996-2020.

Kim, H. J., Ko, E., & Xu, B (2020). The influence of social media on skincare product consumption. International Journal of Consumer Studies, 44(5), 525-536.

Kim, W. (2022). Television and American consumerism. Journal of Public Economics, 208, 104609.

Ko, E., Costello, J. P., & Taylor, C. R. (2019). What is a luxury brand? A new definition and review of literature. Journal of Business Research, 99, 405-413.

Kohli, C., Suri, R., & Kapoor, A. (2015). Will social media kill branding? Business Horizons, 58(1), 35-44.

Kwon, E. S. (2012). Exploring consumers' attitudes and behavior toward product placement in television shows. Syracuse University.

Li, B., & Nan, Y. (2023). Exploring the connection between brand perception and purchase intention: The role of emotional polarity and online reviews. Journal of Consumer Research, 50(3).

Lin, M., & Lee, B. C. (2012). The influence of website environment on brand loyalty. International Journal of Electronic Business Management, 10(1), 308-321.

Luo, M., & Chen, X. (2024). A study on the sustainable development strategy for cultural brands from the perspective of all media. International Journal of Business Anthropology, 14(1), 25-32.

Martin, C. A., & Bush, A. J. (2000). Do role models influence teenagers' purchase intentions and behavior? Journal of Consumer Marketing, 17(5), 441-453.

Mehrabian, A., & Russell, J. A. (1974). An approach to environmental psychology. MIT Press.

Nuzula, I. F., & Wahyudi, L. (2022). Effects of brand attitude, perceived value, and social WOM on purchase intentions in luxury product marketing. Innovative Marketing, 18(3), 1-14.

Popovic Sevic, N., Ilić, M. P., & Sevic, A. (2022). The impact of advertising messages on school children through age, branded products, and trust. Research in Pedagogy, 12(2), 417-432.

Pupelis, L., & Šeinauskiene, B. (2022). Effect of consumer self-discrepancy on materialism and impulse buying: The role of subjective well-being. Central European Management Journal, 30(4), 535-561.

Richins, M. L. (1993). Materialism and the idealized images of advertising. AMA Winter Educators' Conference Proceedings, 4, 53.

Romdonny, J., & Rosmadi, M. L. N., (2019). Factors affecting customer loyalty in products. Budapest International Research and Critics Institute Journal, 2(1), 337-343.

Schultz, D. E., & Barnes, B. E. (1999). Strategic brand communication campaigns. Lincolnwood: McGraw-Hill.

Shi, A., Huo, F., & Hou, G. (2021). Effects of design aesthetics on the perceived value of a product. Frontiers in Psychology, 12, 1-13.

Srisomthavil, N., & Assarut, N. (2018). The impact of perceived counterfeit luxury brand proliferation on luxury brand values and patronage intention. Market-Tržište, 30(1), 41-60.

Steffl, J., Ganassali, S., & Emes, J. (2024). Hybrid product branding strategies for brand value creation – combining and comparing green product innovations, limited editions, and co-branding. The Journal of Product and Brand Management, 33(8), 1073-1087.

Tantawi, P. I. (2024). Materialism, life satisfaction and compulsive buying behavior: An empirical investigation on Egyptian consumers amid COVID-19 pandemic. International Review on Public and Nonprofit Marketing, 21(1), 1-25.

Tuominen, J., Rantala, E., Reinikainen, H., & Wilska, T. A. (2023). Modern-day socialization agents: The connection between social media influencers, materialism, and purchase intentions of Finnish young people. The Journal of Social Media in Society, 12(1), 21-48.

Younus, S., Rasheed, F., & Zia, A. (2015). Identifying the factors affecting customer purchase intention. Global Journal of Management and Business Research, 15(2), 10-23.

The Impact of Users-Generated Contents' (UGC) Perception and Key Opinion Leaders' Persuasion on Chinese Students' Motivation and Decision to Study Abroad in Thailand: A case study of Red Platform in China

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Abstract

Despite Thailand's increasing appeal as a study-abroad destination for Chinese students, research on the influence of user-generated content (UGC) and key opinion leaders (KOLs) on the RED platform remains limited. This study investigates how the perceived credibility and usefulness of educational content, combined with the persuasive impact of KOLs, affect Chinese students' motivation and decision to study in Thailand. The sample comprised 171 Chinese international students aged 18 to 37, selected through purposive and convenience sampling. Data were analyzed using means, standard deviations, and Stepwise Regression Analysis at a 0.05 significance level. Findings reveal that (1) perceived credibility and usefulness of RED content significantly influenced KOL persuasion, impacting study-abroad decisions at a medium level (34.5%); (2) KOL persuasion had a positive effect on students' motivation, accounting for 47.5% at a medium level; (3) motivation significantly affected students' final decision to study in Thailand (45.2% at a medium level). Personal growth and career development were key predictors. This study highlights the role of UGC quality and KOL influence in study-abroad decisions, offering insights for educational institutions on leveraging social media to attract international students.

Keywords: Users-Generated Content (UGC), Persuasion of Key Opinion Leader (KOL), Motivation for Study Abroad, Decision to Study Abroad in Thailand, RED Platform

Introduction

As China's cooperation with countries along the Silk Road grows closer and closer, and the trend of economic globalization becomes increasingly apparent, internationalization of education has become a trend. Since 2013, President Xi Jinping has proposed the "Belt and Road" initiative, which aims to form a community of interests,

destiny and responsibility with mutual political trust, economic integration, and cultural inclusiveness. Under the promotion of the "Belt and Road" initiative, various humanities exchange programs between China and Thailand, particularly in areas such as university exchanges, international student education, think tank cooperation, youth exchange, cultural dialogue, and language and cultural exchange and learning have become increasingly frequent. Compared with Europe, America, and Australia, Thailand has a lower cost of living, low application requirements, high graduation rates, strong cultural adaptability, high tolerance, and more geopolitical advantages. Currently, the number of Chinese students studying in Thailand is increasing, and according to data released by the Chinese Ministry of Education, there are currently 40,000 Chinese students studying in the country (He, 2020).

As the national Internet+ strategy deepens, more people are searching for information online and sharing their experiences. Most users favor user-generated content (UGC) platforms. Self-media bloggers' information content has subjective, authentic, and focused characteristics, and the interaction and communication with users are stronger, which enhances user stickiness, trust, and perceived value. More Chinese students tend to learn information about studying abroad through user-generated content on self-media platforms.

However, limited research about how social media platforms like RED—where students actively seek and share study abroad information—shape their motivation and decision-making. This research fills this gap by examining how users perceive the credibility and usefulness of online content, as well as the influence of key opinion leaders (KOLs) on RED, in their journey to decide on studying in Thailand."

Objectives

1. To examine the influence of perceived credibility, perceived usefulness, and key opinion leaders promoted in RED platform on the Chinese students' motivation to study abroad in Thailand.
2. To examine the influence of perceived credibility, perceived usefulness, and key opinion leaders promoted in RED platform on the Chinese students' decision to study abroad in Thailand.
3. To examine the influence of motivation to study abroad on the Chinese students' decision to study abroad in Thailand.

Literature Reviews

UGC definition

Since the emergence of blogs, YouTube, and Wikipedia in 2005, User-Generated Content (UGC) has become a focus of attention and has received a lot of attention. So far, there is no scientific definition to define it. User-generated content refers to information resources created and published on the Internet by ordinary Internet users (Akar & Topcu, 2011). This term first appeared in the 2005 China Internet Annual Report. Research on user-generated content is still in its infancy, especially in China. Regarding the concept of user-generated content, Goodrich (2011) believes that content published by users that can be considered UGC must have the following characteristics: on the one hand, the audience of the information can access it through online media (such as Facebook, Twitter, blogs and YouTube); on the other hand, it can be animated, graphic, image, photo, text, and other self-created content; finally, the information is created by individuals rather than professional organizations.

Motivation for creating UGC

Discussing the motivation for creating user-generated content can further help us understand the essence of UGC and distinguish the differences between diverse types of UGC to some extent. There are many studies on UGC motivation, and most scholars focus on blog creation motivation. For example, Brabham (2010) believes that users' motivation for creating blogs is influenced by factors such as material rewards, opportunities, and personal reputation, while Nardi (2004) believes that users create information to express their views and opinions, record daily life, and express emotions.

Study abroad information provided by the UGC platform.

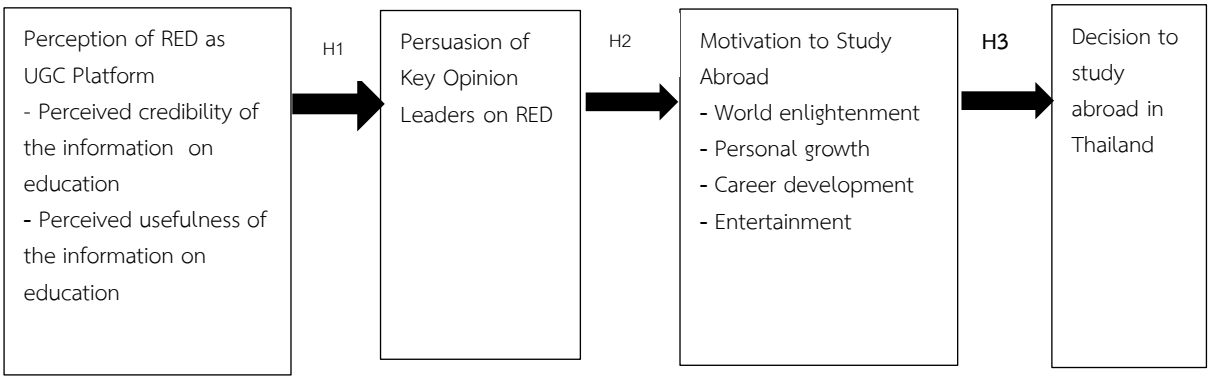
As a popular emerging social media platform in recent years, RED platform has attracted more attention due to its advantages in attracting and retaining users. Based on the analysis of the "Uses and Gratifications theory", Wan (2022) found that people tend to approach media for some psychological need, and the main reason for using RED is to obtain and understand information and meet personal needs for specific community content, including learning and consultation. At the same time, under single factor variance analysis, the overall significance test value of education level is greater than 0.05, indicating that the different levels of educational backgrounds of RED users also have a small effect on their motivation to use, However, the significance measure between educational level and "understanding information" is less than 0.05, implying that the information needs of RED audience are influenced by the difference in educational level, and the higher the educational level is, the stronger the psychological motivation to use RED App to obtain information. Liu (2022) found in her survey study that UGC provides different perspectives on studying abroad. In addition to students sharing their own experiences and advice on

studying abroad, UGC also provides multiple channels, such as educational media, study abroad consulting agencies, and expert advisors, which provide systematic and in-depth analysis of study abroad from multiple perspectives and help international students get comprehensive information on studying abroad.

Key Opinion Leaders (KOL)

Influential individuals who produced user-generated content on the Internet are considered by many online users to be Key Opinion Leaders (KOL) (MacKinnon, 2012). Key Opinion Leaders were first defined in The People's Choice. Opinion leaders refer to people who can influence the attitudes or behavior of others (Lazarsfeld & Berelson, 1944). The development of the Internet and the rise of self-media platforms have provided a broader platform for the study of Key Opinion Leaders. Key Opinion Leaders on the Internet are usually those who publish information, disseminate information, and provide reference for others' opinions through the Internet to influence the user public to make decisions.

Research Framework



Research Hypothesis

1. Hypothesis 1: Perceived credibility and usefulness of the UGC in education on RED platform significantly influence the persuasion of key opinion leaders.
2. Hypothesis 2: Persuasion of key opinion leaders on RED platform has a significant effect on Chinese students' motivation to study abroad in Thailand.
3. Hypothesis 3: The motivation for study abroad of Chinese student has a significant effect on the decision to study abroad in Thailand for Chinese students.

Research Methodology

Research design

The researcher used the survey method to examine the factors affecting the Chinese students' decision to study abroad in Thailand. The questionnaire was collected in September-October 2023.

Population and Sample Selection

The subjects targeted in this study were Chinese international students aged under 18 years old to over 37 years old who are currently studying in Thailand. The study primarily focused on Chinese international students currently studying in Thailand who were active users of social media, especially have experiences using RED platform during year 2022- 2023. The sampling method used in this study is purposive sampling and convenience sampling. This approach was chosen due to the specific nature of the research questions and the need for participants with certain capabilities.

Variables and Research Instrument

The independent variable was perception of credibility and usefulness of UGC on education, and the mediating variables was persuasion of key opinion leaders and motivation to study abroad in Thailand, and dependent variable was Chinese students' decision to study abroad in Thailand.

The questionnaire consisted of 5 sections and 38 questions, and 171 questionnaires were finally collected for this study. The first section has 5 nominal-and-ordinal questions asking about the demographic factors of respondents, including gender, age, level of education, and duration and frequency of RED platform use. The second section has 6-likert questions asking about the perception of the credibility of the usefulness of UGC in RED platform, adopted from Yuksel (2016). The third section has 4-likert questions inquiring the perceptions on the persuasion of key opinion on RED platform. The fourth section consists of 20- likert questions inquiring the motivations for studying abroad in Thailand. Adopted from American Institute of Foreign Study (cited in Anderson & Lawton, 2015), the motivation for study abroad (MSA) has four dimensions, including world enlightenment, personal growth, career development, and entertainment. The fifth section has 3- likert questions inquiring the decision to study in Thailand. Finally, Section 2-Section 4 used the same 5-likert scale, arranging from 1- Completely disagree, 2-somewhat disagree, 3-neither agree nor disagree, 4-somewhat agree," or 5 "Completely agree."

Instrument Pretest

The English questionnaire was translated into Chinese language and did back translation to ensure content validity. To ensure the reliability of the questionnaire, the questionnaires were pretested with 30 respondents and found that all parties had Cronbach coefficient higher 0. 70, which was considered acceptable reliability. The Cronbach coefficient of the overall perceived credibility and perceived usefulness of UGC in education was 0.938, composing of 0.898 Cronbach alpha for perceived credibility and 0. 884 Cronbach alpha for perceived usefulness. The Cronbach coefficient of

persuasion of key opinion leader in RED platform was 0.886. The Cronbach coefficient of motivation for study abroad was 0.962, composing of World Enlighten with Cronbach alpha of 0.934, personal growth with Cronbach alpha of 0.925, and career development with Cronbach alpha of 0.950, and entertainment with Cronbach alpha of 0.892, respectively.

The questionnaire underwent three steps to ensure content validity for the scales for UGC credibility and KOL persuasion were adapted from past studies, a team of experts reviewed the instrument for clarity and relevance, and back-translation (from English into Chinese language) resolved language discrepancies. A pretest confirmed reliability.

Results

Summary of descriptive findings

Among 171 respondents, majority of the respondents aged 23-27 years old (33.3%, n = 57), followed by 28-32 years old (24.6%,n = 42), 18-22 years old (19.9%, n = 34), completed bachelor's degree (55%, n = 94), and college degree (28.7%, n = 49). They have been using the RED platform for over 1 year (s) (58.5%, n = 100), followed by between 6 months to 1 year (26.9%, n = 46) and less than 6 months (14.6%, n =25), respectively. They used RED platform between 30 minutes to 1 hour (36.3%, n = 62) a day, followed by those using RED platform less than 30 minutes (28.7%, n = 49), between 1 hour to 2 hours (22.2%, n =38) and over 2 hours (12.9%, n =22), respectively.

Respondents' perceived credibility ($\overline{X}$ = 3.886, S.D. = 0.937) and perceived usefulness ($\overline{X}$ = 3.736, S.D. = 1.042) of the UGC in education were ranked at the high level. They also had a positive perception ($\overline{X}$ = 3.606, S.D. =1.026) on the persuasion of key opinion leader of the RED platform. When examining motivation for study abroad, the results found that the respondents had high motivation for study abroad ($\overline{X}$ = 3.722, S.D. = 0.754), ranking personal growth ($\overline{X}$ = 3.780, S.D. = 0.977), career development ($\overline{X}$ = 3.763, S.D. = 0.956, world enlightenment ($\overline{X}$ = 3.680, S.D. = 1.008), and entertainment ($\overline{X}$ = 3.666, S.D. = 1.045), respectively. Finally, their decision to study abroad in Thailand was ranked high ($\overline{X}$ = 3.699, S.D. =1.029).

Summary of inferential findings

Hypothesis 1: Perceived credibility and usefulness of the UGC in education on RED platform significantly influence the persuasion of key opinion leaders.

Stepwise Regression analysis revealed that the respondents' perceived credibility and perceived usefulness of the UGC in education on RED platform are significant positive predictors of the persuasion of key opinion leaders (R^2 = 0.345 *, $p < 0.05$). When examining their impact on the persuasion of key opinion leaders, the findings revealed that

respondents' perceived credibility (β = 0.416*, p<0.05) and perceived usefulness (β = 0.246*, p<0.05) are the significant positive predictors of the persuasion of key opinion leaders. These findings suggested that credibility and usefulness of UGC in education significantly influenced the persuasion of key opinion leaders, showing that credibility factor of educational information has a positive effect than the usefulness of educational information.

Table 1: Summary of Regression Analysis for Hypothesis 1

Predictors: Perception of RED as UGC Platform	B	S. E	Beta	Sig.t
Credibility of educational Information	0.455	0.082	0.416	0.000
Usefulness of educational Information	0.242	0.073	0.246	0.001

Remark:

Predictor: Perceived credibility and usefulness

Dependent variable: Key opinion leaders, R2 = .345 *, p < 0.00

Hypothesis 2: Persuasion of key opinion leaders on RED platform has a significant effect on Chinese students' motivation to study abroad in Thailand.

The Regression analysis revealed that the persuasion of key opinion leaders on RED was a significant positive predictor of Chinese students' motivation for study abroad (R2 = 0.475*, p< 0.05). In general, persuasion of key opinion leaders on RED was accountable for Chinese students' motivation for study abroad at the rate of 47.5%, which is considered in the medium level. This regression result found that hypothesis is significantly supported (β = 0.691*, p < 0.05).

Table 2: Summary of Stepwise Regression of Hypothesis 2

Predictors: Persuasion of Key opinion leaders on RED	B	S.E	Beta	Sig.t
Persuasion of Key opinion leader	0.508	0.041	0.691	0.000

Remark:

Predictor: Key opinion leaders on RED

Dependent variable: Motivation to study abroad, R2 = 0.475*, p < 0.05

Hypothesis 3: Chinese students' motivation to study abroad has a positive effect on their decision to study abroad in Thailand.

The Stepwise Regression analysis revealed that the motivation for study abroad (including world enlightenment and personal growth, career development, entertainment) are significant positive predictors of the decision to study abroad in Thailand for Chinese students (R^2= 452*, $p < 0.05$). Overall, the motivation for study abroad is accountable for the decision to study abroad in Thailand for Chinese students at the rate of 45.2%, which is considered in the medium level. This test result found that hypothesis is significantly supported.

When examining the impact of each dimension of the motivation for study abroad on the decision to study abroad in Thailand for Chinese students, the findings revealed that the personal growth (β = 0.427*, $p < 0.05$) and career development (β = 0.248*,$p < 0.05$) are significant predictors of the decision to study abroad in Thailand for Chinese students. However, world enlighten (β = 0.051, $p > 0.05$) and entertainment (β = 0.116, $p > 0.05$) are not significant predictors of the decision to study abroad in Thailand among Chinese students.

Table 3: Summary of Stepwise Regression of Hypothesis 3

Predictors: Motivation to Study Abroad	B	S.E	Beta	Sig.t
World enlighten	0.052	0.071	0.051	0.460
Personal growth	0.450	0.073	0.427*,	0.000
Career development	0.267	0.080	0.248*	0.001
Entertainment	0.114	0.064	0.116	0.075

Remarks:

Predictor: Motivation study abroad

Dependent variable: Decision study, R^2 = 0.452*, $p < 0.05$

Discussions and Conclusion

Firstly, the usefulness and credibility of the information on the RED platform significantly affects the persuasion of KOLs. Zhou's (2023) study pointed out that information is a key factor for users to evaluate KOLs. And KOLs often convey information through real and effective reviews that fit the life scenarios to attract users. Thus, the usefulness and credibility of information were revealed as the communication strategy for KOLs to attract users' attention. The theory of persuasive communication also pointed out that users make judgments based on the credibility of the information and their trust in

the KOL. And the truthfulness and credibility of the information was obviously the basis of users' trust in KOL.

Secondly, the study found that the persuasion of KOLs had a significant positive impact on users' motivation to study abroad. Through KOL's persuasion, users analyze their own situation, which makes their motivation stronger. Yu (2021) pointed out that users' psychological motivation is often divided into rational motivation, emotional motivation, and trust motivation. Users tend to have trust motives for the KOLs they follow, and after being convinced by KOLs, they will think and judge according to their own characteristics and then decide.

And finally, it is the motivation to study abroad that influences Chinese students to make the final decision to study abroad in Thailand. Weng (2019) argued that users tend to have their own psychological motivations before deciding, and they tend to make choices that best fit their psychological motivations. And, these results coincided with the assumption of the Theory of Rational Behavior, which assumed that consumers evaluate the perceived benefits and sacrifices of rational behavior and then make choices (Li, 2012).

Moreover, these results were also consistent with the Expectancy theory. The Expectancy theory assumed that individuals act in a certain way because they believe that their behavior will lead to desired outcomes, and they place a high value on those outcomes (Vroom, 1964). As for the four dimensions of study abroad, this paper finds that world enlightenment and entertainment are not significant factors for study abroad motivation, and only personal growth and career development are significant factors. The non-significance of world enlightenment may stem from Thailand’s cultural proximity to China, reducing perceived novelty compared to Western destinations. Additionally, 55% of respondents held bachelor’s degrees, suggesting a focus on career advancement over cultural exploration and entertainment.

In addition, it may also be related to the small sample, the sample of this study is 171, although it has reached the qualification standard, but it is still relatively small, which may produce errors.

In conclusion, the purpose of this study was to examine the impact of the persuasive content posted by KOLs on the UCG platform on the motivation to study abroad, and their decision-making to study abroad among Chinese international students. The results confirmed that the persuasion of KOLs was significantly predicted by the usefulness and credibility of the information on the RED platform, and the persuasion of KOLs ultimately has a significant positive impact on the motivation and decision to study abroad The process of this research is also in line with the assumption of Action Theory that consumers will make the final decision by evaluating various information (Zhang, 2011).

This study helps relevant study abroad organizations to make more reasonable publicity of information about studying in Thailand on the UCG platform, attracting more Chinese students who intend to study in Thailand, understand the information about studying abroad, and make the decision to study abroad, which to a certain extent can promote the development of the study abroad industry in Thailand. Also, this study is not only limited to the concept of study abroad but also has a certain reference value for the consumer's purchasing behavior.

Recommendations for Future Application

1. KOLs must ensure the accuracy of their information in a number of ways. Currently, most of the KOLs that provide information about studying in Thailand were students who are currently studying in Thailand. They delivered their information through their own practical experience. In the process of delivering information, KOLs should avoid false propaganda, which may affect themselves and users who have not yet made the decision to study in Thailand.
2. KOLs should also pay attention to the needs of users. According to the survey, users who study in Thailand pay more attention to personal growth. The content produced by KOLs should also be based on this perspective, showing the study facilities and atmosphere in Thailand, and telling users about the impact of studying in Thailand on their personal growth, to attract a wider audience.
3. Before making the decision to study in Thailand, Chinese students themselves should also make their own deliberations and actively search for information while seeking help from traditional study abroad agents.
4. The findings show that motivation to study abroad has a significant positive effect on the final decision to study abroad. Chinese international students, it is important for them to be clear about their motivation to study in Thailand so that they can choose to study in a school that suits them.

Recommendations for Future Research

1. This research studied only Chinese international students studying in Thailand, the scope of the study is narrow, and in the process of future research, international students of different nationalities studying in different countries can be studied. In addition, the UGC platforms can be expanded by choosing platforms such as Douyin, Weibo, etc. to broaden the scope of the study.
2. The researcher chose only the quantitative research method. Whereas quantitative research is often conducted through one side, qualitative research

is equally important to obtain more students' insight and expectation based on the learner's perspective. Therefore, it is necessary to consider the qualitative aspect in the next study, and study from the international students themselves, and analyze the influence of KOLs on UGC platforms on international students' decision to study abroad through in-depth interviews, case studies and other methods

Limitations of the Study

This study analyzes the influence of KOLs on UGC platforms on Chinese international students' final decision to study in Thailand, which provides a new way of thinking to study the persuasion of KOLs on UGC platforms, but there are still the following limitations:

First, this research only examined Chinese students studying in Thailand. Compared to Europe and the United States, Thailand is clearly not the most important destination for Chinese students (Xu, 2015). The study should continue to expand the scope of research on Chinese students going to other countries such as Europe and the United States, to make the research conclusions more adequate.

Second, this research only studied RED, a UGC platform, and it is necessary to study more platforms, such as Weibo, Douyin, etc., which are preferred by Chinese students to collect information, to increase the reliability of the research conclusions.

Third, there are few KOLs who provide information about studying in Thailand on RED, which makes Chinese students tend to collect consistent information, and to some extent affects the validity of the study.

References

Akar, E., & Topçu, B. (2011). An examination of the factors influencing consumers' attitudes toward social media marketing. Journal of Internet Commerce, 10(1), 35-67.

Anderson, P.H., & Lawton, L. (2015). The MSA: An instrument for measuring motivation to study abroad. The Interdisciplinary Journal of Study Abroad, 26(2), 53-67.

Brabham, D. C. (2010). Moving the crowd at threadless: Motivations for participation in a crowdsourcing application. Information, Communication & Society, 13(8).

Chen, Y. (2023). Social e-commerce platform mode through "RED". Foreign Investment in China, 7(09), 88-89.

Davis, F.D., Bagozzi, R.P., & Warshaw, P.R. (1989). User acceptance of computer technology: A comparison of two theoretical models. Management Science, 35(8), 982-1003.

He, Y. (2020). On the study abroad to Thailand from the perspective of economics. Knowledge Economy, 7(12), 28-29.

Hovland C. L. (1959). Reconciling conflicting results derived from experimental and survey studies of attitude change. American Psychologist, 14(1), 8-17.

Hu, Y. (2022). A Study of Chinese students' perceptions of the benefits of studying abroad [master's degree dissertation, East China Normal University].

Lazarsfeld, P.F., Berelson, B., & Gaudet, H. (1944). The people's choice: How the voter makes up his mind in a presidential campaign. New York: Columbia University Press.

Li, H.D. (2012). The tension between habitus and rationality: The "fuzzy logic" of Bourdieu's social ontology. Journal of Chongqing University of Posts and Telecommunications, 7(2), 42-46.

Li, H. Y. (2017). A study on the impact of user-generated content on consumer purchasing decisions [Doctoral dissertation, Yanshan University].

Liu, C. (2022). Investigation on the development of Ningbo's overseas study service industry. Ningbo Economy, 7(01), 14-15+26.

MacKinnon, K.A. (2012). User Generated Content vs. Advertising: Do Consumers Trust the Word of Others over Advertisers? The Elon Journal of Undergraduate Research in Communications, 3(1), 14-22.

Nardi, B. A., Schiano, D. J., & Gumbrecht, M. B. (2004). Blogging as a social activity or would you let 900 million people read your diary? In ACM conference on Computer Supported cooperative work (pp.222-231). Chicago: Association for Computing Machinery.

Venkatesh, V., & Davis, F.D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. Management Science, 5(4), 186-204.

Vroom, V. (1964). Some psychological aspects of organizational control. New perspectives in Organizational Research, 7(3), 72-86.

Wan, K. Q. (2022). The psychological motivation of social media platform users based on SPSS data analysis: Taking the users of RED as an example. Science and Technology Communication, 14(15), 125-128.

Weng, H., Q. (2019). Research on the planning and guidance system of Chinese-foreign cooperative college students studying abroad. Think Tank Times, 9(43), 268-269.

Yu. D. (2008). Status and prospects of rational behaviour theory and its extension. Advances in Psychological Science, 2(05), 796-802.

Yu, H. (2021). Introduction to consumer shopping behavior and psychological motivation in the context of the Internet. Modern Marketing (Lower Decade), 3(02), 68-69.

Yuksel, H.F. (2016). Factors affecting purchase intentions in youtube video. Bilgi Ekonomisive Yönetimi Dergisi, 11(2), 33-47.

Zhang, L. W. (2002). Positive and misuse of reliability. Journal of Beijing Sport University, 4(03), 348-350.

Zhao, J. W. (2021). Survey research on cross-cultural adaptation of international students in Yutaiguo [master's thesis, Zhengzhou University].

Zhao, W. (2011). Integration of Macro and Micro - Coleman's theory of reasoned action. Enterprise Herald, 7(09), 270.

Zheng W, Y. (2020). Analyzing the influence of beauty KOL on female college Students' Consumption Behavior. Modern Marketing, 3(7), 80-81.

Zhou, Y. (2022). Research on marketing positioning of key opinion leaders (KOLs) in the era of self-media. Journal of Chuzhou College, 3(1), 33-36.

Media Exposure, News Credibility, and Trust in Pro-Beijing New Media: Evidence from the 2019 Hong Kong Protests

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Abstract

This study examined the impact of media exposure and news credibility on trust in pro-Beijing media outlets during the 2019 Hong Kong protests. It analyzed media exposure and evaluated news credibility and trust in media based on past studies. Using regression analysis, this study identified the following key findings: 1) Media exposure to Wen Wei Po was a significant negative predictor of Hong Kong respondents' trust, mediated by perceived news credibility; however, news credibility itself was not a significant predictor. 2) Media exposure to Orange News was a significant negative predictor of Hong Kong respondents' trust, while news credibility had no significant effect. 3) Media exposure to HKG Pao was a significant negative predictor of Hong Kong respondents' trust, but news credibility did not have a statistically significant impact. These findings suggested that media exposure to pro-Beijing outlets may reduce trust regardless of perceived credibility, indicating that external factors might have played a more dominant role.

Keywords: Hong Kong Protest, Pro-Beijing Media, Media Exposure, News Credibility, Trust in Media

Introduction

This study examined the impact of media exposure and news credibility on trust in pro-Beijing media during the 2019 Hong Kong protests. Utilizing purposive and convenience sampling, a survey of 200 Hong Kong residents assessed the relationship between exposure to pro-Beijing media, perceptions of news credibility, and trust in media.

According to BBC News (2019) and Human Rights Watch (2019), Hong Kong had operated under the “One Country, Two Systems” framework since its handover to Chinese sovereignty in 1997, maintaining its distinct legal and social systems. However, the 2019 extradition bill amendment sparked widespread protests, exposing deep societal divisions in Hong Kong and attracting substantial international attention.

According to Dore (2023), the widespread availability of alternative narratives through social media and independent news outlets provided a counterbalance, allowing a more diverse range of perspectives to reach the public. The 2019 Hong Kong protests underscored the crucial role of media in democratic societies. In addition to informing the public, media also played a significant role in shaping the political agenda and influencing the trajectory of social movements (Khoo & Datta, 2023).

Existing studies have explored how media influenced trust, which shaped political and social behavior. Slater (2007) highlighted the reinforcing spirals perspective, focusing on the mutual influence of media selectivity and individual behavior. However, few studies had examined the role of pro-Beijing media in shaping public trust during the 2019 Hong Kong protests. Given Hong Kong's polarized media landscape, it remained unclear how exposure to pro-Beijing outlets affected trust, particularly in the context of contested narratives and credibility concerns.

This study examined how media exposure and credibility perceptions influence public trust in pro-Beijing media, offering insights into the interplay between media exposure, credibility, and trust in politically sensitive contexts.

Objectives

1. To examine the influence of exposure to pro-Beijing media outlets (Wen Wei Po, Orange News, and HKG Pao) on Hong Kong residents' trust in these media.
2. To investigate the impact of news credibility of pro-Beijing media outlets (Wen Wei Po, Orange News, and HKG Pao) on Hong Kong residents' trust in these media.

Concept theory framework

Literature Review

Media Exposure

According to Garramone and Atkin (1986), repeated exposure to media content can shape audience perceptions and behaviors. Donsbach (1991) discussed the impact of cognitive dissonance on readers' selectivity when exposed to political content in newspapers, contributing to the paradigm of weak media effects. Therefore, in Hong Kong repeated exposure to pro-Beijing media may reinforce selective perceptions, influencing how audiences process political events such as the 2019 protests. Furthermore, exposure to misinformation and fake news has been found to correlate with lower trust in media and public opinion, as reported by Ognyanova, Lazer, Robertson, and Wilson (2020).

Trust in Media

According to Mitchell, Gottfried, Kiley, and Matsa (2014), political ideologies play a significant role in shaping trust in the media, as demonstrated by their study on political polarization and media habits. Austin and Dong (1994) conducted an experiment to assess the effects of message type and source reputation on judgments of news believability. Their findings indicated that judgments of source truthfulness, expertise, bias, and personal perspective all contribute to perceptions of credibility. This is particularly relevant in Hong Kong's polarized media landscape, where trust in the media is influenced by perceived political alignment. Pro-Beijing media may face skepticism from audiences opposed to Chinese government influence, reinforcing trust disparities across media sources. Lee (2010) also emphasized the importance of credibility in explaining trust in media, highlighting the ongoing scholarly interest in this area.

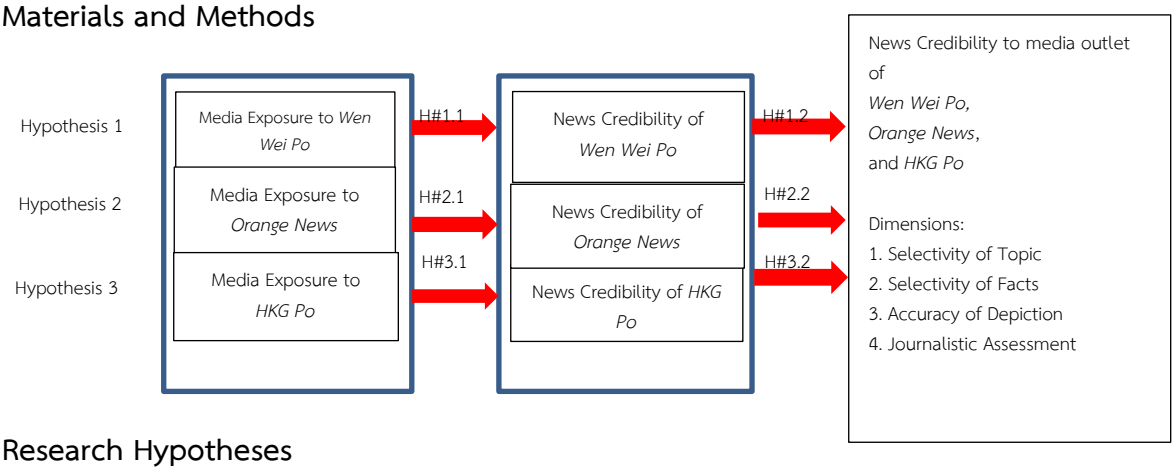
Theory of News Credibility

According to Gaziano and McGrath (1986), news credibility is viewed as a multidimensional concept, encompassing factors such as accuracy, fairness, objectivity, and trustworthiness. They developed the News Credibility Scale, a 12-item survey that evaluates two key dimensions: credibility (measuring fairness, bias, and accuracy) and social concerns (assessing whether the media promotes public interest). This scale is particularly relevant for studying politically polarized environments like Hong Kong, as it captures key dimensions of credibility—fairness, bias, and accuracy—that influence public trust in media, where perceptions of bias and agenda-setting shape trust in media, making a multidimensional approach essential for understanding audience attitudes.

Pro-Beijing Media in 2019 Hong Kong Protest

According to Cook et al. (2022), Chinese-language media outlets based abroad, including those in Hong Kong, have faced increasing challenges due to escalating political repression in the region since 2019. Pro-Beijing media outlets have been criticized for their coverage of the protests and Hong Kong's political situation (U.S. Department of State, 2024). State control mechanisms and editorial policies in pro-Beijing media, particularly through selective framing of protest events and censorship of dissenting voices, may shape audience perceptions of credibility, reinforcing trust among pro-government individuals while diminishing it among opposition groups due to perceived bias. Additionally, Chinese state media and pro-Beijing private outlets play a crucial role in shaping political coverage in China, particularly on platforms like WeChat (Cook et al., 2022).

Materials and Methods



Research Hypotheses

Previous research suggested that both media exposure and news credibility contributed to trust in media, but their relative impact remained uncertain, particularly in polarized media environments. While exposure could increase familiarity and perceived reliability, credibility played a crucial role in shaping trust. This study does not formally assess mediation effects but acknowledges the potential role of these factors in shaping trust.

HP#1: Media exposure (IV) and news credibility (MV) of Wen Wei Po significantly influence trust in the news media (DV) of Wen Wei Po

HP#1.1: Media exposure (IV) of Wen Wei Po significantly influences trust in the news media (DV) of Wen Wei Po.

HP#1.2: News credibility (MV) of Wen Wei Po significantly influences trust in the news media (DV) of Wen Wei Po.

HP#2: Media exposure (IV) and news credibility (MV) of Orange News significantly influence trust in the news media (DV) of Orange News.

HP#2.1: Media exposure (IV) of Orange News significantly influences trust in the news media (DV) of Orange News.

HP#2.2: News credibility (MV) of Orange News significantly influences trust in the news media (DV) of Orange News.

HP#3: Media exposure (IV) and news credibility (MV) of HKG Pao significantly influence trust in the news media (DV) of HKG Pao.

HP#3.1: Media exposure (IV) of HKG Pao significantly influences trust in the news media (DV) of HKG Pao.

HP#3.2: News credibility (MV) of HKG Pao significantly influences trust in the news media (DV) of HKG Pao.

Research Methodology

Research Design

Given the purpose of this study, the questionnaire includes the News Credibility Scale developed by Gaziano and McGrath (1986) to measure key factors such as fairness, accuracy, bias, and trustworthiness in news media. Additionally, the Trust in News Media scale developed by Kohring and Matthes (2007) was included to measure trust levels in news media, evaluating dimensions such as Selectivity of Topics, Selectivity of Facts, Accuracy of Depictions, and Journalistic Assessment. For this study, the questionnaire was translated into Traditional Chinese to ensure accessibility for Hong Kong residents.

Population and Sampling Method

Given the scope of this study, the respondents were Hong Kong residents who experienced the 2019 protest and had regular exposure to pro-Beijing media. Both purposive sampling and convenience sampling are employed to select participants meeting the study's criteria while ensuring efficient recruitment. Purposive sampling targets individuals with relevant exposure, while convenience sampling leverages online platforms for broader reach. However, these methods may introduce self-selection bias, as individuals with strong opinions on pro-Beijing media may be more inclined to participate.

Research Instrument

Given the purpose of this study, the questionnaire consists of four sections: demographic information, frequency of media exposure to pro-Beijing outlets (15 interval scale questions), news credibility of pro-Beijing media (36 interval scale questions), and trust in pro-Beijing media (48 interval scale questions). News credibility was measured using Gaziano and McGrath's (1986) 12 dimensions, including fairness, accuracy, bias, and trustworthiness, on a 5-point Likert scale. Trust in news media was assessed based on Kohring and Matthes (2007), examining 4 dimensions: topic selectivity, fact selectivity, accuracy of depictions, and journalistic assessment, also using a 5-point Likert scale.

The instrument's reliability was confirmed with a Cronbach's alpha above 0.70. Media exposure had an alpha of 0.886, news credibility 0.813, and trust in media 0.807. Individual media outlets showed high internal consistency, with alpha values between

Data Collection

This study collected a total of 221 responses via online platforms, but only 200 were valid after applying the filter questions. A total of 21 responses were excluded as the respondents either did not live in Hong Kong during the 2019 protest or did not regularly consume news from pro-Beijing media outlets. The questionnaire was translated into Cantonese and then back translated into English.

Data analysis

The independent variable is media exposure to Wen Wei Po, Orange News, and HKG Pao, while the mediating variable is the perceived news credibility of these media outlets, and the dependent variable is trust in each respective media outlet. All variables were measured using a 5-point Likert scale. Regression analysis was applied to assess the influence of media exposure and news credibility on trust in Wen Wei Po, Orange News, and HKG Pao. Additionally, potential confounding factors, such as political attitudes and media literacy, are considered when interpreting the findings.

Results

Descriptive findings

The descriptive analysis showed that most respondents were male (29.00%, n = 58), followed by female (25.00%, n = 50), LGBTQ (23.50%, n = 47), and those keeping their gender confidential (22.50%, n = 45). The age distribution was 18 years old (28.00%, n = 56), 28–37 (25.00%, n = 50), 38–47 (25.00%, n = 50), and 18–27 (22.00%, n = 44), with no respondents aged 48 or above. Most had completed high school or vocational school (40.50%, n = 81), followed by graduate degree or above (19.50%, n = 39), college/university degree (14.50%, n = 29), middle school (14.00%, n = 28), and primary school or below (11.50%, n = 23).

Survey results highlighted respondents' access channels to Pro-Beijing media. For Wen Wei Po, most accessed via newspapers/magazines (51.00%, n = 102), followed by the internet (44.50%, n = 89) and television (4.50%, n = 9). Orange News was accessed online (48.50%, n = 97), then through newspapers/magazines (43.50%, n = 87) and television (8.00%, n = 16). Similarly, HKG Pao was primarily accessed via newspapers/magazines (47.50%, n = 95), closely followed by the internet (46.00%, n = 92) and television (6.50%, n = 13). Regarding credibility, most respondents were sometimes exposed to Wen Wei Po ($\bar{x}$ = 3.43, SD = 1.05).

In terms of specific platforms, most respondents were sometimes exposed to Wen Wei Po (Mean = 3.43, SD = 1.05), with the highest exposure on Weibo ($\bar{x}$ = 3.48, S.D. = 1.34), followed by Facebook ($\bar{x}$ = 3.43, S.D. = 1.25), the official website ($\bar{x}$ = 3.42, S.D. = 1.37), Instagram ($\bar{x}$ = 3.42, S.D. = 1.27), and YouTube ($\bar{x}$ = 3.38, S.D. = 1.28). For Orange News, most respondents were sometimes exposed (Mean = 3.41, SD = 1.05), with exposure highest on Facebook ($\bar{x}$ = 3.43, S.D. = 1.32), followed by YouTube ($\bar{x}$ = 3.42, S.D. = 1.27), Weibo ($\bar{x}$ = 3.41, S.D. = 1.35), the official website ($\bar{x}$ = 3.40, S.D. = 1.35), and Instagram ($\bar{x}$ = 3.39, S.D. = 1.32). For HKG Pao, most respondents were sometimes exposed (Mean = 3.35, SD = 1.05). In terms of specific platforms, exposure was highest on Weibo ($\bar{x}$ = 3.41, S.D. = 1.35) and YouTube ($\bar{x}$ = 3.41, S.D. = 1.36), followed by the official website ($\bar{x}$ = 3.35, S.D. = 1.26), Facebook ($\bar{x}$ = 3.29, S.D. = 1.31), and Instagram ($\bar{x}$

= 3.29, S.D. = 1.26).

The findings show that respondents perceived high credibility for Wen Wei Po in the following order: respecting/invading privacy ($\bar{x}$ = 3.48, S.D. = 1.34), watching/ignoring readers' interests ($\bar{x}$ = 3.57, S.D. = 1.16), unbiased/bias ($\bar{x}$ = 3.56, S.D. = 1.23), and accurate/inaccurate reporting ($\bar{x}$ = 3.56, S.D. = 1.18). For Orange News, the highest credibility was perceived for concern about public interest over profit ($\bar{x}$ = 3.67, S.D. = 1.23), followed by being factual over opinionated ($\bar{x}$ = 3.66, S.D. = 1.23), and trusted over untrusted ($\bar{x}$ = 3.63, S.D. = 1.22). For HKG Pao, the highest credibility was perceived for watching readers' interests ($\bar{x}$ = 3.68, S.D. = 1.23), followed by accurate reporting ($\bar{x}$ = 3.63, S.D. = 1.29), and concern for community well-being ($\bar{x}$ = 3.62, S.D. = 1.19).

Respondents had the highest trust in Wen Wei Po for selectivity of fact ($\bar{x}$ = 3.64, S.D. = 1.02), followed by selectivity of topic ($\bar{x}$ = 3.60, S.D. = 1.00), accuracy of depiction ($\bar{x}$ = 3.58, S.D. = 0.97), and journalistic assessment ($\bar{x}$ = 3.57, S.D. = 1.02). For Orange News, trust was highest in selectivity of fact ($\bar{x}$ = 3.65, S.D. = 1.04), followed by journalistic assessment ($\bar{x}$ = 3.63, S.D. = 0.98), accuracy of depiction ($\bar{x}$ = 3.62, S.D. = 0.99), and selectivity of topic ($\bar{x}$ = 3.61, S.D. = 0.99). For HKG Pao, trust was highest in journalistic assessment ($\bar{x}$ = 3.58, S.D. = 0.99), followed by accuracy of depiction ($\bar{x}$ = 3.56, S.D. = 0.99), selectivity of fact ($\bar{x}$ = 3.48, S.D. = 1.00), and selectivity of topic ($\bar{x}$ = 3.46, S.D. = 1.08).

Hypotheses Finding and Testing

Hypothesis 1: Media exposure and news credibility of Wen Wei Po significantly influence trust in the news media of Wen Wei Po

Hypothesis 1.1: Media exposure of Wen Wei Po significantly influences trust in the news media of Wen Wei Po

Hypothesis 1.2: News credibility of Wen Wei Po significantly influences trust in the news media of Wen Wei Po

As shown in Table 1, Model 1 Regression analysis revealed that media exposure did not significantly predict trust in Wen Wei Po (B = 0.052, Beta = 0.067, $p > 0.05$) when media exposure to Wen Wei Po was examined alone. The R^2 for Model 1 was 0.004, indicating that media exposure explains only 0.4% of the variance in trust in Wen Wei Po, suggesting that media exposure alone has no significant effect on trust in Wen Wei Po.

However, when both media exposure and news credibility were considered, the analysis revealed that media exposure was a significant negative predictor of trust in Wen Wei Po (B = -0.113, Beta = -0.178*, $p < 0.01$). On the other hand, news credibility had a positive influence on trust in Wen Wei Po, but it was not statistically significant at the conventional level (B = 0.107, Beta = 0.137, $p > 0.05$). The R^2 for Model 2 was 0.031, indicating that the inclusion of news credibility slightly improved the model's

explanatory power, explaining 3.1% of the variance in trust in Wen Wei Po.

The findings suggested that media exposure to Wen Wei Po was a significant negative predictor of trust, mediated by news credibility as perceived by Hong Kong respondents. However, news credibility itself did not significantly affect trust in Wen Wei Po, which suggests that trust might be shaped more by emotional responses or political alignment rather than traditional credibility metrics. Overall, Hypothesis 1 was partially supported: Hypothesis 1.1 was supported, but Hypothesis 1.2 was not.

Table 1: Summary of Regression Analysis on the Impact of Media Exposure and News Credibility on Respondents' Trust of News Media of Wen Wei Po

Model	Predictors	B	S.E.	Beta	Sig.t
1	Media exposure to Wen Wei Po	0.052	0.055	0.067	0.348
	Trust of Wen Wei Po (Dependent Variable), R^2 = 0.004, df= 1 ($p<0.01$), df1=1				
2	Media exposure to Wen Wei Po	-0.113	0.049	-0.178	0.021
	News Credibility of Wen Wei Po	0.107	0.059	0.137	0.074
	Trust of Wen Wei Po (Dependent Variable), R^2 = 0.031, df= 2 ($p<0.01$), df1=1				

Hypothesis 2: Media exposure and news credibility of Orange News significantly influence trust in the news media of Orange News.

Hypothesis 2.1: Media exposure of Orange News significantly influences trust in the news media of Orange News.

Hypothesis 2.2: News credibility of Orange News significantly influences trust in the news media of Orange News.

As shown in Table 2, Model 1 Regression analysis revealed that media exposure to Orange News significantly predicted trust in Orange News (B = -0.142, Beta = -0.223*, $p < 0.05$). The R^2 for Model 1 is 0.045, meaning that media exposure explains 4.5% of the variance in trust in Orange News. This indicated that media exposure had a significant negative effect on trust in Orange News.

However, in Model 2, when examined media exposure and news credibility, the analysis revealed that media exposure continues to be a significant negative predictor of trust in Orange News (B = -0.142, Beta = -0.224*, $p < 0.01$). However, news credibility has no significant impact on trust in Orange News (B = -0.008, Beta = -0.01, $p > 0.05$). The R^2 for Model 2 is 0.040, indicating that the inclusion of news credibility marginally reduces the explanatory power of the model, explaining 4.0% of the variance in trust in Orange News.

The findings suggested that media exposure to Orange News was a significant negative predictor of trust, while news credibility did not have a significant effect on respondents' trust in Orange News. Therefore, Hypothesis 2.1 was supported, but Hypothesis 2.2 was not supported.

Table 2: Summary of Regression Analysis on the Impact of Media Exposure and News Credibility on Respondents' Trust of News Media of Orange News

Model	Predictors	B	S.E.	Beta	Sig.t
1	Media exposure to Orange News	-0.142	0.044	-0.223	0.001***
	Trust of Orange News (Dependent Variable), R^2 = 0.045, df= 1 (p<0.01), df1=1				
2	Media exposure to Orange News	-0.142	0.044	-0.224	0.002**
	News Credibility of Orange News	-0.008	0.052	-0.01	0.884
	Trust of Orange News (Dependent Variable), R^2 = 0.040, df= 2 (p<0.06), df1=1				

Hypothesis 3: Media exposure and news credibility of HKG Pao significantly influence trust in the news media of HKG Pao.

Hypothesis 3.1: Media exposure of HKG Pao significantly influences rust in the news media of HKG Pao.

Hypothesis 3.2: News credibility of HKG Pao significantly influences trust in the news media of HKG Pao.

As shown in Table 3, Model 1 Regression analysis revealed that media exposure to HKG Pao significantly predicts trust in HKG Pao (B = -0.134, Beta = -0.225, $p < 0.05$). The R^2 for Model 1 is 0.050, meaning that media exposure explains 5.0% of the variance in trust in HKG Pao. This indicates that media exposure has a significant negative effect on trust in HKG Pao.

However, in Model 2, when examined media exposure and news credibility, the analysis revealed that media exposure remains a significant negative predictor of trust in HKG Pao (B = -0.147, Beta = -0.247*, $p < 0.01$). However, news credibility has a negative effect on trust in HKG Pao but is not statistically significant at the conventional level (B = -0.085, Beta = -0.121, $p > 0.05$). The R^2 for Model 2 is 0.065, indicating that the inclusion of news credibility slightly improves the explanatory power of the model, explaining 6.5% of the variance in trust in HKG Pao.

The findings suggested that media exposure to HKG Pao was a significant negative predictor of trust, but news credibility does not have a statistically significant impact on respondents' trust in HKG Pao. Therefore, Hypothesis 3.1 was supported, but Hypothesis 3.2 was not supported.

Table 3: Summary of Regression Analysis on the Impact of Media Exposure and News Credibility on Respondents' Trust of News Media of HKG Pao

Model	Predictors	B	S.E.	Beta	Sig.t
1	Media exposure to HKG Pao	-0.134	0.041	-0.225	0.001***
	Trust of HKG Pao (Dependent Variable), R^2 = 0.050, df= 1 (p<0.01), df1=1				
2	Media exposure to HKG Pao	-0.147	0.042	-0.247	0.001***
	News Credibility of HKG Pao	-0.085	0.049	-0.121	0.085
	Trust of HKG Pao (Dependent Variable), R^2 = 0.065, df= 2 (p<0.01), df1=1				

Conclusions and Discussion

This study aimed to explore the impact of media exposure and news credibility on the trust in pro-Beijing media outlets among Hong Kong residents, specifically focusing on the 2019 Hong Kong protests.

The findings indicated that exposure to Wen Wei Po, Orange News, and HKG Pao significantly and negatively influence trust in these outlets. Respondents with more frequent exposure consistently reported lower trust levels. However, news credibility did not significantly affect trust.

This unexpected result may be due to emotional and psychological factors, such as hope, anger, or fear (Gause, Moore & Ostfeld, 2023). In politically polarized contexts, such emotions may lead to resistance against trusting media that contradict personal beliefs, with heightened emotional engagement amplifying skepticism and diminishing the influence of news credibility on trust (Arguedas, Robertson, Fletcher & Nielsen, 2022).

Furthermore, political polarization exacerbates the issue by lowering the perceived credibility of all three pro-Beijing media outlets. This polarization may lead to reduced trust even among those frequently exposed to their content, highlighting the complex interplay between media exposure, credibility, and trust.

The Theory of Media Exposure emphasizes how repeated exposure to media content can shape audience perceptions and behaviors (Garramone & Atkin, 1986). In this case, the major influence of media exposure suggests that frequent encounters with pro-Beijing media reinforced existing perceptions, whether positive or negative. However, audience responses were shaped by preexisting attitudes, resulting in selective acceptance or rejection of media messages. Cognitive dissonance may lead individuals to distrust media that contradicts their beliefs (Donsbach, 1991), contributing to reducing trust. This aligns with reinforcing spirals theory, wherein individuals seek information that confirms their prior attitudes, exacerbating polarization.

The News Credibility Theory highlights the importance of accuracy, fairness, and objectivity in building audience trust (Gaziano & McGrath, 1986). However, the findings show that credibility alone did not significantly influence trust in pro-Beijing outlets during the 2019 Hong Kong protests. This suggested that, in politically charged environments, traditional measures of credibility may be overshadowed by audience's perceptions of political alignment. The results echoed findings from other studies in polarized contexts, where perceived ideological congruence often took precedence over objective credibility indicators (Arguedas, Robertson, Fletcher & Nielsen, 2022).

The Trust on the media underscores that audience's trust is influenced by broader contextual factors such as political alignment and ideological congruence (Tsfati & Ariely, 2013). During politically sensitive events, like the Hong Kong protests, audiences may prioritize perceived alignment over traditional notions of credibility. This finding raised questions about whether trust in media is becoming increasingly identity-driven rather than fact-based. Future studies should explore whether exposure to diverse perspectives could mitigate these effects.

In conclusion, the value of this research lies in showing that media exposure can significantly shape public trust, especially in politically sensitive contexts. The necessity for media outlets to consider audience perceptions beyond traditional credibility measures and for policymakers to advance media literacy initiatives fostering critical engagement with news sources was emphasized. These findings highlight the challenges of sustaining trust in the media amid growing polarization.

Recommendations for Future Application

Given the findings of this study, there are several practical recommendations for media practitioners and policymakers, and pro-government media. Media exposure and perceived credibility are key factors in shaping public trust, but they are not the sole determinants. For pro-government outlets, improving credibility or increasing exposure alone may not foster long-term trust. A broader approach is needed, focusing on democratic principles, respecting public opinion, and ensuring accountability. Addressing concerns about transparency and responsiveness will more effectively enhance trust. For instance, media outlets can adopt independent oversight bodies, collaborate with neutral third-party fact-checkers, and establish public feedback mechanisms to enhance transparency. Policymakers should recognize that trust is linked to the political environment, promote media literacy, and maintain a framework that upholds democratic values, ensuring open communication and responsiveness to citizens' needs. One practical step is integrating media literacy programs into Hong Kong's education system, equipping younger generations with critical thinking skills to assess media credibility.

Recommendations for Future Research

Future research should explore emotional responses and political polarization, which influence trust in media outlets and shape perceptions of credibility. Expanding the study to include media from both political sides would offer a broader understanding of how media exposure and emotional reactions impact trust in Hong Kong's polarized media during protests.

Longitudinal studies could track shifts in public perceptions over time. Additionally, qualitative methods, like interviews or content analysis, could uncover factors shaping trust, focusing on media content, framing, and emotional undertones. To enhance practical applicability, future studies could also examine how specific journalistic practices, such as fact-checking initiatives, audience engagement strategies, and interactive reporting, influence trust in the media. Research should also examine the influence of social media and user-generated content on trust in traditional media. A comparative study between traditional media and emerging digital platforms would provide insights into how different formats and communication styles affect public trust dynamics.

Limitations of the Study

This study offers several limitations. The sample size of 200 Hong Kong residents may not reflect the broader population's diversity due to time and resource constraints. The online survey may exclude those without internet access, affecting representativeness. Selection bias could arise, as respondents with strong opinions about pro-Beijing media might be more likely to participate. Political sensitivity may lead to biasing social desirability, with respondents withholding honest opinions. Additionally, media exposure and news credibility alone may not fully explain trust in the media. Future research should explore factors like political polarization, emotional responses, and social identity. Lastly, the focus on three pro-Beijing outlets limits the scope, as other media sources could also influence public trust and perceptions of credibility.

References

Ross Arguedas, A., Robertson, C., Fletcher, R., & Nielsen, R. (2022). Echo chambers, filter bubbles, and polarisation: A literature review. Reuters Institute for the Study of Journalism. https://doi.org/10.60625/risj-etxj-7k60.

Austin, E. W., & Dong, Q. (1994). Source v. content effects on judgments of news believability. Journalism Quarterly, 71(4), 973–983. https://doi.org/10.1177/1077699094071004

BBC News. (2019). Hong Kong extradition bill protests erupt into violence. BBC News.

Retrieved from https://www.bbc.com/news/live/world-asia-china-48455370

Cook, S., Datt, A., Young, E., & Han, B. C. (2022). Beijing's global media influence 2022: Authoritarian expansion and the power of democratic resilience (Research report). Washington, DC: Freedom House.

Donsbach, W. (1991). Exposure to political content in newspapers: The impact of cognitive dissonance on readers' selectivity. European Journal of Communication, 6(2), 155–186. https://doi.org/10.1177/0267323191006002003

Garramone, G. M., & Atkin, C. K. (1986). Mass communication and political socialization: Specifying the effects. Public Opinion Quarterly, 50(1), 76–86. http://www.jstor.org/stable/2748971

Gause, L., Moore, S. T., & Ostfeld, M. C. (2023). Anger, fear, and the racialization of news media coverage of protest activity. The Journal of Race, Ethnicity, and Politics, 8(3), 446–468. https://doi.org/10.1017/rep.2023.27

Gaziano, C., & McGrath, K. (1986). Measuring the concept of credibility. Journalism Quarterly, 63(3), 451–462. https://doi.org/10.1177/107769908606300301

Human Rights Watch. (2019). Hong Kong protest. Retrieved from https://www.hrw.org/blog-feed/hong-kong-protest.

Khoo, T., & Datta, R. (2023). Perspectives of global and Hong Kong's media on China's Belt and Road Initiative. Retrieved from https://arxiv.org/abs/2312.17013v1.

Kohring, M., & Matthes, J. (2007). Trust in the news media. Communication Research, 34(2), 231–252. https://doi.org/10.1177/0093650206298071

Lee, T. T. (2010). Why they don't trust the media: An examination of factors predicting trust. American Behavioural Scientist, 54(1), 8–21. https://doi.org/10.1177/0002764210376308

Mitchell, A., Gottfried, J., Barthel, M., & Shearer, E. (2014). Political polarization & media habits. Retrieved from https://coilink.org/20.500.12592/1g34wb.

Ognyanova, K., Lazer, D., Robertson, R. E., & Wilson, C. (2020). Misinformation in action: Fake news exposure is linked to lower trust in media, higher trust in government when your side is in power. Harvard Kennedy School (HKS) Misinformation Review, 1(4), 1-19. https://doi.org/10.37016/mr-2020-024

Dore, G. M. D. (2023). A natural language processing analysis of newspapers' coverage of Hong Kong protests between 1998 and 2020. Social Indicators Research, 169(1), 143–166. https://doi.org/10.1007/s11205-023-03147-0

Slater, M. D. (2007). Reinforcing spirals: The mutual influence of media selectivity and media effects and their impact on individual behavior and social identity. Communication Theory, 17(3), 281–303. https://doi.org/10.1111/j.1468-2885.2007.00296.x

Tsfati, Y., & Ariely, G. (2013). Individual and contextual correlations of trust in media across 44 countries. Communication Research, 41(6), 760–782. https://doi.org/10.1177/009365021348597

U.S. Department of State. (2024). 2024 Hong Kong policy act report. Retrieved from https://www.state.gov/2024-hong-kong-policy-act-report/.

Thai Omnivores' Motivation and Barrier of Plant-based Food Consumption

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Abstract

This study investigates Thai omnivores' motivations and barriers to consuming plant-based food. Based on in-depth interviews with 10 Thai omnivores aged 20 to 55 who consume plant-based food occasionally or frequently—ranging from 9 to 150 days per year—this qualitative study finds that the primary motives for plant-based food consumption among Thai omnivores are subjective norms and Buddhist religious beliefs. Health consciousness ranks as the third most common motive, whereas concerns for animal welfare and environmental impact are less influential. These findings highlight the significant role of cultural perspectives in shaping plant-based food consumption in Thailand. Therefore, marketers of plant-based food may need to design promotional strategies that align with these key motivations to encourage greater adoption of plant-based diets. Conversely, subjective norms serve not only as a motivation but also as a barrier to more frequent plant-based food consumption among Thai omnivores. Another major barrier is perceived behavioral control, specifically the limited availability of plant-based food options in the Thai market. To address these challenges and promote plant-based food consumption, restaurants could introduce more vegan and vegetarian-friendly menu options, making it easier for consumers to choose plant-based meals even when dining with others who consume animal products.

Keywords: Plant-Based Food, Thai Omnivores, Subjective Norms, Religion Belief, Perceived Behavioral Control

Introduction

The former studies related to plant-based food's motivations and barriers were mostly arranged in Western countries where plant-based food's trend has increased significantly in the recent years due to the fact that it is believed to improve animal welfare, environment and human health (Aschemann-Witzel & Schulze, 2023; Bryant & Sanctorum, 2021; Denver, Nordstrom & Christensen, 2023.) However, these is fewer studies about plant-based food's motivation and barrier arranged in Southeast Asian countries where plant-based food's trend has not been as much as popular compared to the Western Countries (i.e., European, or North American countries) (World Population Review,

2024.) Phongpiyawit (2022) found that there might be more barriers in plant-based food consumption in Southeast Asian countries compared to European countries such as perceived behavioral control (i.e., convenience and market availability.) However, Thailand, one of Asian countries, seems to have a number of omnivores who are interested in consuming plant-based food these days, especially during Vegetarian Festival in October for cultural and religious things (Thailand Now, 2024.) Therefore, to investigate the motivations and barriers of Thai omnivores that are unique and different to Western countries, this research will do qualitative research by utilizing 10 in-depth interviews to predict the future of plant-based food market and find the ways to increase plant-based food consumption in this country.

Objectives

There are five objectives that this research intends to study and find the answers as listed below:

1. To investigate the top motives of Thai omnivores when they choose to consume plant-based food.
2. To investigate the main barriers of Thai omnivores for the reasons why they cannot consume plant-based food more often.
3. To investigate Thai omnivores' attitude towards meat-like food.
4. To find the relationship between organic food & plant-based food choices chosen by Thai omnivores.

Concept theory framework

Omnivores' motivation for plant-based food consumption

There are top three motives among consumers who choose plant-based food over animal products which include animal welfare, environment, and health consciousness (Aschemann-Witzel & Schulze, 2023; Bryant & Sanctorum, 2021; Denver et al., 2023; Phongpiyawit, 2022.) Firstly, regarding animal welfare, 90% of meat is produced from factory farms that treat animals poorly and cruelly in small cages (Bryant & Sanctorum, 2021.) So, shifting from consuming animal products to plant-based food products will help to decrease cruelty on animals. Secondly, regarding the environmental aspect, the farming industry significantly increases deforestation for more farming spaces and animal food (Bryant & Sanctorum, 2021.) Moreover, meat production process is one of the reasons that cause greenhouse gas emission that causes global warming (Aschemann-Witzel & Schulze, 2023; Denver et al., 2023.) Therefore, consuming less animal products and more plant-based food will slow down the greenhouse effect and global warming. Thirdly, regarding the human health aspect, as confirmed by EAT Lancet Commission, plant-based food is

believed to be healthier than animal products (Afshin et al., 2019, as cited in Perez-Cueto et al., 2022; Willett et al., 2019, as cited in Denver et al., 2023.) Moreover, among omnivore consumers, Phongpiyawit (2022) & Sheen, Lim & Forde (2023) found that health consciousness plays the most vital role in omnivores' motivation to consume plant-based food.

Omnivores' barrier for plant-based food consumption

Although some vegans and vegetarians who used to be omnivores faced some obstacles to consuming more plant-based food at the beginning, they have conquered those barriers and turned themselves into frequent plant-based food consumers. Conversely, omnivores who have not planned to be vegans or vegetarians seem to have several concerns to consume more plant-based food including attachment to meat's deliciousness and sensations (Giacalone, Clausen & Jaegeret, 2022; Perez-Cueto et al., 2022), fear of insufficient nutrients, perceived behavioral control in terms of convenience (i.e., limited market availability of plant-based food choices) (Perez-Cueto et al., 2022.), subjective norms (i.e., family members and friends who are omnivores might not include them is social activities) (Daly, 2020 & Mylan, 2018, as cited in White, Ballantine & Ozanne, 2022) & financial concern (i.e., more expensive cost of plant-based food compared to general omnivore's food) (Denver et al., 2023; Feher, Gazdecki, Veha, Szakaly & Szakaly, 2020; Ho, 2021, as cited in The Vegan Society, 2024.)

Alternative meat-like food

As some omnivores are addicted to real meat's deliciousness and sensations which makes it hard for them to consume plant-based food more often, meat-like food that is produced from plant might help to increase their plant-based food consumption if it is tasty, convenient and affordable in terms of price (Bryant & Sanctorum, 2021; Denver et al., 2023; Giacalone et al., 2022.)

Linkage between organic food and plant-based food consumption

Interestingly, Denver et al. (2023) found that omnivores who consume organic food tend to consume less meat and more plant-based food than omnivores who are not associated with organic food. This represents that omnivores who are conscious about their healthy lifestyles, environment or animal welfare tend to carefully choose organic and plant-based food more than omnivores who are not conscious about them. Also, the more they consume organic food, the more cheerful outlook towards plant-based food (Denver et al., 2023.)

Thai people who consume plant-based food

According to World Population Review (2024), only 3.6% of Thai people are vegans or vegetarians. Although the country seems to have small group of frequent plant-based food consumers, there is an annual festival called "Vegetarian Festival" that significantly

raises the number of Thai plant-based food consumers during every October (Thailand Now, 2024.) Therefore, Thai omnivores who sometimes or often consume plant-based food have the potential to uplift the quantity of plant-based food consumption in this country.

Materials and Methods

Design and Setting

Consumer attitude or behavior towards plant-based food is a reality that can always be changed and affected by external factors. As this is a socially constructed thing, this study follows constructionism (Bell et al., 2019.) In congruent with constructionism (Bell et al., 2019), this study intends to investigate and understand more about consumer insights including motivation and barrier towards plant-based food consumption. So, this study utilizes qualitative research methods. Additionally, in-depth interviews are utilized because this study has the main purpose to understand consumers' motivation and barrier deeply by allowing them to explain about their experiences and feelings without being motivated or disturbed by others (McDaniel & Gates, 2018.) The discussion guide for semi-structured interviews is prepared by the researcher, who is also the interviewer, for interviewing each participant in congruent with the main research questions of this study. Non-probability sampling is the method for participant recruitment including 3 sampling techniques. Firstly, Purposive Sampling, participants are specifically chosen based on their dietary habits, which are omnivores who consume plant-based food often or sometimes. Secondly, Convenience Sampling, the researcher of this study, asks her colleagues and students for their dietary habits and willingness to participate in this study. Thirdly, Snowball Sampling, some participants are asked to recommend other suitable participants to join this study. However, before selecting each participant, s/he is asked by screening questions as listed below:

A. Do you consume plant-based food at least 9 days per year? How often?
B. What are the occasions that you consume plant-based food?
C. How old are you?
D. May I ask about your educational background?
E. (If s/he is a target participant) Are you willing to be my research participant for plant-based food motivation and barrier study?

Participant Information Sheet and Consent Form are shared for participant's perusal to sign before joining an in-depth interview of this study.

Data Collection

The target participants are Thai omnivores who consume plant-based food at least 9 days per year but not more than 150 days per year. They are selected as research

participants because they can indicate major barriers of plant-based food's frequent consumption in Thailand, although they have some motives to consume it sometimes or often. Their age ranges are from 20 to 55 years old (Generation Z, Y and X). Their educational backgrounds are from a current bachelor's degree student to a person with doctoral graduation. The reason why these age ranges and educational background are chosen is because they are expected to be able to explain their thoughts well with some reasons supported. There are 10 participants included in this study for in-depth interviews, including 5 consumers who consume plant-based food during the Vegetarian Festival or meditation retreat camp and another 5 consumers who consume plant-based food on the day that they choose to consume by themselves e.g., on every Monday and Tuesday or on every Buddhist Holy day. Each participant is being interviewed about 30 minutes by the researcher. In addition, as this study collects data directly from participants, the researcher follows the guidelines of Bangkok University's Ethics Committee to protect participants from any negative effect caused by this study, which is reviewed and approved.

Table1: Participant Synopsis

Participant	Plant-based food consumption's occasion	Approx. days per year of plant-based food consumption	Birth Gender	Age	Educational Background
1	Fixed 3 days per week and during Vegetarian Festival	150 days	Female	48	Master's degree
2	4 days per month (on every Buddhist Holy day) and during Vegetarian Festival	55 days	Female	46	Doctoral Degree
3	A fixed day per week and during Vegetarian Festival	55 days	Female	35	Master's degree
4	5 days per month chosen by herself	60 days	Female	20	Current bachelor's degree Student
5	1 day per month chosen by himself	12 days	Male	43	Master's degree

Participant	Plant-based food consumption's occasion	Approx. days per year of plant-based food consumption	Birth Gender	Age	Educational Background
6	During Meditation Retreat Camp	30 days	Female	55	Doctoral Degree
7	During Vegetarian Festival	9 days	Female	52	Bachelor's degree
8	During Vegetarian Festival	9 days	Female	21	Current bachelor's degree Student
9	During Vegetarian Festival	9 days	Male	37	Master's degree
10	During Vegetarian Festival	14 days	Male	20	Current bachelor's degree Student

Data Analysis

10 in-depth interviews are recorded and then transcribed. Subsequently, the researcher utilizes "Thematic Analysis" to indicate, analyze and categorize the most mentioned points from interviews into the different themes (Braun & Clarke, 2006, as cited in Castleberry & Nolen, 2018.) However, the themes are not only generated by selecting the most popular points mentioned in the interviews but also produced by choosing the data's considerable meaning (Lochmiller, 2021) contributed to the research objectives.

Results

By applying Thematic Analysis, there are 4 themes found from 10 in-depth interviews of Thai omnivores who often or sometimes consume plant-based food as listed below:

Findings of Theme 1: The top motives of Thai omnivores who often or sometimes consume plant-based food seem to be significantly related to religion's belief and subjective norms. While health consciousness is the third popular motive for plant-based food consumption among Thai omnivores.

Most Thai omnivores who consume plant-based food during Vegetarian Festival start from following their family's belief and practice. This represents the strong effect of subjective norms on plant-based food consumption. This might be because Thai culture

is collectivism (The Culture Factor Group, 2025) that people tend to follow what their tribes, families or social circles do.

“I consume plant-based food during Vegetarian Festival since I was a child. This is because my family does it every year. So, I feel like it is a cultural heritage to execute.”

While the others who consume plant-based food in other occasions like Meditation Retreat Camp, every Buddhist Holy day or a fixed day per week have mentioned about “making merit,” which is linked to Buddhist’s religion belief. This might be because Thai people have grown up with Buddhist teaching since their childhood that has taught them to do good things and refrain from doing dreadful things (BBC, 2025.) Moreover, there is also a belief about karma that can affect each person’s fate (The Buddhist Centre, 2025.) So, to consume plant-based food instead of animal products sometimes make them feel like they have done good things (i.e., by not eating/ supporting food producers to kill animals for food) that will consequently make their own lives better because of good karma.

> “I choose to consume plant-based food a day per week because I want to uplift my fate. It began since the year that the fortune teller told me that this year would not be so good. So, I find the way to do good thing to uplift my fate.”

Only a few of respondents have mentioned animal welfare or the environment. While health consciousness is the third popular motive among Thai omnivores who consume plant-based food as they mention about “body detox” when stop consuming animal products temporarily.

“It is a good chance to do body detox when I sometimes consume plant-based food.”

Findings of Theme 2: While subjective norms play a vital role as one of the top motives for plant-based food consumption among Thai omnivores, it also plays a role as a barrier to consume it more often. Perceived behavioral control (i.e., market availability and convenience) also plays significant role as the major barrier for more frequent plant-based food consumption among Thai omnivores.

It is obvious that subjective norms affect consumer behavior on food selection significantly, especially among people in collectivist country like Thailand. Thai omnivores consume plant-based food during Vegetarian Festival because their families have done so. Additionally, some respondents who consume plant-based food every week start to do so because they are influenced by their friends who do it and convince them to do so.

“I consume plant-based food on every Thursday, which is my birthday. The beginning is that I have heard from my friend that she does it. So, I want to try too.”

On the other hand, in other occasions, it is hard for Thai omnivores to consume plant-based food because they are fear of social rejection. It is hard for them to have a meal with families and friends if they are the only person in the group who consumes plant-based food, while the others consume animal products.

"I try not to go out with my social circle on the day that I intend to consume plant-based food because it is hard to have a meal with them when the others consume animal products."

> "I try not to consume plant-based food on weekend because it is a family day that I need to have meals with them, and it is hard for me to consume plant-based food when all my family members consume animal products."

In addition, perceived behavioral control is also one of major barriers among Thai omnivores to consume more plant-based food because there are limited choices of plant-based food available in general restaurants and fresh markets, which make their lives harder if they consume plant-based food more often.

"In my workplace's food center, there is no plant-based food available. Also, there is no plant-based food available in the fresh market too. The only place that is convenient for me to buy plant-based food's meal is a convenience store, but those few choices are all frozen foods that are not appetizing."

Findings of Theme 3: Meat-like food is rejected by Thai omnivores. Although they often or sometimes consume plant-based food, they choose real plant ingredients over meat-like food because they do not like its taste and appearance.

When asking about meat-like food, most participants show an obvious negative attitude towards it because they do not like its taste and appearance. They think that consuming meat-like foods feels like eating flour" and they do not see any benefit for consuming this artificial meat instead of real meat.

Findings of Theme 4: Organic food seems not to be much related to plant-based food choices among Thai omnivores. This might be because environmental and animal welfare are not the prime motives here. In addition, organic food seems not to be much popular among Thai omnivores because of higher price compared to general food. Conversely, organic food sounds like a more premium food among upper-middle class and upper-class people.

There is no relationship between plant-based and organic food selection found in this study. Respondents perceive organic food as a premium food based on its higher price. Although organic food seems not to be related to plant-based food's selection, it is related to socioeconomic status because respondents who do not choose organic food

have mentioned about their concern of its higher price. Therefore, organic food is better captured the target consumers in upper-middle class and upper-class; SES B+ and A.
"I choose normal food products over organic food products because organic food is more expensive. I might buy organic food if it is on sale."

Conclusions and Discussion

This study explores Thai omnivores who frequently or occasionally consumes plant-based food through 10 in-depth interviews. The data are analyzed using Thematic Analysis, resulting in four key themes: motivations and barriers to plant-based food consumption, attitudes toward meat-like alternatives, and the relationship between plant-based and organic food choices.

One significant finding highlights the role of cultural and religious influences, particularly Buddhism, in shaping motivations for plant-based food consumption. Given this strong cultural connection, marketing strategies could leverage Buddhist values to encourage greater consumption of plant-based food beyond the annual Vegetarian Festival. For instance, plant-based food producers and restaurants could promote consumption on Buddhist holy days—approximately four times per month—by emphasizing the spiritual benefits of temporarily abstaining from consuming animal products.

Additionally, subjective norms play a crucial role in influencing consumer behavior, particularly in Thailand's collectivist society. To harness this, marketing campaigns could incorporate both online and offline word-of-mouth strategies. An example includes social media contests where consumers share their motivations and favorite plant-based dishes, with rewards provided by plant-based food businesses. This approach could enhance awareness, foster engagement, and increase the adoption of plant-based diets among Thai omnivores.

In terms of barriers towards plant-based food consumption among Thai omnivores, subjective norms and perceived behavioral control play the most important roles. As there are not many choices for plant-based food dishes in normal restaurants in Thailand. It is a market opportunity for the restaurants that have offered both animal products and plant-based food within the same places. This can be a marketing promotion/communication that this restaurant offers not only animal products, but also vegan and vegetarian dishes. This helps to conquer the top 2 barriers of Thai omnivores who prefer to consume plant-based food. Firstly, they can find the food to consume easier (i.e., to conquer perceived behavioral control as a barrier to consuming plant-based food.) Secondly, groups of friends and families who have various preferences in food (i.e., animal

products and plant-based food products) can have a fun time together within the same restaurants (i.e., conquer subjective norms as a barrier to consuming plant-based food.)

For market opportunity of meat-like food among Thai omnivores, it seems like Thai omnivores are not the target consumers of meat-like food. This is because they can choose between meat-like food and real meat that is tastier and cheaper. The future study might ask the same questions to Thai vegans or Thai vegetarians, who are not able to consume real meat according to their dietary groups, about their opinions and attitude towards meat-like food, which might be different to Thai omnivores.

Lastly, this study finds that there is no relationship between plant-based food and organic food's selection among Thai omnivores. This might be because the similar unique selling points of the 2 types of food are animal welfare, environmental concern, and health consciousness, but they are not perceived as important motives among Thai omnivores. Therefore, it is better to study about organic food's motives among Thai consumers separately to have a clearer picture of organic food in Thai consumer's eyes.

Recommendation for future research

To do quantitative research among Thai omnivores with the comparable questions to this study.

This study has done only qualitative research to deeply understand Thai omnivores' motivation and barrier towards plant-based and meat-like food. However, the number of participants who have been interviewed is only 10. Therefore, it will be beneficial if the future study will do qualitative with the comparable topics to this study to confirm the opinions of Thai omnivores who often or sometimes consume plant-based food towards the vegan food.

To study Thai vegans and Thai vegetarians' motivation and attitude towards plant-based food and meat-like food.

This study about plant-based food in Thailand has focused on Thai omnivores who often or sometimes consume plant-based food because the researcher believes that the barriers of plant-based food consumption would be clearly identified among this group who do not consume plant-based food every day. On the other hand, to study Thai vegans or Thai vegetarians might not much help to stress on major barriers of plant-based food consumption because they can conquer them to frequently consume plant-based food. However, it will be beneficial for plant-based food knowledge in Thai market if the future research will study Thai vegans and Thai vegetarians' motivation and attitude towards plant-based food and meat-like food. Although the number of Thai vegans and Thai vegetarians are smaller than Thai omnivores who sometimes or often consume plant-based food, their frequent plant-based food consumption might help to contribute to Thai

plant-based food market. In addition, while Thai omnivores have found to mostly reject meat-like food and absolutely prefer real meat to meat-like food, it might be a different attitude of Thai vegans and Thai vegetarians who cannot choose to consume real meat according to their dietary groups.

References

Aschemann-Witzel, J. & Schulze, M. (2023). Transitions to plant-based diets: the role of societal tipping points. Current Opinion in Food Science, 51, 1-6. https://doi.org/10.1016/j.cofs.2023.101015

BBC (2025). Buddhist beliefs. Retrieved from https://www.bbc.co.uk/bitesize/guides/zf8g4qt/revision/9

Bell, E., Bryman, A. & Harley, B. (2019). Business Research Methods. (5th Ed.). Oxford: Oxford University Press.

Bryant, C. & Sanctorum, H. (2021). Alternative proteins, evolving attitudes: Comparing consumer attitudes to plant-based and cultured meat in Belgium in two consecutive years. Appetite, 161, 1-11. https://doi.org/10.1016/j.appet.2021.105161

Castleberry, A. & Nolen, A. (2018). Thematic analysis of qualitative research data: Is it as easy as it sounds? Currents in Pharmacy Teaching and Learning, 10, 807-815. https://doi.org/10.1016/j.cptl.2018.03.019

Denver, S., Nordstrom, J. & Christensen, T. (2023). Plant-based food – Purchasing intentions, barriers and drivers among different organic consumer groups in Denmark. Journal of Cleaner Production, 419, 1-9. https://doi.org/10.1016/j.jclepro.2023.138256

Giacalone, D., Clausen, M.P. & Jaeger S.R. (2022). Understanding barriers to consumption of plant-based foods and beverages: insights from sensory and consumer science.' Current Opinion in Food Science. 48, 1-9. https://doi.org/10.1016/j.cofs.2022.100919

Lochmiller, C.R. (2021). Conducting Thematic Analysis with Qualitative Data. The Qualitative Report, 26(6), 2029-2044. https://doi.org/10.46743/2160-3715/2021.5008

McDaniel, C. & Gates, R. (2018) Marketing Research. (11th Ed.). New York: John Wiley & Sons.

Perez-Cueto, F.J.A., Rini, L., Faber, I., Rasmussen, M.A., Bechtold, K., Schouteten, J.J., De Steur, H. (2022). How barriers towards plant-based food consumption differ.

according to dietary lifestyle: Findings from a consumer survey in 10 EU countries. International Journal of Gastronomy and Food Science, 29, 1-6. https://doi.org/10.1016/j.ijgfs.2022.100587

Feher, A., Gazdecki, M., Veha, M., Szakaly, M. & Szakaly, Z. (2020). A comprehensive review of the benefits of and the barriers to the switch to a plant-based diet. Sustainability, 12 (10), 1-18. https://doi.org/10.3390/su12104136

Phongpiyawit, P. (2022). Motivations of plant-based food among vegans, vegetarians & omnivores (MLitt Dissertation). University of St Andrews, St Andrews.

Sheen, F., Lim J.L. & Forde, C.G. (2023). Diversity among flexitarian consumers; stratifying meat reducers by their underlying motivations to move to a plant-based diet. Food Quality and Preference, 112, 1-11. https://doi.org/10.1016/j.foodqual.2023.105022

Thailand Now (2024). Thai Vegetarian Festival 2024. Retrieved from https://www.thailandnow.in.th/event/thai-vegetarian-festival/

The Buddhist Centre (2025). Karma & Rebirth. Retrieved from https://thebuddhistcentre.com/buddhism/karma-and-rebirth

The Culture Factor Group (2025). Country Comparison Tool. Retrieved from https://www.theculturefactor.com/country-comparison-tool

The Vegan Society (2024). Worldwide Growth of Veganism. Retrieved from https://www.vegansociety.com/news/media/statistics/worldwide

White, S.K., Ballantine, P.W. & Ozanne, L.K. (2022). Consumer adoption of plant-based meat substitutes: A network of social practices. Appetite, 175, 1-10. https://doi.org/10.1016/j.appet.2022.106037

World Population Review (2024) Veganism by Country 2024. Retrieved from https://worldpopulationreview.com/country-rankings/veganism-by-country

The Influence of Exposure to Social Media on Mental Health and Well-being among Nepalese Young Adults

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Abstract

This study examined the influence of exposure to social media on the mental well-being among Nepalese young adults, as mediated by attitudes toward its positive and negative impacts. A total of 200 respondents aged 18–25 years were selected through purposive and convenience sampling. Regression analysis revealed two key findings. First, social media exposure alone did not significantly predict mental well-being. However, when attitudes toward the negative impacts of social media were considered, YouTube exposure was a significant negative predictor, while Twitter exposure positively influenced mental well-being. Second, when mediated by attitudes toward the positive impact of social media, YouTube exposure again showed a negative association with mental well-being, whereas the positive perception of information-sharing needs significantly improved mental health outcomes, although the predictive power was low (R^2 = 0.172). These findings highlighted the platform-specific risks and benefits of social media use among Nepalese youth. Limitations include cross-sectional design, cultural specificity, and reliance on self-reported data. Future interventions should focus on digital literacy and promoting positive engagement with social media to support youth mental health.

Keywords: Media Exposure to Social Media, Nepalese Youth, Positive Impact and Negative Impacts of Social Media, Mental Wellbeing

Introduction

Social media exposure creates both optimistic connections between young adults alongside adverse psychological effects that affect global adolescent mental health. Existing research on anxiety and depression concerns alongside social comparison problems came from Western societies (Stroud et al., 2015), limited research was examined about their effects in Nepal. Nepalese young adults' culture depends heavily on social media tools such as Facebook, TikTok, and Instagram since these platforms have reached 77% of the population while preserving their traditional heritage and modern digital behavior. Analysis requires attention because cyberbullying issues, along with

unrealistic beauty norms and mental health discrimination, need focus. Social media uses together with appraisal of beneficial and detrimental aspects affecting Nepalese adolescent mental health according to Social Comparison Theory (Festinger, 1954), Social Identity Theory (Tajfel & Turner, 1979), and Media Effects Theory (Valkenburg & Oliver, 2019). Social Comparison Theory, Social Identity Theory, and Media Effects Theory collectively explain how exposure to social media influences mental well-being by shaping how adolescents perceive themselves in relation to others, form their identity, and react to media content. These perceptions, whether positive or negative, impact their attitudes toward social media, which in turn mediate the effects of social media on their mental health. Social media platforms facilitate better community bonds while they amplify feelings of being insufficient and disconnected from others. There is a lack of research that applies universal conclusions to Nepal's distinct socio-cultural characteristics. Research addresses an important omission by studying how Nepalese young adults connect with social media and their resulting mental health conditions. The research seeks to develop culturally compatible interventions and digital literacy programs as well as advance knowledge about adolescent digital well-being in modern times.

Objectives

The research aimed to investigate how exposure to social media influences Nepalese young adults' mental health while determining their overall well-being.

1. To examine the influence of media exposure to social media on the mental well-being of Nepalese young adults as mediated by their attitudes toward the positive impacts of social media.
2. To examine the influence of media exposure to social media on the mental well-being of Nepalese young adults as mediated by their attitudes toward the negative impacts of social media.

Literature Review

Research has intensively examined how social media changes adolescent mental health conditions because of the fast-expanding social media adoption among teenagers. The analysis of Nepalese adolescent attitudes toward social media impacts depends on Social Comparison Theory with Social Identity Theory and Media Effects Theory as a foundational theoretical backup to explain behavioral and mental health effects. The evaluation process, according to Social Comparison Theory (Festinger, 1954), involves people assessing themselves through evaluations of others' lives. Social media sites such as Facebook and Instagram present carefully selected and perfect representations of lives, which result in adolescent users making comparisons that lead them upwards in ranking.

Social media comparisons create feelings of inadequacy and anxiety and deterioration of self-esteem, according to Chadee (2022). Young Nepalese adults who are rampantly engaging with global platforms become more psychologically vulnerable because they encounter unattainable lifestyle standards along with unrealistically achieved goals that especially affect young people from lower economic backgrounds.

The self-concept develops through group membership according to Social Identity Theory, which Tajfel and Turner introduced in 1979. The online world allows young adults to join multiple communities where they share mutual interests, values, and goals. Students construct digital identities through online platforms, which produce either increased confidence or worsen their feelings of social inferiority depending on their experiences with acceptance or online mistreatment. The involvement in supportive social media communities minimizes stress while strengthening personal resilience (Stevens et al., 2021), although this advantage becomes established through mindful social media use. The research model presented by Media Effects Theory (Valkenburg & Oliver, 2019) shows how media exposure modifies human behavioral responses. The mental health results of young adults emerge from their media exposure (either positive or negative content) together with their specific usage behaviors. Positive interactions on the internet, which include engaging in mental health advocacy and educational knowledge retrieval, lead to emotional support, but negative content such as cyberbullying and unattainable standards increases mental health risks (Barroso-Corroto et al., 2023).

Several past studies confirmed the negative impact on social media usage on young adults' anxiety and depression. Research conducted in Nepal by Adhikari and Pandey (2020) demonstrated that regular social media usage caused university students to develop anxiety and depression symptoms because they encountered negative content and excessive screening practices between themselves and others. International academic research also demonstrates these results. Huang's (2017) also found that passive social media browsing leads to increased depressive symptoms among American young adults.

On the other hand, the act of involving oneself in supportive online communities has shown a positive link to better emotional resilience (Best et al., 2014). Social media produces positive effects when teenagers use it as an information source along with building social relationships while receiving confirmation for their actions. Nepalese young adults use Facebook groups to access academic resources, maintain community bonds, and conduct social activism, which helps them feel more purposeful and part of a social group. Users experience negative attitudes that form during cyberbullying situations and social exclusion events as well as through unachievable beauty standards and financial success images. Mental health outcomes heavily depend on the way positive and negative digital communication experiences with social media interact with each other. This study

extends current theoretical and empirical work by studying how Nepalese young adults interact with social media content, which forms their assessments of its effects, while their attitude acts as a connection between social media contact and mental wellness. The research integrates findings from both local and global research studies to examine the dual effects of social media on Nepalese adolescent mental health in a culturally relevant setting, thus filling a knowledge gap in this field.

Hypotheses

H1: Media exposure to social media is a significant predictor of Nepalese respondents' mental well-being as mediated by their attitude toward the negative impact of social media.

H2: Media exposure to social media is a significant predictor of Nepalese respondents' mental well-being as mediated by the attitude toward the positive impact of social media.

Concept Theory Framework

This conceptual framework highlights the impact of exposure to social media on the young Nepalese adults' mental well-being as mediated by their attitude toward the negative impact and the positive impact of social media. The study underscores the psychological gratifications that young social media users seek and obtain, and how these gratifications, in turn, affect their mental health.

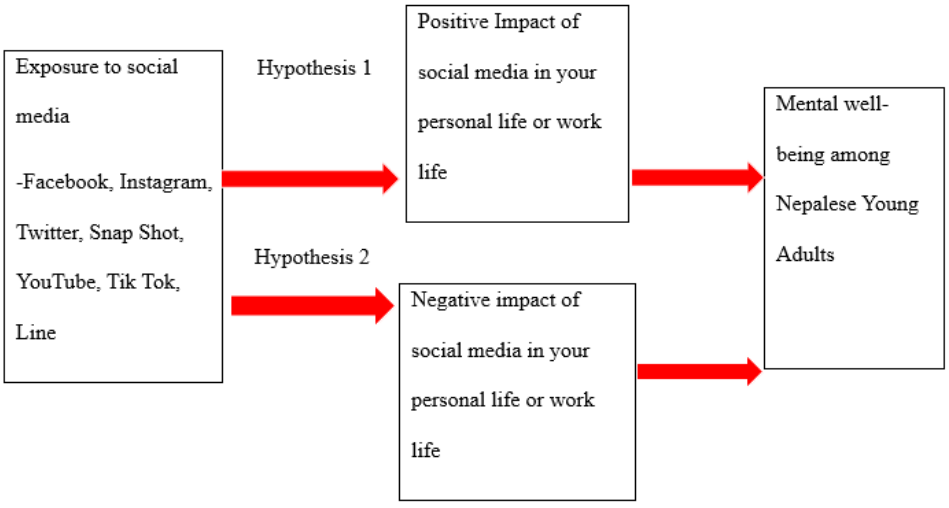


Figure 1: Conceptual framework

Research Methodology

Research Design

The study adopted a quantitative survey approach to analyze the effects of young adults' social media interaction and their perceptions about social media benefits and risks on their psychological status. Professional questionnaires served as the data collection method for youths within the age range of 18–25 years old in Nepal. The design structure enabled researchers to conduct statistical tests that produced recommendations to enhance young adults' mental health.

Population and Sampling Methods

The Nepalese young adults aged 18–25 years who maintained social media usage for one year or more constituted the study population. The increasing digital connectivity in Nepal has established Facebook (60.93%), TikTok and Instagram (14.14%), and YouTube (0.87%) as essential components of young adults' culture (Stroud et al., 2015). The researcher used purposive along with convenience sampling methods. By using purposive sampling, the researcher selected participants with certain requirements (age and social media experience), and by employing convenience sampling, they successfully recruited participants through online methods. Given its convenient nature, the sampling process might produce biased results that reduce the transferability of study findings. The surveyed group consisted of two hundred subjects who resided in urban and rural communities to obtain diverse insights from Nepalese youth.

Research Instrument

This research employed a survey composing four sections. Section I (seven questions) asked about demographic factors of young Nepalese adults, including gender, age, educational background, personal income per month, location of residence, hours spent on social media per day, types of content usually engage in social media, using nominal-and-ordinal questions. In addition, Section I also asked about the media exposure to various social media in the past one- year period, including Facebook, Instagram, Tweeter, Line, Snapchat, YouTube, and others, using 5-point Likert scale, arranging from 1-Never, 2-Rarely 1-2 times per week, 3-Sometimes (4-5 times per week).

Section II inquired about attitude toward the negative impact of social media measuring general anxiety disorder among young Nepalese adults. This section used the General Anxiety Disorder scale adopted from Chadee (2022), having seven questions, with 4-point Likert scale, arranging from 0-Not at all, 1-Several days, 2-More than half the day, or 3 Everyday.

Section III probed the attitude toward the positive impact of social media, adopted from Barroso-Corroto et al., (2023), having 20 questions using 5-point Likert scale, arranging from 1-Strongly agree, 2-Agree, 3-Neutral, 4- Agree, 5-Strongly agree. The scale for

measuring the positive impact of social media has three constructs, including information need importance, entertainment need importance, personal need importance, and social need importance. Higher scores on "positive attitudes" reflected favorable perceptions, while higher scores on "negative attitudes" reflected stronger perceptions of harm.

Finally, Section IV gauged the mental well-being of respondents, adopted from the Mental Well-Being scale in Liu & Zhang (2019), Liu et al. (2016), and Przbylski et al. (2013). The scale comprises anxiety, depression, self-confidence, and social comparison. The questionnaire was dependable because each section was higher than 0.70. The scale for measuring exposure to social media had Cronbach alpha of 0.90, attitude toward the negative impact of social media had Cronbach alpha of 0.81, attitude toward the positive impact of social media had Cronbach alpha of 0.75, and mental well-being got 0.71, respectively. The independent variable was exposure to social media, and the dependent variable was the mental well-being. Finally, the mediating variable was attitude toward the negative impact of social media and attitude toward the positive impact of social media.

Data Analysis and Rationale for Regression Models

The research applied Multiple Regression analysis for assessing the different predictive associations between variables. Multiple regression analysis provided an appropriate approach to evaluate the combined media exposure effects with attitudes on mental health alongside exploring the intervening impact of both positive and negative attitudes. Regression modeling seemed appropriate to analyze complex sequential relations because it follows Baron and Kenny's (1986) criteria for mediation analysis. The research presented beta weights along with R-squared values and statistical significance to determine both model accuracy and variable predictive power.

Results

Descriptive Findings

The study examined the impact of social media on the mental well-being of Nepalese youth, with a sample of 200 participants. The majority of participants were male (64.5%, n = 129), followed by females (30%, n = 60), and LGBTQ+ individuals (5.5%, n =11) Most participants (84.5%, n = 169) lived in rural areas, highlighting different social media usage patterns influenced by access to technology. Occupationally, 56.5% (n = 113) were students or unemployed, with other groups including business professionals (16%, n = 32) and farmers (9.5%, n = 19). Income was in lower to middle ranges, with 48% (n = 96) earnings between NPR 20,201 and NPR 40,400. Social media use was significant, with 47.5% (n = 95) spending 3-4 hours daily and 37% (n = 74) spending more than 4 hours.

Most respondents reported that they sometimes exposed to social media per week ($\bar{x}$ = 3.35, SD = 0.62). YouTube and Facebook were the most frequently accessed platforms, followed by Instagram, while Snapchat, TikTok, and Line were less frequently used. Regarding the positive impact of social media, respondents ranked it at a medium level ($\bar{x}$ = 3.32, SD = 0.59). When examining each dimension, the results revealed that majority of the respondents ranked social need importance ($\bar{x}$ = 3.69, SD = 81) in the medium level having the highest mean, followed by entertainment need importance ($\bar{x}$ = 3.88, SD = 0.64) , information need importance ($\bar{x}$ = 2.94, SD = 0.92), and personal need importance ($\bar{x}$ = 2.72, SD = 0.98), respectively.

The negative impact of social media on anxiety was perceived as minimal, with low scores for symptoms like nervousness and trouble relaxing ($\bar{x}$ = 1.17–1.20). Most respondents reported medium mental well-being ($\bar{x}$ = 2.88, SD = 0.35), with higher rankings for statements about life satisfaction and finding beauty in things, suggesting a moderate sense of well-being.

Inferential Findings

In line with Social Comparison Theory and Media Effects Theory, the study hypothesized that exposure to social media would influence mental well-being, mediated by attitudes toward its positive and negative impacts. Regression analysis was conducted to assess these theoretical relationships. Two models examined how social media exposure, content type, and engagement patterns influenced anxiety symptoms and psychological health. The three predictors of mental well-being were analyzed using R-squared values, significance levels, and regression coefficients to determine their impact.

H1: Media exposure to social media is a significant predictor of Nepalese respondents' mental well-being as mediated by their attitude toward the negative impact of social media.

Regression results (Table 1) indicated that exposure to social media alone was not a significant direct predictor of mental well-being (β = -0.656, $p > 0.005$). However, when negative perceptions were considered as mediators, YouTube exposure was found to negatively predict mental well-being (β = -0.153*, $p < 0.005$), while Twitter exposure positively predicted well-being (β = 0.042*, $p < 0.005$). Other platforms, such as Facebook and TikTok, were excluded due to their lack of significant contribution. Thus, Hypothesis 1 was partially supported, suggesting that the effects of social media on mental health depend heavily on the type of platform used and the users' perceived negative impacts.

Table 1: Summary of Regression Analysis of Hypothesis 1

Predictors	B	S.E.	Beta	t	Sig.
Media exposure to all social media	-0.656	-0.057	-0.136	-0.656	0.513
Media exposure to YouTube	-0.153	-0.316	-0.136	-4.557*	0.000
Media exposure to Twitter	0.042	0.019	0.155	2.221*	0.028
Negative impact of social media	-0.080	0.027	-0.206	-2.978*	0.003

Remarks:
Predictor: Media exposure to social media, Mediating variable: Positive impact of social media, Dependent variable: Mental well-being, $F = 0.003$, $R^2 = 0.142$, $p^* < 0.05$

H2: Media exposure to social media is a significant predictor of Nepalese respondents' mental well-being as mediated by the attitude toward the positive impact of social media.

Regression analysis (Table 2) showed that exposure to social media significantly predicted mental well-being when mediated by positive attitudes ($F = 15.629^*$, $p < 0.005$). However, the model explained only 17.2% of the variance in mental well-being ($R^2 = 0.172^*$, $p < 0.05$), indicating a modest predictive strength.

Specifically, exposure to YouTube again showed a significant negative association with well-being ($\beta = -0.150^*$, $p < 0.005$). In contrast, positive attitudes toward the information need fulfilled by social media significantly predicted better mental well-being ($\beta = 0.108^*$, $p < 0.005$). Thus, Hypothesis 2 was partially supported, highlighting the importance of platform-specific experiences and the role of positive perceptions in mitigating the negative psychological impact of social media exposure.

Table 2: Summary of Regression Analysis of Hypothesis 2

Predictors	B	S.E.	Beta	t	Sig.
1. Media exposure to YouTube	-0.150	0.033	-0.310	-4.55*	0.000
2. Media exposure to Twitter	0.017	0.020	0.063	0.860	0.391
3. Attitude toward the positive impact of social media	-0.006	0.027	0.107	1.147	0.253
4. Attitude toward the positive impact of social media	0.107	-	-	1.147	0.253
5. Positive impact on information needs importance	0.108	0.027	0.289	3.953*	0.000
6. Attitude toward the positive impact on entertainment need importance	0.074	-	-	0.105	0.916
7. Attitude toward the positive impact on personal need importance	0.074	-	-	1.069	0.287
8. Attitude toward the positive impact on social need importance	0.105	-	-	1.458	0.109

Remarks:

Predictor: Media exposure to social media, Mediating variable: Positive impact of social media, Dependent variable: Mental well-being t, $R^2 = 0.172$, $F = 15.629$, $p^* < 0.05$.

Conclusions and Discussion

Findings for Hypothesis 1 revealed that exposure to social media alone does not directly predict mental well-being. However, when mediated by attitudes toward negative impacts, platforms such as YouTube were associated with increased anxiety and low self-esteem. Young adults who frequently engaged with unrealistic portrayals, cyberbullying, or negative content experienced heightened distress, which aligned with Social

Comparison Theory (Festinger, 1954) that emphasized the detrimental effects of upward social comparisons. Similarly, Media Effects Theory (Valkenburg & Oliver, 2019) supported the idea that prolonged exposure to curated digital content reinforces self-doubt and emotional distress.

Conversely, findings from Hypothesis 2 suggested that social media can enhance well-being when young adults engage positively. Those who participated in online support communities, accessed educational content, and followed mental health initiatives reported greater emotional support and a stronger sense of connection. This finding aligned with Social Identity Theory (Tajfel & Turner, 1979), which suggested that belonging to positive online groups fosters self-esteem and reduces feelings of loneliness. Additionally, the Positive Psychology Framework (Barroso-Corroto et al., 2023) reinforces that social media, when used positively, can serve as a tool for empowerment and emotional resilience.

In conclusion, this study highlighted that the influence of social media on mental health is complex, presenting both risks and opportunities. Policymakers, educators, and mental health professionals should promote digital literacy programs and responsible social media use to help Nepalese young adults critically assess content, engage positively, and avoid harmful online behaviors. These findings contribute to advancing knowledge by validating theoretical models in a Nepalese context and illustrating how platform-specific and attitude-based factors mediate the effects of social media on adolescent mental health. Future research should explicitly challenge and refine existing theories by incorporating longitudinal designs to better understand causality and developmental changes over time.

Limitations of the study

1. The cross-sectional design limits the ability to draw causal conclusions. Future research should employ longitudinal studies, such as cohort designs or panel data analysis, to track changes in social media behaviors and mental health outcomes over time.
2. The focus on Nepalese young adults restricts the generalizability of the findings. Cultural factors, such as collectivism, family influence, and societal expectations in Nepal, likely shape how young adults perceive and are affected by social media, which may differ from young adults in more individualistic cultures.
3. The exclusion of emerging platforms like TikTok from primary analysis leaves gaps in understanding newer forms of social media interactions and their psychological effects.
4. The use of self-reported data may introduce biases such as recall errors or social

desirability bias, which could affect the accuracy of reported media exposure and mental health states.

5. The emphasis on young adults overlooks the potential mental health effects of social media on other age groups, such as pre-adolescents or young adults aged over 25. Future studies should expand age ranges for broader insights.

Recommendations for Further Application

Based on the findings of this study, two key recommendations are proposed:

1. Develop digital literacy programs that educate young Nepalese adults on critical thinking about social media content, recognizing risks, and fostering healthy online habits. Such programs should also emphasize resilience-building against social comparison and online negativity.
2. Create platform-specific mental health interventions to mitigate psychological risks, such as reducing social comparison on Instagram and TikTok and promoting emotional well-being through constructive content on platforms like YouTube.

References

Abi-Jaoude, E., Naylor, K. T., & Pignatiello, A. (2020). Smartphones, social media use and youth mental health. Canadian Medical Association Journal, 192(6), E136-E141. Retrieved January 7, 2024, from https://doi.org/10.1503/cmaj.190434.

Barroso-Corroto, E., Cobo-Cuenca, A. I., Laredo-Aguilera, J. A., Santacruz-Salas, E., Pozuelo-Carrascosa, D. P., Rodríguez-Cañamero, S., ... & Carmona-Torres, J. M. (2023). Dating violence, violence in social networks, anxiety, and depression in nursing degree students: A cross-sectional study. Journal of Advanced Nursing, 79(4), 1451-1463. Retrieved October 5, 2023, from https://doi.org/10.1111/jan.15170.

Chadee, D. (Ed.). (2022). Theories in social psychology. John Wiley & Sons. https://doi.org/10.1002/9781394266616

Stevens, F., Nurse, J. R., & Arief, B. (2021). Cyber stalking, cyber harassment, and adult mental health: A systematic review. Cyberpsychology, Behavior, and Social Networking, 24(6), 367-376. Retrieved October 2, 2023, from https://doi.org/10.1089/cyber.2020.0253.

Stroud, C., Walker, L. R., Davis, M., & Irwin, C. E. (2015). Investing in the health and well-being of young adults. Journal of Adolescent Health, 56(2), 127-129. Retrieved November 2, 2024, from https://doi.org/10.1016/j.jadohealth.2014.11.012.

Valkenburg, P. M., & Oliver, M. B. (2019). Media effects theories 1. Media Effects, 16-35. Retrieved October 2, 2023, from https://doi.org/10.4324/9780429491146-2.

Wight, N. E., Wight, N. E., Stehel, E., Noble, L., Bartick, M., Calhoun, S., Kair, L., Lappin, S., Larson, I., LeFort, Y., Marshall, N., Mitchell, K., Rothenberg, S., Seo, T., Weissman, G., Winter, L., Wonodi, A., Young, M., & Zimmerman, D. (2021). ABM clinical protocol #1: Guidelines for glucose monitoring and treatment of hypoglycemia in term and late preterm neonates, revised 2021. Breastfeeding Medicine, 16(5), 353-365. Retrieved November 7, 2023, https://doi.org/10.1089/bfm.2021.29178.new

The Impact of Teachers' Job Demands and Job resources on Turnover Intention - In Private Universities in Guizhou, China

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Abstract

This study investigated the impact of job demands and job resources on teachers' turnover intention based on the Job Demands-Resources Model (JD-R Model) in private universities in Guizhou Province. A total of 361 valid questionnaires were collected from six private universities in Guizhou Province through stratified random sampling method, and the data analysis methods used were percentage, mean, standard deviation and multiple regression analysis. The results showed that the respondents in this study were slightly more male, primarily young teachers under 30 years of age with 1-5 years of teaching experience. The largest number of participants had intermediate titles, and fewer had senior titles. Their monthly salary ranged from 4,001 to 7,000 CNY. The hypothesis testing results revealed that job demands significantly and positively predicted turnover intention and job resources significantly and negatively predicted turnover intention. Therefore, private universities should make efforts to improve teachers' working environment, alleviate job demands, and provide sufficient job resources to continuously improve teachers' subjective well-being, promote teacher stability, and reduce turnover intentions.

Keywords: Job demands, Job resources, Turnover Intention, Private University

Introduction

As an important region for the development of higher education in Southwest China, Guizhou Province has seen rapid growth in the number of colleges and universities and the size of students in recent years, but the problem of teacher mobility has become increasingly prominent. The average annual departure rate of teachers in Guizhou province's colleges and universities reached 8.3 per cent in 2023, which is higher than the national average (6.5 per cent) (Guizhou Provincial Department of Education, 2023). The high mobility of teachers not only affects the quality of teaching but also exacerbates the imbalance in the distribution of regional educational resources (Feng & Sass, 2016).

Teachers' turnover is the result of multiple factors (Räsänen et al., 2020). The formation of private teachers' turnover intention in Chinese universities is influenced by their current work environment (Luo & Shen, 2017). The job demands - resources model is a widely adopted theoretical framework in the field of work environmental research. Therefore, this study aims to explore the impact of the job demands and job resources on turnover intention in private universities in Guizhou, China. The findings from this study can provide a theoretical basis for private universities to improve the stability of their teaching force.

Objectives

1. To examine the status of the job demands and job resources of private universities teachers.
2. To examine the status of teachers' turnover intention in private universities.
3. To explore the impact of teachers' job demands and job resources on turnover intention in private universities in Guizhou, China.

Literature Review

With the deepening of education reform, the work environment of teachers has gradually received extensive attention from all walks of life, and the high or low rate of teacher turnover is not only related to the quality of teaching and learning in schools, but also to the stability and development of the entire education system (Carver-Thomas & Darling-Hammond, 2017).

There are significant differences in the management of private and public universities. Private universities are most notably characterized by the need to be self-sufficient. Although private universities are more flexible in raising and spending funds, they also face greater pressures and challenges (Wang et al., 2020).

Job demands are defined in the job demands-resources (JD-R) model as aspects of a job that require sustained physical or mental effort and are therefore associated with certain physical and psychological costs (Schaufeli, 2017). As society's demands on teachers in private colleges and universities become higher and higher, the psychological pressure on teachers is also increasing. This not only affects work efficiency but may also have a negative impact on their physical and mental health.

However, research has shown that Job resources help to achieve work goals, reduce work demands and costs, and stimulate personal growth and development, co-worker and social support, and opportunities for advancement (Tummers & Bakker, 2021). Professional development activities in the form of induction training, seminars, and lectures organized by schools play a vital role in reducing teachers' turnover intention (Smith & Ingersoll,

2004). In addition, teachers' relationships with their leaders and colleagues are also important predictors of teachers' turnover intention (Simon & Johnson, 2015).

Related Research Theories

The theoretical foundations for understanding the impact of job demands and resources on turnover intention in private universities are the job demands-resources (JD-R) model and social exchange theory (SET). The JD-R is a widely adopted theoretical framework in the field of work environment research. Bakker and Demerouti (2017) stated that the work environment consists of job demands and job resources. It helps researchers gain a clearer understanding of the problems and challenges faced by teachers in their work environment, enabling the implementation of appropriate management strategies to reduce turnover intentions.

Social exchange theory (SET) originated in the 1920s (Tumin et al., 1956). Homans (1958) first introduced the concept of social behavior as exchange in literature. According to the SET, teachers' turnover intention is the result of teachers' assessment of the costs and benefits of the work relationship. When teachers perceive that the job resources provided their professional identity needs, it reinforces their intention to stay in the organization.

Conceptual Framework and Research Hypothesis

Based on various phenomena and research results. Therefore, the research framework and research hypothesis are as follows:

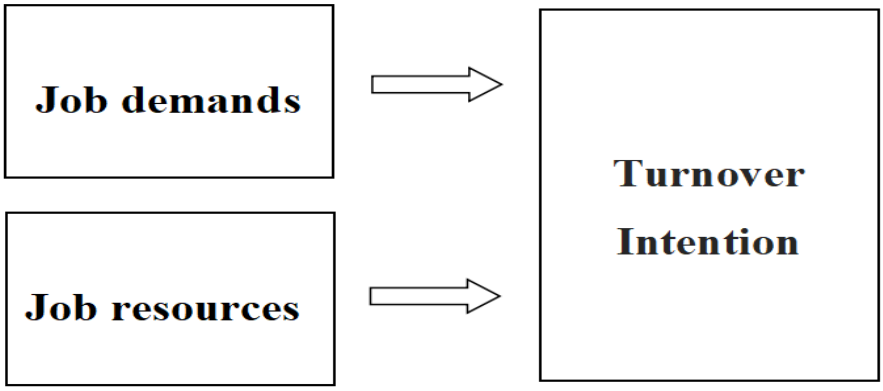


Figure 1: Conceptual Framework

Research hypotheses:

H1: Job demands have a positively significant impact on turnover intention.

H2: Job resources have a negatively significant impact on turnover intention.

Research Methodology

This study adopted quantitative research design with 3,659 teachers from private universities in Guizhou as the target population and collected questionnaire data through a stratified sampling method using the Questionnaire Star online survey. The questionnaire consists of four parts. The first part is about the demographic characteristics of the participants, including five questions. The second part is the nine questions about job demands, and the third part is the nine questions about job resources. The fourth part consists of eight questions about turnover intention.

Based on the evaluation conducted by three independent reviewers utilizing the Index of Content Validity (IOC) test, the questionnaire demonstrated an important level of validity with an IOC score of 0.951. The alpha coefficient method was used to assess the reliability of Cronbach's alpha, resulting in an overall score of 0.948.

The Yamane formula was used to calculate a sample size of 361. The data was statistically analyzed using percentage, mean, standard deviation, and multiple regression analysis.

Results

By analyzing the questionnaire survey of teachers from private universities in Guizhou, the following basic information about the respondents was obtained:

Table 1: Descriptive statistics on demographic information

Question	Frequency	Percentage (%)	Cumulative percentage (%)
Gender			
Male	187	51.80	51.80
Females	174	48.20	100.00
Age			
Under 30 years old	102	28.26	28.26
31-40 years old	97	26.87	55.12
41-50 years old	87	24.11	79.22
Above 50 years old	75	20.79	100.00
Teaching experience			
1-5 years	131	36.28	36.28
6-10 years	93	25.77	62.05
11-15 years	99	27.43	89.47
16-20 years	20	5.54	95.01
More than 21 years	18	4.97	100.00
Position			
Junior Title	118	32.69	32.69
Intermediate Title	154	42.66	75.35

Question	Frequency	Percentage (%)	Cumulative percentage (%)
Associate Title	71	19.67	19.67
Senior Title	18	4.99	100.00
Monthly salary			
Less than 4,000 CNY	42	11.63	11.63
4,001-7,000 CNY	166	45.98	57.63
7,001-10,000 CNY	120	33.24	90.86
More than 10,001 CNY	33	9.14	100.00

Table 1 shows that the respondents in this study were slightly more male, mostly young teachers under 30 years of age with 1-5 years of teaching experience. The largest number of participants had intermediate titles, fewer had senior titles, and received monthly salary between 4,001-7,000 CNY.

Table 2: Descriptive statistic on Job demands, Job resources and turnover intention.

	Mean	Standard deviation	Level of perception
X1 Job demands	3.45	0.93	agree
X2 Job resources	2.56	0.91	disagree
Y Turnover Intention	3.42	0.9	agree

Table 2 shows that the mean value of job demands is 3.45, indicating that respondents perceive job demands to be slightly higher, with a standard deviation of 0.93 reflecting greater inter-individual variability. The mean value of job resources is 2.56, indicating that respondents perceive job resources to be insufficient. The mean value of turnover intention is 3.42, indicating that respondents have a certain tendency to leave their jobs, with a standard deviation of 0.90 indicating that individual differences are obvious and that some respondents may have a higher turnover intention.

Table 3: Relationship between Job demands, Job resources and turnover intention.

	Job demands	Job resources	Turnover Intention
Job demands	1	-.470**	.391**
Job resources	-.470**	1	-.423**
Turnover Intention	.391**	-.423**	1

**. The correlation is significant at the 0.01 level (two-tailed).

According to the analysis of the correlation coefficients of the variables in Table 3, the significant correlation between the core variables provides initial support for the hypothesis testing of the theoretical model in the next step.

Table 4: Regression analysis of Job demands Job resources and turnover intention.

	Unstandardized Coefficients		Standardized Coefficients	t	p	VIF	Tolerance
	B	Standard Error	Beta				
Constant	3.37	0.272	-	12.404	0.000**	-	-
X1 Job demands	0.241	0.051	0.247	4.696	0.000**	1.284	0.779
X2 Job resources	-0.305	0.052	-0.307	-5.82	0.000**	1.284	0.779

R^2= 0.226, Adjusted R^2= 0.222, F = 52.402, p=0.000

* p<0.05 ** p<0.01

According to the results of Table 4, the R^2 of the model is 0.226 and the adjusted R^2 is 0.222, which indicates that job demands, and job resources can explain 22.6% of the variance in turnover intention. F=52.402, p=0.000, which indicates that the independent variables have a significant effect on turnover intention. The VIFs are less than 10, and the tolerances are greater than 0.1, which indicates that there is no serious covariance problem between the independent variables (Ciobotaru & Mazza, 2022). The unstandardized coefficient of job demand, B=0.241, and standardized coefficient, Beta=0.247, t=4.696, p=0.000, indicate that job demand has a positively significant impact on turnover intention. The unstandardized coefficient of job resources is B = -0.305, Beta = -0.307, t = -5.82, and p = 0.000, indicating that job resources have a negatively significant impact on turnover intention. And the strength of the effect of job resources is slightly higher than job demands. Therefore, these results support hypotheses H1 and H2.

Conclusions and Discussion

Based on the data of 361 teachers from six private universities in Guizhou, this study explains the impact of teachers' job demands and job resources on turnover intention based on the JD-R Model and SET. It was found that job demands had a positively significant impact on turnover intention, job resources had a negatively significant impact on turnover intention. These findings are consistent with the conclusions drawn by Puma

et al. (2025) and Nogues and Tremblay (2025), who demonstrated that job demands, and job resources significantly impact turnover intention. Although the research subjects in these studies differ, the results align closely.

It is clear from the above results that job demands, and job resources are closely related to turnover intention. However, the impact of job demands and job resources on turnover intention does not exist in isolation but interact with each other. When job demands are too high and job resources are insufficient, teachers will feel stressed and lack support, and turnover intention will increase significantly. On the contrary, even if job demands are high, teachers may be more willing to stay in their positions if job resources are abundant and they can get enough support and help.

Therefore, to stabilize the teaching force, organizations should optimize job demands and increase job resources to encourage teachers to cope with their jobs positively and reduce turnover intention.

Recommendations

In view of the conclusions, the following recommendations are made:

1. Organizations should reduce the work pressure of teachers by optimizing work processes and improving work efficiency, adjusting job demands, scientifically distributing work tasks and avoiding excessive workload.
2. Organizations should increase investment in job resources and provide teachers with more social support, training opportunities and development space. Create a good team atmosphere, strengthen communication and collaboration among employees, establish a sound training system, and improve professional ability and comprehensive quality of employees.
3. Teachers themselves should continue to improve their own stress resistance and coping ability to better cope with the pressure brought about by the work requirements. At the same time, actively access to work resources, and colleagues and leaders to establish a good relationship, and strive for more support and help.

Research Limitations

This study focuses on the opinions of 361 teachers from private universities in Guizhou and analyzes their responses to items such as job demands and job resources on turnover intention. However, teachers' turnover intention may be influenced by multiple factors. In terms of data collection, questionnaires were used, a method that may be disturbed by teachers' subjective cognitive biases. In addition, teachers' job demands, and job resources are in a dynamic state of change, and this study failed to conduct in-depth

interviews and long-term follow-up observations of teachers, making it difficult to fully capture the dynamic evolution of teachers' turnover intention at dissimilar stages.

Research Suggestions for Future Research

Future research should consider more variables that impact teachers' turnover intention, such as work-family balance and digital transformation stress. In addition to questionnaires, in-depth interviews and other methods can be used to explore teachers' thoughts and emotions about their job demands, job resources, and turnover intention. Meanwhile, regular, and dynamic tracking of changes in job demands and job resources, as well as changes in their turnover intention, will help them to understand the complex impact between them more fully.

References

Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory: Taking stock and looking forward. Journal of Occupational Health Psychology, 22(3), 273–285. https://doi.org/10.1037/ocp0000056

Carver-Thomas, D., & Darling-Hammond, L. (2017). Teacher turnover: why it matters and what we can do about it. https://doi.org/10.54300/454.278

Ciobotaru, C., & Mazza, C. (2022). Consistency and asymptotic normality of M-estimates of scatter on Grassmann manifolds. Journal of Multivariate Analysis, 190, 104998. https://doi.org/10.1016/j.jmva.2022.104998

Feng, L., & Sass, T. R. (2016). Teacher quality and teacher mobility. Education Finance and Policy, 12(3), 396–418. https://doi.org/10.1162/edfp_a_00214

Guizhou Provincial Department of Education. (2024). Guizhou Province 2023 National Economic and Social Development Statistics Bulletin. https://www.guizhou.gov.cn/.

Homans, G. C. (1958). Social behavior as exchange. American Journal of Sociology, 63(6), 597–606. https://doi.org/10.1086/222355

Luo, Y., & Shen, H. (2017). Influential factors of university teachers' turnover intentions: An empirical study based on the 2014 Chinese university teachers' survey. China Higher Education Research, 33(11), 45–56. https://doi.org/10.16298/j.cnki.1004-3667.2017.11.16

Nogues, S., & Tremblay, D. (2025). Work intensification, Work–Life conflict and turnover Intentions in the teaching profession: evidence from schoolteachers in Quebec, Canada. Industrial Relations Journal. https://doi.org/10.1111/irj.12463

Puma, J., Pangalangan, J., & Farewell, C. (2025). The Well-Being of the Early Childhood Workforce: Rural and urban differences. Early Childhood Education Journal. https://doi.org/10.1007/s10643-025-01880-4

Räsänen, K., Pietarinen, J., Pyhältö, K., Soini, T., & Väisänen, P. (2020). Why leave the teaching profession? A longitudinal approach to the prevalence and persistence of teacher turnover intentions. Social Psychology of Education, 23(4), 837–859. https://doi.org/10.1007/s11218-020-09567-x

Schaufeli, W. B. (2017). Applying the Job Demands-Resources model. Organizational Dynamics, 46(2), 120–132. https://doi.org/10.1016/j.orgdyn.2017.04.008

Simon, N., & Johnson, S. M. (2015). Teacher turnover in High-Poverty Schools: What we know and can do. Teachers College Record the Voice of Scholarship in Education, 117(3), 1–36. https://doi.org/10.1177/016146811511700305

Smith, T. M., & Ingersoll, R. M. (2004). What are the effects of induction and mentoring on beginning teacher turnover? American Educational Research Journal, 41(3), 681–714. https://doi.org/10.3102/00028312041003681

Tumin, M. M., Mauss, M., Cunnison, I., & Evans-Pritchard, E. E. (1956). The Gift: Forms and functions of exchange in archaic societies. American Sociological Review, 21(2), 249. https://doi.org/10.2307/2088549

Tummers, L. G., & Bakker, A. B. (2021). Leadership and Job Demands-Resources Theory: A Systematic Review. Sec. Organizational Psychology. https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2021.722080/full

Wang, J., Yang, M., & Maresova, P. (2020). Sustainable development at Higher education in China: A comparative study of students' perception in public and private universities. Sustainability, 12(6), 2158. https://doi.org/10.3390/su12062158

The Impact of the Digital Economy on The Development of The Tourism Industry in Shaanxi Province

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Abstract

The objective of the study is to analyze the impact of the digital economy on the development of the tourism industry in Shaanxi Province. The quantitative method approach was used and the sample for the study involved 385 owners or managers of the tourism industry. The instrument used for data collection is a questionnaire. The data collected is analyzed by statistics including demographic information, descriptive analysis, and multiple regression analysis. The finding shows that digital economy adaptation significantly impacts the development of tourism industry with Relative Advantage (0.083), Complexity (0.060), Trialability (0.044) and Observability (0.073). Similarly, user acceptance of digital tools significantly impacts the development of tourism industry with Perceived Usefulness (0.077), Perceived Easy to Use (0.056), Behavioural Intention to Use (0.094), Attitude towards Using (0.072) and Actual system use (0.128). Furthermore, network effect significantly impacts the development of tourism industry with Indirect Network Effect (0.061), User-Generate Content (0.056), and Cross-Platform Integration (0.080). The advantages created by digital economy adaptation led to better tourism development and increased acceptance of digital tools which generate network effects. Complexity acts as the major downside which makes it difficult to achieve seamless digital adoption within the tourism sector.

Keywords: Digital Economy, Tourism Industry, Tourism, Shaanxi Province

Introduction

As the world is becoming more connected, the digital economy is in the middle of many industries that have various levels of growth, including tourism (Khan et al., 2020). When the increase in adopting recent technologies affects the markets around the world, the tourism industry has proven to be one of the happiest affected industries with the digital standards (Abbas et al., 2023). Worldwide the progression of social media, mobile

applications, online booking sites, social network platforms, and especially e-payments skyrocketed the process of creating travel experiences by offering planning, booking, and experiencing traveling (Mustafa, 2022). The intermediaries for trips such as travel agencies, hotel hosting services, and companies involved in airline service delivery have transitioned from using conventional approaches and systems to using new systems and technology thus making the tourism market competitive and integrated. The penetration rate of online travel booking by June 2024 is expected to be 45.2 percent; therefore, 497 million internet users have used the services. Trip.com is among the leading online holiday booking service providers in the China (Statista, 2024). This global shift of tourism has made competition and innovation in the industry high leading to development within many areas (Streimikiene et al., 2021).

China has currently become one of the world's most favored tourist destinations in the world; it has incorporated the cultural site with modem technology (Keane et al., 2020). According to Statista, (2024), Chinese tourists spent approximately 4.9 trillion in yuan in 2023 showing that it bounced back after the Covid 19 outbreak. In the context of this study, modern technology captures extensive and innovative gadgets and tools that assist the tourists in their search of information services ranging from applications for enhanced mobility to ticketing, booking, and other services to even improve their vacation (Leung, 2022). Tourism plays a vital role in economic development and people exchange whereby countries offer new platforms to market their cultures and interact with other parts of the globe (Xia et al., 2023). Thus, with the further development of tourism potential and the active use of IT technologies, it has managed not only to attract millions of domestic and foreign tourists. One of the areas with fast tourist development is Shaanxi Province which is historically important for Northwest China due to the fact it possesses great amount of cultural and historical potential (Feng et al., 2023). But the modern dynamics of the digital economy have radically changed the ways of the management, promotion, and perception of tourism in Shaanxi.

Digital economy is defined as the economy that employs technologies and the World Wide Web to fuel commerce (Shkarlet et al., 2020). They include electronic business, digital money transfer, information analysis, and web services that help firms to remain relevant and trade with the global market. Thus, the digital economy is now identified as an important player concerning tourism (Carlisle et al., 2023). They facilitate efficient planning and organization of travel by using technology tools like websites and apps, travel blogs and other social media platforms (Buhalis, 2021). But now the information regarding the destination, the fares and tariffs for the flights and accommodation are within the reach of the customer. Further, digital tools are personal as it means that you get recommended something or get to experience something that

you would not have otherwise gotten from other people (Pirhonen et al., 2020). The digital revolution in the tourism industry increases the convenience factor, customers, and competitiveness for better and more travel experiences that can captivate the international traveler from the general people (Balasubramanian et al., 2022).

In the sphere of tourism, it is possible to define the digital economy as any activity related to booking and promotion of services in the internet space, including the use of online tools and gadgets together with virtual tours (Naumik-Gladka et al., 2023). The social media-based applications including TripAdvisor, Ctrip, and WeChat Pay have transformed the way tourists organize their holidays, book accommodations, and even share their experiences. Nowadays, most travelers make their travel services bookings through digital devices thanks to mobile internet and enhanced access to digital devices (Sia et al., 2023).

This upsurge in tourism consumption is evident in areas such as Shaanxi where tourism is led by its rich historical and cultural heritage-links to modern digital service platforms to advance tourism service, thereby playing a significant role in recent years' economic uptick (Tang et al., 2022). The number of domestic tourists to Shaanxi in 2021 reached 391 million, an increase of 9.4%, and the revenue reached RMB 343.4 billion, an increase of 24.3% (HKTDC, 2024). The promotion of tourism in the Shaanxi Province is a major source of employment opportunity. Thus, the sector provides direct and indirect employment in the country for people in hospitality, tourism, hotels and restaurants, guides, employees of cultural and tourism sites etc.

With the development of the digital economy, the cross-platform integration, accessibility, and user engagement of Shaanxi Province's tourism industry have accelerated. It has also come with new pain points. Small tourism operators have limited technical expertise, and it burdens them in terms of adopting digital technologies. Local businesses feel pressure of drawn-out competition which results from online visibility pressures. There is unease about the dependence on digital platforms leading to insecure data and the unreliableness of the system. In addition, the development gap between the two regions is wider due to unequal access to digital infrastructure of rural and urban areas. On the one hand, digitalization gives rise to massive growth opportunities on the other, and there is a constant need for adaptation and the industry is exposed to a new set of vulnerabilities.

In overall, for this study the real issue that is of interest is the nature and degree to which the 'digital economy' impacts the 'tourism industry' in the Shaanxi Province. Considering that the tourism sector develops with high indicators, and digital technologies are progressing intensively, it becomes essential to evaluate the role of the factors causing the development of the internet and other forms of digital activity, including online

platforms, mobile applications, and digital marketing in the growth and competition of this sector in this area.

Objectives

1. To study the level of impact of factors affecting the development of the tourism industry in Shaanxi Province.
2. To analyze the key factors which impact the development of the tourism industry in Shaanxi Province.

Concept theory framework

The paper examines the impact of the digital economy on the development of the tourism industry. The studies related to the topic are as follows:

Digital Economy Adoption: The Digital Economy Adoption Theory in practice looks at how the businesses, the consumers and the governments incorporate digital technologies into economic activities to restructure what was once national and market into a data intensive ecosystem. By primarily relying on technology adoption models like Technology Acceptance Model Davis (1989) and Diffusion of Innovations Theory Miller (2018), that explain the determinants for digital adoption among the public, this theory is rooted. Tang et al. (2022) had studied does the digital economy effectively enhance “innovation and entrepreneurship” in rural tourism sector of China. The finding of the study is that digital economy positively influences tourism entrepreneurial activity in the rural areas. Zhao et al. (2022) conducted the study impact of the digital economy in the high-quality development of tourism an empirical study of Xinjiang in China. The finding shows that the digital economy has become one of the key stimuli for the high-quality development of tourism in Xinjiang and digital economy advances high quality development as it fosters upgrading in technology and skills of the tourism structure. The role of digital economy plays a part in the high-quality development of tourism in different regions.

User Acceptance of Digital Tools: It is based on the User Acceptance of Digital Tools Theory that people and organizations adopt and use digital tools in their daily activities, and which goes on to explain the factors that influence how willing they are to incorporate such tools into their operations. The basis of this theory is based on the Technology Acceptance Model (TAM), Davis (1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT), Venkatesh et al. (2003) which are key determinants include perceived usefulness, ease of use, social influence and facilitating conditions. Zhao et al. (2022) had studied online reservation intention of tourist Attractions in the COVID-19 Context: An Extended Technology Acceptance Model. This paper examines the effects of subjective

norms, government policy, perceived usefulness and perceived ease of use, perceived risks, and reservation intentions of tourist attractions. The study concluded that subjective norms have no influence on reservation behavior under voluntary conditions; perceived usefulness has positive effects on tourists' reservation decisions and perceived risk has negative effects on reservation intentions, and government policy is the major determinant of tourists' reservation intentions. Engelbrecht et al. (2019) study objective to analyze the factors influencing the adoption and use of experience of technology introduced by tourism providers in relation to business events and exhibitions. The results of the study show that when the relationship between business travelers' perceptions of the utility and convenience of use of online technology is taken into consideration, the desire of business travelers to utilize online technology is explained.

Network Effect: In simple terms, the theory of network effect explained that the value of a product or service increases with a greater number of people using that product or service, and that product or service becomes more interesting to other unaccustomed users. This was nicely discussed by economists such as Metcalfe (1995) and Katz & Shapiro (1985); it is especially appropriate in digital platforms, social networks, and e-commerce ecosystems where user participation improves overall utility. Narangajavana et al. (2019) study aims at determining the impact of UGC (User-Generated Content) sources on tourist satisfaction to achieve this objective the study will need to focus on the periods before and after travel. The study concluded that UGC in social media is a critical necessity to enhance tourist satisfaction. It is essential in the retravelling period and contributes to the post-traveling period as well. The strong-tie sources of UGC on social media are the generators those who have the close relationship with the users or with the possible tourists they are friends or relatives. Han et al. (2018) study on evaluating user-generated content in social media: an effective approach to encourage greater pro-environmental behavior in tourism. The tourists with higher level of environmental concern are the ones who accept the responsibility and feel that they have greater moral duties to the environment to act in a manner which can be accepted as pro-environmental tourism behavior. This study also provides evidence for the conceptualization that environmental concern and perceived environmental responsibility are prior in place to pro-environmental social norms.

Tourism Industry Development: Zhang et al. (2024) study is to advance knowledge about how proper governance affects the future development of China's tourism industry. The primary analysis of the basic regression results indicates that the government's economic governance capacity positively affects the quality of tourism development. As the results of the sub-indices suggest, we found that the enhancement on innovation and green development and the non-state-owned economy development would be better if

the government has stronger economic governance capacity or higher factor market development degree and the quality of tourism can be stimulated significantly by the better development of market intermediary organizations and legal system. Khan et al. (2020) study examines how tourism shapes the core development pillars in underdeveloped nations using Pakistan as a case study. This study backs tourism-led growth (TLG) and advises policymakers to concentrate on building up tourism related infrastructure and amenities. Sustainable Development Goal (SDG) 8 (decent job and economic growth) in Pakistan is supported by our research on the economic impact of tourism.

Not only will it promote tourism revenue growth, arrivals, and employment, but it will also promote destination marketing, improve customer experience through personalization, and even have process and real time feedback mechanisms. User acceptance of digital tools helps with dynamic pricing strategies, enhance tourist satisfaction and enhance customer loyalty. While network effects are not only magnified when it comes to visibility of a brand but also empower the development of collaborative tourism ecosystems between different businesses. But there are problems such as digital divide obstacles, alarming data breach threats, office dependence on tech platforms, and growing rivalry. As a result, the digital economy enhances tourism development progress, while creating structural vulnerabilities subject to strategic digital resilience planning.

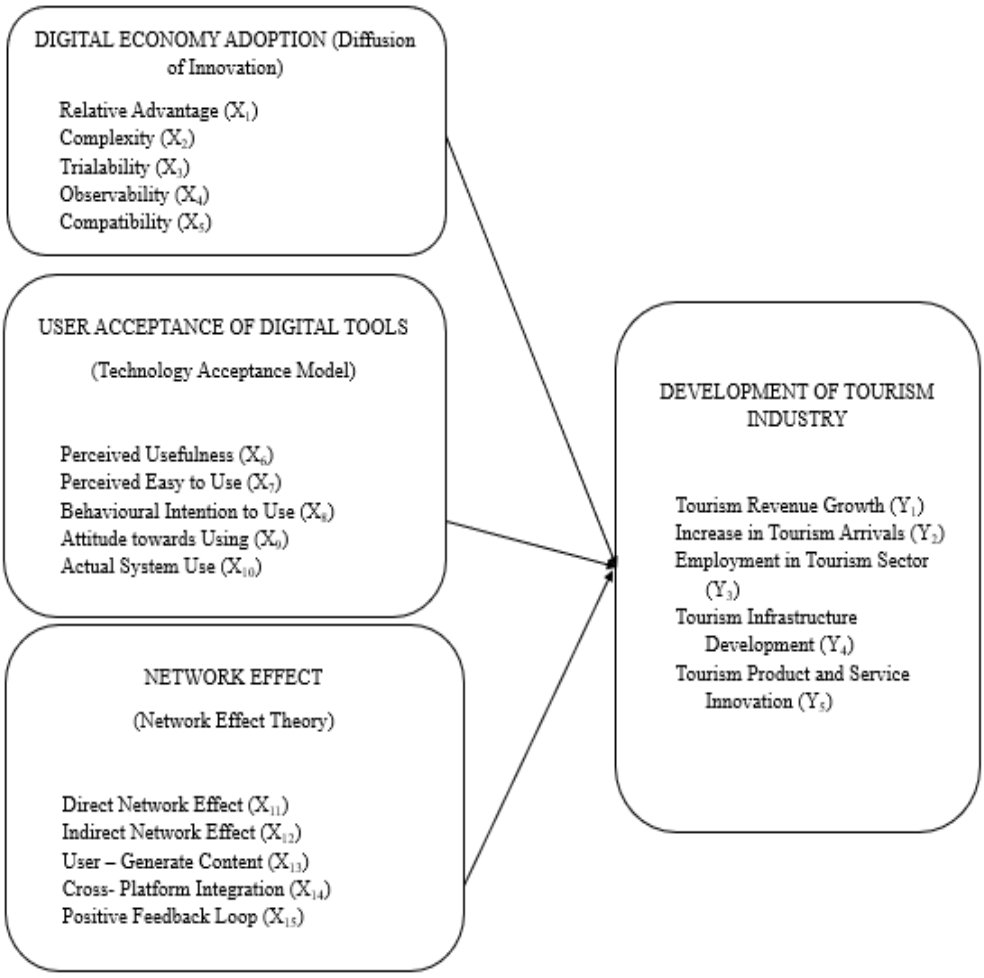


Figure 1: Framework

Materials and Methods

In this paper quantitative research study is used to analyse the impact of the digital economy on the development of the tourism industry in Shaanxi Province. The population of the study is the owner or manager of tourism industry in Shaanxi Province. The sample size for the study is 385 which is calculated by using formula of Cochran (1953) where population is unknown:

$$n = \frac{P(1-P)Z^2}{(d)^2}$$

$$n = \frac{0.5(1-0.5)\ (1.96)^2}{(0.05)^2}$$

n = 384.16 or 385

Since the calculation yielded 384.16, the researcher adjusted the value to 385 to be in line with the statistics and for convenience in data collection. In this study a questionnaire was used as research to collect data. The questionnaire is divided into five

parts includes demographic information (gender, age, education level, years of business operation, number of employees working), Digital Economy Adoption (Relative Advantage, Complexity, Trialability, Observability, Compatibility), User Acceptance of Digital Tools (Perceived Usefulness, Perceived Easy to Use, Behavioral Intention to Use, Attitude towards Using, Actual System Use), Network Effect (Direct Network Effect, Indirect Network Effect, User-Generate Content, Cross-Platform Integration, Positive Feedback Loop), Development of Tourism Industry (Tourism Revenue Growth, Increase in Tourism Arrivals, Employment in Tourism Sector, Tourism Infrastructure Development, Tourism Product and Service Innovation). A sample size of 40 was used to conduct a pilot study with Cronbach's Alpha value = 0.995, which is higher than 0.7, indicating that the questionnaire is highly dependable and suitable for conducting the main study.

Moreover, a comparison of how all questions corresponded to the research goals (IOC) was made. They conducted the assessment of three experts and found the mean IOC value to be 1 which is much higher than 0.5, verifying strong validity of the questionnaire (Muneerat & Chinokul, 2014).

The measurement of the questionnaire was done by using 5-point Likert scale where 1 as "Strongly Disagree" and 5 as "Strongly Agree". Also, to ensure the reliability of the questionnaire, Cronbach alpha should possess the acceptable criteria of higher than 0.7 (Taber, 2018). The Cronbach alpha for this study is 0.935 which is more than 0.7 so the data is dependable for the study. The data are analyzed by using demographic information and multiple regression analysis to analyze the impact of the digital economy on the development of the tourism industry.

Results

In this section, it includes demographic information and multiple regression analysis.

Demographic Information

Most gender respondents were male 206 (53.5%) followed by female 179 (46.5%) respectively. Most age respondents were 36 to 45 years (33.5%) followed by 46 to 55 years (33.0%), Below 35 years (21.8%) and 56 and above years (11.7%) respectively. Most education level respondents were undergraduate (29.6%) followed by graduate (24.7%), up to high school (21.6%), less than high school (15.3%) and doctoral (8.8%) respectively. Most years of business operation respondents were 6–10 years (40.0%) followed by 1–5 years (32.5%), less than one year (15.6%) and 11 years and above (11.9%) respectively. Most of the work experience in the tourism industry respondents was 5-10 years (33.0%) followed by 11-15 years (24.6%), less than five years (22.1%) and 16 years and above (20.3%) respectively. Most annual income respondents were 100,001-200,000 yuan

(30.1%), followed by 200,000- 400,000 yuan (26.6%), 50,000-100,000 yuan (24.9%) and 400,000 yuan and above (18.4%) respectively. Most employees working (including owners) respondents were 11-15 Employees (32.5%) followed by 6-10 Employees (27.0%), 16 and above Employees (20.8%) and 1-5 Employees (19.7%) respectively.

Multiple Regression Analysis

Multiple Regression Analysis is a type of regression analysis where a dependent variable is related to the two or more independent variables. In this study before the analysis of multiple regression, it includes no multicollinearity by variance inflation factor (VIF) which is shown in Table 1 and independence of observation using Durbin-Watson test and coefficient of determination which is shown in Table 2.

Table 1: Variance Inflation Factor (VIF)

Predictor	Tolerance	VIF
Relative Advantage	0.588	1.702
Complexity	0.584	1.713
Trialability	0.574	1.741
Observability	0.534	1.872
Compatibility	0.548	1.826
Perceived Usefulness	0.573	1.746
Perceived Easy to Use	0.528	1.892
Behavioural Intention to Use	0.610	1.640
Attitude towards Using	0.544	1.840
Actual System Use	0.544	1.838
Direct Network Effect	0.562	1.779
Indirect Network Effect	0.474	2.111
User – Generate Content	0.588	1.700
Cross- Platform Integration	0.513	1.950
Positive Feedback Loop	0.572	1.747

In Table 1, it shows the variance inflation factor which is less than 5 which indicates that there is no significant multicollinearity, and it suggests that the predictors have highly correlated and it states the reliability and stability of the regression model.

Table 2: Coefficient of Determination and Durbin-Watson test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.883a	0.780	0.771	0.31220	1.875

In Table 2, it shows the value of r-square is 0.780, which means that independent variable (Relative Advantage, Complexity, Trialability, Observability, Compatibility, Perceived Usefulness, Perceived Easy to Use, Behavioural Intention to Use, Attitude towards Using, Actual System Use, Direct Network Effect, Indirect Network Effect, User Generate Content, Cross- Platform Integration and Positive Feedback Loop) has 78.0% impact on the dependent variable (Development of Tourism Industry).

Table 3: ANNOVA Result

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	127.833	15	8.522	87.433	.000b
	Residual	35.967	369	0.097		
	Total	163.800	384			
a) Dependent Variable: Development of Tourism Industry						
b) Predictors: (Constant) Relative Advantage, Complexity, Trialability, Observability, Compatibility, Perceived Usefulness, Perceived Easy to Use, Behavioural Intention to Use, Attitude towards Using, Actual System Use, Direct Network Effect, Indirect Network Effect, User Generate Content, Cross- Platform Integration and Positive Feedback Loop						

Table 3 shows the ANNOVA result where p-value is 0.000 which is less than 0.05, hence it is said that there is a significant relationship between independent variable (Relative Advantage, Complexity, Trialability, Observability, Compatibility, Perceived Usefulness, Perceived Easy to Use, Behavioural Intention to Use, Attitude towards Using, Actual System Use, Direct Network Effect, Indirect Network Effect, User Generate Content, Cross- Platform Integration and Positive Feedback Loop) and dependent variable is Development of Tourism Industry.

Table 4: Result of Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	T-value	Sig.
	Beta	Std. Error	Beta		
(Constant)	0.128	0.120		1.064	0.288
Relative Advantage	0.083	0.026	0.103	3.235	0.001***
Complexity	0.060	0.025	0.078	2.444	0.015**
Trialability	0.044	0.024	0.058	1.789	0.074*
Observability	0.073	0.025	0.097	2.919	0.004***
Compatibility	0.015	0.026	0.019	0.577	0.564
Perceived Usefulness	0.077	0.025	0.098	3.041	0.003***
Perceived Easy to Use	0.056	0.027	0.070	2.079	0.038**
Behavioural Intention to Use	0.094	0.024	0.121	3.862	0.000***
Attitude towards Using	0.072	0.028	0.086	2.610	0.009***
Actual System Use	0.128	0.025	0.167	5.061	0.000***
Direct Network Effect	0.040	0.025	0.051	1.578	0.115
Indirect Network Effect	0.061	0.027	0.080	2.258	0.025**
User – Generate Content	0.056	0.026	0.068	2.125	0.034**
Cross- Platform Integration	0.080	0.026	0.105	3.090	0.002***
Positive Feedback Loop	0.034	0.025	0.044	1.362	0.174

a. Dependent Variable: Development of Tourism Industry
Note: *** is statistically significant at 0.01 level, p<0.01
** is statistically significant at 0.050 level, p<0.05
* Is statistically significant at 0.10 level, p<0.10

According to Table 4, it shows that the analysis found that there are 7 variables statistically significant at 0.01 consist of Relative Advantage, Observability, Perceived Usefulness, Behavioural Intention to Use, Attitude towards Using, Actual System Use and Cross- Platform Integration and 4 variables statistically significant at 0.05 consist of Complexity, Perceived Easy to Use, Indirect Network Effect and User – Generate Content. The analysis found that there is 1 variable statistically significant at 0.10 consist of Trialability.

Relative Advantage (X1) has regression correlation coefficient of 0.083 meaning that if 1-unit of its change will result 0.083-unit change in Development of Tourism Industry in the same direction.

Complexity (X2) has regression correlation coefficient of 0.060 meaning that if 1-unit of its change will result 0.060-unit change in Development of Tourism Industry in the same direction.

Trialability (X3) has regression correlation coefficient of 0.044 meaning that if 1-unit of its change will result 0.044-unit change in Development of Tourism Industry in the same direction.

Observability (X4) has regression correlation coefficient of 0.073 meaning that if 1-unit of its change will result 0.073-unit change in Development of Tourism Industry in the same direction.

Perceived Usefulness (X6) has a regression correlation coefficient of 0.077 meaning that if 1-unit of its change will result 0.077-unit change in Development of Tourism Industry in the same direction.

Perceived Easy to Use (X7) has a regression correlation coefficient of 0.056 meaning that if 1-unit of its change will result 0.056-unit change in Development of Tourism Industry in the same direction.

Behavioural Intention to Use (X8) has regression correlation coefficient of 0.094 meaning that if 1-unit of its change will result 0.094-unit change in Development of Tourism Industry in the same direction.

Attitude towards Using (X9) has regression correlation coefficient of 0.072 meaning that if 1-unit of its change will result 0.072-unit change in Development of Tourism Industry in the same direction.

Actual system use (X10) has regression correlation coefficient of 0.128 meaning that if 1-unit of its change will result 0.128-unit change in Development of Tourism Industry in the same direction.

Indirect Network Effect (X12) has regression correlation coefficient of 0.061 meaning that if 1-unit of its change will result 0.061-unit change in Development of Tourism Industry in the same direction.

User-Generate Content (X13) has regression correlation coefficient of 0.056 meaning that if 1-unit of its change will result 0.056-unit change in Development of Tourism Industry in the same direction.

Cross-Platform Integration (X14) has regression correlation coefficient of 0.080 meaning that if 1-unit of its change will result 0.080-unit change in Development of Tourism Industry in the same direction.

The multiple regression equation of the study is:

$$Y= 0.128 + 0.083\ (X1) + 0.060\ (X2) + 0.044\ (X3) + 0.073\ (X4) + 0.077\ (X6) + 0.056\ (X7) + 0.094\ (X8) + 0.072\ (X9) + 0.128\ (X10) + 0.061\ (X12) + 0.056\ (X13) + 0.080\ (X14)$$

Conclusions and Discussion

The study shows that the value of r-square is 0.782, which means that independent variable (Relative Advantage, Complexity, Trialability, Observability, Compatibility, Perceived Usefulness, Perceived Easy to Use, Behavioural Intention to Use, Attitude towards Using, Actual System Use, Direct Network Effect, Indirect Network Effect, User-Generate Content, Cross-Platform Integration and Positive Feedback Loop) has 78.2% impact on the dependent variable (Development of Tourism Industry). The result of ANNOVA shows that the p-value is 0.000 which is less than 0.05, hence it is said that there is a significant relationship between independent variable (Relative Advantage, Complexity, Trialability, Observability, Compatibility, Perceived Usefulness, Perceived Easy to Use, Behavioural Intention to Use, Attitude towards Using, Actual System Use, Direct Network Effect, Indirect Network Effect, User Generate Content, Cross-Platform Integration and Positive Feedback Loop) and dependent variable is Development of Tourism Industry.

The digital economy adoption (Relative Advantage, Complexity and Observability,) has an impact on development of tourism industry. But in this study digital economy adoption (Trialability and Compatibility) has no impact on development of tourism industry. The user acceptance of digital tools (Perceived Usefulness, Perceived Easy to Use, Behavioural Intention to Use, Attitude towards Using, Actual System Use) has impact on development of tourism industry. The network effect (Indirect Network Effect, User-Generate Content, and Cross-Platform Integration) has impact on development of tourism industry, but the network effect (Direct Network Effect and Positive Feedback Loop) has no impact on development of tourism industry.

The digital economy adoption (Relative Advantage, Complexity and Observability,) has an impact on development of tourism industry. The result is in line with Alam et al. (2024) states that the Relative Advantage, Complexity, Trialability, Compatibility and Observability are positively connected with the AR adoption intention among travel and tour operators in Malaysia. And, the result is consistent with Shahadat et al., (2023) states that there is a relationship between each technological factors are relative advantage, compatibility and complexity and extend of electronic commerce adaptation in business. But in this study digital economy adoption (Trialability and Compatibility) has no impact on development of tourism industry. The user acceptance of digital tools (Perceived Usefulness, Perceived Easy to Use, Behavioural Intention to Use, Attitude towards Using, Actual System Use) has impact on development of tourism industry. The result is in line with Hasni et al. (2021) which show that PU and PEOU have direct positive influence on tourists' behavioral intention to engage in social media for tourism marketing, thereby boosting effectiveness of tourism marketing and tourist visits. The result is consistent with Alismaiel et al. (2022) shows that the Behavioral Intention to Use, Attitude towards Using

has effect on performance that led to the revenue growth and new product and service innovation. The network effect (Indirect Network Effect, User-Generate Content, and Cross-Platform Integration) has impact on development of tourism industry, but the network effect (Direct Network Effect and Positive Feedback Loop) has no impact on development of tourism industry. The result is in line with Zhu & Liu (2022) supported the proposition that the structure of the tourism network can impact tourism performance. Global tourism development can be defined as the impact of the global tourist network structure on the performance of the tourism industry, as the results show that the network structure can alter global international tourism arrivals.

The result indicates that the digital economy has a positive impact on development of the tourism industry in Shaanxi Province. The efforts and implementation of digital tourism also increased tourism growth, customer experience and business innovation. Unfortunately, many of these challenges remain, such as implementing recent technologies, and lack of digital access, for smaller businesses. In the vastness of the digital economy, great opportunities abound, but they must be equally supported to achieve all players equal benefits.

The following are actionable suggestions to enhance the benefits of the digital economy to the tourism industry in the Shaanxi Province. First, the stakeholders in tourism should promote the enhancement of better technological solutions, including artificial intelligence in recommending travel products and block chain in secure payments. They can become valuable tools that can improve operation effectiveness and make the tourists' experience smooth. Second, there should be a joint effort by the state and affiliated tourism businesses to embark on using digital systems in a way that will not favor some local businesses or certain communities. Capacity building with the smaller players in the tourism industry can fill this gap and bring the ability and skill levels of all stakeholders in tourism up to speed technological adoption. Finally, this paper emphasizes the need to include sustainable solutions in digital tourism management. Measures to control adverse external effects and facilitate the use of environmentally friendly means of transportation will allow reconciling tourism development with sustainable development objectives at the international level.

References

Abbas, J., Rehman, S., Aldereai, O., Al-Sulaiti, K. I., & Shah, S. A. R. (2023). Tourism management in monetary crisis and industry 4.0 effects: Managers traits for technology adoption in reshaping and reinventing human management systems. Human Systems Management, (Preprint), 1-18.

Alam, S. S., Masukujjaman, M., Susmit, S., Susmit, S., & Aziz, H. A. (2024). Augmented reality adoption intention among travel and tour operators in Malaysia: mediation effect of value alignment. Journal of Tourism Futures, 10(2), 185-204.

Alismaiel, O. A., Cifuentes-Faura, J., & Al-Rahmi, W. M. (2022). Social media technologies used for education: An empirical study on TAM model during the COVID-19 pandemic. In Frontiers in Education, 7, 1-12.

Balasubramanian, K., Kunasekaran, P., Konar, R., & Sakkthivel, A. M. (2022). Integration of augmented reality (AR) and virtual reality (VR) as marketing communications channels in the hospitality and tourism service sector. In Marketing Communications and Brand Development in Emerging Markets Volume II: Insights into a Changing World (pp. 55-79). Cham: Springer International Publishing.

Buhalis, D. (2021). Drivers of e-Tourism. In Handbook of e-Tourism (pp. 1-17). Cham: Springer International Publishing.

Carlisle, S., Ivanov, S., & Dijkmans, C. (2023). The digital skills divide evidence from the European tourism industry. Journal of tourism futures, 9(2), 240-266.

Cochran, W. G. (1953). Sampling techniques. John Wiley.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS quarterly, 319-340.

Engelbrecht, W. H., Sotiriadis, M. D., & Swart, M. P. (2019). Investigating the intentions of tourism providers and trade exhibition visitors to use technology: A technology acceptance model approach. Acta Commercii, 19(1), 1-11.

Feng, X., Hu, M., Somenahalli, S., Bian, X., Li, M., Zhou, Z., ... & Wang, Y. (2023). A study of spatio-temporal differentiation characteristics and driving factors of Shaanxi Province's traditional heritage villages. Sustainability, 15(10), 7797.

Han, W., McCabe, S., Wang, Y., & Chong, A. Y. L. (2018). Evaluating user-generated content in social media: an effective approach to encourage greater pro-environmental behavior in tourism? Journal of Sustainable Tourism, 26(4), 600-614.

Hasni, M. J. S., Farah, M. F., & Adeel, I. (2021). The technology acceptance model revisited: empirical evidence from the tourism industry in Pakistan. Journal of Tourism Futures.

HKTDC. (2024). Shaanxi: Market Profile. Retrieved from Data and Profiles - Mainland China Provinces and Cities - Provinces: https://research.hktdc.com/en/data-and-profiles/mcpc/provinces/shaanxi#:~:text=In%202021%2C%20Shaanxi%20received%20391,343.4%20billion%20(%2B24.3%25).

Katz, M. L., & Shapiro, C. (1985). Network externalities, competition, and compatibility. The American Economic Review, 75(3), 424-440.

Keane, M., Yu, H., Zhao, E. J., & Leong, S. (2020). Chinas digital presence in the Asia-

Pacific: Culture, technology, and platforms. Anthem Press.

Khan, A., Bibi, S., Lorenzo, A., Lyu, J., & Babar, Z. U. (2020). Tourism and development in developing economies: A policy implication perspective. Sustainability, 12(4), 1618.

Khan, N., Hassan, A. U., Fahad, S., & Naushad, M. (2020). Factors affecting tourism industry and its impacts on global economy of the world. Available at SSRN 3559353.

Leung, R. (2022). Development of information and communication technology: from e-tourism to smart tourism. Handbook of e-Tourism, 23-55.

Metcalfe, J. S. (1995). Technology systems and technology policy in an evolutionary framework. Cambridge Journal of Economics, 19(1), 25-46.

Miller, R. L. (2018). Rogers' innovation diffusion theory (1962, 1995). In Technology adoption and social issues: Concepts, methodologies, tools, and applications (pp. 1558-1571). IGI Global.

Muneerat, P., & Chinokul, S. (2014). The development of English reading materials using inference strategies instruction to enhance English reading comprehension ability of upper secondary students: A case study of tenth grade students of Chonkanyanukoon School. OJED: An Online Journal of Education, 9(1), 521-533.

Mustafa, E. (2022). Technology in Hotel Sector. In Technology application in aviation, tourism, and hospitality: Recent developments and emerging issues (pp. 73-87). Singapore: Springer Nature Singapore.

Narangajavana Kaosiri, Y., Callarisa Fiol, L. J., Moliner Tena, M. A., Rodriguez Artola, R. M., & Sánchez García, J. (2019). User-generated content sources in social media: A new approach to explore tourist satisfaction. Journal of Travel Research, 58(2), 253-265.

Naumik-Gladka, K., Sushchenko, O., & Stryzhak, O. (2023). Tourism and Hospitality in Conditions of Digital Economy: Problems and Perspectives.

Pirhonen, J., Lolich, L., Tuominen, K., Jolanki, O., & Timonen, V. (2020). “These devices have not been made for older people's needs”–Older adults' perceptions of digital technologies in Finland and Ireland. Technology in Society, 62, 101287.

Shahadat, M. H., Nekmahmud, M., Ebrahimi, P., & Fekete-Farkas, M. (2023). Digital technology adoption in SMEs: what technological, environmental and organizational factors influence in emerging countries? Global Business Review, doi:10.1177/09721509221137199

Shkarlet, S., Dubyna, M., Shtyrkhun, K., & Verbivska, L. (2020). Transformation of the paradigm of the economic entities’ development in digital economy. WSEAS Transactions on Environment and Development, 16(8), 413-422.

Sia, P. Y. H., Saidin, S. S., & Iskandar, Y. H. P. (2023). Systematic review of mobile travel

apps and their smart features and challenges. Journal of Hospitality and Tourism Insights, 6(5), 2115-2138.

Statista. (2024). China's revenue from tourism from 2013 to 2023. doi: https://www.statista.com/statistics/236040/revenue-from-tourism-in-china/

Statistia. (2024). Penetration rate of online travel booking in China from 2015 to 2024. Retrieved from Statistia: https://www.statista.com/statistics/1117742/china-penetration-rate-of-internet-travel-booking-users/

Streimikiene, D., Svagzdiene, B., Jasinskas, E., & Simanavicius, A. (2021). Sustainable tourism development and competitiveness: The systematic literature review. Sustainable Development, 29(1), 259-271.

Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. Research in Science Education, 48(1), 1273-1296.

Tang, G. N., Ren, F., & Zhou, J. (2022). Does the digital economy promote "innovation and entrepreneurship" in rural tourism in China? Frontiers in Psychology, 13, 979027.

Tang, H., Cai, C., & Xu, C. (2022). Does the digital economy improve urban tourism development? An examination of the Chinese case. Sustainability, 14(23), 15708.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS quarterly, 425-478.

Xia, L., Baghaie, S., & Sajadi, S. M. (2023). The digital economy: Challenges and opportunities in the new era of technology and electronic communications. Ain Shams Engineering Journal, 15(2), 102411.

Zhang, H., Xia, Z., & Zeng, Z. (2024). The Economic Governance Capability of the Government and High-Quality Development of China's Tourism Industry. Sustainability, 16(17), 7370.

Zhao, X., Mei, X., & Xiao, Z. (2022). Impact of the digital economy in the high-quality development of tourism an empirical study of Xinjiang in China. Sustainability, 14(20), 12972.

Zhao, Y., Wang, H., Guo, Z., Huang, M., Pan, Y., & Guo, Y. (2022). Online reservation intention of tourist attractions in the COVID-19 context: An extended technology acceptance model. Sustainability, 14(16), 10395.

Zhu, H., & Liu, J. (2022). Network structure influence on tourism industrial performance: A network perspective to explain the global tourism development. Applied Sciences, 12(12), 6226.

A Study on the Communication Strategies of Chinese Mobile Games Entering Overseas in the Context of Cross-Cultural Communication and Glocalization--Taking 'Realm of Valor' as an Example

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Abstract

As the wave of globalization grows, globalization is gradually taking its place in globalization. This study focuses on the development of 'Realm of Valor (ROV)' in Thailand as a case study to analyze how to localize in target countries in the context of globalization from a cross-cultural perspective. Ten participants were invited to conduct focus group interviews with players and six participants with game producers in this study. The result demonstrated that the game ROV blends a concept of globalization and localization to offer exclusive experiences to players through many items in the game such as skins, term translations, and other graphic things. Focusing on players' perspectives, key concerns include (1) the game's friendliness to local Thai players, and (2) opportunities to participate in international tournaments. In contrast, game producers emphasize (1) the integration of local cultural elements, and (2) responsiveness to player feedback. These insights can guide future game developers in adapting their games for international markets.

Keywords: Uses and Gratification Theory, Cross-Cultural Communication, Glocalization, Mobile Games, Realm of Valor

Introduction

This study examines the Thai version of HOK, which named Realm of Valor (ROV), a MOBA game developed by Tencent's TIMI Studio and co-published with Garena. Since its December 2016 launch in Thailand, ROV has been the top downloaded MOBA game in the country. In the first quarter of 2023, Thailand contributed 23% to Southeast Asia's mobile gaming revenue, with ROV leading the download charts on Apple and Google Play stores (Rui Ma, Mobile Insights Analyst, 2023). Overseas people often learn about Chinese culture through one-way contact, such as reading books or other art forms, which lacks

two-way interaction. Therefore, China's rich cultural deposits tend to become difficult for people in other countries to understand. The emergence of games has improved this situation, especially mobile games, which have become a new way for the world to understand Chinese culture and play a key role in promoting cultural exchange (Lin S.Y., 2019). When developing different markets, companies should adjust to marketing communication strategies in the face of cultural differences, thus making local consumers more receptive to goods and brands (Cai Y.M., 2022). Based on this, this study focuses on communication strategies for game exports. For example, what localized changes have been made by ROV for the Thai market, and what factors have contributed to the success of ROV in the Thai market? From the perspective of game makers and players, how to make cross-cultural communication games more popular in overseas markets? To summarize, the communication strategy of game export has reference value for both cultural communication and company's profitability. This case study of ROV's effective cross-cultural communication and localization development in the Thai market will provide experience for other game companies and governments seeking to expand into international markets.

Research Objectives

1. To explore the success factors of the mobile game titled Realm of Valor (ROV).
2. To study a strategy to improve ROV’s elements in terms of globalization and cross-cultural communication through the perspectives of games’ producers and players.

Research Questions

1. What factors contribute to the success of the mobile game titled Realm of Valor (ROV)?
2. What strategy can be used to improve ROV’s elements in terms of globalization and cross-cultural communication through the perspectives of games producers and players?

Concept Theory Framework

This study will use the Uses and Gratification Theory, Glocalization Theory and Cross-cultural Communication Theory as the theoretical basis of the study. The Uses and Gratification Theory emphasizes the player's position and the player's role and status. Studying players' needs and satisfaction points can help us understand why ROV has been successful as a MOBA game. The Glocalization Theory emphasizes the development of globalization and localization changes, and the theory helps us explore the localization

changes made by ROV in the Thai market and the corresponding marketing strategies, to understand the reasons for ROV's success in the Thai market. Cross-cultural communication theory emphasizes communication in diverse cultures and plays a crucial role in understanding how ROV communicates with its audience. This theory will guide game companies to have a deeper understanding of how exported games can benefit from a more nuanced understanding of local cultural dynamics.

Based on these theoretical frameworks, our goal is to explore the factors that have contributed to the success of ROVs and some of the problems that still exist, and to provide guidance to future game companies in exporting their games. Therefore, we conducted focus group interviews with players who were deeply involved in ROV's game and in-depth interviews with the game makers. The interview data were also analyzed so that the research objectives and questions could be analyzed and interpreted.

Materials and Methods

1. Research Design

Based on the theories of cross-cultural communication, global localization, and game communication, this study was conducted to investigate and organize the actual situation of ROV in Thailand. The study adopts qualitative research (QL) methodology to screen and invite players and producers to conduct focus group interviews and in-depth interviews respectively from the research objectives. Objective evaluations of ROV were obtained from the players' point of view, and the success factors of ROV were preliminarily judged. From the perspective of game producers, we summarize the strategic characteristics of ROV and discuss in depth the successful experience of ROV and the future development direction that can be improved.

2. Population and Sampling methods

2.1 Selection of game players

Ten gamers were selected through online and offline solicitation to conduct focus group interviews. They aged between 18-35 years old, which is the main user of this type of handheld game (Ke Xiao game, 2023) and have at least one year of experience in playing the game ROV or others.

2.2 Selection of game producers

The sample consisted of practitioners in different links of the Chinese game production industry chain. Six game producers were selected to participate in the in-depth interviews. Their ages were not limited, but they had to have a deep understanding of ROV, and had directly or indirectly participated in game production, and their positions included, but were not limited to, original artists, software engineers, game test engineers, UI designers, and game release publicity.

3. Data analysis

In this study, a coding strategy was used to analyze and summarize the interview data. American psychologist Michelle pointed out that this strategy includes the characterization of situations, events, and behaviors of oneself or others, which is a crucial factor in determining individual behaviors (Lin et al., 2003).

After collecting the interview data from players and producers, the data were first organized and cleaned to eliminate invalid and repetitive content, then organized and verified the interviewees' speeches, confirmed the content through secondary conversations, and added explanations. Subsequently, the final content was integrated, and the results were interpreted by applying the generalized organizational method of the coding strategy.

Results

RQ1: What factors contribute to the success of the mobile game titled Realm of Valor (ROV)?

This article is divided into two main sub-themes to explain the ROV's success, one from the perspective of glocalization and the other from the perspective of cross-cultural communication and provides a comprehensive account of the reasons for the popularity of ROVs in the Thai market.

1. Factors for ROV success from the Glocalization perspective

Factor 1: The game is friendly to local Thai players.

1.1 Changed the UI and art aesthetic.

ROV adjusted its UI and art aesthetic to suit Thai players' preferences. The game features heroes with Thai local culture, diverging from Honor of King's beautiful art style. Its interface has a minimalist design, simple and clear, facilitating player entry. In game design, UI and art design are crucial as they serve the players' gaming experience.

1.2 Optimized the game settings.

To adapt to Thailand's local network and game environment, ROV adjusted its game mechanism. It cut the number of soldiers, shrank the map, compressed game memory, and lowered quality. This aimed to minimize lag caused by unstable mobile networks across Thailand. Shorter game times, along with diverse game modes, maintained and enhanced the gaming experience, making ROV a top choice for potential players of similar mobile games.

1.3 High-quality limited skins related to local culture.

The hero's character image design as well as skin design not only looks good but also combines the local culture as well as the local players' preferences, launching IP co-branded skins, virtual anime limited skins, Thai element limited skins, and all kinds of

themed limited skins. Participant 3 has pointed out that, “co-branding with an IP that has a large audience in itself, can share the influence and enhance the spending power of potential consumers”. Whether it's IP co-branding or themed skins, high-quality skins are one of the most important reasons for successfully attracting local players.

Factor 2: Participating in international tournaments.

2.1 Organize and participate in large-scale competitions.

Organizing tournaments and participating in international tournaments is one of the remarkably effective means of expanding one's influence. Participant 6 mentions that “people who want to play the same type of handheld game for the first time will surely give preference to the handheld game with more influence and popularity”. Organizing or participating in tournaments not only proves the value of the game itself to players but also strengthens the players' sense of participation and pride and attracts more potential players who have not yet joined the ROV through such behavior.

2.2 Cooperate with local KOL for publicity.

Utilizing local celebrities to create buzz is an effective way to promote ROV in the Thai market, as Participant 7 notes, “ROV has actually collaborated with local celebrities who are well known to the public in Thailand, such as Baifern Pimchanok's ‘Arum’ and Mario Maurer's ‘Hayate’, to name a few. 'Arum', and Mario Maurer's 'Hayate', to name a few. Utilizing the influence of celebrities and KOLs to drive more players to join this game or participate in cosplay activities, which can increase the talk of ROV. Celebrity endorsement or organizing some celebrity participation activities can increase the influence of the product.

2. Factors for ROV success from Cross-cultural communication

Factor 1: The facilitation of virtual communication among players.

Incorporating communication features in a virtual community centered around a video game enhances the players' link to the game. This explains how and why an online community enables players to interact within the game. Mora- Cantallops and Sicilia (2018) in their related literature on MOBAs had presented an insight on eSports. They say that strangers are assigned in a makeshift squad to accomplish a complex common goal in an abbreviated period of time, less than an hour most of the time, is interesting (Mora-Cantallops, M., Sicilia, 2018). Because the gameplay of MOBA itself determines that this type of game has a certain social function. Therefore, valuing the virtual socialization of players in the game and constantly having to provide them with rich means of communication can keep players linked to the game.

Factor 2: Use Chinese cultural elements to help game producers build their brands.

ROV has retained many Chinese elements related to Chinese culture in the game, which plays a key role in the spread of Chinese culture. The first is the characters and skins related to Chinese traditional culture. Chinese history and culture carry its own charm, and the mysteriousness of Asian culture can easily attract users' attention overseas. However, grafting and transplanting of cultural elements are only shallow surface work, skillfully integrating Chinese cultural elements into the inner part of the product to make it have distinctive Chinese characteristics is the key to the construction of the game's cultural brand.

RQ2: What strategy can be used to improve ROV's elements in terms of globalization and cross-cultural communication through the perspectives of games producers and players?

The content of this section is synthesized from both players' and producers' perspectives in the game ROV. It is also divided into two sub-themes. One is from the perspective of glocalization, and the other is from the perspective of cross-cultural communication.

1. Strategies to ROV games for the game developers from Glocalization in the view of players' perspective

Strategy 1: Local culture in the game.

It is suggested that more localized elements should be incorporated into the communication of ROV by combining local cultures to enhance players' sense of exclusivity. Scholar Liu (2020), in his article 'Analyzing the Cross-Cultural Communication of Video Games', suggests that groups of players consisting of indeterminate individuals will establish novel shared cultural contexts against the backdrop of a common desire to share experiences. In addition, the barriers inherent in cross-cultural communication, especially those related to transmitting original messages across cultural boundaries, will be reduced (Liu J.W., 2020). Similarly, if the game itself can form a new cultural community that allows players to transcend the constraints of cultural boundaries, it can foster a stronger connection between players and the game. In the case of ROV, for example, it has not drastically altered the Thai culture, giving the impression that it is not designed specifically for Thai players, such as few Thai heroes and skins, small changes to hero skills, and only simple adjustments to some settings. Participant 10 stated,

> "Take Ragnarok X: Next Generation (ROX) developed by Jun Dream Games and published by Asahi Koyo. Thailand is the main market for ROX, so the game was launched with a series of activities around the traditional Thai festival, which is followed by a challenge using the TikTok platform that allowed players to trigger

in-game costume stickers through specific actions. The exposure reached 386 million with significant online traffic".

(Interviewed on 15 December 2023)

It is evident that establishing an emotional connection is important to Thai players. Game companies dig deep into local cultural characteristics to trigger emotional resonance, and integrate local culture into their promotional activities, which will help them compete in overseas markets in the long term. Therefore, it is recommended that ROV incorporate special cultural elements or activities with the local Thai culture to enhance the interactivity and sense of exclusivity with players.

Strategy 2: Player's feedback and replies.

1. It is a significant need of concerning about decent quality of network and system optimization, system updates. Thailand is a special situation, some players have network, update and other problems, engineers need to strengthen the system and server. The game ROV has many players, with high demands for game functions, graphics, and interactivity. Designers need to consider the needs for automatic settings and accurate translation.

2. As an improvement of the gameplay matching and reporting mechanism, ROV players pursue valuable experience, unreasonable matching, and reporting difficulties. It will make players dissatisfied or even abandon the game. The matching and reporting system of each version needs to be improved by focusing on players' feedback and replies. It can be improved by increasing the feedback mechanism to maintain the fairness of the game and the environment.

In conclusion, optimizing the network system, paying attention to players' feedback, and solving problems are the keys for the game to gain a foothold in the local market.

Strategy 3: Low production cost but high players' experience in game

The purpose of game distribution is to make a profit, and one of the keys to the future development of ROV is to make quality gaming experience to most players at a low cost. ROV can be downloaded for free, and players can also spend money to enhance their experience. Players reflect that the price of the Thai version of high-quality skins is on the high side, and that they would be more willing to spend money and stay for a long time if there were more promotions or free offers. Therefore, game merchants reasonable pricing or skin promotions are effective measures to retain players. Some players have pointed out that high-priced skins should be more distinctive and cost-effective. Therefore, the game ROV can meet players' demand, maintain profitability, and increase daily activity through promotions, limited skin amenity price reductions, or logging in to punch cards to give away good gifts.

2. Strategies for ROV communication from Cross-Cultural Communication in the view of producers' perspective

Strategy 1: Increase professional translation and communication skills.

Game localization is the process of adapting to the culture and language of the target market; translation is the basis but has a broader meaning. In the game 'going overseas' boom, language localization has attracted a lot of attention, and the translation of the game's functional language affects the intuitive experience, and the translation level of ROV is in urgent need of improvement. Participant 6 pointed out,

> "Elephants have great significance in Thai culture, but Chaugnar's name in ROV is pronounced like 'elephant' in Thai, but there is no such word in Thai, and the word represents ugly dominion in Cthulhu mythology, which hurts cultural believers".
>
> (Interviewed on 15 December 2023)

This warns us that a lack of translation talent, insufficient cultural vision, and barriers to language translation can affect the quality of the game, increase the difficulty of player perception, and create communication barriers, which in turn reduces the participation of overseas players and their reputation for the game.

The character 'Loose Cannon' in an online game titled League of Legends is translated as 'Bao Zou Loli' in Chinese, which means 'Runaway girl.' But in American culture, 'The Loose Cannon' means someone who is out of control, disregards authority, and breaks rules. But in American culture, 'The Loose Cannon' describes a person who is out of control, disregards authority, and breaks the rules, which is different from 'Runaway Girl.' The word 'loli' originates from the novel 'Lolita,' which is the image of cute little girls in the Japanese animation subculture and is like the pronunciation of the popular Chinese word 'loli' on the Internet. Translating the relevant content as 'Bao Zou Loli' reflects combining the source language culture and Chinese Internet culture (Dai J., 2021).

In conclusion, game translation is related to cultural exchange and artistic presentation. Translators should give full play to their creativity to accurately convey the elements, professional translators can guarantee the operation of the game and user experience, and the quality of their translations affects the game's reputation, players' retention and manufacturers' reputation, and absorbing professionals is the key to the game's overseas expansion.

Strategy 2: Reduce dependence on international IP and attach importance to the spread of Chinese culture.

Chinese games need to be characterized by Chinese culture. Simply catering to local players will weaken the uniqueness of the game, which requires companies to reinterpret the new symbol system for spreading Chinese culture. In the early stage of

development, ROV relied on IP co-branding to make profits, neglecting its own Chinese cultural heritage. Borrowing international IP to expand the market is effective, and ROV has achieved results, but sacrificing its own cultural system cannot achieve the purpose of cultural export. If Chinese game makers want to achieve cross-cultural handheld communication, they not only need to have localized marketing thinking, but also need to have Chinese cultural innovation thinking, combining local and Chinese cultural commonalities to create products and brand culture, and realize cultural output. Take the makeup brand 'Florasis' as an example, it was born in Hangzhou on 8 March 2017, positioning 'oriental makeup, flower makeup'. In the autumn-winter 2020 New York Fashion Week, Florasis and Misawa Dream launched co-branded Korean clothes, and cooperated with designer Yang Lu, integrating fashion into Asian brand elements. The fashion week came to an end with three brands of oriental origin completing their innovations, realizing that to be recognized, it is not enough to superficially combine classical and fashion, one has to understand the connotations of Chinese oriental aesthetics and deliver the underpinnings in a new way (Huanqiu.com, 2019). Beauty is different from the gaming field, but the principle of cross-cultural communication is the same. Chinese handball companies should realize that handball has become a cultural soft power, and when expanding their markets and increasing their revenues, they should not neglect their cultural communication responsibilities.

Discussions and Conclusion

The development of two research questions and their subsequent elaboration in response to the identified inquiries constitutes the core of this study. The game ROV has amended adapt localization in both game content and marketing strategies for the Thai market. The following section outlines the specifics of ROV's localization strategy in the Thai market.

In terms of marketing execution, firstly, ROV has made a good integration between the game and the local culture by adding Thai cultural elements, such as festival-themed skins, festival-limited activities, and language localization. Then, ROV enhanced players' gaming experience by adjusting in-game settings such as map size, number of soldiers, UI style, etc., and continuously absorbed players' feedback to optimize the game. Finally, ROV enhances the game's own visibility and expands the local influence of the game by organizing large-scale tournaments and co-branded events and cooperating with local KOLs and IPs.

In terms of cultural dissemination, ROV still retains some of the Chinese cultural elements of the original game HOK in the game while disseminating it locally in Thailand, and this part of the game retains the spirit of the original version very well. This suggests that it should be an important prerequisite for cross-cultural communication for games to

appropriately retain their own cultural characteristics while reflecting universal global values. ROV enhances players' sense of identification with the game, for example, by designing related activities around traditional festivals. This suggests that it is an important foundation for cross-cultural communication of games for game companies to deeply understand and explore the cultural characteristics of their target markets, and to enhance the attractiveness of game products through emotional resonance. ROV utilizes social media and other digital platforms for diversified communication to ensure that the message can effectively reach potential users and stimulate their interest in the game. This suggests that the use of diverse channels to publicize the game is one of the most important strategies for cross-cultural communication.

To summarize, this study examines the localization strategy of ROV in the Thai market and its associated factors of success and failure. By studying ROV's localization, this paper highlights the importance of cultural adaptation and user experience in globalization strategies.

Recommendations for Future Application

1. For content producers - Focus on the development and creation of game content

Product quality determines product value, directly impacting game downloads and usage. "Respecting and integrating into local culture is an important path for Chinese mobile games to realize overseas dissemination" (Chen Y.C., 2021). Cultural confidence is vital for national development, requiring game companies to Maintain cultural identity and Optimize game content. Strategically, domestic firms should support local creative SMEs and collaborate with overseas partners. Leveraging foreign enterprises' cultural expertise enables timely product localization, enhancing market adaptability.

2. For game companies - Focus on the construction of the game platform

Strengthening game platform infrastructure is crucial. Dual strategies are essential. Firstly, enhance overseas payment systems (e.g., Thailand's LinePay, TrueMoney, and Chinese cross-border solutions like WeChat Pay/ AliPay) through industry collaboration. Collaborate with payment providers and financial institutions to optimize transaction processes and strengthen oversight. Secondly, qualified developers should establish Steam-like professional gaming platforms through strategic partnerships.

3. For communication marketers - Explore more localized marketing development strategies

Quality game content development and effective marketing are fundamental for market success. Adopting "global localization" as the guiding principle for conceptual research requires researchers to possess global vision, cross-cultural competencies, and localized academic practices. Overseas promotion requires culturally aligned distribution

strategies extending beyond core gameplay to peripheral products (e.g., character-themed music videos, drama sponsorships, collectible merchandise). This approach enhances profitability and brand impact while generating reciprocal benefits for the game's popularity.

4. For policy makers - Strengthen personnel training and introduce protection policies

Talent development remains an undervalued aspect in gaming product lifecycle management. Despite growing public acceptance and corporate training initiatives, critical gaps persist - particularly in specialized training paths beyond technical/management roles. Enterprises should implement three-dimensional solutions, such as knowledge-sharing initiatives, talent attraction/incentive programs, and educational subsidies. Concurrently, national policy interventions are required to promote quality cultural exports, and combat plagiarism through IP protection. Finally, position gaming expansion is a strategic cultural initiative.

Limitations of the Study

Firstly, this study uses quantitative research methods. The small sample size of in-depth interviews cannot fully represent all ROV players' and game industry practitioners' views or may be influenced by the host or participants' personalities and interaction. But the selected interviewers and willing - to - speak participants helped reduce the bias from participants' silence.

Secondly, much of the participants' speech was translated, which may cause content deviation. So, the study summarizes the interviewed content after participants finish and double - checks with them to minimize translation - caused deviation, without affecting ROV's generalization and summary.

Finally, different - nationality players have different ROV demands. This study did not invite European and American players, potentially lacking such samples, thus representing only some Chinese and Thai players' attitudes. Also, this study only analyzes ROV's cross - cultural communication highlights and shortcomings from the global - localization perspective, not deeply exploring the relationship between games and art, etc., so the game's cultural connotation may not be fully shown, which are the study's limitations.

References

Arena of Valor. (n.d.). Retrieved from https://zh.wikipedia.org/zh-cn/%E5%82%B3%E8%AA%AA%E5%B0%8D%E6%B1%BA.

Cai Y.M. (2022). The Cross-cultural Marketing Communication Strategy of Cross-border E-commerce ———— Taking SHEIN as an example. Beijing Foreign Studies University.

Chen L.D. (2016). Several aspects of cross-cultural Communication research under the Belt and Road Initiative [J]. Journal of Jiangxi Normal University, 49(1), 5.

Chen Y.C. (2021). Research on China's Handicraft Overseas and Communication under the Perspective of Cross-cultural Communication--The Development of Endless Duel in Southeast Asia as an Example. Journalism Research Guide, 012(022), 42-44.

Cole, H., & Griffiths, M. D. (2007). Social interactions in massively multiplayer online role-playing gamers. Cyberpsychology & behavior, 10(4), 575-583.

Dai J. (2021). Analyzing game translation under the perspective of intercultural communicative translation - taking the competitive game League of Legends as an example. (202-2), 100-101.

Davidovici-Nora, M. (2017). E-Sport as leverage for growth strategy: The example of League of Legends. International Journal of Gaming and Computer-Mediated Simulations (IJGCMS), 9(2), 33-46.

Hofstede, G., Hofstede, G. J., & Minkov, M. (2005). Cultures and organizations: Software of the mind. New York: Mcgraw-hill.

Honor of Kings. (n.d.). Retrieved from https://baike.baidu.com/item/%E7%8E%8B%E8%80%85%E8%8D%A3%E8%80%80/18752941?fr=ge_ala.

Ke Xiao Game. (2023, April 12). King of Glory: An Analysis of a Successful MOBA Mobile Game. Retrieved from https://baijiahao.baidu.com/s?id=1762937986866056749&wfr=spider&for=pc.

Lin S. D., Yang J. L., & Huang H. T. (2003). Dictionary of psychology. Dictionary of Psychology. Retrieved from https://xueshu.baidu.com/usercenter/paper/show?paperid=de1cac170219c55d8388dfebf1dc98ed&site=xueshu_se&hitarticle=1.

Lin S Y. (2019). Research on the Path of Chinese mobile Games entering Overseas in the context of cross-cultural Communication -- A Case study of "King of Glory". Audio-visual (12), 2.

Liu J.W. (2020). Analysis of cross-cultural communication of electronic games. Public Communication of Science & Technology.

Mora-Cantallops, M., & Sicilia, M. Á. (2018). Exploring player experience in ranked League of Legends. Behavior & Information Technology, 37(12), 1224-1236.

Qian L.Y. (2013). Glocalization Strategy and International Marketing. Modern Economic Information (15), 1.

Rui Ma. (2023). Southeast Asia Mobile Games Market Insights 2023. Retrieved April 2023, Retrieved from https://sensortower-china.com/zh-CN/blog/state-of-mobile-games-in-sea-2023-report-CN.

Sara Tan. (2023). Top 10 popular mobile games worldwide in terms of revenue in April 2023. Retrieved May 2023, Retrieved from https://sensortower-china.com/zh-CN/blog/top-grossing-mobile-games-worldwide-for-april-2023-CN.

Shan B. (2011). Basic Theoretical propositions of cross-cultural communication. Journal of Central China Normal University: Humanities and Social Sciences Edition, 50(1), 103-113.

Tencent Research Institute. (2019). Tencent Research Institute: 2019 Chinese Digital Culture Going Overseas Annual Observation Report Released, Retrieved August 27, 2019, from Tencent Research Institute Official Website: https://www.tisi.org/10906.

Thailand Media Landscape 2022-2023. (n.d.). Retrieved from https://www.dataxet.co/media-landscape/2023-en.

Wang M.Y., & Huang P. (2015). Analysis of the international communication of China's online game industry. Chongqing and the World: Academic Edition(7X), 3. DOI: 10.13769/j.cnki.cn50-1011/d.2015.07.012

Zhang Y. J. (2022). China Gaming Industry Report 2022. Retrieved August 19, 2022, from CGIGC Web site: https://www.cgigc.com.cn/details.html?id=08da81c5-4133-4811-82e2-c78bb 821a1f5&tp=report

Analyzing The Impact of Digital Innovation, Organizational Culture on Corporate Performance of Fintech Enterprises in Shanghai

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Abstract

With the rapid development of information technology, the financial technology industry in China and even the whole world has shown a remarkable growth momentum. The purpose of this study is to analyze the influence of digital innovation and organizational culture on the performance of Shanghai Financial Technology Company. Through the questionnaire survey, the decision makers, managers and core employees of 386 financial technology companies in Shanghai, China were investigated. The data comes from the "questionnaire" WeChat survey. Descriptive statistics and multiple regression analysis are used in the analysis. It was found through research that Fintech Y=0.61+0.476*X1+0.361*X2. X1 stands for digital innovation, x2 stands for cultural organization, and Y stands for enterprise performance. The results show that digital innovation and cultural organization can positively affect the performance of financial technology enterprises. Through empirical analysis, this study not only obtains the dynamic innovation of enterprise performance development with multiple dimensions, but also promotes the development of academic theory and creates a management tool that can be landed, which has significant exemplary innovation value in the digital economy era. Here are many application scenarios, such as being the CEO of a financial technology enterprise, carrying out value innovation during cultural transformation and digital portfolio optimization; At the same time, it can also add value to academic influence and form a sustainable knowledge spillover effect.

Keywords: Digital Innovation, Cultural Organization, Enterprise Performance

Introduction

In recent years, countries have adopted policies to promote the development and adoption of innovative digital technologies and develop their entrepreneurial ecosystems (Zahra et al., 2023). The world is embracing the wave of digital economy, and China is no exception. Digital transformation has become a necessary condition for enterprises to

survive in high competition (Luo et al., 2023). Therefore, after understanding the trend of the times and the current situation of the development of financial technology enterprises at home and abroad, we want to explore the influence of digital innovation and cultural organization on the performance of financial technology enterprises. As the financial capital of China, Shanghai is a gathering place of financial technology enterprises, so we focus on the influence of Shanghai's financial technology enterprises. From the two dimensions of digital innovation and cultural organization, this is not only the requirement of digital technology innovation, but also the adaptation to the changes of the times. There are 2,931,099 enterprises in Shanghai, among which the number of fintech companies is 10,931 (Data source: National Customer Resource Information Platform). Most of them want to break the traditional customer acquisition mode and marketing mode and give customers the best service experience, but they need value advocates and professional skills as a bridge and guidance, so it is urgent for everyone to explore digital innovation, and corporate culture organization is also an indispensable and important part.

Objectives

1. To analyze digital innovation of Shanghai Financial Technology Company, affect the enterprise performance.
2. To analyze cultural organization of Shanghai Financial Technology Company, affect the enterprise performance.

Research Hypothesis

Hypothesis 1: Digital innovation of financial technology enterprises in Shanghai has a positive impact on enterprise performance.

Hypothesis 2: The cultural organization of Shanghai financial technology enterprises has a positive impact on enterprise performance.

Concept Theory Framework

1. The theory of Digital Innovations (DI)

Globally, the fintech industry is becoming increasingly important in keeping pace with advances and developments in the financial sector (Al-Matari et al., 2022). These findings especially highlight the links between innovation and sustainability, revealing that digital transformation tools contribute over the long-term to the value creation process (Di Vario et al., 2020). Digital innovation refers to products, services, processes, etc. that trigger or realize value based on digital technologies (Nambisan et al., 2017). With the rapid development of digital economy, the improvement of digital level has become the key focus of the core competitiveness of enterprises and an important engine to achieve high-quality development of enterprises and society.

2. The theory of Cultural organizations (CO)

Organizational culture influences the ability of fintech companies to embrace and effectively implement digital transformation. For companies to remain competitive in the fintech space, they must foster a culture of continuous learning and development. This includes regular training, seminars, and exposure to the latest digital trends and technologies (Chesbrough & Crowther, 2006), implementing a digital-first culture. A strong organizational culture encourages innovation and adaptability, supporting employees to try original approaches, embrace change, and learn from failure.

Cultural organization and organizational culture are two similar concepts with completely different connotations. Organizational culture is the "soft rules" such as shared values and behavior patterns within the organization whose core goal is cultural production/dissemination, and values, behavior norms and work habits that members of the organization follow together. Cultural organizations are entities whose main functions are the creation, preservation, and dissemination of cultural products, focusing on cultural policies, capital operation, audience service and the social influence and public welfare of cultural products. Focus on how culture affects employee behavior, decision-making and performance, and the role of culture in organizational change and team cohesion.

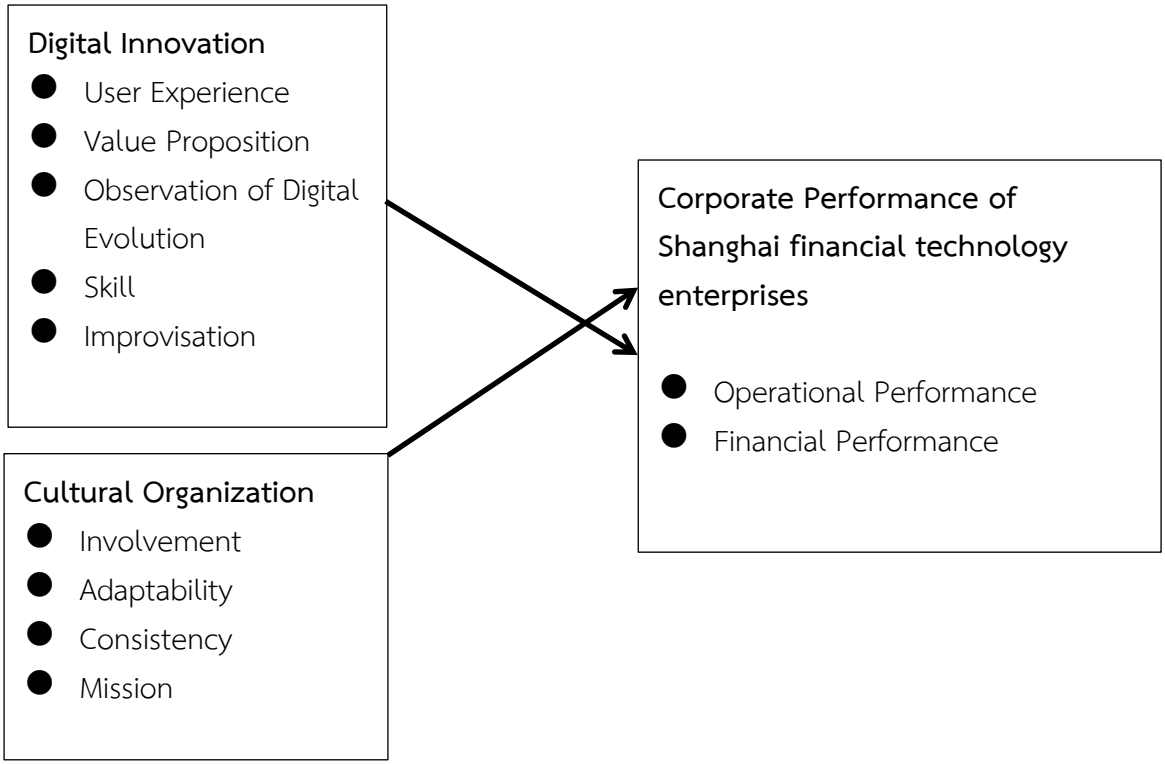


Figure 1

Materials and Methods

William G. put forward Cochran's theorem in 1954, which is an important statistical theorem, and provided a method to assess the difference between two independent samples. Through this formula, we got 386 samples and then used SPSS data analysis software for empirical analysis. Descriptive statistics and multiple linear regression equations are used to examine the relationship between variables and their influence patterns. The function of descriptive statistics is to systematically summarize the characteristics of data through quantitative indicators and visual means and lay the foundation for data understanding and subsequent multiple linear regression. Multiple regression analysis plays the role of prediction and estimation in this study, and multi-dimensional relationship processing can provide a more comprehensive perspective. The confidence level adopted in this study is 95% and the error is 5%.

Results

In this study, the Likert scale is used for numerical processing by dividing the options into 1-5 points and calculating statistics such as mean and standard deviation. At the same time, classification analysis is conducted. The options are combined into three categories (such as "negative/neutral/positive") for data statistics.

The empirical results show that the level of digital innovation, the factor Mean values below are all greater than 3, Cultural organization of financial technology enterprises in Shanghai is in the middle.

Table1: Mean and Standard Deviation of Digital Innovation

Digital Innovation	Mean	Standard Deviation	Definition of Level
User Experience	3.29	1.063	Middle
Value Proposition	3.20	1.043	Middle
Observation of Digital Evolution	3.22	1.060	Middle
Skill	3.28	1.072	Middle
Improvisation	3.26	1.059	Middle

Table 2: Mean and Standard Deviation of Cultural Organization

Quality of Live Marketing	Mean	Standard Deviation	Definition of Level
Involvement	3.34	1.078	Middle
Adaptability	3.34	1.067	Middle
Consistency	3.33	1.055	Middle
Mission	3.34	1.067	Middle

Table 3: Multiple regression analysis was used to assess the hypotheses.

Coefficientsa

Variable	Unstandardized B	Coefficients Std.Erro	Standardized Coeficients Beta	t	Sig
Constant	0.061	0.127		0.477	0.633
Digital Innovation	0.585	0.066	0.476	8.808	0.000
Cultural Organization	0.404	0.060	0.361	6.693	0.000

As can be seen from the above table and Table 3, as shown in the table, with digital innovation and cultural organization as independent variables and the performance of tech companies as the dependent variable, the model F-value is 356.744, P=0.000, indicating that the model holds true. Moreover, digital innovation (β=0.476, P=0.000) positively influences the performance of tech companies; cultural organization (β=0.361, P=0.000) also positively influences the performance of tech companies.

The equation is: Y**=0.61+0.476*X1+0.361, *X2**

Conclusions and Discussion

1. Conclusions

The results show that digital innovation and organizational culture of financial technology enterprises in Shanghai, and there is a significant positive correlation with enterprise performance. Research results show that the adoption of financial technology has a positive impact on financial performance. The results also show that financial technology has a positive significant effect on the performance of small and medium-size enterprise.

2. Discussion

This study evaluates all aspects of digital innovation, such as user experience, value proposition, improvisation, so that customers can directly participate in the development process to ensure meaningful interaction; At the same time, the company constantly updates and improves its products/services according to user interaction and feedback to enhance the overall user experience. It is found that the digital innovation and cultural organization of financial technology enterprises in Shanghai are in the middle, and they have a positive and important impact on the performance of financial technology enterprises in Shanghai. Through reading the literature, it is found that many scholars at home and abroad have studied the influence of digital innovation and cultural organization on enterprise performance. For example, Liu et al. (2021) finally pointed out that financial technology has a significant positive impact on ROE and NIMP and has a significant positive impact on ROE research in linear and nonlinear models. Digitalization has a profound impact on organizational performance, especially in the financial industry, which provides new opportunities for value creation by breaking the existing business model (Shah et al., 2024). The research results of Wang et al. (2023) show that the sustainable commitment of an enterprise is beneficial to its business growth and will not increase its risk finance industry. The financial industry can report the growth of financial technology news that highlights business, while companies with high capital adequacy ratio can better manage the risks related to innovation commitments. He suggested that financial companies conduct sustainable innovation to improve their profitability.

3. Limitation and future study

Only 386 samples were investigated in this study, and the sample data is limited. This study is biased towards the economically developed areas in eastern China, with Shanghai, China as the representative area, so it has regional and quantitative limitations. Sun et al. (2022) research results show the scale and vitality of digital technology innovation show obvious spatial differentiation, and form a pattern of agglomeration distribution in Shanghai, southern Jiangsu, northeastern Zhejiang and central Anhui, and the agglomeration degree is decreasing. It is suggested that we should increase the research samples, invest in empirical research, expand the data caliber, and break the regional restrictions.

References

Alkhawaldeh, B., Alhawamdeh, H., Al-Afeef, M., Al-Smadi, A., Almarshad, M., Fraihat, B., ... & Alaa, A. (2023). The effect of financial technology on financial performance in Jordanian SMEs: The role of financial satisfaction. Uncertain Supply Chain Management, 11(3), 1019-1030.

Al-Matari, E. M., Mgammal, M. H., Alosaimi, M. H., Alruwaili, T. F., & Al-Bogami, S. (2022). Fintech, board of directors and corporate performance in Saudi Arabia financial sector: Empirical study. Sustainability, 14(17), 10750.

Chesbrough, H., & Crowther, A. K. (2006). Beyond high tech: early adopters of open innovation in other industries. R&D Management, 36(3), 229-236.

Di Vaio, A., Palladino, R., Hassan, R., & Escobar, O. (2020). Artificial intelligence and business models in the sustainable development goals perspective: A systematic literature review. Journal of Business Research, 121, 283-314.

Luo, Y., Cui, H., Zhong, H., & Wei, C. (2023). Business environment and enterprise digital transformation. Finance Research Letters, 57, 104250.

Liu, Y., Saleem, S., Shabbir, R., Shabbir, M. S., Irshad, A., & Khan, S. (2021). The relationship between corporate social responsibility and financial performance: A moderate role of fintech technology. Environmental Science and Pollution Research, 28, 20174-20187.

Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital innovation management. MIS quarterly, 41(1), 223-238.

Shah, N., Zehri, A. W., Saraih, U. N., Abdelwahed, N. A. A. & Soomro, B. A. (2024). The role of digital technology and digital innovation towards firm performance in a digital economy. Kybernetes, 53(2), 620-644.

Sun Y., Fan J., Liu H., & Zhao T. (2022) Spatial and temporal pattern of digital technology innovation and its influencing factors in the Yangtze River Delta. Economic Geography, 42(2), 124-133

Wang, J., Wu, Y., Yang, P. Y. & Hsu, H. (2023). Sustainable innovation and firm performance driven by FinTech policies: Moderating effect of capital adequacy ratio. Sustainability, 15(11), 8572.

Zahra, S. A., Liu, W., & Si, S. (2023). How digital technology promotes entrepreneurship in ecosystems. Technovation, 119, 102457.

The Impact of Work Stress on Turnover Intention among Teachers in Vocational Undergraduate Colleges in Guangdong Province

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Abstract

This study aims to explore the impact of work stress on turnover intention among teachers in vocational undergraduate colleges in Guangdong Province. Based on social exchange theory and JDC model, this study adopts quantitative research methods, distributes and collects survey questionnaires through the "Questionnaire Star" platform, and uses SPSS 29.0 to perform descriptive statistics, correlation analysis and linear regression analysis on the data. The results show that there is a significant positive correlation between work stress and turnover intention. In addition, among the four dimensions of work stress (workload, scientific research, interpersonal relationships, and career development), career development has the greatest impact on teachers' turnover intention. Finally, this study provides countermeasures and suggestions for alleviating teachers' work stress and enhancing the stability of the teaching staff.

Keywords: Vocational Undergraduate Colleges, Work Stress, Turnover Intention, Teachers

Introduction

To build a "strong country in education", 16 new vocational undergraduate colleges will be added in 2024 (Ministry of Education, 2024). With the development of vocational undergraduate colleges in China, work stress of college teachers continues to emerge, in terms of scientific research stress, workload and teaching (Mycos, 2023). These stresses further lead to an increase in teachers' turnover intention, affecting the stability and sustainable development of the college's faculty (Salama et al., 2022).

As a higher level of education, the development of higher vocational colleges requires the support of a stable teaching staff. However, with the increase in teachers' work stress, the phenomenon of teachers leaving their jobs is serious. Therefore, this study takes teachers from higher vocational colleges in Guangdong Province as the research

object to explore the relationship between work stress and turnover intention, which is of great significance to building a stable teaching staff and is also the key to promoting the high-quality development of higher vocational education.

Objectives

This study focuses on teachers in vocational colleges in Guangdong Province and proposes the objective to explore and analyze the relationship between turnover intention and teachers' work stress.

Concept Theory Framework

Teacher's work stress

Teachers' work stress refers to various negative emotions caused by teachers due to work environment factors (Naghieh et al., 2015), which come from workload, interpersonal relationships, time management, and career development (Agyapong et al., 2022). The biggest factor is scientific research, followed by personal development (Li, 2021).

This study identified the dimensions of work stress as workload, scientific research, interpersonal relationships, and career development.

Turnover intention

Turnover intention is the psychological state of an employee planning to leave his current position (Park & Min, 2020). It is also the strongest predictor of actual resignation behavior (Asri, 2022).

Research theory

This research encompasses Job Demand-Control Theory and social exchange theory.

Social Exchange Theory believes that people will balance costs and rewards to pursue maximum benefits (Kieserling, 2018). When work stress increases and rewards are insufficient, they will have turnover intention (Shah et al., 2022).

Job Demand-Control Theory (JDC model) believes that work stress is jointly determined by job demands (such as load) and job control (such as autonomy) (Karasek, 1979). The combination of high job demands, and low job control will lead to high stress, which in turn increases employees' turnover intention (Shin & Hur, 2021).

Conceptual Framework and Hypothesis Development

This study is constructed in combination with the research directions as follows:

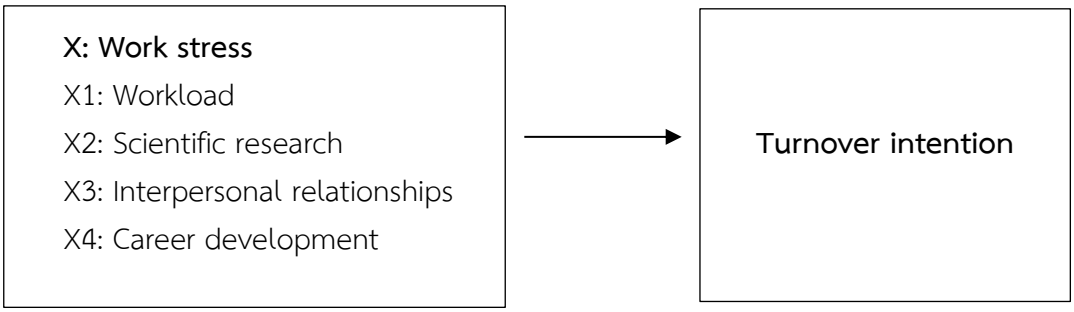


Figure 1: Conceptual Framework

Based on the above framework, the following hypothesis is proposed:

H1: Teachers' work stress has a significant impact on their turnover intention.

H2: Teachers' workload stress has a significant impact on their turnover intention.

H3: Teachers' scientific research stress has a significant impact on their turnover intention.

H4: Teachers' interpersonal relationship stress has a significant impact on their turnover intention.

H5: Teachers' career development stress has a significant impact on their turnover intention.

Materials and Methods

This study adopts a quantitative research method, with 6,239 teachers from four vocational undergraduate colleges in Guangdong Province as the research subjects. According to the sample size calculation method of Harcourt (2022), the sample size is determined to be 376 teachers. Combined with the Bourley proportional allocation formula used by Idoko and Andrew (2022), the sample is allocated to each college. This study uses a questionnaire survey method. The questionnaire is divided into three parts: the first part collects demographic information (such as gender, age, etc.). The second and third parts use the Likert five-level scale to measure work stress (workload, scientific research, interpersonal relationships, and career development) and turnover intention, from "5" for "strongly agree" to "1" for "strongly disagree". The questionnaire has been evaluated and pre-tested by IOC. The results showed that the average IOC score was 0.88, Cronbach's alpha was 0.895, KMO was 0.825, significance was <0.001, and reliability and

validity were good. The data were collected through the "Questionnaire Star" platform, and a total of 470 questionnaires were distributed under the premise of a 20% non-response rate (Althubaiti,2 023). After sorting, 432 valid questionnaires were obtained, and descriptive statistics, correlation analysis, and linear regression analysis were performed using SPSS29.0. The analysis results are described in the next section.

Results

Table 1: Descriptive statistics for demographic information

Item	Options	Quantity	Percentage (%)
Gender	Male	243	56.25
	Female	189	43.75
Age	30 years and below	66	15.28
	31-40 years old	164	37.96
	41-50 years old	135	31.25
	51 years and above	67	15.51
Education level	Undergraduate and below	48	11.11
	Master's degree	271	62.73
	PhD Candidates	113	26.16
Years of working experience	5 years and below	99	22.92
	6-10 years	159	36.81
	11-15 years	124	28.70
	16 years and above	50	11.57
Professional title level	Entry level teacher	120	27.78
	Junior professional title	167	38.66
	Intermediate professional title	95	21.99
	Senior professional title	50	11.57
Monthly compensation	5000 yuan and below	61	14.12
	5001-7000 Yuan	143	33.10
	7001-9000 Yuan	184	42.59
	9001 and above	44	10.19
	Total	432	100.0

Among the respondents, males accounted for 56.25% (243) and females accounted for 43.75% (189). The age distribution was 31-40 years old (37.36%, 164), followed by 41-50 years old (31.25%, 135), 51 years and above (15.51%, 67) and 30 years and below (15.28%, 66). The education level was mostly master's degree (62.73%, 271), followed by Ph.D. (26.16%, 113) and Undergraduate and below (11.11%, 48). Years of working experience were 6-10 years (36.81%, 159), followed by 11-15 years (28.70%, 124), 5 years and below (22.92%, 99) and 16 years and above (11.57%, 50). Professional title level is Junior professional title (38.66%, 167) and Entry level teacher (27.78%, 120), Intermediate professional title accounts for 21.99% (95), Senior professional title accounts for 11.57% (50). Monthly compensation is 7001-9000 Yuan (42.59%, 184), followed by monthly compensation of 5001-7000 Yuan (33.10%, 143), 5000 yuan and below (14.12%, 61) and 9001 and above (10.19%, 44).

Descriptive statistical analysis of variables

Table 2: Descriptive analysis results of relevant variables

Variables	Mean	Standard deviation
X: Work stress	3.475	0.699
X1: Workload	3.511	0.916
X2: Scientific research	3.475	0.944
X3: Interpersonal relationship	3.484	0.936
X4: Career development	3.431	0.94
Y: Turnover intention	3.326	0.579

According to this research, teachers feel stress in various aspects, and most teachers have the idea of leaving their current jobs to find other jobs.

Correlation analysis on work stress and turnover intention

Table 3: Correlation analysis results

	Work stress	Workload	Scientific research	Interpersonal relationships	Career development	Turnover intention
Work stress	1					
Workload	0.751**	1				
Scientific research	0.763**	0.442**	1			
Interpersonal relationships	0.727**	0.408**	0.382**	1		
Career development	0.755**	0.411**	0.456**	0.388**	1	
Turnover intention	0.599**	0.426**	0.460**	0.441**	0.466**	1

** significant at the 0.01 level.

It was found that teachers' work stress and its various dimensions (workload, scientific research, interpersonal relationships, and career development) were significantly positively correlated with turnover intention ($p < 0.01$), with the correlation coefficient of work stress being 0.599, and the correlation coefficients of the various dimensions being 0.426, 0.460, 0.441, and 0.466, respectively. This indicates that the greater the work stress, the stronger the teacher's turnover intention. It also indicates that high work stress, workload, scientific research stress, challenges in interpersonal relationships, and career development difficulties will increase teachers' turnover intention. Therefore, under the combined effects of various stressors, teachers' turnover intention continues to increase.

Regression analysis on work stress and turnover intention

Table 4: Regression analysis results

	Unstandardized coefficients		Standardized coefficient	t	Significance (p)	Collinearity Statistics	
	B	Standard Error	Beta			Tolerance	VIF
Constant	1.607	0.114	-	14.122	< 0.001	-	-
Workload	0.099	0.029	0.156	3.385	< 0.001	0.707	1.414
Scientific research	0.127	0.029	0.207	4.452	< 0.001	0.693	1.444
Interpersonal relationships	0.130	0.028	0.210	4.706	< 0.001	0.752	1.330
Career development	0.139	0.028	0.226	4.918	< 0.001	0.709	1.411

R^2=0.360, **Adjusted R^2**=0.354, **F**=59.973, **p**< 0.001, **D-W**=2.022

Notes: Independent variables: Workload, scientific research, interpersonal relationships, career development. Dependent variable: turnover intention

It was found that workload, scientific research, interpersonal relationships, and career development had a significant positive impact on teachers' turnover intention, among which career development stress had the greatest impact. Among them, the four factors can explain 36% of the variation in turnover intention ($R^2 = 0.360$). Since $F = 59.973$, $p < 0.001$, D-W = 2.022, this research result shows that the results are dependable.

Conclusions and Discussion

This study examines the relationship between work stress and turnover intention among faculty members at vocational undergraduate colleges in Guangdong Province, and found that the four dimensions of workload, scientific research, interpersonal relationships, and career development were all significantly positively correlated with turnover intention, which is consistent with previous studies. For example, Wang and Li (2017) pointed out

that high work stress can lead to physical and mental exhaustion, leading to an increase in turnover intention; Jayasri and Annisa (2023) found that increased workload can lead to anxiety, thereby increasing turnover intention; Yao et al. (2023) showed that the high intensity and high requirements of scientific research tasks can aggravate teachers' fatigue and further increase turnover intention. Akhlaghimofrad and Farmanesh (2021) also showed that tension in interpersonal relationships can reduce work belonging and increase turnover intention. Among them, career development stress has the greatest impact on turnover intention (Zhu et al., 2021), because it is related to teachers' long-term career goals and value realization.

First, excessive workloads can cause teachers to be physically and mentally exhausted, which in turn affects their personal health. Second, scientific research stress challenges teachers to allocate their personal time, while also facing the stress of high-demand output. Third, tension in interpersonal relationships can reduce teachers' job satisfaction and affect their emotions. Finally, limited career development makes teachers lack confidence in the future. Therefore, under the combined effect of these factors, teachers are prone to turnover intention.

The results of this study are consistent with the social exchange theory, that is, when teachers' input and output are out of balance, job satisfaction decreases and turnover intention increases (such as "unclear career planning" with a mean of 3.41 and "unsatisfactory relationship with leaders" with a mean of 3.52). In addition, the results are consistent with the JDC model, and the combination of high job demands, and low job control produces high stress. Teachers face high demands in terms of workload (mean score of "high role demands" is 3.55) and scientific research (mean score of "lack of time" is 3.51), but lack a sense of control in terms of career development (mean score of "limited training opportunities" is 3.46) and interpersonal relationships (mean score of "challenging in teamwork" is 3.45). This imbalance exacerbates turnover intention (such as "browsing recruitment information" means 3.60, "considering leaving" means 3.52).

Therefore, this study verifies the impact of work stress on teachers' turnover intention and puts forward the following suggestions: First, colleges should conduct regular stress surveys, improve the assessment and training system, and optimize the working environment and communication mechanism; second, teachers need to continuously improve their professional abilities, learn to relax their emotions, and maintain a balance between work and life.

The main results of this study are: first, a "relationship scale between work stress and turnover intention of teachers in vocational undergraduate colleges" was developed

and passed the IOC test and pre-test; second, the relationship between work stress and turnover intention of teachers in vocational undergraduate colleges was clarified, and it was found that career development is the most important factor affecting turnover intention; third, based on the research conclusions, targeted suggestions for teacher management were put forward.

However, the study also has some limitations: first, the scope of questionnaire distribution is limited and only conducted through the online platform, which makes it difficult to screen qualified participants, which may affect the accuracy of the data; second, with the development of society, college teachers face new challenges, and the scale needs to be further optimized to meet the needs of teachers in different colleges and majors.

References

Agyapong, B., Obuobi-Donkor, G., Burback, L., & Wei, Y. (2022). Stress, burnout, anxiety, and depression among teachers: A scoping review. International Journal of Environmental Research and Public Health, 19(17), 10706. https://doi.org/10.3390/ijerph191710706

Akhlaghimofrad, A., & Farmanesh, P. (2021). The association between interpersonal conflict, turnover intention and knowledge hiding: The mediating role of employee cynicism and moderating role of emotional intelligence. Management Science Letters, 11, 2081–2090. https://doi.org/10.5267/j.msl.2021.3.001

Althubaiti, A. (2023). Sample size determination: A practical guide for health researchers. Journal of General and Family Medicine, 24(2), 72–78. https://doi.org/10.1002/jgf2.600

Asri, C. P. (2022). Turnover intention: A literature review. Journal of Business Studies and Management Review, 5(2), 337–341. https://doi.org/10.22437/jbsmr.v5i2.16410

Harcourt, H. (2022). Service capacity utilization and competitive advantage of private medical service providers in rivers state. Nigerian Journal of Management Sciences, 23(1), 90-97. https://nigerianjournalofmanagementsciences.com/wp-content/uploads/2022/03/8.-SERVICE-CAPACITY-UTILIZATION-AND-COMPETITIVE-ADVANTAGE.pdf

Idoko, E., & Andrew. (2022). Effects of government fiscal policy on the growth of entrepreneurship in Nigeria: A survey of Benue state. Research Journal of Management Practice, 12(2), 2782–7674. https://www.ijaar.org/articles/rjmp/v2n12/rjmp2122.pdf

Jayasri, R. I. A., & Annisa, I. T. (2023). Effect of workload and career development on turnover intention through job satisfaction as variable mediator. Research of Business and Management, 1(1), 10–20. https://doi.org/10.58777/rbm.v1i1.19

Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. Administrative Science Quarterly, 24(2), 285–308. https://doi.org/10.2307/2392498

Kieserling, A. (2018). Blau (1964): Exchange and power in social life. Schlüsselwerke Der Netzwerkforschung, 51–54. https://doi.org/10.1007/978-3-658-21742-6_12

Li, J. (2021). An Analysis of Young College Teachers' Occupational Pressure and Its Mitigation Countermeasures——Taking Jilin Province as an Example [Master]. In Cnki.net. https://www.cnki.net/KCMS/detail/detail.aspx?dbcode=CMFD&dbname=CMFD202102&filename=1021609073.nh&uniplatform=OVERSEA&v=3HN2RwL_zN9MZQJGQh9P-JORP5_YpFRONzHULVoMKD5PGHTrGqEvvD3xyv4efEO2

Ministry of Education. (2024b, May). The Ministry of education announced! 16 colleges were renamed and upgraded to universities! Gaokao.eol.cn. https://gaokao.eol.cn/news/202405/t20240524_2612024.shtml

Mycos. (2023, April). Chinese university teachers have the highest stress levels in the world! WeChat Public Platform. https://mp.weixin.qq.com/s/AbsGZEq6OSNbXIm3M-rOSA

Naghieh, A., Montgomery, P., Bonell, C. P., Thompson, M., & Aber, J. L. (2015). Organisational interventions for improving well-being and reducing work-related stress in teachers. Cochrane Database of Systematic Reviews, 4. https://doi.org/10.1002/14651858.cd010306.pub2

Park, J., & Min, H. (2020). Turnover intention in the hospitality industry: A meta-analysis. International Journal of Hospitality Management, 90(1), 1-11. https://doi.org/10.1016/j.ijhm.2020.102599

Salama, W., Abdou, A. H., Mohamed, S. A. K., & Shehata, H. S. (2022). Impact of work stress and job burnout on turnover intentions among hotel employees. International Journal of Environmental Research and Public Health, 19(15). https://doi.org/10.3390/ijerph19159724

Shah, S. H. A., Haider, A., Jindong, J., Mumtaz, A., & Rafiq, N. (2022). The impact of job stress and state anger on turnover intention among nurses during COVID-19: The mediating role of emotional exhaustion. Frontiers in Psychology, 12, 1-15. https://doi.org/10.3389/fpsyg.2021.810378

Shin, Y., & Hur, W.-M. (2021, July 29). Having control or lacking control? Roles of job crafting and service scripts in coping with customer incivility. Journal of Occupational Health Psychology, 27(1), 104–118 https://doi.org/10.1037/ocp0000288

Wang, X., & Li, A. (2017). Exploring the Effects of Customer Mistreatment on Employee Performance: The Moderating Roles of Cognitive Reappraisal and Expression Suppression. Jinan Journal (Philosophy & Social Science Edition), 2017(3). https://www.cnki.net/KCMS/detail/detail.aspx?dbcode=CJFD&dbname=CJFDLAST2017&filename=JNXB201703006&uniplatform=OVERSEA&v=AJwOCBii7Q4p8SzRS2qmXTpYUxzcP8fnxe2Oxjck8Yvr49dQUqcwT7SBGj7eoRF0

Yao, D., Zheng, X., Shang, D., & Liu, J. (2023). Influence of Scientific Research Pressure on Depressive Emotions of Teachers in Higher Vocational Colleges——Mediating Effect of Job Burnout and Anxiety. Journal of Nanjing Open University, 2023(4). https://www.cnki.net/KCMS/detail/detail.aspx?dbcode=CJFD&dbname=CJFDLAST2024&filename=NJGB202304009&uniplatform=OVERSEA&v=xgYPaKhXofCtJbm0pgJTCmNn5gIPIoWu4Qjd1mO0Vl-ciVDxa2x3FYoUlwIiPD3B

Zhu, B. (2021). A study on the impact of migrant workers' work stress on their turnover intention [Master]. In Cnki.net. https://www.cnki.net/KCMS/detail/detail.aspx?dbcode=CMFD&dbname=CMFD202402&filename=1023423461.nh&uniplatform=OVERSEA&v=MO5FT5RXlbweKbkejUA3tDKULfnXPWddd-1CSTXcFASTNw8rd99-qyXR69CCEEV8

The Impact of Training and Development on Teachers' Personal Performance: A Case Study of Guangzhou Huashang University (Guangzhou Campus)

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Abstract

This study examines the impact of training and development on teachers' personal performance at Guangzhou Huashang University (Guangzhou Campus) using quantitative methods. Data from 313 valid questionnaires were analyzed with SPSS. Results show significant positive correlations between training and development factors (training content, career planning, leadership development, etc.) and teachers' performance (task and contextual performance). Key findings indicate that training content most strongly impacts task performance, while career planning significantly influences contextual performance. The study recommends optimizing training content, enhancing career development support, and improving leadership training to boost teacher performance and establishing a comprehensive evaluation system to ensure training effectiveness.

Keywords: Training And Development, Teacher Personal Performance, Private Colleges and Universities, Career Development

Introduction

In recent years, with the rapid development of the economy and increasing professional competition, colleges and universities have paid increasing attention to employee training and development. Effective training and development can improve employee performance and career development while meeting both short-term and long-term goals (Shifrer, 2020). However, in the personnel management of colleges and universities, a unified training plan is often adopted, which cannot meet the differentiated needs of different departments and positions. For example, the nature and requirements of the work of teachers and administrative staff are different, and the professional knowledge and skills required are also different, but the training content and methods are relatively single, which cannot fully cover the actual work needs of employees (Nabila Gibran & Ramadani, 2021) . In addition, the lack of scientific and effective training

evaluation indicators and methods makes it impossible to objectively evaluate the training results.Therefore, this study takes Guangzhou Huashang University (Guangzhou Campus) as an example to explore the impact of training and development on teachers' personal performance, reveal the mechanism behind the effectiveness of training and development in improving personal performance, and provide theoretical insights and practical suggestions for optimizing the teacher training system and enhancing the quality of teacher training.

Objectives

1. To investigate the status of teacher training and development in Guangzhou Huashang College (Guangzhou Campus)
2. To explore the personal performance level of teachers in Guangzhou Huashang College (Guangzhou Campus)
3. To explore how the impact of teacher training and development on personal performance in Guangzhou Huashang College (Guangzhou Campus)

Concept theory framework

Definition and Dimensional Analysis of Teacher Personal Performance

Teacher personal performance reflects work effectiveness, including task performance and contextual performance. It is influenced by individual and situational factors and is crucial for organizational development. This study identifies two key dimensions for teachers: task performance and contextual performance.

Analysis of the Definition of Training and Development

Training involves acquiring new knowledge and skills to improve work performance. Development focuses on personal growth through learning and adapting to new challenges (Tantawy, 2020).

Research Theory

This study uses the expectancy theory, reinforcement theory, adult learning theory and human capital theory to deeply analyze the impact of teacher training and development on teachers' personal performance in Guangzhou Huashang University (Guangzhou Campus). Eccles and Wigfield (2020) emphasized through the expectancy theory that employee motivation is driven by their perception of the benefits of training and development. O'Doherty et al. (2015) proposed through reinforcement theory that the positive results of training can significantly enhance employees' work motivation. De Matas and Keegan (2020) pointed out based on adult learning theory that training that matches job requirements can significantly improve employee performance. Abiddin and

Talha (2024) used human capital theory to argue that investment in employee training can improve job satisfaction and performance. These theories together constitute the theoretical basis of this study, helping us to deeply understand how training and development affect teachers' personal performance, and provide suggestions for improving private teacher training and development.

Conceptual framework and hypothesis development

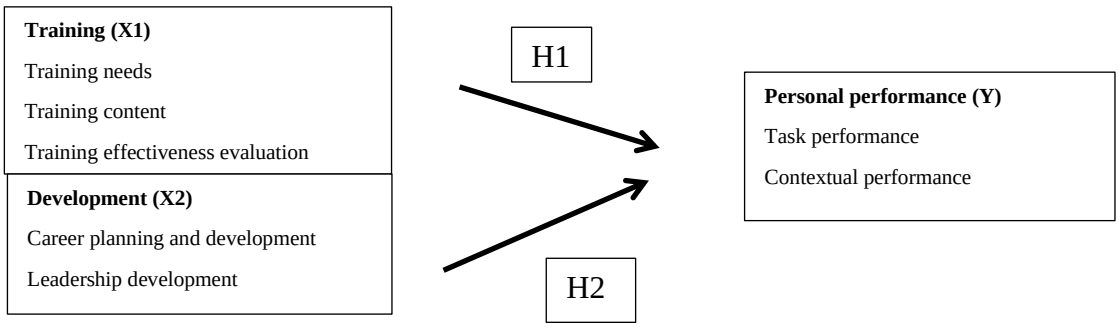


Figure 1: Conceptual Framework

H1: There is statistically correlated between teacher training and personal performance at Guangzhou Huashang College (Guangzhou Campus).

H1.1: There is statistically correlated between teacher training needs and personal performance at Guangzhou Huashang College (Guangzhou Campus).

H1.2: There is statistically correlated between teacher training content and personal performance at Guangzhou Huashang College (Guangzhou Campus).

H1.3: There is statistically correlated between teacher training effect evaluation and personal performance at Guangzhou Huashang College (Guangzhou Campus).

H2: There is statistically correlated between teacher development and personal performance at Guangzhou Huashang University (Guangzhou Campus).

H2.1: There is statistically correlated between teacher career planning and development and personal performance at Guangzhou Huashang University (Guangzhou Campus).

H2.2: There is statistically correlated between teacher leadership development and personal performance at Guangzhou Huashang University (Guangzhou Campus).

Materials and Methods

This study employed a quantitative approach targeting 1,436 teachers at Guangzhou Huashang University (Guangzhou Campus). Data were collected via an online questionnaire using stratified random sampling. The sample size was calculated using the Yamane

formula, resulting in 313 respondents. Descriptive statistics, correlation analysis, and multiple regression were used to analyze the impact of training and development on teacher performance.

Results

Table 1: Sample distribution description

Question	Options	Frequency	Percentage (%)	Cumulative percentage (%)
1.Gender	Male	136	43.45	43.45
	Female	177	56.55	100.00
2. Age	Under 30	126	40.3	40.3
	30-40	103	32.9	32.9
	40-50	42	13.4	13.4
	Over 50	42	13.4	13.4
3.Working experience	Less than 5 years	105	33.5	33.5
	6 - 10 years	124	39.6	39.6
	11 - 15 years	42	13.4	13.4
	More than 16 years	42	13.4	13.4
4.From which college	School of accountancy	67	21.4	21.4
	School of artificial intelligence	35	11.2	11.2
	Digital economics and trade college	13	4.2	4.2
	School of communication and media	17	5.4	5.4
	Faculty of letters	44	14.1	14.1
	School of health sciences	17	5.4	5.4
	School of teacher education	22	7	7
	Digital finance academy	9	2.9	2.9
	School of management	36	11.5	11.5
	School of foreign languages	19	6.1	6.1
	International college	10	3.2	3.2

Question	Options	Frequency	Percentage (%)	Cumulative percentage (%)
	School of creativity and design	24	7.7	7.7
5.Academic position	Teaching assistant	14	4.47	4.47
	Lecturer	127	40.58	45.05
	Associate professor	86	27.48	72.52
	Professor	86	27.48	100.00
6.Educational background	Bachelor's degree	108	34.50	34.50
	Master's degree	138	44.09	78.59
	Doctoral degree	67	21.41	100.00
7. Monthly salary	5000yuan and below	105	33.5	33.5
	5001-7000 Yuan	104	33.2	33.2
	7001-9000 Yuan	52	16.6	16.6
	9001and above	52	16.6	16.6
Total		313	100.00	100.00

Table 1 indicates that the respondents in this study are female teachers aged 30 years and under, with teaching experience of 5 years or less. The majority hold the position of lecturer and receive a monthly salary between 5,001-7,000 CNY.

Table 2: Descriptive Statistics of Training and Development on Personal Performance

	Mean($\bar{x}$)	Standard Deviation (S.D.)	Level of perception
Training needs	3.804	1.086	Somewhat Agree
Task performance	3.781	1.091	Somewhat Agree
Training content	3.789	1.122	Somewhat Agree
Task performance	3.781	1.091	Somewhat Agree
Training effectiveness evaluation	3.766	1.126	Somewhat Agree
Contextual performance	3.738	1.080	Somewhat Agree
Career planning and development	3.653	1.159	Somewhat Agree

The findings from Table 2 indicate that teachers hold a highly positive perception of training needs, suggesting effectiveness in identifying and meeting these needs. Both task performance and training content are also valued highly by the teachers. While perceptions of training effectiveness evaluation and contextual performance are slightly

less positive, they remain favorable. Career planning and development, despite having the lowest positive perception, continue to be viewed positively by the teachers.

Table 3: Correlation Analysis

Variable	Training needs	Training content	Training effect evaluation	Career planning and development	Leadership development	Task performance	Contextual performance
Training needs	1						
Training content	0.460**	1					
Training effect evaluation	0.367**	0.553**	1				
Career planning and development	0.509**	0.502**	0.514**	1			
Leadership development	0.401**	0.570**	0.546**	0.467**	1		
Task performance	0.458**	0.584**	0.523**	0.501**	0.515**	1	
Contextual performance	0.432**	0.469**	0.473**	0.478**	0.458**	0.501**	1

The correlation analysis presented in the table indicates significant relationships between the core variables related to training and development. The positive correlations observed across training needs, content, effectiveness evaluation, career planning and development, leadership development, task performance, and contextual performance provide preliminary support for the hypothesis testing of the theoretical model in subsequent analyses.

Table 4: Multiple Regression Analysis

Variables	Standardized Coefficients (Beta)	VIF	Tolerance
constant	-	-	-
training content	0.273	1.854	0.539
training effect evaluation	0.170	1.748	0.572
leadership development	0.146	1.733	0.577
training needs	0.143	1.477	0.677
career planning and development	0.136	1.712	0.584
R^2 = 0.457, Adjusted R^2 = 0.448, F (5,307) =51.605, p=0.000, D-W = 1.722 * p<0.05 ** p<0.01 Note: Dependent variable = Task performance			

According to the analysis of Table 4, training content, training effect evaluation, training needs, career planning and development, and leadership development significantly impact teacher task performance, explaining 45.7% of the variance (R^2 = 0.457). The model is robust, with no multicollinearity (VIF < 10) or autocorrelation (Durbin-Watson = 1.722). Training content has the strongest effect (β= 0.273, p < 0.001), followed by training effect evaluation, leadership development, training needs, and career planning and development. Thus, hypotheses H1, H1.1, H1.2, H1.3, H2, H2.1, and H2.2 are all supported.

Table 5: Multiple Regression Analysis

Variables	Standardized Coefficients (Beta)	VIF	Tolerance
constant	-	-	-
career planning and development	0.175	1.712	0.584
training effect evaluation	0.174	1.748	0.572
training needs	0.163	1.477	0.677
leadership development	0.144	1.733	0.577
training content	0.128	1.854	0.539
R^2 = 0.362, Adjusted R^2 = 0.352, F (5,307) =34.844, p=0.000, D-W = 1.870 * p<0.05 ** p<0.01 Note: Dependent variable = Contextual performance			

As shown in Table 5, the five variables explained 36.2% of teachers' contextual performance variance (R^2 = 0.362) with a robust model (F = 34.844, p < 0.01; VIF < 10; Durbin-Watson = 1.870). Career planning had the strongest impact (β= 0.175, p < 0.01), followed by training evaluation (β= 0.174, p < 0.01), training needs (β= 0.163, p < 0.01),

leadership development (β= 0.144, p < 0.05), and training content (β= 0.128, p < 0.05). All positively impacted contextual performance, supporting hypotheses H1, H1.1, H1.2, H1.3, H2, H2.1, and H2.2.

Conclusions and Discussion

This study explored the impact of training and development on teachers' personal performance at Guangzhou Huashang University (Guangzhou Campus) and found that training needs analysis, training content, training effectiveness evaluation, career planning and development, and leadership development all significantly enhance teachers' personal performance. These findings align with Expectancy Theory, which emphasizes that individuals' expectations of training outcomes directly affect their enthusiasm for participation. The high alignment of training content with job requirements supports Adult Learning Theory, highlighting the importance of practical knowledge acquisition through experience (Nurul Faudiah et al., 2023). Additionally, the positive impacts of training effectiveness evaluation, career planning, and leadership training further validate Reinforcement Theory and Human Capital Theory (S. Gningue et al., 2022). Based on these conclusions, targeted recommendations were proposed to optimize teacher training and development mechanisms, including enhancing career planning, enriching training content, strengthening the long-term impact of leadership training, and refining the effectiveness evaluation system to improve teacher performance.

However, the study has limitations. The sample scope was narrow, relying solely on online questionnaires, which may affect data accuracy. The study focused primarily on the direct impact of training and development on performance, without fully considering other potential factors such as organizational culture and work environment. Future research should expand the sample to include a broader range of institutions and regions to enhance the generalizability of the findings. Combining multiple research methods, such as questionnaires, in-depth interviews, and case studies, and conducting longitudinal research would provide a more comprehensive understanding of the long-term impact of training and development on teachers' performance and its underlying mechanisms. Additionally, exploring the interactions between training and other factors like organizational culture and work environment could offer a more holistic view of teacher performance and inform more scientific teacher management strategies in higher education institutions.

Overall, this study systematically validated the significant role of teacher training and development in enhancing personal performance and provided theoretical support and practical guidance for optimizing teacher training systems in higher education institutions. Despite its limitations, the study offers important insights for improving teacher management practices and suggests directions for future research.

References

Abiddin, N. Z., & Talha, M. D. M. (2024). Enhancing work performance through human capital development in engineering industry: A systematic literature review. Revista de Gestão Social E Ambiental, 18(6), e07038. https://doi.org/10.24857/rgsa.v18n6-130

Eccles, & Wigfield. (2020). From expectancy-value theory to situated expectancy-value theory: A developmental, social cognitive, and sociocultural perspective on motivation. Contemporary Educational Psychology. https://www.semanticscholar.org/paper/From-expectancy-value-theory-to-situated-theory%3A-A-Eccles-Wigfield/aa66407ce85108d5e992142c21fae22d091604d1

J. O'Doherty, Sang Wan Lee, & McNamee, D. C. (2015). The structure of reinforcement-learning mechanisms in the human brain. Current Opinion in Behavioral Sciences. https://www.semanticscholar.org/paper/The-structure-of-reinforcement-learning-mechanisms-O%E2%80%99Doherty-Lee/8f129b1847b3fa5d0e2c9ddf2d7e18ace7725da7

Nabila Gibran, & Ramadani, D. (2021). The effect of training and career development on employee performance. Almana: Jurnal Manajemen Dan Bisnis. https://www.semanticscholar.org/paper/The-Effect-of-Training-and-Career-Development-on-Gibran-Ramadani/09b6e5bec2f9eee292c01e26f281cddf601af1c9

Nurul Faudiah, Fadhilah Fadhilah, Fitriana Fitriana, & Rosmala Dewi. (2023). The impact of training and development on teacher performance. Nidhomul Haq Jurnal Manajemen Pendidikan Islam. https://www.semanticscholar.org/paper/The-Impact-of-Training-and-Development-on-Teacher-Faudiah-Fadhilah/352085e60eb28d8990f240758fbc89a12d63b31e

S. De Matas, S., & P. Keegan, B. (2020). A case study on adult and workplace learning. International Journal of Education and Management Engineering, 10(1), 11–19. https://doi.org/10.5815/ijeme.2020.01.02

S. Gningue, Peach, R., Jarrah, A. M., & Yousef Wardat. (2022). The relationship between teacher leadership and school climate: Findings from a teacher-leadership project. Education Sciences. https://www.semanticscholar.org/paper/The-

Relationship-between-Teacher-Leadership-and-a-Gningue-Peach/56eb0904ede01c6edbcb28032e5c0735ffb103c2

Shifrer. (2020). Contextualizing educational disparities and the evaluation of teacher quality. Social Problems. https://www.semanticscholar.org/paper/Contextualizing-Educational-Disparities-and-the-of-Shifrer/6ace4292676fa4485835a5b9ed5733f5eb98768a

Tantawy. (2020). Investigating teachers' perceptions of the influence of professional development on teachers' performance and career progression. Arab World English Journal. https://www.semanticscholar.org/paper/Investigating-Teachers%E2%80%99-Perceptions-of-the-of-on-Tantawy/3044012e7eab6724d2726b81f5ef8a763feca397

The Relationship between Performance Management Process and Teachers' Work Motivation: A Case Study of Huashang College in Guangzhou, China

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Abstract

This study takes teachers of Guangzhou Huashang College as the research object, aiming to explore the relationship between performance management process and teachers' motivation. The research sample is 385 in-service teachers of Guangzhou Huashang College. This study adopts a multi-stage sampling method, conducts a questionnaire survey on 385 sampled employees, and uses descriptive statistics and regression analysis to analyze the data. The results show that performance planning, performance execution, performance evaluation and performance feedback in the performance management process all have a significant positive impact on teachers' work motivation. Among them, performance planning has the most significant positive impact on internal motivation in work motivation, and performance execution has the most significant positive impact on external motivation in work motivation.

Keywords: Performance Management Process, Work Motivation, Teachers

Introduction

Teachers are the core force of education, and their work motivation affects teaching quality, scientific research results and other aspects (Fahriana & Sopiah, 2022). However, the pressure of scientific research and professional titles leads to weak work motivation of teachers, which affects work engagement (Rehman & Tariq, 2021).

The performance of teachers is difficult to measure with a simple performance management process. The current performance management process faces challenges such as a single evaluation method and insufficient performance feedback, which leads to weak work motivation of teachers (Huang, 2021). Therefore, optimizing the performance management process to stimulate teachers' work motivation has become a problem that college managers need to solve.

The Chinese government attaches importance to the reform of the performance management process of teachers. In 2016, the Ministry of Education of China issued relevant documents, clarifying that the performance management system of teachers is the core task (Ministry of Education of China, 2016). In 2019, "China's Education Modernization 2035" proposed to improve the teacher performance evaluation system and optimize the performance management process to enhance teachers' work motivation (Ministry of Education of China, 2019).

Guangzhou Huashang College is a non-governmental business school in the Guangdong-Hong Kong-Macao Greater Bay Area. The school's performance management process covers many aspects of teacher performance, has a significant impact on teachers' motivation for work, and has high research value (Guangzhou Huashang College, 2024).

This study aims to explore the relationship between the performance management process and work motivation of teachers in Guangzhou Huashang College, and to provide a reference for university administrators to optimize the performance management process and enhance teachers' motivation.

Research Significance

At present, due to the lack of theoretical research results on the relationship between the performance management process and work motivation of teachers in private universities, and the steady advancement of China's higher education reform, the academic community lacks relevant research on the relationship between performance management process and work motivation in private universities, which also limits the scientific development of the performance management process of teachers in private universities. This study, combined with the current analysis of the performance management process and work motivation of teachers in Guangzhou Huashang College, helps to enhance the pertinence and applicability of theoretical research and provide strong theoretical support for the development of private higher education represented by Guangzhou Huashang College. Studying the relationship between the teacher performance management process and work motivation can deeply understand the role of teacher performance management process in work motivation and put forward feasible suggestions for optimizing the performance management process of teachers in Guangzhou Huashang College and enhancing teacher work motivation, which has certain practical significance.

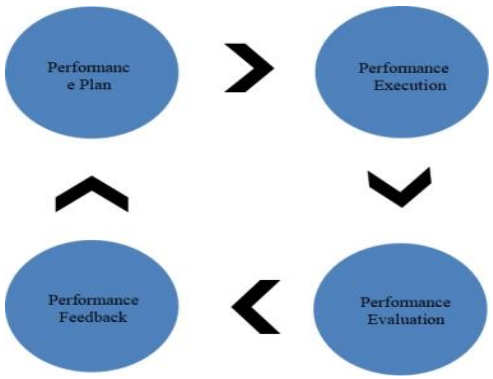
Objectives

This study explores the relationship between performance management process and work motivation, and proposes the following research objectives:

1. To explore the current situation of teachers' performance management process in Guangzhou Huashang College.
2. To explore the work motivation of teachers in Guangzhou Huashang College.
3. To study the relationship between performance management process and work motivation of Guangzhou Huashang College?

Concept Theory Framework

This study focuses on the relationship of the performance management process on teachers' work motivation, with PDCA theory and self-determination theory as theoretical support. Bingqing and Lei (2019) proposed that the PDCA theory emphasizes that performance management is a cyclical process. Through the four stages of planning, execution, inspection and improvement, the performance management process is continuously optimized, thereby providing teachers with clear goals and feedback to enhance their work motivation. Rigby and Ryan (2018) proposed that the self-determination theory focuses on the intrinsic motivation needs of teachers, and believes that the participation, autonomy, and identification of teachers with goals in the performance management process are crucial to their work motivation.



Petrovych and Trut (2019) proposed that performance plans should be formulated based on employee job requirements and personal goals. Managers should break down organizational performance goals and communicate them to employees to ensure that organizational goals match employee work directions. Nielsen and Grøn (2021) proposed that compared with the traditional top-down approach, performance planning with full communication and respect for employee autonomy can enhance employee work motivation and enable them to complete their work more efficiently.

Budhiraja (2022) emphasized that organizations should open communication channels to enhance employee motivation, because effective communication will run through the entire performance management process. Mesino and Harahap (2024) pointed

out that process coaching is important in performance execution, ensuring that employees have sufficient resources and support to complete performance work, and improving employee motivation through continuous guidance and support.

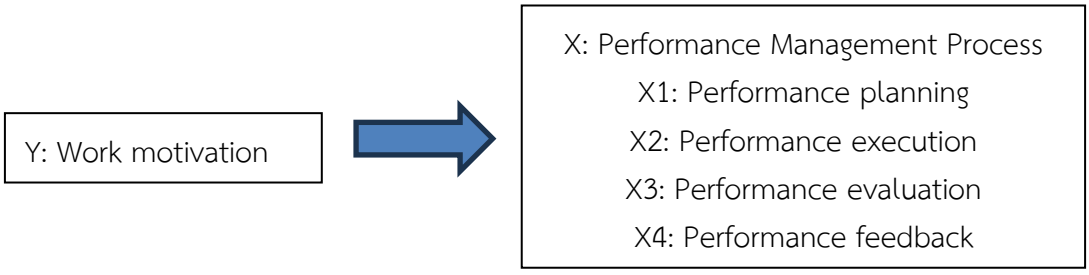
Dangol (2021) pointed out that the results of performance evaluation affect teachers' titles and promotions. If they do not truly reflect work effectiveness, they will reduce work motivation. Erialdy (2024) pointed out that performance evaluation should be fair. A fair evaluation process can enhance employees' commitment to the organization. Scientific tools can be used to conduct performance evaluation in combination with organizational reality to ensure that the process is fair and transparent and avoid simple evaluation based on good or bad.

Josika and Rathnakumar (2024) believe that timely performance feedback can improve employee motivation. After receiving feedback, employees can understand their past performance, gain organizational recognition and attention, and improve their future work motivation. Thomas and Kavitha (2024) proposed that performance feedback can apply the results of performance evaluation to employee promotion, training and development opportunities, performance bonus distribution, etc., which helps to enhance employee work motivation.

Baljoon, Banjar, and Banakhar (2018) proposed that work motivation is a combination of intrinsic and extrinsic factors that drive individuals toward specific work goals. It inspires, guides, and motivates individuals to achieve these goals. Bolbochan (2023) proposed that work motivation can be divided into two forms: intrinsic motivation and extrinsic motivation. Intrinsic motivation has high autonomy and persistence, while extrinsic motivation has strong social orientation and result orientation, but the two can be transformed into each other in different situations.

Research Hypothesis and Research Framework

This study uses the performance management process as an independent variable, which is divided into four dimensions: performance planning, performance execution, performance evaluation, performance feedback, and work motivation as the dependent variable. Based on previous research results and research theories, the framework of this study is constructed as follows:



H1: Performance planning has a statistically significant impact on work motivation.
H2: Performance execution has a statistically significant impact on work motivation.
H3: Performance evaluation has a statistically significant impact on work motivation.
H4: Performance feedback has a statistically significant impact on work motivation.

Materials and Methods

The questionnaire of this study is divided into three parts. The first part is demographic questions, which consists of five questions; the second part is performance management process, which consists of 18 questions; and the third part is work motivation, which consists of 12 questions.

This study uses questionnaire survey method to collect data. The questionnaire method helps save time, quickly collect enormous amounts of data, and ensure privacy and anonymity (Breakwell et al., 2020). This study adopts a multi-stage sampling method. First, stratified sampling is performed for each college to improve sample representativeness and information accuracy; then convenient sampling is performed for teachers in each stratum to facilitate rapid data collection and improve questionnaire response rate. This method combines the accuracy of stratified sampling with the flexibility of convenient sampling, which can efficiently collect data and maintain a certain representativeness of the sample (Gupta & Gupta, 2021). After calculation, a total of 440 questionnaires were distributed in this study, and 385 valid questionnaires were collected, with a recovery rate of 87.5%, which is consistent with previous studies (Christensen et al., 2020).

This study conducted a Cronbach's Alpha reliability test on the collected data. Cronbach's Alpha is a reliability indicator for measuring internal consistency, with a total score of 0.929. A reliability coefficient between 0.9-1 is very dependable (Surucu & Maslakci, 2020).

After arranging the collected data, data analysis methods are used to study the relationship between variables. The steps include: first, descriptive analysis is conducted to present sample characteristics; second, multiple regression analysis is conducted to study the impact of performance management on teacher work motivation, and the degree of influence of each variable on the dependent variable is explained through regression coefficients.

Results

Variables	Mean($\bar{x}$)	Standard deviation (S.D.)
Performance planning	4.337	1.354
Performance execution	4.326	1.383
Performance evaluation	4.256	1.429
Performance feedback	4.264	1.423
Internal motivation	4.310	1.420
External motivation	4.305	1.423

Through descriptive statistics, it can be seen from the above table that the mean value of performance planning is 4.337 (S.D.=1.354); the mean value of performance execution is 4.326 (S.D.=1.383); the mean value of performance evaluation is 4.256 (S.D.=1.429); the mean value of performance feedback is 4.264 (S.D.=1.423); the mean value of internal motivation is 4.310 (S.D.=1.420); and the mean value of external motivation is 4.305 (S.D.=1.423).

Variables	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	t	VIF	Tolerance
Constant	0.645	–	2.848	–	–
Performance Plan	0.269	0.254	5.165	1.583	0.632
Performance Evaluation	0.198	0.202	4.285	1.459	0.685
Performance Execution	0.197	0.192	4.023	1.494	0.669
Performance Feedback	0.189	0.192	4.036	1.482	0.675
R^2 = 0.420, Adjusted R^2 = 0.414, F (4, 380) = 68.754, p = 0.000, D-W = 1.988. p<0.05					

As can be seen from the table above, the model equation is internal motivation = 0.645 + 0.269 × performance plan + 0.197 × performance execution + 0.198 × performance evaluation + 0.189 × performance feedback. The model R^2 is 0.420, indicating that the four links of performance management can explain 42.0% of the variation in internal motivation, which has significant explanatory power. The adjusted R^2 is 0.414, and the model is robust. The F test results (F=68.754, Sig=0.000<0.05) show that the model is

significant and the overall prediction effect is obvious. The VIF values are all less than 5, and there is no covariance problem; the D-W value is 1.988, close to 2, and the residual has no autocorrelation, which meets the linear regression hypothesis.

Variables	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	t	VIF	Tolerance
Constant	0.707	–	2.981	–	–
Performance Execution	0.262	0.250	5.109	1.494	0.669
Performance Plan	0.257	0.237	4.703	1.583	0.632
Performance Evaluation	0.191	0.191	3.952	1.459	0.685
Performance Feedback	0.126	0.126	2.574	1.482	0.675
R^2 = 0.389, Adjusted R^2 = 0.383, F (4, 380) = 60.573, p = 0.000, D-W = 1.917. p<0.05					

From the above table, we can see that the model equation is: External motivation = 0.707 + 0.257 × performance plan + 0.262 × performance execution + 0.191 × performance evaluation + 0.126 × performance feedback. The model R^2 is 0.389, indicating that the four links of performance management can explain 38.9% of the variation in external motivation, which has significant explanatory power. The adjusted R^2 is 0.383, and the model is robust. The F test results (F=60.573, Sig=0.000<0.05) show that the model is significant and the overall prediction effect is obvious. The VIF values are all less than 5, and there is no covariance problem; the D-W value is 1.917, close to 2, and the residual has no autocorrelation, which meets the basic prerequisites of linear regression analysis.

This study verified the relationship between the performance management process and work motivation through regression analysis and verified the research hypothesis and research framework through regression analysis, thus achieving the research purpose. In summary, the impact of performance planning on work motivation is statistically significant, indicating that performance planning has a strong effect on improving work motivation; the impact of performance execution on work motivation is statistically significant, indicating that performance execution has a strong promoting effect on work motivation; the impact of performance evaluation on work motivation is statistically significant, indicating that performance evaluation has a strong effect on improving work

motivation; the impact of performance feedback on work motivation is statistically significant, indicating that performance feedback has a strong effect on improving work motivation. This shows that by optimizing each link of the performance management process, teachers' work motivation can be effectively improved.

Conclusions and Discussion

This study aims to explore the relationship of the performance management process on teachers' work motivation and reveal the mechanism of action of each link. The following is a discussion of the findings of this study after combining the literature review.

This study explored in detail the status of the performance management process of teachers in Guangzhou Huashang College through questionnaire surveys and data analysis.

Teachers believe that the school will fully communicate when formulating performance plans, and they engage in the formulation of personal performance evaluation indicators. This is consistent with the research of Nielsen and Grøn (2021), which emphasizes the importance of communication and participation in the formulation of performance plans. Petrovych and Trut (2019) proposed that performance plans should be formulated based on employees' job requirements and personal goals to ensure that organizational goals are consistent with employees' work directions. The results of this study further verified this view, indicating that through full communication and participation, teachers' identification with goals and commitment to the organization are significantly enhanced. Teachers received support and guidance from their superiors during the performance execution process, which is consistent with the research of Musheke and Phiri (2021), indicating that effective performance execution can significantly enhance teachers' work motivation. Budhiraja (2022) pointed out that regular performance interviews and communication during performance execution can help superiors understand teachers' work progress in a timely manner and provide necessary resource support and work guidance. Teachers gave high evaluations on the fairness and accuracy of performance evaluation, which is consistent with the research of Dangol (2021), emphasizing the importance of multi-dimensional and multi-subject performance evaluation in improving teachers' motivation. Josika and Rathnakumar (2024) pointed out that performance feedback is a two-way process. By establishing a smooth performance feedback mechanism, it can connect organizational managers and employees and optimize the internal performance management process of the organization. The results of this study further verify this point.

This study explored the status of teachers' work motivation in Guangzhou Huashang College through questionnaire surveys and data analysis.

The results of this study are consistent with the PDCA cycle theory, emphasizing the continuous improvement and cyclical nature of the performance management process. Through the PDCA cycle, schools can better monitor the performance execution process, identify potential problems, and provide solutions in a timely manner (Bingqing & Lei, 2019). The four stages of the PDCA cycle are interrelated to form a closed loop to ensure the continuous optimization of the performance management process. The results of this study show that by participating in the formulation of performance goals, teachers' autonomy and identification with the goals are significantly enhanced, thereby improving their work motivation. Teachers are satisfied with the combination of performance evaluation results with promotion opportunities, performance bonuses, which is consistent with Rigby and Ryan (2018) self-determination theory, indicating that external incentives play a vital role in improving teachers' work motivation.

Research Limitation and Suggestion for Further Study

This study provides a new perspective for the study of the relationship between performance management process and teacher work motivation in the context of private colleges and universities. However, there are still some research areas that can be further explored.

This study has limitations in sample selection. Only teachers from Guangzhou Huashang College were surveyed by questionnaire. The sample range is narrow, and the generalizability of the research results is limited to a certain extent. It may not represent the situation of teachers in other regions and other types of colleges and universities. At the same time, this limitation may also affect the study of the relationship between performance management processes and teacher work motivation. Therefore, based on the results and limitations of this study, future research should focus on expanding the sample and incorporating more types of colleges and universities, such as public colleges and universities, vocational colleges, etc., to supplement the understanding of research variables and provide a more comprehensive perspective. In addition, this study also has limitations in data collection methods. If the data collection method is based on questionnaire surveys, it may not be possible to deeply understand the dynamic changes of performance management process on teacher work motivation and its causal relationship. In subsequent studies, a variety of data collection methods can be used, combined with questionnaire surveys, face-to-face interviews and other methods, to explore the impact of performance management process on teacher work motivation from different perspectives, so that the research results are more comprehensive, in-depth and accurate.

References

Baljoon, R., Banjar, H., & Banakhar, M. (2018). Nurses' work motivation and the factors affecting it: A scoping review. International Journal of Nursing & Clinical Practices, 5(1). https://doi.org/10.15344/2394-4978/2018/277

Bingqing, L., & Lei, Z. (2019). Understanding and continuously promoting enterprise performance management from the perspective of PDCA cycle. Academic Journal of Humanities & Social Sciences, 2(3), 47–50. https://doi.org/10.25236/AJHSS.040070

Bolbochan, D. V. (2023). Motivation theory: From hedonism to the dichotomy of internal and external motivations. Educational Bulletin Consciousness, 25(10). https://doi.org/10.26787/nydha-2686-6846-2023-25-10-25-32

Breakwell, G. M., Barnett, J., & Wright, D. B. (2020). Research methods in psychology. www.torrossa.com. https://www.torrossa.com/en/resources/an/5019108#page=358

Budhiraja, S. (2022). Continuous learning and employee performance: A moderated examination of managers' coaching behavior in India. Personnel Review, 52(1). https://doi.org/10.1108/pr-04-2020-0272

Christensen, A. I., Lau, C. J., Kristensen, P. L., Johnsen, S. B., Wingstrand, A., Friis, K., Davidsen, M., & Andreasen, A. H. (2020). The Danish national health survey: Study design, response rate and respondent characteristics in 2010, 2013 and 2017. Scandinavian Journal of Public Health, 50(2), 180-188. https://doi.org/10.1177/1403494820966534

Dangol, P. (2021). Role of performance appraisal system and its impact on employee's motivation. Quantitative Economics and Management Studies, 2(1), 13–26. https://doi.org/10.35877/454ri.qems119

Erialdy, E. (2024). Employee performance appraisal using individual performance management. Jurnal Penelitian Pendidikan Indonesia, 10(1), 361–367. https://doi.org/10.29210/020242785

Fahriana, C., & Sopiah. (2022). The influence of work motivation on employee performance. Asian Journal of Economics and Business Management. 1(3), 229-233. https://doi.org/10.53402/ajebm.v18.237

Guangzhou Huashang College. (2024). Introduction to Guangzhou Huashang College. Guangzhou Huashang College. https://www.gdhsc.edu.cn/xygk/xyjj.htm

Gupta, N., & Gupta, S. (2021). Multi-choice stratified randomized response model with two-stage classification. Journal of Statistical Computation and Simulation, 92(5), 895–910. https://doi.org/10.1080/00949655.2021.1980880

Hambuda, F. N. (2017). Job satisfaction and job performance during the implementation

of a performance management system: The case of a Namibian municipality [master's Thesis]. In etd.cput.ac.za. https://etd.cput.ac.za/handle/20.500.11838/2661

Huang, J. (2021). Dilemma and breakthrough: Problems, causes and countermeasures of faculty performance management in undergraduate institutions in China. International Journal of Science and Business, 5(12), 11-22. https://ideas.repec.org/a/aif/journl/v5y2021i12p11-22.html

Josika, M. N., & Rathnakumar, A. (2024). A study on feedback mechanisms, managerial skill enhancement, and evaluation fairness of performance management. International Journal of Scientific Research in Engineering and Management, 08(04), 1–5. https://doi.org/10.55041/ijsrem31173

Mesiono, M., & Harahap, H. S. (2024). Sistem manajemen kinerja berbasis pada input (individual guru) proceeds dan output. Pedagogi: Jurnal Ilmiah Pendidikan, 10(2), 201–207. https://doi.org/10.47662/pedagogi.v10i2.787

Ministry of Education of China. (2019, February 23). China education modernization 2035. http://www.moe.gov.cn/jyb_xwfb/s6052/moe_838/201902/t20190223_370857.html

Musheke, M. M., & Phiri, J. (2021). The effects of effective communication on organizational performance based on the systems theory. Open Journal of Business and Management, 9(2), 659–671. https://doi.org/10.4236/ojbm.2021.92034

Nielsen, P. A., & Grøn, C. H. (2021, March 18). How can public managers use performance management for improvement without demotivating employees? Oxford University Press. https://doi.org/10.1093/oso/9780192893420.003.0008

Omar, E. N., Rochin, N. A., Abu, L. F., Hassan, N., & Alwi, A. (2022). The mediating roles of critical psychological factors towards the relationship between job characteristics and job outcomes: A conceptual framework / emi normalina Omar ...[et al.]. Voice of Academia (VOA), 18(1), 158–168. https://ir.uitm.edu.my/id/eprint/55300/

Petrovych, Y., & Trut, O. (2019). Monitoring the individual result of the employees in the organization management process. Journal of Lviv Polytechnic National University. Series of Economics and Management Issues., 6(3), 73–80. https://doi.org/10.23939/semi2019.03.073

Rehman, S., & Tariq, Z. (2021). An empirical study of emotional distress, motivation, and work-related performance among college teachers. Clinical and Counselling Psychology Review, 3(1), 12-27. https://journals.umt.edu.pk/index.php/CCPR/article/view/2002

Rigby, C. S., & Ryan, R. M. (2018). Self-Determination theory in human resource development: New directions and practical considerations. Advances in Developing Human Resources, 20(2), 133–147. https://doi.org/10.1177/1523422318756954

Surucu, L., & Maslakci, A. (2020). Validity and reliability in quantitative research. Business & Management Studies: An International Journal, 8(3), 2694–2726. http://dx.doi.org/10.15295/bmij.v8i3.1540

Thomas, M., & Kavitha, M. (2024). Role of performance appraisal on employee performance. Educational Administration: Theory and Practice, 30(5), 10076-10079. https://doi.org/10.53555/kuey.v30i5.4338

Triansyah, F. A., Hejin, W., & Stefania, S. (2023). Factors affecting employee performance: A systematic review. Journal Markcount Finance, 1(3), 150-159. https://www.semanticscholar.org/paper/Factors-Affecting-Employee-Performance%3A-A-Review-Triansyah-Hejin/0ee53bbdab39b81cacef4b8560040cb21aeb2a67

Waeyenberg, T., Peccei, R., & Decramer, A. (2020, April 23). Performance management and teacher performance: The role of affective organizational commitment and exhaustion. The International Journal of Human Resource Management, 33(4), 1–24. https://doi.org/10.1080/09585192.2020.1754881

The Impact of Compensation on Employee Performance in China's Information Technology Industry

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Abstract

This study investigates the relationship between compensation systems and employee performance in China's dynamically evolving information technology (IT) sector, with a specific focus on Wuhan as a regional innovation hub. Employing quantitative research, data were collected from 538 IT professionals through stratified sampling and validated questionnaires. The results indicate significant positive correlations between both monetary and non-monetary compensation and employee performance. Notably, non-monetary incentives, including career development opportunities and flexible work arrangements, exhibit a slightly stronger impact on contextual performance and goal achievement compared to monetary rewards. These findings contribute to theoretical frameworks by integrating Herzberg's Two-Factor Theory and Social Exchange Theory, offering actionable insights for optimizing talent retention and innovation in knowledge-intensive industries.

Keywords: Compensation, Employee Performance, Information Technology Industry

Introduction

China's information technology industry has developed rapidly, from software development to cloud computing, artificial intelligence, and other fields, and occupies a prominent position in the world with innovation and vitality (Li et al., 2019). In knowledge-intensive industries, the strong correlation between compensation and performance is particularly significant. The core competitiveness of enterprises depends on the efficiency of human capital, and the speed of employee knowledge iteration directly affects the product innovation cycle. The establishment of a performance-based compensation system becomes the key to the sustainable development of the industry (Li & Wang, 2024).

In the highly competitive environment of China's information technology industry, enterprises need to attract and retain high-quality talents. An effective incentive system is an important guarantee to achieve this goal. The compensation system should

compensate employees for the time cost of learning modern technologies and encourage the transformation of knowledge achievements through performance (Bashir et al., 2020). Research shows that when more than a percent of compensation is tied to patent output and project milestones, R&D efficiency can be increased by a factor of 2.3 (Moustaghfir & Fatihi, 2020).

Taking China's information technology industry as the background, this study deeply discusses the impact of compensation on employee performance, aiming to provide enterprises with more effective human resource management strategies and incentive systems and provide policy recommendations for the government to promote sustainable and healthy development of the industry.

Objectives

1. To examine the effect of overall compensation on employee performance in the information technology industry.
2. To investigate the impact of monetary compensation on employee performance in the information technology industry.
3. To explore the impact of non-monetary compensation on employee performance in the information technology industry.

Literature Review, Theories, and Concept Framework

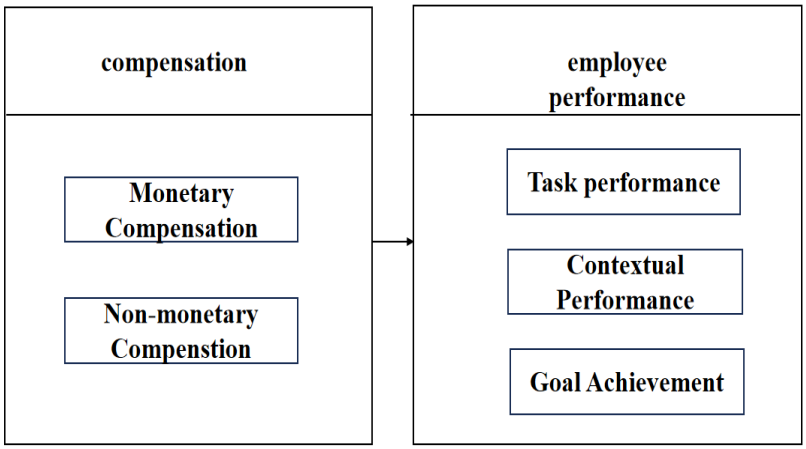
The compensation system refers to the sum of monetary and non-monetary compensation provided by a company to its employees, including basic salary, performance bonuses, and career development opportunities (Timilsina & Basnet, 2024). In China's IT industry, the compensation system needs to consider the speed of technology iteration and the premium price of talent in the market, and its structural design has a direct impact on the technological reserve capacity of the enterprise (Li & Wang, 2024).

Employee performance consists of three dimensions, task performance (core responsibility fulfillment), contextual performance (teamwork and innovation initiative), and goal achievement strategic target achievement rate), which are the key indicators to measure the contribution of knowledge workers (Kumar, 2024). The agile development model in the IT industry requires that performance evaluations dynamically reflect the contribution of the project (Chen, 2024).

The research shows that the compensation system has a significant impact on the performance of employees in China's IT industry. The dual incentive mechanism, which combines monetary and non-monetary compensation, effectively stimulates employees' performance. The results show that a transparent compensation policy is crucial to the sustainable development of a company (Liang et al., 2024).

Social exchange theory reveals the exchange relationship between employees and enterprises based on the principle of reciprocity, that is, the perception of fairness in the compensation system will directly affect employees' organizational loyalty and job performance (Cropanzano et al., 2021). Moreover, Herzberg's Two-Factor Theory divides the compensation system into health factors and incentive factors and promotes innovation performance through non-monetary incentives. Motivated employees promote productive engagement and improve performance and loyalty (Herzberg, 1959).

When employees in the information technology industry are satisfied with their compensation system, they are more likely to show higher performance and loyalty to the organization. To explore the relationship between the compensation system and employee performance, based on social exchange theory (SET) and Herzberg's two-factor theory, this study proposes the following research frameworks and hypotheses:



H1: Compensation of employees in the information technology industry has a positive effect on employee performance.

H2: Monetary compensation for employees in the information technology industry has a positive effect on employee performance.

H3: Non-monetary compensation of employees in the information technology industry has a positive effect on employee performance.

Materials and Methods

This study utilized a quantitative research methodology and surveyed a total of 42,059 employees in the information technology industry in Wuhan, China. A robust sample size of four hundred was determined based on Yamane's formula (Yamane, 1973). To achieve a 70% return rate, 571 questionnaires were distributed to the target employees. Such a sample size ensured high statistical power and generalizability of the findings. Random stratified sampling method was used in this study to increase the

representativeness of the sample and reduce potential sampling bias.

An online survey tool was used to collect data, and the questionnaire was emailed to the target population. The survey was conducted over two weeks to allow sufficient time to collect responses. A total of 538 valid responses were received, representing a 94.2% response rate. The data were then analyzed using the SPSS program; descriptive statistics were used to summarize the data, Pearson's correlation was used to assess the relationship between variables, and multiple regression analysis was used to evaluate the research hypotheses. The reliability of the questionnaire was scored as 0.925 by Cronbach's alpha. The validity of the questionnaire was assessed using the Index of Content Validity (IOC), which was assessed by five reviewers and scored 0.90. This indicates the high internal consistency of the scales.

The questionnaire scoring and interpretation criteria were based on a Likert scale, which permits the conversion of respondents' answers into numbers for statistical analysis. The questionnaire was rated on a 5-point Likert scale ranging from “1 = Strongly Disagree” to “5 = Strongly Agree”. The scale was categorized as 4.21 - 5.00 for strongly agree and 3.41 - 4.20 for agree. Scores ranging from 2.61 to 3.40 indicate neutrality, while scores ranging from 1.81 to 2.60 indicate disagreement.

Results

1.Descriptive Statistics on Compensation And employee performance

Table 1: Monetary Compensation Variable Distribution

Statement	Mean	Stardad deviation	Level of perception
Monetary Compensation	3.517	0.922	agree
1. I am satisfied with the monetary compensation I receive for my work.	3.511	1.155	agree
2. The salary and benefits package offered by my employer meets my financial needs.	3.528	1.169	agree
3. My pay reflects the level of effort and skill required for my position.	3.472	1.137	agree
4. My employer provides competitive financial incentives that motivate me to perform well.	3.53	1.15	agree
5. My employer provides competitive financial incentives that motivate me to perform well.	3.546	1.161	agree
Non- Monetary Compensation	3.459	0.910	agree
6. I am satisfied with the non-monetary compensation I receive for my work.	3.515	1.155	agree
7. I feel valued by the additional benefits and benefits, such as flexible working hours and	3.396	1.169	agree

Statement	Mean	Stardad deviation	Level of perception
remote work options.			
8. My workplace environment and culture contribute positively to my overall job satisfaction.	3.463	1.137	agree
9. I appreciate the support and resources available for maintaining a healthy work-life balance.	3.435	1.15	agree
10. Consistently meet or exceed the performance targets set for my role.	3.489	1.161	agree
Compensation	3.487	0.916	agree

Table 1 shows that the average values of monetary and non-monetary compensation are 3.517 and 3.459, respectively, and the average value of overall compensation is 3.487. On a 5-point scale, these values are between 3.41 - 4.20, indicating that employees in the IT industry agree with their compensation.

Table 2: Descriptive statistics for employee performance

Statement	Mean	Standard deviation	Level of perception
Task Performance	3.517	0.880	agree
11. I effectively manage my workload and complete tasks on time.	3.507	1.129	agree
12. I feel confident in my ability to execute my job responsibilities proficiently. needs.	3.526	1.1	agree
13. My performance has positively contributed to the overall success of my team.	3.483	1.106	agree
14. I regularly seek feedback to improve and enhance my task performance	3.513	1.122	agree
15. I actively support and assist my colleagues when they need help.	3.554	1.155	agree
Contextual performance	3.493	0.891	agree
16. I actively support and assist my colleagues when they need help.	3.509	1.155	agree
17. I contribute positively to the overall team spirit and workplace morale.	3.483	1.126	agree
18. I consistently go beyond my job duties to benefit the organization.	3.474	1.12	agree
19. I adapt well to changes and am flexible in handling new challenges.	3.504	1.092	agree
20. I am taking the initiative to improve processes and suggest innovative solutions.	3.493	1.152	agree
Goal achievement	3.517	0.893	agree
21. I consistently set clear and specific goals	3.491	1.158	agree

Statement	Mean	Standard deviation	Level of perception
for myself and create detailed plans to achieve them.			
22. I consistently set clear and specific goals for myself and create detailed plans to achieve them.	3.511	1.166	agree
23. I regularly track my progress towards my goals and adjust my strategies as needed to stay on course.	3.476	1.105	agree
24. I regularly track my progress towards my goals and adjust my strategies as needed to stay on course.	3.545	1.125	agree
25. I prioritize my goals effectively and manage my time well to ensure that I can accomplish what I set out to do.	3.536	1.112	agree
Employee performance	3.509	0.888	agree

Table 2 shows that the average values for task performance, contextual performance, and goal achievement are 3.517, 3.493, and 3.517, respectively, while the overall average for employee performance is 3.509. On a 5-point scale, these values are between 3.41 - 4.20, indicating that employees' self-evaluation of their work performance is agreeable.

2. Correlation Analysis

This study explores the relationship between compensation and employee performance. The results of the correlation analysis are shown in the table below:

Table 3: Correlation between compensation employee and performance.

Variables	Mean	Stardard deviation	Compensation	Employee Performance
Compensation	3.488	0.781	1	
Employee Performance	3.509	0.695	0.735**	1

Table 3 shows that the mean value of compensation is 3.488 and the standard deviation is 0.781. The mean of performance value is 3.509, the standard deviation is 0.695, and the correlation coefficient between compensation and employee performance is 0.735, which is also highly significant (** denotes $p<0.01$), indicating that there is also a strong positive correlation between compensation and employee performance. The higher the compensation, the higher the employee performance.

Table 4: Relationship between compensation and employee performance

	X1.1	X1.2	Y
X.1.1 Monetary Compensation	1		
X.1.2 Non-Monetary Compensation	0.452**	1	
Y employee performance	0.622**	0.631**	1

As can be seen from the table, the correlation coefficients of non-monetary compensation and employee performance are 0.452 and 0.622, respectively ($p<0.05$), indicating that non-monetary compensation and Y are positively correlated, and the correlation coefficient of non-monetary compensation and employee performance is 0.631 ($p<0.05$). On the surface, there is a significant positive correlation between the two; that is, the higher the compensation, the higher the performance of employees.

3. Regression Analysis

Table 5: Regression analysis of Compensation on employee performance

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
	B	Std. Error	Beta		0.000**	
Constant	1.225	0.093	-	13.141	0.000**	-
Monetary Compensation	0.319	0.025	0.424	12.897	0.000**	1.257
Non-Monetary Compensation	0.335	0.025	0.439	13.379	0.000**	1.257
R2=0.541, Adjusted R2=0.539, F=315.091 sig.=0.000**						

The F statistics are 315.091, and the corresponding p-value is 0.000, which is far less than 0.05, indicating that the model is significant. The coefficient of monetary compensation correlation factor is 0.319, the standard error is 0.025, the standardization coefficient (Beta) is 0.424, the t value is 12.897, and $p<0.001$. The results show that monetary compensation-related factors have significant positive effects on employee performance. The non-monetary compensation factor coefficient is 0.335, the standard error is 0.025, the standardization coefficient (Beta) is 0.439, the t value is 13.379, and $p<0.001$, indicating that non-monetary compensation also has a significant positive influence on employee performance.

Conclusions and Discussion

In this study on the impact of compensation on employee performance in China's information technology industry, three hypotheses are assessed. These findings not only enrich the theoretical framework but also provide important guidance for practice.

H1 results show that compensation level significantly improves employees' job satisfaction, which is consistent with previous studies emphasizing the role of salary in

knowledge-intensive industries (Li et al., 2019). H2 and H3 results show that monetary compensation (such as performance bonuses, and project awards) and non-monetary compensation (such as career development opportunities, and flexible working systems) have a significant impact on employees' performance. This is consistent with the view of social exchange theory (Cropanzano et al., 2017) that reasonable x incentives can enhance organizational loyalty and job performance of employees. Specifically, monetary compensation can effectively promote task performance, while non-monetary compensation is more conducive to promoting contextual performance and goal achievement.

The study confirmed that compensation significantly impacts IT employee performance. Monetary compensation enhances task performance, while non-monetary compensation improves contextual and purposeful performance. This highlights the need for a balanced compensation strategy. The findings align with and extend prior research, offering practical implications for optimizing compensation structures.

Practical implications for enterprises include developing comprehensive compensation packages, ensuring compensation fairness, personalizing compensation strategies, and linking compensation to performance. Alongside organizational measures, institutions and the government may significantly enhance the connection between compensation and employee performance in China's information technology sector. Policymakers must contemplate the formulation of industry-specific compensation standards that foster equitable and competitive practices among firms, guaranteeing that employees get sufficient remuneration commensurate with their talents and contributions. Moreover, providing tax incentives to firms that develop complete and creative pay packages, particularly those that include monetary and non-monetary elements, might promote wider implementation of best practices.

Governmental endorsement of professional development initiatives, including subsidies for technical training or leadership enhancement, would augment non-monetary compensation measures and further elevate employee competencies and motivation. Furthermore, implementing policies that enhance transparency and equality in pay frameworks may mitigate salary discrepancies and cultivate a more content and engaged workforce. These policy-level actions would enhance organizational performance and foster the sustainable expansion of the information technology sector overall.

Future research could extend the investigation of compensation impacts across various stages of enterprise development, diverse industries, and broader regional contexts. It would also be valuable to incorporate additional factors such as organizational culture and leadership style, and to address methodological limitations, particularly the use of self-reported data and the restricted generalizability of findings from a single-city sample.

References

Bashir, A., Amir, A., Jawaad, M., & Hasan, T. (2020). Work conditions and job performance: An indirect conditional effect of motivation. Cogent Business & Management. Retrieved from https://www.tandfonline.com/doi/abs/10.1080/23311975.2020.1801961.

Chen, H. (2024). Know more, say more? The effects of supervisors' knowledge-focused leadership and subordinates' goal orientation on subordinates' voice. HKU Theses Online (HKUTO). Retrieved from https://hub.hku.hk/handle/10722/345411

Cropanzano, R., Anthony, E. L., Daniels, S. R., & Hall, A. V. (2021). Social exchange theory: A critical review with theoretical remedies. Academy of Management Annals, 15(1), 1-38.

Herzberg, F., Mausner, B., & Snyderman, B. B. (1959). The motivation to work. John Wiley & Sons.

Kumar, P. A. (2024). Awareness and attitudes towards OCB: A key to enhancing individual performance in the IT sector. ResearchGate.

Li, J., & Wang, S. (2024). Employment generation and economic growth: The role of China's IT sector. Economic Development Quarterly, 30(1), 15-30. https://doi.org/10.1177/0278352524000015

Liang, X., Marler, J. H., & Cui, Z. (2024). Strategic human resource management in China: East meets west. Academy of Management Perspectives, 38(2), 117-134. https://doi.org/10.5465/amp.2012.0039

Liu, B., Huang, W., & Wang, L. (2019). Performance-based equity incentives, vesting restrictions, and corporate innovation. Nankai Business Review International, 10(3), 246-265. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/NBRI-10-2018-0061/full/html

Moustaghfir, K., & El Fatihi, S. (2020). Human resource management practices, entrepreneurial orientation, and firm performance: What is the link? Measuring Business Excellence, 24(2), 165-178. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/MBE-12-2019-0119/full/html

Timilsina, J., & Basnet, B.J. (2024). The influence of compensation and recognition on employee performance: Insights from Nepal's manufacturing sector. ResearchGate. Retrieved from https://www.researchgate.net/publication/388847008

Yamane, T. (1973). Statistics: An Introductory analysis. https://digilib.umsu.ac.id/index.php?p=show_detail&id=24636

An Analysis of Variance in Pay Satisfaction and Employee Work Engagement among Faculty and Staff at Guangzhou Huashang University

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Abstract

With increasing higher education, this study considers how teachers' pay satisfaction (level, raises, benefits, structure) influences work engagement in Guangzhou Huashang University, a private university with prevalent issues of dissatisfied pay and ambiguous structures. A quantitative questionnaire survey of 311 teachers employed descriptive and analysis correlation analysis. All pay satisfaction dimensions and results were moderately to strongly positively correlated with work engagement, with the strongest results for the pay level dimension. The solutions suggested are to pay structure with higher clarity, performance pay and other. These outcomes create actionability for Guangzhou Huashang University and other private universities to refine their compensation policies and HR management.

Keywords: Pay Satisfaction, Work Engagement, Maslow's Hierarchy of Needs Theory, Equity Theory, Expectancy Theory

Introduction

Work engagement with commitment, dedication, and enthusiasm is central to organizational success as it reduces turnover and enhances performance. Pay satisfaction, based on Maslow's theory of fundamental needs, has a direct impact on engagement through fulfillment of material and psychological needs (Taormina & Gao, 2013). The COVID-19 pandemic deepened wage precariousness, which makes decent pay policies essential (ILO, 2020). In China, 60% of university teachers are dissatisfied with their salaries due to workload-cost-of-living disequilibria and opaque pay structures (Chinese Ministry of Education, 2022). Satisfied employees exhibit higher work attachment and loyalty and lower turnover intentions (Jung & Yoon, 2015).

Guangzhou Huashang University, which comes 14th in China's 2024 private college research competitiveness ranking, is a microcosm of the difficulties that China's 'Double First Class' policy faces in higher education. The case of Guangzhou Huashang University with its heterogeneous teachers (both the local and international teachers) and focus on practical education is a convincing case to analyze pay satisfaction in private universities.

Based on China's higher education sector, this research fills the knowledge gaps regarding the impact of pay systems on engagement. This research will serve to provide compensation reforms and HR practices at Guangzhou Huashang University and other institutions like theirs, as well as national efforts to improve teachers' well-being, and increase institutional competitiveness.

Objectives

As compensation becomes increasingly important for both teachers and higher education institutions, understanding its influence on various aspects of employment is crucial. The study objectives are as follows:

1. Explaining the levels of pay level, pay rise, benefits, and pay structure satisfaction at Guangzhou Huashang University.
2. To explore the level of employee work engagement at Guangzhou Huashang University.
3. To examine the relationship between Pay satisfaction and employee work engagement at Guangzhou Huashang University.

Concept theory framework

Concept and Measurement of Pay Satisfaction

Pay satisfaction is a key motivator and retention driver of employees. Lawler (1971) formulated construction as employees' satisfaction with their pay in fairness and adequacy. Heneman and Schwab (1985) extended it by formulating a multidimensional measure, e.g., pay level, pay rises, benefits, and pay structure. Subsequent studies (e.g., Singh & Loncar, 2010; Jung & Yoon, 2015; Alam, 2022) emphasized its impact on work engagement and turnover intention.

Pay Satisfaction Questionnaire (PSQ) is the most common measuring tool, assessing satisfaction in all four facets (Heneman & Schwab, 1985). The PSQ has also been established to be valid across various industries like healthcare and education (Khalid, 2020; Alam, 2022). In the current study, PSQ will be utilized to measure pay satisfaction and its impact on employee outcomes.

Concept and Measurement of Work Engagement

According to Kahn (1990), work engagement is the employees' integration of

identity with their work role, their investment of emotions, cognitions, and physicality in their work role. In this case, Schaufeli et al. (2002) described this as a positive state having vigor, dedication, and absorption. High energy and resilience equate to vigor, committed and enthusiast translates as dedication, absorption is deep focus. Work engagement improves job satisfaction, productivity, and engagement in workplace culture (Han & Wang, 2021; Corbeanu & Iliescu, 2023).

Schaufeli et al. (2006) developed the Utrecht Work Engagement Scale (UWES), which they later refined to a 9-item version for measurement of work engagement. Further, based on confirmatory factor analysis, validity and reliability were performed for the tool across different countries. In Viljevac et al. (2012), they also compared numerous scales, but it was UWES more effective. This study uses the UWES-9 given that it has strong psychometric properties.

Maslow's Hierarchy of Needs Theory

According to Maslow's theory, the needs of human behavior are on the level of Maslow's hierarchy with physiological, safety, social, belonging, esteem, and self-actualization (Maslow, 1943). When lower-level needs are met, the people try to meet up the higher-level needs (Trivedi et al., 2019). In the workplace, inadequate pay might lessen employees' motivation (Li, 2022) as they cannot meet their basic needs. The hierarchy is supported by empirical studies which reveals that motivation (Taormina & Gao, 2013) correlated positively with need satisfaction.

Equity Theory

In Adams' (1965) equity theory, Adams argues that the perceived fairness in compensation is something that employees would compare their amount of input to reward to how much others receive on average to measure equity. If there appears to be an imbalance, dissatfullment and effort can be reduced (Adams & Jacobson, 1964). Low pay satisfaction regarding Chinese teachers is related to poor correlation between effort and compensation (Meng, 2022). Fair pay distribution hence also means a key element of employee motivation and retention.

Expectancy Theory

According to Vroom's expectancy theory, motivation is related to expectancy, instrumentality, and valence (Vroom, 1964). Quite simply, employees exercise effort when they think that effort leads to performance and its rewards. Xu and an (2016) suggested strengthening these relationships through a fair reward system and well optimized work environment. In a study by Saeed et al. (2023), it is inferred that higher pay is associated with reduced turnover intention. This theory stresses how drawing employee expectations in straight line and infusion of employee incentives contribute to motivation and employment satisfaction.

Relationship between Pay Satisfaction and Work Engagement

Pay satisfaction has a strong impact on employees' work engagement, motivation, and organizational commitment. Maslow's hierarchy indicates that pay satisfaction guarantees employees' lower-level physiological and safety needs, which will allow them to strive for upper-level objectives like self-actualization. Additionally, Adams's equity theory describes that perceptions of fair pay have a significant impact on employees' behaviors and attitudes, and therefore their work engagement (Sypniewska et al., 2023).

In the academic field, pay satisfaction is not only a function of pay levels but also of openness and fairness in pay structures. Memon et al. (2021) confirmed that work satisfaction with training and performance appraisal results in work engagement, reducing intention to leave. Satisfaction with pay level has a positive correlation with work engagement because employees satisfied with their pay level are more enthusiastic about work (Jung & Yoon, 2015). Also, periodic salary raises, and performance-based allowances enhance economic security, increasing engagement (Memon et al., 2017). Allowances also make a significant contribution to pay satisfaction and work engagement (Ekinci, 2022). Finally, open, and fair compensation systems promote trust, and this also increases engagement (Alam, 2022).

Consistent with these findings and drawing on Maslow's hierarchy of needs, equity theory, and expectancy theory, this study examines how pay satisfaction influences work engagement. Maslow's theory links basic needs to engagement, equity theory focuses on fairness perceptions, and expectancy theory highlights reward expectations. These theoretical frameworks provide a foundation for exploring how pay level, pay increases, benefits, and pay structure impact the work engagement of faculty and staff at Guangzhou Huashang University. The research formulates the following hypotheses:

H1: There is a statistically significant relationship between pay level and work engagement among faculty and staff of Guangzhou Huashang University.

H2: There is a statistically significant relationship between the pay increase of faculty and staff of Guangzhou Huashang College and work engagement.

H3: There is a statistically significant relationship between the benefits of faculty and staff of Guangzhou Huashang College and work engagement.

H4: There is a statistically significant relationship between the pay structure of faculty and staff of Guangzhou Huashang University and work engagement.

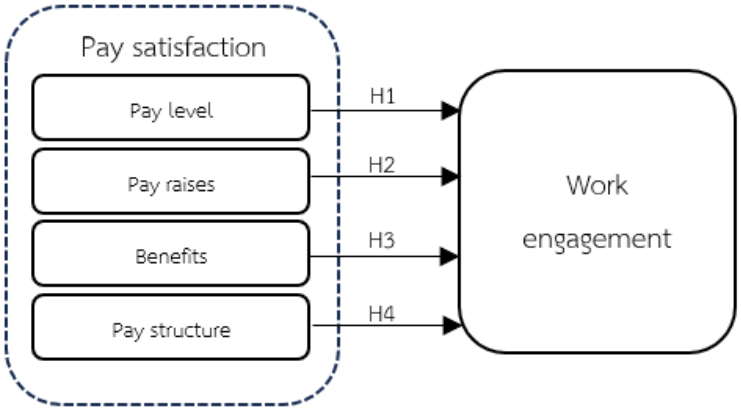


Figure 1: Conceptual Framework

Materials and Methods

Quantitative research design was employed in this study to examine the relationship between pay satisfaction and work engagement among Guangzhou Huashang University's faculty and staff. 311 participants, who were recruited by stratified sampling from 12 secondary colleges, were surveyed using a questionnaire survey. The sample size was taken from a total population of 1,400 faculty and staff, and a margin of error of 5% was applied based on the Yamane formula. Both online (on QQ and WeChat) and offline (on site) data were collected with a 99.7% response rate (311 valid responses among a total of 320). Two parts of the survey were included: (1) Demographics (gender, age, work experience, education, and income) and (2) Pay satisfaction and work engagement scales.

Pay satisfaction was evaluated on a new Pay Satisfaction Questionnaire (PSQ) containing 16 items across four dimensions (pay amount, pay rise, benefits, and pay structure). Work engagement was evaluated with the Utrecht Work Engagement Scale (UWES-9), assessing vigor, dedication, and absorption with a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Validity was achieved through expert review and pre-testing, and Cronbach's Alpha confirmed high reliability (0.845–0.936 for single scales, 0.975 overall). Data analysis, including descriptive analysis, correlation analysis, to examine the correlations between pay satisfaction dimensions and work engagement was conducted using SPSS.

Results

This study distributed 320 questionnaires, collecting 311 valid responses. The respondents were mostly young males, aged 25 to 35, with moderate work experience and an important level of education. Their salaries were primarily in the medium-to-low range. Overall, respondents expressed high satisfaction with their current pay level, with

an average score of 3.51 (SD= 1.31). Satisfaction with pay raises was high, with an average score of 3.50 (SD = 1.22), indicating a strong belief that pay is proportional to effort. Satisfaction with benefits was slightly lower at 3.53 (SD = 1.25), while satisfaction with the pay structure was 3.52 (SD = 1.27). Regarding work engagement, the average score was 3.54 (SD = 1.26), reflecting a cheerful outlook toward work, with respondents feeling energetic, enthusiastic, inspired, and able to maintain high focus even under pressure.

Before performing correlation analysis, the Kolmogorov-Smirnov test results indicate that all variables (pay level, pay raises, benefits, pay structure, and work engagement) significantly deviate from a normal distribution ($p < 0.05$). This suggests potential non-normality in the data. Given this, the study employed Spearman's rank correlation to ensure reliable analysis of the relationships between pay satisfaction dimensions and work engagement.

Table 1: Correlation analysis test

	X1	X2	X3	X4	Y
X1: Pay level	1.000				
X2: Pay raises	0.512**	1.000			
X3: Benefits	0.620**	0.636**	1.000		
X4: Pay structure	0.634**	0.532**	0.577**	1.000	
Y: Work Engagement	0.940**	0.604**	0.607**	0.599**	1.000

**Correlation is significant at the 0.01 level (2-tailed).

Correlation analysis indicated that pay satisfaction dimensions were all positively correlated with work engagement. Correlation between pay level and work engagement was 0.940 ($p < 0.01$), indicating a near perfect positive correlation. Pay raises were also highly correlated with work engagement (0.604, $p < 0.01$), which indicates its direct effect. In addition, benefits (0.607, $p < 0.01$) and pay structure (0.599, $p < 0.01$) were positively correlated with work engagement, suggesting that increased levels of these factors enhance employee commitment. These findings demonstrate how a good compensation system is a key factor in the function of motivating employees to be more engaged and committed. The hypothesis test determined that all pay satisfaction dimensions—pay level, pay raises, benefits, and pay structure were statistically correlated with work engagement.

Thus, H1-H4 are confirmed, indicating a statistically significant relationship between pay satisfaction (including pay level, pay rises, benefits, pay structure) and work engagement among Guangzhou Huashang University teachers.

Conclusions and Discussion

The respondents expressed general satisfaction with the company's compensation policies, including pay level, pay raises, benefits, and pay structure. They are satisfied with the pay level, believing that pay rises align with performance and market levels, and that the benefits offered are diverse and valuable. However, concerns about pay discrepancies for the same position and dissatisfaction with recent pay raises highlight areas for improvement. While the benefits are appreciated, some respondents feel they do not fully meet personal needs, and there is slight dissatisfaction with the pay structure. Despite these concerns, respondents demonstrate high work engagement, feeling energetic, enthusiastic, and proud of their work, maintaining a cheerful outlook under pressure, which contributes to improved work performance and company growth.

The results from this study suggest that there is a significantly strong relationship between pay satisfaction and work engagement among teachers, with pay level being the most important determinant. These results highlight the significance of a well-structured and transparent pay system in encouraging faculty engagement in higher education institutions. It is confirmed by the study that teachers who are satisfied with their pay are more enthusiastic and dedicated to their work. This echoes past work such as Jung and Yoon (2015) who found that work engagement is positively linked to pay satisfaction. Additionally, the findings reveal that satisfaction with pay raises and benefits is another principal factor, making clear that universities should rely on a balance of current salaries and end payback period to long-term growth opportunities in the design of their compensation policies. From a practical point of view, pay transparency, performance-based compensation and different incentive structures for faculty demographics and disciplines should be adopted by the higher education Institutions. Another way is to improve communication on pay policies and benefits to increase faculty engagement and retention.

In total, this study is particularly useful in elaborating on the link between pay satisfaction and work engagement that can inform universities to shape strategic HRM policies to strengthen a motivated faculty workforce.

References

Alam, A. A. S. (2022). Does compensation satisfaction influence turnover intention? A study among junior executives in Bangladesh. Management Development, 33(2), 19-32.

Bakker, A., & Demerouti, E. (2008). Towards a model of work engagement. Career Development International, 13, 209-223. https://doi.org/10.1108/13620430810870476

Ekinci, E. (2022). Correlations of turnover: Pay and bonuses. Journal of Business Research – Turk, 14(2), 1628-1642. https://doi.org/10.20491/isarder.2022.1461

Guang, H. (2024). School profile-Guangzhou Huashang University. Gdhsc.edu.cn. https://www.gdhsc.edu.cn/xygk/xyjj.htm

Han, Y., & Wang, Y. (2021). Investigating the correlation among Chinese EFL teachers' self-efficacy, work engagement, and reflection. Frontiers in Psychology, 12, 763234.

Heneman, H., & Schwab, D. (1985). Pay satisfaction: Its multidimensional nature and measurement. International Journal of Psychology, 20(1), 129-141. https://doi.org/10.1080/00207598508247727

International Labor Organization. (2020). Global Wage Report 2020/21: COVID-19 and wages. Ilo.org. https://webapps.ilo.org/digitalguides/zh-cn/story/globalwagereport#introduction

Jung, H., & Yoon, H. (2015). Understanding pay satisfaction: The impacts of pay satisfaction on employees' work engagement and withdrawal in deluxe hotels. International Journal of Hospitality Management, 48, 22-26. https://doi.org/10.1016/j.ijhm.2015.04.004

Khalid, K. (2020). The impact of managerial support on the association between pay satisfaction, continuance and affective commitment, and employee task performance. Sage Open, 10(1), 1-13. https://doi.org/10.1177/2158244020914591

Li, H., & Zhang, Y. (2021). College affiliation and work engagement: A study of Chinese universities. Higher Education Research and Development.

Ministry of Education of China. (2023, August 31). [Workers Daily] Ministry of Education: Education investment will be more inclined towards teacher treatment and teachers' pay income level will be continuously improved - Government Portal of the Ministry of Education of the People's Republic of China.http://www.moe.gov.cn/fbh/live/2023/55499/mtbd/202309/t20230901_1077768.html

Memon, M. A., Salleh, R., Mirza, M. Z., Cheah, J.-H., Ting, H., Ahmad, M. S., & Tariq, A. (2020). Satisfaction matters: The relationships between HRM practices, work

engagement and turnover intention. International Journal of Manpower, 42(1), 21-50. https://doi.org/10.1108/ijm-04-2018-0127

Memon, M. A., Salleh, R., & Baharom, M. N. R. (2017). The mediating role of work engagement between pay satisfaction and turnover intention. International Journal of Economics, Management and Accounting, 25(1), 43-69.

Meng, X., Wang, X., & Li, G. (2022). An empirical study on the pay satisfaction and influencing factors of primary and secondary school teachers in my country from the perspective of equity theory: Based on the survey data of “China Teacher Development Report 2019.” Modern Education Forum, 2022(1), 75–85.

Saeed, F., Mir, A., Hamid, M., Ayaz, F., & Iyyaz, U. (2023). Employees pay and employee turnover intention: A key evaluation considering work satisfaction and work performance as mediators. International Journal of Management Research and Emerging Sciences, 13(1). https://doi.org/10.56536/ijmres.v13i1.234

Sypniewska, B., Baran, M., & Kłos, M. (2023). Work engagement and employee satisfaction in the practice of sustainable human resource management – based on the study of Polish employees. International Entrepreneurship and Management Journal, 19(3), 1069–1100. https://doi.org/10.1007/s11365-023-00834-9

Taormina, R., & Gao, J. (2013). Maslow and the motivation hierarchy: Measuring satisfaction of the needs. The American Journal of Psychology, 126(2), 155-177. https://doi.org/10.5406/amerjpsyc.126.2.0155

Factors Relating Teachers' Job Satisfaction in Private Universities: A Case Study of Guangzhou X Vocational College, China

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Abstract

This article examines the determinants of Guangzhou X Vocational College teachers' job satisfaction. Understanding the determinants of teacher satisfaction is essential for improving their work experience and institutional support. Using a quantitative approach, data were collected through a questionnaire incorporating Hagedorn's Job Satisfaction Theory and Social Exchange Theory (SET) with 304 teachers. The analysis conducted using descriptive statistics, correlation analysis, and ANOVA, revealed that salary, career growth, and management support positively impact job satisfaction, whereas work stress negatively impacts job satisfaction. Additionally, demographic factors such as experience, education, and academic rank strongly influence satisfaction levels. The research suggests the need to enhance management support, refine salary structures, and alleviate work stress to improve teacher retention and institutional quality. These findings provide valuable insights for policymakers and administrators in supporting teacher satisfaction and institutional development.

Keywords: Teachers' Job Satisfaction, Hagedorn's Theory, Social Exchange Theory

Introduction

Teacher job satisfaction is a vital aspect of career development, students' academic success, and overall educational quality (Toropova, Myrberg, & Johansson, 2020). Teachers who are more satisfied in their job have been shown to have heightened motivation, enhanced teaching quality, and result in improved student performance (Wartenberg et al., 2023). Because it is so essential, its determinants must be understood to achieve greater teacher retention and institutional performance.

Conceptual frameworks such as Hagedorn's Theory of Job Satisfaction and Social Exchange Theory (SET) explain these. Hagedorn's theory focuses on remuneration, career development, and organizational support as the key drivers of job satisfaction (Kuo et al.,

2022). SET, in contrast, explains the influence of perceived justice and reciprocity in work relationships on levels of satisfaction (Huo et al., 2022). Current studies emphasize the impact of post-pandemic concerns on teacher job satisfaction, retention, and institutional stability (Zhang, 2020).

Guangzhou X Vocational College serves as the research site for this analysis because it operates as a private institution with 1,267 instructors and 30,000 students (Guangzhou X Vocational College, 2024). The study area of teacher satisfaction specifically focused on vocational colleges within Guangzhou remains poorly documented in academic literature. While job satisfaction has been widely studied, research focused on vocational colleges remains limited, particularly in Guangzhou, and existing studies often overlook the unique work environment and challenges of vocational institutions. The research combines Hagedorn's theory together with SET to produce results that will guide educational administrators and policy development in enhancing teacher contentment and institutional durability.

Objectives

As the rapid growth of education, the job satisfaction of teachers has been increasingly emphasized. This research attempts to explore and study the situation of jobs satisfaction and influencing factors of the teachers in Guangzhou X Vocational College. Specific objectives are:

1. To explore the job satisfaction among teachers in Guangzhou X Vocational College.
2. To examine the relationship between factors and job satisfaction among teachers in Guangzhou X Vocational College.
3.

Concept Theory Framework

Hagedorns' theory of teachers' job satisfaction

Hagedorn's theory focuses on the impact of job satisfaction on the work behavior of teachers, noting such variables as salary, career development, working environment, stress, management support, social recognition, and psychological rewards (Kuo et al., 2022). As satisfaction rises, so does involvement and effectiveness, and as satisfaction declines, disengagement and lower performance occur (Li, 2019). This theory has been applied in research to make sense of various environments, and the results have pointed out significant factors that affect teacher satisfaction such as interpersonal relationships, recognition, and self-actualization (Hou & Gumban, 2023). These factors enable institutions to develop interventions that increase job satisfaction to the advantage of both teachers and learning quality.

Social Exchange Theory

Social Exchange Theory (SET) explains teachers' job satisfaction as a balance between rewards and inputs (Homans, 1958). These are salary, career development, working environment, and pressure (Emerson, 1976). Satisfaction is greater when rewards match expectations but less when they fall short of expectations (Zhu et al., 2020). New SET developments highlight cultural and contextual considerations, which are significant to understanding private university teachers in Guangzhou (Chen et al., 2020). By analyzing reward-effort balance and social rewards, SET provides a comprehensive framework for improving teachers' job satisfaction and developing targeted improvement strategies (Li & Bagger, 2023).

Period Research

Teachers' satisfaction as a research topic within educational psychology reflects teachers' emotional response to the work environment and to the role of teachers. Teachers' job satisfaction includes several different variables including satisfaction with colleagues, students, and the entire school climate. Effective teacher retention and school effectiveness will not be possible without understanding and measuring TJS. Diverse ways have been proposed for early studies to define teachers' satisfaction. Salary, career development, work environment, stress, management support and rewards are determinants of teacher job satisfaction (Toropova et al. 2020). The combination of fair compensation, career development and a supportive work environment makes employees satisfied (Wang et al., 2019). Management support and work stress negatively correlate with well-being (Liu & Zhang, 2022; Lee et al, 2021) and positively correlate with motivation. Social and psychological rewards do play a key role (Zhang, & Chen, 2021). This research studies these factors in private universities.

Concept and Measurement of Teachers' Satisfaction

Teachers' Job Satisfaction is a teacher's response to work, and it relates to the teachers' retention and performance. Teachers' job satisfaction is a positive emotional state as defined by Locke (1969) and Vroom (1982), it is influenced by salary, career growth and management support (Klassen et al., 2020; Liu et al., 2021). In a complete sense, it is multidimensional i.e., work conditions, relationships, and fulfillment. The study found that interpersonal relationships and school management have a remarkably high impact on satisfaction (Lopes and Oliveira, 2020; Zhu, 2023). A questionnaire is used to assess Teachers' Job Satisfaction in private universities.

Relationship between Factors and Teachers' Job Satisfaction

Research consistently finds a high correlation between salary packages and teacher job satisfaction. Higher salaries not only increase job satisfaction but also reduce teacher turnover (Smith, 2023). Zhang (2023) found a high positive correlation between salary and

teachers' overall satisfaction, adding that fair and transparent remuneration systems are key drivers of satisfaction. Performance bonuses and welfare benefits also enhance job satisfaction (Lee, 2021; Li, 2022).

H1: Salary and benefits positively influence teachers' job satisfaction.

Professional growth activities have high correlations with rising job satisfaction (Smith, 2023). Teachers who engage in continuous training have better job commitment and are more a part of their institutions (Lee & Kim, 2021). Moreover, having tools for professional development and promotion opportunities lifts teachers' overall satisfaction (Johnson, 2022).

H2: Career development opportunities positively influence teachers' job satisfaction.

An environment of support in the workplace is important for job satisfaction among teachers. Support from colleagues, administration, and having sufficient teaching resources to work with play a key role in increasing satisfaction levels (Johnson, 2022; Smith, 2023). Teachers who feel supported by the school administration are also more job-satisfied (Williams, 2021).

H3: Work environment positively influences teachers' job satisfaction.

Severe work stress negatively affects job satisfaction. Studies discovered that workload overexertion, clerical pressures, and burnout lead to decreased satisfaction and turnover intentions (Kyriacou & Sutcliffe, 1979; Wang et al., 2020). Work stress management has the potential to alleviate its ill effects on teachers' jobs and boost rates of teacher retention (Johnson & Lee, 2022; Wang & Chen, 2021).

H4: Work stress negatively influences teachers' job satisfaction.

Evaluative administrative support, including administrative assistance and organizational justice, also plays a key role in improving job satisfaction for teachers (Wang & Zhou, 2022; Çelik & Kalkan, 2022). Teachers perceiving strong organizational support indicate more satisfaction, besides reduced work-stress (Toropova et al., 2020).

H5: Management support positively influences teachers' job satisfaction.

Social rewards, including peer recognition and community support, are positively correlated with teachers' job satisfaction (Yang et al., 2022). Individualized reward programs enhance work satisfaction and overall work performance (Rokeman, Kob, & Sobry, 2023). Additionally, a proper reward system and positive school culture are also accountable for increased satisfaction (Syahmalini, Alawi, & Ariyadi, 2022).

H6: Social rewards positively influence teachers' job satisfaction.

Psychological rewards, such as intrinsic motivation, emotional fulfillment, and positive student-teacher relationships, play a significant role in teachers' job satisfaction (Wartenberg et al., 2023). Satisfied and valued teachers are more content and more

dedicated to their work. Moreover, good student relationships lead to heightened job satisfaction and professional identity.

H7: Psychological rewards positively influence teachers' job satisfaction.

Research Framework

Hagedorn's job satisfaction theory for teachers and Social Exchange Theory (SET) are used in this study to determine significant determinants. Hagedorn (2000) has developed her model including extrinsic and intrinsic factors such as salary and benefits, career development, and organizational support. Blau (1964); Emerson (1976) explains how mutual exchanges, such as managment support recognition, can increase satisfaction. Numerous studies (Cropanzano & Mitchell, 2005; Gouldner, 1960) have confirmed the fact that supportive climates and recognition increase satisfaction and commitment. Based on this the study proposes relationships and work-related variables and the job satisfaction of teachers (Wang, 2021; Zhou and Li, 2020).

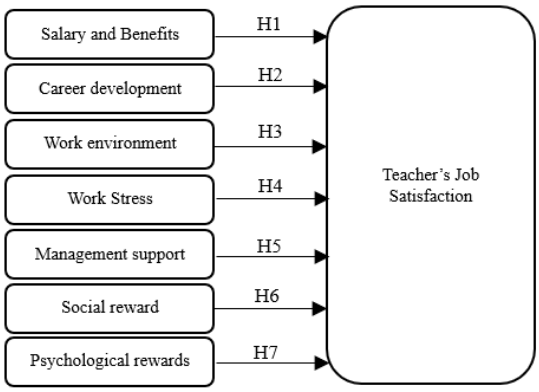


Figure 1: Conceptual framework

Materials and Methods

The study designed a questionnaire based on Hagedorn's teacher job satisfaction theory and social exchange theory to explore the influencing factors of teacher satisfaction in Guangzhou X Vocational College. The evaluation system comprises three major indicators: personal information, job satisfaction factors, and overall job satisfaction. Salary, career development, work environment, work pressure, management support, and social and psychological rewards are the independent variables. The study focuses on teachers from Guangzhou X Vocational College, including 1,267 full-time teachers from 10 secondary colleges and two teaching departments. A sample size of 304 was determined using Yamane's formula with a 5% sampling error. Data is collected through an online survey from 304 teachers using stratified sampling and SPSS 26.00 for analysis.

A 5-point Likert scale is used to measure responses, whereas statistical means include correlation analysis. Validity testing with Cronbach's Alpha guarantees high internal consistency (overall α = 0.959). Expert assessment and content validity testing establish reliability. The findings confirm the strength of the questionnaire for further analysis and hypothesis testing.

Results

This study analyzed 304 respondents, with a balanced gender distribution: 48.7% male and 51.3% female. The majority are married, suggesting family roles may influence job satisfaction. Most respondents are aged 40-50 with substantial teaching experience, particularly those with 11-15 years. Educationally, 46.7% hold a bachelor's degree, and 45.4% hold a master's degree. The largest group is lecturers, followed by associate professors. Overall, the sample is diverse, experienced, and highly educated, providing valuable insights into the research themes.

The study assessed normality using the Shapiro-Wilk or Kolmogorov-Smirnov test, revealing that all variables (X1 to X7 and Y) failed ($p < 0.000$), indicating non-normal distribution. Consequently, Spearman's rank correlation, a non-parametric method, was used to assess the strength and direction of relationships without assuming normality.

Table 1: Correlation analysis test

	X1	X2	X3	X4	X5	X6	X7	Y
X1: Salary and benefit	1.000							
X2: Career development	0.568**	1.000						
X3: Work environment	0.572**	0.568**	1.000					
X4: Work stress	0.578**	0.526**	0.556**	1.000				
X5: Management support	0.546**	0.499**	0.513**	-0.557**	1.000			
X6: Social reward	0.504**	0.576**	0.567**	-0.519**	0.495**	1.000		
X7: Psychological rewards	0.491**	0.581**	0.502**	-0.551**	0.451**	0.574**	1.000	
Y: Teachers' job satisfaction	0.544**	0.541**	0.453**	-0.551**	0.579**	0.538**	0.535**	1.000

**Correlation is significant at the 0.01 level (2-tailed).

This study explores the relationship between independent variables (X1 to X7) and job satisfaction of teachers (Y). The results confirm that all hypotheses are true. Support from management (0.579, $p< 0.01$) is the highest positive indicator, followed by salary and benefits (0.544 $p< 0.01$), career development (0.541 $p< 0.01$), social rewards (0.538 $p< 0.01$), and psychological rewards (0.535 $p< 0.01$). The work environment (0.453 $p< 0.01$) also exerts a moderate positive influence, while work stress (0.551 $p< 0.01$) is negatively correlated with job satisfaction.

Based on these findings, all the hypotheses are supported, which assert that management support, salary and benefits, career development, social and psychological rewards, and work environment positively affect job satisfaction among teachers. On the

other hand, work stress has a negative effect on satisfaction, citing the need for more institutional support and stress management strategies.

Conclusions and Discussion

This study identified key factors influencing teacher job satisfaction, including salary and benefits, career development opportunities, work environment, work pressure, management support, and social and psychological rewards. Management support, salary and benefits, career development, and work pressure were the most critical variables. Consistent with Hagedorn's Theory and Social Exchange Theory (SET), external conditions and perceived fairness strongly impact satisfaction. Teachers who received fair salaries, clear career paths, and strong management support reported higher satisfaction levels, aligning with findings by Zhang (2023). Conversely, work stress negatively correlated with satisfaction, supporting Johnson and Lee's (2022) observation that excessive stress leads to burnout and reduced commitment. Additionally, social, and psychological rewards, such as recognition and respect, enhance intrinsic motivation and professional fulfillment. The results highlight the need for vocational colleges to prioritize improving organizational support, offering competitive salaries and benefits, providing robust career development opportunities, and fostering a positive work environment to boost teacher satisfaction and institutional quality. These findings deepen the understanding of teachers' professional experiences and offer practical strategies for enhancing educational stability and excellence.

References

Çelik, H., & Kalkan, Ö. (2022). Organizational Justice, Perceived Stress and Leader Support as Predictors of Teachers' Job Satisfaction. Acta Educationis Generalis, 12, 127 - 145. https://doi.org/10.2478/atd-2022-0007.

Huo, J. (2022). The Role of Learners' Psychological Well-Being and Academic Engagement on Their Grit. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.848325.

Huo, Y., & Gumban, G. G. (2023). Motivating factors, work performance, and job satisfaction among young doctoral business management degree holders in Universities in China: Basis for enhancement of Chinese tenure track system. Central Philippine University Multidisciplinary Research Journal, 3(2), 11-22.

Johnson, S. M., Kraft, M. A., & Papay, J. P. (2012). How context matters in high-need schools: The effects of teachers' working conditions on their professional satisfaction and their students' achievement. Teachers College Record, 114(10), 1-39.

Kuo, Y.-C., Chang, C.-C., & Chen, H.-Y. (2022). The impact of salary satisfaction on job satisfaction among elementary school teachers in Taiwan. Journal of Educational Administration, 60(1), 55-72. https://doi.org/10.1108/JEA-03-2021-0042

Li, Y. (2019). Research review: Job satisfaction of young teachers returning from overseas in colleges and universities during the first employment period. Educational Economics and Management, (4), 11-37.

Mohd Rokeman, N. R., Che Kob, C. G., & Che Sobry, H. (2023). The Role of Reward in Teachers' Job Satisfaction Towards Job Performance: A Literature Review. Malaysian Journal of Social Sciences and Humanities (MJSSH), 8(11), e002591. https://doi.org/10.47405/mjssh.v8i11.2591

Lopes, J., & Oliveira, C. (2020). Teacher and school determinants of teacher job satisfaction: A multilevel analysis. School Effectiveness and School Improvement, 31(4), 641–659. https://doi.org/10.1080/09243453.2020.1764593

Toropova, A., Myrberg, E., & Johansson, S. (2020). Teacher job satisfaction: The importance of schoolworking conditions and teaching characteristics. Educational Review, 73, 71-97. https://doi.org/10.1080/00131911.2019.1705247

Syahmalini, S., Alawi, D., & Ariyadi, B. (2022). The Effect of Reward Punishment System and Work Culture on Teacher Job Satisfaction. Development: Studies in Educational Management and Leadership. https://doi.org/10.47766/development.v1i2.640.

Wang, X., Zeng, J., & Yang, S. (2019). Survey research on job satisfaction of teachers in private universities: A case study of a private university in Guangdong Province. Journal of Private Higher Education (specific volume and issue if available), pages.

Wartenberg, G., Aldrup, K., Grund, S., & Klusmann, U. (2023). Satisfied and High Performing? A Meta-Analysis and Systematic Review of the Correlates of Teachers' Job Satisfaction. Educational Psychology Review, 35, 1-38. https://doi.org/10.1007/s10648-023-09831-4.

Williams, L. (2021). Administrative support and teachers' job satisfaction. Journal of School Administration, 27(4), 198-212.

Zhang, L. (2020). Teachers, students, and teaching: towards an ecological system. Educational Psychology, 40, 249 - 252. https://doi.org/10.1080/01443410.2020.1731146.

Zhang, Q., Zhou, H., & Li, J. (2020). Job satisfaction and its determinants among private university teachers: A study in Guangzhou. Journal of Educational Research, 38(4), 567-579.

Zhu, X. (2023). Research on the impact of total compensation perception on employee job satisfaction: The mediating role of organizational identification and the moderating role of work values [Masters' thesis, Northeast Normal University].

The Influence of Perceived Fairness of Performance Appraisal on the Organizational Commitment of Employees in Company X

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Abstract

In today's competitive business world, organizations are concerned with evaluating the performance of employees. A fair appraisal process has significant influences on organizational commitment. The relationship between perceived fairness of performance appraisals and employee commitment in Company X is explored in terms of three dimensions: distributive fairness, procedural justice, and interactional justice based on equity theory. Descriptive, correlation analysis and regression analysis were used based on 340 valid responses collected in a quantitative survey. These three factors have been found to influence organizational commitment, where procedural justice has the highest influence. Recommendations were proposed to enhance appraisal clarity, equate job workload, and establish transparency using manuals and seminars.

Keywords: Perceived Fairness of Performance Appraisal, Organizational Commitment, Equity Theory

Introduction

Perceived fairness of performance appraisals is crucial for organizational performance. If the process is perceived as fair by employees, they will be more likely to trust the organization, feel valued, and remain committed. This leads to higher motivation and effort. However, if employees perceive the appraisal process as unfair, it can lead to dissatisfaction, lower enthusiasm, and risk of turnover (Taneja et al., 2024). An equitable and truthful performance appraisal system solidifies workers' sense of belonging and company allegiance, making them more satisfied and trusting. In contrast, feelings of injustice have the effect of destroying relations and lowering confidence in the firm (Krishnan, Ahmad, & Haron, 2018). To Company X, China's premium liquor sector market leader, fairness in the process of performance appraisal is indispensable to maintaining the confidence and allegiance of employees. This assists in motivation, teamwork, and overall performance, which is essential in today's competitive business environment (Liao & Han, 2022). While general studies have explored performance appraisals and organizational

commitment, there is a research gap in understanding how perceived fairness specifically influences organizational commitment in Company X's context, particularly within the competitive and rapidly changing high-end liquor sector. As the world of work continues to become more dynamic and competitive, fairness in performance appraisals cannot be overemphasized in ensuring long-term success of the organization.

Objectives

Since the 21st century, companies have increasingly recognized the significance of performance appraisals and the crucial role that fairness plays in employee organizational commitment. Therefore, the research objectives of this article are as follows:

1. To explore the level of perceived fairness of performance appraisal including distributive justice, procedural justice, and interactional justice of employees in Company X.
2. To explore the level of organizational commitment of employees in Company X.
3. To investigate the relationship between the perceived fairness of performance appraisal and the organizational commitment of employees in Company X.

Accordingly, this article will try to offer meaningful perspectives into fairness within performance appraisals on shaping employee commitment that will contribute towards an effective base of knowledge about appraisal systems in organizational settings.

Concept Theory Framework

Concept of Perceived Fairness of Performance Appraisal

Perceived fairness of performance appraisal is the individual judgment of employees on fairness and objectivity of assessment procedures and outcomes, which has a significant contribution to job satisfaction, motivation, and commitment (Ushakov, 2021). Perceived fairness can result in enhanced trust in the firm, more value, and sustained participation among employees, whereas perceived unfairness can result in dissatisfaction and turnover (Kim & Rubianty, 2011; Jha & Ray, 2022). There are three dimensions of perceived fairness: distributive, procedural, and interactional justice (Greenberg, 1986; Petasis, 2020). Distributive justice concerns whether appraisal outcomes really capture employees' effort and contribution, and this supports commitment (McCain et al., 2010). Procedural justice concerns open and consistent evaluation processes, and this establishes trust even if the outcome is negative (Wang, 2020; Rowland & Hall, 2012). Interactional justice is about respectful communication and care in the case of assessments, promoting positive responses and long-term engagement (Van Berkel, 2021; Tarigan et al., 2023). Research indicates that when employees perceive fairness in all aspects, they report higher

motivation, performance, and organizational commitment (Iqbal et al., 2015; Wang & Li, 2022). Hence, organizations can improve workplace outcomes through a fair performance review, increased employee satisfaction, and more organizational trust.

Concept of Organizational Commitment

Organizational commitment serves as an important indicator of employees' dedication to stay with their company while showing future work commitment for long-term success in various fields. According to Allen and Meyer (1991) there are three developmental components of commitment. The emotional bond developed by employees to their organization under affective commitment results in higher job satisfaction and increased retention rates (Alrowwad et al., 2020; Shafazawana et al., 2016). Commitment to continuing results due to financial necessity or threat of benefits loss and as such holds onto the employees whether they have a significant positive attachment (Allen & Meyer, 1991). Commitment norm is based on ethical commitment where employees believe they have an obligation towards the organization for it to excel as it has invested in their careers (Soeling et al., 2021). High commitment is most important for roles like correctional officers because it enhances professionalism and reduces burnout (Lambert et al., 2020). High commitment also reduces turnover, which reduces recruitment costs and increases business viability (Chayomchai et al., 2023). It increases organizational culture, which improves cooperation and competitiveness. Thus, fostering commitment through decent work environment, fair benefits, and ethical values enhances employee retention and organizational success.

Equity Theory

Equity theory, developed by Adams (1965), explains how employees decide what is fair in performance appraisals by comparing their input-output ratios with others. Employees compare whether their effort, ability, and commitment (inputs) are proportionally rewarded with pay, praise, and promotion (outputs). Perceived fairness enhances motivation, commitment, and job satisfaction, but perceived inequity can lead to dissatisfaction, reduced effort, or turnover (Jang et al., 2021). Fair appraisals encourage participation and retention, but unfair appraisals can create withdrawal. Organisations can enhance fairness by being transparent, consistent, and involving workers in ratings (UshaKov, 2021). Equity perceptions influence distributive justice (fair outcomes) and procedural justice (fair procedures) and impact on workers' attitudes and actions. Social comparison is essential—dissatisfied workers who feel they are not treated fairly may attempt to compensate by performing at a lower level or leaving the organization (Krishnan et al., 2018). Successful appraisal activities must be with clear criteria, regular feedback, and open communication to address perceived inequalities (Mhlolo, 2014). When employees feel they receive equal treatment, they are more committed and

contribute to organizational success (Na-Nan et al., 2020). Therefore, it is critical to implement equity theory for performance appraisals to support fairness, motivation, and employees' long-term retention.

Related Studies and Hypothesis Development

Previous studies highlight the strong impact of perceived fairness in performance appraisals on organizational commitment. Colquitt et al. (2001) have identified distributive and procedural justice as significant components of organizational justice. Fair appraisals enhance the satisfaction and commitment of employees (Rowland & Hall, 2012; Salleh et al., 2013). Rubel and Kee (2015) determined that appraisal fairness reduces turnover intention through commitment. Muhammad (2022) stated that unfavorable appraisals weaken commitment and retention. Rana and Singh (2022) also confirmed a positive association between fairness perceptions and commitment in Indian banking. The present study examines procedural, distributive, and interactional justice in performance appraisals using equity and social exchange theories.

Distributive justice, the most critical component of fairness in performance appraisal, significantly impacts organizational commitment. Chang (2002) stated that distributive justice had an influence on Korean employees' commitment during layoffs. Jiang et al. (2015) again supported the same conclusion in China and South Korea. Equitable distribution of resources like promotion and pay enhances commitment (Krishnan et al., 2018). Aguiar-Quintana et al. (2020) and Ilyana et al. (2023) also echoed its positive impact. Therefore, enhanced distributive justice enhances commitment for enhanced long-term organizational sustainability.

H1: There is a relationship between distributive justice and organizational commitment.

Procedural justice is crucial to organizational commitment. Cohen-Charash and Spector (2001) emphasized its relationship with trust and commitment. López-Cabarcos et al. (2015) found that procedural justice significantly influenced commitment. Krishnan et al. (2018) noted that fair evaluation procedures enhance employee motivation and commitment. Jang et al. (2021) emphasized its significance in strengthening public service value. Ha and Lee (2022) demonstrated its positive impact on trust, participation, and performance. Organizations that place high emphasis on fair evaluation processes develop higher morale, loyalty, and productivity.

H2: There is a meaningful relationship between procedural justice and organizational commitment.

Interactional justice fosters high employee commitment through fair interpersonal treatment. Ilyana et al. (2023) found that it positively impacted commitment in Serambi Indonesia. Krishnan et al. (2018) emphasized the importance of meaningful interaction in

enhancing fairness perceptions. Handayani et al. (2022) confirmed its impact on PT. Bakrie Sumatera Plantations Tbk. Workers who are treated with respect and dignity demonstrate greater commitment and effort, leading to organizational stability and performance.

H3: There is a relationship between interactional justice and organizational commitment.

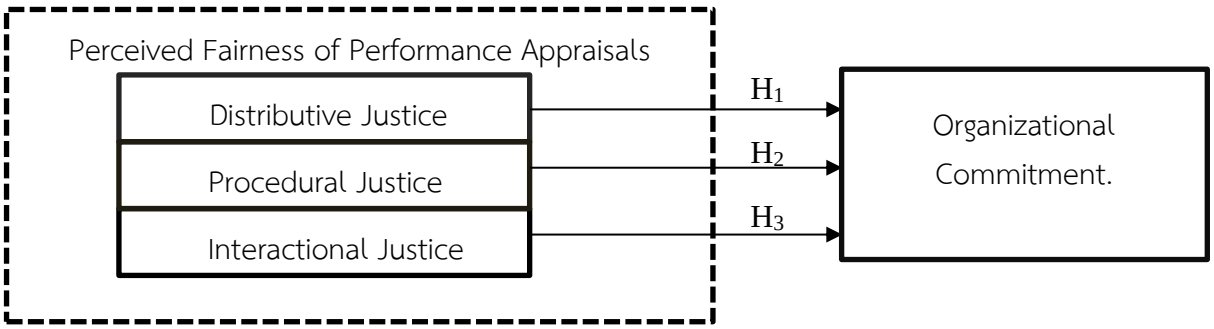


Figure 1: Conceptual framework

Under this theoretical background, the connection between perceived fairness of performance appraisals and organizational commitment is explained with the help of Equity Theory. Equity Theory states that employees' perceptions of fairness arise out of comparing their inputs and outcomes relative to others. Thus, in the current research, the association between perceived fairness of performance appraisals and organizational commitment of employees of Company X was examined. Various facets of perceived fairness like distributive justice, procedural justice, and interactional justice all influence organizational commitment.

Materials and Methods

This research utilizes quantitative approaches to promote objectivity and reduce bias. The structured survey design and convenience sampling allow for effective data collection while ensuring respondent anonymity. While some bias cannot be eliminated, this method promotes reliability and allows for pattern identification. The structured design enables easy comparisons, enhancing result interpretation. Quantitative approaches and well-designed questionnaires collectively enhance the study's accuracy and reliability (Corbeanu & Iliescu, 2023).

Population, Sample size, Sampling

Company X had around 2,000 employees in 2024 (China Economic Net, 2024). The sample size was calculated using Yamane's (1973) formula as 334 and 350 were interviewed to account for non-response. Convenience sampling (Etikan et al., 2016) was employed due to its practicality and efficiency in organizational research. Given the time

and resource constraints typical in such studies, this method enabled quick data collection from employees at Company X. The goal was to obtain diverse data reflecting the opinions of employees, which helps create a clear understanding of their perspectives on work performance and fairness in the appraisal process. The results aim to improve the evaluation system and increase employee commitment to working at Company X in the future. The study will assess the perception of employees towards work performance and fairness in assessment to guide improvement in the assessment system and enhancing employee commitment in Company X.

Research Instrument and Questionnaire Development

The research used a pre-existing questionnaire that it adapted to form its own instrument, based on the work of Prather (2010), Njuguna & Jang et al. (2021), Kisilu (2023), Krishnan et al. (2018), and Jang et al. (2021). The survey is categorized into three parts: the first part has five respondent demographic questions; the second part assesses perceived fairness of performance appraisal with 15 questions assessing distributive justice, procedural justice, and interactional justice; the third part assesses organizational commitment with seven questions.

Data Analysis

The questionnaire tool of the current study employed a Likert scale to assess the opinions, beliefs, or attitudes of the respondents. Every item will offer six choices: "Strongly disagree," "Disagree," "Slightly disagree," "Slightly agree," "Agree," and "Strongly agree," with their respective scores ranging from 1 to 6 (SurveyMonkey, 2024). The class interval is calculated as 0.83 using the formula (6 – 1)/6=0.83.

Quantitative data were processed through SPSS 26.0 and employing Pearson's r and Spearman's ρ to assess relationships between variables, ranging from -1 to +1. A value close to +1 indicates a strong positive correlation (Pandey, 2020). Multiple regression analysis assessed the impact of independent variables on the dependent variable, determining significant predictors and their effect (Shrestha, 2020). The process of analysis provided insights into variable interactions and research pathway management.

Validity and Reliability

The present study employed a quantitative approach through a structured questionnaire. Literature review and expert scores assured internal validity, and content validity was assured. Confirmatory factor analysis upheld construct validity by factor loadings above 0.5 and AVE ranged between 0.984 to 0.996 (Prather, 2010; Krishnan et al., 2018; Jang et al., 2021; Njuguna & Kisilu, 2023). External validity considered generalizability. Reliability analysis showed a Cronbach's alpha of more than 0.75 with a total of 0.942, proving to have outstanding internal consistency (Sürücü & Maslakci, 2020). The findings prove the validity and reliability of the questionnaire.

Results

A total of 350 questionnaires were distributed, and 340 valid responses were collected, yielding a response rate of 97.14%. Most respondents were aged 30–40 years, held bachelor's degrees, had over two years of tenure, and worked in the Sales department. This study aimed to examine the levels of perceived fairness in performance appraisal—covering distributive, procedural, and interactional justice—and organizational commitment among employees in Company X. The results showed that the average scores for distributive justice (M= 4.29), procedural justice (M= 4.21), and interactional justice (M= 4.23) indicated a slightly agreed attitude, while the organizational commitment score (M= 4.28) also reflected a slightly agreed perception.

Furthermore, to analyze the relationships between variables, correlation analysis and multiple regression analysis will be conducted to assess the hypotheses and determine the impact of perceived fairness in performance appraisals on organizational commitment.

Table 1: Correlation analysis test

Attributes	X1	X2	X3	Y
X1: Distributive Justice	1			
X2: Procedural Justice	0.781**	1		
X3: Interactional Justice	0.687**	0.776**	1	
Y: Organizational Commitment	0.828**	0.911**	0.812**	1
**. Correlation is significant at the 0.01 level (2-tailed).				

The correlation analysis in Table 1 showed a significant positive relationship between all variables at the 0.01 level. Distributive justice (X1) and organizational commitment (Y) had a strong correlation of 0.828, procedural justice (X2) and organizational commitment (Y) had an extremely high correlation of 0.911, and interactional justice (X3) and organizational commitment (Y) had a correlation of 0.812. Additionally, X1, X2, and X3 showed strong positive relationships with each other. However, the high correlations between these variables may indicate potential multicollinearity, which will be addressed in the next analysis to ensure the accuracy of results.

Table 2: Multiple regression analysis

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig.	Tolerance	VIF
	B	Beta				
(Constant)	-1.187		-9.262	0.000		
X2: Procedural Justice	0.632	0.549	8.265	0.000	0.282	3.549
X1: Distributive Justice	0.365	0.254	15.529	0.000	0.373	2.680
X3: Interactional Justice	0.294	0.212	6.966	0.000	0.382	2.621
R^2=0.939, Adjust R^2=0.882, F= 835.371, Sig.=0.000***						

The multiple regression analysis in Table 1 shows that the model explains 93.9% of the variance in the dependent variable (R^2 = 0.939, Adjusted R^2 = 0.882). The model remains significant after removing unimportant variables (F = 835.371, p < 0.001). Tolerance values (X1 = 0.373, X2 = 0.282, X3 = 0.382) and VIF values (X1 = 2.680, X2 = 3.549, X3 = 2.621) indicate no multicollinearity issues. Standardized coefficients show that Procedural Justice (X2) has the strongest effect on Organizational Commitment (Y) (β = 0.549, p < 0.001), followed by Distributive Justice (X1) (β = 0.254) and Interactional Justice (X3) (β = 0.212).

Based on the results, all hypotheses assessed, it can be concluded that all three aspects of justice, namely distributive justice, procedural justice, and interactional justice, all had a statistically significant relationship with organizational commitment. This shows that organizations should focus on maintaining fairness in all aspects to increase employee engagement and commitment levels.

Conclusions and Discussion

The findings indicate that all employees perceive fairness in performance appraisal on each of the three aspects: distributive, procedural, and interactional justice. In distributive justice, the compensation, workload, and reward are rated positively, but fairness in job responsibility distribution still must be enhanced, as inequalities in this dimension can erode motivation and job satisfaction (McCain et al., 2010). Procedural justice-wise, employees appreciate openness and consistency in appraisal processes; however, appraisals should be made clear in guidelines so that confidence and trust in the system are not lost (Rowland & Hall, 2012). Similarly, interactional justice is similarly appreciated but also needs to be further improved with better communication being

respectful to improve worker relationships and a more supportive workplace (Tarigan et al., 2023).

Moreover, employees demonstrate a high degree of organizational commitment, which is driven primarily by emotional commitment and job security. This finding is in line with Alrowwad et al. (2020), who also note the relationship between job satisfaction and employee commitment. However, despite this favorable commitment, limited career development chances can discourage long-term motivation and participation (Zafar et al., 2021). To correct this, organizations can use career development programs to enhance job satisfaction and employee retention (Chayomchai et al., 2023).

In total, the studies confirm a positive correlation between perceived fairness of performance appraisals and organizational commitment, where procedural justice has the largest impact, followed by distributive and interactional justice (Hughes et al., 2019). Fair evaluations not only boost motivation and confidence (Ha & Lee, 2022) but also make workers feel valued, which leads to higher levels of commitment (Krishnan et al., 2018). Moreover, treating others with respect enhances engagement and supports a better workplace culture (Ilyana et al., 2023). Therefore, prioritizing fairness in performance appraisals, improving communication, and providing opportunities for career growth are essential steps in improving employee morale, retention, and long-term organizational success in Company X.

References

Aguiar-Quintana, T., Araujo-Cabrera, Y., & Park, S. (2020). The sequential relationships of hotel employees perceived justice, commitment, and organizational citizenship behaviour in a high unemployment context. *Tourism Management Perspectives, 35*, 100676. https://doi.org/10.1016/j.tmp.2020.100676

Alrowwad, A., Almajali, D. A., Masadeh, R., Obeidat, B., & Aqqad, N. (2020). The role of organizational commitment in enhancing organizational effectiveness. *Available at: https://www.researchgate.net/publication/332697163_The_Role_of_Organizational_Commitment_in_Enhancing_Organizational_Effectiveness*

Chang, E. (2002). Distributive justice and organizational commitment revisited: moderation by layoff in the case of Korean employees. *Human Resource Management, 41*, 261-270. https://doi.org/10.1002/HRM.10035

Chayomchai, A., Promprasert, P., Katchamat, C., & Nokman, C. (2023). Key factors influencing organizational commitment. *International Journal of Current Science Research and Review, 6*(12), 7718-7723. https://doi.org/10.47191/ijcsrr/v6-i12-27

Cohen-Charash, Y., & Spector, P. (2001). The role of justice in organizations: A meta-analysis. *Organizational Behavior and Human Decision Processes, 86*, 278-321. https://doi.org/10.1006/OBHD.2001.2958

Corbeanu, A., & Iliescu, D. (2023). The link between work engagement and job performance. *Journal of Personnel Psychology, 22*(3), 111-122. https://doi.org/10.1027/1866-5888/a000316

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1–4. https://doi.org/10.11648/j.ajtas.20160501.11

Greenberg, J. (1986). Determinants of perceived fairness of performance evaluations. *Journal of Applied Psychology, 71*(2), 340-342. https://doi.org/10.1037/0021-9010.71.2.340

Handayani, A., Aiyub, A., Matriadi, F., & Yusniar, Y. (2022). The effect of organizational justice on organizational commitment: A case study at PT. Bakrie Sumatera Plantations Tbk. *Management Research and Behavior Journal, 2*(2), 51-61. https://doi.org/10.29103/mrbj.v2i2.10361

Hughes, C., Robert, L., Frady, K., & Arroyos, A. (2019). Artificial intelligence, employee engagement, fairness, and job outcomes. In *Managing technology and middle-and low-skilled employees* (pp. 61-68). Emerald Publishing Limited.

Ilyana, A., Khairawati, Marbawi, & Nurmala. (2023). The effects of distributive justice, procedural justice, and interactional justice on organizational commitment (study on Serambi Indonesia employees of PT. Aceh Media Graphic). *International Journal of Social Science, Educational, Economics, Agriculture Research and Technology (IJSET), 2*(8), 269-277. https://doi.org/10.54443/ijset.v2i8.182

Iqbal, M. Z., Akbar, S., & Budhwar, P. (2015). Effectiveness of performance appraisal: An integrated framework. *International Journal of Management Reviews, 17*(4), 510-533.

Jang, J., Lee, D. W., & Kwon, G. (2021). An analysis of the influence of organizational justice on organizational commitment. *International Journal of Public Administration*, *44*(2), 146-154.

Jha, J. K., & Ray, P. (2022). “They care, we share”: perceived fairness in performance appraisal systems on knowledge sharing. *International Journal of Knowledge Management (IJKM), 18*(1), 1-28.

Jiang, Z., Gollan, P. J., & Brooks, G. (2015). Relationships between organizational justice, organizational trust, and organizational commitment: a cross-cultural study of China, South Korea, and Australia. *The International Journal of Human Resource Management*, *28*(7), 973–1004. https://doi.org/10.1080/09585192.2015.1128457

Karim, F., & Rehman, O. (2012). Impact of job satisfaction perceived organizational justice and employee empowerment on organizational commitment in semi-government organizations of Pakistan. *Journal of Business Studies Quarterly, 3*, 92–104.

Kim, S., & Rubianty, D. (2011). Perceived fairness of performance appraisals in the federal government. *Review of Public Personnel Administration, 31*, 329 - 348. https://doi.org/10.1177/0734371X11428903

Krishnan, R., Ahmad, N. A. F., & Haron, H. (2018). The effect of employees' perceived fairness of performance appraisal systems on employees' organizational commitment. *International Journal of Academic Research in Business and Social Sciences*, *8*(3), 466–483.

Lambert, E., Leone, M., Hogan, N., Buckner, Z., Worley, R., & Worley, V. (2020). To be committed or not: A systematic review of the empirical literature on organizational commitment among correctional staff. *Criminal Justice Studies, 34*, 88-114. https://doi.org/10.1080/1478601X.2020.1762082

Lee, M., & Kim, B. (2023). Effect of employee experience on organizational commitment: Case of South Korea. *Behavioral Sciences, 13*(7). https://doi.org/10.3390/bs13070521

Liao, L., & Han, J. (2022). Performance evaluation of listed companies in the liquor industry based on economic value added: A case study of Shanxi Fenjiu. *China Brewing*, *41*(1).

López-Cabarcos, M., Pinho, A., & Vázquez-Rodríguez, P. (2015). The influence of organizational justice and job satisfaction on organizational commitment in Portugal's hotel industry. *Cornell Hospitality Quarterly, 56*, 258-272. https://doi.org/10.1177/1938965514545680

Mhlolo, M. (2014). Performance appraisal systems — equity perceptions of mathematics teachers: An exploratory study. *Journal of Psychology in Africa, 24*, 487-491. https://doi.org/10.1080/14330237.2014.997029

Muhammad, F. (2022). Impact of performance appraisal on organizational commitment in developing country manufacturing enterprises. *Webology, 19*(3), 2601-2618. https://www.webology.org/2022/v19n3/a07.pdf

Na-Nan, K., Kanthong, S., Joungtrakul, J., & Smith, I. D. (2020). Mediating effects of job satisfaction and organizational commitment between problems with performance appraisal and organizational citizenship behavior. *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(3), 1-19.

Njuguna, B., & Kisilu, K. (2023). Influence of distributive fairness on performance appraisal practices in public secondary schools in Cherangany Sub-County. *Asian Journal of*

Education and Social Studies, 43(3), 1-11. https://doi.org/10.9734/ajess/2023/v43i3940

Njuguna, B., & Kisilu, K. (2023). Influence of procedural fairness on implementation of performance appraisal practices in public secondary schools in Cherangany Sub-County. *International Journal of Research and Innovation in Social Science, 7*(5), 1642-1659. https://doi.org/10.47772/ijriss.2023.70627

Pandey, S. (2020). Principles of correlation and regression analysis. *Journal of the practice of cardiovascular sciences*, *6*(1), 7-11.

Petasis, A., Christodoulou, S., & Louca, A. (2020). Employees' perception on performance appraisal effectiveness in the Cyprus public sector (EAC). *International Journal of Human Capital Management*, *4*(1), 26-41.

Prather, T. M. (2010). *The perception of fairness of performance appraisals* (master's thesis, Cleveland State University). ETD Archive. https://engagedscholarship.csuohio.edu/etdarchive/373

Rana, S., & Singh, S. (2022). Performance appraisal justice and affective commitment: Examining the moderating role of age and gender. *International Journal of Organizational Analysis, 30*(1), 24-46. https://doi.org/10.1108/IJOA-03-2021-2701

Rowland, C., & Hall, R. (2012). Organizational justice and performance: Is appraisal fair? *Euromed Journal of Business*, 7, 280-293. https://doi.org/10.1108/14502191211265334

Rubel, M., & Kee, D. (2015). Perceived fairness of performance appraisal, promotion opportunity and nurses' turnover intention: The role of organizational commitment. *Asian Social Science, 11*(9), 183-197. https://doi.org/10.5539/ASS.V11N9P183

Salleh, M., Amin, A., Muda, S., & Halim, M. (2013). Fairness of performance appraisal and organizational commitment. *Asian Social Science, 9*(2), 121-128. https://doi.org/10.5539/ASS.V9N2P121

Shrestha, N. (2020). Detecting multicollinearity in regression analysis. *American Journal of Applied Mathematics and Statistics*, *8*(2), 39-42.

Soeling, P., Aulia, M., & Indriati, F. (2021). Predictors of organizational commitment. *Journal of Southwest Jiaotong University, 56*(2), 568-580. https://doi.org/10.35741/ISSN.0258-2724.56.2.46

Sürücü, L., & Maslakci, A. (2020). Validity and reliability in quantitative research. *Business & Management Studies: An International Journal*, *8*(3), 2694-2726.

SurveyMonkey. (2024). Likert scale: What it is & how to use it. https://www.surveymonkey.com/mp/likert-scale/

Taneja, S., Srivastava, R., & Ravichandran, N. (2024). Employees' fairness perception towards performance appraisal system: Antecedents and consequences. *Review of Managerial Science*, *18*, 2163–2196. https://doi.org/10.1007/s11846-023-00680-7

Tarigan, A., Gustomo, A., & Bangun, Y. (2023). Enhancing fairness in performance appraisals: A conceptual framework through a systematic literature review. *Journal of Advances in Humanities Research, 2*(3), 202-228. https://doi.org/10.56868/jadhur.v2i3.176

Ushakov, D. (2021). The role of equity and justice in mediating the relationship between performance appraisal and employee performance: Evidence from Lebanon. *The Journal of Asian Finance, Economics and Business*, *8*(8), 625-635.

Van Berkel, N., Goncalves, J., Russo, D., Hosio, S., & Skov, M. B. (2021, May). Effect of information presentation on fairness perceptions of machine learning predictors. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (pp. 1-13).

Wang, C., & Li, H. (2022). Work motivation and performance appraisal: The Chinese college instructors perceived procedural fairness of moderating effect. *Journal of Higher Education Theory and Practice*, *22*(11). https://doi.org/10.33423/jhetp.v22i11.5420

Wang, R., Harper, F. M., & Zhu, H. (2020, April). Factors influencing perceived fairness in algorithmic decision-making: Algorithm outcomes, development procedures, and individual differences. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (pp. 1-14).

Gastronomic Knowledge, Culinary Heritage, and Involvement: A Conceptual Framework for Enhancing Destination Brand Equity in Thailand

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Abstract

This study explores the relationships between gastronomic knowledge, culinary heritage, gastronomic involvement, and destination brand equity in the context of Thailand through a comprehensive literature review. It emphasizes the role of gastronomy in destination branding, highlighting how tourists' culinary engagement can influence a destination's brand perception, particularly in Thailand, known for its rich food culture. The study proposes a conceptual framework that outlines these relationships, offering a theoretical structure for understanding how gastronomic elements contribute to Thailand's brand equity. By synthesizing existing research, the study provides an understanding of how Thailand can leverage its local food culture to build a distinct identity, enhance tourist involvement, and attract culinary-focused travelers. The proposed framework serves as a foundation for future research on the role of gastronomy in tourism and destination branding, specifically within the Thai context.

Keywords: Gastronomic, Culinary, Heritage, Destination Brand Equity in Thailand

Introduction

The tourism landscape has evolved significantly, with gastronomy emerging as a critical component that enriches travel experiences and drives economic benefits (Pencarelli, 2020). Gastronomic tourism, defined as the exploration of food and culinary practices as a central element of travel, has gained global popularity (Sio et al., 2024). This phenomenon extends beyond mere indulgence in local cuisines, encompassing cultural, social, and sensory engagements that profoundly impact tourists' perceptions and satisfaction (Seyitoğlu & Ivanov, 2020). The growing interest in food tourism underscores the need to explore the dimensions influencing tourists' gastronomic experiences and motivations.

Gastronomic tourism plays a pivotal role in shaping destination experiences by promoting cultural exchange, stimulating local economic development, and contributing to the preservation of culinary heritage (Vuksanović et al., 2024). Through food-related activities, tourists immerse themselves in the unique cultural narratives of a place, allowing

them to engage with regional identity and traditions on a deeper level (Pavlidis & Markantonatou, 2020). This interaction not only enriches the travel experience but also supports the continuity of local foodways and artisanal practices. Despite the growing recognition of its significance, scholarly research in this area remains fragmented, with a notable absence of comprehensive theoretical models that holistically integrate gastronomic motivations, knowledge acquisition, and heritage appreciation. This study aims to fill that gap by examining how gastronomic knowledge and culinary heritage influence tourists' gastronomic involvement. In turn, it investigates how this involvement contributes to perceptions of destination brand equity, thereby offering a more integrated understanding of the role of gastronomy in destination branding.

In Thailand, gastronomic tourism has emerged as an innovative strategy to revitalize the struggling tourism industry, particularly during the COVID-19 pandemic (Kattiyapornpong et al., 2021). While prior studies have identified motivations for gastronomic tourism, few have explored the interplay between gastronomic knowledge, culinary heritage, and gastronomic involvement in shaping destination brand equity (Sio et al., 2024). Additionally, the role of personal and product involvement in shaping gastronomic experiences remains underexplored (Richards, 2021). This study bridges these gaps by proposing a framework that integrates these constructions, offering insights into how destinations can leverage gastronomy to enhance their brand equity.

Objectives

This study aims to examine the dimensions of gastronomic tourism and its impact on tourist experiences and destination branding. Specifically, it seeks to:

1. To review the literature on gastronomic knowledge, culinary heritage, and gastronomy involvement as drivers of destination brand equity in Thailand's gastronomic tourism.

2. To propose a conceptual framework illustrating the relationships between these variables and their impact on destination brand equity.

Literature Review

This section reviews literature on gastronomic experiences and destination brand equity, introducing key constructs, developing hypotheses, and proposing a framework for the study.

Designation brand equity

Destination brand equity is a key concept in tourism marketing, reflecting a destination's perceived value among tourists and stakeholders. It extends traditional brand equity principles to tourism by emphasizing unique attributes and experiences that

differentiate destinations in a competitive market (San Martín et al., 2019; Shi et al., 2022). Strong destination brand equity enhances tourist attraction, loyalty, and economic benefits through strategic marketing, consistent branding, and high-quality experiences (Abbasi et al., 2024).

Effective management requires continuous monitoring of tourist perceptions and market trends, alongside collaboration among stakeholders, including government agencies, businesses, and local communities (Ritchie & Crouch, 2003). Digital platforms, particularly online reviews, and social media, play a crucial role in shaping destination brand equity (Abbasi et al., 2024).

Gastronomic experiences significantly influence destination brand equity, as seen in countries like Italy, France, and Japan, which leverage their culinary heritage to attract tourists (Cardoso et al., 2020). Gastronomic tourism supports local economies and preserves culinary traditions, while strategic branding of food culture, festivals, and culinary tours fosters authenticity, emotional engagement, and competitive differentiation (Dedeoğlu et al., 2019; Vuksanović et al., 2024).

Gastronomic involvement and destination brand equity

Gastronomic involvement is defined as an individual's interest in and engagement with food-related activities, shaping their appreciation and understanding of gastronomy (Leong et al., 2017; Kiatkawsin & Han, 2019). It encompasses activities such as cooking, dining, exploring diverse cuisines, and studying culinary traditions. Individuals with high gastronomic involvement perceive food as central to their lifestyle, engaging in gourmet dining, recipe experimentation, and food-related hobbies (Kiatkawsin & Han, 2019).

Cultural background, personal preferences, and social influences collectively shape gastronomic involvement (Gálvez et al., 2017). National culinary traditions and familial practices provide a foundational influence, while individual tastes and peer dynamics further inform gastronomic engagement (Lin et al., 2022).

A thorough understanding of gastronomic involvement enables culinary professionals, marketers, and tourism operators to design tailored experiences (Kiatkawsin & Han, 2019). Empirical studies demonstrate that gastronomic involvement enhances destination brand equity by increasing the perceived value of a destination's food culture (Horng et al., 2012; Kivela & Crotts, 2006). Highly involved tourists actively seek destinations offering immersive culinary experiences, thereby reinforcing brand image (Kivela & Crotts, 2006). Horng et al. (2012) emphasize that participation in activities such as fine dining, food festivals, and cooking classes strengthens a destination's reputation. Furthermore, Yang et al. (2020) suggest that catering to gastronomic involvement fosters tourist loyalty, repeat visitation, and positive word-of-mouth, enhancing destination brand equity (Tsai & Wang, 2017).

Gastronomic knowledge

Gastronomic knowledge refers to the understanding of food, culinary practices, and their cultural and historical contexts (Kovalenko et al., 2023). It encompasses knowledge of ingredients, cooking techniques, regional cuisines, and dining traditions (Richards, 2021). Beyond knowing how to cook or what to eat, it involves recognizing the connections between food, culture, health, and the environment (Gillespie & Cousins, 2012).

Gastronomic knowledge enhances culinary experiences by providing deeper insights into food's cultural and historical significance (Richards, 2021). Those with greater knowledge appreciate the authenticity of local cuisine, leading to more meaningful culinary engagement (Hjalager & Richards, 2002).

The relationship between gastronomic knowledge and gastronomic involvement is well-documented, showing that understanding culinary practices fosters deeper engagement with food (Kiatkawsin & Han, 2019). Knowledgeable individuals demonstrate higher personal and product involvement, appreciating the finer details of culinary arts, from ingredient selection to cooking techniques (Richards, 2021). Cordova-Buiza et al. (2021) suggest that they invest more time in sourcing quality ingredients and refining cooking methods, reflecting greater product involvement. Personal involvement is also heightened, as they engage in culinary hobbies, attend food-related events, and continuously expand their repertoire (Kovalenko et al., 2023).

Gastronomic knowledge also strengthens destination brand equity by deepening tourists' appreciation of a location's culinary identity (Kovalenko et al., 2023). Visitors with knowledge of local food, ingredients, and culinary traditions develop a stronger emotional connection to a destination, positively influencing brand perception. Seyitoğlu and Ivanov (2020) found that knowledgeable tourists feel more culturally enriched, leading to higher satisfaction and loyalty. They associate destinations with authenticity and quality, reinforcing brand equity through positive word-of-mouth and repeat visits.

By educating tourists on the cultural significance of food, destinations can position themselves as unique culinary hubs, enhancing brand equity and gaining a competitive edge in the tourism market.

Culinary heritage

Culinary heritage encompasses traditional food practices, recipes, ingredients, and techniques passed down through generations, reflecting a region's cultural identity and way of life (Gyimóthy & Mykletun, 2009; Bessière, 1998). It extends beyond food, incorporating the stories, customs, and rituals associated with its preparation and consumption, offering a rich cultural experience (Counihan & Van Esterik, 2013).

Preserving culinary heritage is vital for maintaining cultural diversity and fostering community identity (Montanari, 2006). It serves as a living archive of traditions, providing

insight into historical interactions with the environment. Ensuring its continuity safeguards cultural legacies for future generations (Alonso et al., 2018).

The link between culinary heritage and gastronomic involvement underscores how traditional food practices deepen engagement with food. Individuals with a strong interest in culinary heritage exhibit higher levels of gastronomic involvement, enjoying traditional dishes and participating in related activities (Richards, 2002). Cooking classes, food festivals, and culinary tours enhance this involvement, fostering appreciation for traditional cuisine.

The immersive nature of culinary heritage experiences strengthens individuals' connection to food and its cultural context, increasing personal and product involvement (Hjalager & Richards, 2002). This engagement encourages individuals to invest time in learning and preserving traditional culinary practices, enhancing their gastronomic knowledge and skills (Agyeiwaah et al., 2019).

Culinary heritage also enhances destination brand equity by reinforcing cultural authenticity. Tourists are drawn to destinations that celebrate traditional cuisine, associating them with authenticity and uniqueness (Valverde-Roda et al., 2023). Engaging with culinary heritage deepens tourists' connection to a destination's history and culture, fostering attachment and loyalty (Mora et al., 2022). Promoting culinary heritage in tourism strengthens brand equity by differentiating destinations and cultivating positive brand associations.

Research Methodology

This study employs a literature review to explore the relationships between gastronomic knowledge, culinary heritage, gastronomic involvement, and destination brand equity, with a focus on Thailand's tourism context. Scholarly databases such as Scopus, Web of Science, and Google Scholar were searched for relevant articles. From an initial pool of 250 articles, 45 were selected based on inclusion criteria: peer-reviewed, English-language, and directly relevant to the research objectives. The review highlights how gastronomic knowledge and culinary heritage influence gastronomic involvement, which in turn enhances destination brand equity. The findings inform a conceptual framework that integrates these constructs, offering a theoretical structure for understanding how gastronomy can strengthen Thailand's tourism branding and appeal to culinary-focused travelers.

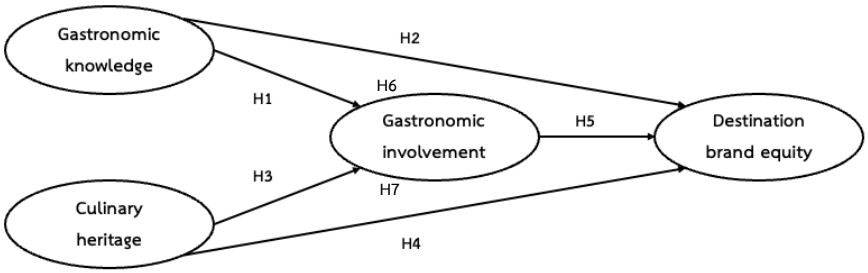


Figure 1: The proposed framework.

Results

Figure 1 illustrates the relationship between gastronomic knowledge, culinary heritage, gastronomic involvement, and destination brand equity. The study supports the following hypotheses:

H1: Gastronomic knowledge positively influences gastronomic involvement. Tourists with more knowledge about local cuisine are more likely to engage in food-related activities.

H2: Gastronomic knowledge positively influences destination brand equity. Culinary knowledge enhances perceptions of the destination as authentic and culturally rich.

H3: Culinary heritage positively influences gastronomic involvement. Exposure to traditional food practices encourages tourists to participate more in gastronomic experiences.

H4: Culinary heritage positively influences destination brand equity. Recognizing culinary heritage strengthens the destination's unique identity and appeal.

H5: Gastronomic involvement positively influences destination brand equity. Active engagement in local food culture leads to stronger emotional connections with the destination.

H6: Gastronomic involvement mediates the relationship between gastronomic knowledge and destination brand equity.
Tourists' culinary knowledge enhances destination brand equity more strongly when it leads to active participation in food experiences, deepening their connection to the destination.

H7: Gastronomic involvement mediates the relationship between culinary heritage and destination brand equity.
Appreciation of culinary heritage fosters stronger destination brand equity when tourists engage directly with local food traditions through immersive experiences.

These findings highlight the strategic value of promoting gastronomic knowledge and heritage to increase tourist involvement and enhance the overall brand equity of destinations.

Conclusions and Discussion

The findings provide the proposed framework, demonstrating the interconnected relationships between gastronomic knowledge, culinary heritage, gastronomic involvement, and destination brand equity.

Gastronomic knowledge significantly influences gastronomic involvement (H1), reinforcing that individuals with deeper culinary knowledge engage more actively in food-related experiences (Kiatkawsin & Han, 2019; Richards, 2021). It also positively affects destination brand equity (H2), as knowledgeable tourists develop stronger emotional connections with destinations through their culinary identity, enhancing authenticity and perceived quality (Kovalenko et al., 2023; Seyitoğlu & Ivanov, 2020).

Similarly, culinary heritage enhances gastronomic involvement (H3) by fostering appreciation for traditional food practices and encouraging participation in cultural culinary experiences (Richards, 2002; Hjalager & Richards, 2002). It also strengthens destination brand equity (H4) by positioning destinations as authentic cultural hubs, appealing to tourists seeking immersive gastronomic experiences (Valverde-Roda et al., 2023; Mora et al., 2022).

Furthermore, gastronomic involvement positively impacts destination brand equity (H5), suggesting that active participation in food-related activities fosters emotional connections, leading to greater tourist satisfaction, loyalty, and word-of-mouth promotion (Tsai & Wang, 2017; Yang et al., 2020).

These findings emphasize the strategic role of gastronomy in destination branding. Tourism stakeholders should promote culinary education, preserve traditional food practices, and create immersive experiences to enhance destination appeal. Future research could explore digital engagement and sustainability as additional factors shaping gastronomic tourism and brand equity.

References

Abbasi, A. Z., Rather, R. A., Hooi Ting, D., Nisar, S., Hussain, K., Khwaja, M. G., & Shamim, A. (2024). Exploring tourism-generated social media communication, brand equity, satisfaction, and loyalty: A PLS-SEM-based multi-sequential approach. Journal of Vacation Marketing, 30(1), 93-109.

Agyeiwaah, E., Otoo, F. E., Suntikul, W., & Huang, W. J. (2019). Understanding culinary tourist motivation, experience, satisfaction, and loyalty using a structural approach. Journal of Travel & Tourism Marketing, 36(3), 295-313.

Alonso, E. B., Cockx, L., & Swinnen, J. (2018). Culture and food security. Global food security, 17, 113-127.

Bessière, J. (1998). Local development and heritage: traditional food and cuisine as tourist attractions in rural areas. Sociologia ruralis, 38(1), 21-34.

Cardoso, L., Araújo Vila, N., de Araújo, A. F., & Dias, F. (2020). Food tourism destinations' imagery processing model. British Food Journal, 122(6), 1833-1847.

Cordova-Buiza, F., Gabriel-Campos, E., Castaño-Prieto, L., & García-García, L. (2021). The gastronomic experience: Motivation and satisfaction of the gastronomic tourist—The case of Puno City (Peru). Sustainability, 13(16), 9170.

Counihan, C., & Van Esterik, P. (2013). Food and culture. New York, NY: Routledge.

Dedeoğlu, B. B., Van Niekerk, M., Weinland, J., & Celuch, K. (2019). Reconceptualizing customer-based destination brand equity. Journal of Destination Marketing & Management, 11, 211-230.

Gálvez, J. C. P., Granda, M. J., López-Guzmán, T., & Coronel, J. R. (2017). Local gastronomy, culture, and tourism sustainable cities: The behavior of the American tourist. Sustainable Cities and Society, 32, 604-612.

Gillespie, C., & Cousins, J. (2012). European gastronomy into the 21st century. Routledge.

Gyimóthy, S., & Mykletun, R. J. (2009). Scary food: Commodifying culinary heritage as meal adventures in tourism. Journal of vacation marketing, 15(3), 259-273.

Hjalager, A. M., & Richards, G. (Eds.). (2002). Tourism and gastronomy (Vol. 11). London: Routledge.

Horng, J. S., Liu, C. H., Chou, H. Y., & Tsai, C. Y. (2012). Understanding the impact of culinary brand equity and destination familiarity on travel intentions. Tourism management, 33(4), 815-824.

Kiatkawsin, K., & Han, H. (2019). What drives customers' willingness to pay price premiums for luxury gastronomic experiences at Michelin-starred restaurants? International Journal of Hospitality Management, 82, 209-219.

Kattiyapornpong, U., Ditta-Apichai, M., & Chuntamara, C. (2021). Exploring gastronomic tourism experiences through online platforms: Evidence from Thai local communities. Tour ism Recreation Research, 47(3), 241–257. https://doi.org/10. 1080/02508281.2021.1963920www.statista.com: https://www.sta tista.com/statistics/1143467/thailand-share-of-tourism-to-gdp/

Kivela, J., & Crotts, J. C. (2006). Tourism and gastronomy: Gastronomy's influence on how tourists experience a destination. Journal of hospitality & tourism research, 30(3), 354-377.

Kovalenko, A., Dias, Á., Pereira, L., & Simões, A. (2023). Gastronomic experience and consumer behavior: analyzing the influence on destination image. Foods, 12(2), 315.

Leong, Q. L., Ab Karim, S., Awang, K. W., & Abu Bakar, A. Z. (2017). An integrated structural model of gastronomy tourists' behaviour. International Journal of Culture, Tourism and Hospitality Research, 11(4), 573-592.

Montanari, M. (2006). Food is culture. Columbia University Press.

Mora, D., Solano-Sanchez, M. A., Lopez-Guzman, T., & Moral-Cuadra, S. (2021). Gastronomic experiences as a key element in the development of a tourist destination. International Journal of Gastronomy and Food Science, 25, 100405.

Pavlidis, G., & Markantonatou, S. (2020). Gastronomic tourism in Greece and beyond: A thorough review. International Journal of Gastronomy and Food Science, 21, 100229.

Pencarelli, T. (2020). The digital revolution in the travel and tourism industry. Information Technology & Tourism, 22(3), 455-476.

Richards, G. (2002). Gastronomy: an essential ingredient in tourism production and consumption? In Tourism and gastronomy (p. 17-34). Routledge.

Richards, G. (2021). Evolving research perspectives on food and gastronomic experiences in tourism. International Journal of Contemporary Hospitality Management, 33(3), 1037-1058.

Ritchie, J. B., & Crouch, G. I. (2003). The competitive destination: A sustainable tourism perspective. Cabi.

San Martín, H., Herrero, A., & García de los Salmones, M. D. M. (2019). An integrative model of destination brand equity and tourist satisfaction. Current issues in tourism, 22(16), 1992-2013.

Seyitoğlu, F., & Ivanov, S. (2020). A conceptual study of the strategic role of gastronomy in tourism destinations. International Journal of Gastronomy and Food Science, 21, 100230.

Shi, H., Liu, Y., Kumail, T., & Pan, L. (2022). Tourism destination brand equity, brand authenticity and revisit intention: the mediating role of tourist satisfaction and the moderating role of destination familiarity. Tourism Review, 77(3), 751-779.

Sio, K. P., Fraser, B., & Fredline, L. (2024). A contemporary systematic literature review of gastronomy tourism and destination image. Tourism Recreation Research, 49(2), 312-328.

Tsai, C. T. S., & Wang, Y. C. (2017). Experiential value in branding food tourism. Journal of Destination Marketing & Management, 6(1), 56-65.

Valverde-Roda, J., Medina Viruel, M.J., Castano Prieto, L., & Solano Sanchez, M. A. (2023). Interests, motivations, and gastronomic experiences in the world heritage site destination of Granada (Spain): satisfaction analysis. British Food Journal, 125(13), 61-80.

Vuksanović, N., Demirović Bajrami, D., Petrović, M. D., Radovanović, M. M., Malinović-Milićević, S., Radosavac, A., ... & Ergović Ravančić, M. (2024). The Role of Culinary Tourism in Local Marketplace Business—New Outlook in the Selected Developing Area. Agriculture, 14(1), 130.

Yang, F. X., Wong, I. A., Tan, X. S., & Wu, D. C. W. (2020). The role of food festivals in branding culinary destinations. Tourism Management Perspectives, 34, 100671.

The Relationships between Stakeholder Pressure, Organizational Motives, and Organizational Learning in the Context of Green Innovation Adoption in SMEs in Thailand: The Conceptual Framework

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Abstract

This study presents a conceptual framework illustrating the dynamic interplay between stakeholder pressure, organizational learning, and organizational motives in driving green innovation adoption within small and medium-sized enterprises (SMEs) in Thailand. Recognizing the multifaceted and intensifying influence of regulatory, competitive, and customer pressures, this framework explores how these external forces interact with internal organizational factors, shaping organizational motives and learning, which, in turn, drive sustainable innovation adoption. By positioning organizational learning and motives as key mediators, the framework identifies key mechanisms through which Thai SMEs can strengthen their sustainability strategies, enhance innovation capabilities, and respond effectively to environmental challenges. It offers valuable insights for business leaders, policymakers, and sustainability advocates seeking to drive green innovation through leveraging stakeholder influence and cultivating a learning culture. This research contributes to the literature on green innovation by emphasizing the interconnected role of external pressures and internal enablers in advancing environmental sustainability, business resilience, and long-term competitiveness of SMEs.

Keywords: Green Innovation Adoption, Stakeholder Pressure, Organizational Learning, Organizational Motives, Small and Medium Enterprises (SMEs)

Introduction

The growing urgency of environmental sustainability has positioned green innovation as a crucial strategy for small and medium-sized enterprises (SMEs) (Dangelico & Pujari, 2010). In Thailand, where SMEs account for 99% of businesses and employ the majority of the workforce, understanding the drivers and barriers to green innovation is essential for fostering sustainable business transformation—an imperative for future growth and alignment with global sustainability trends (Paweenawat & Korwatanasakul, 2020). Despite regulatory pressures and rising market demand, many SMEs face challenges

in adopting green practices due to resource limitations, strategic misalignment, and restricted organizational learning capabilities (Takalo, Tooranloo, & Parizi, 2021).

Stakeholder pressure—from regulators, competitors, and customers—plays a pivotal role in shaping organizational motives and learning, thereby influencing green innovation adoption (Soewarno, Tjahjadi, & Fithrianti, 2019). While prior studies have explored stakeholder pressure and green innovation (Shahzad, Qu, Ur Rehman, Ding, & Razzaq, 2023; Wang et al., 2021), limited research has examined how these external forces interact with internal mechanisms such as organizational motives and learning, particularly within Thai SMEs. Addressing this gap, the present study proposes a conceptual framework that integrates both external pressures and internal enablers, offering practical insights to strengthen SME competitiveness, enhance resilience, and advance environmental sustainability in Thailand's evolving business landscape.

Objectives

The objective of this study is to examine the influence of stakeholder pressure, organizational motives, and organizational learning on the adoption of green innovation among SMEs in Thailand. The two objectives are as follows:

1. To review the literature on stakeholder pressure (regulatory, competitive, and customer), organizational motives, and organizational learning as key drivers of green innovation adoption in SMEs in Thailand.
2. To propose a conceptual framework illustrating the relationships between stakeholder pressure, organizational motives, and organizational learning in the context of green innovation adoption.

Literature Review

This section reviews the literature on stakeholder pressure, organizational motives, and organizational learning in relation to green innovation adoption among SMEs in Thailand. It examines existing studies that explore the influence of external and internal factors on green innovation adoption in businesses, highlighting key theoretical constructions and empirical findings. Additionally, this section identifies the core variables, develops research hypotheses, and proposes a conceptual framework for the present study.

Green innovation adoption

Green innovation adoption is increasingly vital for SMEs striving to balance economic growth with environmental responsibility. Chen, Lai, & Wen (2006) define green innovation as the development and application of eco-friendly products, processes, and technologies that minimize environmental impact while sustaining business competitiveness. However, despite its benefits, many SMEs face adoption challenges due

to resource constraints, strategic misalignment, and knowledge gaps, limiting their ability to implement sustainable practices effectively (Takalo et al., 2021). Effective stakeholder engagement and strong organizational learning play a crucial role in bridging these gaps, equipping SMEs with the knowledge, resources, and strategic direction needed to integrate green innovation into their business models. By fostering collaborative networks, enhancing regulatory compliance, and driving continuous improvement, SMEs can overcome sustainability barriers, strengthen their market position, and build long-term resilience in an increasingly eco-conscious economy.

Stakeholder Pressure

Stakeholder pressure is a key driver of green innovation adoption among SMEs, particularly as they respond to growing environmental challenges and sustainability demands. Wang et al. (2021) identify three primary forms of stakeholder pressure: regulatory pressure, which mandates compliance with environmental policies and sustainability standards; competitive pressure, where firms integrate green practices to maintain market relevance and gain a strategic edge; and customer pressure, driven by increasing demand for eco-friendly products, corporate transparency, and responsible business operations. These external pressures push organizations to adopt a more sustainable and environmentally friendly approach as well as influence organizational motives and learning, determining how SMEs internalize sustainability goals and develop green innovation strategies. By proactively addressing stakeholder expectations, SMEs can enhance sustainability performance, foster trust among stakeholders, and strengthen long-term competitive positioning in an increasingly eco-conscious market.

Organizational Motive

Organizational motive plays a critical role in driving green innovation adoption among SMEs, shaping their commitment to sustainability and approach to innovation. Motivations for adopting green practices vary, with Shahzad et al. (2023) categorizing them into instrumental, relational, and moral motives. Instrumental motives focus on profitability, competitive advantage, and regulatory compliance, pushing firms to adopt sustainability as a strategic opportunity. Relational motives stem from the need to build strong stakeholder relationships, enhance corporate reputation, and align with industry expectations, making green innovation a tool for business credibility and trust. Moral motives arise from a genuine commitment to environmental responsibility, where businesses prioritize sustainability as an ethical obligation rather than a market-driven necessity. Beyond influencing green innovation adoption, organizational motive acts as a mediator between stakeholder pressure and green innovation, determining how SMEs internalize and respond to external demands. However, the extent to which SMEs adopt green innovation depends on how these pressures are internalized through organizational

motives. By fostering strong sustainability-driven motives, SMEs can translate regulatory, competitive, and customer pressures into initiative-taking green innovation strategies, ensuring both compliance and long-term resilience in an increasingly eco-conscious business environment.

Organizational Learning

Organizational learning is a key driver of green innovation adoption among SMEs, shaping their ability to adapt, innovate, and respond to sustainability challenges. It involves knowledge acquisition, experience-based learning, and continuous improvement, enabling businesses to integrate eco-friendly practices and comply with evolving regulations (Argote, Lee, & Park, 2021). SMEs that actively engage in learning processes, such as collaborating with industry experts, adopting best practices, and leveraging sustainability knowledge, are better equipped to implement green innovation strategies. Furthermore, organizational learning acts as a mediator between stakeholder pressure and green innovation adoption, influencing how SMEs interpret and internalize external demands. While regulatory, competitive, and customer pressures create incentives for sustainability, firms with strong learning capabilities transform these pressures into actionable strategies, ensuring both compliance and long-term environmental responsibility. By fostering a culture of continuous learning, SMEs can enhance their innovation capacity, improve operational efficiency, and strengthen their competitive position in an increasingly eco-conscious market.

Research Methodology

This study adopts a qualitative research approach, employing a literature review to examine the influence of stakeholder pressure, organizational motives, and organizational learning on the adoption of green innovation among SMEs in Thailand. Peer-reviewed articles were identified through searches in scholarly databases such as Scopus, Web of Science, and Google Scholar using targeted keywords aligned with the research objectives. From an initial pool of 219 articles in top-tier international journals between 2006 to 2024, 35 studies were selected based on predefined inclusion criteria: English language articles directly relevant to the research objectives. To strengthen the rigor of the review process, thematic synthesis was employed to analyze the selected studies. Key themes and recurring patterns were identified and organized under the core constructs of stakeholder pressure, organizational motives, and organizational learning. In addition, a comparative and critical synthesis was conducted to deepen academic insight and provide a more nuanced understanding of the interrelationships among these variables within the proposed framework. The findings from the synthesis informed the development of the conceptual framework and guided the formulation of research hypotheses for this study.

Results

Based on the literature review on the interrelationships between key variables, Figure 1 presents the conceptual framework developed for this study. The proposed model examines the influence of stakeholder pressure on organizational motives and organizational learning, which in turn drive the adoption of green innovation among SMEs in Thailand. By offering a comprehensive perspective on the factors shaping green innovation adoption, this framework offers strategic insights into how SMEs can respond to sustainability demands, thereby enhancing their competitiveness and resilience in an increasingly dynamic market environment.

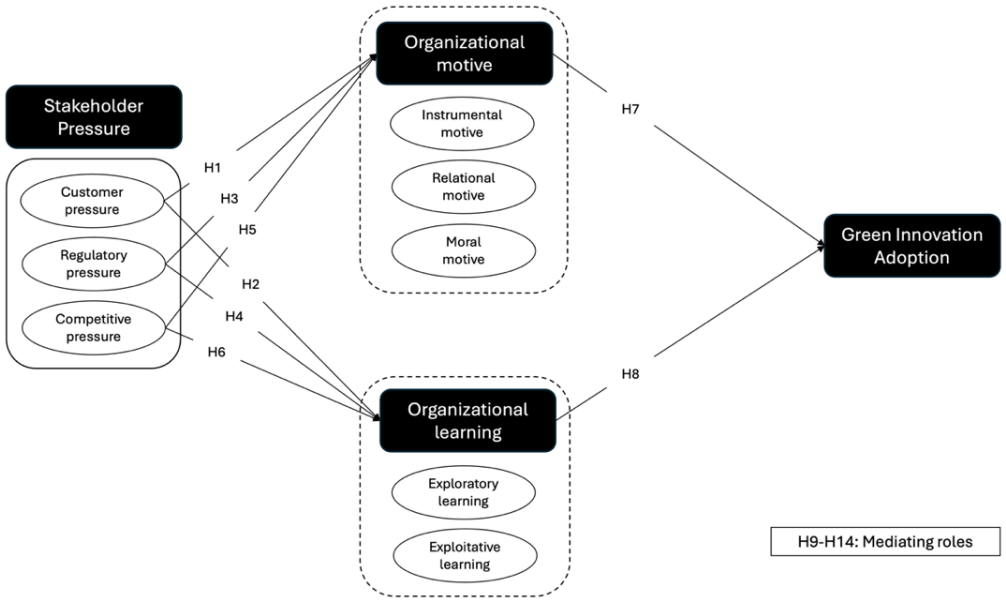


Figure 1: The Proposed framework

At the core of this framework lies the relationship between stakeholder pressure, organizational motives, organizational learning, and green innovation adoption in SMEs. Stakeholder pressure, comprising customer, regulatory, and competitive pressures, plays a crucial role in shaping how firms perceive and respond to sustainability demands. Customer pressure reflects the increasing preference for eco-conscious businesses, regulatory pressure stems from compliance requirements and industry standards, while competitive pressure compels firms to adopt green practices to maintain market relevance and differentiation. These external influences shape organizational motives (H1–H6) and organizational learning (H7–H8), which serve as key internal mechanisms for green innovation adoption. Organizational motives mediate the relationship between stakeholder pressure and green innovation adoption, determining how SMEs interpret and act upon external sustainability demands. These motives fall into three categories:

instrumental motives, which focus on financial incentives, regulatory compliance, and competitive positioning; relational motives, which emphasize stakeholder engagement, corporate reputation, and social expectations; and moral motives, which stem from a genuine commitment to environmental responsibility. SMEs with strong organizational motives are more likely to integrate sustainability into their core strategies (H7). Similarly, organizational learning serves as a critical mediator, equipping SMEs with the knowledge and capabilities needed for green innovation adoption. It consists of exploratory learning, which fosters experimentation with new sustainable technologies and business models, and exploitative learning, which focuses on refining and optimizing existing green initiatives. Firms that develop both learning mechanisms are better positioned to adapt to sustainability challenges and enhance innovation effectiveness (H8). This framework highlights that both organizational motives and learning mediate the impact of stakeholder pressure on green innovation adoption (H9–H14), ensuring that SMEs effectively transform external pressures into initiative-taking sustainability strategies. By examining these relationships, this study provides valuable insights into how SMEs can leverage stakeholder influence, foster internal drivers, and enhance organizational learning to support sustainable innovation. The proposed model serves as a strategic guide for improving sustainability performance, meeting regulatory expectations, and maintaining competitiveness in an eco-conscious market. Based on this framework, the following hypotheses are proposed:

H1: Customer pressure has a positive impact on organizational motivation.

H2: Customer pressure has a positive impact on organizational learning.

H3: Regulatory pressure has a positive impact on organizational motive.

H4: Regulatory pressure has a positive impact on organizational learning.

H5: Competitive pressure has a positive impact on organizational motive.

H6: Competitive pressure has a positive impact on organizational learning.

H7: Organizational motive has a positive impact on green innovation adoption.

H8: Organizational learning has a positive impact on green innovation adoption.

H9: Organizational motive mediates the relationship between customer pressure and green innovation adoption.

H10: Organizational learning mediates the relationship between customer pressure and green innovation adoption.

H11: Organizational motive mediates the relationship between regulatory pressure and green innovation adoption.

H12: Organizational learning mediates the relationship between regulatory pressure and green innovation adoption.

H13: Organizational motive mediates the relationship between competitive pressure

and green innovation adoption.

H14: Organizational learning mediates the relationship between competitive pressure and green innovation adoption.

Conclusions and Discussion

The conceptual framework developed in this study highlights the role of stakeholder pressure, organizational motives, and organizational learning in driving green innovation adoption among SMEs in Thailand. Regulatory, competitive, and customer pressures function as external forces that influence how firms internalize and respond to sustainability demands. These are mediated by organizational motives—instrumental, relational, and moral—and supported by learning processes such as exploratory and exploitative learning, which together enable SMEs to convert external pressures into effective green innovation strategies.

Beyond its theoretical contributions, the framework offers practical guidance for SME leaders, policymakers, and sustainability advocates. In the face of rising regulatory demands, market competition, and shifting consumer expectations, understanding the link between stakeholder pressure and internal enablers is key to sustaining relevance and competitiveness. SMEs can adopt customer-driven green practices, ensure regulatory compliance, and differentiate through sustainable strategies.

To effectively internalize stakeholder expectations, SMEs must cultivate strong organizational motives that drive sustainable commitment—whether through economic incentives (instrumental), stakeholder engagement (relational), or ethical values (moral). Actions may include obtaining green certifications, implementing transparent reporting, and cultivating a culture of environmental responsibility.

Finally, strengthening organizational learning equips SMEs with an ability to navigate sustainability challenges. Exploratory learning drives innovation through experimentation, while exploitative learning refines existing green practices. These capabilities can be enhanced through cross-sector collaboration, sustainability training, and internal knowledge sharing platforms.

By aligning stakeholder expectations with internal motivations and learning strategies, SMEs can successfully adopt green innovations that not only improve environmental performance but also strengthen business competitiveness. Firms that embrace sustainability-driven innovation benefit from regulatory compliance, operational efficiency, enhanced stakeholder trust, and access to emerging green market opportunities. Importantly, this framework contributes to the green innovation literature by presenting an integrated model that illustrates how various forms of stakeholder pressure are internalized through distinct organizational motives and supported by internal learning

processes. While previous studies have often explored these factors separately, this study bridges the gap by unifying them within a single framework. It introduces theoretical novelty by emphasizing the mediating role of internal drivers in transforming external sustainability pressures into concrete innovation outcomes. As such, the framework not only advances theoretical understanding but also offers a foundation for future empirical validation and cross-context comparisons in sustainability research.

This study presents a comprehensive framework that examines the interplay between stakeholder pressure, organizational motives, organizational learning, and green innovation adoption among SMEs. As sustainability becomes a core business priority, SMEs must effectively navigate regulatory demands, market competition, and evolving consumer expectations to implement green innovation effectively. This framework emphasizes how organizational motives help firms internalize external pressures and translate them into strategic sustainability initiatives. Organizational learning further supports this process by equipping SMEs with the knowledge and adaptability to implement and refine eco-friendly practices.

By positioning motives and learning as internal enablers, the model illustrates how SMEs can transform sustainability pressures into initiative-taking innovation strategies, enhancing compliance and market competitiveness. Green innovation not only improves efficiency and resource use but also builds brand reputation, stakeholder trust, and long-term resilience. For business leaders and policymakers, the framework offers insights into fostering a sustainability-oriented mindset, highlighting the importance of internal motivation and continuous learning. Embracing this approach enables SMEs to turn environmental challenges into strategic advantages in an increasingly eco-conscious market.

References

Argote, L., Lee, S., & Park, J. (2021). Organizational Learning Processes and Outcomes: Major Findings and Future Research Directions. Management Science, 67(9), 5399–5429. https://doi.org/10.1287/mnsc.2020.3693

Chen, Y.-S., Lai, S.-B., & Wen, C.-T. (2006). The Influence of Green Innovation Performance on Corporate Advantage in Taiwan. Journal of Business Ethics, 67(4), 331–339. https://doi.org/10.1007/s10551-006-9025-5

Dangelico, R. M., & Pujari, D. (2010). Mainstreaming Green Product Innovation: Why and How Companies Integrate Environmental Sustainability. Journal of Business Ethics, 95(3), 471–486. https://doi.org/10.1007/s10551-010-0434-0

Paweenawat, S. W., & Korwatanasakul, U. (2020, July 2). Empowering Thai SMEs to join global value chains: Policy priorities under COVID-19. Retrieved August 2, 2024,

from Asia Pathways website: https://www.asiapathways-adbi.org/2020/07/empowering-thai-smes-join-global-value-chains-policy-priorities-under-covid-19/.

Shahzad, M., Qu, Y., Ur Rehman, S., Ding, X., & Razzaq, A. (2023). Impact of stakeholders' pressure on green management practices of manufacturing organizations under the mediation of organizational motives. Journal of Environmental Planning and Management, 66(10), 2171–2194. https://doi.org/10.1080/09640568.2022.2062567

Soewarno, N., Tjahjadi, B., & Fithrianti, F. (2019). Green innovation strategy and green innovation: The roles of green organizational identity and environmental organizational legitimacy. Management Decision, 57(11), 3061–3078. https://doi.org/10.1108/MD-05-2018-0563

Takalo, K. S., Tooranloo, S. H., & Parizi, S. Z. (2021). Green innovation: A systematic literature review. Journal of Cleaner Production, 279, 122474. https://doi.org/10.1016/j.jclepro.2020.122474

Wang, H., Khan, M. A. S., Anwar, F., Shahzad, F., Adu, D., & Murad, M. (2021). Green Innovation Practices and Its Impacts on Environmental and Organizational Performance. Frontiers in Psychology, 11, 553625. https://doi.org/10.3389/fpsyg.2020.553625

The Impact of Financial Literacy on The Performance of Enterprise Managers - A Study of Small and Medium-Sized Enterprises in Guilin, Guangxi, China

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Abstract

Small and medium-sized enterprises have an extremely important role in the national economy, so this study aims to investigate the impact of financial knowledge on SME manager's performance in Guilin, China. The study conducted a questionnaire survey of 408 SME managers in Guilin City using random simple sampling and further tested the research hypotheses. The data was analyzed by using descriptive statistics, correlation analyses and multiple regression. The results of the study show that the respondents are gender balanced, and many managers are 31-50 years old, 88 percent are well educated, the businesses are small, but 43.38 percent of them have good annual revenues. In addition, the hypothesis testing results reveal that financial literacy (financial knowledge, financial awareness, financial attitude, and financial capability) all have a positive impact on enterprise manager performance. This study extends the research framework of financial literacy in business management and filling an important gap in the study of financial literacy in Chinese SMEs. Policy recommendations are provided for governments, financial institutions, enterprises, and educators.

Keywords: Financial Literacy, SMEs, Manager Performance, Guilin City

Introduction

Currently, the number of small and medium-sized enterprises (SMEs) in China accounts for more than 98.64% of the total number of enterprises, and SMEs play an extremely important role in the national economy (Laina & Wahyudin, 2023). However, the mortality rate of SMEs in China has increased from 33.42 percent in 2013 to 40.56 percent in 2017, especially in 2021, when about 4.37 million small businesses in China went bankrupt (Li, 2024). Over the past two decades, scholars and policy makers in both developed and developing countries have recognised that financial knowledge of business managers is crucial for the survival and development of SMEs (Sembiring, 2022). However,

there is currently no research paper on the impact of financial literacy on SME managers' performance in China. Therefore, this study fills the research gap in this area in China by analysing the impact of financial literacy on managerial performance in Guilin SMEs. The findings will provide valuable insights for policy makers to support the sustainable development of SMEs in China.

Objectives

To investigate the impact of financial literacy on the performance of managers of SMEs enterprise in Guilin, Guangxi, China.

Literature Review

The Financial Consumer Protection Bureau of the People's Bank of China conducted a national financial literacy survey in 2019, dividing financial literacy into four dimensions which are financial attitude, financial behaviour, financial knowledge and financial skills (PBOC, 2019).

Financial knowledge is essential for the performance development of SME managers (Hasibuan et al., 2022). When SME managers have more knowledge, they will have stronger financial capabilities and be able to more accurately assess the financial status of the enterprise, thereby improving the performance of business managers (Xochitl et al., 2022). Financial awareness helps investors process information in financial activities, helps make judgments, reduces transaction costs, increases investment shares, and thus increases the possibility of investment (Makdissi et al., 2020). Financial awareness has a positive impact on the performance of SME managers (Xochitl et al., 2022). It is essential for SME managers to cultivate a positive financial attitude. The better the financial knowledge and financial attitude that SME managers have, the more confident they will be when making financial decisions, thereby improving the performance of business managers and achieving sustainable growth (Dwyanti, 2024). Financial capabilities play an important role in the business success of SMEs, especially the conceptual, technical, strategic, leadership and relationship capabilities of business managers, which contribute significantly to business success (Sualeh et al., 2021). Consistent with this assertion, Lizzy and Makhamara (2024) indicate that financial capabilities have a significant positive impact on the performance of SME managers. Overall, the improvement of financial literacy can effectively promote the performance of managers, thereby promoting the stable growth and market competitiveness of enterprises (Mihardjo & Ningtyas, 2023).

Related Research Theories

This study uses the financial literacy theory, the top echelon theory, as the basis and support of the study.

Financial literacy theory is a widely used theoretical framework in the field of financial literacy research. Financial literacy theory is an evolving theory that incorporates theories from economics, sociology, psychology, and management to explain how individuals and business managers make financial decisions (Ingale & Paluri, 2020). This study will build a conceptual framework based on financial literacy theory to assess the level of financial literacy of SME managers in Guilin, Guangxi, and its impact on enterprise manager's performance through quantitative analysis.

Upper echelons theory was first proposed by Hambrick and Mason (1984), who argued that the personal characteristics of top managers in terms of experience, values and cognitive abilities affect the strategic choices and organisational performance of a firm. The upper echelons theory suggests that the situations faced by decision makers in firms are complex and decision makers make decisions based on their own cognitive bases and values, which emphasises the importance of personal financial literacy in decision making (Saiyed et al., 2023). The main target of this study is SME managers, who are the core senior decision makers in their organisations. The upper echelons theory provides a theoretical framework and empirical support for SME managers to improve financial literacy, optimise financial decision-making and enhance enterprise manager's performance.

Concept theory framework

Based on various phenomena and research findings, SME managers' performance is influenced by financial literacy. Therefore, the research framework is as follows.

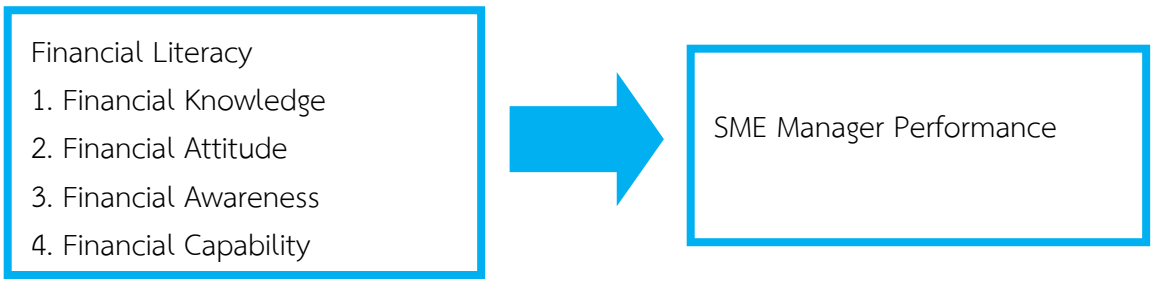


Figure 1: Conceptual Framework

This study proposes the following hypothesis.

H1: Financial knowledge influences SME manager performance.

H2: Financial awareness influences SME manager performance.

H3: Financial attitude influences SME manager performance.

H4: Financial capability influences SME manager's performance.

H5: Financial literacy influences SME manager performance.

Materials and Methods

This study was conducted using quantitative methods. The study population is 404,200 SME managers in Guilin City, Guangxi, China. Yamane's formula was used to calculate the sample size of 408 SME managers in Guilin. The study will adopt a random simple sampling method for questionnaire data collection. The validity index (IOC) score of the questionnaire was 0.725. The reliability of Cronbach's alpha was tested using the alpha coefficient method, which resulted in an overall score of 0.936, indicating a high quality of data reliability. The data collected will be statistically analysed using percentages, correlation analysis and multiple regression.

Results

By analysing the questionnaire survey of SME managers in Guilin, the following basic information of the respondents was obtained.

Table 1: Descriptive statistics for demographic information

Question	Options	Frequency	Percentage (%)	Cumulative percentage (%)
Gender	Male	232	56.86	56.86
	Females	176	43.14	100
Age	25-30 years	112	27.45	27.45
	31-40 years	111	27.21	54.66
	41-50 years old	121	29.66	84.31
	Above 50 years old	64	15.69	100
Educational attainment	Bachelor's Degree	232	56.86	56.86
	Master's Degree	129	31.62	88.48
	Doctoral Degree	41	10.05	98.53
	Others	6	1.47	100
Term of office	1-3 years	109	26.72	26.72
	4-6 years	118	28.92	55.64
	7-10 years	127	31.13	86.76
	More than 10 years	54	13.24	100
Training status	Never	5	1.23	1.23
	Rarely (1 to 2 times per year)	186	45.59	46.81
	Sometimes (3-4 times per year)	140	34.31	81.13
	Often (5 to 6 times per year)	49	12.01	93.14
	Always (more than 6 times per year)	28	6.86	100

Question	Options	Frequency	Percentage (%)	Cumulative percentage (%)
Business type	Manufacturing	167	40.93	40.93
	Non-Manufacturing	241	59.07	100
Form of business organization	Sole proprietorship	71	17.4	17.4
	Cooperative society	11	2.7	20.1
	Partnership	124	30.39	50.49
	Joint venture	91	22.3	72.79
	Private limited company	100	24.51	97.3
	Others	11	2.7	100
Age of business	Less than 5 years	163	39.95	39.95
	5 - 10 years	136	33.33	73.28
	More than 10 years	109	26.72	100
Number of employees	Medium manufacturing: 150≤ X < 500	81	19.85	19.85
	Small manufacturing: X <150	86	21.08	40.93
	Medium non-manufacturing: 100≤X<300	133	32.6	73.53
	Small non-manufacturing: X<100	108	26.47	100
Annual income	Less than CNY 20 million	43	10.54	10.54
	CNY 20 million- CNY 300 million	188	46.08	56.62
	More than CNY 300 million	177	43.38	100
Add up the total		408	100	100

Table 1 reflects the demographic and business characteristics of SME managers. The gender distribution of the respondents is balanced, 56.87 per cent of the managers are between 31 and 50 years of age, appropriately 88 percent of the respondents are well educated and have work experience. The size of the business is small, but the annual revenue of the business is good, reflecting strong profitability and competitiveness.

Table 2: Correlation between financial knowledge, financial attitude, financial awareness, financial capability, and managerial performance

	Average value	Standard deviation	Financial Knowledge	Financial Awareness	Financial Attitude	Financial capability	Enterprise manager performance
Financial Knowledge	3.530	0.914	1				
Financial Awareness	3.477	0.950	0.445**	1			

	Average value	Standard deviation	Financial Knowledge	Financial Awareness	Financial Attitude	Financial capability	Enterprise manager performance
Financial Attitude	3.484	0.934	0.415**	0.390**	1		
Financial capability	3.436	0.934	0.406**	0.453**	0.390**	1	
Enterprise manager performance	3.487	0.896	0.409**	0.462**	0.441**	0.423**	1

* p<0.05 ** p<0.01

Based on the data in Table 2, it can be concluded that financial knowledge, financial awareness, financial attitude, and financial capability are not only interrelated but also have a significant positive effect on enterprise manager performance. This suggests that enhancing financial literacy (including knowledge, awareness, attitude, and capability) of enterprise managers is important in improving their performance.

Table 3: Regression Analysis of Financial Literacy and Corporate Manager Performance

	Unstandardised coefficients		Standardised coefficient	t	p	Covariance Diagnostics	
	B	Standard error	Beta			VIF	Tolerance
Constant	0.913	0.185	-	4.946	0.000**	-	-
Financial Knowledge	0.140	0.047	0.143	2.962	0.003**	1.418	0.705
Financial Awareness	0.220	0.046	0.234	4.790	0.000**	1.449	0.690
Financial Attitude	0.214	0.045	0.223	4.749	0.000**	1.343	0.744
Financial capability	0.165	0.046	0.172	3.587	0.000**	1.402	0.713
Financial literacy	0.741	0.052	0.579	14.305	0.000**	1.000	1.000

R^2 =0.338, Adjusted R^2= 0.331, F (4,403) =51.381, p=0.000

*p<0.05, **p<0.01

Table 3 shows that the R^2 value of the regression model is 0.338 indicating that financial knowledge, financial awareness, financial attitude, financial capability, and financial literacy together explain 33.8% of the variance in enterprise manager's performance. The adjusted R^2 value of 0.331 further confirms the fit of the model. The results of the F-test indicate that the model is overall significant, (F (4,403) = 51.381, p= 0.000), suggesting that this set of independent variables has significant predictive power for enterprise manager's performance. In addition, the results of the regression analysis showed that financial literacy (financial knowledge, financial awareness, financial attitude,

and financial capability) all had a significant positive effect on enterprise manager's performance ($p< 0.01$). Among them, the effect of financial awareness is the most significant.

Therefore, these results support hypotheses H1, H2, H3, H4 and H5.

Conclusions and Discussion

Based on the survey data of 408 SME managers in Guilin City, this study utilizes the financial literacy theory, the upper echelons theory, to explain the impact of financial literacy on the performance of business managers. It is found that the four dimensions of financial literacy (financial knowledge, financial awareness, financial attitude, and financial capability) have a significant positive impact on business manager performance. The result supports the argument made by Margijoyo et al. (2024) that improved financial literacy leads to better financial decision-making and improved overall business performance, competitive advantage and sustainability.

To improve SME managers' performance and promote sustainable enterprise development, this study will provide policy recommendations for governments, financial institutions, enterprises, and educators. Policymakers can incorporate financial education into SME development strategies, provide targeted training, and promote financial literacy programmes through financial incentives such as tax breaks and subsidies. Financial institutions provide smart financial management tools for business managers to improve the efficiency of their financial decision-making by developing tailor-made financial education programmes. Enterprises establish systematic financial training mechanisms, such as training courses on financial knowledge and financial skills, to improve the financial literacy of managers, optimise financial management and enhance market competitiveness. Educators should incorporate financial literacy into corporate curricula, emphasising financial market trends and long-term financial planning, to ensure that SME managers are able to continuously upgrade their financial skills.

This study focuses on small and medium-sized enterprises (SMEs) in Guilin City, and the scope of the sample is limited to Guilin City, which has limitations. In addition, this study is carried out in the form of a questionnaire, which has relatively many questions, which tends to make the respondents fill in the questionnaire without patience to fill in the questionnaire, thus affecting the validity of the data.

Recommendations for Future Research

Future research can expand the study to other cities and regions beyond Guilin to broaden the scope of the study. A combination of quantitative and qualitative research methods, such as in-depth interviews and case studies, can be used to explore the

behavioral characteristics of financial literacy and its impact on managerial decision-making in greater depth and to enhance the rigor of this paper's argumentation. The dependent variables are not sufficient, and future research can include psychological factors, entrepreneurial ability, and so on. Finally, the time span of this study is short, and future research could conduct a long-term follow-up study to observe the changes in financial literacy and its long-term impact on SME managers' performance.

By exploring the above research directions, future studies can further enrich the academic discussion of financial literacy and SME performance, provide valuable references for policy makers, financial institutions, and business educators, and contribute to the sustainable development of SMEs.

References

Dwyanti, D. (2024). The importance of financial literacy in financial management in micro, small and medium enterprises (MSMEs). Journal of Applied Management and Business, 5(1), 1–6. https://doi.org/10.37802/jamb.v5i1.661

Hambrick, D., & Mason, P. (1984). Upper echelons: The organization as a reflection of its top Managers. Academy of Management Review, 9, 193-206. https://doi.org/10.5465/amr.1984.4277628

Hasibuan, L., Handayani, S., & Bismala, L. (2022). Analisis perbedaan tingkat literasi keuangan pelaku ukm. Jurnal Ilmiah Ekonomi Dan Bisnis, 19(1), 86–93. https://doi.org/10.31849/jieb.v19i1.7410

Ingale, K., & Paluri, R. (2020). Financial literacy and financial behaviour: A bibliometric analysis. Review of Behavioral Finance, 14(1), 130–154. https://doi.org/10.1108/RBF-06-2020-0141

Laina, S., & Wahyudin, D. (2023). Indonesia and Singapore fiscal stimulus comparison to empower SMEs and its implication on the tax ratio. International Journal of Scientific and Research Publications, 13(4), 21–31. https://doi.org/10.29322/IJSRP.13.04.2023.p13605

Li, H. (2024). Financing challenges and strategies for small and medium enterprises in China. Highlights in Business, Economics and Management, 34, 77–83. https://doi.org/10.54097/tpgmak54

Lizzy, A., & Makhamara, F. (2024). Operational and financial capabilities and performance of selected manufacturing small and medium enterprises in Nairobi City County, Kenya. Strategic Journal of Business & Change Management, 11(2). https://doi.org/10.61426/sjbcm.v11i2.2905

Makdissi, R., Nehme, A., & Chahine, R. (2020). The influence of financial culture on SME's financial performance. Journal of Financial Risk Management, 9(1), 1-22. https://doi.org/10.4236/jfrm.2020.91001

Margijoyo, P., Ratnawati, K., & Aisjah, S. (2024). The influence of financial literacy and the use of financial technology on business performance through financial inclusion. International Journal of Research in Business and Social Science, 13(5), 596-606. https://www.ssbfnet.com/ojs/index.php/ijrbs/article/view/3514

Marta, C., Martínez-Martínez, S., & Diéguez-Soto, J. (2021). Financial literacy and innovation performance in SMEs: The mediating effect of risk-taking (pp. 58–81). https://doi.org/10.4018/978-1-7998-7634-2.ch004

Mihardjo, R., & Ningtyas, M. (2023). Financial literacy, network competency, market orientation and financial performance: A study from bandung SMEs. Diponegoro International Journal of Business, 6(1), 36–41. https://doi.org/10.14710/dijb.6.1.2023.36-41

PBOC, P. (2019). Consumer Financial Literacy Survey 2019 Summary Report. Bureau of Financial Consumer Protection, People's Bank of China.

Saiyed, A., Tatoglu, E., Ali, S., & Dutta, D. (2023). Entrepreneurial orientation, CEO power and firm performance: An upper echelons theory perspective. Management Decision, 61(6), 1773–1797. https://doi.org/10.1108/MD-05-2022-0641

Sembiring, S. (2022). Financial literacy impact on small-medium enterprises development and sustainability in Indonesia. Asian Journal of Accounting and Finance, 4(4), Article 4.

Sualeh, M., Kamal, A., & Akram, M. (2021). The impact of managerial competencies on financial performance of SMEs with the mediating role of competitive advantage. NICE Research Journal, 14(4), 1-18. https://doi.org/10.51239/nrjss.vi.315

Xochitl, X., Rodríguez-Ortiz, M., Villagrán-Rueda, S., & Fuentes Favila, L. M. (2022). Financial education in SMEs versus business failure. Journal Schools of Economic Thought and Methology, 6(11), 12-18. https://doi.org/10.35429/JSETM.2022.11.6.12.18

The Effect of Compensation on Teacher Job Satisfaction: A Case Study of Private Undergraduate Higher Education Institutions in Guangzhou City, Guangdong Province, China

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Abstract

This study focuses on teachers in private undergraduate colleges in Guangzhou, Guangdong Province, and studies the impact of compensation on teachers' job satisfaction. Under the guidance of equity theory, quantitative research methods were selected, and SPSS20.0 was used to perform descriptive statistics and correlation analysis on the questionnaires collected and distributed through Questionnaire Star. Through a survey of 393 faculty members, the results show that compensation has an extremely significant impact on teachers' job satisfaction, and the impact is correlated. The study also found that the current teachers' satisfaction with benefits is high, but there are significant differences among individuals. Finally, this study provides suggestions on optimizing the compensation structure, focusing on shaping a sense of fairness and personalized management, and providing countermeasures and recommendations for improving the job satisfaction and stability of the teaching staff.

Keywords: Teacher Job Satisfaction, Compensation, Private Higher Education Institutions

Introduction

To further consolidate the legal status of private education and provide strong and effective legal protection, China promulgated the "Law of the People's Republic of China on Promoting Private Education" (People's Congress of the People's Republic of China, 2002). Since then, the number of private higher education institutions has increased from 300 to 789, accounting for 25.97% of the total number of higher education institutions in the country (Ji, 2008; Ministry of Education, 2024). With the vigorous development of private higher education, the number of faculty and staff engaged in it has also continued to grow. Teachers in private education also bear important social responsibilities (Bouguila,

2013), and the job satisfaction of these teachers should also be taken seriously.

Private undergraduate higher education is an important part of China's higher education (Zhou & Zhu, 2024), and it is inseparable from a high-quality teaching staff (Liu, 2024). Therefore, this study takes teachers from private undergraduate higher education institutions in Guangzhou, Guangdong Province as the research object to explore the impact of compensation on teacher job satisfaction. It is hoped that a reasonable compensation policy can be used to improve teachers' job satisfaction and further improve the stability of the teaching staff and education quality of private education.

Objective

The objective of this research paper is to verify whether cash compensation and benefits have an impact on teacher job satisfaction.

Literature Review

Guangzhou and private higher education in Guangzhou

Guangzhou, referred to as Sui, is the capital city of Guangdong Province and an important economic, cultural, transportation and technological center in southern China (Zhou et al., 2022). Located on the northern edge of the Pearl River Delta, it has an important strategic position as the core city of the Guangdong-Hong Kong-Macao Greater Bay Area (The State Council of the People's Republic of China, 2016).

According to the Ministry of Education's National List of General Institutions of Higher Education, Guangdong Province ranks among the top three in the country in terms of the number of private universities, with Guangzhou leading the province with 15 private general undergraduate colleges (Ministry of Education, 2024). In addition, the quality of education in private universities has been significantly improved through measures such as strengthening the construction of teaching staff, improving teaching facilities, and optimizing curriculum settings. Based on the advantages in quantity and quality, this study will focus on this area to provide useful references and suggestions for the development of private higher education.

Compensation

According to George T. Milkovich, who believed that compensation is the sum of various monetary incomes and various specific services and benefits obtained by employees as one party in the employment relationship (Milkovich et al., 2014). Therefore, in this research, compensation is divided into two parts: cash compensation and benefit. Cash compensation includes base pay, merit pay, cost-of-living adjustment and incentives/variable pay. Benefits include income protection, work/life balance and allowances.

Teacher job satisfaction

According to Chinese scholars Chen and Sun, Teacher job satisfaction is a teacher's overall emotional feeling and opinion about the profession, working conditions and status (Liu & Niu, 2023).

The effect of compensation on teacher job satisfaction

Previous literature depicts that compensation as one of the key factors affecting teachers' job satisfaction (Ellickson & Logsdon, 2002; Hardi Jatmiko et al., 2024). However, if it is subdivided according to the definition of compensation, the impact of its various components on job satisfaction shows different research results. Some scholars tend to believe that cash compensation has a more significant impact on teachers' job satisfaction, while some scholars believe that benefit is more significant in affecting teachers' job satisfaction (Kumar, 2016; Sinniah, 2019). Another key reason for the two different conclusions is that they did not fully consider the different natures of the schools.

Theoretical Framework

This study aims to explore the impact of compensation on teacher job satisfaction and takes equity theory as the theoretical basis. Equity theory was proposed by American behavioral scientist J. Stacy Adams. The theory focuses on how individuals perceive and evaluate the fairness between their own work and rewards and those of others. The work input and rewards mentioned here should be understood in two aspects. First, individuals will compare work input and rewards; second, individuals will compare their own work input and rewards with the work input and rewards of others (Kurt, 2023).

The equity theory model in this study evaluates teachers' compensation satisfaction by comparing their input-output ratio with that of others. This comparison includes not only horizontal comparison with colleagues, but also vertical comparison with their own past. When teachers believe that their compensation matches their input and is equal to the comparison results of others or the past, they will feel fair, thereby improving their job satisfaction. Conversely, when teachers believe that their compensation does not match their input, or the comparison results with others or the past are not equal, they will feel unfair, which will affect their job satisfaction. (Meng et al., 2022).

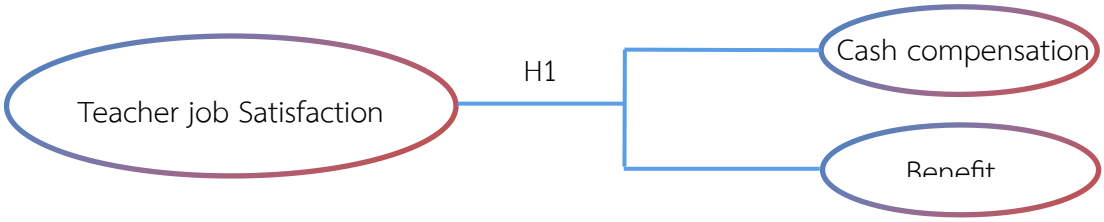


Figure 1: conceptual Framework

Based on the above framework (Refer Figure 1), this study makes the following hypotheses:

H1: Cash compensation and benefits both affect teacher job satisfaction.

Materials and Methods

This study uses a quantitative research method to quantitatively investigate the impact of compensation on teacher job satisfaction by distributing questionnaires (Dewaele, 2018). The focus is on 15 private undergraduate colleges and universities in Guangzhou, Guangdong Province, and a survey is conducted on 20,355 teachers. According to the Taro Yamani formula: $n=N/1+N(e^2)$. It was determined that a total of 393 questionnaires needed to be collected in the study (Bello et al., 2022), and the questionnaires were distributed through convenient sampling (Noor et al., 2022). This ensures that each sample in the population has the same chance of being selected, which ensures that the sample is representative. At the same time, it can reduce the sampling bias and make the research results fairer and more reliable.

The questionnaire used in this study consists of three parts: the first part collects basic information about teachers, including gender, age, marital status and other nine aspects (Hou, 2021; Huang & Song, 2024). The second part is compensation, covering two dimensions: cash compensation and benefits (Milkovich et al., 2014). The third part has 11 questions about job satisfaction (Hou, 2021). There are 34 questions in total in the three parts, of which the second and third parts are scored using the Likert five-point scoring method, with "very dissatisfied/no impact at all" scored as 1 point and "very satisfied/very big impact" scored as 5 points. (James, 2014). The questionnaire passed the pre-test, and the results showed that the Cronbach α coefficient was 0.971, greater than 0.9, the KMO was 0.720, greater than 0.7, and the significance value $p=0.000<0.05$. This indicates that the questionnaire has appropriate reliability and validity (Ji et al., 2022; Cerri et al., 2023). The questionnaire was distributed through the WeChat work group and collected on the Questionnaire Star platform. After screening, 393 valid questionnaires were obtained, and SPSS20.0 was used to perform descriptive statistics and correlation analysis on the data (Singh et al., 2021).

Results

Sample characteristics description

The valid data show that there are 350 females, accounting for 89.06%, and 43 males, accounting for 10.94%; 213 unmarried teachers, accounting for 54.2%, and 180 married teachers, accounting for 45.8%; 171 teachers are 30 years old or below, accounting

for 43.51%, 118 teachers are 31-40 years old, accounting for 30.03%, 15 teachers are 41-50 years old, accounting for 3.82%, and 89 teachers are over 50 years old, accounting for 22.65%; 278 teachers have a doctoral degree, accounting for 70.74%, 115 teachers have a master's degree, accounting for 29.26%, and teachers with a bachelor's degree or below did not appear in the sample; 129 teachers have a teaching experience of 3 years or less, accounting for 32.82%, and 9-12 teachers have a teaching experience of 2 years or less. There are 125 people with teaching experience, accounting for 31.81%; 115 people with teaching experience of more than 12 years, accounting for 29.26%; 24 people with teaching experience of 4-8 years, accounting for 6.11%; 113 people with the title of lecturer, accounting for 28.75%; 114 people with the title of associate professor, accounting for 29.01%; 140 people with the title of teaching assistant, accounting for 35.62%; 16 people with the title of professor, accounting for 4.07%; 10 people with no title, accounting for 2.54%; 140 people with a monthly salary of 5001-6500 yuan, accounting for 35.62%; 122 people with a monthly salary of more than 6501 yuan, accounting for 31.04%; 76 people with a monthly salary of 3501-5000 yuan, accounting for 19.34%; 55 people with a monthly salary of less than 3500 yuan, accounting for 13.99%.

Variable Description

Table 1: Related variable descriptive analysis

Variable	Mean	Standard Deviation	Variance
X1: Cash compensation	3.63	1.27	1.60
X2: Benefit	3.81	1.19	1.42
Y: Teacher job satisfaction	3.80	1.20	1.44

According to Table 1, cash compensation and benefits are one of the important factors affecting teachers' job satisfaction. Teachers' satisfaction with current cash compensation is above average, and their satisfaction with benefits is even higher. Teachers' overall job satisfaction is at a high level. However, the variance and standard deviation of each variable are high, which indicates that there are large individual differences in teachers' satisfaction with these factors.

Correlation analysis between compensation and teacher job satisfaction

Table 2: Correlation analysis results

	Mean	Standard deviation	Cash compensation	Benefits	Teacher job satisfaction
Cash compensation	3.638	1.014	1		
Benefits	3.814	0.959	0.394**	1	
Teacher job satisfaction	3.797	0.940	0.497**	0.453**	1

p** < 0.01 indicates an extremely significant correlation

According to Table 2, cash compensation and benefits have an impact on teachers' job satisfaction. The correlation coefficients of cash compensation, benefits and teachers' job satisfaction are 0.497 and 0.453 respectively, reaching an extremely significant level. This shows that the higher the cash compensation and benefits of teachers, the higher the job satisfaction of teachers. Cash compensation and benefits are an effective means to improve teachers' job satisfaction (Sriadmitum et al., 2023). Therefore, formulating a reasonable compensation policy is conducive to improving the job satisfaction of teachers in private undergraduate colleges.

Conclusions and Discussion

The results show that there is a high significant level of positive correlation between cash compensation and benefits and teacher job satisfaction. Likewise, the analysis results of the data show that teachers are more satisfied with their current benefits than with cash compensation. This may be related to the diversity and non-monetary characteristics of benefits, which can also have a positive impact on teacher job satisfaction (Kassim & Onyango, 2022).

The school management should establish a fair and transparent compensation distribution mechanism. This would enable the compensation of teachers to match their work input and create a fair working atmosphere among the teacher group. Similarly, it was found that private undergraduate colleges and universities should pay attention to the optimization of the compensation system. A reasonable compensation system should not only be reflected in the reasonable compensation level and structure in terms of cash compensation but also pay attention to the diversification and personalized design of benefits (Kang & Lee, 2021).

Furthermore, the analysis results of the data show that the variance and standard deviation of each variable are high, which shows that there are large differences in teachers' perceptions of cash compensation, benefits, and job satisfaction. This may be related to factors such as teachers' age, marital status, and professional titles. Different teachers may have different satisfactions with the same cash compensation and benefits (Lu & Luo, 2021).

This study focuses on teachers in private undergraduate colleges and universities in Guangzhou, Guangdong Province, and uses quantitative research methods to explore the impact of compensation on teacher job satisfaction. The following main conclusions are drawn:

1. Cash compensation and benefits have a significant impact on teacher satisfaction. This conclusion verifies the hypothesis of this study (H1): Cash compensation and benefits both affect teacher job satisfaction. It also shows that the improvement of cash compensation and benefits can help improve teacher job satisfaction.
2. Teachers are satisfied with the benefits.
3. Individual differences are significant.

At the same time, through this study, the following insights are obtained:

1. Private colleges and universities must optimize the compensation structure.
2. The administrative level of management at private colleges and universities must pay attention to the shaping of a sense of fairness.
3. Finally, there must be a mechanism for the teachers to enhance their personalized management, satisfaction, and growth.

Holistically, the significant individual differences in teachers' compensation and job satisfaction, schools should adopt personalized management strategies. For example, for teachers with different teaching years, academic qualifications, and professional titles, differentiated compensation incentive plans and career development paths should be designed to meet their diverse needs and improve the satisfaction and stability of the overall teaching staff.

Thus, this research paves the way for future case studies and in-depth analysis into the teacher job satisfaction and ensuring higher job satisfaction among teachers. This would further reflect the transformation of a sustainable society and economy.

References

Bello, B., Sikiru, A., & Adinoyi, A. (2022). Relationship marketing and its impact on customer drive and retention motive of deposit money banks in nigeria. African Scholars Journal of Business Dev. And Management Res, 26(7). https://www.africanscholarpublications.com/wp-content/uploads/2022/11/AJBDMR_Vol26_No7_Sept_2022-10.pdf

Bouguila, S. (2013). Social responsibility of educators. International Journal of Educational Research and Technology, 4(1), 46–51. https://www.researchgate.net/publication/255724211

Cerri, L. Q., Justo, M. C., Clemente, V., Gomes, A. A. G., Pereira, A. S., & Marques, D. R. (2023). Insomnia severity index: A reliability generalisation meta‐analysis. Journal of Sleep Research, 32(4). https://doi.org/10.1111/jsr.13835

Dewaele, J.-M. (2018). Online Questionnaires. The Palgrave Handbook of Applied Linguistics Research Methodology, 1(1), 269–286. https://doi.org/10.1057/978-1-137-59900-1_13

Ellickson, M. C., & Logsdon, K. (2002). Determinants of Job Satisfaction of Municipal Government Employees. Public Personnel Management, 31(3), 343–358. https://doi.org/10.1177/009102600203100307

Hou, P. (2021). A study on job satisfaction of teachers in private higher vocational colleges in henan province.

Huang, D., & Song, Y. (2024). An empirical study on the level of burnout and influencing factors of teachers in private colleges and universities in Guangdong region. Advances in Education, 14(2), 1358–1368. https://doi.org/10.12677/ae.2024.142211

James, H. (2014). Some thoughts on likert-type scales. International Journal of Clinical and Health Psychology, 14(1), 83–86. https://doi.org/10.1016/S1697-2600(14)70040-7

Jatmiko, H., Setiadi, G., & Widjanarko, M. (2024). The influence of work environment and compensation on job satisfaction of public elementary school teachers. Journal of Social Sciences and Humanities, 3(4), 48–58. https://doi.org/10.53797/icccmjssh.v3i4.8.2024

Ji, L., Yao, X., Zuo, M., Zhou, J., Wang, X., Yu, L., & Yang, G. (2022). Reliability test of the chinese version of the chronic disease resource questionnaire in myocardial infarction patients. Chinese Journal of Health Statistics., 04.

Ji, Z. (2008). A study on the policy-making process of private education in my country——Taking the “law of the people’s republic of china on promoting private

education" and its implementing regulations as an example. In Wanfangdata.com.cn. https://d.wanfangdata.com.cn/thesis/Y1310665

Kang, E., & Lee, H. (2021). Employee compensation strategy is a sustainable competitive advantage for HR education practitioners. Sustainability, 13(3), 1049. https://www.mdpi.com/2071-1050/13/3/1049

Kassim, I., & Onyango, D. O. (2022). Role of non-Monetary incentives on teachers' job performance in public secondary schools in ilemela district.

Kurt, S. (2023). Equity theory: Definition, origins, components, and examples. Education Library. https://educationlibrary.org/equity-theory-definition-origins-components-and-examples/

Liu, C. (2024). Ideological guidance and practical direction for high-quality development of the teaching staff. People's Tribune, 020.

Liu, Y., & Niu, J. (2023). An empirical study on influencing factors of middle school teachers' job satisfaction in the us—an HLM analysis based on TALIS dataset. Advances in Psychology, 13(12), 5782–5793. https://doi.org/10.12677/ap.2023.1312735

Lu, C., & Luo, S. (2021). The relationship between work-family facilitation and job satisfaction of kindergarten teachers: multiple mediating effects of psychological capital and work engagement. Studies in Early Childhood Education, 05.

Milkovich, G. T., Newman, J. M., & Gerhart, B. (2014). Compensation. In thuvienso.hoasen.edu.vn. McGraw-Hill. https://thuvienso.hoasen.edu.vn/handle/123456789/11616

Ministry of Education. (2024). National list of higher education institutions. Www.moe.gov.cn. https://dxs.moe.gov.cn/zx/a/jj/230620/1844378.shtml

Noor, S., Tajik, O., & Golzar, J. (2022). Simple random sampling. International Journal of Education & Language Studies, 1(2), 78–82. https://doi.org/10.22034/ijels.2022.162982

People's Congress of the People's Republic of China. (2002, December 28). Law of the People's Republic of China on the Promotion of Private Education. Www.npc.gov.cn. http://www.npc.gov.cn/zgrdw/npc/xinwen/2019-01/07/content_2070265.htm

Singh, R., Subedi, M., Pant, S., Rai, P., Gupta, K., Thapa, A., Singh, K., Khan, A., Adhikari, K., Sharma, S., Shah, S., & Singh, B. (2021). Perception towards online teaching-learning in medical education among medical students during COVID-19 outbreak in nepal: A descriptive cross-sectional study. Journal of Nepal Medical Association, 59(234). https://doi.org/10.31729/jnma.5410

Sriadmitum, I., S. Sudarno, & Nyoto Nyoto. (2023). Leadership style, work environment, and compensation on job satisfaction and teacher performance. Journal of Applied Business and Technology, 4(1), 79–92. https://doi.org/10.35145/jabt.v4i1.122

The state council of the People's Republic of China. (2016). Reply of the State Council to the Approval of the Urban Master Plan of Guangzhou Municipality. Chinese Government Website. https://www.planning.org.cn/law/uploads/2016/02/4971_1455849607.pdf

Zhou, C., Zhan, M., An, X., & Huang, X. (2022). Social inclusion concerning migrants in guangzhou city and the spatial differentiation. Sustainability, 14(23), 15548. https://doi.org/10.3390/su142315548

Zhou, H., & Zhu, Y. (2024). Strategies and pathways for the high-quality transformation of non-governmental higher education institutions. Education & Economy, 05.

Enhancing Thailand's Tourism Performance through Government Support, Travel Agency Engagement, and E-Marketing Strategies

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Abstract

Thailand's tourism sector is a vital driver of economic growth, yet sustaining destination competitiveness post-pandemic remains a challenge. This study examines the impact of government support, travel agency engagement, and e-marketing strategies on Thailand's tourism performance, guided by the Destination Competitiveness and Sustainability Model (DCSM). Utilizing a quantitative cross-sectional survey, data were collected from 400 travel agency professionals, and Structural Equation Modeling (SEM) was applied to analyze key relationships. Findings indicate that government initiatives—such as visa exemptions and infrastructure investments—enhance destination competitiveness, while travel agencies contribute through customized experiences and sustainable tourism promotion. Digital marketing, particularly social media, and AI-driven tools, strongly influences competitiveness and attractiveness. Furthermore, destination competitiveness and attractiveness mediate the effects of strategic interventions on overall tourism performance. This study advances tourism research by integrating multiple factors into a cohesive development framework, emphasizing collaboration, digital innovation, and sustainable growth. Policy recommendations are proposed to strengthen Thailand's tourism strategy in the post-pandemic era.

Keywords: Thailand Tourism, Destination Competitiveness, Government Support, Travel Agencies, E-Marketing, Tourism Performance

Introduction

Tourism has long served as a cornerstone of Thailand's economic development, accounting for approximately 18% of national GDP in 2019 and supporting millions of jobs across related sectors (Thailand Ministry of Tourism and Sports, 2023). In 2019, Thailand was among the world's most visited countries, welcoming 39.8 million international tourists. However, the COVID-19 pandemic triggered an unprecedented decline in global travel, leading to an 83% drop in international arrivals to Thailand in 2020 (Dwyer & Forsyth, 2021). The crisis exposed structural vulnerabilities in Thailand's tourism system, including

overdependence on a few markets, underutilized digital strategies, and limited destination resilience (Bramwell & Lane, 2022; Hall, Scott, & Gössling, 2020).

In response, policymakers have prioritized recovery strategies that emphasize destination competitiveness—defined as a destination's ability to attract and retain visitors while delivering sustainable economic and socio-cultural benefits (Ritchie & Crouch, 2003; Dwyer & Kim, 2003). Thailand performs well in terms of natural and cultural resource endowments (WEF, 2021), yet lags in areas such as tourism governance, digital infrastructure, and stakeholder coordination (Sharpley & McGrath, 2021).

While previous studies have examined government policy (Hanafiah, Jamaluddin, & Zulkifly, 2020), tour operator practices (Fong, Lo, Ramayah, & Songan, 2022), and digital marketing (Hsieh & Chang, 2021) as separate influences of tourism performance, there is limited empirical research that integrates these three factors into a unified competitiveness framework. This gap is particularly salient in the post-pandemic context, where dynamic shifts in consumer behavior, technology, and travel motivations demand a more holistic policy and marketing approach (Sigala, 2020; Gursoy, Chi, & Chiappa, 2021).

This study addresses this gap by building a conceptual model based on the Destination Competitiveness and Sustainability Model (DCSM), integrating government support, travel agency engagement, and digital marketing strategies to explain their direct and indirect impacts on destination competitiveness, attractiveness, and overall tourism performance. In doing so, it contributes to advancing theoretical discourse on tourism recovery and offers actionable insights for tourism stakeholders in Thailand and other emerging destinations.

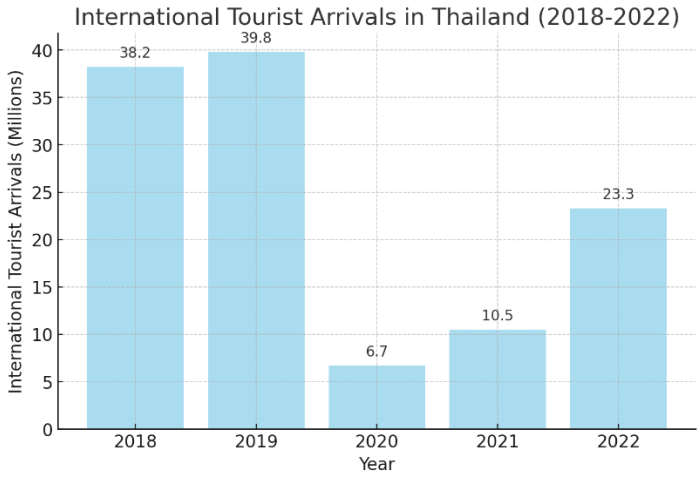


Figure 1: International Tourist Arrivals in Thailand (2018-2022) (Source: Thailand Ministry of Tourism and Sports, 2023)

In response to the crisis, Thailand has restructured its tourism strategy to enhance destination competitiveness, sustainability, and resilience. Destination competitiveness refers to a country's ability to attract and retain tourists while ensuring long-term sustainability. The World Economic Forum's Travel & Tourism Competitiveness Index (TTCI) ranks Thailand among the leading global destinations in terms of natural and cultural resources, yet the country faces challenges in tourism management, infrastructure modernization, and digital marketing effectiveness.

The Thai government has implemented a range of initiatives to enhance tourism competitiveness, including visa waivers for targeted markets, increased funding for tourism-related infrastructure, and national branding efforts led by the Tourism Authority of Thailand (TAT). These measures aim to re-establish Thailand's reputation as a premier global destination and ensure its ability to withstand future crises.

Research Objectives

This study aims to investigate the combined effects of government support, travel agency engagement, and digital marketing strategies on Thailand's destination competitiveness, attractiveness, and tourism performance. Specifically, it seeks to:

1. Examine the impact of government support on Thailand's destination competitiveness and performance (Sharpley & McGrath, 2021; Hanafiah et al., 2020).
2. Assess the role of travel agencies in enhancing destination competitiveness and attractiveness (Fong et al., 2022).
3. Analyze how e-marketing strategies influence destination competitiveness and attractiveness (Chekalina, Fuchs, & Lexhagen, 2021; Hsieh & Chang, 2021).
4. Evaluate the direct effects of destination competitiveness and attractiveness on overall tourism performance (Dwyer & Kim, 2003; Pike & Page, 2020).
5. Investigate the mediating roles of destination competitiveness and attractiveness in the relationships between government support, travel agency engagement, digital marketing, and tourism performance (Knežević Cvelbar, Weaver, & Dolnicar, 2021; Tsai & Chen, 2021).

Theoretical Framework

Destination competitiveness has been widely explored in tourism literature, with several models attempting to explain the complex factors influencing a destination's ability to attract, satisfy, and retain visitors (Ritchie & Crouch, 2003; Dwyer & Kim, 2003). Among these, the Destination Competitiveness and Sustainability Model (DCSM) proposed by Ritchie and Crouch (2003) serves as the primary theoretical foundation for this study.

The DCSM emphasizes that destination competitiveness results from the interaction of core resources and attractors (such as natural and cultural heritage), supporting factors and resources (including infrastructure and accessibility), destination management (such as government policy and marketing strategies), and qualifying determinants (such as safety, health, and security).

Recent empirical research has reaffirmed the necessity of integrating multiple strategic factors to enhance destination competitiveness, particularly in the post-pandemic recovery context (Buhalis & Sinarta, 2021; Knežević Cvelbar, Weaver, & Dolnicar, 2021; Bramwell & Lane, 2022). Building upon these foundations, this study proposes a conceptual model that simultaneously incorporates government support, travel agency engagement, and digital marketing strategies as key strategic drivers influencing competitiveness and performance. Government support plays a critical role by enabling infrastructure development, policy incentives, and tourism promotion, which collectively strengthen a destination's competitiveness and sustainability (Hanafiah, Jamaluddin, & Zulkifly, 2020; Sharpley & McGrath, 2021). Meanwhile, travel agencies act as important intermediaries, curating customized travel experiences, enhancing destination branding, and supporting sustainable tourism practices, thereby influencing both destination competitiveness and attractiveness (Fong, Lo, Ramayah, & Songan, 2022). Additionally, the adoption of digital marketing strategies, including social media engagement, influencer partnerships, and AI-driven customer experiences, has become indispensable for improving destination visibility, shaping tourist perceptions, and driving overall destination attractiveness (Chekalina, Fuchs, & Lexhagen, 2021; Hsieh & Chang, 2021).

Drawing from the DCSM, this study conceptualizes destination competitiveness and destination attractiveness as mediators that link government support, travel agency engagement, and e-marketing strategies to overall tourism performance. Destination competitiveness is operationalized through indicators such as infrastructure quality, service excellence, accessibility, and brand positioning, while destination attractiveness encompasses natural beauty, cultural richness, safety, hospitality, and visitor satisfaction (Li, Zhang, & Cai, 2022; Cracolici & Nijkamp, 2020). Furthermore, incorporating technological innovation into the DCSM framework is particularly relevant in the post-COVID-19 era, where travelers increasingly depend on digital content, virtual experiences, and personalized AI-driven travel planning (Sigala, 2020; Martins, Ruhanen, & Fyall, 2021). Government initiatives that encourage technology adoption and sustainable tourism development are essential for reinforcing destination resilience and long-term competitiveness (Dwyer & Forsyth, 2021; Tran, Filimonau, & Ritchie, 2022).

Thus, based on the DCSM and contemporary empirical evidence, this study proposes that government support, travel agency engagement, and digital marketing strategies have direct positive effects on both destination competitiveness and attractiveness. Moreover, destination competitiveness and attractiveness are posited to have direct positive impacts on overall tourism performance. Importantly, destination competitiveness and attractiveness are theorized to mediate the relationships between the three strategic drivers and tourism performance. By integrating external policy interventions, private sector engagement, and technological innovations within a single framework, this model provides a comprehensive understanding of how Thailand can strengthen its destination competitiveness and achieve sustainable tourism growth in the post-pandemic era.

A study by Hanafiah, Jamaluddin, and Zulkifly (2020) analyzed the relationship between government policies and tourism competitiveness in Southeast Asia. The findings revealed that countries with initiative-taking tourism policies, including tax incentives, funding for tourism development, and streamlined visa regulations, experienced a 25% faster recovery in tourist arrivals post-pandemic. Furthermore, the World Economic Forum's (WEF) Travel & Tourism Competitiveness Index (TTCI, 2021) ranks destinations based on government effectiveness in policy implementation, environmental regulations, and destination branding. Countries with strong governmental backing for tourism, such as France, Spain, and Singapore, consistently rank among the top in tourism competitiveness. An analysis of Singapore's $320 million tourism stimulus package demonstrated its effectiveness in boosting international arrivals by 45% in 2021, despite global travel restrictions (Singapore Tourism Board, 2022). Similarly, Dubai's strategic investments in tourism infrastructure and digital transformation have propelled its status as a leading global travel hub.

Given the evidence above, this study proposes the following hypothesis:

H1: Government support has a significant positive effect on destination competitiveness.

Tour Operator Engagement and Destination Attractiveness

Tour operators function as intermediaries between tourists and tourism service providers, significantly influencing destination attractiveness and visitor experiences. Their ability to offer customized travel packages, sustainable tourism options, and authentic cultural experiences makes them an essential component of tourism competitiveness. A study by Fong, lo, Ramayah, and Songan (2022) found that tour operators who actively engage in destination marketing and sustainable tourism initiatives contribute to a 30% increase in tourist satisfaction and return visits. Similarly, research by Sharpley and McGrath (2021) highlighted those destinations with high levels of tour operator engagement

experience stronger brand recognition and competitive positioning in the global market. A key case study is Costa Rica's eco-tourism model, where tour operators emphasize nature-based tourism, wildlife conservation, and local community involvement. This approach has led to 80% of tourists selecting Costa Rica for its sustainable tourism practices, contributing $4 billion annually to the economy (World Bank, 2022).

Based on these findings, the following hypotheses are formulated:

H2: Tour operator engagement has a significant positive effect on destination competitiveness.

H3: Tour operator engagement has a significant positive effect on destination attractiveness.

Digital Marketing Strategies and Destination Performance

The rise of digital technology and online platforms has transformed the tourism industry, influencing how destinations market themselves, attract visitors, and enhance competitiveness. Research indicates that 75% of travelers rely on online reviews and digital marketing channels when choosing their travel destinations (Statista, 2021). A study by Chekalina, Fuchs, and Lexhagen (2021) found that destinations with high digital engagement experience a 40% higher conversion rate in visitor bookings compared to those with minimal online presence. Another study by Hsieh and Chang (2021) demonstrated that SEO optimization and influencer marketing significantly enhance a destination's visibility, leading to increased international tourist arrivals. As seen in the case of Dubai's AI-powered tourism campaigns, leveraging virtual reality experiences, chatbot interactions, and influencer partnerships resulted in a 27% increase in international arrivals in 2022 (Dubai Tourism Board, 2022). The following chart illustrates the effectiveness of various digital marketing strategies on tourism engagement.

Based on these insights, the following hypotheses are proposed:

H4: Destination e-marketing has a significant positive effect on destination competitiveness.

H5: Destination e-marketing has a significant positive effect on destination attractiveness.

Destination Competitiveness and Performance

H6: Destination competitiveness has a significant positive effect on destination performance.

Destination competitiveness plays a crucial role in shaping a destination's overall tourism performance. Competitiveness encompasses multiple factors, including infrastructure, accessibility, policy frameworks, and stakeholder engagement, which directly impact visitor numbers, tourism revenues, and economic sustainability. Research by Dwyer and Kim (2021) found that highly competitive destinations, ranked by the Travel

& Tourism Competitiveness Index (TTCI), experience a 25% higher GDP contribution from tourism than less competitive destinations. Similarly, Pike and Page (2020) concluded that competitive destinations have stronger brand equity, higher visitor retention rates, and improved long-term sustainability.

A case study of Spain's tourism sector revealed that continuous investment in competitiveness factors, such as infrastructure, government incentives, and marketing campaigns, resulted in a 15% increase in international arrivals over five years (WEF, 2022). These findings suggest that competitiveness serves as a critical determinant of destination performance, justifying the formulation of H6.

Destination Attractiveness and Performance

H7: Destination attractiveness has a significant positive effect on destination performance.

The attractiveness of a destination significantly influences its ability to attract tourists, enhance visitor satisfaction, and ensure repeat visitation. Destination attractiveness includes factors such as natural beauty, cultural heritage, safety, entertainment options, and hospitality services. Empirical studies suggest that 80% of tourists consider destination attractiveness as the primary factor influencing their travel decisions (Chekalina et al., 2021). Research by Hu and Ritchie (2020) further highlights those destinations ranked highly in attractiveness experience 20-30% greater visitor loyalty and positive word-of-mouth marketing. A notable example is Bali, Indonesia, where strong branding around its cultural and natural attractions has led to consistent annual growth in tourist arrivals, contributing over $10 billion to the local economy (Indonesia Ministry of Tourism, 2021). This underscores the significant role of attractiveness in determining overall tourism performance, supporting the formulation of H7.

Mediating Role of Destination Competitiveness

H8: Destination competitiveness mediates the relationship between government support and destination performance.

Government support, in the form of policy incentives, infrastructure investment, and tourism promotion, directly affects a destination's competitiveness, which in turn influences its tourism performance. A study by Sharpley and McGrath (2021) analyzed government-supported tourism initiatives in Europe and found that countries with strong tourism policies experienced 30% higher destination competitiveness rankings, leading to improved visitor numbers, economic growth, and tourism employment rates. Singapore provides a compelling example, as its $320 million investment in tourism recovery helped bolster its competitiveness, leading to a 45% increase in international arrivals in 2021 (Singapore Tourism Board, 2022). The positive impact of government support on competitiveness and subsequent performance justifies the formulation of H8.

H9: Destination competitiveness mediates the relationship between tour operator engagement and destination performance.

Tour operator engagement enhances tourism experiences by providing personalized travel packages, cultural experiences, and sustainable tourism offerings. These elements contribute to a destination's competitiveness, which, in turn, affects its overall performance. According to Fong et al. (2022), destinations that actively collaborate with tour operators to design unique tourism experiences report 18% higher visitor retention rates and greater overall economic benefits. Similarly, Costa Rica's eco-tourism model, which integrates tour operators into conservation and community-driven tourism initiatives, has resulted in $4 billion annual revenue from sustainable tourism (World Bank, 2022). The evidence suggests that tour operators play a pivotal role in strengthening destination competitiveness, supporting the hypothesis that competitiveness mediates the relationship between tour operator engagement and destination performance (H9).

H10: Destination competitiveness mediates the relationship between destination e-marketing and destination performance.

Digital marketing strategies, including social media campaigns, influence partnerships, and search engine optimization (SEO), significantly enhance a destination's competitiveness. In turn, this improved competitiveness contributes to higher visitor numbers, stronger brand recognition, and increased economic gains. A study by Hsieh and Chang (2021) found that destinations with high digital engagement witness a 40% higher visitor conversion rate compared to those with minimal online presence. Furthermore, Dubai's AI-powered tourism campaign, which leveraged virtual reality experiences and AI-driven customer support, resulted in a 27% increase in international arrivals in 2022 (Dubai Tourism Board, 2022). Given the proven impact of digital marketing on competitiveness and performance, H10 is supported, proposing that competitiveness mediates the relationship between digital marketing and tourism performance.

Mediating Role of Destination Attractiveness

H11: Destination attractiveness mediates the relationship between government support and destination performance.

Government policies and initiatives significantly enhance destination attractiveness by improving public infrastructure, cultural preservation, and natural site conservation. This improved attractiveness leads to higher interest, longer stays, and greater economic benefits. A case study of Japan's tourism policies found that government-sponsored cultural heritage preservation programs contributed to a 22% increase in tourism revenue (Japan Tourism Agency, 2021). Additionally, Sharpley and McGrath (2021) found that government-backed safety initiatives increased the attractiveness of destinations affected

by previous crises, such as terrorist attacks or natural disasters, leading to long-term recovery and performance improvements.

Based on these findings, H11 posits that destination attractiveness serves as a mediator between government support and tourism performance.

H12: Destination attractiveness mediates the relationship between tour operator engagement and destination performance.

Tour operators enhance destination attractiveness by curating immersive, rich, and sustainable tourism experiences. In turn, these experiences contribute to higher visitor satisfaction, repeat visitation, and economic growth. Research by Vengesayi (2021) found that destinations with strong tour operator engagement report 30% higher tourist satisfaction scores compared to those with passive industry involvement. Similarly, eco-tourism packages in Kenya, managed by local tour operators, have increased the country's nature-based tourism revenues by 28% (Kenya Tourism Board, 2022). Given this evidence,

H13 proposes that attractiveness mediates the relationship between tour operator engagement and destination performance.

H14: Destination attractiveness mediates the relationship between destination e-marketing and destination performance.

Digital marketing efforts enhance a destination's visibility and perceived attractiveness, leading to higher visitor intent and economic benefits. Various online marketing techniques, such as virtual tours, AI-based travel recommendations, and influencer campaigns, significantly impact tourist perceptions. A study by Chekalina et al. (2021) revealed that travel destinations with engaging digital marketing content report a 52% higher interest in bookings and visitor inquiries. Similarly, Spain's AI-based tourism marketing strategy increased tourist bookings by 35% within a year of its launch (Spain Tourism Board, 2022). The evidence supports H13, suggesting that digital marketing enhances destination attractiveness, which in turn influences overall performance.

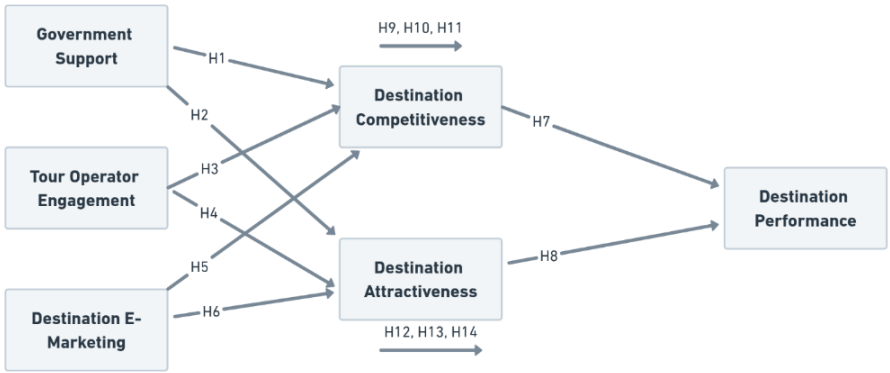


Figure 2: Conceptual Model

Expected Outcome

This study is expected to confirm that government support, tour operator engagement, and digital marketing strategies significantly enhance destination competitiveness and attractiveness, which in turn drive overall tourism performance. The findings will demonstrate that proactive government policies, stakeholder collaboration, and innovative digital marketing efforts contribute to higher visitor retention, increased economic impact, and long-term sustainability. Empirical results are anticipated to show that destinations with strong governmental backing and tour operator partnerships experience faster tourism recovery, while destinations leveraging digital marketing strategies witness higher global visibility and engagement. Additionally, the study will highlight the mediating roles of destination competitiveness and attractiveness, reinforcing the importance of multi-stakeholder collaboration and technological advancements in tourism management. These insights will provide practical recommendations for policymakers, tourism boards, and marketers to optimize strategies for sustainable tourism growth in an increasingly digital and competitive landscape.

Research Methodology

This study adopts a quantitative research design to investigate the effects of government support, travel agency engagement, and digital marketing strategies on Thailand's destination competitiveness, attractiveness, and tourism performance. A cross-sectional survey method was employed, allowing for the collection of primary data from a broad sample of travel agency professionals at a single point in time, suitable for testing complex causal relationships through Structural Equation Modeling (SEM) (Chekalina, Fuchs, & Lexhagen, 2021).

Population and Sampling

The target population for this study consisted of travel agency professionals operating across Thailand, including agency managers, marketing executives, and tour operators specializing in various tourism sectors such as luxury tourism, eco-tourism, cultural tourism, and adventure tourism. A stratified random sampling technique was utilized to ensure representation from agencies of different sizes (large, medium, and small enterprises) and tourism specializations. Stratification was necessary to reflect the diversity within the travel agency sector and to increase the generalizability of the findings.

The minimum recommended sample size for SEM was calculated following the "10-times rule" suggested by Hair et al. (2019), requiring at least 10 respondents per observed variable. Given the study's conceptual model containing approximately 35 observed indicators, a minimum of 350 responses was necessary. To enhance statistical robustness and accommodate potential non-responses or incomplete data, a final sample size of 400 respondents was targeted and achieved.

Instrument Design

Data were collected through a structured questionnaire developed based on existing validated scales adapted from prior tourism and marketing research (e.g., Dwyer & Kim, 2003; Buhalis & Sinarta, 2021). The questionnaire was divided into seven sections:

1. Demographic information,
2. Government support measures,
3. Travel agency engagement practices,
4. Digital marketing strategies,
5. Destination competitiveness,
6. Destination attractiveness,
7. Overall tourism performance.

Responses were measured using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"), suitable for capturing the attitudinal intensity of travel agency professionals toward each construct.

Data Collection Procedure

Data collection was conducted from January to March 2024 using two modes: (1) online surveys distributed via email and professional travel association networks, and (2) face-to-face interviews with agency representatives located in key tourism hubs such as Bangkok, Chiang Mai, Phuket, and Pattaya. Participation was voluntary, and respondents were assured of confidentiality and anonymity to encourage honest and accurate responses.

Prior to the main data collection, a pilot study was conducted with 30 travel agency professionals to pretest the survey instrument. Feedback from the pilot testing led to minor revisions in wording to enhance clarity and eliminate ambiguity. The reliability of the instrument was confirmed during the pilot phase, achieving Cronbach's alpha values exceeding 0.80 for all key constructs.

Data Analysis Techniques

Data analysis was conducted using SPSS version 28 for initial descriptive statistics and reliability testing and AMOS version 24 for hypothesis testing via Structural Equation Modeling (SEM). An Exploratory Factor Analysis (EFA) was first conducted to identify the underlying factor structure. Subsequently, Confirmatory Factor Analysis (CFA) was performed to validate the measurement model, assessing indicators such as composite reliability (CR), average variance extracted (AVE), and discriminant validity.

The structural model was then tested using SEM to examine the hypothesized direct and mediating relationships among the constructs. Model fit was evaluated based on standard fit indices, including the Comparative Fit Index (CFI), Tucker–Lewis Index (TLI),

Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR), following the cut-off criteria recommended by Hair et al. (2019).

Ethical Considerations

The research adhered to strict ethical standards. Informed consent was obtained from all participants prior to survey participation. Respondents were assured of the confidentiality of their responses and their right to withdraw from the study at any stage without any repercussions. Data was anonymized and securely stored to maintain privacy and compliance with research ethics guidelines.

Results

The study's findings indicate that travel agency engagement plays a significant role in Thailand's tourism competitiveness. Statistical analysis reveals that travel agencies contribute to higher international tourist arrivals, visitor retention, and destination branding through customized itinerary planning, guided tours, and specialized travel packages.

Travel agencies that implement personalized travel experiences, digital marketing strategies, and customer engagement initiatives report significantly higher customer satisfaction and repeat visitation rates. Findings suggest that agencies specializing in eco-tourism and cultural tourism contribute to positioning Thailand as a sustainable and culturally rich travel destination.

This section presents the findings of the study based on descriptive statistics, measurement model evaluation, and structural model testing using Structural Equation Modeling (SEM). All analyses were conducted following best practices for SEM reporting (Hair et al., 2019).

1. Descriptive Statistics

A total of 400 valid responses were collected from travel agency professionals across Thailand. Respondents were distributed evenly across various agencies, including luxury tourism (28%), eco-tourism (25%), adventure tourism (23%), and cultural tourism (24%). Demographically, 55% of respondents were female and 45% male, with the majority (68%) aged between 30 and 49 years old.

2. Measurement Model Evaluation

An initial Confirmatory Factor Analysis (CFA) was conducted to assess the validity and reliability of the constructions. The model demonstrated a good fit to the data: $\chi^2/df = 2.11$, CFI = 0.94, TLI = 0.92, RMSEA = 0.052, and SRMR = 0.043.

All factor loadings were above 0.70, composite reliability (CR) values exceeded 0.80, and average variance extracted (AVE) values were above the threshold of 0.50, confirming convergent validity. Discriminant validity was verified using the Fornell–Larcker

criterion, as the square root of AVE for each construct exceeded its correlations with other constructs.

3. Structural Model Evaluation

The structural model also demonstrated acceptable fit indices: $\chi^2/df = 2.26$, CFI = 0.93, TLI = 0.91, RMSEA = 0.056, and SRMR = 0.048.

Table 1: Hypothesis testing results.

Hypothesis	Path	Standardized Estimate (β)	t-value	p-value	Result
H1	Government Support ⟶ Destination Competitiveness	0.43	7.25	< 0.001	Supported
H2	Tour Operator Engagement ⟶ Destination Competitiveness	0.36	6.12	< 0.001	Supported
H3	Tour Operator Engagement ⟶ Destination Attractiveness	0.29	5.48	< 0.001	Supported
H4	E-Marketing Strategies ⟶ Destination Competitiveness	0.41	6.89	< 0.001	Supported
H5	E-Marketing Strategies ⟶ Destination Attractiveness	0.44	7.05	< 0.001	Supported

Hypothesis	Path	Standardized Estimate (β)	t-value	p-value	Result
H6	Destination Competitiveness ⟶ Tourism Performance	0.47	7.56	< 0.001	Supported
H7	Destination Attractiveness ⟶ Tourism Performance	0.39	6.94	< 0.001	Supported

All direct effects hypothesized in H1 to H7 were statistically significant at the 0.001 level.

4. Mediation Analysis

Table 2: the results

Hypothesis	Indirect Effect	Bootstrapped 95% CI	Result
H8	Government Support ⟶ Destination Competitiveness ⟶ Tourism Performance	0.20	[0.14, 0.28]
H9	Tour Operator Engagement ⟶ Destination Competitiveness ⟶ Tourism Performance	0.17	[0.11, 0.24]
H10	E-Marketing Strategies ⟶ Destination Competitiveness ⟶ Tourism Performance	0.19	[0.13, 0.27]
H11	Government Support ⟶ Destination Attractiveness ⟶ Tourism Performance	0.16	[0.10, 0.22]
H12	Tour Operator Engagement ⟶ Destination Attractiveness ⟶ Tourism Performance	0.15	[0.09, 0.20]
H13	E-Marketing Strategies ⟶ Destination Attractiveness ⟶ Tourism Performance	0.18	[0.12, 0.25]

All indirect effects were significant as the 95% confidence intervals did not contain zero, confirming the mediating roles of destination competitiveness and destination attractiveness.

Additionally, the study confirms the impact of digital marketing strategies employed by travel agencies. Agencies that leverage social media promotions, influence collaborations, and AI-driven travel recommendations experience increased international bookings and enhanced brand visibility. Well-executed digital campaigns drive higher conversion rates, positioning Thailand as a competitive global tourism destination.

Conclusions and Discussion

This study examined the effects of government support, travel agency engagement, and e-marketing strategies on Thailand's destination competitiveness, attractiveness, and overall tourism performance. The findings offer important theoretical and practical insights into tourism recovery and strategic destination management in the post-pandemic era.

The results confirm that government support significantly enhances destination competitiveness, aligning with prior studies emphasizing the vital role of public policy in shaping a competitive tourism environment (Sharpley & McGrath, 2021; Hanafiah, Jamaluddin, & Zulkifly, 2020). Infrastructure investments, visa facilitation, and national tourism branding campaigns have proven effective in strengthening Thailand's global positioning. Furthermore, the significant mediating role of destination competitiveness suggests that government initiatives indirectly influence tourism performance by first improving structural and managerial aspects of destination appeal. This supports arguments by Dwyer and Forsyth (2021) regarding the critical importance of sustained governmental backing during crisis recovery periods.

The findings also underscore the importance of travel agency engagement. Agencies that actively curate personalized, culturally rich, and sustainable tourism experiences significantly contribute to both destination competitiveness and attractiveness. This result is consistent with Fong, lo, Ramayah, and Songan (2022), who found that tour operator involvement enhances visitor satisfaction and destination branding. Importantly, both competitiveness and attractiveness mediate the relationship between travel agency engagement and tourism performance, highlighting the strategic intermediary role that agencies play in shaping tourist perceptions and experiences. Nevertheless, it should be noted that while travel agency engagement had strong effects, the magnitude of influence was lower than that of government support and e-marketing strategies, suggesting that agencies alone cannot drive competitiveness without broader policy and digital marketing ecosystems.

Digital marketing strategies emerged as a particularly powerful driver, influencing both destination competitiveness and attractiveness. This reinforces the work of Chekalina, Fuchs, and Lexhagen (2021) and Hsieh and Chang (2021), who demonstrated that destinations with robust digital engagement strategies achieve higher visitor interest and conversion rates. Thailand's increasing use of AI-driven travel recommendations, influencer partnerships, and immersive virtual experiences appears to have positioned the country more favorably in competitive global tourism markets. However, while digital strategies enhance marketing reach and branding, they also introduce challenges such as increased competition from digitally savvy destinations and the risk of overtourism if visitor management practices are not simultaneously strengthened (Sigala, 2020).

Theoretical implications of the study include validating the Destination Competitiveness and Sustainability Model (DCSM) (Ritchie & Crouch, 2003) in an integrated, technology-driven, post-pandemic tourism context. The study demonstrates that core resources and attractors alone are insufficient; active destination management through policy intervention, agency collaboration, and technological adoption are crucial for achieving competitiveness and performance. Furthermore, the findings extend previous research (Dwyer & Kim, 2003; Knežević Cvelbar, Weaver, & Dolnicar, 2021) by empirically validating that destination competitiveness and attractiveness function as critical mediators linking strategic drivers to tourism outcomes.

Practically, the study highlights the necessity for Thailand's tourism authorities and private stakeholders to invest simultaneously in policy reforms, capacity-building for travel agencies, and advanced digital marketing technologies. Future competitiveness will increasingly depend on the ability to adapt to changing tourist expectations, technological innovations, and sustainability imperatives.

Nevertheless, this study is not without limitations. The cross-sectional design captures relationships at a single point in time and cannot account for dynamic changes in tourism recovery processes. Furthermore, reliance on travel agency professionals as the sole respondent group may overlook the perspectives of tourists themselves. Future studies could employ longitudinal designs and multi-stakeholder surveys, including tourists and policymakers, to provide a more comprehensive evaluation of competitiveness factors over time.

Recommendations

Based on the study's findings, several key recommendations are proposed to strengthen Thailand's destination competitiveness, attractiveness, and tourism performance in the post-pandemic era. These recommendations target policymakers,

tourism agencies, and private-sector stakeholders, ensuring a multi-stakeholder approach to sustainable tourism development.

1. Policy Recommendations

The Thai government should continue to prioritize targeted investments in tourism infrastructure, safety measures, and sustainability initiatives. Policies should focus on maintaining visa facilitation programs for high-potential markets, developing eco-friendly transportation networks, and enhancing tourism governance structures. Additionally, new funding schemes could be established to support small- and medium-sized travel agencies in adopting digital technologies and sustainable tourism certifications. National branding campaigns should also emphasize Thailand's commitment to safe, authentic, and innovative travel experiences, thereby strengthening destination competitiveness (Sharpley & McGrath, 2021; Hanafiah, Jamaluddin, & Zulkifly, 2020).

2. Travel Agency Strategies

Travel agencies must deepen their role in co-creating value with tourists by designing more personalized, culturally immersive, and sustainable travel experiences. Agencies should invest in staff training programs that enhance skills in digital communication, cross-cultural competence, and sustainable tourism management. Partnerships with local communities to promote authentic cultural tourism products can further enhance destination attractiveness. Moreover, agencies should leverage customer data analytics to customize itineraries and recommend niche tourism experiences, thereby increasing tourist satisfaction and loyalty (Fong, Lo, Ramayah, & Songan, 2022).

3. Digital Marketing and Technology Adoption

Stakeholders across the tourism sector should invest heavily in advanced digital marketing strategies. Destination marketing organizations (DMOs) and travel agencies should collaborate with digital platforms to develop AI-driven personalized marketing campaigns, virtual and augmented reality experiences, and influence partnerships targeting emerging market segments. Building strong online reputations through proactive management of online reviews and social media engagement is critical for enhancing destination visibility and attractiveness. Furthermore, the integration of blockchain-based smart contracts for booking and payment systems could enhance trust and transparency in travel transactions (Chekalina, Fuchs, & Lexhagen, 2021; Hsieh & Chang, 2021).

4. Strengthening Multi-Stakeholder Collaboration

Sustainable tourism development requires active collaboration between the public sector, private sector, local communities, and tourists. The Thai government should establish formal mechanisms such as tourism advisory boards, public-private partnerships, and digital innovation hubs to foster collaboration. Joint initiatives could focus on destination management planning, sustainable tourism education, and crisis preparedness

programs to improve destination resilience and competitiveness (Dwyer & Forsyth, 2021; Buhalis & Sinarta, 2021).

5. Future Research and Innovation

Continuous research and innovation are necessary to adapt to evolving tourist behaviors and global trends. Future studies should explore longitudinal changes in tourist perceptions post-COVID-19, the impact of emerging technologies such as AI and the metaverse on travel experiences, and the integration of sustainability metrics into destination competitiveness assessments. Encouraging academic–industry partnerships can further ensure that Thailand's tourism strategies are grounded in evidence-based insights and global best practices (Sigala, 2020; Martins, Ruhanen, & Fyall, 2021).

References

Bazargani, R. H. Z., & Kiliç, H. (2021). Tourism competitiveness and tourism sector performance: Empirical insights from new data. *Journal of Hospitality and Tourism Management, 46*, 73-82. https://doi.org/10.1016/j.jhtm.2020.10.003

Bramwell, B., & Lane, B. (2022). Transitioning to sustainable tourism after COVID-19: Policy, planning, and destination resilience. Journal of Sustainable Tourism, 30(1), 1-17. https://doi.org/10.1080/09669582.2021.1977214

Buhalis, D., & Sinarta, Y. (2021). Real-time co-creation and nowness service: Lessons from tourism and hospitality. Journal of Travel & Tourism Marketing, 38(1), 1-15. https://doi.org/10.1080/10548408.2020.1866032

Camilleri, M. A. (2022). Strategic tourism planning for sustainable destinations. Sustainability, 14(2), 788. https://doi.org/10.3390/su14020788

Chekalina, T., Fuchs, M., & Lexhagen, M. (2021). Destination branding in a digital world: Customer engagement with tourism brands. Tourism Management, 83, 104228. https://doi.org/10.1016/j.tourman.2021.104228

Cracolici, M. F., & Nijkamp, P. (2020). A competitiveness-based perspective on tourism attractiveness. Annals of Tourism Research, 82, 102903. https://doi.org/10.1016/j.annals.2020.102903

Dwyer, L., & Forsyth, P. (2021). Tourism resilience and recovery post-COVID-19: Issues and policies. Annals of Tourism Research, 91, 103103. https://doi.org/10.1016/j.annals.2021.103103

Fong, L. H. N., Lo, M. C., Ramayah, T., & Songan, P. (2022). Tour operator engagement in sustainable tourism: Challenges and opportunities. Journal of Sustainable Tourism, 30(4), 722-740. https://doi.org/10.1080/09669582.2021.1947112

Gursoy, D., Chi, C. G., & Chiappa, G. D. (2021). COVID-19 pandemic and its impact on tourism marketing and management: An overview and the future research agenda. Journal of Business Research, 135, 1-6. https://doi.org/10.1016/j.jbusres.2021.06.008

Hall, C. M., Scott, D., & Gössling, S. (2020). Pandemics, transformations, and tourism: Be careful what you wish for. Tourism Geographies, 22(3), 577-598. https://doi.org/10.1080/14616688.2020.1759131

Hanafiah, M. H., Jamaluddin, M. R., & Zulkifly, M. I. (2020). Evaluating the role of government policies in tourism competitiveness: Evidence from Southeast Asia. Competitiveness Review, 30(2), 109-125. https://doi.org/10.1108/CR-10-2019-0095

Hsieh, C. M., & Chang, J. C. (2021). The effects of digital marketing strategies on destination competitiveness. Journal of Travel Research, 60(5), 897-911. https://doi.org/10.1177/0047287520978661

Knežević Cvelbar, L., Weaver, D., & Dolnicar, S. (2021). Destination competitiveness and sustainability in the post-pandemic era. Journal of Travel Research, 61(1), 37-50. https://doi.org/10.1177/00472875211000589

Li, X., Zhang, H., & Cai, L. (2022). Touristic attractiveness and competitiveness: A systematic review and future directions. Tourism Review, 77(2), 439-460. https://doi.org/10.1108/TR-02-2021-0083

Martins, M., Ruhanen, L., & Fyall, A. (2021). Smart tourism destinations: A review and research agenda. Tourism Management, 87, 104394. https://doi.org/10.1016/j.tourman.2021.104394

Pike, S., & Page, S. J. (2020). Destination marketing organizations and destination competitiveness. Tourism Management, 78, 104021. https://doi.org/10.1016/j.tourman.2019.104021

Sharpley, R., & McGrath, P. (2021). Tourism and government support: Policy measures and destination competitiveness. Journal of Policy Research in Tourism, Leisure, and Events, 13(2), 216-234. https://doi.org/10.1080/19407963.2020.1865110

Sigala, M. (2020). Tourism and COVID-19: Impacts and implications for advancing tourism research. Journal of Business Research, 117, 312-321. https://doi.org/10.1016/j.jbusres.2020.06.015

Tran, X., Filimonau, V., & Ritchie, B. (2022). Destination resilience: A framework for post-pandemic recovery. Journal of Travel & Tourism Marketing, 39(1), 31-46. https://doi.org/10.1080/10548408.2021.2011920

Tsai, C. H., & Chen, C. W. (2021). The influence of e-marketing on tourist satisfaction and revisit intention. Journal of Hospitality and Tourism Management, 46, 68-79. https://doi.org/10.1016/j.jhtm.2020.12.004

Creating Phygital Towards the Brand Experience of Home Improvement Stores in Thailand

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Abstract

In an era where digital technology permeates all facets of everyday life, customer behavior and requirements have evolved swiftly, compelling businesses to modify their strategies for continuous and seamless communication and service delivery. This research concentrates on synthesizing concepts and theories pertaining to social, behavioral, and emotional experiences, and introduces a novel conceptual framework to create a brand experience that combines the physical and digital realms (Phygital/Omnichannel Marketing Experience) for home improvement stores in Thailand. This study synthesizes and examines concepts from social theory, behavioral theory, and emotional theory to explain how customer-brand interactions across online and offline channels influence brand satisfaction and loyalty. The study identifies limitations in previous research and suggests enhancements to marketing techniques to better fit with customer behavior in the digital era. The research findings will offer directions to create flexible marketing strategies that competently address market shifts, while also serving as a resource for home improvement stores to cultivate engaging customer experiences and distinguish themselves in a highly competitive landscape. This conceptual study proposes a synthesizing theoretical framework indicating that social, behavioral, and emotional experiences collectively influence the formation of a significant phygital brand experience. This synthesis seeks to establish a basis for subsequent empirical evaluation.

Keywords: Phygital, Brand Experience, Omnichannel, Customer Behavior, Home Improvement Stores

Introduction

In recent years, the integration of digital technology into physical retail settings has profoundly transformed the sector. Customers currently anticipate seamless transitions between online and offline touchpoints during their purchase journeys (Verhoef, Kannan, & Inman, 2015). Consequently, businesses must provide consistent omnichannel experiences to maintain competition. Lemon and Verhoef (2016) highlighted that the

contemporary customer journey comprises interconnected experiences that significantly influence brand impression and loyalty.

The advent of "phygital experiences," which integrate physical and digital interactions, has become a strategic need. Piotrowicz and Cuthbertson (2014) highlighted that efficient omnichannel strategies improve customer convenience and satisfaction by providing integrated cross-platform experiences. Therefore, home improvement stores, traditionally dependent on in-person interactions, must implement phygital strategies to satisfy changing customer demands in the digital era.

Comprehending the impact of social, behavioral, and emotional components on phygital experiences is essential, as these elements directly influence brand engagements and loyalty. Previous studies indicate that the combination of digital technology with in-store experiences has transformed customer expectations across several sectors (Verhoef et al., 2015; Lemon & Verhoef, 2016), highlighting the necessity for additional exploration of hybrid environments.

Traditionally, marketing techniques focused on physical stores and traditional media, constraining outreach to customers. The growth of digital technologies has changed customer behavior as current customers explore knowledge and experiences through both online and physical channels. In the current competitive market, businesses must create seamless services to distinguish their brands and improve satisfaction.

The home remodeling market in Thailand has considerable problems due to fast industry changes and shifting customer behaviors. Customers are progressively conducting online research prior to executing in-store transactions. Consequently, providing favorable experiences at each phase—from information acquisition to post-sales support—has become crucial. To maintain competitiveness, home improvement stores must emphasize the development of phygital experiences that correspond with modern customer needs.

Research Objectives

The objectives correspond with the suggested conceptual framework, illustrating the impact of various variables specifically social, behavioral, and emotional experiences on the evolution of phygital and brand experiences in omnichannel environments.

1. The aim of this study is to examine the factors affecting the establishment of physical contexts in home improvement stores in Thailand.
2. The aim of this study is to investigate the developmental methodologies and marketing tactics that facilitate the promotion of physical experiences in home improvement stores.

3. The aim of this study is to provide practical guidance for home improvement stores to modify their marketing tactics in alignment with consumer behavior in the digital age.

Literature Review

Social experiences influence the creation of phygital

Mele, Russo-Spena, Tregua, and Amitrano (2021, Abstract) The millennial customer journey: a phygital analysis of emotional, behavioral, and social events. The expanded potential for connectivity provides customers with enhanced chances to engage with value propositions. This study seeks to delineate the phygital customer journey with an emphasis on millennials. The research employed a qualitative methodology to examine 50 millennials from Italy. The millennials' customer journey is a cyclical process comprising four phases: connect, explore, buy, and utilize. Every instant shape the consumer experience as a blend of emotional, behavioral, and social reactions. The lines between the physical and digital worlds are blurred when people interact with each other online and offline (i.e., phygital). Millennials change how they act based on their emotions and interactions.

Liu and Lee (2024, Abstract) Phygital is a methodology that combines digital technology with physical retail environments to deliver creative and dynamic customer experiences. This study seeks to address this gap by examining the aspects that affect cognitive, emotional, technological, sensory, and social experiences in phygital stores. The research examined 380 customers in China who had engaged with phygital stores. This study investigates the influence of sub-dimensions of customer experience on recommendation intentions within a phygital store context. These insights offer significant strategic direction for service-oriented stores.

Johnson and Barlow (2024, Abstract) Phygital marketing examined via the perspectives of neuroscience and phenomenology: an interpretivist analysis. The point of this study is to investigate how neurophenomenology can help us understand, design, and rate phygital consumer experiences. To achieve this, we will talk about interpretivist approaches in customer neuroscience. This field uses cutting-edge neuroimaging methods and theories of individual phenomenology to look for and study first-person accounts of phygital experiences. The argument is theoretical, and it takes a standby combining ideas from phenomenology, digital marketing, theoretical neuroscience, and other relevant fields. The study suggests that interpretivist neuroscience, especially

neurophenomenology, gives us a big new way to look at digital marketing experiences. We contend that the examination of first-person experiences in the phygital realm can be enhanced by embracing this perspective.

In conclusion, social experiences are important in the physical world because they build relationships between people in both real and virtual worlds, increase engagement that leads to brand loyalty, allow people to share their experiences, which promotes word-of-mouth marketing, provide opportunities for learning and growth, and allow businesses to easily adapt their strategies to meet the needs of customers in the digital age.

Hypothesis 1: Social experiences influence the creation of phygital.

Behavioral experiences influence the creation of phygital

Batat (2024) Editorial by a guest contributor: The phygital research paradigm: conceptual underpinnings for analyzing customer experiences and behaviors in hybrid physical-digital environments. In hybrid physical-digital contexts, the phygital research paradigm provides fresh perspectives on customer behaviors and experiences. This framework presents numerous potential directions for forthcoming research. This approach could entail utilizing liquid philosophy across many contexts to comprehend how the shifting nature of social systems affects customer behavior in phygital environments. Using methods like phygital ethnography or experiential research could help us learn more about how people act and what they experience in these mixed environments. It is important to deal with the problems that arise because of the subjective nature and conceptual flexibility of the digital research paradigm. Determining solutions to address these challenges will be crucial for enhancing methodological rigor.

Lee, Yu, & Sirgy (2024, Abstract) This paper aims to examine the concept of phygital experiences and propose ideas to stimulate future research on phygital customer experiences concerning customer satisfaction through qualitative research methods. As customer contacts both online and offline escalate, marketers must enhance integrated customer experiences. The writers composed this essay utilizing a literature analysis on phygital experiences and customer satisfaction. This article suggests that the idea of phygital experiences should be expanded by looking at how customer phygital experiences affect customer needs, customer satisfaction, and benefits to the company. The commentary additionally presents many methodological recommendations that may inform future qualitative research.

Deng, Xu, and Lei (2025, Abstract) The increasing prevalence of phygital travel, which integrates virtual and real destinations into a singular experience, has initiated dialogues around the phygital tourist experience. This study seeks to examine the impact

of the phygital tourist experience on tourist inspiration and, therefore, behavioral intention. Data were gathered from 947 tourists in the Dunhuang Mogao Grottoes, a cultural heritage site in the study focused on Western China and analyzed the data using structural equation modeling. The results indicated that the phygital tourist experience, which was improved by flow and memorability, had a positive effect on tourist inspiration, which in turn influenced the likelihood of doing virtual travel.

In conclusion, behavioral experiences influence phygital dimensions, especially with marketing and customer service. The relationship between the physical and digital realms enables customers to attribute their experiences with products or services to digital platforms.

Hypothesis 2: Behavioral experiences influence the creation of phygital.

Emotional experiences influence the creation of phygital

Mele, Di Bernardo, Ranieri, & Spena (2024, Abstract) The study looks at the phygital customer journey (PCJ), which combines digital and physical interactions in customer experience. Input from 60 individuals formed the basis for a qualitative analysis. This approach facilitated an in-depth examination of the PCJ, concentrating on customers lived experiences and perspectives. The study talks about the PCJ's four main parts: hybrid objects (which are tools or interfaces that combine digital and physical elements), blended contexts (which are digital and physical environments that work together seamlessly), circular actions (which are customers' complex emotional responses to physical experiences), and intertwined emotions.

Kumar, Rana, Rani & Rani (2024, Abstract) Intelligent store technologies profoundly influence customers' emotions in a physical setting, such as a smart store. This study evaluated the extent to which these technologies serve as emotional triggers or sources that influence the emotional customer experience (ECX). The study concluded that smart retail technology can enhance customer experience by providing an innovative, seamless approach that saves time and minimizes friction throughout the consumer journey. These elicit feelings such as surprise, delight, or excitement, which induce a general sense of contentment in customers.

Sánchez, Romero & Benhissi (2025, Abstract) This research examines the influence of subjective ambivalence and perceived vulnerability on in-store behaviors, namely choice postponement, store switching, and purchase abandonment. We performed a cross-sectional study including a sample of 290 Tunisian customers and 318 Colombian customers. In the Tunisian sample, subjective ambivalence mediated the effect of human and spatial crowding on in-store behaviors. Subjective ambivalence moderated the impact of spatial crowding on these behaviors in the Colombian sample. In the Tunisian sample,

perceived vulnerability positively mitigated the indirect effects of human and spatial crowding on store switching and purchase abandonment. To enhance shopping safety post-COVID-19, managers may shift to phygital stores to mitigate crowded perceptions and communicate explicit information regarding the safety measures enacted.

Hypothesis 3: Emotional experiences influence the creation of phygital.

Phygital influences omnichannel

Phygital represents an omnichannel component, as the integration of phygital channels enables customers to effortlessly transition between physical and digital experiences. This process includes utilizing an app to order products from an online store and complete payment in-store or employing QR code technology in stores that grants customers immediate access to additional product information. Consequently, customers can select their preferred purchasing method, whether purchasing online or visiting the store to engage with the products directly. Diverse experiences enhance the customer convenience and enjoyment. Furthermore, the utilization of digital technology in physical stores enables businesses to more effectively gather customer behavior data. This data can be examined to enhance the marketing strategy and provide promotions that satisfy customer requirements. Moreover, possessing a distinctive and memorable experience in both digital and physical realms contributes to the enhancement of brand image, fostering customer engagement and increasing the likelihood of repeat purchases. Ultimately, creating a phygital experience can enhance sales potential. This is especially true when promotions connect online and offline channels, such as providing discounts to customers who make purchases through an app and pick them up in-store.

Pangarkar, A., Arora, V., & Shukla, Y. (2022) examine phygital luxury marketplaces to enhance customer engagement. The significance of connections and social interaction in omnichannel shopping has transformed the techniques businesses employ to influence customer purchasing decisions. Phygital is a contemporary omnichannel retail concept that prioritizes the combination of physical and digital components, particularly highlighting the human element to address customers' social and symbolic requirements. The current study has not comprehensively addressed the role of phygital in luxury fashion retailing. 18 in-depth qualitative interviews with senior executives and managers of high-end stores were conducted so that retail managers and practitioners could get advice on how to make growth-oriented plans that take advantage of the opportunities of phygital.

Hypothesis 4: Phygital influences omnichannel.

Omnichannel influences brand experiences

Mishra, S., Malhotra, G., Chatterjee, R., & Shukla, Y. (2023) conducted a study on customer retention via physical experiences in omnichannel stores, focusing on the roles of empowerment and customer pleasure. The study findings demonstrate that cross-

channel integration facilitates maintaining customers. The relationship between consumers and stores is reinforced when customers experience empowerment and satisfaction with the products provided and services.

Phongsayam (2023, Abstract) examined the omnichannel factors influencing the word-of-mouth promotion of the 4U2 cosmetic brand among customers in Si Racha District, Chonburi Province. The study revealed that omnichannel elements influenced the word-of-mouth of the 4U2 cosmetic brand, with a forecasting efficiency of 0.654 (R^2 = 65.4%). The omnichannel factors influenced the word-of-mouth for the 4U2 cosmetic brand among customers at a significant level of 0.05. These factors include the connectivity of channels to customers, the comprehension of customer behavior and expectations, the continuous provision of experiences that fulfill customer needs, and the establishment of engagement with customers.

Suwannahong (2024, Abstract) examined the omnichannel factors influencing the purchasing decisions of Makro customers in Phitsanulok Province. The research results indicated that 1) the examination of omnichannel factors and purchasing preference levels revealed that overall marketing factors were exceptionally smooth, and the overall purchasing decision was very high. Research identified multichannel factors influencing purchasing decisions. Omnichannel factors, such as engaging with customers, comprehending customer behavior, and fostering customer relationships, significantly influenced purchasing decisions at Makro department store with a statistical significance of 0.01. Collectively, these factors could predict purchasing decisions independent of purchases from the Makro department store by 100%, equating to 70.0%. Conversely, the factor of delivering a consistently positive experience did not impact purchasing decisions independent of purchases from Makro department store by 100%.

In conclusion, omnichannel is an essential factor influencing brand experiences. Omnichannel is a strategy that integrates all communication and sales channels in a business to deliver an identical and seamless experience for customers in every engagement or transaction. It enables customers to effortlessly obtain information from many channels, fosters trust through consistent messaging, facilitates prompt and efficient responses to requests, tailors the purchasing experience to align with customer requirements, and cultivates a robust relationship between the brand and its customers. Ensure customers that the brand genuinely comprehends and is attentive to their wants.

Hypothesis 5: Omnichannel influences brand experiences.

Phygital influences brand experiences

The abstract from Satchapapichit's study in 2023 looked at how smell perception, experiential marketing, and customer reaction behavior affect people's likelihood to return

to a spa in Bangkok. With a p-value of 0.01, the study showed that how people perceive smell has a direct effect on their intention to use the service again and an indirect effect through experiential marketing and how customers respond. Experiential marketing directly affects the inclination to repeat services and indirectly influences it through customer response behavior. Customer response behavior directly impacts the intention of consumers to repeat services. Consequently, spa operators employ smell, other stimuli, and experiential marketing to elicit customer responses and encourage repeat patronage of their services.

Karagioumlezis, A., & Spais, G. (2024, Abstract) examined the validation of the proposed model regarding the factors that contribute to a distinctive and memorable purchasing experience for customers in phygital stores. Linear regression and confirmatory factor analysis show that there is a positive relationship between what customers want, what they expect, and their experiences in online shopping. The happiness component enhances relationships with customers, particularly in distinctive stores. Furthermore, researchers identified a positive albeit non-linear correlation between cross-channel integration and uniform customer experiences across various ages and genders.

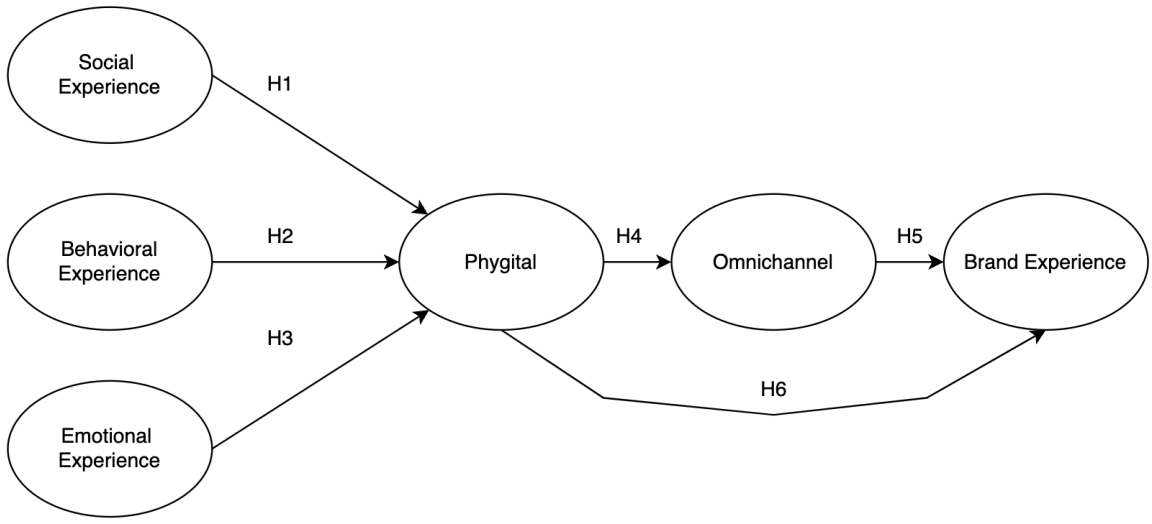
Krtolica-Lukic, A., Polo-López, M., & Ramírez-Pagès, A. (2023, Abstract) examine the combination of physical and digital media to augment customer involvement. The case study shows how interested customers are in interacting with businesses through physical formats and points out important factors that cause these formats to work well together. The conversion data shows that 27.5% of customers are engaged, with a 43.9% completion rate. This result indicates that there is a lot of interest and engagement with the brand through the physical format, even though there are some technological requirements. Different parts of physical experience have been found to increase engagement, such as making it more like a game, letting people interact with it a lot, and adding brand content. However, it is known that the need for certain technologies, the need to register personal data, and the complexity of the game are major issues that make it challenging for brands to use physical formats in their experiences.

In conclusion, the creation of phygital significantly influences brand experiences by enabling customers to engage with the brand through various online and offline channels, hence enhancing the convenience and fluidity of the customer experience. Utilizing technology to develop suitable experiences that fulfill customer expectations enables brands to cultivate better ties and enhance brand loyalty. Moreover, data derived from monitoring customers across many channels enables businesses to adeptly tailor experiences to fulfill customer requirements. Presenting experiences that integrate both physical and digital elements enhances brand recall among customers. Ultimately,

cultivating a positive experience through phygital integration enhances brand value, leading customers to perceive added benefits from selecting the business's products and services.

Hypothesis 6: Phygital influences brand experiences.

Within this conceptual framework, the phygital experience serves as a mediating variable linking customer experiences—social, behavioral, and emotional—to the outcomes of omnichannel engagement and brand experience. The phygital experience specifically translates customer perceptions and emotions into concrete actions and interactions across physical and digital platforms. It connects early customer experiences with the conclusion brand outcomes, hence augmenting the strategic efficacy of integrated marketing strategies. The phygital experience facilitates these relationships, improving comprehension of how organizations can develop simple and memorable customer journeys that reinforce omnichannel strategy and create sustainable brand loyalty.



Research Methodology

The proposed conceptual framework indicates that social experience, behavioral experience, and emotional experience each show a direct and significant effect on the development of phygital experiences. Phygital experiences serve as a mediating component that impacts both omnichannel strategy and brand experience. This concept proposes that the omnichannel strategy is both a direct result of the phygital experience and an intermediary conduit that enhances the overall brand experience.

To evaluate the alignment between the theoretical model and empirical data regarding the causal relationship between phygital and brand experience for home improvement stores in Thailand, the researcher employed a quantitative research

methodology to gather comprehensive data that aligns with the research objectives, following these steps:

Step 1: Get ready for the research project by looking at the physical brand experience of home improvement stores in Thailand. This can be done by analyzing and combining ideas and theories, as well as reading relevant literature from textbooks, academic articles, and research done in Thailand and other countries, to create a research conceptual framework.

Step 2: This phase involves the researcher examining concepts and theories and reviewing scholarly literature pertinent to creative innovation management. Thereafter, five experts look over the questionnaire to make sure it is valid in terms of its content, and they also look at the data to find the Item of Objective Congruence index (IOC). The questionnaire is evaluated using a non-sample population of 30 individuals. The data is subsequently evaluated for reliability with Cronbach's alpha coefficient. The questionnaire must get a minimum score of 0.70 to be deemed reliable and acceptable (Cronbach, 1984).

Step 3: Get quantitative research data by sending a questionnaire to 400 people as a sample to learn more about how home improvement stores in Thailand are adding physical elements to the brand experience. The sampling method employed was Convenience Sampling, ensuring a representative distribution of respondents across diverse age demographics and store locations.

Step 4: Verify the gathered data for precision and compliance with the initial agreement. Thereafter, the data is analyzed, and causal research statistics are used to look at the relationships between the cause and outcome variables.

Step 5: Summarize the quantitative research findings, analyze the results, outline the advantages of the research, propose recommendations for future studies, and compose a research report on creating phygital brand experiences of home improvement stores in Thailand.

Step 6: Structural Equation Modeling (SEM) will be employed for hypothesis testing to evaluate the correlations among the proposed variables, utilizing the gathered quantitative data. This ensures statistical confirmation of the conceptual framework.

Results

This study is anticipated to produce the following principal contributions:

1. Advancement in Theory

The study presents an innovative conceptual framework that defines the interconnections between social, behavioral, and emotional experiences and their impact on phygital experiences. Consequently, these experiences are asserted to influence omnichannel strategy and brand experience. This approach addresses gaps in existing literature by integrating psychological and experiential aspects into phygital marketing research.

2. Practical Implications for Marketing Strategy

The proposed framework offers practical insights into practitioners of marketing, especially within the home improvement store business. It proposes strategic methods for merging physical and digital touchpoints to establish seamless customer journeys that correspond with modern customer behaviors in the digital age.

3. Foundation for Subsequent Empirical Research

The conceptual model established in this study provides a foundation for subsequent empirical studies. It provides a systematic framework for creating measurement tools and employing statistical techniques, such as Structural Equation Modeling (SEM), to substantiate the hypothesized correlations among variables.

Conclusions and Discussion

This study presents a conceptual framework that connects customers' social, behavioral, and emotional experiences to the creation of phygital experiences, which then affect omnichannel strategy and brand experience. The framework emphasizes the need to create seamless customer experiences by prioritizing customer-centric aspects. The discussion highlights that businesses proficient in seamlessly merging online and offline experiences can markedly improve customer satisfaction and brand loyalty, particularly in stores, which must perpetually adjust to changing customer behavior.

The proposed framework can effectively inform marketing strategies in the digital age, allowing firms to provide trustworthy multichannel experiences. Formulating plans grounded in multidimensional customer data will enable businesses to address customer demands with more precision. The present study is constrained in scope as it primarily examines the home improvement store business. Consequently, subsequent study ought to encompass more industries and evaluate the model in diverse circumstances to ascertain its precision and relevance on a wider scale.

Recommendations for Subsequent Investigations

To ensure the proposed conceptual framework is comprehensive and efficiently implemented, future studies should concentrate on evaluating and evaluating this framework across other business sectors, beyond just the home improvement store industry. Experiments in many domains will evaluate the reliability and efficacy of the synthesized ideas across diverse situations and can be tailored to address the requirements of each sector. Moreover, subsequent study ought to concentrate on methodically examining the correlation between several marketing channels and client pleasure and loyalty. The application of contemporary data analysis tools and sophisticated analytical methods, including descriptive data analysis and predictive models, will yield insights into customer behavior and enhance marketing tactics to be more precise and adaptive to the digital marketplace.

References

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211.

Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behavior: A meta-analytic review. British Journal of Social Psychology, 40(4), 471–499.

Asch, S. E. (1961). Opinions and social pressure. In B. Berelson (Ed.), Advances in experimental social psychology (Vol. 4, pp. 185–233). Academic Press.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Prentice-Hall.

Bandura, A., & Walters, R. H. (1963). Social learning and personality development. Holt, Rinehart & Winston.

Brakus, J. J., Schmitt, B. H., & Zarantonello, L. (2009). Brand experience: What is it? How is it measured? Does it affect loyalty? Journal of Marketing, 73(3), 52–68.

Cialdini, R. B. (2009). Influence: Science and practice (5th ed.). Allyn & Bacon.

Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. Journal of Management, 31(6), 874–900.

Ekman, P. (1992). An argument for basic emotions. Cognition & Emotion, 6(3–4), 169–200.

Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. Addison-Wesley.

Festinger, L. (1954). A theory of cognitive dissonance. Stanford University Press.

Homans, G. C. (1958). Social behavior as exchange. American Journal of Sociology, 63(6), 597–606.

Kelman, H. C. (1953). Processes of opinion change. Public Opinion Quarterly, 17(1), 1–11.

Kelman, H. C. (1974). Processes of opinion change. In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 7, pp. 1–74). Academic Press.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. Journal of Marketing, 80(6), 69–96.

Madden, T. J., Ellen, P. S., & Ajzen, I. (1992). A comparison of the theory of planned behavior and the theory of reasoned action. Personality and Social Psychology Bulletin, 18(1), 3–9.

McBurney, A. (2003). Understanding emotional processes. [Publisher information].

Neslin, S. A., Grewal, D., Leghorn, R., Shankar, V., Teerling, M. L., Thomas, J. S., & Verhoef, P. C. (2006). Challenges and opportunities in multichannel customer management. Journal of Service Research, 9(2), 95–112.

Ormrod, J. E. (2014). Educational psychology: Developing learners (8th ed.). Pearson.

Piotrowicz, W., & Cuthbertson, R. (2014). Introduction to the special issue: Information management in retail: New directions for theory and practice. International Journal of Information Management, 34(3), 235–238.

Russell, J. A. (1980). A circumplex model of affect. Journal of Personality and Social Psychology, 39(6), 1161–1178.

Scherer, K. R. (2005). What are emotions? And how can they be measured? Social Science Information, 44(4), 695–729.

Verhoef, P. C., Kannan, P. K., & Inman, J. J. (2015). From multi-channel retailing to omni-channel retailing: Introduction to the special issue on multi-channel retailing. Journal of Retailing, 91(2), 174–181.

Zeng, F., Huang, L., & Dou, W. (2023). The impact of brand experience on brand loyalty: Evidence from online customer reviews. Journal of Business Research, 150, 15–24.

The Use of New Media in Improving Investment and Risk-Management Knowledge through Perspectives of Investors and Financial Advisors

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Abstract

This paper serves as a guide for novice investors entering the competitive world of investing, emphasizing the shared goal of financial gain and the importance of finding reliable information. The study focuses on two key objectives: how investors seek trustworthy investment information in new media and how financial advisors consume online investment data. Using qualitative analysis, the research involved 20 participants, 10 experienced investors and 10 certified financial advisors, who provided insights through semi-structured interviews. Findings indicate that both groups increasingly rely on technology for immediate access to financial information. Investors prefer extensively used, easily accessible platforms, while advisors favor highly credible sources obtained through paid subscriptions, ensuring accuracy via fact-checking processes. The results underscore the necessity of sourcing accurate investment information, as misinformation can lead to costly mistakes. By addressing how investors and advisors identify trustworthy data, this study bridges a knowledge gap, helping future investors make informed decisions and enhance profitability in financial markets.

Keywords: Investment Knowledge, Financial Advisors, Investors, Stock Market, Trade

Introduction

The stock market has been a place where investors can make massive amounts of money and can be a place where investors lose their whole life savings. It is known as a competition between two parties which are buyers and sellers. Many investors exit the market due to fear of losing more capital. They will choose to invest in mutual funds or exchange traded funds. One thing that separates novice investors to veteran investors is the amount of time spent on planning a trade. For having success in stock investment, the traders will need knowledge which require several skills and techniques. Most traders quit trading in the first 6-12 months because the amount of capital that they lost

exceeds there threshold and they might not be able to take any further risks (Rose, 2016). For traders to beat the market, there are guidelines which need to be followed. There are many cases where stock market is potentially manipulated by a person or a hedge fund which could also mean novice traders that lack information might not be able to catch the news. This study will provide guidelines and criteria for beginner and advanced traders to seek further knowledge on verifying the source of information through new media. Finding the right information to support the decision to enter a trade is what makes the difference between good and bad traders. In the new media era, finding information could not be easier because of how far technology has come. News of each stock is updated daily by places like Trading View or Yahoo Finance. Although there have been many developments in new media e.g., online newspapers, webpages, social media networks, audiovisual streaming platforms and so forth, we live in a world where people are free to write ideas or misleading information on platforms that do not verify the integrity of the information. It can be seen that the problem listed above brings grave importance and awareness to the online community. Ziyue (2023) states that "the role of media in the stock market is increasing because of the rapid development of the internet. Finding news for each stock is not that hard, but finding the right news for each stock can be challenging because sources found on the internet are not always vetted. Some information or articles are written by investors themselves who have little or no experience whatsoever. Novice investors tend to have self-bias by finding news that supports their positions instead of finding the correct news first before entering a position. This comes to the purposes of this study as follows:

Objectives

1. To explore a way to seek investing information from trusted sources published in new media via the viewpoint of investors.
2. To examine how to consume investing information on the Internet via the viewpoint of financial advisors.

Concept theory framework

Literature review

Coherence Theory

Coherence theory is when a significant amount of people agrees with the statement that proves to be true. It is simply consistency between all parties that they agree on the same aspect (Young, 2024). Coherence theory is based on radical skepticism and avoids problems of the correspondence theory. Considerations about meaning have pointed research in the same direction that if all holds true about what

the people believe then the statement is correct (Walker, 2018). It has different meanings despite having the same beliefs due to the complexity of the situation. Furthermore, it has never been precisely defined. Coherence theory can integrate to the study due to in the social media era consuming information from various sources is the new norm. Finding the source that is verified and certified can be difficult because people with new technology are not only consuming content but are creating content for others to consume as well.

Source Credibility Theory

Source credibility theory is when people or receivers are more likely to be persuaded when the source presents itself as credible. Furthermore, source credibility can be defined in many ways. Source credibility can be defined as a person with good looks to promote a skin care product representing a good look, a well-dressed person giving a lecture can lead to more credible outlook due to the way that person handled themselves (Umeogu, 2012). Friedman and Friedman (1979) state that trustworthiness is the major factor in source credibility. Source credibility was propounded by Hovland, Janis and Kelly in 1963. They stated that people or receivers are more likely to persuade when the source presents itself as credible. Credibility refers to honesty and trustworthiness. It shows the confidence and integrity of a person's knowledge and presentation. In short, source credibility means trusting the source that is presented or being able to believe in that statement (Umeogu, 2012).

Behavior Finance Theory

According to Hayes (2023), Behavioral Finance proposes that psychological influences and biases affect the financial behaviors of investors and financial practitioners. Moreover, influences and biases can be the source for the explanation of all types of market anomalies and specifically market anomalies in the stock market, such as severe rises or falls in stock price. This theory can also explain many irrational decisions from investors in volatile circumstances. Behavior finance theory normally happens during times when stocks are at their peak or when stocks are falling dramatically like during wars and economic data displays. Behavioral finance can be integrated into this study because of how much emotions affect market and investment decisions. Behavior finance doesn't only occur mentally but occur physically as well. Emotions could also affect performance when traders decide to over analyze or over search which could mean traders could miss a key entering opportunity. Market volatility can be created by uncertainty of ones confident in different circumstances. Many investors can grasp the concept of behavioral finance but one never thinks about how emotions affect their trading. Many studies have stated that most people who quit

trading are ones that trade with their heart not their mind. This means trading without having a fundamental or researching enough about the stock to trade it.

User Gratification Theory

Users and Gratification theory (UGT) refers that people choose to consume certain kinds of media because they expect to gain satisfaction and gratification from those selections. UGT focuses on media consumers instead of the media itself because it focuses on the content consumers instead of content providers (Vinney, 2024) Then, it can be used in many situations especially in digital finance. Emotions are the key element in investing because controlling your emotions is key to being successful. Understanding what content to search for and what is required to find resourceful content is crucial in consuming the right information for the right circumstance. This theory could be integrated into this study because of how much new media has changed this theory. Being able to use the theory created in the 1940s to describe it with technology that has developed media to its fullest potential. This study will not only cover what investors choose to consume but will also give readers current information on how biased investors are when they research on the stock they invest in.

Materials and Methods

This study adopted qualitative research due to a reception of detailed data in explanation (Verhoef & Casebeer, 1997), to be able to interpret complex subject or topic more simple while keeping all the details intact (Rahman, 2017) and to gain different viewpoints from the interview and being able to understand different persons behavior throughout the interview was also be beneficial (Richardson, 2012). It used in-depth interviews with both 10 investors and 10 financial advisors. Advisors and investors gave permission to be interviewed, and both gave permission to be included in the paper with no limits from confidentiality. Convenience *sampling* was selected because of a good sample for general representatives currently. The advantages of *convenience sampling* are 1) less effort to select the participants compared to other non-random sampling techniques, 2) little time investment since the sample is readily accessible, 3) no need for a list of population elements, 4) a wealth of qualification data While another 10 interviewees were recruited, s*nowball sampling* was chosen because of a way to get more experts faster and reliability. Snowball sampling is used mainly when a test requires a group of participants that could not be organized to a group meeting, so this method was required. There were three criteria to meet: 1) experience working in the financial field, 2) having a license for Investment Consultant (IC), 3) graduating in the school of finance.

Semi-structured interviews were employed in this study because of 1) an exploration of new ideas that might come up during the course of an interview

(Olatunde et al., 2021) and a revival of hidden information that may turn out to be helpful in the final data analysis of different themes (Kakilla, 2021). As questions for the investors, the study focused on how investors used new media to make profit or find new information on a stock. As for a list of questions for investors' and financial advisors' participants, there were six parts which included 1) background of investment, 2) knowledge about investment, 3) knowledge about risk management, 4) source of information, 5) information from brokers, and 6) making a decision. Although the structure of the question lists was similar, there were slight differences in some parts and questions to meet the proposed in this study.

After the data collection was completed, a process of data analysis had started. Firstly, a conversation from interviewees was transcribed and reported as categorized notes with coding sheets. Data was adjusted by modes of inquires which separated into two sides; in particular, investors and financial advisors' participants, Then, they were sorted by points to be ready for analysis. After finishing the analysis, the findings were reported in this article.

Results

This section will start to report a finding based on the objective in which the first research objective is addressed. From the research gathered during the in-depth interview, it showed that almost 50 percent of investors' participants stated that they use new media (Facebook Group) as a tool or search engine for finding information on the stock they invested or went to invest in. Facebook had been a popular social media network for investors because 1) most people already used Facebook during their daily lives, 2) there was no waiting time to get the news. They believed that the information they saw in the posts was true because many of them in the group agreed. Facebook posts could be beneficial because of verity opinions in a community which can spark an idea or having an issue to consider an investment. When an investor posts a question in a group about a certain stock or posts their portfolio, other members could advise that the portfolio could include a certain sector, and this sector might be overly bought. This gives an investor a different mindset and different opinions on how they could invest or allocate their portfolio. This statement from investors also correlated with the statement, as Cline (2018) noted that the statement could be deemed true if majority of people agree on the same thing. The participants believed that information given by different members of the group was trustworthy information despite any biases contained in the statements. They gained confidence with their stock when they saw a group of people commenting or agreeing with the statement among investors. This indicates that the participants use the social media network (i.e., Facebook posts) to receive and evaluate investment before taking an action.

As for the rest of the investors' participants, they argued that using other forms of new media for news and information gave them more confidence because the information stated came from a trusted source or a trusted website. This gives the investors more confidence because the information received does not contain any bias's opinion. Also, it was reported and shown via reported news which was a high level of source creditability based on the notion of Umeogu (2012). Investors' participants also stated that no matter what the members in the group said, they needed to make their own decision and analyze the stock themselves. In addition to consensus among the advisors' participants, they agreed that investors usually traded blindly without any information, but it stuck with advisor recommendations performed better due to advisors giving specific trade recommendations with different products. This might be another option to consume financial information before taking an investment.

Moreover, investors' participants used new media to search for specific information on a stock that they hold or planned to trade to find information like P/E (price to earnings ratio) and the market capitalization. These are basic information that an investor should know before entering a trade because these two factors include essential information to know how big the company is in the stock market and how overvalued or undervalued the stock is. It means that investors' participants could use new media to diversify investments by researching different types of Exchange Traded funds to see the holdings from each of those big funds. They could use that information to form their own holdings. This could save investors time to research individual stock names because those holdings from ETFs were already researched by qualified hedge funds before rolling out the ETFs to the public.

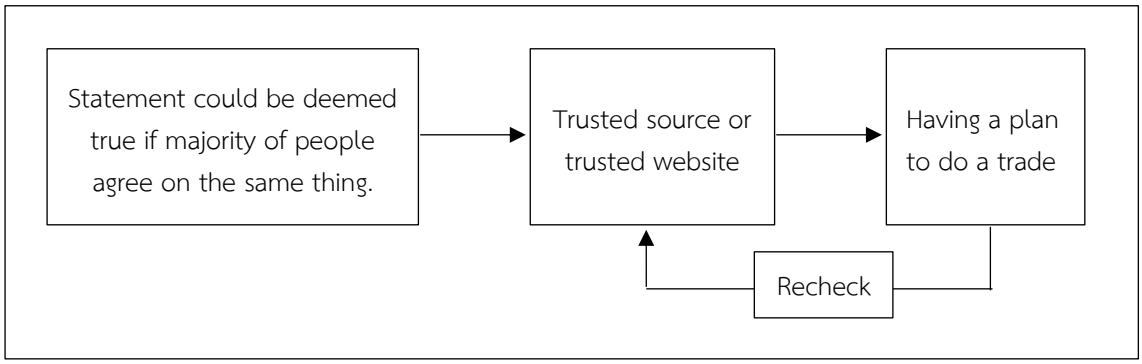


Figure 1: A pattern to confirm finance information through new media channels which are perceived by investors.

As shown in Figure 1, it is a diagram to depict their way of making decisions to buy or sell their own assets in a technical method. Focusing on the first step, they might receive some information from the Internet (such as Facebook, X, and other social

networks). Trusted sources or websites were considered to check a concept of reliability and validity. There were many sources mentioned in the interviews but the majority of the participants did three acts which included 1) checking URL which did not swap a letter for a similar-looking character like replacing the "o" in *amazon.com* with a zero to create *amaz0n.com*, 2) checking a green icon of locked key in the address bar, and 3) avoiding a short URL and see the beginning at the URL which should start with "*https*". After the process of site checking passed, the participants might ask themselves about the fact that this action was suitable to their goals. To decide in accordance with logical reasons without bias, it moved to a step of rechecking before confirming a transaction. A minority of the participants suggested that they used their own bookmarks or to type a URL or password to confirm their transactions by themselves every time.

Furthermore, most investors' participants suggested that AI tools were very famous to get more ideas to make an investment. They also say that the new digital media search engine from OpenAI called ChatGPT. One of the participants stated that "*ChatGPT has been the influence of giving very good information, but investors also caution future investors that the information related to these stocks are generated by AI which can also represent inaccurate information*." However, "*all the suggestions by AI do not always represent accurate information in which it needs a double-check*," as one of them said. It can be argued that trusting artificial intelligence might be the future of stock trading, but it can also be used to trick investors into a trap which is another reason why new media could be dangerous.

To respond to the second objective which focused on advisors' participants, the results found that the product they use to find information was not very different, but the different types of sources provided different information. That is, they still used 1) search engines, 2) social media networks, 3) mass media and new media. However, the participants are working for banks or financial institutions. In short, their workplaces provide many sources of support to run a business for the companies. Fortunately, there have been numerous reports which come from accurate and reliable sources. Thus, it can be mentioned that the method that advisors used relates to source credibility theory because the paid subscriptions also come from different well-known applications or companies. This might be different when compared to the investors' side.

One of the significant tools used by advisors' participants, paid subscriptions or corporate services were deemed as a tool to confirm the source reliability. That is, there were several services they used, but the participants gave some examples shown in Table 1.

Table 1: paid subscription employed by financial institutions.

Software name / service	Price (per year)	Advantage
Benzinga Pro	166.42 USD	Fast and accurate data
Trading View	155-159 USD	Ability to insert and customize indicators
Investing	234-824 USD	Fast and accurate data

Table 1 indicates that paid subscriptions and services employed by financial institutions are utilized as an important tool in validating cross-checking data. One of the advisors' participants provide an idea in the sense that "*the principal key is to make the highest profit to the company … that why they are willing to pay for the paid services to many providers and repeating the services every year-round.*" One of the reasons why financial institutions have more information from several providers is a result of a protection of crisis and risk management. This indicates that the institutions are trying to decide whether to invest or cut their loss based on precise information in which this can occur in the case of organizational level only, not personal level exactly.

Moreover, most advisors' participants stressed that a stage of diversification was a serious issue to be considered. "*Diversifying could also hurt investors if they diversify the wrong sector at the wrong time*," as one of them said. To clarify, this means diversifying in sectors that are not necessary for the time being, for example, investing in oil stocks when there is not any major war happening or investing in consumer staples when there is not any major recession or economic breakdown. Diversifying helps in times where economic uncertainty happens, and investors must rely on different stocks that give dividend payments and stocks that are value stocks. Dividend payments are also important in times where growth stocks are not doing well so institutions will rely on companies that are recession proof stocks.

For example, investing in the S&P500 index is a good way to hedge against market volatility because the index has far outperformed other indexes due to growth and control the country has over others. This can be a very good place to start for novice investors who are afraid of losing money in individual stocks or need a place to park cash instead of putting it in a savings account. It has an ETF (exchange traded fund) that links to the performance of the S&P500. Ticker symbol SPY is still the largest ETF in the world right now and has been for many years.



Figure 2: A comparison of seeking information between investors and advisors.

As shown in Figure 2, it demonstrated that investors and advisors have different ways to receive and verify sources of investing information. Investors tend to use personal public tools that are available for free due to the restricted capital. They verified their sources through their own personal knowledge. It means that they could also take advice from Facebook groups, whereas advisors have different tools for checking. It is because of institution grade software that is used around the world. On the other hand, personal investors verified sources of information through their knowledge and skills. In this case, it can be clear that the stage of verified investing information between the organizational and personal levels is different.

Finally, the main point of having the verified information is about making an investment to create a profit. Either organizational or personal level, they have shared a common thing together. That is, it is a sense of decision making in which they are trying to avoid emotional and to use logical thinking to select the right investment. As Hayes (2023) notes, behavioral finance theory is when investors use behavior and emotions to overtake reasoning instead of using facts. This is when most investors lose their capital because of the irrational behavior created by the market paradox. Market paradox occurs during a volatile time in the stock market. One of the advisors' participants suggested that "*they might need to hold or accept huge amounts of losses because not all stocks are required to hold for the short term, some stocks require long term hold that might affect a personal decision after knowing that the cash they use are not suitable for long term holds*". This can confirm that both financial investors and advisors need the correct data as much as possible but the method of gaining the data is limited because of their capital numbers of asserts held in their hands.

Conclusions and Discussion

This study has shown that investors rely mostly on their own judgement instead of finding information that relates to their trading strategies. Yuniningsih et al. (2017) stated that investors' decision making could change if there are signs that show the information from a source is not accurate. This means that investors could have a change in mindset if shown any doubt in the source they found. Some investors rely on random information from posts like reddit or Trading View which are information from investors who hold the stock itself, and that means being biased to their own investors. Financial advisors stated that investors should at least have one financial advisor because advisors can give different product related investment that is suitable for that kind of market structure or economic timing. Advisors have a major impact in an investor's portfolio because the accurate and expert in financial decisions helps investors find products that help them in certain situations (Chalmers & Reuter, 2012). This article would be and benchmark and a benefit for investors who are looking to enter the stock market with novice experience because they will know what to look for and what to start with. Investors who start trading will start with trading options or CFD (contract for difference) which is the hardest type of investment because it is the easiest way to lose money without knowing what happened. This research clearly stated that investing blindly will always result in a loss in capital and the important aspect of this article is to introduce different products that can make money instead. In terms of understanding new media, it is important to understand technology does not only help investors, but it can also hurt investors if it is used the wrong way. Technology has developed so far that it can be used to lure investors to a trap if they decide to listen to podcasts like YouTube or different media sources. Investors benefit by having the freedom to find and locate sources from all over the internet, but it also comes with disadvantages. These sources might not be accurate because they could contain self-biased information that could lead to inaccurate decisions. Advisors also contain advantages in research due to how accurate and well-sourced information could be received because the software used is different compared to investors. Disadvantages from advisors contain that advisors do not have the freedom to use other sources except the sources that are given. Both sides need to be cautious about the source they use because no matter how accurate the sources are it could still be different from the actual news. Advisors and investors still need to check their sources with other locations or institutions because they need to make sure the information they give to others is in the best interest of the investors, not just the institution.

In conclusion, this research has been designed to help investors if they should start investing after reading what the risks are. If the investor decides to continue knowing the risks, then investors should seek a financial advisor to suggest and move money to the right place. Having wide knowledge will help investors in deciding when to enter the market and understanding the risk parameters which will give a good indication of whether this product is right for the investors themselves. There will always be new products and new technology to help investors make better decisions, but the question is “will these products make investors feel more confident?” or “will it remove investors from the stock market because they realize how scary it is.”

References

Chalmers, J., & Reuter, J. (2012). What is the impact of financial advisors on retirement portfolio choices and outcomes? National Bureau of Economic Research.

Cline, A. (2018). The coherence theory of truth. Retrived from https://www.learnreligions.com/coherence-theory-of-truth-250537

Friedman, H. H., & Friedman, L. (1979). Endorser effectiveness by product type. Journal of Advertising Research, 19(5), 63-71. https://psycnet.apa.org/record/1981-04308-001

Hayes, A. (2023). Behavioral finance: Biases, emotions and financial behavior. Retrived from https://www.investopedia.com/terms/b/behavioralfinance.asp

Kakilla, C. (2021). Strengths and weaknesses of semi-structured interviews in qualitative research: A critical essay. Preprints, 1-4. https://doi.org/doi:10.20944/preprints202106.0491.v1

Olatunde, A. A. O., & Olenik, N. (2021). Research and scholarly methods: Semi-structured interviews. Journal of the Amercian College of Clinical Pharmacy, 4(10), 1358-1367. https://doi.org/https://doi.org/10.1002/jac5.1441

Rahman, S. (2017). The Advantages and disadvantages of using qualitative and quantitative approaches and methods in language "testing and assessment" research: A literature review. Journal of Education and Learning Canadian Center of Science and Education, 6(1), 103-112. https://doi.org/http://hdl.handle.net/10026.1/16598

Rose, E. (2016). Why most traders quit in the first 6 to 12 months. Retrieved from https://www.linkedin.com/pulse/why-most-traders-quit-first-6-12-months-eden-rose

Umeogu, B. (2012). Source crediblity: A philosophical analysis. Open Journal of Philosophy, 2(2), 112-115. https://doi.org/http://dx.doi.org/10.4236/ojpp.2012.22017

Verhoef, M. J., & Casebeer, A. L. (1997). Broadening horizons: Integrating quantitative and qualitative research. The Canadian Journal of Infectious Diseases, 8(2), 65-66. https://doi.org/https://doi.org/10.1155/1997/349145

Vinney, C. (2024). Users and gratifications theory in media psychology. Retrieved from https://www.verywellmind.com/what-is-uses-and-gratifications-theory-in-media-psychology-5217572

Young, J. O. (2024). The coherence theory of truth. In E. N. Zalta & U. Nodelman (Eds.), The Stanford encyclopedia of philosophy (Summer 2024 ed.). https://plato.stanford.edu/cgi-bin/encyclopedia/archinfo.cgi?entry=truth-coherence

Yuniningsih, Y., Widodo, S., & Wajdi, M. B. (2017). An analysis of decision making in the stock investment. Jurnal Ekonomi dan Hukum Islam, 8(2), 122-129. http://ejournal.kopertais4.or.id/tapalkuda/index.php/economic/article/download/2987/2199

Ziyue, Z. (2023). Studying the impact of media coverage on the stock market using mediating effects. Proceedings of the 7th International conference on economic management and green development. https://www.researchgate.net/publication/375551677_Studying_the_Impact_of_Media_Coverage_on_the_Stock_Market_Using_Mediating_Effects







(ระดับชาติ)

กลุ่มมนุษยศาสตร์

การเรียนรู้ด้วยตนเองในพิพิธภัณฑ์นวดไทยสำหรับนักศึกษาชาวจีน
Self-Directed Learning in the Nuad Thai Museum For Chinese students

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษา 1) ความรู้เรื่องนวดไทยในพิพิธภัณฑ์นวดไทย และ 2) วิธีการเรียนรู้ด้วยตนเองในพิพิธภัณฑ์นวดไทยของนักศึกษาชาวจีน กำหนดพื้นที่ที่ใช้ในการวิจัยเป็นพิพิธภัณฑ์นวดไทย วัดโพธิ์ ณ กรุงเทพมหานคร ซึ่งเก็บรวบรวมข้อมูล โดยการสัมภาษณ์นักศึกษาชาวจีน ที่เรียนสาขาวิชาภาษาไทย จำนวน 10 คน และผู้ดูแลพิพิธภัณฑ์นวดไทย จำนวน 1 คน และวิเคราะห์ข้อมูลโดยการวิเคราะห์เชิงเนื้อหา (Content Analysis) ผลการวิจัยพบว่า ความรู้ในพิพิธภัณฑ์นวดไทยมีทั้งหมด 10 เรื่อง ได้แก่ ความเป็นมาของนวดไทย ประเภทของการนวด การนวดเป็นธุรกิจบริการด้านสุขภาพ นวดไทย 4 ภาค โรงเรียนแพทย์แผนโบราณวัดพระเชตุพน (วัดโพธิ์) นวดไทยขึ้นทะเบียนเป็นมรดกโลก สมุนไพรไทยที่ใช้ในการนวด ห้องแพทย์จำลอง ลักษณะของนวดไทยตำรับวัดโพธิ์ และมาตรฐานประกอบวิชาชีพหมอนวด นักศึกษาชาวจีนสามารถเรียนรู้เรื่องนวดไทยด้วยตนเองในพิพิธภัณฑ์นวดไทยโดย 3 วิธีตามลำดับ ได้แก่ การอ่าน การฟัง และการดู เนื่องจากพิพิธภัณฑ์นวดไทยออกแบบนิทรรศการด้วยวิธีการจัดหลายวิธี ได้แก่ จัดป้ายบรรยายให้อ่าน จัดคลิปวิดีโอให้ฟังเสียงภาษาไทย และจัดห้องแพทย์จำลองให้ดู

คำสำคัญ: การเรียนรู้ด้วยตนเอง, พิพิธภัณฑ์นวดไทย, นักศึกษาชาวจีน

Abstract

This research aims to explore the knowledge of: 1) the knowledge of Nuad Thai (Traditional Thai Massage) at the Nuad Thai Museum, and 2) the self-directed learning methods for Chinese Students within the museum. Research setting: Nuad Thai Museum at Wat Pho, Bangkok. Which collected data by interviewing 10 Chinese students majoring in Thai language and 1 caretaker of the Nuad Thai museum, and analyzed the data through content analysis. The research results found that the Nuad Thai Museum provides knowledge in 10 topics: The history of Nuad Thai, Types of Nuad Thai, Nuad Thai in health service businesses, Nuad Thai in 4 regionals, Wat Pho Traditional Thai Massage School, Nuad Thai as a UNESCO-listed cultural heritage, Thai herbs used in Nuad Thai, Simulated medical room, Characteristics of Nuad Thai Wat Pho style, and Professional standards of

massage therapists. Chinese students can self-directed learning knowledge about Nuad Thai at the Nuad Thai Museum in 3 way in order: reading, listening, and Watching. Since the Nuad Thai Museum designs its exhibitions in several ways, including using descriptive signs to read, providing video clips with Thai language audio, and providing a simulated medical room for watch.

Keywords: self-directed learning, Nuad Thai Museum, Chinese students

บทนำ

นวดไทยเป็นภูมิปัญญาของคนไทยที่สืบทอดกันมาแบบรุ่นสู่รุ่น มีประโยชน์ในด้านสุขภาพ ประเทศไทยจึงได้ขึ้นทะเบียนนวดไทยเป็นมรดกภูมิปัญญาทางวัฒนธรรมระดับชาติ เพื่ออนุรักษ์ความรู้นวดไทยเมื่อ พ.ศ. 2554 หลังจากนั้น นวดไทยได้รับการขึ้นทะเบียนเป็นมรดกทางวัฒนธรรมที่จับต้องไม่ได้ของมนุษยชาติจากองค์การการศึกษา วิทยาศาสตร์ และวัฒนธรรมแห่งสหประชาชาติ เมื่อวันที่ 12 ธันวาคม พ.ศ. 2562 ซึ่งทำให้ประเทศไทยให้ความสำคัญกับนวดไทยมากยิ่งขึ้น (พระเทพวัชราจารย์ และนิเวศน์ บวรกุลวัฒน์, 2565) ซึ่งวัดพระเชตุพนวิมลมังคลารามราชวรมหาวิหาร หรือ วัดโพธิ์ เป็นสถานที่ที่เก็บรวบรวมและบันทึกความรู้เรื่องนวดไทยครบถ้วนตั้งแต่รัชกาลที่ 3 นวดไทยของวัดโพธิ์จึงมีประวัติอันยาวนาน มีชื่อเสียง และได้รับความนิยมทั้งคนไทยและชาวต่างชาติ ในงานวิจัยของ Mingshan Xie (2565) ได้กล่าวว่า วัดโพธิ์เป็นจุดกำเนิดของการนวด ภายในวัดโพธิ์สามารถเรียนรู้ความรู้ที่เกี่ยวกับเรื่องนวดไทยหลายเรื่อง ได้แก่ นวดไทยเป็นมรดกภูมิปัญญาทางวัฒนธรรมด้านสุขภาพ การนวดของวัดโพธิ์เป็นต้นตำรับของนวดไทย ฤาษีดัดตน ท่าทางในนวดไทย และนวดไทยได้รับการรับรองและได้ขึ้นทะเบียนเป็นมรดกทางวัฒนธรรมที่จับต้องไม่ได้

จะเห็นได้ว่าการนวดไทยถือเป็นวัฒนธรรมสำคัญอย่างหนึ่งของประเทศไทย โดยในตำราเรียนภาษาไทยของประเทศจีนได้มีเนื้อหาเกี่ยวกับวัดโพธิ์และนวดไทย เนื่องจากเป็นส่วนหนึ่งที่สำคัญของวัฒนธรรมไทย 泰国民俗与文化 (ประเพณีและวัฒนธรรมไทย) ของ Qi Shengzhong (2013) กล่าวถึงวัดโพธิ์ว่า เป็นแหล่งรวบรวมความรู้ที่เกี่ยวข้องกับนวดไทย ภายในวัดโพธิ์มีจารึกติดไว้ตามเสาของศาลารายจารึกรวมความรู้หลายด้านหลายวิชาโดยเฉพาะนวดไทย มีคัมภีร์เกี่ยวกับนวดไทย และมีฤาษีดัดตน ซึ่งมีความสัมพันธ์เกี่ยวกับนวดไทยเพื่อให้สุขภาพแข็งแรง และในตำราเรียนภาษาไทย 泰语阅读教程 (2) (วิชาการอ่านภาษาไทย) ได้กล่าวถึงประวัติของนวดไทย วิธีการนวดเส้นประธานสิบประเภทของนวดไทย ปัจจุบันนวดไทยได้รับความนิยมทั้งชาวไทยและชาวต่างชาติ และวัดโพธิ์เป็นแหล่งเรียนรู้สามารถเรียนความรู้จากตำรายา ฤาษีดัดตน และตำรานวด โดยมีเนื้อหากล่าวว่า

> “นวดแผนไทย ศาสตร์ประจำชาติอายุเก่าแก่หลายร้อยปีกำลังกลับมาได้รับความนิยมอย่างยิ่งในยุคนี้ ทั้งในหมู่คนไทยและชาวต่างชาติ เห็นได้จากร้านนวดแผนไทยและสปาที่มีบริการนวดแผนไทยเกิดขึ้นจำนวนมากทั้งในกรุงเทพฯ และต่างจังหวัด ไม่เฉพาะแหล่งท่องเที่ยวหรือย่านธุรกิจ รวมทั้งตามโรงแรมหรูหรือศูนย์การค้า แม้แต่ตามตรอกซอกซอยจะสามารถสังเกตเห็นป้าย “บริการนวดแผนไทย” ได้ไม่ยาก”
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> (Yang Shaoquan & Ren Zhiyuan, 2020)

นอกจากนี้ 高等学校外国语言文学类专业本科教学质量国家标准 (มาตรฐานแห่งชาติด้านคุณภาพการเรียนการสอนระดับปริญญาตรีด้านภาษาและวรรณคดีต่างประเทศในวิทยาลัยและมหาวิทยาลัย) (Sun Youzhong, 2019) เสนอว่า ความสามารถทางด้านการเรียนรู้ด้วยตนเองเป็นความสามารถสำคัญอย่างหนึ่งของนักศึกษาที่เรียนสาขาวิชาภาษาต่างประเทศ สอดคล้องกับ Xu Jinfen (2020) กล่าวว่า ความสามารถการเรียนรู้ด้วยตนเองของการเรียนรู้ภาษาต่างประเทศไม่ใช่พัฒนาแบบเดี่ยว แต่เป็นการผสมผสานของความสามารถด้านการประยุกต์ใช้ภาษาต่างประเทศ ความสามารถในการคิดอย่างสร้างสรรค์ ความสามารถที่มีความคิดเชิงสร้างสรรค์ และความสามารถในการปฏิบัติ ซึ่งช่วยพัฒนาความสามารถของนักศึกษาอย่างครอบคลุม ดังนั้น การเรียนรู้ภาษาไทยที่เป็นภาษาต่างประเทศจึงต้องมีความสามารถทางด้านการเรียนรู้ด้วยตนเอง เพื่อพัฒนาภาษาไทยและความสามารถการเรียนรู้ของนักศึกษา จะเห็นได้ว่า การศึกษาภาษาไทยพร้อมกับเรียนวัฒนธรรมไทยผ่านการเรียนรู้ด้วยตนเองถือเป็นวิธีการเรียนภาษาที่สำคัญสำหรับนักศึกษาชาวจีนที่เรียนวิชาเอกภาษาไทย ดังนั้น ผู้วิจัยจึงสนใจศึกษาการเรียนรู้ด้วยตนเองในพิพิธภัณฑ์นวดไทย ในวัดโพธิ์ ณ กรุงเทพมหานคร สำหรับนักศึกษาชาวจีน เนื่องจากพิพิธภัณฑ์นวดไทยในวัดโพธิ์ ณ กรุงเทพมหานคร มีการจัดรูปแบบนิทรรศการที่หลากหลาย และผสมผสานกับเทคโนโลยี เพื่อเป็นแหล่งเผยแพร่ภูมิปัญญานวดไทยให้กับทั้งคนไทยและชาวต่างชาติ และเป็นสถานที่สามารถศึกษาความรู้เรื่องนวดไทยอย่างสมบูรณ์ (เที่ยวรอบทิศ, 2565)

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาความรู้เรื่องนวดไทยในพิพิธภัณฑ์นวดไทย
2. เพื่อศึกษาวิธีการเรียนรู้ด้วยตนเองในพิพิธภัณฑ์นวดไทยของนักศึกษาชาวจีน

วิธีดำเนินการวิจัย

1. การกำหนดพื้นที่ที่ใช้ในการวิจัย ได้แก่ พิพิธภัณฑ์นวดไทย วัดพระเชตุพนวิมลมังคลาราม ราชวรมหาวิหาร หรือ วัดโพธิ์ ณ กรุงเทพมหานคร

2. การสัมภาษณ์ผู้ให้ข้อมูลสำคัญ ได้แก่ นักศึกษาชาวจีน จำนวน 10 คน โดยผู้วิจัยระบุนักศึกษาชาวจีนเป็นผู้ที่เรียนวิชาภาษาไทยที่ประเทศไทย และผู้ดูแลพิพิธภัณฑ์นวดไทย จำนวน 1 คน

3. การออกแบบเครื่องมือที่ใช้ในการวิจัย ได้แก่ แบบบันทึกการสังเกตแบบไม่มีส่วนร่วม โดยผู้วิจัยสังเกตพฤติกรรมของนักศึกษาชาวจีนเมื่อเข้าชมในพิพิธภัณฑ์นวดไทย และแบบสัมภาษณ์แบบเจาะลึก โดยเน้นนักศึกษาชาวจีนใช้วิธีการเรียนรู้ด้วยตนเองวิธีใดในพิพิธภัณฑ์นวดไทย และได้รับความรู้เรื่องนวดไทยใด

4. การเก็บรวบรวมข้อมูล ผู้วิจัยเก็บรวบรวมข้อมูล ดังนี้

4.1 ผู้วิจัยลงพื้นที่เพื่อเก็บข้อมูลที่จัดแสดงในพิพิธภัณฑ์นวดไทย จำนวน 3 ครั้ง ได้แก่ ครั้งที่ 1 วันที่ 11 สิงหาคม พ.ศ. 2566 ครั้งที่ 2 วันที่ 3 ตุลาคม พ.ศ. 2566 และครั้งที่ 3 วันที่ 15 เมษายน พ.ศ. 2567 ผู้วิจัยเก็บข้อมูลจากนิทรรศการ ป้ายบรรยาย คลิปวิดีโอ รูปภาพ และสิ่งของที่จัดแสดงในพิพิธภัณฑ์นวดไทย

4.2 เมื่อวันที่ 15 กรกฎาคม พ.ศ. 2567 ผู้วิจัยสัมภาษณ์วิธีการเรียนรู้ด้วยตนเองภายในพิพิธภัณฑ์นวดไทย วัดโพธิ์ ณ กรุงเทพมหานคร จากนักศึกษาชาวจีน 10 คน พบว่า นักศึกษาชาวจีนสนใจเรียนความรู้เรื่องนวดไทย และมีความสามารถในการเรียนรู้ความรู้เรื่องนวดไทยในพิพิธภัณฑ์นวดไทย โดยอ่านป้ายบรรยาย ฟังเสียงภาษาไทยจากคลิปวิดีโอ และดูห้องแพทย์จำลอง เนื่องจากพิพิธภัณฑ์นวดไทย

จัดนิทรรศการหลากหลาย นักศึกษาชาวจีนจึงรู้สึกน่าสนใจ มีความเพลิดเพลิน และไม่รู้สึกเบื่อ หลังเข้าเรียนนักศึกษาชาวจีนได้ความรู้เรื่องนวดไทยมากมาย เช่น ที่มาของนวดไทย และเข้าใจว่านวดไทยมีชื่อเสียงทั่วโลกเพราะเป็นภูมิปัญญาของคนไทยที่ใช้การดูแลสุขภาพ จึงเป็นความรู้ด้านสุขภาพที่มีคุณค่าต่อสังคม เป็นต้น



ภาพที่ 1 นักศึกษาชาวจีนเรียนรู้ด้วยตนเองในพิพิธภัณฑ์นวดไทย

4.3 เมื่อวันที่ 11 สิงหาคม พ.ศ. 2567 ผู้วิจัยสัมภาษณ์วิธีการจัดรูปแบบนิทรรศการของพิพิธภัณฑ์นวดไทย จากผู้ดูแลพิพิธภัณฑ์นวดไทย จำนวน 1 คน พบว่า แผนที่โลกที่จัดแสดงในพิพิธภัณฑ์นวดไทยเป็นแผนที่ที่ทำให้ผู้เข้าชมเข้าใจว่านวดไทยมีชื่อเสียงทั่วโลกและทั่วโลกชื่นชอบ หลายประเทศนิยมให้หมอนวดไทยไปประกอบอาชีพหมอนวด จากแผนที่โลกสามารถเข้าใจว่าประเทศไทยได้ส่งหมอนวดไปทำงานหลายประเทศ และพิพิธภัณฑ์นวดไทยจัดสมุนไพรจริงให้ดูโดยเก็บตามรสสมุนไพรไว้ในแต่ละลิ้นชัก เพื่อให้ผู้เข้าชมสามารถดูรูปร่างของสมุนไพร และแยกสมุนไพรตามรสได้ ในตู้กระจกจัดแสดงผลิตภัณฑ์หลากหลายที่ทำจากสมุนไพร เพื่อให้ผู้เข้าชมรู้จัก เช่น ยาหม่อง น้ำมันไพล และ MASK เป็นต้น



ภาพที่ 2 ยาหม่อง น้ำมันไพล และ MASK

5. การวิเคราะห์ข้อมูล ได้แก่ ผู้วิจัยนำข้อมูลที่ได้มาวิเคราะห์เชิงเนื้อหา (Content Analysis) เพื่อศึกษาความรู้เรื่องนวดไทยในพิพิธภัณฑ์นวดไทย และวิธีการเรียนรู้ด้วยตนเองในพิพิธภัณฑ์นวดไทยของนักศึกษาชาวจีน

ผลการวิจัย

วัดพระเชตุพนวิมลมังคลารามราชวรมหาวิหาร หรือ วัดโพธิ์ เป็นมหาวิทยาลัยแห่งแรกของประเทศไทย ประชาชนสามารถเข้าเรียนความรู้ที่หลากหลายด้วยตนเอง อย่างเช่น แพทยศาสตร์ พุทธศาสตร์ อักษรศาสตร์ สถาปัตยกรรมศาสตร์ วิจิตรศิลป์ และความรู้รอบตัว ประชาชนสามารถเข้าวัดโพธิ์เลือกเรียนความรู้ที่สนใจและที่ต้องการโดยไม่มีครูสอน (กรณิศ รัตนามหัทธนะ, 2561) วัดโพธิ์จึงเป็นแหล่งเรียนรู้ด้วยตนเองของคนไทยโดยเฉพาะความรู้เรื่องนวดไทย

พิพิธภัณฑ์นวดไทยตั้งอยู่ภายหลังพระเจดีย์ 4 รัชกาลของวัดโพธิ์ ณ กรุงเทพมหานคร เพื่อเป็นแหล่งเรียนรู้เรื่องนวดไทยด้วยตนเอง พจนานุกรมฉบับราชบัณฑิตยสถาน พ.ศ. 2554 (ราชบัณฑิตยสถาน, 2556) อธิบายว่า พิพิธภัณฑ์ “เป็นสถานที่เก็บรวบรวมและแสดงสิ่งต่าง ๆ ที่มีความสำคัญด้านวัฒนธรรม หรือด้านวิทยาศาสตร์ โดยมีความมุ่งหมายเพื่อให้เป็นประโยชน์ต่อการศึกษา และก่อให้เกิดความเพลิดเพลินใจ” ดังนั้น พิพิธภัณฑ์นวดไทยจึงเป็นสถานที่ที่รวบรวมความรู้ที่เกี่ยวกับเรื่องนวดไทยต่าง ๆ

ผลการวิจัยมี 2 ประเด็น ได้แก่ ความรู้เรื่องนวดไทยในพิพิธภัณฑ์นวดไทย และวิธีการเรียนรู้ด้วยตนเองในพิพิธภัณฑ์นวดไทยของนักศึกษาชาวจีน โดยมีรายละเอียดดังนี้

1. ความรู้เรื่องนวดไทยในพิพิธภัณฑ์นวดไทย

ผู้วิจัยพบว่า ความรู้ในพิพิธภัณฑ์นวดไทยมีทั้งหมด 10 เรื่อง ดังนี้

1.1 ความเป็นมาของนวดไทย ปรากฏในคลิปวิดีโอ ชื่อเรื่อง “การนวดไทยจากอดีตถึงปัจจุบัน” กล่าวถึงนวดไทยเกิดขึ้นตั้งแต่ก่อนประวัติศาสตร์ไทย ประเทศไทยให้ความสำคัญกับหมอนวดตั้งแต่ยุคกรุงศรีอยุธยาเพราะตั้งกรมหมอนวด และรวบรวมตำรายาที่มีเนื้อหาเกี่ยวกับการนวดไว้ใน “ตำราพระโอสถพระนารายณ์” ต่อมา ในยุคสมัยรัตนโกสินทร์ รัชกาลที่ 1 โปรดให้รวบรวมความรู้ต่าง ๆ โดยเฉพาะเรื่องนวดไทยใน “ตำราโรคนิทาน คำฉันท์ 11” รัชกาลที่ 3 โปรดให้รวบรวมตำรับตำราต่าง ๆ และให้จารึกบนแผ่นศิลาติดในบริเวณวัดพระเชตุพนวิมลมังคลาราม โดยเฉพาะความรู้ที่เกี่ยวกับการแพทย์ โปรดให้รวบรวมความรู้เรื่องนวดไทยใน “ตำรายา ศิลาจารึกในวัดพระเชตุพนวิมลมังคลาราม (วัดโพธิ์) พระนครฉบับสมบูรณ์” และโปรดให้สร้างฤาษีดัดตนไว้ในบริเวณเขามอเพื่อให้ประชาชนเรียนรู้เพื่อส่งเสริมสุขภาพ รัชกาลที่ 5 โปรดให้ก่อตั้งโรงเรียนราชแพทยาลัยเพื่อสอนการนวด รัชกาลที่ 7 กำหนดให้การนวดกลายเป็นสาขาหนึ่งของผู้ประกอบโรคศิลปะแผนโบราณ รัชกาลที่ 9 ให้ความสำคัญกับการฟื้นฟูการแพทย์แผนไทยโดยเฉพาะนวดไทย รัชกาลที่ 10 โปรดให้ต่อยอดองค์ความรู้นวดไทยและนวดไทยได้ขึ้นทะเบียนเป็นมรดกภูมิปัญญาทางวัฒนธรรมที่จับต้องไม่ได้ระดับชาติและระดับโลก เพื่ออนุรักษ์องค์ความรู้ของนวดไทยให้ยังคงมีอยู่และสืบต่อให้คนรุ่นหลัง

1.2 นวดไทย 4 ภาค ในป้ายบรรยายกล่าวถึง นวดไทยเป็นศิลป์ด้วยวิธีการกด การนวด การดัด การดึง การใช้ความเย็นความร้อน และการใช้ยาสมุนไพรเพื่อประสิทธิผลที่ดีต่อร่างกาย หมอนวดต้องฝึกนิ้วมือในด้านการใช้พลังงานที่กด น้ำหนักที่กด และระยะเวลาที่กดจึงจะรักษาอาการและโรคของผู้ป่วยให้หายดี นวดไทยเป็นวัฒนธรรมทางด้านการดูแลสุขภาพที่ปรากฏทั่วประเทศไทย และสืบทอดภายในชุมชน จึงเรียกว่าการนวดพื้นบ้าน ซึ่งมีความแตกต่างในแต่ละภูมิภาค จึงสามารถแบ่งตามภูมิประเทศเป็น 4 ประเภท ได้แก่ นวดไทยตำรับวัดโพธิ์ของภาคกลาง การนวดตอกเส้นของภาคเหนือ การนวดขิดเส้นของภาคตะวันออกเฉียงเหนือ และการนวดน้ำมันลังกาสุกะของภาคใต้ จึงสรุปได้ว่า แต่ละภูมิภาคมีวิธีการนวดที่แตกต่างกัน แต่วัตถุประสงค์ของการนวดเหมือนกัน คือ การดูแลสุขภาพและรักษาโรค

1.3 ประวัติความเป็นมาของโรงเรียนแพทย์แผนโบราณวัดพระเชตุพน (วัดโพธิ์) ในพิพิธภัณฑ์นวดไทยกล่าวถึง วัดโพธิ์เป็นแหล่งเรียนรู้ที่ดีสำหรับคนไทย เนื่องจากรัชกาลที่ 3 โปรดให้รวบรวมความรู้ต่าง ๆ จารึกไว้ตามเสาที่วัดโพธิ์ และเปิดให้ประชาชนเข้าเรียนด้วยตนเองโดยไม่เลือกชนชั้น ดังนั้น วัดโพธิ์จึงได้ชื่อว่า “มหาวิทยาลัยแห่งแรกของประเทศไทย” เมื่อวันที่ 30 พฤษภาคม พ.ศ. 2505 คณะแพทย์แผนโบราณขออนุมัติตั้งโรงเรียนแพทย์แผนโบราณวัดพระเชตุพนวิมลมังคลาราม (วัดโพธิ์) เพื่อเปิดสอนการแพทย์แผนโบราณและการนวดแผนโบราณ ปัจจุบันโรงเรียนแพทย์แผนโบราณวัดพระเชตุพนวิมลมังคลาราม (วัดโพธิ์) เป็นโรงเรียนที่ได้รับความเชื่อถือและการยอมรับทั่วโลก จึงเป็นโรงเรียนที่เผยแพร่

ความรู้เรื่องนวดไทยให้กับทั้งคนไทยและชาวต่างชาติ

1.4 การนวดเป็นธุรกิจบริการด้านสุขภาพ คนไทยและชาวต่างชาติจำนวนมากเข้ารับบริการนวดที่ร้านนวดไทย สามารถเห็นร้านนวดไทยมีทุกซอยทุกถนน จึงสรุปได้ว่า นวดไทยได้รับความนิยมเป็นอย่างมาก บริการนวดไทยเป็นธุรกิจบริการสุขภาพที่สำคัญสำหรับประเทศไทย รัฐบาลไทยจึงมีนโยบายให้นวดไทยกลายเป็นแหล่งนำรายได้เข้าประเทศไทย โดยอบรมและส่งหมอนวดไปทำงานที่ต่างประเทศเพื่อประกอบอาชีพหมอนวด เช่น ประเทศจีน ประเทศเกาหลี ประเทศเวียดนาม ประเทศอังกฤษ และประเทศเยอรมัน เป็นต้น



ภาพที่ 3 แผนที่โลกแสดงหมอนวดไทยประกอบอาชีพที่ต่างประเทศ

1.5 นวดไทยได้ขึ้นทะเบียนเป็นมรดกโลก นวดไทยเป็นแนวคิดด้านการดูแลและการรักษาโรคที่สืบทอดจากบรรพบุรุษแบบรุ่นสู่รุ่น ประเทศไทยเห็นคุณค่าของนวดไทยที่เป็นวัฒนธรรมทางด้านสุขภาพจึงเสนอ “นวดไทย” ให้กับองค์การการศึกษาวิทยาศาสตร์ และวัฒนธรรมแห่งสหประชาชาติ และเป็นรายการตัวแทนได้รับการรับรอง และได้ขึ้นทะเบียนเป็นมรดกภูมิปัญญาทางวัฒนธรรมที่จับต้องไม่ได้ของมนุษยชาติเมื่อวันที่ 12 ธันวาคม พ.ศ. 2562 เนื่องจากตรงกับหลักเกณฑ์พิจารณาดังนี้ ประการที่ 1 นวดไทยเป็นภูมิปัญญาที่เกิดขึ้นและเติบโตในครอบครัวและชุมชนระหว่างการปฏิบัติ จนกลายเป็นศาสตร์ที่ใช้ส่วนร่างกายเพื่อดูแลสุขภาพและทำให้ธาตุทั้ง 4 ของร่างกายไม่ผิดปกติโดยไม่ต้องใช้ยา ประการที่ 2 ประเทศไทยขึ้นทะเบียนนวดไทยเป็นมรดกภูมิปัญญาทางวัฒนธรรมระดับชาติ กระตุ้นให้คนไทยตระหนักถึงความสำคัญและคุณค่าของนวดไทยที่เป็นความรู้ทางด้านการดูแลและการรักษาสุขภาพ ประการที่ 3 ภาครัฐมีมาตรการต่าง ๆ เพื่อส่งเสริมและรักษานวดไทย ประการที่ 4 ชุมชน กลุ่มคน และบุคคลที่เกี่ยวข้องมีส่วนร่วมได้รับทราบและให้ความยินยอมในเรื่องการนำเสนอนวดไทยให้เป็นมรดกโลก และประการที่ 5 กระทรวงวัฒนธรรมขึ้นบัญชีนวดไทยเป็นมรดกภูมิปัญญาของประเทศไทย เมื่อวันที่ 2 กันยายน พ.ศ. 2554



ภาพที่ 4 “นวดไทย” เป็นรายการตัวแทนได้ขึ้นทะเบียนเป็นมรดกโลก

1.6 ประเภทของการนวด การนวดแบ่งตามผู้ที่รับบริการนวดและวิธีการนวดเป็นการนวดแบบราชสำนักและการนวดแบบเชลยศักดิ์ ได้แก่ การนวดแบบราชสำนักเป็นการนวดที่ใช้สำหรับเชื้อพระองค์ ซึ่งเป็นผู้ที่มีฐานะสูงและถือว่าร่างกายเป็นสิ่งที่บริสุทธิ์ คนอื่นไม่สามารถสัมผัสร่างกายของผู้ที่เป็นเชื้อพระองค์ได้ง่าย เมื่อมีความต้องการนวดก็ไม่ให้หมอนวดสัมผัสร่างกายมาก ดังนั้น หมอนวดจึงใช้นิ้วและมือในการนวดเท่านั้น ส่วนการนวดแบบเชลยศักดิ์ใช้สำหรับบุคคลทั่วไป ซึ่งมีวัตถุประสงค์เพื่อผ่อนคลายร่างกายและรักษาโรค จึงไม่กำหนดส่วนร่างกายและอุปกรณ์ที่ใช้ในการนวด เครื่องมือที่ใช้ในการนวดมีหลากหลาย เช่น มือ ศอก แขน เข่า เท้า และอุปกรณ์ที่ประกอบในการนวด เป็นต้น

1.7 ห้องแพทย์จำลอง ในเขตนี้มีโต๊ะของหมอสำหรับวินิจฉัยโรค ตู้กระจกจัดแสดงผลิตภัณฑ์ที่ทำจากสมุนไพร เช่น ยาดม ยาหม่อง เป็นต้น มีตู้ลิ้นชักจัดแสดงสมุนไพรตามรสสมุนไพร จำนวน 12 ลิ้นชัก ได้แก่ ยาดมสมุนไพร (ธาตุดิน / ธาตุน้ำ) ยาดมสมุนไพร (ธาตุลม / ธาตุไฟ) ยาพอกข้อ เครื่องยารสฝาด เครื่องยารสหวาน เครื่องยารสเมาเบื่อ เครื่องยารสขม เครื่องยารสเผ็ดร้อน เครื่องยารสมัน เครื่องยารสหอมเย็น เครื่องยารสเค็ม และเครื่องยารสเปรี้ยว มีเตียงนวดสำหรับคนเดียว ซึ่งทำให้เข้าใจว่านวดไทยจะนวดบนเตียงแบบไทยประดับดอกไม้สดเพื่อให้มีกลิ่นหอม มีใบรับรองประกอบอาชีพแพทย์แสดงว่าหากต้องการประกอบอาชีพแพทย์ต้องผ่านการอบรมและมีความรู้มากเพียงพอ นอกจากนี้ ภายในห้องแพทย์จำลองยังมีห้องอบสมุนไพรเพื่อให้เรียนรู้ว่าคนไทยอบสมุนไพรด้วยไอน้ำสมุนไพร ไอน้ำนั้นสามารถซึมเข้าผิวหนังเพื่อช่วยดูแลสุขภาพและรักษาโรคได้



ภาพที่ 5 ห้องแพทย์จำลอง

1.8 ลักษณะของนวดไทยตำรับวัดโพธิ์ ความรู้เรื่อง “การนวดแผนไทยตำรับวัดโพธิ์” ปรากฏในคลิปวิดีโอ อธิบายว่า การนวดแผนไทยตำรับวัดโพธิ์มีเอกลักษณ์ คือ การบำบัดรักษาโดยใช้ส่วนต่าง ๆ ในร่างกายกด บีบ ยืด ดัดตามจุดและเส้นต่าง ๆ ของร่างกาย ช่วยผ่อนคลายและบรรเทาอาการปวดเมื่อยของกล้ามเนื้อ ศาสตร์ในการนวดประกอบด้วย 2 ศาสตร์ ได้แก่ ศาสตร์ที่ 1 การนวดแผนไทยตำรับวัดโพธิ์ เริ่มต้นนวดจากปลายเท้าไปถึงศีรษะ เพราะเชื่อว่าฝ่าเท้าเป็นศูนย์กลางของประสาทต่าง ๆ การกดฝ่าเท้าจะช่วยกระตุ้นและปรับระบบการทำงานของอวัยวะของร่างกายให้สมดุล และศาสตร์ที่ 2 ฤๅษีดัดตน ซึ่งเป็นตำราการกายภาพบำบัดของการแพทย์แผนโบราณ และเป็นศิลป์บริหารร่างกายให้สุขภาพกายกับจิตสมดุล แม้ว่านวดไทยมีผลดีต่อสุขภาพ แต่ก็มีข้อควรระวังและข้อห้ามในการนวด เช่น ผู้ที่เคยผ่าตัดหรือใส่ข้อศอกเทียมภายในหนึ่งปีควรแจ้งให้หมอนวดทราบก่อนนวด ผู้ที่เพิ่งรับประทานอาหารอิ่มไม่ควรนวด ผู้หญิงที่มีครรภ์ไม่ควรนวด และผู้ที่มีความดันโลหิตสูงไม่ควรนวด เป็นต้น ทั้งนี้ทำให้นวดไทยตำรับวัดโพธิ์ได้รับความนิยมจากทั่วโลกและเป็นความภาคภูมิใจสำหรับคนไทย

1.9 สมุนไพรไทยที่ใช้ในการนวด พิพิธภัณฑ์นวดไทยให้ความรู้ว่า การใช้สมุนไพรในการนวดเป็นสิ่งที่ได้รับคนไทยยอมรับ โดยใช้การนวดเป็นหลักและใช้สมุนไพรร่วมเพื่อแก้อาการต่าง ๆ ของร่างกาย โดยเฉพาะกล้ามเนื้อ สมุนไพรที่ใช้นวดส่วนใหญ่มีสรรพคุณแก้อาการอักเสบ ลดไข้ และลดปวด โดยแสดงชื่อและสรรพคุณของสมุนไพรที่ใช้ในการนวด ลูกประคบเป็นยาสมุนไพรที่ได้รับความนิยมมากที่สุด โดยนำสมุนไพรมาห่อในผ้าขาวเป็นลูกกลม นึ่งให้ร้อนมาประคบร่างกายตามจุดเพื่อลดอาการปวดเมื่อยและอาการบวม เป็นต้น สมุนไพรที่ใช้ในลูกประคบมี 9 ชนิด ได้แก่ ไพลและขมิ้นชันช่วยลดอาการอักเสบ ผิวมะกรูดและตะไคร้ช่วยแก้อาการวิงเวียนของศีรษะ ใบมะขามช่วยลดอาการบวม ใบส้มป่อยช่วยลดอาการคัน เกลือช่วยยาซึมเข้าผิวหนังสู่ร่างกาย การบูรและพิมเสนช่วยบำรุงหัวใจ



ภาพที่ 6 ลูกประคบ

1.10 มาตรฐานวิชาชีพหมอนวด ผู้ประกอบวิชาชีพหมอนวดมีมาตรฐานที่ต้องปฏิบัติ สถานที่ตั้งต้องปลอดภัย การตกแต่งต้องแทรกวัฒนธรรมไทย และต้องรักษาความสะอาดของร้านนวด เนื่องจากเป็นสถานที่ที่ให้บริการทางด้านสุขภาพ บุคลากรผู้ให้บริการหรือหมอนวดต้องอบรมอย่างน้อย 150 ชั่วโมงตามที่กำหนดไว้ ต้องมีความรู้ความสามารถและความเชี่ยวชาญที่มากเพียงพอ และผ่านการประเมินจนได้รับใบประกอบวิชาชีพหมอนวด ผู้รับบริการนอกจากคนไทยแล้วยังมีชาวต่างชาติ ดังนั้นหมอนวดต้องมีความสามารถในการสื่อสารกับชาวต่างชาติที่เกี่ยวข้องกับบริการสุขภาพ และระหว่างการให้บริการ หมอนวดต้องสื่อสารกับผู้รับบริการเกี่ยวกับบริการที่ให้และสภาพร่างกาย และทางด้านความปลอดภัย หมายถึง ภายในสถานที่ต้องจัดป้ายเตือนระวังอันตราย มีอุปกรณ์ฉุกเฉินเผื่อเกิดเรื่องอุบัติเหตุ นอกจากนี้ ผู้ให้บริการยังต้องมีความเชี่ยวชาญและระมัดระวังในการใช้อุปกรณ์นวด

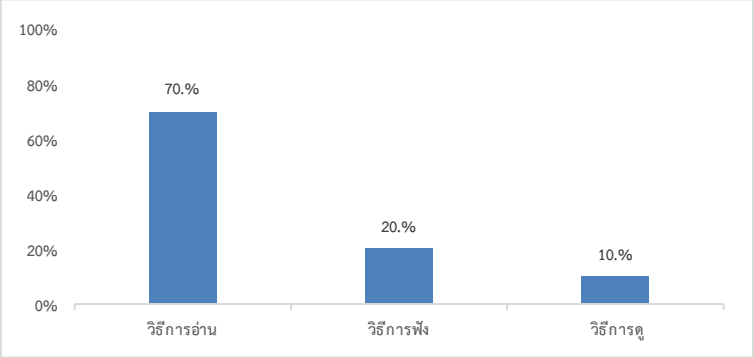
ผู้ประกอบวิชาชีพหมอนวดมีมาตรฐานที่กำหนดไว้ หากวางแผนจะประกอบวิชาชีพหมอนวดต้องมีใบประกาศนียบัตร ซึ่งเป็นหลักฐานที่ยืนยันว่าเป็นผู้ที่มีความรู้ความสามารถและความเชี่ยวชาญที่เกี่ยวกับนวดไทย ส่วนสถานที่ต้องมีลักษณะแบบไทย ให้บริการที่ดีสำหรับผู้รับบริการ และต้องคำนึงถึงความปลอดภัยทั้งภายในและภายนอกของสถานที่

ผู้วิจัยสรุปได้ว่า พิพิธภัณฑ์นวดไทยเป็นแหล่งรวมความรู้เรื่องนวดไทยตั้งแต่สมัยอดีตจนถึงปัจจุบัน เป็นแหล่งเรียนรู้ความรู้เรื่องนวดไทยที่ดี โดยมีรูปแบบการจัดแสดงที่หลากหลาย ความรู้ในพิพิธภัณฑ์นวดไทยมีทั้งหมด 10 เรื่อง ได้แก่ ความเป็นมาของนวดไทย นวดไทย 4 ภาค ประวัติความเป็นมาของโรงเรียนแพทย์แผนโบราณวัดพระเชตุพนวิมลมังคลาราม (วัดโพธิ์) การนวดเป็นธุรกิจบริการด้านสุขภาพ นวดไทยได้ขึ้นทะเบียนเป็นมรดกโลก ประเภทของการนวด ห้องแพทย์จำลอง ลักษณะของนวดไทย ตำรับวัดโพธิ์ สมุนไพรไทยที่ใช้ในการนวดและมาตรฐานวิชาชีพหมอนวด

2. วิธีการเรียนรู้ด้วยตนเองในพิพิธภัณฑ์นวดไทยของนักศึกษาชาวจีน

การได้ความรู้จากการอ่านหนังสือไม่เพียงพอสำหรับนักศึกษา ต้องหาวิธีอื่นเพื่อได้ความรู้เพิ่มเติม การเรียนรู้ด้วยตนเองจึงเป็นวิธีหนึ่งสำหรับการพัฒนาตนเอง (กองฝึกอบรม กรมที่ดิน กระทรวงมหาดไทย, 2559) 现代汉语词典 หรือ พจนานุกรมภาษาจีนสมัยใหม่ (Zhongguo Shehui Kexueyuan Yuyan Yanjiusuo Cidian Bianjishi, 2016) ให้ความหมาย “自学” หรือการเรียนรู้ด้วยตนเองว่า “不是在校从师受业，主要靠自己独立学习。(ไม่ใช่เรียนความรู้จากครูผู้สอนที่โรงเรียน แต่เป็นการเรียนรู้ความรู้ด้วยตนเองเป็นหลัก)” ชุมศักดิ์ อินทร์รักษ์ (2559) อธิบายว่า การเรียนรู้ด้วยตนเองเป็นพฤติกรรมของผู้เรียนเพื่อทำความเข้าใจความรู้ใหม่และได้รับประสบการณ์ใหม่เพื่อพัฒนาทักษะการเรียนรู้ ดังนั้น การเรียนรู้ด้วยตนเองไม่ใช่นั่งฟังจากผู้สอน แต่ใช้วิธีอื่นเพื่อรับรู้ ท่องจำ เชื่อมโยง รวบรวม ทำความเข้าใจข้อมูลต่าง ๆ ด้วยตนเอง

ผู้วิจัยศึกษาข้อมูลจากการสัมภาษณ์นักศึกษาชาวจีน พบว่า พิพิธภัณฑ์นวดไทยมีทั้งหมด 10 เรื่อง โดยมี 7 เรื่องจัดเป็นป้ายบรรยาย ได้แก่ นวดไทย 4 ภาค ประวัติความเป็นมาของโรงเรียนแพทย์แผนโบราณวัดพระเชตุพนวิมลมังคลาราม (วัดโพธิ์) การนวดเป็นธุรกิจบริการด้านสุขภาพ นวดไทยได้ขึ้นทะเบียนเป็นมรดกโลก ประเภทของการนวด สมุนไพรไทยที่ใช้ในการนวด และมาตรฐานวิชาชีพหมอนวด 2 เรื่องจัดเป็นคลิปวิดีโอ ได้แก่ ความเป็นมาของนวดไทยและลักษณะของนวดไทยตำรับวัดโพธิ์และ 1 เรื่องที่ไม่มีป้ายบรรยายและคลิปวิดีโออธิบายความรู้ ได้แก่ ห้องแพทย์จำลอง



ภาพที่ 7 แผนภูมิที่แสดงวิธีการเรียนรู้ด้วยตนเองของนักศึกษาชาวจีน

ผู้วิจัยสรุปได้ว่า นักศึกษาชาวจีนใช้วิธีการอ่านในการเรียนรู้ด้วยตนเองมากที่สุด คิดเป็น 70% รองลงมา คือ วิธีการฟัง คิดเป็น 20% และใช้วิธีการดูในการเรียนรู้ด้วยตนเองน้อยที่สุด คิดเป็น 10% จึงสรุปได้ว่า นักศึกษาชาวจีนในพิพิธภัณฑ์นวดไทยใช้วิธีการอ่านเป็นหลัก รองลงมา คือ วิธีการดู วิธีการเรียนรู้ด้วยตนเองที่นักศึกษาชาวจีนใช้ในพิพิธภัณฑ์นวดไทยที่ใช้น้อยที่สุด คือ วิธีการฟัง รายละเอียดดังนี้

2.1 การอ่าน

Wu Xiaoli & Liu Jiajia (2018) กล่าวว่า วิชาการอ่านภาษาไทยเป็นวิชาพื้นฐานหนึ่งในการเรียนการสอนภาษาไทยที่มีความสำคัญ การเรียนการสอนการอ่านภาษาไทยเป็นเรื่องสำคัญสำหรับการเพิ่มพูนคลังคำศัพท์ เปิดหูเปิดตา รู้จักและเข้าใจวัฒนธรรม ซึ่งมีวัตถุประสงค์เพื่อพัฒนาความสามารถของภาษาไทยและได้ความรู้เรื่องการเมือง เศรษฐกิจ เทคโนโลยี ศาสนา ขนบธรรมเนียมประเพณี และแนวคิดโดยผ่านการอ่านข้อมูล ดังนั้น การอ่านภาษาไทยช่วยเพิ่มวัฒนธรรมข้ามประเทศและช่วยเพิ่มความรู้ได้ การอ่าน จึงเป็นเครื่องมือสำคัญสำหรับการเรียนภาษาไทยและวัฒนธรรมไทย

จากการสัมภาษณ์นักศึกษาชาวจีน (Chen xin, Li Xiaoyu & Liu Qing, สัมภาษณ์, 15 กรกฎาคม 2567) ผู้วิจัยพบว่า การอ่านเป็นวิธีการเรียนรู้ที่สำคัญ ความรู้ในพิพิธภัณฑ์นวดไทยส่วนใหญ่ปรากฏเป็นตัวอักษรบนป้ายบรรยาย การจัดแสดงป้ายบรรยายจึงเป็นวิธีการเผยแพร่ความรู้หลักในพิพิธภัณฑ์นวดไทย นักศึกษาชาวจีนสามารถใช้วิธีการอ่านเป็นหลักในการเรียนรู้ด้วยตนเองที่พิพิธภัณฑ์นวดไทย เพื่อได้ความรู้ด้วยตนเองจากการอ่านคำบรรยาย โดยยกตัวอย่างป้ายบรรยายของพิพิธภัณฑ์นวดไทย ดังนี้



ภาพที่ 8 ตัวอย่างป้ายบรรยายของพิพิธภัณฑ์นวดไทย

จากตัวอย่างป้ายบรรยายของพิพิธภัณฑ์นวดไทย ผู้วิจัยพบว่า ป้ายบรรยายของพิพิธภัณฑ์นวดไทยมีทั้งหมด 2 ประเภท ประเภทที่ 1 เป็นป้ายบรรยายที่มีแต่ข้อความเท่านั้น เช่น ป้ายบรรยายฝั่งซ้าย กล่าวถึงความรู้เกี่ยวกับการนวดเป็นธุรกิจบริการด้านสุขภาพ โดยกล่าวถึงวิธีการการส่งเสริมนวดไทยให้เป็นธุรกิจที่หมอนวดสามารถทำได้ทั่วโลก ส่วนประเภทที่ 2 เป็นป้ายบรรยายที่มีทั้งข้อความและรูปภาพ แต่เน้นข้อความเป็นหลักและใช้รูปภาพเป็นตัวช่วยในการเข้าใจเนื้อหา เช่นป้ายบรรยายฝั่งขวากล่าวถึงเรื่องการใช้สมุนไพรในการนวด ซึ่งใช้ข้อความอธิบาย แต่ใช้รูปภาพสมุนไพรมาช่วยทำความเข้าใจ และวางภาพของลูกประคบ ยาหม่องให้ดู สามารถช่วยเข้าใจเนื้อข้อความได้ง่าย ดังนั้น นักศึกษาชาวจีนจึงสามารถใช้วิธีการอ่านในการเรียนรู้ความรู้เรื่องนวดไทยจากป้ายบรรยายของพิพิธภัณฑ์นวดไทยได้ และยังสามารถดูรูปภาพที่อยู่บนป้ายบรรยายเพื่อช่วยให้เข้าใจเนื้อหาข้อความ

2.2 การฟัง

การฟังสื่อเสียงภาษาแม่ช่วยนักศึกษาเกิดความสนใจในการเรียนการสอนภาษาต่างประเทศ ช่วยสร้างสิ่งแวดล้อมเสมือนจริงของภาษาต่างประเทศ ช่วยเรียนการพูดภาษาต่างประเทศที่แท้จริง และช่วยเข้าใจวัฒนธรรมที่แทรกอยู่ในสื่อ การใช้ภาษาไม่สามารถแยกออกจากสถานการณ์ของสังคมได้ การเรียนรู้ภาษาควรสร้างบรรยากาศจริงให้นักศึกษามีความกระตือรือร้น สื่อเสียงภาษาแม่จึงสามารถสร้างบรรยากาศทางภาษาที่แท้จริง กระตุ้นความสนใจของนักศึกษา และพัฒนาการใช้ภาษาในการสื่อสาร (Mo Yi, 2020) ดังนั้น นักศึกษาชาวจีนฟังสื่อเสียงภาษาไทยสามารถช่วยเกิดความสนใจในการเรียนรู้ภาษาและช่วยพัฒนาการใช้ภาษาไทยในชีวิตประจำวันได้

ผู้วิจัยสัมภาษณ์นักศึกษาชาวจีน (Deng xiao & Huang xi, สัมภาษณ์, 15 กรกฎาคม 2567) พบว่า โอกาสที่นักศึกษาชาวจีนที่สามารถได้ยินเสียงภาษาไทยที่แท้จริงไม่ค่อยมาก แต่คลิปวิดีโอในพิพิธภัณฑ์นวดไทยเป็นคลิปที่มีเสียงพูดภาษาไทย พูดไม่เร็ว และออกเสียงชัดเจน นักศึกษาชาวจีนจึงสามารถใช้วิธีการฟังเสียงภาษาไทยจากคลิปวิดีโอเพื่อได้ความรู้เรื่องนวดไทยได้



ภาพที่ 9 ตัวอย่างคลิปวิดีโอของพิพิธภัณฑ์นวดไทย

คลิปวิดีโอของพิพิธภัณฑ์นวดไทยมี 2 คลิป โดยใช้วิธีการพูดให้ฟังเสียงภาษาไทย โดยไม่มีคำบรรยาย เช่น ภาพฝั่งซ้ายนำมาจากคลิปวิดีโอ เรื่อง “การนวดจากอดีตถึงปัจจุบัน” กล่าวถึงนวดไทยในสมัยสมเด็จพระนารายณ์มหาราช หน้าจอขึ้นภาพของสมเด็จพระนารายณ์มหาราชให้รู้จัก ภาพฝั่งขวาเป็นภาพจากเรื่อง “การนวดแผนไทยตำรับวัดโพธิ์” เมื่อกล่าวถึงวิธีการดัดตัวและยืดกล้ามเนื้อของนวดไทยตำรับวัดโพธิ์ หน้าจอจะขึ้นภาพที่หมอนวดยกขาของผู้รับบริการนวด ดังนั้น คลิปวิดีโอในพิพิธภัณฑ์นวดไทยใช้วิธีการเผยแพร่ความรู้เรื่องนวดไทยเหมือนกัน ได้แก่ ใช้เสียงภาษาไทยให้ฟังเป็นหลัก และใช้ภาพในการอธิบายเนื้อหา เพื่อให้เห็นภาพจริงและเข้าใจเนื้อหาได้ง่ายในพิพิธภัณฑ์นวดไทย นักศึกษาชาวจีนจึงต้องใช้วิธีการฟังเพื่อได้ความรู้จากคลิปวิดีโอ

2.3 การดู

การดูเป็นเครื่องมือสำคัญสำหรับนักศึกษาและช่วยทำความเข้าใจความรู้ เมื่อเข้าชมพิพิธภัณฑ์มีปฏิสัมพันธ์ทางภาษาภาพระหว่างผู้เข้าชมกับนิทรรศการ ซึ่งทำให้เกิดการถ่ายทอด การยอมรับ และการรับรู้ความรู้ ภาษาภาพรวมภาพ รูปทรง และสีต่าง ๆ ซึ่งเป็นภาษาที่ใช้อย่างกว้างขวางในโลก เมื่อมนุษย์ใช้ตัวอักษรเกิดปัญหาในการสื่อสารและการแลกเปลี่ยนความคิด สามารถใช้ภาษาภาพแสดงความคิดและความรู้ (Yan Chongjun & Wu Shuyan, 2023)

ผู้วิจัยสัมภาษณ์นักศึกษาชาวจีน (Zhang Kangle & Ma Boquan, สัมภาษณ์, 15 กรกฎาคม 2567) พบว่า วิธีการดูแม้เป็นวิธีการเรียนรู้ที่นักศึกษาชาวจีนใช้ในพิพิธภัณฑ์นวดไทยน้อยที่สุด แต่ก็เป็นวิธีการเรียนรู้ที่สำคัญ เพราะเป็นวิธีที่ได้ความรู้จากตาโดยตรงและเป็นวิธีการให้มีความทรงจำอย่างลึกซึ้งในพิพิธภัณฑ์นวดไทย นักศึกษาชาวจีนนอกจากสามารถใช้ตาดูรูปภาพและดูคลิปวิดีโอเพื่อเชื่อมโยงกับความรู้ที่อ่านหรือการได้ยินแล้ว ยังมีเขตที่สามารถใช้แต่วิธีการดูเท่านั้น ได้แก่ ห้องแพทย์จำลอง



ภาพที่ 10 ตัวอย่าง โต๊ะวินิจฉัยโรคของหมอ ตู้กระจกและตู้ลิ้นชัก และเตียงนวดคนเดียว

ห้องแพทย์จำลองได้จัดโต๊ะ ตู้กระจก ตู้ลิ้นชัก และเตียงนวดคนเดียว เป็นต้น ทำให้นักศึกษาชาวจีนย้อนเวลากลับสมัยที่นิยมรักษาโรคด้วยการแพทย์แผนโบราณได้ เช่น ปัจจุบันไม่ค่อยใช้โต๊ะวินิจฉัยแบบโบราณ นักศึกษาชาวจีนสามารถเห็นหมอในสมัยก่อนทำงานที่โต๊ะแบบโบราณ บนโต๊ะมีเครื่องมือที่ใช้ในการวินิจฉัยโรค เข้าใจได้ว่าหมอในสมัยก่อนใช้เครื่องมือแบบโบราณและไม่มีเทคโนโลยีเข้ามาช่วย เช่น

หมอใช้สมุดกระดาษบันทึกอาการของผู้ป่วย ไม่มีคอมพิวเตอร์เหมือนสมัยปัจจุบัน ภาพที่ 2 ได้แสดงผลิตภัณฑ์ที่ทำจากสมุนไพรต่าง ๆ และมียาที่ทำจากสมุนไพรเพื่อดูแลสุขภาพ ยาแบบนี้เรียกว่า ยาแพทย์แผนโบราณ ซึ่งปัจจุบันไม่ค่อยเห็นบ่อย เพราะคนสมัยปัจจุบันนิยมใช้ยาแผนปัจจุบันมากกว่า และภาพที่ 3 แสดงเตียงนวดคนเดียว ทำจากไม้และไม่สูงมาก เพื่อให้เข้าใจว่า เมื่อรับบริการนวด จะรับบริการบนเตียงคนเดียว ดังนั้น นักศึกษาชาวจีนสามารถได้ความรู้จากการใช้ตาดูและสามารถเข้าใจความรู้เรื่องการแพทย์แผนโบราณและนวดไทยโดยตรง ในเขตนี้ นักศึกษาชาวจีนจึงไม่สามารถได้ความรู้โดยอ่านจากป้ายบรรยายและฟังเสียงภาษาไทยจากคลิปวิดีโอได้ ควรใช้ตาดูบรรยากาศของห้องแพทย์จำลองและเข้าใจความรู้โดยตรงได้

เนื่องจากพิพิธภัณฑ์นวดไทยมีวิธีการจัดแสดงความรู้เรื่องนวดไทยที่หลากหลาย นักศึกษาชาวจีนจึงสามารถใช้หลายวิธีในการเรียนรู้เรื่องนวดไทยด้วยตนเอง ภายในพิพิธภัณฑ์นวดไทยอย่างเพลิดเพลิน

สรุปและอภิปรายผล

การเรียนรู้ความรู้มีหลายวิธี การเรียนรู้ด้วยตนเองเป็นวิธีที่ไม่ต้องพึ่งพาผู้สอนและหาวิธีทำความเข้าใจความรู้ด้วยตนเองเพื่อพัฒนาตนเอง การเรียนรู้ด้วยตนเองเป็นกระบวนการของนักศึกษาเริ่มหาและใช้วิธีเพื่อศึกษาตามเป้าหมาย รู้จักค้นหาความรู้ที่ต้องการและประเมินความก้าวหน้าด้านความรู้ที่ได้รับด้วยตนเอง (อริสรา อัครพิสิฐ, 2557) การเรียนการสอนภาษามีความจำเป็นต้องสอนวัฒนธรรมไปด้วย นวดไทยในฐานะที่เป็นส่วนหนึ่งของวัฒนธรรมไทยและนักศึกษาชาวจีนเคยเรียนจากตำราเรียนภาษาไทย 泰语阅读教程 (2) (วิชาการอ่านภาษาไทย) จึงเป็นวัฒนธรรมที่นักศึกษาชาวจีนสนใจและอยากเรียนรู้ต่อ

การลงพื้นที่พิพิธภัณฑ์นวดไทยเพื่อเก็บข้อมูล จำนวน 3 ครั้งนั้น ผู้วิจัยได้ความรู้ใหม่และเข้าใจเรื่องนวดไทยมากยิ่งขึ้น และได้สังเกตรูปแบบนิทรรศการในพิพิธภัณฑ์นวดไทย นอกจากนี้ ผู้วิจัยได้สัมภาษณ์นักศึกษาชาวจีน เพื่อได้ข้อมูลเกี่ยวกับวิธีการเรียนรู้ด้วยตนเอง จากผลการสัมภาษณ์พบว่าพิพิธภัณฑ์นวดไทยเป็นแหล่งเรียนรู้ด้วยตนเองที่ดีสำหรับนักศึกษาชาวจีนและนักศึกษาชาวจีนสามารถใช้วิธีการอ่าน การฟัง และการดู ได้ความรู้เรื่องนวดไทยภายในพิพิธภัณฑ์นวดไทยด้วยตนเองได้

พิพิธภัณฑ์นวดไทยของวัดโพธิ์ กรุงเทพมหานคร จัดนิทรรศการด้วยรูปแบบหลากหลาย ได้แก่ ป้ายบรรยาย คลิปวิดีโอ และห้องแพทย์จำลอง วิธีการจัดนิทรรศการของพิพิธภัณฑ์นวดไทยจึงน่าสนใจ ซึ่งทำให้เกิดความเพลิดเพลินและไม่รู้สึกเบื่อระหว่างการเรียนรู้ ผู้วิจัยยังพบว่า ในพิพิธภัณฑ์นวดไทย นักศึกษาชาวจีนเรียนรู้ความรู้เรื่องนวดไทยโดยใช้วิธีการอ่านเป็นหลัก รองลงมา คือ วิธีการฟังและวิธีการดู ตามลำดับ

นักศึกษาชาวจีนใช้วิธีการอ่านในการเรียนรู้ด้วยตนเองมากที่สุด คิดเป็น 70% เพราะนิทรรศการภายในพิพิธภัณฑ์นวดไทย วัดโพธิ์ กรุงเทพมหานคร แม้ว่ามีรูปแบบการจัดนิทรรศการหลายรูปแบบ แต่ความรู้ส่วนใหญ่จัดเป็นป้ายบรรยาย นักศึกษาชาวจีนจึงต้องใช้วิธีการอ่านเป็นหลักในการศึกษาความรู้เรื่องนวดไทยของพิพิธภัณฑ์นวดไทย ซึ่งสอดคล้องกับหนังสือของงานวิจัยของ Beiderwell et al. (2012 อ้างถึงใน ศึกษา เรืองดำ, 2564) ว่า ในการเรียนรู้ด้วยตนเอง ทักษะการอ่านมีความสำคัญอย่างยิ่ง การอ่านเพื่อการเรียนรู้เป็นการบูรณาการระหว่างทักษะการรับสารกับทักษะการนำไปประยุกต์ใช้ ซึ่งกระบวนการดังกล่าวจะทำให้เกิดการสร้างองค์ความรู้ใหม่ แล้วนำไปใช้ในกระบวนการเรียนรู้อื่น ๆ เช่น การสรุปใจความสำคัญ การคิดเชิงวิเคราะห์ และการคิดสร้างสรรค์ เป็นต้น

นักศึกษาชาวจีนใช้วิธีการดูในการเรียนรู้ด้วยตนเองน้อยที่สุด คิดเป็น 10% เพราะนิทรรศการของพิพิธภัณฑ์นวดไทย วัดโพธิ์ ณ กรุงเทพมหานคร ที่ได้จัดโดยให้ได้ความรู้เรื่องนวดไทยจากใช้ตาดูโดยตรง มีหนึ่งที่ ได้แก่ ห้องแพทย์จำลอง ในเขตนี้ ไม่มีป้ายบรรยายให้อ่าน แต่สร้างบรรยากาศให้เสมือนอยู่ในห้องแพทย์อดีต นักศึกษาชาวจีนจึงต้องให้ตาดูเพื่อได้ความรู้ในเขตนี้ ซึ่งสองคล้องกับแนวคิด Cognitive Load Theory ของ John Sweller, Paul Ayres & Slava Kalyuga (2011) ว่า ในการเรียนรู้ด้วยตนเอง การดูใช้น้อยที่สุด เพราะข้อมูลที่มีประสิทธิภาพที่ได้จากการดูต้องตรงกับ 2 เงื่อนไข ได้แก่ สิ่งที่ดูต้องตรงกับวัตถุประสงค์การเรียนรู้โดยตรง และต้องประกอบคำบรรยาย ดังนั้น การดูในพิพิธภัณฑ์นวดไทย วัดโพธิ์ ณ กรุงเทพมหานคร จึงใช้น้อยที่สุด

วัฒนธรรมไทยมีความหลากหลาย ประเทศจีนมีตำราเรียนภาษาไทยและมีบทอ่านสำหรับการเรียนการสอนเรื่องนวดไทย จึงทำให้นักศึกษาชาวจีนเกิดความสนใจกับการเรียนเรื่องนวดไทยเพื่อได้ความรู้เพิ่มเติม พิพิธภัณฑ์นวดไทยได้รวบรวมความรู้นวดไทยอย่างครบถ้วน โดยวิธีการจัดแสดงนิทรรศการที่หลากหลาย เพื่อให้เกิดความเพลิดเพลิน นักศึกษาชาวจีนสามารถเรียนรู้ความรู้เรื่องนวดไทยด้วยตนเองได้ พิพิธภัณฑ์นวดไทย จึงถือเป็นสถานที่ที่มีความสำคัญในการเรียนรู้ด้วยตนเองเรื่องนวดไทยสำหรับนักศึกษาชาวจีน วิธีการเรียนรู้ด้วยตนเองที่ใช้ในพิพิธภัณฑ์นวดไทยก็มีความหลากหลายใช้ได้ทั้งวิธีการอ่าน การดู และการฟัง

ข้อเสนอแนะ

1. สามารถนำผลการวิจัยนี้สร้างเป็นสื่อการเรียนการสอนเรื่องนวดไทยสำหรับนักศึกษาชาวจีนเพื่อช่วยเพิ่มพูนความรู้ทางด้านวัฒนธรรมไทยมากยิ่งขึ้น
2. ควรศึกษานวดไทยในมุมมองใหม่หรือศึกษาการเรียนการสอนเรื่องนวดไทยให้กับคนประเทศอื่นๆ

เอกสารอ้างอิง

กรณิศ รัตนามหัทธนะ. (2561). ตุ๊กตาหน้าวัด รู้จักวัดพระเชตุพนวิมลมังคลาราม มรดกความทรงจำแห่งโลกที่บันทึกสรรพวิชาความรู้ของไทย. สืบค้นเมื่อ 16 กรกฎาคม 2567 จาก https://readthecloud.co/scoop-wat-pho/

กองฝึกอบรม กรมที่ดิน กระทรวงมหาดไทย. (2559). การเรียนรู้ด้วยตนเอง (Self-Directed Learning). กรุงเทพฯ : กองการพิมพ์.

ชุมศักดิ์ อินทร์รักษ์. (2559). แนวความคิดการจัดการเรียนรู้ : การพัฒนาทักษะการคิดวิเคราะห์เพื่อการเรียนรู้ด้วยตนเอง. วารสารศึกษาศาสตร์ มหาวิทยาลัยศิลปากร, 14(1), 94-98.

ศึกษา เรืองดำ. (2564). การพัฒนาการอ่านเพื่อเรียนรู้ด้วยตนเองในยุคดิจิทัล. วารสารศึกษาศาสตร์ มหาวิทยาลัยทักษิณ, 2(1), 32-50.

ราชบัณฑิตยสถาน. (2556). พจนานุกรมฉบับราชบัณฑิตยสถาน พ.ศ. 2554 (พิมพ์ครั้งที่ 2). กรุงเทพฯ : นานมีบุ๊คส์.

พระเทพวัชราจารย์ และนิเวศน์ บวรกุลวัฒน์. (2565). งานฉลองสมโภชรูปหล่อฤๅษีดัดตน 80 ท่า 82 ตน และงานเปิดพิพิธภัณฑ์นวดไทย : มรดกภูมิปัญญาทางวัฒนธรรม. กรุงเทพฯ : โคเวอร์ ครีเอทีฟ.

เที่ยวรอบทิศ. (2565). พิพิธภัณฑ์นวดไทย สัมผัสมรดกโลกทางวัฒนธรรมในวัดโพธิ์. สืบค้นเมื่อ 11 กันยายน 2567 จาก https://www.facebook.com/traveltravel360/posts/

อริสรา อัครพิสิฐ. (2557). การเสริมสร้างทักษะการเรียนรู้ด้วยตนเองของนักศึกษาที่ลงทะเบียนในรายวิชา 135-301 ภาษาอังกฤษทางธุรกิจระหว่างประเทศ ภาคเรียนที่ 1 ปีการศึกษา 2553 ในเนื้อหาของการสอนเรื่องการเขียนจดหมายทางธุรกิจ. มหาวิทยาลัยสยาม. สืบค้นเมื่อ 16 กรกฎาคม 2567 จาก https://ba.siam.edu/wp-content/uploads/2014/10/arisra_course135-301.pdf

John Sweller, Paul Ayres & Slava Kalyuga. (2011). Cognitive Load Theory. New York : Springer New York.

MINGSHAN XIE. (2565). การสร้างหนังสืออิเล็กทรอนิกส์ภาษาไทยเพื่อการท่องเที่ยว เรื่อง “เสน่ห์แห่งวัดโพธิ์” สำหรับผู้เรียนชาวจีน (ปริญญานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยศรีนครินทรวิโรฒ, กรุงเทพฯ.

Mo Yi. (2020). Yuansheng Yingshi zai Duiwai Hanyu Shiting Jiaoxue zhong de Yingyong. Xiandaijiaoji, 2020(3), 226-227.

Qi Shengzhong. (2013). Taiguo Minsu yu Wenhua. Beijing : Peking University Press.

Sun Youzhong. (2019). Luoshi Guobiao Yaoqiu Dali Tigao Waiguo Yuyan Wenxuelei Zhuanye Rencai Peiyang Nengli. Zhongguowaiyu, 16(05), 36-42.

Wu Xiaoli & Liu Jiajia. (2018). Taiyu Yuedu Jiaoxue zhong Wenhua Daoru de Xianzhuang Fenxi ji Celüe Yanjiu. Yunnan Daxue Xuebao (Ziran Kexue Ban), 40(S1), 67-69.

Xu Jinfen. (2020). Waiyulei Zhuanye Xuesheng Zizhu Xuexi Nengli de Goucheng yu Peiyang. Waiyu Jie, 2020(06), 26-32.

Yan Chongjun, & Wu Shuyan. (2023). Bowuguan zhanshi kongjian zhong shijue yuyan de yingyong fangfa yanjiu. Meishu jiaoyu yanjiu, 2023(12), 100-102.

Yang Shaoquan & Ren Zhiyuan. (2020). Taiyu Yuedu Jiaocheng (2) (Di er ban). Guangdong : World Publishing Corporation Guangdong Branch.

Zhongguo Shehui Kexueyuan Yuyan Yanjiusuo Cidian Bianjishi. (2016). Xiandai Hanyu Cidian [Modern Chinese Dictionary (7th)]. Beijing : The Commercial Press.

บุคลานุกรม

Chen xin, Li xiaoyu, & Liu Qing (ผู้ให้สัมภาษณ์). ซือมิน โอ (ผู้สัมภาษณ์). พิพิธภัณฑ์นวดไทย วัดพระเชตุพนวิมลมังคลารามราชวรมหาวิหาร ณ กรุงเทพมหานคร. เมื่อวันที่ 15 เดือน กรกฎาคม พ.ศ. 2567

Deng xiao & Huang xi (ผู้ให้สัมภาษณ์). ซือมิน โอ (ผู้สัมภาษณ์). พิพิธภัณฑ์นวดไทย วัดพระเชตุพนวิมลมังคลารามราชวรมหาวิหาร ณ กรุงเทพมหานคร. เมื่อวันที่ 15 เดือน กรกฎาคม พ.ศ. 2567

Zhang Kangle & Ma Boquan (ผู้ให้สัมภาษณ์). ซือมิน โอ (ผู้สัมภาษณ์). พิพิธภัณฑ์นวดไทย วัดพระเชตุพนวิมลมังคลารามราชวรมหาวิหาร ณ กรุงเทพมหานคร. เมื่อวันที่ 15 เดือน กรกฎาคม พ.ศ. 2567

การออกแบบเครื่องตกแต่งแฟชั่นจากวัสดุธรรมชาติในท้องถิ่น
The Design of Fashion Accessories from Local Natural Materials

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บทคัดย่อ

การวิจัยเรื่อง การออกแบบเครื่องตกแต่งแฟชั่นจากวัสดุธรรมชาติในท้องถิ่น มีวัตถุประสงค์ดังนี้ ข้อที่ 1 เพื่อวิเคราะห์องค์ความรู้และทักษะงานหัตถกรรมที่มีในท้องถิ่นผ่านการถ่ายทอดของปราชญ์ชุมชนท้องถิ่นพื้นที่จังหวัดสงขลา 3 ชุมชน ดังนี้ 1) บ้านหน้าถ้ำ 2) บ้านหัวควาย 3) บ้านตะโล๊ะ ข้อที่ 2 เพื่อออกแบบเครื่องตกแต่งแฟชั่นจากวัสดุธรรมชาติในท้องถิ่น จำนวน 3 รูปแบบ โดยมีวิธีดำเนินการวิจัยแบบคุณภาพ การทดลอง การออกแบบผลิตภัณฑ์ เก็บข้อมูลโดยการสัมภาษณ์ปราชญ์ชุมชน 3 ด้าน ดังนี้ 1) ปราชญ์ด้านการทำผ้าบาติกยางกล้วย 2) ปราชญ์ด้านการทำเชือกกล้วย 3) ปราชญ์ด้านการจักสาน ใช้วิธีการเลือกผู้ให้ข้อมูลหลักแบบเฉพาะเจาะจง (Purposive Sampling) เครื่องมือที่ใช้ในการวิจัยแบบสัมภาษณ์เชิงลึก นำมาวิเคราะห์ข้อมูลและเขียนบรรยายเชิงพรรณนา ผลการวิจัยวิเคราะห์ความรู้ของปราชญ์ชุมชนที่เกิดจากการสะสมประสบการณ์ เป็นความรู้ภูมิปัญญาที่มีคุณค่าและใช้วัสดุในท้องถิ่นใช้ความรู้ในการเลือกและคัดสรรจากวัสดุสีย้อมธรรมชาติจากยางกล้วย เชือกกล้วย และดอกหญ้ามาสร้างผลิตภัณฑ์ มีวัสดุที่สร้างสรรค์ผลงานได้ดี ลดต้นทุนวัสดุสามารถต่อยอดทำผลิตภัณฑ์ได้หลากหลาย จากการทดลองของผู้วิจัยเลือกวัสดุดังกล่าวที่มีในชุมชน นำมาสร้างสรรค์ผลิตภัณฑ์ที่เหมาะสมแก่การใช้งานตามแนวโน้มแฟชั่นได้ 3 รูปแบบ ดังนี้ 1) กระเป๋าเชือกกล้วย 2) กระเป๋าผ้าบาติกยางกล้วย (3) ตะกร้าก้านดอกหญ้า

คำสำคัญ: ออกแบบ, เครื่องตกแต่งแฟชั่น, วัสดุธรรมชาติ, ท้องถิ่น

Abstract

The research titled The Design of Fashion Accessories from Local Natural Materials aimed 1) to analyze the body of knowledge and craftsmanship skills found in local communities through the transmission of knowledge by local experts in three communities in Songkhla Province: 1) Ban Na Tham, 2) Ban Hua Khwai, and 3) Ban Talo, 2) to design three types of fashion accessories using local natural materials. This study was conducted using qualitative research methods, experimentation, and product design. Data were collected through interviews with three types of local experts: 1) an expert in making batik fabric using banana latex,2) an expert in making banana fiber ropes, and 3) an expert in basket weaving. Purposive sampling was used to select key informants, and in-depth

interview forms were used as the research instrument. Data were analyzed and presented in descriptive form. The findings revealed that the knowledge of local experts, accumulated through years of experience, constituted valuable local wisdom and knowledge. This knowledge utilized local materials and included the ability to select and process natural dye sources from banana latex, banana fiber ropes, and wildflowers to create products. These raw materials were effective in producing creative works, reducing material costs, and enabling diverse product development. Based on experimental design, the researcher selected locally available materials to create fashion products suited to contemporary fashion trends in three forms: 1) a banana rope bag, 2) a batik bag made from banana latex fabric, and 3) a basket made from wildflower stems.

Keywords: Design, Fashion Accessory, Natural Material, Local

บทนำ

การศึกษาวิจัยครั้งนี้เป็นการศึกษาวัสดุจากธรรมชาติในท้องถิ่นพื้นที่จังหวัดสงขลา 3 ชุมชน ดังนี้ 1) บ้านหน้าถ้ำ 2) บ้านหัวควาย 3) บ้านตะโล๊ะ ซึ่งในแต่ละพื้นที่มีต้นทุนวัสดุที่แตกต่างกัน ชนัญชิดา ยุกติรัตน์ (2559) กล่าวว่า วัสดุท้องถิ่นในประเทศไทยมีมากมายและมีความอุดมสมบูรณ์ไม่ว่าจะเป็น ดิน แร่ธาตุ พืชพันธุ์ ต้นไม้ น้ำ หรืออากาศถือว่าประเทศไทยเป็นประเทศที่มีทรัพยากรอันล้ำค่าที่ล้วนเป็นวัตถุดิบสำหรับการสร้างสรรค์งานหัตถกรรมได้เป็นอย่างดี วัสดุในแต่ละพื้นที่มีคุณสมบัติไม่เหมือนกัน สามารถสร้างผลิตภัณฑ์ได้หลากหลายตามคุณสมบัติของวัสดุในท้องถิ่นนั้น ๆ และผสมผสานกับการใช้ภูมิปัญญาของปราชญ์ชุมชนผู้มีทักษะ ความรู้ ความสามารถเป็นอย่างดีในเรื่องวิถีชีวิต ชุมชน วัฒนธรรม ความเป็นอยู่ สิ่งแวดล้อมรอบตัว และมีประสบการณ์ รัชฎาพร แนวแห่งธรรม (2560) กล่าวว่า ภูมิปัญญาท้องถิ่นเป็นความรู้ ความสามารถ และทักษะดั้งเดิม ซึ่งสืบทอดกันมาจากบรรพบุรุษส่งต่อจากรุ่นสู่รุ่น จนกลายเป็นความเชี่ยวชาญของพื้นที่ ในการผลิตสิ่งของเครื่องใช้หรือผลิตภัณฑ์จากชุมชนในรูปแบบต่าง ๆ ผู้ผลิตในชุมชนขาดความรู้และทักษะในการออกแบบผลิตภัณฑ์ ที่มีความทันสมัย เหมาะสมกับสถานการณ์ที่มีความหลากหลายในปัจจุบัน ผู้วิจัยเล็งเห็นถึงความสำคัญของภูมิปัญญาท้องถิ่น ทักษะฝีมือ ความรู้ประสบการณ์การผลิตที่ควรค่าแก่การสืบทอด จึงเป็นสิ่งสำคัญควรได้รับการอนุรักษ์และถ่ายทอดต่อชุมชนรุ่นหลัง

การผลิตผลิตภัณฑ์จากท้องถิ่นให้มีความสอดคล้องกับสถานการณ์ในปัจจุบัน โดยการออกแบบต้องทันสมัยตามกระแสแฟชั่น ยังคงไว้ซึ่งความรู้ภูมิปัญญาท้องถิ่น และคำนึงถึงคุณสมบัติของวัสดุที่มีในท้องถิ่นเพื่อให้ได้ผลิตภัณฑ์ที่มีคุณภาพ ณัฐพงษ์ คงประเสริฐ (2558) กล่าวว่า การผลิตงานฝีมือเป็นการผลิตสินค้าที่ต้องใช้ความชำนาญและทักษะของช่างสูง ซึ่งปราชญ์ชุมชนมีทักษะเหล่านี้เป็นอย่างดี และในการผลิตเครื่องตกแต่งแฟชั่น ต้องคำนึงถึงประโยชน์การใช้สอยและมีคุณสมบัติที่มีความแข็งแรง เหมาะสมตามโอกาสการใช้สอย การออกแบบยังต้องคำนึงถึงแนวโน้มการออกแบบแฟชั่นให้เหมาะสมกับกระแสนิยมในช่วงระยะเวลาหนึ่ง ซึ่งมีผลต่อการตลาดสินค้า ปานฉัตท์ อินทร์คง (2559) กล่าวว่า การนำแนวคิดทางการตลาดมาใช้ร่วมกันในการออกแบบผลิตภัณฑ์ที่เป็นผลิตภัณฑ์เชิงวัฒนธรรมต้องนำมาใช้ร่วมด้วย เพื่อให้สามารถเข้าถึงผู้บริโภคได้ง่ายขึ้น อรรถพนธ์ พงษ์เลาหพันธุ์ (2563) กล่าวว่า แฟชั่นสามารถเป็นได้ทั้งรูปแบบการแต่งกายหรือที่เรียกว่าสไตล์ (Style) และสินค้า (Product) ก็ได้ และแฟชั่นเป็นเครื่อง

สะท้อนตัวตนของบุคคลได้อีกด้วย แนวโน้มการอนุรักษ์วัฒนธรรมและการรักษาธรรมชาติเป็นแนวโน้มแฟชั่นที่ได้รับการยอมรับในปัจจุบัน

ผู้วิจัยลงพื้นที่เพื่อทำการออกแบบผลิตภัณฑ์ และพัฒนาทักษะการทำงานของสมาชิกในกลุ่มให้สอดคล้องกับแนวโน้มแฟชั่น ผู้วิจัยจึงเห็นว่าการออกแบบตามแนวโน้มแฟชั่นซึ่งมีผลต่อการตลาด เป็นแนวทางในการสร้างผลิตภัณฑ์ให้กับกลุ่มชุมชน เป็นประโยชน์ต่อการสร้างสรรค์ผลิตภัณฑ์ในรูปแบบใหม่ ผลิตภัณฑ์จากความรู้ภูมิปัญญา ยังคงคุณค่าของวัสดุท้องถิ่นที่มีเอกลักษณ์เฉพาะตัว ด้านความงาม ประโยชน์การใช้สอยของวัสดุในท้องถิ่น คงไว้ซึ่งคุณค่าของมรดกทางวัฒนธรรมด้านภูมิปัญญา และสิ่งแวดล้อมต่อไป

วัตถุประสงค์ของการวิจัย

1. เพื่อวิเคราะห์องค์ความรู้ทักษะงานหัตถกรรมในท้องถิ่นผ่านการถ่ายทอดของปราชญ์ชุมชนท้องถิ่น 3 ชุมชน บ้านหน้าถ้ำ บ้านหัวควาย บ้านตะโล๊ะ
2. เพื่อออกแบบเครื่องตกแต่งแฟชั่นจากวัสดุธรรมชาติในท้องถิ่น จำนวน 3 รูปแบบ

แนวคิด ทฤษฎี กรอบแนวคิด



ภาพที่ 1 กรอบแนวความคิดการวิจัย

วิธีดำเนินการวิจัย

การวิจัยเรื่อง การออกแบบเครื่องตกแต่งแฟชั่นจากวัสดุธรรมชาติในท้องถิ่น ขอบเขตด้านพื้นที่ ผู้วิจัยทำการเลือกพื้นที่แบบเฉพาะเจาะจง (Purposive Area) พื้นที่จังหวัดสงขลา เลือกศึกษาจากกลุ่มผ้าบาติกสีธรรมชาติจากยางกล้วย บ้านหน้าถ้ำ ม.6 ต.ปาดังเบซาร์ อ.สะเดา กลุ่มผลิตภัณฑ์วัสดุธรรมชาติบ้านตะโล๊ะ ม.8 ต.ปาดังเบซาร์ อ.สะเดา กลุ่มพัฒนาสตรีจักสานเชือกกล้วย บ้านหัวควาย ม.9 ต.คูเต่า อ.หาดใหญ่ ขอบเขตด้านเนื้อหา ความรู้ในชุมชนด้านหัตถกรรมท้องถิ่น การออกแบบเครื่องตกแต่งแฟชั่นวัสดุธรรมชาติในท้องถิ่น แนวโน้มการออกแบบแฟชั่น ศึกษาการใช้วัสดุธรรมชาติ ได้แก่ สีย้อมจากยางกล้วย ดอกหญ้า และเชือกกล้วย ประชากรและกลุ่มตัวอย่าง 3 กลุ่ม โดยการเลือกกลุ่มตัวอย่างแบบเฉพาะเจาะจง คือ 1) ปราชญ์ชุมชนด้านผ้าบาติกสีย้อมธรรมชาติจากยางกล้วย 2) ปราชญ์ชุมชนด้านงาน

จักสานการทำไม้กวาดดอกหญ้า 3) ปราชญ์ชุมชนด้านการจักสานเชือกกล้วย ผู้วิจัยเก็บข้อมูลจากกลุ่มตัวอย่าง โดยการใช้เครื่องมือแบบสัมภาษณ์องค์ความรู้ ลงพื้นที่สำรวจ สังเกตการณ์ และการถ่ายภาพเพื่อการศึกษา ผู้วิจัยสร้างแบบสัมภาษณ์ผ่านการตรวจสอบจากผู้ทรงคุณวุฒิ และใช้การสัมภาษณ์กึ่งโครงสร้างในการสัมภาษณ์ปราชญ์ชุมชนด้านหัตถกรรม ใช้การสัมภาษณ์แบบไม่เป็นทางการ ใช้การสัมภาษณ์เชิงลึกผู้ให้ข้อมูลหลัก การวิเคราะห์ข้อมูล จากการสัมภาษณ์เชิงลึกจากปราชญ์ชุมชนในแต่ละด้านและการออกแบบเครื่องตกแต่งแฟชั่นจากภูมิปัญญาท้องถิ่น การวิเคราะห์เชิงพรรณนา อธิบายข้อมูลที่ได้จากการลงพื้นที่เก็บข้อมูล และการสัมภาษณ์ นำมาตรวจสอบความถูกต้อง วิเคราะห์ข้อมูลที่ได้อย่างละเอียดตามหลักการวิจัยเพื่อให้ตรงวัตถุประสงค์การวิจัย นำเสนอผลงานวิจัยโดยการพรรณนาความ (Descriptive) ให้ถูกต้องและตรงประเด็นเพื่อนำเสนอผลงานต่อไป

ผลการวิจัย

จากการศึกษาและการวิจัยการออกแบบเครื่องตกแต่งแฟชั่นจากวัสดุธรรมชาติในท้องถิ่น ผู้วิจัยได้ลงพื้นที่เพื่อศึกษา เก็บรวบรวมข้อมูลสัมภาษณ์ปราชญ์ชุมชนเกี่ยวกับองค์ความรู้ทักษะงานหัตถกรรมที่มีในท้องถิ่น กลุ่มผลิตภัณฑ์ลายผ้าจากพืชธรรมชาติ กลุ่มจักสานและไม้กวาดดอกหญ้า กลุ่มจักสานเชือกกล้วย ผู้วิจัยได้นำมาแสดงผลการวิเคราะห์ข้อมูล ดังนี้

ปราชญ์ชุมชนด้านการย้อมสีธรรมชาติจากยางกล้วย (บุญธรรม มะโนเพ็ชร, สัมภาษณ์, 20 มกราคม 2564) กล่าวว่า การทำผ้าบาติกสีธรรมชาติจากยางกล้วย เกิดจากการเรียนรู้จากประสบการณ์มายาวนานได้สร้างสรรค์ผลงานอย่างยอดเยี่ยมมีคุณค่า โดยองค์ความรู้ที่มีนั้นถูกสะสมมาพร้อมทักษะฝีมือที่พัฒนาอย่างต่อเนื่อง การทำผ้าบาติกจากยางกล้วยเป็นการสร้างสรรค์คุณค่าจากของดี ที่มีในชุมชนมีความหมายที่ซ่อนเร้น การสร้างสรรค์ผืนผ้าจากธรรมชาติไม่ได้ทำเพื่อรายได้เพียงอย่างเดียวแต่ยังมีคุณค่าต่อผู้อื่นด้วย องค์ความรู้การทำผ้าบาติกจากยางกล้วยที่ผ่านการทดลองและสั่งสมมาเป็นระยะเวลานาน ได้ตกตะกอนเป็นความรู้ที่มีคุณค่าสร้างสรรค์งานศิลปะหัตถกรรมของในชุมชนที่น่าชื่นชมมาหลายชิ้นจนนับไม่ถ้วน จากการเรียนรู้ของปราชญ์ผู้นี้ได้มีการรวมกลุ่มทำผ้าบาติกจากยางกล้วย ถ่ายทอดความรู้ทุกรูปแบบผ่านองค์ความรู้ต่างๆ ถ่ายทอดความรู้สู่ชุมชนอื่นๆ ตลอดจนผู้สนใจโดยส่วนใหญ่มีความชอบชื่นชมและเกิดเป็นแบบอย่างที่ดี มีความภาคภูมิใจ และต่อยอดสร้างสรรค์เป็นผลิตภัณฑ์อื่นได้หลากหลายผลิตภัณฑ์ต่อไป

ปราชญ์ชุมชนด้านการจักสานดอกหญ้าไม้กวาด (หย๋ารอด๊ะ หวังเบ็ญหมูด, สัมภาษณ์, 20 กุมภาพันธ์ 2564) กล่าวว่า การถ่ายทอดองค์ความรู้ดำเนินต่อไปแม้ยุคสมัยผ่านไป ทั้งเป็นการถ่ายทอดสู่องค์กรที่ได้รับการติดต่อมาทั้งแบบมาดูงานที่ชุมชน และชุมชนไปถ่ายทอดสู่ภายนอก “ในหมู่บ้านก็มีผู้รู้หลายคน ทำเป็นอยู่บ้างสอนกันไปตามเครือข่ายที่ติดต่อมา ในพื้นที่ก็มีงานจักสานอย่างอื่นอยู่บ้าง เช่น พวกเตยแต่ก็ไม่มีใครสานต่อ ผลิตภัณฑ์ของเรามีความทนทานมากใช้ได้นาน ต้นดอกหญ้า หาเองตามธรรมชาติไม่มีต้นทุน เวลาเก็บต้องระวัง ต้องใส่ถุงมือ ใส่เสื้อแขนยาว มันจะบาดเป็นแผล ต้นดอกหญ้าสูงยาว ใบยาว เวลาเก็บนำมาฉีก เอามาตาก บางกอใหญ่มีหลายต้น บางกอก็มีไม่มากกระจาย ๆ กัน” ภูมิปัญญานี้จึงสามารถอยู่คู่กับชุมชนได้ต่อไป อีกทั้งยังมองหาแนวทางใหม่ ๆ ในการทำผลิตภัณฑ์เพื่อพัฒนาส่งขายอย่างต่อเนื่อง การทำงานจากสิ่งที่มีอยู่จึงมีคุณค่ามากและน่ารักษาให้มีต่อไป สามารถ ต่อยอดเป็นผลิตภัณฑ์อื่น ๆ ได้อีก ดอกหญ้าสามารถนำมาผลิตเป็นผลิตภัณฑ์อื่นได้อีกมากมายดังเห็นในวิจัยนี้ในกระบวนการผลิตต้นแบบอื่น ๆ ได้อย่างมีราคาและมีคุณค่าได้

ปราชญ์ชุมชนด้านการจักสานเชือกกล้วย (รัตนา ยางทอง, สัมภาษณ์, 20 มีนาคม 2564) กล่าวว่า วัสดุจากเชือกกล้วยมีจำนวนมากในพื้นที่ แต่มีคนน้อยนักที่มักเห็นคุณค่าของวัสดุในการนำมาใช้ประโยชน์ด้านต่าง ๆ รวมทั้งในการสร้างผลิตภัณฑ์จากการสานเชือกกล้วย เชือกกล้วยธรรมดา เมื่อคนในชุมชนได้นำมาทำเป็นผลิตภัณฑ์ในท้องถิ่นให้มีคุณค่ามีราคาเกิดขึ้นมามันไม่ใช่เรื่องง่าย ต้องใช้ระยะเวลาในการทำ ใช้ความอดทน ใช้ความมานะพยายาม ใช้ทักษะฝีมือ ความตั้งใจ และต้องมีความรู้เรื่องรูปแบบของวัสดุนั้น ๆ ได้พอประมาณ การขึ้นโครงว่าจะใช้วิธีการอย่างไร ใช้วัสดุอะไรบ้าง ใช้ลายขัดในรูปแบบไหน ถึงจะมีความสวยงามในรูปแบบของมัน ความรู้เกิดขึ้นจากการสั่งสมประสบการณ์มานานหลายปี และพัฒนาต่อยอดไปอย่างต่อเนื่องไม่สิ้นสุด

ตารางที่ 1 ลงพื้นที่สัมภาษณ์ปราชญ์ชุมชน

นางบุญธรรม มะโนเพ็ชร **การย้อมสีผ้าธรรมชาติจากยางกล้วย**	**นางหย่ารอด๊ะ หวังเบ็ญหมูด** **การจักสานดอกหญ้าไม้กวาด**	**นางรัตนา ยางทอง** **การจักสานเชือกกล้วย**
		

1. องค์ความรู้ทักษะงานหัตถกรรมในท้องถิ่นผ่านการถ่ายทอดของปราชญ์ชุมชน

1.1 ผลการวิเคราะห์ข้อมูลวัสดุจากเชือกกล้วย จากการลงพื้นที่กลุ่มพัฒนาสตรีจักสานเชือกกล้วย สามารถผลิตผลิตภัณฑ์เชือกกล้วยได้หลายรูปแบบตามขนาดของหุ่นซึ่งเป็นความต้องการของกลุ่มลูกค้า ส่วนใหญ่จะเป็นผลิตภัณฑ์หมวก กระเป๋า ตะกร้า ตลอดจนของใช้ตกแต่งภายในบ้าน โดยส่วนใหญ่จะเป็นการจักสานในรูปแบบที่เรียบง่ายไม่ซับซ้อนทำได้เร็ว สามารถขายได้ง่าย เชือกกล้วยมีน้ำหนักเบา มีความคงทนและแข็งแรง ขึ้นรูปเป็นผลิตภัณฑ์สามารถใช้ได้นาน ในส่วนของการผสมผสานเทคนิค วิธีการถักเชือกในรูปแบบต่าง ๆ จะเป็นการนำมาทำเป็นสายคล้องสำหรับสะพายหรือจับถือ เทคนิควิธีการถักเชือกกล้วยในรูปแบบต่าง ๆ เช่น การเปียเชือก การฟั่นเชือก เป็นต้น ดังภาพต่อไปนี้



ภาพที่ 2 การทดลองวัสดุเชือกกล้วย

1.2 ผลการวิเคราะห์ข้อมูลจากวัสดุเชือกกล้วยและวัสดุดอกหญ้าไม้กวาด การทดลองวัสดุสำหรับวิธีการสร้างลวดลายผ้าบาติกยางกล้วย 2 วัสดุ ดังนี้ 1) วัสดุเชือกกล้วยสามารถเก็บน้ำเทียนได้และในขณะพิมพ์สามารถให้ลวดลายพิมพ์ที่มีความสวยงามตามลักษณะลวดลายของเชือก และใช้ซ้ำได้ 2) วัสดุดอกหญ้าไม้กวาดยึดติดน้ำเทียนแต่ไม่สามารถซึมซับน้ำเทียนได้ ใช้ได้ครั้งเดียว ไม้กวาดก็เกาะตัวรวมกัน

ไม่เป็นเส้น ทำให้ครั้งต่อไปจะไม่เห็นเป็นลวดลาย ผลการวิเคราะห์ คือ ดอกหญ้าไม้กวาดจะใช้ได้เพียงครั้งเดียว ผลการทดลองการพิมพ์และการย้อมดังภาพและตารางต่อไปนี้



ภาพที่ 3 การทดลองสร้างลวดลายบาติกจากเชือกกล้วยและดอกหญ้า

ตารางที่ 2 การทดลองย้อมผ้าบาติกจากยางกล้วย

ภาพประกอบ	ขั้นตอน
	1. การเตรียม ตัดโคนกล้วย(อัตราส่วนตามภาชนะที่ใช้) พอมีพื้นที่ให้น้ำเดือด นำมาล้างให้สะอาด แล้วสับเป็นชิ้นพอประมาณ
	2. การต้ม ต้มน้ำในภาชนะใช้ไฟกลาง รอจนน้ำเดือด ใส่โคนกล้วยที่สับเป็นชิ้นลงไป รอจนน้ำเดือดอีกครั้ง ใส่เนื้อสียางกล้วยจากการต้มเคี่ยวจนเป็นเนื้อสี (จากการลงพื้นที่กลุ่มบาติกย้อมสียางกล้วย) เคี่ยวจนเนื้อสีละลาย ใส่เกลือและ ส้มแขก (ทุกกระบวนการใช้เวลา 20-30 นาที)
	3. การย้อม กรองน้ำสีด้วยภาชนะแบบหยาบ จากนั้นกรองน้ำสีด้วยผ้าขาวบางเนื้อละเอียดทิ้งไว้รอจนน้ำสีเย็นนำผ้าที่พิมพ์เทียนบาติก ลงย้อม (ใช้เวลา 20-30 นาที)
	4 การตาก นำผ้าขึ้นตากจนแห้งสนิทแล้วนำกลับไปย้อมแล้วตาก (ให้ทำซ้ำโดยประมาณ 3-4 ครั้ง จนได้สีที่เข้มตามความต้องการ จากนั้นแช่น้ำปูนแดงเพื่อเป็นการทำให้สีติดทน

1.3 ผลการวิเคราะห์ข้อมูลจากการจักสานวัสดุจากก้านมะพร้าว วัสดุก้านมะพร้าวมีความยาวตามธรรมชาติตามความยาวของใบมะพร้าว จึงทำให้การขึ้นรูปเป็นผลิตภัณฑ์ได้รูปแบบด้านความกว้างและความสูงตามความยาวของใบมะพร้าว หากนำไปออกแบบเครื่องตกแต่งแฟชั่น จึงเหมาะสำหรับการนำไปผสมผสานหรือใช้เป็นอุปกรณ์เสริมในการออกแบบเครื่องตกแต่งแฟชั่นในรูปแบบอื่น ๆ โดยการผสมผสานร่วมกับวัสดุอื่นเป็นการเพิ่มมูลค่าให้กับเครื่องจักสานจากวัสดุก้านมะพร้าว ดังภาพต่อไปนี้



ภาพที่ 4 การทดลองจักสานวัสดุก้านมะพร้าว

2. ออกแบบเครื่องตกแต่งแฟชั่นจากวัสดุธรรมชาติในท้องถิ่น จำนวน 3 รูปแบบ

Harriet Posner (2011) กล่าวว่า นักออกแบบหรือแบรนด์แฟชั่น มีเอกลักษณ์เฉพาะตัวที่ชัดเจนและโดดเด่นจนสามารถระบุตัวตนของนักออกแบบหรือแบรนด์แฟชั่นนั้น ๆ ได้อย่างง่ายดาย อัตลักษณ์ของเครื่องตกแต่งแฟชั่นในชุมชนที่เห็นได้ชัดเจน คือ วัสดุจากธรรมชาติที่นำมาผ่านกระบวนการผลิตด้วยวิถีของปราชญ์ชุมชนจนเป็นอัตลักษณ์ที่ได้รับการยอมรับ Fashionary (2020) กล่าวว่า ประเภทของเครื่องตกแต่งแฟชั่นที่เป็นองค์ประกอบสำคัญของการใช้งานนั้น คือ กระเป๋าเพื่อวัตถุประสงค์ของการใส่สิ่งของเครื่องใช้ที่จำเป็นสำหรับการใช้ชีวิตประจำวันที่มีหลากหลายรูปแบบที่แตกต่างกันในด้านวัสดุ เช่น ผ้า หนัง หรือวัสดุจากธรรมชาติ เป็นต้น ซึ่งมีความคงทนและดูแลรักษาง่ายไม่จำเป็นต้องซักบ่อยหรือเช็ดทำความสะอาดเป็นประจำ

2.1 การออกแบบกระเป๋าจากเชือกกล้วย ต้องคำนึงถึงความสามารถของผู้ผลิตและความต้องการของผู้บริโภคในตลาดที่เห็นความสำคัญของวัสดุธรรมชาติได้นำแนวโน้มแฟชั่นจากบริษัทพยากรณ์แนวโน้มผู้จัดหาการคาดการณ์การออกแบบผู้บริโภคและผลิตภัณฑ์ให้แบรนด์ต่าง ๆ WGSN บทความหัตถกรรมยกระดับ (Elevated Craft) กล่าวว่า สุนทรียศาสตร์อันประณีตบรรจงที่ยังให้ความสำคัญกับผลิตภัณฑ์งานฝีมือในยุคดิจิทัล สุนทรียศาสตร์ที่มีความต้องการสินค้าหัตถกรรม (Handcrafted) เพิ่มขึ้น การนำมาออกแบบที่ผสมผสานรูปแบบกระเป๋าผ้าและกระเป๋าสายสะพายไหล่ (Tote Bag, Shopper Bag) ที่มีความนิยมตลอดกาล ปากกระเป๋าเปิดกว้างมีหู 2 ข้างบรรจุของได้จำนวนมากตามภาพแบบร่างที่สอดคล้องกับ John Hopkins (2010) กล่าวว่า แนวทางการออกแบบและการร่างแบบรายละเอียดที่เกี่ยวข้องแสดงความเข้าใจอย่างถ่องแท้สามารถนำไปใช้ในกระบวนการผลิตต่อไป ดังตารางต่อไปนี้

ตารางที่ 3 แนวทางและแบบร่างการออกแบบกระเป๋าจากเชือกกล้วย

แนวทางการออกแบบ	การร่างแบบและกำหนดขนาดหุ่นกระเป๋า
	

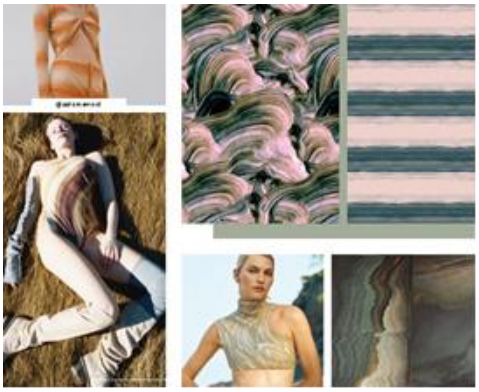
กระบวนการผลิตโดยต้องกำหนดหุ่นด้วยการตัดโฟมตามขนาดที่กำหนดไว้ในแบบร่าง แล้วปิดทับด้วยเทปโดยรอบ เพื่อกระบวนการทำต้นแบบกระเป๋าที่ป้องกันการหลุดกระจายตัวของเม็ดโฟมสามารถจะใช้ได้นาน กำหนดตำแหน่งของปากกระเป๋าและช่องสำหรับใส่สายกระเป๋า นำเชือกเปียและเชือกฟั่นที่ได้ถักไว้เสร็จแล้วมาสานเป็นเส้นยืนโดยยึดด้วยเข็มหมุดโดยรอบหุ่น จากนั้นขึ้นฐานด้วยเชือกกล้วยวิธีการสานลายขัด เพื่อยึดฐานให้แน่นและแข็งแรง นำเชือกเปียและเชือกฟั่นที่เตรียมไว้ ขัดสลับจนครบถึงตำแหน่งที่กำหนดไว้ ปากกระเป๋าด้านบนใช้เชือกกล้วยสานลายขัดอีกครั้งเพื่อเพิ่มความหนาและคงทนแข็งแรง ดังภาพต่อไปนี้



ภาพที่ 5 การผลิตต้นแบบกระเป๋าจากเชือกกล้วย

2.2 การออกแบบลวดลายและกระเป๋าจากผ้าบาติกยางกล้วย การขึ้นต้นแบบแม่พิมพ์บาติกจากเชือกกล้วย ด้วยแนวความคิดจากภูมิปัญญาและการวิเคราะห์ด้วยแนวโน้มแฟชั่น WGSN บทความ การใช้วิธีการแทนที่ด้วยสิ่งใหม่ (Substitute) กล่าวว่า การคิดสร้างสรรค์หรือสร้างนวัตกรรมให้กับผลิตภัณฑ์เป็นสิ่งสำคัญที่นักออกแบบควรคำนึงถึง อรัญ วานิชกร (2559) กล่าวว่า การแทนที่องค์ประกอบหรือรูปแบบเดิมได้ เช่น แทนที่ด้วยวัสดุ ขั้นตอน แหล่งผลิต วิธีการ เวลา อารมณ์ ความรู้สึก เป็นต้น จากทฤษฎีสู่การออกแบบนำผลมาวิเคราะห์ข้อมูลมาพัฒนา ออกแบบ ร่างแบบ ขึ้นต้นแบบลวดลายแม่พิมพ์บาติกจากเชือกกล้วย การให้อิสระกับวัสดุเชือกกล้วยและจัดวางให้สามารถนำไปต่อยอดลวดลายได้เป็นผืนผ้า อีกทั้งยังนำข้อมูลการสนับสนุนการออกแบบจากแนวโน้มแฟชั่น WGSN บทความพื้นผิวของธรรมชาติ Nature’s Texture กล่าวว่า ใช้สีสันโทนธรรมชาติทั้งหมดด้วยสีที่ลดและไล่ระดับเลือกใช้เป็นแนวทางในการออกแบบลวดลายบาติก ผลการวิเคราะห์ข้อมูลกระบวนการขึ้นแบบแม่พิมพ์บาติกสู่ลวดลายผ้าบาติก ดังตารางต่อไปนี้

ตารางที่ 4 แนวทางและแบบร่างการออกแบบลวดลายแม่พิมพ์บาติกจากเชือกกล้วย

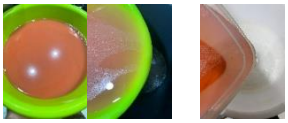
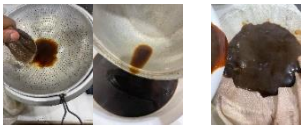
แนวทางการออกแบบลวดลายบาติก	แบบร่างแม่พิมพ์บาติกจากเชือกกล้วย
	

จากกระบวนการวิเคราะห์แนวทางการออกแบบตามแนวโน้มแฟชั่นให้เหมาะสมและสอดคล้องกับความต้องการของกลุ่มและผู้บริโภค เข้าสู่กระบวนการพัฒนาและสร้างสรรค์ การจัดวาง องค์ประกอบของลวดลายบนผืนผ้าบาติก เพื่อพัฒนาต่อยอดสู่แม่พิมพ์บาติก สร้างลวดลายแม่แบบพัฒนาสู่การสร้างลายที่ต่อยอดไม่รู้จบ แล้วเข้าสู่กระบวนการทดลองการพิมพ์เทียนด้วยแม่พิมพ์เชือกกล้วยบนผืนผ้าชนิดต่าง ๆ ที่ทางกลุ่มวิสาหกิจชุมชนได้ใช้ในการผลิตผ้าบาติกเพื่อการจัดจำหน่าย โดยมีชนิดผ้าต่าง ๆ ดังนี้ ผ้าฝ้าย ผ้าป่าน ผ้าไหม และผ้าใยกล้วย เป็นต้น

ตารางที่ 5 แม่พิมพ์บาติกจากเชือกกล้วย

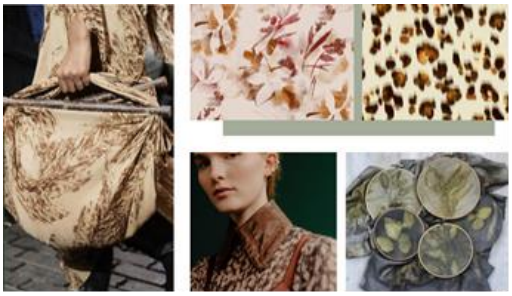
แม่พิมพ์บาติกเชือกกล้วย	การถ่ายทอดและทดลองการใช้แม่พิมพ์บาติกจากเชือกกล้วย
	
การขึ้นลายแม่พิมพ์ใช้วัสดุเชือกกล้วยและไม้โดยจะมีการเพิ่มฐานไม้ขึ้นมา	การซึมซับ : ซับน้ำเทียนได้ดีในผ้าเนื้อบาง ลวดลาย : มีการต่อเติมฐานไม้ขึ้นมาทำให้เกิดความคล่องตัวและความรวดเร็วขึ้นในขณะพิมพ์ผ้า คุณภาพการพิมพ์ที่มีลวดลายคมชัดและเวลาในการพิมพ์

ตารางที่ 6 การย้อมผ้าบาติกจากยางกล้วย

ภาพประกอบ	ขั้นตอน
	- ทำความสะอาดผ้าโดยการต้มน้ำในภาชนะใช้ไฟระดับกลาง ใส่ผงซักฟอกแล้วใส่ผ้าลงไป ชโลมผ้าขึ้นลง ใช้เวลาประมาณ 20 นาที จากนั้นซัก ล้างให้สะอาด ตากให้แห้งหรือพอหมาด
	- ละลายปูนแดงในน้ำสะอาดทิ้งไว้ให้ตกตะกอนใช้เวลาโดยประมาณ 1 คืนแล้วนำเฉพาะในส่วนที่เป็นน้ำปูนใสมาใช้
	- ต้มน้ำในภาชนะใช้ไฟระดับกลาง รอจนน้ำเดือด ใส่โคนกล้วยสับเป็นชิ้นลงไป รอจนน้ำเดือดอีกครั้ง (ใส่เนื้อสียางกล้วยจากการต้มเคี่ยวจนเป็นเนื้อสีจากกลุ่มวิสาหกิจชุมชน) เคี่ยวจนน้ำเปลี่ยนสี ใส่เกลือและส้มแขก (ทุกกระบวนการใช้เวลา 20-30 นาที)
	- กรองน้ำสีด้วยภาชนะแบบหยาบ จากนั้นกรองน้ำสีด้วยผ้าขาวบางเนื้อละเอียด ทิ้งไว้รอจนน้ำสีเย็น
	- นำผ้าที่พิมพ์เทียนบาติกลงย้อม ชโลมขึ้นลงเพื่อลดความด่างของการติดสีบนเนื้อผ้า (ใช้เวลา 20-30 นาที)
	- จากนั้นแช่น้ำปูนใสเพื่อเป็นการทำให้สีติดทน (จะแช่น้ำปูนใสระหว่างการย้อมหรือจะแช่ตอนย้อมเสร็จในครั้งสุดท้าย) ชโลมขึ้นลงเพื่อลดความด่างของการติดสีบนเนื้อผ้า
	- นำผ้าขึ้นตากจนแห้งสนิทแล้วนำกลับไปย้อมและตากอีกหลายครั้งหรือให้ทำซ้ำโดยประมาณ 3-4 รอบ จนได้สีที่เข้มตามความต้องการ
	- ผ้าที่ย้อมเสร็จจะมีความสวยงามเป็นธรรมชาติผ้าเนื้อบางจะให้สีบางเบา ผ้าเนื้อหนาจะให้สีเข้มขึ้นมาตามลำดับ พื้นผิวมันวาวบนผืนผ้าก็มีผลต่อแสงสะท้อนบนพื้นผิวที่เกิดขึ้น

การออกแบบสร้างสรรค์ผลิตภัณฑ์เครื่องตกแต่งแฟชั่นในรูปแบบกระเป๋าทรงถัง (Bucket Bag) ลักษณะมีหมุดเปิดปิดอยู่ด้านในตรงปากกระเป๋า ส่วนมากทำจากแม่เหล็ก ก้นกระเป๋าออกแบบเป็นโครงแข็ง ผู้วิจัยได้นำวัสดุจากก้านมะพร้าวมาแทนที่ฐานกระเป๋าเพื่อเพิ่มความแข็งแรง และสามารถวางรองรับสิ่งของด้านในได้ดี อาจมีหูหิ้ว ที่จับหรือที่ถือ 1 เส้น ตามกระบวนการออกแบบ ดังภาพต่อไปนี้

ตารางที่ 7 แนวทางและแบบร่างการออกแบบกระเป๋าจากผ้าบาติกสียางกล้วย

แนวทางการออกแบบกระเป๋า	แบบร่างกระเป๋าผ้าบาติกยางกล้วย
	

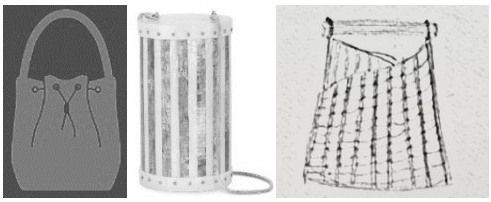
การผลิตต้นแบบกระเป๋าจากผ้าบาติกยางกล้วยและก้านมะพร้าว ขนาดกระเป๋าด้านบนตามฐานกระเป๋าจากก้านมะพร้าว ซึ่งมีหลายขนาดตามกลุ่มผู้ผลิตงานจักสานจากก้านมะพร้าว จากภาพตัวอย่างใช้เส้นผ่าศูนย์กลาง ประมาณ 8 นิ้ว (ทั้งนี้จะมีขนาดเส้นผ่าศูนย์กลางประมาณ 6-10 นิ้ว แล้วแต่ความยาวของก้านมะพร้าวซึ่งจะมีผลต่อขนาดของกระเป๋า) วาดแบบตัดลงบนกระดาษแล้วตัดผ้าตามขนาดที่กำหนด จากนั้นผ้าอีกส่วนหนึ่งนำมากำหนดฐานกระเป๋าให้ได้ขนาดความโค้งตามขนาดของก้นกระเป๋า ใช้ 6 ชิ้น ผ้ามาอัดให้เป็นทรงแข็ง จากนั้นต่อเป็นฐานกระเป๋า แล้วนำมาต่อเป็นทรงขึ้นรูปกระเป๋า เจาะตาไก่เพื่อคล้องสายหนังสำหรับการใช้งาน



ภาพที่ 6 การผลิตต้นแบบกระเป๋าจากผ้าบาติกยางกล้วย

2.3 การออกแบบกระเป๋าจากก้านดอกหญ้า การวิเคราะห์วัสดุก้านดอกหญ้าไม้กวาดเนื่องจากเป็นเส้นตรงแข็ง และมีน้ำหนักเบา ค้นพบว่า สามารถนำมาใช้เป็นเส้นแนวตั้งแล้วใช้วัสดุอื่นมาขัดสาน เพื่อเป็นวิธีการทางเลือกใหม่ให้กับกลุ่มผู้ผลิตและเกิดเป็นผลิตภัณฑ์ใหม่ให้กับผู้บริโภคเนื่องจากก้านไม้กวาดมีน้ำหนักเบา สามารถใช้งานได้สะดวก นำมาออกแบบรวมกับแนวโน้มแฟชั่น เนื่องจากในปัจจุบันผู้บริโภคมีความตระหนักในเรื่องความยั่งยืนของสิ่งแวดล้อม จึงนำไปสู่การใช้วัสดุจากธรรมชาติ เช่น ไม้ประดับ เส้นใยธรรมชาติ จนสามารถนำมาสร้างเป็นผลิตภัณฑ์สำหรับใช้งานได้เป็นอย่างดี ซึ่งมีความสำคัญมากเช่นกัน ดังจะเห็นได้จากการเคลื่อนไหวของกระแสผลงานศิลปะและหัตถกรรมที่เป็นแรงบันดาลใจให้กับนักออกแบบมากมายนำมาสร้างสรรค์ผลงานเพื่อรองรับความต้องการของกลุ่มผู้บริโภค นำมาออกแบบกระเป๋าทรงกระบอกสูบ (Cylinder Bag) มักมีขนาดเหมาะสมพอดีกับขนาดของมือ สำหรับโอกาสชั่วคราวสอดคล้องกับวัสดุก้านดอกหญ้าไม้กวาดที่เป็นวัสดุที่มีน้ำหนักเบา เปราะบาง ผสมผสานกับรูปแบบของกระเป๋ารูปทรงถังหรือตระกร้า (Bucket Bag) ฐานกระเป๋าออกแบบเป็นโครงแข็งเพื่อให้ตั้งตรง มีหูหิ้วหรือที่จับหรือที่ถือ 1 เส้น จากการทดลองวัสดุกับรูปทรงตะกร้าหรือกระเป๋าร่วมกับการวิเคราะห์แนวโน้มแฟชั่น ได้ผลการออกแบบตามตารางต่อไปนี้

ตารางที่ 8 แนวทางและแบบร่างการออกแบบกระเป๋าจากก้านดอกหญ้า

แนวทางการออกแบบ	แบบร่างกระเป๋าจากก้านดอกหญ้า
	

การผลิตต้นแบบตะกร้าจากก้านดอกหญ้า ต้องคำนึงถึงวัสดุก้านไม้กวาดเป็นหลักเพื่อผลิตภัณฑ์ในรูปแบบใหม่ กำหนดฐานด้วยวัสดุจากหวายเส้นผ่าศูนย์กลาง 8 นิ้ว กำหนดก้านไม้กวาดเป็นเส้นตรง วัดก้านดอกหญ้าไม้กวาดตามขนาดความสูงที่กำหนดและวัดจำนวนเส้นที่จะใช้ โดยรอบฐานจากหวาย เว้นระยะห่างระหว่างเส้นก้านไม้กวาด ประมาณ ½ นิ้ว ยึดฐานของตะกร้าด้วยการนำก้านดอกหญ้าตำแหน่งของฐานตะกร้าไปแช่น้ำพอนิ่มแล้วทุบให้แบน แล้วจึงสอดเข้าไปในช่องของหวายที่ทำตำแหน่งไว้ ยึดด้วยการผูกด้วยเชือกบาง จากนั้นกำหนดตัวยึดระหว่างสานด้วยกระดาษหลังภาพเส้นผ่าศูนย์กลาง 8 นิ้ว เว้นระยะห่างประมาณ ½ นิ้ว (เป็นตำแหน่งเดียวกันกับก้านไม้กวาดแนวตั้ง) เจาะขอบที่ทำตำแหน่งไว้ จากนั้นนำมายึดกับก้านไม้กวาดรอบด้าน นำเชือกกล้วยธรรมดามาขัดรอบวง ทั้งด้านนอกและด้านในเพื่อยึดเส้นก้านไม้กวาด แล้วขยับกระดาษหลังภาพขึ้นสานเช่นเดียวกันโดยรอบจนถึงขอบตะกร้า ตามภาพดังต่อไปนี้



ภาพที่ 7 การผลิตต้นแบบตะกร้าจากก้านดอกหญ้าและวัสดุเชือกกล้วย

สรุปและอภิปรายผล

เครื่องตกแต่งแฟชั่นจากวัสดุธรรมชาติในท้องถิ่น จำนวน 3 รูปแบบ

ผลการวิจัยผลิตภัณฑ์กระเป๋าจากวัสดุเชือกกล้วย การผสมผสานรูปทรงและรูปแบบกระเป๋าผ้า (Shopper Bag) และ (Tote Bag) ลักษณะการใช้งานกระเป๋าเปิดด้านบนและสายสะพายไหล่ มีขนาดใหญ่ สามารถบรรจุของได้จำนวนมาก หุ่นกระเป๋ารูปทรงสูงครึ่งวงกลม สามารถใส่ของได้จำนวนมาก วัสดุเชือกกล้วยสีธรรมชาติ ใช้เชือกกล้วย 4 แบบ ได้แก่ 1) เชือกกล้วยธรรมดา 2) เชือกกล้วยฟั่นเกลียว 3) เชือกกล้วยเปียสาม และ 4) เชือกกล้วยเปียแปด สานลายขัดธรรมดา เหมาะสำหรับใส่สิ่งของ จับถือหรือแขวนไว้ตกแต่งที่อยู่อาศัย วัสดุเชือกกล้วยมีน้ำหนักเบา แข็งแรง และมีความทนทาน



ภาพที่ 8 ผลิตภัณฑ์กระเป๋าจากเชือกกล้วย

ผลการวิจัยผลิตภัณฑ์กระเป๋าวัสดุผ้าบาติกยางกล้วย รูปทรงกระเป๋าทรงถังหรือตระกร้า (Bucket Bag) ใช้ผ้าบาติก ฐานกระเป๋าใช้วัสดุจากก้านมะพร้าว เป็นโครงแข็งเพื่อให้กระเป๋าตั้งตรง เพื่อการใช้งาน วิธีการ พิมพ์ลายบาติกจากแม่พิมพ์บาติกเชือกกล้วยและย้อมด้วยสียางกล้วย เหมาะสำหรับการใช้งานในทุกโอกาสไม่ว่าจะเป็นการทำงาน การร่วมงานเลี้ยงสังสรรค์ที่ไม่เป็นทางการ โอกาสในวันหยุดสำหรับโอกาสสบาย ๆ วันพักผ่อน หรือการใช้สำหรับใส่สิ่งของจำเป็น เนื่องจากวัสดุผ้าบาติกยางกล้วยมีสวยงามอีกทั้งดูผ่อนคลายและมีคุณค่าในแบบธรรมชาติ และมีโครงฐานจากก้านมะพร้าวที่มีความแข็งแรงทนทาน



ภาพที่ 9 ผลิตภัณฑ์กระเป๋าจากผ้าบาติกยางกล้วย

ผลการวิจัยได้ผลิตภัณฑ์ตะกร้าจากก้านดอกหญ้ารูปทรงกระบอกสูบ (Cylinder Bag) โดยทั่วไปมักเป็นขนาดเหมาะสมพอดีกับขนาดของมือ ซึ่งเหมาะสมกับวัสดุก้านดอกหญ้าไม้กวาดที่มีน้ำหนักเบาและเปราะบางซึ่งสามารถใช้ได้ชั่วคราวเฉพาะโอกาสสำคัญ ผสมผสานกับรูปแบบของกระเป๋าทรงถังหรือตระกร้า (Bucket Bag) ฐานกระเป๋าออกแบบเป็นโครงแข็ง วัสดุใช้ก้านดอกหญ้าเป็นหลัก เชือกกล้วยเป็นตัวช่วยในการสาน และหวายเป็นฐานรองเพื่อความเข็งแรง วิธีการใช้ก้านดอกหญ้าเป็นตัวยืน และการจักสานลายขัดธรรมดาด้วยเชือกกล้วย เหมาะสำหรับการใช้งาน สำหรับโอกาสสบาย ๆ การใช้งานชั่วคราว เช่น ใช้ในการใส่สิ่งของในช่วงเวลาพักผ่อน สบาย ๆ หรือการใช้สำหรับใส่สิ่งของต่าง ๆ ที่มีน้ำหนักเบา การตกแต่งที่อยู่อาศัย เนื่องจากวัสดุก้านดอกหญ้ามีความแข็งแรงน้อย เปราะบาง แต่ให้คุณค่าความสวยงามและมีเรื่องราว อีกทั้งดูสบาย ๆ ในแบบธรรมชาติ มีคุณสมบัติเบาใช้งานได้ง่าย



ภาพที่ 10 ผลิตภัณฑ์ตะกร้าจากก้านดอกหญ้า

ข้อเสนอแนะ

การผลิตเครื่องตกแต่งแฟชั่นจากวัสดุธรรมชาติในท้องถิ่น นอกจากการคำนึงถึงความสำคัญของการเห็นคุณค่าสิ่งแวดล้อม การรักษาไว้ซึ่งภูมิปัญญาท้องถิ่นแล้วนั้น การออกแบบผลิตภัณฑ์นอกจากการคำนึงถึงความสวยงาม ประโยชน์ใช้สอย ความนิยม แนวโน้มแฟชั่นแล้วนั้น ยังต้องคำนึงถึงข้อจำกัดในเรื่องความคงทนและระยะเวลาการใช้งาน จึงจำเป็นต้องมีการออกแบบที่สามารถทำให้วัสดุจากธรรมชาติใช้ได้ดีมีคุณภาพและยาวนานมากยิ่งขึ้นเพิ่มเติมจากการออกแบบและการเลือกใช้วัสดุหรือวิธีการจักสาน

เอกสารอ้างอิง

ชนัญชิดา ยุกติรัตน์. (2559). แนวคิดในการออกแบบผลิตภัณฑ์หัตถกรรม (พิมพ์ครั้งที่ 1). กรุงเทพฯ: สำนักพิมพ์แห่งมหาวิทยาลัยราชภัฏสวนสุนันทา.

ปานฉัตท์ อินทร์คง. (2559). การออกแบบผลิตภัณฑ์วัฒนธรรม แนวคิด รูปแบบ และการวิเคราะห์ (พิมพ์ครั้งที่ 1). กรุงเทพฯ: อันลิมิต พริ้นติ้ง จำกัด.

ณัฐพงษ์ คงประเสริฐ. (2558). การออกแบบผลิตภัณฑ์เพื่อให้ตอบสนองกับความต้องการของลูกค้า. วารสารวิศวกรรมศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ, 10(1), 56.

รัชฎาพร แนวแห่งธรรม. (2560). แนวทางการพัฒนาผลิตภัณฑ์ภูมิปัญญาท้องถิ่นเพื่อส่งเสริมเศรษฐกิจสร้างสรรค์ในจังหวัดนครปฐม. มนุษยศาสตร์ สังคมศาสตร์ และศิลปะ, 10(1), 999.

อรรถพนธ์ พงษ์เลาหพันธุ์. (2563). การคาดการณ์แนวโน้มแฟชั่นและการออกแบบแฟชั่นในศตวรรษที่ 21. ศิลปกรรมสาร, 13(1), 134.

อรัญ วานิชกร. (2559). การออกแบบผลิตภัณฑ์ท้องถิ่น (พิมพ์ครั้งที่ 1). กรุงเทพฯ: โรงพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

Fashionary. (2020). Fashionpedia. Chaina: Fashionary International Ltd.

Harriet Posner. (2011). Marketing Fashion. China: Laurence King Publishing Ltd.

https://www.wgsn.com/auth/login?lang=en&r=%2Ffashion

John Hopkins. (2010). Fashion Drawing. Singapore: AVA Book Production Pte.Ltd.

บุคลานุกรม

บุญธรรม มะโนเพ็ชร (2564 , 20 มกราคม). ปราชญ์ชุมชนด้านการย้อมสีธรรมชาติจากยางกล้วย (การสัมภาษณ์).

หย่ารอดี๊ะ หวังเบ็ญหมูด.(2564 , 20 กุมภาพันธ์). ปราชญ์ชุมชนด้านการจักสานดอกหญ้าไม้กวาด (การสัมภาษณ์).

รัตนา ยางทอง.(2564 , 20 มีนาคม). ปราชญ์ชุมชนด้านการจักสานเชือกกล้วย (การสัมภาษณ์).

นัยของธรรมชาติแวดล้อมในพื้นที่ว่าง
Implication of nature in space.

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บทคัดย่อ

ระนาบที่ประกอบกันจากเส้นและที่ว่างต่างเชื่อมโยงสัมพันธ์ แสดงดุลยภาพของเรื่องราวความประทับใจในรูปร่างรูปทรงของธรรมชาติแวดล้อม วัตถุข้าวของ เครื่องมือเครื่องไม้จากการดำรงชีพ สะท้อนความสุข ความสงบ และความเรียบง่าย ผ่านลายเส้น ระนาบ และที่ว่างเปรียบเปรยกับท่วงทำนองหรือช่วงจังหวะหนักเบาของดนตรี ซึ่งเป็นอวัจนภาษา คือ ภาษาที่ไม่ต้องใช้ถ้อยคำในการติดต่อสื่อสารใด ๆ

คำสำคัญ: นัย, ที่ว่าง, ธรรมชาติแวดล้อม

Abstract

The plane is composed of lines and spaces. The balance of the impression of the shape of nature,object,woodworking tools from livelihood. Happy reflection peace and simplicity compare with melody or the heavy rhythm of the music. It's non-verbal. The language does not require words in any communication.

Keywords: Implication, space, nature

บทนำ

ชลูด นิ่มเสมอ (2553, น. 4) ได้กล่าวถึงวาดเส้นเป็นวิธีสื่อความหมายทางการเห็นขั้นแรกเริ่มวิธีหนึ่งของมนุษย์ ด้วยปัจจัยขั้นพื้นฐานที่สุด คือ เส้นและร่องรอยต่าง ๆ และด้วยเครื่องมือที่ง่ายที่สุดที่จะหยิบฉวยมาได้จากใกล้ตัว อาจเป็นถ่านก้อนหนึ่ง เศษไม้ชิ้นหนึ่ง หรือแม้แต่นิ้วมือของตัวเอง เด็ก ๆ จะเริ่มขีด วาด หรือละเลงด้วยอะไรก็ตามที่จะทำให้เกิดร่องรอยขึ้นตั้งแต่ยังไม่รู้ความชนดั้งเดิมขีดเขียนเส้นและร่องรอยลงบนเปลือกไม้ แผ่นหินหรือผนังถ้ำ ด้วยเหตุที่เราอาจเดาไปได้หลายประการ และที่น่าเป็นไปได้ประการหนึ่ง คือ มนุษย์ต้องการแสดงอะไรบางอย่างที่เป็นส่วนตนออกมาให้ปรากฏในโลก ไม่ว่าจะเป็นความเชื่อ ความนึกคิด อารมณ์ ความรู้สึก หรือแม้แต่เพียงร่องรอยง่าย ๆ ที่ทำขึ้นมาด้วยมือเอง

การสร้างสรรค์ผลงานศิลปะเพื่อให้ผลงานนั้น ๆ มีคุณค่าทางด้านความคิดสร้างสรรค์ ความงามหรืออารมณ์ความรู้สึกที่ถ่ายทอดออกมาให้เป็นที่ประจักษ์นั้น ซึ่งต้องประกอบด้วยองค์ประกอบหลายอย่าง เช่น รสนิยมส่วนตนหรือความชื่นชอบเป็นพิเศษ ในเรื่องที่จะนำมาเป็นแรงบันดาลใจในการสร้างสรรค์ผลงาน และประสบการณ์การซึมซับรับรู้ต่าง ๆ การศึกษาค้นคว้าข้อมูลจากสถานที่จริง ซึ่งได้นำมาวิเคราะห์ด้านความเหมาะสมที่จะใช้ในการสร้างสรรค์ผลงานชุด “นัยของธรรมชาติแวดล้อมในพื้นที่ว่าง”

ธรรมชาติสร้างสรรพสิ่งในโลกทั้งสิ่งมีชีวิตและไม่มีชีวิต ต่างดำรงอยู่ภายใต้กฎเกณฑ์ของความหลากหลายทางธรรมชาติที่มีการเปลี่ยนแปลงและมีความเคลื่อนไหวอยู่ตลอดเวลา มนุษย์ดำรงชีพด้วยวิธีการต่าง ๆ ที่ต้องพึ่งพิงสภาวะ ดิน ฟ้า อากาศ ลม ฝน แหล่งน้ำ ต้นไม้ใบหญ้าและความหลากหลายของพันธุกรรมพืช พันธุกรรมสัตว์ ที่หล่อเลี้ยงชีวิตให้ดำเนินไปอย่างปกติสุข ตราบที่ยังคงมีทรัพยากรเพียงพอต่อความต้องการของมนุษย์

จากข้อมูลเบื้องต้นส่งผลให้เกิดการสร้างสรรค์เป็นผลงานศิลปะในลักษณะงานจิตรกรรม 2 มิติ รูปแบบผลงานวาดเส้น โดยการขีดเขียนเป็นเส้น เป็นรูปร่างทรงแสดงสุนทรียภาพเฉพาะ และภาษาเฉพาะของตนเอง การใช้เส้นและน้ำหนักเป็นทัศนธาตุหลักในการสร้างสรรค์ เพื่อถ่ายทอดอารมณ์ความรู้สึกและจินตนาการ แสดงให้เห็นถึงมุมมองส่วนตัวเกี่ยวกับธรรมชาติและสิ่งแวดล้อม อาทิเช่น วัสดุอุปกรณ์ที่ใช้ประกอบอาชีพ โดยเน้นความเป็นวิถีชีวิตของชาวใต้รวมทั้งต้นไม้ใบหญ้าต่าง ๆ สะท้อนการอยู่ร่วมกันเป็นสังคมที่มีความสงบสุข ซึ่งอยู่บนพื้นฐานของการปฏิสัมพันธ์ซึ่งกันและกันระหว่างธรรมชาติและมนุษย์ และต้องการเผยแพร่องค์ความรู้ของงานสร้างสรรค์ และเป็นแนวทางในการศึกษาค้นคว้าต่อไปในอนาคต

วัตถุประสงค์ของการสร้างสรรค์

1. เพื่อสร้างสรรค์ผลงานทัศนศิลป์รูปแบบจิตรกรรม เทคนิควาดเส้นบนระนาบของที่ว่าง
2. เพื่อถ่ายทอดความประทับใจจากการศึกษาเรียนรู้เกี่ยวกับสิ่งแวดล้อมรอบ ๆ ตัว ที่มีลักษณะความเป็นพื้นถิ่นภาคใต้ ประกอบด้วยพืชพันธุ์ เช่น บานชื่น ดาวเรือง บานไม่รู้โรย ผักสวนครัว มะเขือ ถั่วฝักยาว พริก ข่า ฯลฯ และ วัสดุ อุปกรณ์ เครื่องไม้เครื่องมือในการดำรงชีพ เช่น ไม้ ไม้ไผ่ แห อวน ตาข่ายกรองแสง
3. เพื่อสื่อความหมายของผลงานสร้างสรรค์ให้เห็นรูปแบบสัญลักษณ์ที่มีการผสานสัมพันธ์ ความกลมกลืนสมดุลและขัดแย้ง แสดงจังหวะความหนาแน่นของเส้นและพื้นที่ว่าง โดยใช้เทคนิคการวาดเส้นในการสื่อความคิดและอารมณ์ความรู้สึกที่เลื่อนไหลอย่างต่อเนื่อง
4. เพื่อแสดงออกเกี่ยวกับผสมผสานกับการลากพู่กันด้วยความเร็วของเส้นที่ต่างกัน ในบางช่วงของภาพและด้วยทิศทาง ขนาดของเส้นที่หนักเบาเสาะผสานกัน สอดคล้องกับรูปทรงอย่างกลมกลืน

แนวความคิดในการสร้างสรรค์ผลงาน

ระนาบที่ประกอบกันจากเส้นที่แสดงความรู้สึกประกอบด้วยการเขียนเส้นเล็กที่สุด เขียนด้วยการลงน้ำหนักเบา ๆ ไปจนถึงการกดพู่กันให้เป็นเส้นหนักขนาดใหญ่ คมชัดแข็งแกร่ง พร่ากระจายอ่อนนุ่มและบางตอนแห้งกร้าน ผสมกับการหักเหโค้งงอในทิศทางและความเร็วที่ต่างกันไป สร้างความเลื่อนไหลไปในที่ว่าง เกิดจังหวะลีลาตามอารมณ์ความรู้สึกของการแสดงออก เสมือนทางเดินหรือผืนน้ำที่แผ่กว้างออกไปอย่างไม่มีจุดจบ เปรียบเปรยกับท่วงทำนองหรือช่วงจังหวะหนักเบาของดนตรี สื่อความคิดและอารมณ์ความรู้สึก เพื่อแสดงออกและสะท้อนให้เห็นบุคลิกและอุปนิสัยที่ประกอบด้วยอารมณ์ สงบ มั่นคง ขรึม และจริงจัง ความมีชีวิตชีวา และสนุกสนาน ผสมผสานกับความคิดและจินตนาการแสดงดุลยภาพของเรื่องราวความประทับใจในรูปร่างรูปทรงของธรรมชาติแวดล้อม ประกอบด้วยพืชพันธุ์ เช่น ดอกไม้ใบหญ้า เถาวัลย์ วัชพืช ผักสวนครัว วัตถุข้าวของ เครื่องมือเครื่องไม้จากการดำรงชีพ ไม้ ไม้ไผ่ แห อวน ตาข่ายกรองแสง

วิธีดำเนินการสร้างสรรค์

การสร้างสรรค์ผลงานจิตรกรรม ชุด“นัยของธรรมชาติแวดล้อมในพื้นที่ว่าง” ผู้สร้างสรรค์ได้ดำเนินการศึกษาค้นคว้าเป็นขั้นตอนดังต่อไปนี้ ศึกษาข้อมูลเอกสารต่างๆที่เกี่ยวข้อง

1. การศึกษาข้อมูลจากสถานที่จริง สภาพแวดล้อมโดยรอบบริเวณที่สนใจ และศึกษาลักษณะทางธรรมชาติ ความมีชีวิตชีวา การเกาะเกี่ยวกันของพันธุ์ไม้หลากชนิดที่อยู่ในบริบทของการพึ่งพาอาศัยซึ่งกันและกัน

2. ศึกษาข้อมูลเอกสารต่าง ๆ ที่เกี่ยวข้องกับการสร้างสรรค์ผลงาน

3. ประมวลลำดับข้อมูล วิเคราะห์และสรุปผลที่ได้รับจากการศึกษาเพื่อสร้างสรรค์เป็นงานจิตรกรรมวาดเส้น

4. สร้างสรรค์ผลงานเป็นภาพร่างลายเส้นปากกาเพื่อวางโครงสร้าง โดยรวมของภาพและความสมบูรณ์ของเรื่องราว

5. ปฏิบัติการสร้างสรรค์ผลงานและนำเสนอผลงานเพื่อวิเคราะห์ วิจารณ์ และสัมมนาปรับเปลี่ยนแก้ไขปัญหาพร้อมทั้งพัฒนาการแสดงออก มุมมอง เนื้อหาสาระในการสร้างสรรค์

6. บันทึกข้อมูลปัญหาของการสร้างสรรค์และพัฒนาผลงาน เพื่อให้เกิดความสมบูรณ์ของผลงานสร้างสรรค์

7. เผยแพร่ผลงานสร้างสรรค์โดยจัดนิทรรศการหรือเข้าร่วมแสดงผลงานนิทรรศการกับหน่วยงานภายนอก และใช้ในการเรียนการสอนในหลักสูตรสาขาวิชาทัศนศิลป์

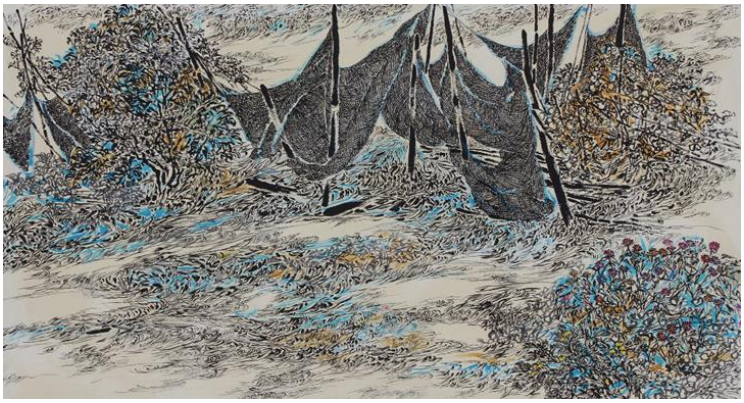
ผลการสร้างสรรค์



ภาพที่ 1 ภาพผลงานสร้างสรรค์ชิ้นที่ 1 ชื่อผลงาน “Implication of nature in space”
(ขนาด 145 x 180 เซนติเมตร, เทคนิค หมึกจีน, สีฝุ่น, ปี 2018)



ภาพที่ 2 ภาพผลงานสร้างสรรค์ชิ้นที่ 2 ชื่อผลงาน “Implication of nature in space 2” (ขนาด 60 x 120 เซนติเมตร, เทคนิค หมึกจีน, สีฝุ่น, ปี 2018)



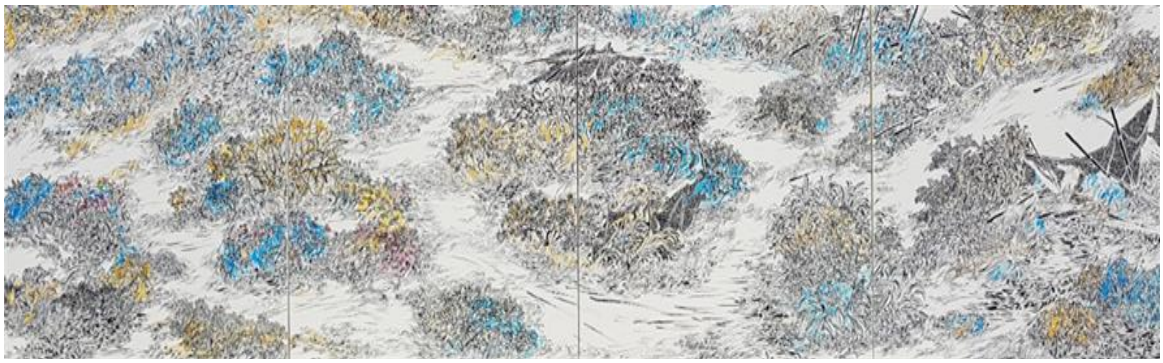
ภาพที่ 3 ภาพผลงานสร้างสรรค์ชิ้นที่ 3 ชื่อผลงาน “Implication of nature in space 3” (ขนาด 60 x 120 เซนติเมตร, เทคนิค หมึกจีน, สีฝุ่น, ปี 2018)



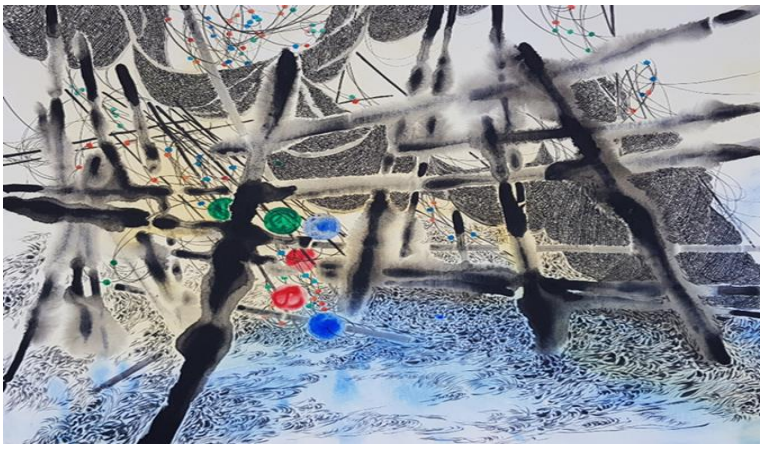
ภาพที่ 4 ภาพผลงานสร้างสรรค์ชิ้นที่ 4 ชื่อผลงาน “Implication of nature in space 4” (ขนาด 60 x 75 เซนติเมตร, เทคนิค หมึกจีน, ปี 2018)



ภาพที่ 5 ภาพผลงานสร้างสรรค์ชิ้นที่ 5 ชื่อผลงาน “Aesthetics of Objects”
(ขนาด 70 x 90 เซนติเมตร, เทคนิค หมึกจีน, สีฝุ่น, ปี 2018)



ภาพที่ 6 ภาพผลงานสร้างสรรค์ชิ้นที่ 6 ชื่อผลงาน “Implication of Nature in Space 5”
(ขนาด 90 x 400 เซนติเมตร, เทคนิค หมึกจีน, สีฝุ่น, ปี 2019)



ภาพที่ 7 ภาพผลงานสร้างสรรค์ชิ้นที่ 7 ชื่อผลงาน “Lines language”
(ขนาด 80 x 100 เซนติเมตร, เทคนิค สีอะคลิลิค, ปี 2019)

การอภิปรายผลการสร้างสรรค์

มนุษย์ดำรงชีพด้วยวิธีการต่าง ๆ ที่ต้องพึ่งพิงสภาวะ ดิน ฟ้า อากาศ ลม ฝน แหล่งน้ำ ต้นไม้ ใบหญ้าและความหลากหลายของพันธุกรรมพืช พันธุกรรมสัตว์ ที่หล่อเลี้ยงชีวิตให้ดำเนินไปอย่างปกติสุข ตราบที่ยังคงมีทรัพยากรเพียงพอต่อความต้องการของมนุษย์เราถูกรายล้อมด้วยธรรมชาติ ซึ่งสิ่งที่อยู่รายรอบกาย ทั้งต้นไม้ ใบหญ้า วัชพืช พืชผัก ผลไม้ เถาวัลย์ วัชพืชต่าง ๆ และวัสดุอุปกรณ์ที่สร้างมาเพื่อเลี้ยงชีพ ทำมาหากิน สิ่งปลูกสร้างต่าง ๆ มีความสัมพันธ์ระหว่างมนุษย์กับธรรมชาติแวดล้อม

ในการสร้างสรรค์ผลงานชุดนี้มีการใช้ทัศนธาตุหลัก คือ จุด เส้น และที่ว่าง ซึ่งมีความสัมพันธ์กัน การประกอบกันของจุดขนาดเล็กและใหญ่ ทำให้เกิดค่าน้ำหนักช่วยเน้นรูปทรงให้เด่นชัดขึ้น สร้างจังหวะให้เกิดพลังความเคลื่อนไหวและเกิดความกลมกลืนมีความเชื่อมโยงระหว่างรูปทรงต่าง ๆ และยังมีการใช้จุดในการเสริมรายละเอียดของภาพให้สมบูรณ์ขึ้น นอกจากนี้มีการใช้เส้นเป็นทัศนธาตุหลักเป็นโครงสร้างสำคัญและเป็นหัวใจของผลงาน สร้างความเคลื่อนไหว แสดงรูปทรงของสิ่งต่าง ๆ เช่น แห อวน ตาข่าย กรองแสง สิ่งของ เครื่องใช้ ซากไม้ ต้นไม้ ดอกไม้ ใบหญ้า พืชผักสวนครัว มีการใช้เส้นแสดงความรู้สึกอยู่ในตัวเส้นเอง โดยใช้เส้นที่มีธรรมชาติเป็นสองมิติให้มีความรู้สึกว่าเป็นสามมิติ โดยใช้พู่กันจีนตั้งแต่การเขียนเส้นเล็กที่สุดเขียนด้วยการลงน้ำหนักเบา ๆ ไปจนถึงการกดพู่กันให้เป็นเส้นหนักขนาดใหญ่ เกิดการประสานกันของเส้นจนเป็นรูปทรงและน้ำหนัก ใช้วิธีการลากเส้นลงไปทีเดียวในที่ว่าง บางตอนคมชัด บางตอนพร่ากระจายอ่อนนุ่มและบางตอนแห้งกร้าน ผสมกับการหักเหโค้งงอในทิศทางและความเร็วที่ต่างกันไป ดังนั้นการวาดเส้นจึงสัมพันธ์กับที่ว่าง เพราะเส้นยังมีหน้าที่กำหนดขอบเขตและลักษณะรูปร่างของบริเวณที่ว่าง สร้างสรรค์เป็นที่ว่างลวงตา มีลักษณะ 2 มิติ มีการเว้นพื้นระนาบของผ้าใบไว้ ซึ่งเป็นที่ว่างเสมือนทางเดินหรือผืนน้ำที่แผ่กว้างออกไปอย่างไม่มีจุดจบและขอบเขตที่แน่นอน เป็นที่ว่างแบบเปิดที่ว่างทำหน้าที่เชื่อมโยงรูปร่างและรูปทรงให้เป็นเอกภาพ มีความสอดคล้องกลมกลืนกันที่เกิดจากการเชื่อมโยงสัมพันธ์กันของส่วนต่าง ๆ โดยมีความขัดแย้งและกฎเกณฑ์ของการประสานหรือความกลมกลืนกัน ความตรงกันข้ามกันนี้ ทำให้เกิดพลังความเคลื่อนไหวและเกิดดุลยภาพขึ้นประกอบด้วย เอกภาพของรูปความคิด มีแนวเรื่องเกี่ยวกับระนาบที่ประกอบกันจากเส้นและที่ว่างมีความเชื่อมโยงสัมพันธ์ แสดงดุลยภาพของเรื่องราวความประทับใจในรูปร่างรูปทรงของธรรมชาติแวดล้อม โดยมี วัตถุ สิ่งของ เครื่องมือเครื่องไม้ในการประกอบอาชีพ แห อวน ตาข่ายกรองแสง ไม้ไผ่ ซากไม้ ต้นไม้ ดอกไม้ ใบหญ้า พืชผักสวนครัว สะท้อนความสุข ความสงบ และความเรียบง่าย เปรียบเปรยกับท่วงทำนองหรือช่วงจังหวะหนักเบาของดนตรี แสดงออกเป็นรูปแบบงานจิตรกรรม สื่อถึงอารมณ์ความรู้สึกที่สะท้อนความกลมกลืนและขัดแย้งของเส้นที่ลากผ่านที่ว่าง โดยมีรูปทรงจากความประทับใจเป็นการลดตัดทอนความเหมือนจริงในธรรมชาติสร้างเป็นสัญลักษณ์แสดงความหมายที่ผู้สร้างสรรค์ต้องการ โดยใช้เทคนิควาดเส้นหมึกจีนและสีฝุ่นบนผ้าใบ สร้างความเลื่อนไหลไปในที่ว่าง เกิดจังหวะลีลาตามอารมณ์ความรู้สึกของการแสดงออกการลากเส้นลงไปทีเดียวในที่ว่างบางตอนคมชัดแข็งแกร่ง บางตอนพร่ากระจายอ่อนนุ่ม และบางตอนแห้งกร้าน ผสมกับการหักเหโค้งงอในทิศทางและความเร็วที่ต่างกันไป สื่อความคิดและอารมณ์ความรู้สึกโดยมีลักษณะมุมมองอย่างงานจิตรกรรมไทย ซึ่งเป็นแบบบรรยายหรือพรรณนา

ผลงานสร้างสรรค์ชุด “นัยของธรรมชาติแวดล้อมในพื้นที่ว่าง” มีแนวเรื่องและสัญลักษณ์ของการแสดงออก ประกอบด้วยเส้นนอนของรูปทรง ซากไม้ กิ่งไม้ต่าง ๆ ให้อารมณ์ความสงบ ราบเรียบเส้นในแนวดิ่งของรูปทรง เสาไม้ เศษไม้ ให้อารมณ์ความมั่นคง ขรึม และจริงจัง เส้นเฉียงของรูปทรง ต้นไม้เอนใบหญ้าที่ลู่ลม เถาวัลย์ วัชพืช ให้อารมณ์ความเคลื่อนไหว ความมีชีวิต และเส้นโค้งที่ต่อเนื่องกับรูปทรง

ของกลุ่มต้นไม้ ใบหญ้า ที่สอดประสานกันไปทั่วที่ว่างและปฏิสัมพันธ์กับรูปทรงอื่น ๆ ให้อารมณ์ความสนุกสนาน กลมกลืน ต้องการแสดงนัยสำคัญเพื่อแสดงออกและสะท้อนให้เห็นบุคลิกและอุปนิสัย ของผู้สร้างสรรค์ที่ประกอบด้วยอารมณ์ สงบ มั่นคง ขรึม และจริงจัง ความมีชีวิตชีวาและสนุกสนาน อันเป็นภาษาที่ใช้สื่อสารผสมผสานกับความคิด และจินตนาการในการถ่ายทอดและสร้างสรรค์ผลงานในรูปแบบแนวทางเฉพาะตน

เอกสารอ้างอิง

ชลูด นิ่มเสมอ. (2553). วาดเส้นสร้างสรรค์. กรุงเทพฯ: อมรินทร์.
ชลูด นิ่มเสมอ. (2553). องค์ประกอบของศิลปะ. พิมพ์ครั้งที่ 7 กรุงเทพฯ: อมรินทร์.

สัญลักษณ์จินตภาพแห่งความผูกพันเพื่อผ่อนคลายจิตใจ
The Imagination Symbol of Attachment to Relax Mind

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บทคัดย่อ

สัญลักษณ์จินตภาพแห่งความผูกพันเพื่อผ่อนคลายจิตใจ เป็นการถ่ายทอดประสบการณ์ ความสุข ความทรงจำ ความผูกพัน ในวิถีชีวิตชนบทที่เต็มไปด้วยความสวยงามและเรียบง่าย สนุกสนาน อบอุ่นผ่านสีสัน ในช่วงเวลาและเรื่องราวในการดำรงชีวิต เรื่องราวประสบการณ์จากในอดีต คลุกคลี สัมผัส บ่มเพาะกลมเกลียวกลมกลืนจากรากเหง้าในสังคมของผู้สร้างสรรค์ โดยผ่านการนำเสนอด้วยผลงานทางทัศนศิลป์เป็นผลงานจิตรกรรม 2 มิติ เทคนิคสีน้ำมันบนผ้าใบรูปแบบกึ่งเหมือนจริงผสมผสานกับรูปทรงจากสิ่งแวดล้อมและธรรมชาติ ผ่านสัญลักษณ์ จังหวะ สีสัน ที่แสดงทางแนวทางเหนือจริง สัมพันธ์กับเนื้อหาแนวความคิด ที่พูดถึงจินตนาการทางความสุขและความทรงจำ การสะท้อน การหวงแหนรักษาเอกลักษณ์รากเหง้าพื้นฐาน ที่เป็นต้นทุนทางวัฒนธรรม ในการดำรงชีวิต คอยสร้างความสุข ความผ่อนคลาย มุ่งเน้นการมองโลกในแง่ดีสร้างความสุขและกำลังใจในการดำรงชีวิตแก่ผู้รับชมผลงานในการสร้างสรรค์และกล่อมเกลาแบ่งเบาปัญหาต่าง ๆ ที่ประสบพบเจอในชีวิตประจำวันที่เต็มไปด้วยความเครียด สับสนวุ่นวายไม่แน่นอนในการดำรงชีวิต

คำสำคัญ: จินตภาพแห่งความผูกพัน, ความสุขความทรงจำ,ธรรมชาติ

Abstract

The Imagination symbol of attachment to relax mind.the experience,Happiness, memories, engagement in rural life, beautiful and simple, full of fun, warm, colorful. At times and stories touched by life through a past experience, touch, harmonious, cultivate on the basis of one's social life of creators. presentation of visual arts as 2d art, oil painting on canvas, semi-realistic style combined with the shape of the environment and nature, showing the way to the north. Relate to the conceptual content. That's a fantasy of happiness and memories. Reflects to cherish the traditions, cultures, livelihoods through the works. To create happiness, relaxation, focus on optimism, happiness and morale in life, more than the problems encountered in everyday life is full of confusion.Uncertainty in living.

Keywords: Imagination of engagement, Happy memories,Natural

บทนำ

ตามบริบทของสังคมที่ดำเนินไปในปัจจุบัน ปัจจัยในการดำรงชีวิตยิ่งมากตามไปด้วยตามเหตุการณ์ของการดำรงชีวิต ที่มีปัจจัยภายนอกเข้ามามีอิทธิพลมากขึ้นต่อการดำรงชีวิต ตามวัฒนธรรมใหม่ ๆ ตามยุคสมัยที่คนในสังคมดำเนินไปอย่างไม่รู้ตัวและรู้ตัวตามวัฏจักรของการเกิดแก่เจ็บตาย ที่เป็นสิ่งที่มนุษย์ ไม่อาจเปลี่ยนแปลงได้ ต่างมีเป้าหมายขวนขวายไขว้คว้าหาสิ่งที่ตนต้องการ อยากมีอยากได้ ดิ้นรน ต่อสู้แข่งขันจนเกินความพอดีและจำเป็น ความวิตกกังวล ปัญหาความเครียดสะสม โดยลืมความต้องการที่แท้จริงภายในจิตใจ นั่นคือการสร้างความสุขให้กับตัวเองครอบครัวและคนรอบข้าง

เหตุการณ์ในการดำรงชีวิต ประสบการณ์และความสุขความทุกข์คนทุกคนอาจจะพบเจอแตกต่างกันแล้วแต่สังคมที่เจอที่อยู่และวัฒนธรรมนั้น ๆ สถานที่กิจกรรมที่แตกต่างกัน สภาพสังคมล้วนมีผลกระทบต่อความรู้สึกและจิตใจในการดำรงชีวิต การเปลี่ยนแปลงตามระยะเวลา ความเจริญทางสังคมและเทคโนโลยีที่ก้าวไปข้างหน้าอย่างไม่หยุดนิ่ง โดยทำให้คนในสังคมบางกลุ่มขาดจิตสำนึกในการรักษาหวงแหนธรรมชาติวัฒนธรรมที่ดีงามที่คอยหล่อเลี้ยงชีวิตมนุษย์ให้มีรากฐานที่มั่นคงได้ ลืมความสุขความผูกพันสิ่งที่ดีงามความอบอุ่น ความสวยงามในวิถีชีวิตชนบท ทั้งที่เป็นส่วนสำคัญในการดำรงชีวิตของคนในสังคมในการอยู่ร่วมกัน โดยอยู่ที่ว่าเราสามารถเก็บเอาความสุขความผูกพัน ความทรงจำที่ดีงามมาปรับใช้ในสังคมปัจจุบันอย่างไรให้มีความสุข และดำเนินชีวิตไปพร้อมกับความเจริญทางเทคโนโลยีและวัฒนธรรม ในปัจจุบันมีการเปลี่ยนแปลงตลอดเวลา ทั้งกฎระเบียบ กติกา กฎหมายทางสังคมในทุก ๆ ด้าน โดยที่ความทรงจำและจิตสำนึกนั้น อยู่ที่ว่าใครจะสามารถรับรู้ถึงความสุขที่แท้จริงปรับตัวท่ามกลางการเปลี่ยนแปลงและนำมาปรับใช้ในการดำรงชีวิตได้แท้จริง ตามสภาวะสังคมในปัจจุบัน ในภาวะที่เปราะบางและไม่มั่นคงของเรื่องราวจากปัจจัยภายนอก

ช่วงเวลาในความทรงจำและอดีตจึงมีความสำคัญ ช่วงเวลาแห่งชีวิตอาจจะเป็นเรื่องราวพื้นที่ที่อบอุ่น ประสบการณ์จากกิจกรรมภายในบ้านนอกพื้นที่บ้าน มุมมองสิ่งแวดล้อม สีสัน สัญลักษณ์บรรยากาศโดยรอบ เช่น บรรยากาศจากแมวที่วิ่งเล่น นอนหลับ หรือสนุกสนานอยู่กับพื้นที่ที่สงบ เรียบง่าย แสงแดด ไออุ่น ไม่ต่อสู้ดิ้นรนจนเกินความพอดี ไม่แข่งขันเร่งรีบ หรือสร้างความเดือดร้อนในการใช้ชีวิต สร้างพื้นที่ส่วนตัวที่สงบเรียบง่าย ที่คนในยุคสมัยใหม่จะสามารถกลับไปดำรงชีวิตได้อย่างปลอดภัยธรรมชาติจึงกลายเป็นพื้นที่ปลอดภัย เป็นการเริ่มต้นของการฝึกฝนประสาทรับรู้ที่ดี ธรรมชาติเป็นบรมครูที่ยิ่งใหญ่ของมนุษย์และยังมีสิ่งที่มนุษย์จะต้องเรียนรู้จากธรรมชาติอย่างไม่จบสิ้น ศิลปะทุกชนิดทุกประเภทสร้างขึ้นโดยมนุษย์ ศิลปะไม่ว่าจะอยู่ในยุคเก่าหรือยุคใหม่ล้ำสมัยอย่างไร ย่อมเกิดจากการเรียนรู้จากธรรมชาติของผู้สร้างสรรค์ทั้งสิ้นในการนำมาปรับใช้ (พิษณุ ศุภนิมิตร, 2549)

การสร้างสรรค์ผลงานจิตรกรรม ชุดสัญลักษณ์จินตภาพแห่งความผูกพันเพื่อผ่อนคลายจิตใจจึงเป็นสิ่งที่ต้องการถ่ายทอดถึงแง่มุมจากความสุขความผูกพันในวิถีชีวิตเหตุการณ์ต่าง ๆ เรื่องราวสัญลักษณ์จากชีวิต คอยสร้างคุณค่าความสุขความทรงจำที่ดีให้กับผู้รับชมผลงาน สร้างสรรค์ สัมผัส รับรู้ถึงความรู้สึกสุนทรียะภาพในผลงาน การบูรณาการสุนทรียภาพสู่การเยียวยาจิตใจผ่านผลงานจิตรกรรมสร้างองค์ความรู้ใหม่ในด้านการใช้ทัศนธาตุและสัญลักษณ์จากวิถีชีวิตชนบท ถ่ายทอดคุณค่าแห่งความอบอุ่น สงบ และเรียบง่าย เป็นแนวทางการบำบัดจิตใจในบริบทของสังคมเมืองที่เคร่งเครียด มองความสุขเล็ก ๆ และสิ่งต่าง ๆ รอบตัวเป็นแรงขับเคลื่อนสำคัญที่ทำให้สามารถดำรงชีวิตไปข้างหน้าอย่างมีความสุขซึมซับสัญลักษณ์เอกลักษณ์จากผลงานสู่การอนุรักษ์รากเหง้าทางสังคม วิถีชีวิต มุมมองเรื่องราวแห่งความสุข ผ่านสีสัน ผ่านของเล่นข้าวของเครื่องใช้ สัตว์ พืชพันธุ์ สืบสานบ่มเพาะและถ่ายทอดสู่สังคม ผ่าน

จินตนาการในการสร้างสรรค์ โดยทรรศนะใหม่ของสภาพการรู้คิดทางศิลปะได้เข้ามามีบทบาทเด่นในเรื่องมโนทัศน์ของจินตนาการ ซึ่งเป็นความเชื่อเกี่ยวกับสภาพภายในที่เปิดเผยไปสู่ความจริง แยกออกจากหรืออยู่เหนือเหตุผลและความเข้าใจ จินตนาการเป็นทั้งผู้สร้างสรรค์และผู้เปิดเผยธรรมชาติโดยการค้นคว้าศึกษาของผู้สร้างสรรค์ (วิรุณ ตั้งเจริญ, 2535)

วัตถุประสงค์ของการวิจัย

1. เพื่อต้องการถ่ายทอดผลงานสร้างสรรค์จิตรกรรมสีน้ำมัน แสดงความคิดความรู้สึก ความผูกพัน ความสุข สวยงาม เรียบง่าย บรรยากาศสีสัน ผ่านเรื่องราวที่ประทับใจรากเหง้าทางสังคมในวิถีชีวิตชนบทจากการดำรงชีวิตของผู้สร้างสรรค์

2. เพื่อสร้างจิตสำนึกจากการรับชม ให้เกิดการหวงแหนรักษาเอกลักษณ์ทางวัฒนธรรม วิถีชีวิต บรรยากาศเรื่องราว ผ่านสิ่งของ สัญลักษณ์ภายในภาพ จากมุมมองในวิถีการดำรงชีวิต สู่การรับรู้ รับชม สุนทรียะจากผลงาน บ่มเพาะ และกล่อมเกลาปัญหาภายในจิตใจของผู้ชม

3. เพื่อต้องการเผยแพร่ผลงานสร้างสรรค์จิตรกรรมสีน้ำมัน กระบวนการสร้างสรรค์ การศึกษาค้นคว้า วิธีการ รูปแบบ ที่มีอัตลักษณ์เฉพาะตัวของผู้สร้างสรรค์ และเพื่อเป็นประโยชน์แก่การศึกษาค้นคว้าทางด้านผลงานสร้างสรรค์แก่บุคคลทั่วไป

แนวคิด ทฤษฎี กรอบแนวคิด

ประสบการณ์เรื่องราวจากในอดีต ความทรงจำและผูกพัน จากการดำรงชีวิต ที่อบอุ่นเรียบง่าย มีความสวยงามในบรรยากาศ สีสัน ก่อเกิดคุณค่าในการดำรงชีวิต เป็นรากฐานสำคัญที่สามารถสร้างทัศนคติให้สอดคล้องกับการดำรงชีวิตในปัจจุบัน กล่อมเกลาปัญหาที่เกิดทางด้านจิตใจและอารมณ์ความรู้สึกรวมทั้งสืบสาน อนุรักษ์ ดำรงไว้ซึ่งวิถีชีวิต รากเหง้าทางด้านวัฒนธรรมในท้องถิ่น เอกลักษณ์ภายในวิถีชีวิต ภายในพื้นที่จินตนาภาพ ความทรงจำ อบอุ่น เรียบง่าย สวยงาม เรื่องที่ดีงามในอดีต สร้างสรรค์เป็นผลงานจิตรกรรม

วิธีดำเนินการวิจัย

การสร้างสรรค์ผลงานของข้าพเจ้าเกี่ยวกับอารมณ์ความรู้สึกของมนุษย์ ความสุขที่อยู่ในความทรงจำและผูกผัน แสดงออกถึงความสวยงาม อบอุ่น เรียบง่าย สร้างความสัมพันธ์ภายในภาพให้กลมกลืนกับสิ่งแวดล้อมสถานที่สิ่งของที่ประทับใจ การนำลักษณะมาปรับใช้ผลงานจะมีลักษณะเป็นรูปแบบแสดงอารมณ์ความรู้สึกผ่านสีสันที่หลากหลายใช้สัญลักษณ์ (Symbolic) ต่าง ๆ ในผลงานสื่อถึงแนวความคิดที่ต้องการถ่ายทอด ผสมผสานความรู้สึกส่วนตัวความทรงจำและผูกพันผ่านรูปทรงและสีต่าง ๆ ที่เป็นจริงและปรับสร้างขึ้นมาใหม่นอกเหนือจากความเป็นจริง สร้างบรรยากาศตามจินตนาการแห่งความสุขสามารถแสดงออกถึงแนวความคิดถ่ายทอดถึงคนดูอย่างตรงไปตรงมา ความคิดในการสร้างสรรค์จะเกิดขึ้นได้จากบุคลิกและอุปนิสัยของผู้สร้างสรรค์ อุปนิสัย ช่างสังเกต ช่างคิด ช่างสงสัย ตั้งคำถามและค้นหาคำตอบ การสร้างสรรค์จึงมีความอิสระเปิดกว้าง ไม่มีขอบเขตใด ๆ มาจำกัด ไม่ยึดติดกับรสนิยมเดิมความชอบเดิม ๆ สิ่งที่ต้องคำนึงเพียงประการเดียว คือ จิตใจ ความคิด อารมณ์ของผู้สร้างสรรค์เองว่าจะพิสูจน์ความจริงแท้ของผลงานที่แสดงความเฉพาะตนได้เพียงใด (อิทธิพล ตั้งโฉลก, 2550)

กระบวนการในการสร้างสรรค์ผลงานจิตรกรรมนั้น ผู้สร้างสรรค์แต่ละคนนั้นย่อมมีวิธีการที่แตกต่างกันไป ตามรูปแบบแนวทางเฉพาะตนว่าจะถ่ายทอดอย่างไรให้ตรงกับแนวความคิดและอารมณ์ความรู้สึกที่ต้องการเสนอ ลักษณะผลงานในชุดนี้จะเน้นสร้างบรรยากาศจะเน้นสีสันเฉดสีที่มีความแตกต่างจากผู้สร้างสรรค์จิตรกรรมชุดอื่น ๆ การกำหนดเฉดสีที่กระจายแทรกซึมไปทั่วทั้งผลงานสดใส แต่เด่นชัดตามเฉดสีในสัญลักษณ์พื้นถิ่นและวัฒนธรรมภาคใต้ เช่น จากสีในพืชพันธุ์ เครื่องนุ่งห่ม สภาพภูมิอากาศ การจัดองค์ประกอบภายในภาพที่มีความเหมือนจริงสมจริงผสมกับจินตนาการที่มีความเหนือจริงแทรกซึมอยู่ภายใน ผ่านสัญลักษณ์สิ่งของรูปทรงต่าง ๆ ที่กระจายรอบ ๆ ในชิ้นงานร่องรอยจังหวะพู่กันทิศทางการเคลื่อนไหวที่เด่นชัด โดยในผลงานสร้างสรรค์จิตรกรรมสัญลักษณ์จินตภาพแห่งความผูกพัน เพื่อผ่อนคลายจิตใจของข้าพเจ้านั้น ได้มีการเรียบเรียงวางแผนขั้นตอนไว้หลากหลายวิธี เพื่อให้เหมาะสมกับการปฏิบัติผลงานจริง สามารถปรับปรุงและแก้ปัญหาได้ในทางปฏิบัติ เพื่อให้ผลงานเป็นที่น่าพอใจที่สุดและมีคุณภาพสมบูรณ์ทุก ๆ ด้านในการสร้างสรรค์ โดยมีวิธีดำเนินการสร้างสรรค์ผลงานดังนี้

1. ศึกษาข้อมูลที่เกี่ยวข้องจากการสร้างสรรค์

- ทั้งในเรื่องความประทับใจในวิถีชีวิตชนบท เช่น สีสันหน้าร้อนของพืชพันธุ์ที่มีความสดใสและร้อนแรง พื้นที่ที่สงบ สวยงาม เรียบง่ายจากสัตว์เลี้ยงที่ไม่ต้องต่อสู้แข่งขัน ดิ้นรน
- ปัจจัยทางสังคมที่เกี่ยวข้องปัญหาเหตุการณ์ต่าง ๆ ที่เข้ามากระทบต่อความรู้สึก
- ข้อมูลจากศิลปินที่เราได้รับอิทธิพลและประทับใจในผลงานสร้างสรรค์

2. วิเคราะห์ข้อมูลที่ได้ทั้งในเชิงเรื่องราว สัญลักษณ์ มุมมอง รูปแบบผลงาน สีสันที่ควรนำมาปรับใช้เป็นแนวทาง คัดเลือก คัดสรร กำหนดขอบเขตของข้อมูลที่จะนำมาปรับใช้ นำข้อมูลที่ได้จากการศึกษามารวบรวมเป็นเอกสารภาพถ่ายหรือข้อมูลจริงประเด็นในข้อมูลเรื่องราวเหตุผลที่เกิดขึ้นแยกข้อมูลเป็นหมวดหมู่ตามแนวเรื่อง ตามรายละเอียด สีสันจากลายผ้า ดอกไม้ การขดม้วนจากพืชพันธุ์ สัญลักษณ์ที่สามารถนำมาปรับใช้ในการสร้างสรรค์

3. เริ่มต้นการเปรียบเทียบข้อมูล วิเคราะห์ สังเคราะห์ แยกแยะ ถึงความเหมาะสมของข้อมูลในการที่จะนำมาปฏิบัติผลงานจริงคำนึงถึงอารมณ์ความรู้สึกของข้อมูล เพื่อนำมาสร้างความกลมกลืนกับเนื้อเรื่อง สัญลักษณ์อื่น ๆ รวมทั้งแนวความคิดของผลงาน จุดร่วมของวัฒนธรรมท้องถิ่นภาคใต้ ลายผ้าศิลปะพื้นบ้าน พืชพันธุ์ เครื่องใช้ไม้สอย ที่แฝงแทรกซึมอยู่ในส่วนต่าง ๆ ของภาพ หยิบยกส่วนที่จำเป็นจุดสำคัญของแต่ละสัญลักษณ์มาปรับใช้

4. ทดลองในการหารูปแบบวิธีการในการสร้างสรรค์ผ่านกระบวนการต่าง ๆ เช่น ใช้สีที่มีความหลากหลายวัสดุต่าง ๆ พื้นที่แตกต่างกันไป เพื่อต้องการให้ผลงานสร้างสรรค์ออกมาตรงกับความรู้สึกและแนวความคิดมากที่สุด มีความสมบูรณ์และมีคุณภาพในการสร้างสรรค์

5. การสร้างภาพร่างโดยวิธีการสร้างภาพในหลาย ๆ ชิ้น วิธีการสร้างภาพร่างหลากหลายรูปแบบนำทฤษฎีต่าง ทั้งทฤษฎีสี องค์ประกอบศิลป์มาปรับใช้หาความแตกต่างในแต่ละสภาพร่าง เพื่อต้องการชิ้นที่เหมาะสมและลงตัวที่สุดในการขยายผลงานจริง

6. คัดเลือกภาพร่างจากการสร้างภาพร่างในหลาย ๆ ชิ้น โดยผู้เชี่ยวชาญทางด้านทัศนศิลป์ภายในหลักสูตร ร่วมคัดเลือกชิ้นที่ตอบสนองอารมณ์ความรู้สึกและตรงกับแนวความคิดมากที่สุด มาขยายเป็นผลงานจริง โดยอาจมีการเปลี่ยนแปลงรายละเอียดบางส่วนในขณะสร้างสรรค์ปฏิบัติผลงานจริง เพื่อให้ผลงานมีคุณภาพมากยิ่งขึ้น

7. การสร้างสรรค์ผลงานจริงโดยใช้เทคนิคสีน้ำมันบนผ้าใบ ในรูปแบบจิตรกรรม 2 มิติ ปฏิบัติผลงานจนเสร็จสมบูรณ์ และแก้ไขเป็นที่น่าพอใจมากที่สุดจากภาพร่างที่ได้เลือกไว้

8. วิเคราะห์ผลงานจริงในแต่ละผลงานศึกษาประเด็นต่าง ๆ เหตุผลและสิ่งที่ได้รับข้อดีข้อเสียของผลงานโดยใช้หลักการวิเคราะห์ทางศิลปะ ศิลปวิจารณ์ สุนทรียภาพในภาพองค์ประกอบศิลป์ในการวางจังหวะภายในภาพ รวมถึงทัศนธาตุต่าง ๆ ในงานศิลปะ เช่น วิเคราะห์ จุด เส้น สี น้ำหนัก แสงเงา พื้นผิว พื้นที่ว่าง เอกภาพ พัฒนาผลงาน โดยศึกษาอิทธิพลที่ได้รับจากศิลปินและผู้สร้างสรรค์ผ่านกระบวนการแบบร่างจำนวนมากก่อนคัดเลือกชิ้นที่ดีที่สุดมาขยายต่อผลงานจริง 1 ชิ้น

9. นำเสนอผลงานผ่านกระบวนการบรรยายวิเคราะห์วิจารณ์ อธิบายผลงานและภาพเอกสารและแนวความคิดประกอบภาพผลงานสมบูรณ์ในการสร้างสรรค์

10. เผยแพร่ผลงานสร้างสรรค์ โดยการเข้าจัดนิทรรศการในหอศิลป์ระดับสถาบันและภูมิภาคกับหน่วยงานภายนอกหรือกลุ่มต่าง ๆ พร้อมรูปเล่มสูจิบัตรทางด้านศิลปะและสามารถประยุกต์ใช้ในการเรียนการสอนในหลักสูตรวิชาจิตรกรรมทั้งวิชา จิตรกรรม 2 จิตรกรรม 4 วาดเส้นสร้างสรรค์ได้



ภาพที่ 1 ภาพร่างต้นแบบจากการคัดเลือก ก่อนที่จะนำไปขยาย



ภาพที่ 2 การร่างภาพบนเฟรมผ้าใบเนื้อ Canvas โดยกำหนดรูปทรงและรายละเอียด



ภาพที่ 3 ภาพแสดงขั้นตอนในการลงสีน้ำมันโดยรวมทั้งภาพเพื่อความสะดวกรวดเร็ว



ภาพที่ 4 ภาพแสดงขั้นตอนในการเก็บรายละเอียดของสัญลักษณ์ต่าง ๆ ภายในภาพ



ภาพที่ 5 ภาพผลงานที่เสร็จสมบูรณ์หลังจากที่ได้เก็บรายละเอียดภายในรูปภาพ ทั้งรูปทรงและบรรยากาศของสี

ผลการวิจัย

การสร้างสรรค์ผลงานจิตรกรรมสามารถทำให้คนในสังคมคิด คำนึงถึงคุณค่าอันดีงาม ความสุข ความสนุกสนาน อบอุ่นผูกพัน ในช่วงเวลาในการดำรงชีวิตในอดีตประสบการณ์ เรื่องราวจากอดีต ความทรงจำและผูกพัน ล้วนเป็นการดำรงชีวิต ที่อบอุ่นเรียบง่าย ท่ามกลางธรรมชาติ มีคุณค่าต่อการปรับใช้ในการดำรงชีวิต เป็นรากฐานสู่ทัศนคติในสังคมปัจจุบันให้สอดคล้องกับการดำรงชีวิต สืบสาน อนุรักษ์เรื่องราวรากเหง้าทางวัฒนธรรมในท้องถิ่นภาคใต้ยังคงไว้ ซึ่งความสุข ความสวยงาม ในอดีต บ่มเพาะสร้างพื้นที่แห่งจินตนาการสู่การถ่ายทอดสืบสานสู่สังคม ในปัจจุบันปรับไปใช้ในการพัฒนาคน สังคม และประเทศในทุก ๆ ด้าน ตลอดจนพัฒนากล่อมเกลาจิตใจผ่านประสบการณ์ความทรงจำ และจินตนาการที่สร้างสรรค์เป็นผลงานจิตรกรรม ซึ่งในกระบวนการในการสร้างสรรค์ด้วยเทคนิคสีน้ำมัน จำเป็นต้องมีช่วงจังหวะเวลาในการใช้สีเติมเฉดสีสร้างบรรยากาศ ในขณะที่สีไม่แห้งสนิทจนเกินไป ต้องมีความต่อเนื่องในการวาดขณะการเติมเฉดสีและรายละเอียดและควบคุมสีโดยรวมภายในภาพ การกระจายของสีทั่วทั้งภาพ แทรกสี เพื่อความสมดุลกลมกลืนของผลงานในการสร้างความสัมพันธ์ของสัญลักษณ์ที่มีความแตกต่างกันให้ไปในทิศทางเดียวกันตามแนวความคิดของผู้สร้างสรรค์

1. ถ่ายทอดความคิดความรู้สึก ความผูกพัน ความสุข สวยงาม เรียบง่าย บรรยากาศสีสัน ผ่านเรื่องราวที่ประทับใจในวิถีชีวิตในชนบทจากการดำรงชีวิตของผู้สร้างสรรค์

2. สร้างจิตสำนึกในการหวงแหนรักษาเอกลักษณ์ สืบสานรักษา รากเหง้าทางพื้นที่เรื่องราวทางวัฒนธรรม วิถีชีวิต บรรยากาศ ผ่านสิ่งของ สัญลักษณ์ภายในภาพ จากเรื่องราวมุมมองในวิถีการดำรงชีวิตสู่การกล่อมเกลาอารมณ์ความรู้สึกและปัญหาภายในจิตใจ

3. เผยแพร่ผลงานสร้างสรรค์ การจัดแสดงนิทรรศการ การสร้างสรรค์ศึกษาค้นคว้าทางด้านจิตรกรรม วิธีการ รูปแบบที่มีอัตลักษณ์เฉพาะตัวของผู้สร้างสรรค์และเพื่อเป็นประโยชน์แก่การศึกษาค้นคว้าทางด้านผลงานสร้างสรรค์แก่บุคคลทั่วไป

4. สามารถนำผลงานสร้างสรรค์จิตรกรรมไปปรับใช้ประโยชน์ด้านการเรียนการสอนศิลปะสอดแทรกหัวข้อ เนื้อหาทางด้านการบำบัดจิตใจและจิตวิทยาศิลปะ (Art Therapy) ในรายวิชาจิตรกรรม 2, จิตรกรรม 4

ภาพผลงานวิจัยสร้างสรรค์ จินตภาพแห่งความผูกพัน



ภาพที่ 6 ภาพผลงานการสร้างสรรค์ชิ้นที่ 1 ชื่อภาพ ไออุ่น 3
(ขนาด 60x60 ซม , เทคนิค สีน้ำมันบนผ้าใบ)



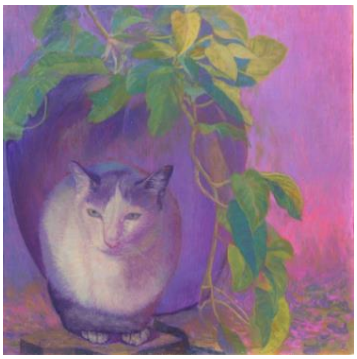
ภาพที่ 7 ภาพผลงานการสร้างสรรค์ชิ้นที่ 2 ชื่อภาพ เฝ้ามอง 1
(ขนาด 60x60 ซม. ,เทคนิค สีน้ำมันบนผ้าใบ)



ภาพที่ 8 ภาพผลงานการสร้างสรรค์ชิ้นที่ 3 ชื่อภาพ เฝ้ามอง 2
(ขนาด 60x60 ซม. เทคนิค สีน้ำมันบนผ้าใบ)



ภาพที่ 9 ภาพผลงานการสร้างสรรค์ชิ้นที่ 4 ชื่อภาพ เฝ้ามอง 3
(ขนาด 60x60 ซม. เทคนิค สีน้ำมันบนผ้าใบ)



ภาพที่ 10 ภาพผลงานการสร้างสรรค์ชิ้นที่ 5 ชื่อภาพ เฝ้ามอง 4
(ขนาด 60x60 ซม. เทคนิค สีน้ำมันบนผ้าใบ)



ภาพที่ 11 ภาพผลงานการสร้างสรรค์ชิ้นที่ 6 ชื่อภาพ ในสระ
(ขนาด 50 x 110 ซม. เทคนิค สีน้ำมันบนผ้าใบ)



ภาพที่ 12 ภาพผลงานการสร้างสรรค์ชิ้นที่ 7 ชื่อภาพ ห้วงแห่งความสุข 1
(ขนาด 100x100 ซม. เทคนิค สีน้ำมันบนผ้าใบ)



ภาพที่ 13 ภาพผลงานการสร้างสรรค์ชิ้นที่ 8 ชื่อภาพ ห้วงแห่งความสุข 2
(ขนาด 60x60 ซม. เทคนิค สีน้ำมันบนผ้าใบ)



ภาพที่ 14 ภาพผลงานการสร้างสรรค์ชิ้นที่ 9 ชื่อภาพ หลับฝัน
(ขนาด 100x100 ซม. เทคนิค สีน้ำมันบนผ้าใบ)



ภาพที่ 15 ภาพผลงานการสร้างสรรค์ชิ้นที่ 10 ชื่อภาพ ในห้วงความสุข
(ขนาด 100x100 ซม. เทคนิค สีน้ำมันบนผ้าใบ)

1. องค์ความรู้ใหม่

บูรณาการสุนทรียภาพสู่การเยียวยาจิตใจผ่านจิตรกรรม “สัญลักษณ์จินตภาพแห่งความผูกพันเพื่อผ่อนคลายจิตใจ” สร้างองค์ความรู้ใหม่ผ่านเรื่องราวทัศนธาตุและสัญลักษณ์จากวิถีชีวิตชนบทที่ปลูกฝังบ่มเพาะ คุณค่าแห่งความอบอุ่น สงบ และเรียบง่าย ความสุขพื้นฐานจากรากเหง้าเป็นแนวทางการบำบัดจิตใจในบริบทของสังคมเมืองที่เต็มไปด้วยปัญหาและเคร่งเครียด

เกิดการสร้างสรรค์องค์ประกอบที่มาจากจินตนาการ ใช้ประสบการณ์และความทรงจำส่วนตัวเป็นต้นแบบในการสร้างผลงาน สร้างองค์ความรู้ด้าน “ศิลปะจากภายใน (Inner Expression)” ทำให้เกิดรูปแบบการถ่ายทอดที่โดดเด่น สร้างแนวทางใหม่ในการนำเสนอศิลปะร่วมสมัยผ่านรากวัฒนธรรมท้องถิ่นผ่านกระบวนการสร้างสรรค์จิตรกรรม แบบกึ่งเหมือนจริงร่วมกับจินตภาพจากการใช้เทคนิคสีน้ำมัน ด้วยกระบวนการผสมผสานสัญลักษณ์ที่จับต้องได้ (เช่น ภาชนะ ของใช้ แมว นก ดอกไม้ ลวดลาย พันธุ์ไม้)

- กระบวนการสร้างสรรค์อย่างเป็นระบบ การพัฒนาแนวความคิด การเก็บข้อมูล การออกแบบแบบร่าง การคัดเลือก การวิเคราะห์องค์ประกอบและทฤษฎีศิลป์ เป็นแบบจำลองกระบวนการวิจัยเชิงสร้างสรรค์ที่สามารถต่อยอดในงานวิจัยทางศิลปะ

2. ความก้าวหน้าทางวิชาการ

- สามารถเชื่อมโยงศาสตร์ทางด้านศิลปะกับศาสตร์สุขภาวะจิตของผลงานชุดนี้ที่แสดงให้เห็นว่าศิลปะสามารถทำหน้าที่ได้หลากหลายมากกว่าการแสดงออกทางความงาม แต่ยังส่งเสริมสุขภาวะจิตของผู้ชมได้อย่างลึกซึ้ง แบ่งเบา บำบัด คลี่คลายปัญหา เป็นการขยายขอบเขตของบทบาทของงานจิตรกรรมให้เข้าถึงจิตใจด้านต่าง ๆ ของคนในสังคมยุคปัจจุบันได้

- แนวทางการพัฒนาเทคนิคจิตรกรรมร่วมสมัยบนพื้นฐานวัฒนธรรมท้องถิ่น การใช้สี บรรยากาศและสัญลักษณ์ที่มีรูปแบบสะท้อนวัฒนธรรมพื้นถิ่นภาคใต้ สื่อสารผสมผสานกับเทคนิคสมัยใหม่อย่างมีชั้นเชิง แสดงถึงความก้าวหน้าทางการพัฒนา “ภาษาทางศิลปะ” ที่มีความเฉพาะตัวและสามารถใช้เป็นกรณีศึกษาด้านศิลปะท้องถิ่นร่วมสมัยสู่การพัฒนาขับเคลื่อนทางด้านวัฒนธรรมในอนาคต

- ศิลปะได้มีหน้าที่บทบาทในการเสริมสร้างจิตสำนึกทางสังคมผลงานไม่เพียงสะท้อนวิถีชีวิต แต่ยังเป็นการเสนอแนวทางการใช้ชีวิตอย่างมีคุณภาพในยุคที่สังคมให้คุณค่ากับวัตถุมากเกินไป การสื่อสารนี้เป็นรูปแบบของการขับเคลื่อน “soft power” ทางศิลปะเพื่อเสริมสร้างอัตลักษณ์และคุณค่าทางจิตใจของสังคม

สรุปและอภิปรายผล

ผลงานจิตรกรรมชุดจินตภาพแห่งความผูกพัน ในการสร้างสรรค์ครั้งนี้ของข้าพเจ้าเกิดจากความสุขความผูกพันกับวิถีชีวิตที่สวยงาม ความอบอุ่น สีสันภายใต้การดำรงชีวิตในวิถีชีวิตชนบทโดยผ่านการศึกษาค้นคว้ารวบรวมข้อมูลในด้านต่าง ๆ การสร้างสรรค์ผลงานจากการศึกษาค้นคว้า การวิเคราะห์ การสร้างสรรค์ในด้านต่าง ๆ สรุปขั้นตอนในการสร้างสรรค์ของผลงาน เอกลักษณ์ในการสร้างสรรค์การใช้สีเทคนิค การวางรูปแบบต่าง ๆ กับแนวเรื่องที่มีอิทธิพลเป็นอย่างสูงต่อผู้สร้างสรรค์มีคุณค่า ในการดำรงชีวิตทั้งที่ผ่านมาตั้งแต่อดีตจนถึงปัจจุบัน ความสุข ความผูกพันกับพื้นที่ธรรมชาติที่สวยงาม อบอุ่น เรียบง่าย มีคุณค่าทางด้านสายตาและจิตใจ สะท้อนแง่มุมในการดำรงชีวิตท่ามกลางสภาพสังคมในปัจจุบัน กลับมามองสิ่งรอบตัวที่เรียบง่าย มองความสุขไปปรับใช้ในการดำรงชีวิต ผ่านผลงานจิตรกรรม 2 มิติ ใช้รูปทรงสัญลักษณ์ที่ตรงไปตรงมาต่อผู้รับชมผลงาน สามารถรับรู้สุนทรียะภายในภาพได้อารมณ์ความรู้สึกของสี ความสุข ความสวยงาม บรรยากาศ ผ่านความรู้สึกของผู้สร้างสรรค์ไปยังผู้รับชมสุนทรียะทางด้านศิลปะในรูปแบบนิทรรศการ หอศิลป์ระดับภาค ภูมิภาค ประเมินความพึงพอใจของผู้ชม ผลที่ได้รับ จำนวนผู้ชม จากแบบสอบถามของพื้นที่หอศิลป์ เช่น หอศิลป์จามจุรี หอศิลป์อันดามัน ศูนย์ส่งเสริมศิลปะและวัฒนธรรมมหาวิทยาลัยสงขลานครินทร์

จากผลงานที่สร้างสรรค์ทั้งหมดในชุดนี้ สามารถสรุปผลการศึกษาได้หลาย ๆ ด้าน เช่น ด้านความพึงพอใจในผลงาน วิธีการสร้างสรรค์ที่สามารถถ่ายทอดกระบวนการได้ตามขั้นตอนของผลงานจิตรกรรมตั้งแต่ศึกษาค้นคว้าผ่านกระบวนการวิเคราะห์แยกแยะข้อมูลอย่างเป็นระบบ ศึกษารูปแบบ ทำให้การสร้างภาพต้นแบบมีความเข้มข้นสมบูรณ์และคัดเลือกมาสร้างสรรค์ผลงานจริงได้ง่ายยิ่งขึ้น ตลอดจนนำไปสู่การวิเคราะห์ผลงานพัฒนาจนผลงานมีความสมบูรณ์ จนครบจำนวน 10 ชิ้น เผยแพร่ผ่านรูปแบบสูจิบัตรและนิทรรศการแก่ผู้ที่สนใจในทางด้านศิลปะและทางด้านทัศนศิลป์ ซึ่งผลงาน “สัญลักษณ์จินตภาพแห่งความผูกพันเพื่อผ่อนคลายจิตใจ” แนวคิดในการสร้างสรรค์จะมุ่งเน้นถึงวิถีชีวิตที่เรียบง่ายในการดำเนินชีวิตความนิ่งสงบ อบอุ่น สวยงาม ผูกพัน ผ่อนคลายในการดำรงชีวิตท่ามกลางชนบท ท่ามกลางธรรมชาติ มุ่งนำเสนอต่อคนดู ผู้ชมในการถ่ายทอดสุนทรียะ ความงาม ความสุข สีสันสวยงาม แก่คนในสังคมกล่อมเกลาปัญหาในวิถีชีวิตในจิตใจที่เต็มไปด้วยปัญหารอบด้าน การใช้ชีวิตที่วุ่นวาย ปัญหาด้านความเครียด สุขภาพจิต เวลาที่เร่งรีบแข่งขัน ดิ้นรนเพื่อการอยู่รอด การติฉินนินทา เสียดสีประชดประชันขาดซึ่งจิตใจ ที่สงบสุข ขาดสภาพจิตที่ผ่อนคลาย ล้วนเต็มไปด้วยความทุกข์ ผลงานจึงต้องการถ่ายทอดสีสันความงาม ความสุข บรรยากาศที่มีความอบอุ่น ผ่อนคลาย ความรู้สึกที่สามารถทำให้การดำรงชีวิต บางเบาหายจากการวิตกกังวล ความเครียด โดยผลงานในการสร้างสรรค์ชุดนี้มีขั้นตอนที่สำคัญ คือ กระบวนการค้นคว้าหาข้อมูลจากเรื่องราวมุมมองที่ผู้สร้างสรรค์ประทับใจ โดยมีข้อมูลเป็นภาพถ่ายและมาปรับเป็นแบบร่างผลงานในหลาย ๆ ชิ้น และเลือกชิ้นที่ดีที่สุด นำมาบรรยายเป็นผลงานจริงด้วยเทคนิคสีน้ำมันบนผ้าใบ กระบวนการในการผสมสีที่มีความเฉพาะปริมาณคู่สี สีที่ใช้แตกต่างจากทฤษฎีสี เบรคสีโทนเย็นด้วยสีโทนร้อนมากยิ่งขึ้น ใช้สีโทนร้อนกระจายไปทั่วทั้งภาพโดยการกำหนดสีแสงทั้งภาพให้เหมือนกัน ในโทน

เดียวกัน เช่น เหลือง ส้ม แดง ฟ้าหรือเขียวอ่อน ๆ เมื่อวัตถุกระทบแสงจากดวงอาทิตย์ แสดงบรรยากาศท่ามกลางภูมิอากาศร้อนในพื้นที่ภาคใต้ โทนร้อนชื้นแทรกในภาพด้วยสีฟ้า เขียว ม่วง แทรกซึมภายในภาพและที่สำคัญ จังหวะทีพู่กัน ร่องรอย พื้นผิวในขณะสร้างสรรค์ปริมาณเนื้อสีก้อนสี ที่มีการเคลื่อนไหวเฉพาะตัวของผู้สร้างสรรค์

ในการสร้างสรรค์ขั้นตอนสุดท้าย คือ การวิเคราะห์ผลงานสร้างสรรค์ โดยใช้หลักทฤษฎีต่าง ๆ นำมาวิเคราะห์ผลงานสร้างสรรค์ชุดจินตภาพแห่งความผูกพัน เช่น ทางทัศนธาตุ องค์ประกอบศิลป์ ทฤษฎีสี เพื่อให้กระบวนการสร้างสรรค์ผลงานเป็นไปอย่างครบถ้วนและสมบูรณ์ สร้างองค์ความรู้ในการถ่ายทอดต่อผู้รับชมผลงานต่อไป ซึ่งในรายละเอียดในการสรุปผลนี้จะเป็นประโยชน์และเป็นส่วนสำคัญที่จะทำให้ผู้รับชมรับรู้สุนทรียะ ความงามผ่านผลงานศิลปะได้อย่างเต็มที่ และสามารถนำไปพัฒนาผลงานสร้างสรรค์ของผู้สร้างสรรค์เองในอนาคต จนมีความเป็นปัจเจกตนเฉพาะตนในผลงานที่ปรากฏ แนวทางที่มีความเด่นชัดเท่ากับว่าได้พัฒนาไปส่วนหนึ่งแล้ว และถ้าสามารถสร้างผลงานของผู้สร้างสรรค์ให้เป็นที่ยอมรับและก้าวหน้าพัฒนาไปเรื่อย ๆ อาจจะกล่าวได้ว่าได้รับการยอมรับและประสบความสำเร็จในแนวทางทางศิลปะของตน ซึ่งเป็นประโยชน์ต่อบุคคลที่สนใจและเรียนรู้ต่อไปในอนาคตด้านจิตรกรรมสร้างสรรค์ (วิบูลย์ ลี้สุวรรณ, 2531)

นอกจากความงามทางด้านศิลปะแล้ว ความงามที่เกิดจากการดำรงชีวิตในวิถีชีวิตชนบท ความงามทางด้านรากฐานทางวัฒนธรรมก็เป็นส่วนสำคัญซึมซับคุณค่าจากรากเหง้า ซึ่งเป็นปัจจัยพื้นฐานที่สังคมในปัจจุบันขาดการสืบสานและสนับสนุนแก่คนในสังคม ความดีงามในการดำรงชีวิต ตั้งแต่กลุ่มคนรากหญ้าจนไปถึงระดับประเทศ เพราะมัวแต่มุ่งเน้นความเจริญทางด้านวัตถุมากกว่าความเจริญทางด้านจิตใจ โดยการสร้างสรรค์ผลงานชุดนี้จะมีลักษณะรูปแบบกึ่งเหมือนจริง เกิดจากการถ่ายทอดรูปทรงสัญลักษณ์ต่าง ๆ ที่เหมือนจริง เช่น แมว นก ปลา ดอกไม้ กระถาง ผีเสื้อ ลวดลายจากธรรมชาติ ประสานกับทัศนธาตุต่าง ๆ โดยใช้สีเป็นส่วนสำคัญในการสร้างสรรค์ สร้างบรรยากาศสี อารมณ์ความรู้สึกในตัวผลงานแต่ละชิ้น เพื่อสะท้อนถึงความสุข นิ่งสงบ สวยงาม ผ่านความรู้สึกความทรงจำ จินตนาการของผู้สร้างสรรค์เองที่ผ่านประสบการณ์หรือการดำรงชีวิตในพื้นที่ของความสุข สงบ เรียบง่าย ในวิถีชีวิตชนบทสอดคล้องกับแนวความคิดในการสร้างสรรค์ที่มีลักษณะวิธีการเฉพาะตัวของผู้สร้างสรรค์ โดยมีเอกลักษณ์ทางด้านสีที่ถ่ายทอดตัวตนของผู้สร้างสรรค์ที่อาศัยอยู่ในพื้นถิ่นภาคใต้ ท่ามกลางภูมิประเทศและสภาพอากาศที่ร้อนชื้น บางภาพบางสีสันจะเต็มไปด้วยอากาศที่อบอวล อบอุ่นจากแสงกระทบสี จนเกิดความสวยงามในภาพสีสันที่สดจัดดูแข็งแรงโดดเด่นภายในภาพ ตามวิถีรากเหง้าจากวัฒนธรรมภาคใต้ถ่ายทอดความอบอุ่นผ่านสีสัน ที่ได้รับการขัดเกลาศึกษา ผสมจนมีเอกลักษณ์เฉพาะตัว โดยยังคงไว้ซึ่งความเฉพาะตนในจังหวะของทีแปรงร่องรอยพู่กัน ทิศทางที่สร้างสรรค์เข้มข้นจริงจัง ปลดปล่อย หรือเก็บรายละเอียดกับทั้งจำนวนขนาดของจังหวะพู่กันที่เกิดขึ้นในชิ้นงานอย่างมีเอกลักษณ์ดั่งลายมือและลายเซ็นของผู้สร้างสรรค์

ความพิเศษของเทคนิคจากการสร้างสรรค์ผลงานจิตรกรรมในชุดนี้ เกิดจากการค้นคว้าข้อมูล และการทำภาพร่างอย่างเป็นระบบและจำนวนที่หลากหลาย ในขณะการสร้างสรรค์ผลงานจริงผู้สร้างสรรค์จะเพิ่มเติมละเอียดมากขึ้นจากรสนิยมในการผสมสีหลากหลายเฉดสี เกิดจากจิตใต้สำนึก ความสุข ความประทับใจ ที่ฝังลึกจนบ่มเพาะเกิดเป็นความต้องการในการใช้สีในขณะวาดนั้น เฉดสีที่ผสมออกมามีความเป็นเฉพาะตน ร่องรอยทีแปรงแตกต่างกันกระจายทั่วทั้งผลงาน เกิดจากความรู้สึก หมุนวน เกลี่ยเรียบปล่อยจังหวะ หนาบางเบา หรือเหมือนจริงผสมกัน ในขณะที่สียังมีความฉ่ำและไม่แห้งจนเกิดไป ถ้ากรณีสีแห้งเกินไปจะทำให้ขาดความรู้สึกของผู้วาดที่ถ่ายทอดลงไป การทับซ้อนชั้นสีแทรกสีหลากหลายเฉดใน

ขณะที่สียังไม่แห้ง ทำให้เกิดเป็นเอกลักษณ์ในการสร้างสรรค์ผลงานจิตรกรรมสีน้ำมันที่มีรูปแบบเฉพาะตัวของผู้สร้างสรรค์ ที่เป็นประโยชน์แก่ผู้ที่สนใจทางด้านศิลปะที่สามารถนำไปปรับใช้ได้ต่อไปในอนาคตในการพัฒนาผลงาน ทั้งเรื่องของรูปแบบ วิธีการในผลงาน และแนวความคิดในการเยียวยากล่อมเกลา ฟื้นฟูจิตใจของผู้ที่อยู่ท่ามกลางปัญหา ความเครียด วิตกกังวลทางด้านสังคม

ข้อเสนอแนะ

1. กระบวนการในการสร้างสรรค์ด้วยเทคนิคสีน้ำมัน จำเป็นต้องมีช่วงจังหวะเวลาในการใช้สีแทรกเพื่อสร้างบรรยากาศ ควบคุมสีโดยรวมภายในภาพต้องมีความพอดีในการรอจังหวะสีหนืดหรือแห้งภายในภาพเพื่อสร้างบรรยากาศสีสันที่ตอบสนองกับแนวความคิด

2. ขั้นตอนในการสร้างสรรค์ก็เป็นส่วนสำคัญในการศึกษาค้นคว้า ควรวางแผนในการศึกษาค้นคว้าอย่างมีระบบชัดเจน อย่างเช่น ขั้นตอนในการค้นคว้าลำดับข้อมูลจากเอกสารที่เกี่ยวข้อง ตำรา หนังสือ เพื่อที่จะสามารถอธิบายกระบวนการในการสร้างสรรค์ได้อย่างครบถ้วน

คำขอบคุณ

* สัญลักษณ์จินตภาพแห่งความผูกพันเพื่อผ่อนคลายจิตใจ บทความฉบับนี้เป็นส่วนหนึ่งของงานวิจัยเรื่องการสร้างสรรค์ผลงานจิตรกรรม : จินตภาพแห่งความผูกพัน ทุนอุดหนุนการวิจัยจากมหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย งบประมาณเงินรายได้ประจำปี พ.ศ. 2557

เอกสารอ้างอิง

พิษณุ ศุภนิมิตร.(2549).มหัศจรรย์แห่งศิลปะ Miracle of art. (พิมพ์ครั้งที่ 1)กรุงเทพฯ:สุดสัปดาห์สำนักพิมพ์.

วิบูลย์ ลี้สุวรรณ.(2531).สาระน่ารู้ในศิลปะ.(พิมพ์ครั้งที่ 1).กรุงเทพฯ:โอเดียนสโตร์.

วิรุณ ตั้งเจริญ.(2535).ศิลปะและความงาม.(พิมพ์ครั้งที่ 1).กรุงเทพฯ:โอเดียนสโตร์.

อิทธิพล ตั้งโฉลก.(2550).แนวทางการสอนและสร้างสรรค์จิตรกรรมขั้นสูง.(พิมพ์ครั้งที่ 1).กรุงเทพฯ: อมรินทร์พริ้นติ้งแอนด์พับลิชชิ่ง.

การวิเคราะห์ข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทยจากตำราเรียนภาษาไทยสำหรับผู้เรียนชาวเกาหลีที่เรียนภาษาไทยในฐานะภาษาต่างประเทศ

Analysis of Practices for Thai Residences in the Thai Language Textbooks for Korean Students Learning Thai as a Foreign Language

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บทคัดย่อ

บทความวิจัยฉบับนี้มีวัตถุประสงค์เพื่อวิเคราะห์ข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทยสำหรับผู้เรียนชาวเกาหลีที่เรียนภาษาไทยในฐานะภาษาต่างประเทศ โดยใช้วิธีการวิเคราะห์ตำราภาษาไทยฉบับมาตรฐาน ระดับ A0 A1 A2 B1 และ B2 จำนวน 5 เล่มจากมหาวิทยาลัยฮันกุ๊กภาษาและกิจการต่างประเทศ (HUFS) และตำรามาตรฐานไทย A2 ตำราภาษาไทยฉบับมาตรฐาน B1 และตำรามาตรฐานไทย B2 จำนวน 3 เล่มจากมหาวิทยาลัยพูซานภาษาและกิจการต่างประเทศ (BUFS) ผลการศึกษาพบว่ามีเนื้อหาเกี่ยวกับข้อควรปฏิบัติในตำรา 8 เล่ม จำนวน 8 ประเด็น ได้แก่ การตรวจคนเข้าเมือง ได้แก่ หน้าที่ และข้อจำกัดเกี่ยวกับการพำนัก การควบคุมเครื่องดื่มแอลกอฮอล์ ได้แก่ วันเวลาจำหน่ายสุรา การควบคุมโรค ได้แก่ หลักเกณฑ์สำหรับชาวต่างชาติ ศุลกากร ได้แก่ หลักเกณฑ์สิ่งของและภาษี การจราจร ได้แก่ ข้อควรระวังสำหรับการขับรถ การเช่าที่พัก ได้แก่ ข้อมูลที่เกี่ยวกับการเช่าที่พัก ยาเสพติด ได้แก่ การใช้กัญชากับปัญหายาเสพติด และการหมิ่นประมาทพระมหากษัตริย์ ได้แก่ การกระทำผิดตามมาตรา 112 ซึ่งเป็นพื้นฐานความเข้าใจการอยู่อาศัยในประเทศไทยและสำคัญสำหรับผู้เรียนชาวเกาหลีที่เรียนภาษาไทยในฐานะภาษาต่างประเทศ มาแลกเปลี่ยนเรียนที่ประเทศไทยในระยะยาว

คำสำคัญ: ข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทย, ตำราภาษาไทย, ผู้เรียนชาวเกาหลี

Abstract

This article aims to analyze the practices for Thai residences for Korean Students Learning Thai as a Foreign Language. The researcher analyzes five standard Thai textbooks at levels A0, A1, A2, B1, and B2 from Hankuk University of Foreign Studies (HUFS), and three standard Thai textbooks at levels A2, B1, and B2 from Busan University of Foreign

Studies (BUFS). The researcher found that the practices: immigration, including duties and restrictions on residence; alcohol regulation, specifying the permitted days and hours for alcohol sales; disease control, covering regulations for foreigners; customs, detailing rules on goods and taxes; traffic, emphasizing precautions for driving; rental accommodation, providing information on renting; drugs, including cannabis use and drug problems; and lese-majeste law, referring to violations under Section 112. This is a fundamental understanding of living in Thailand and is important for Korean learners who study Thai as a foreign language and come to Thailand for long-term exchange programs.

Keywords: Practices for Thai residences, Thai Language Textbooks, Korean Students

บทนำ

ปัจจุบันประเทศไทยเป็นจุดหมายปลายทางยอดนิยมแห่งหนึ่งที่นักท่องเที่ยวชาวเกาหลีต้องกลับมาเยือนใหม่ ตามสถิตินักท่องเที่ยวชาวต่างชาติที่เดินทางเข้าประเทศไทย จำนวนคนเกาหลีมีมากกว่า 1.66 ล้านคนในปีพ.ศ. 2566 และเป็นหนึ่งในกลุ่มนักท่องเที่ยวหลักของไทย 7 ประเทศ (กระทรวงการท่องเที่ยวและกีฬา, 2566) คนเกาหลีนิยมอาศัยอยู่ต่างประเทศระยะยาวแบบหนึ่งเดือน หรือระยะเวลายาวกว่านั้นโดยใช้วิธีการทำวีซ่ารัน (Visa Run) หรือการใช้วีซ่าการเรียนภาษาต่างประเทศ และประเทศไทยเป็นประเทศที่ชาวเกาหลีนิยมมาพำนักระยะยาวเนื่องจากมีข้อดึงดูดที่น่าสนใจหลายอย่าง เช่น ทรัพยากรทางการท่องเที่ยว อาหารอร่อยระดับโลก ความสงบเรียบร้อยของสังคม

นอกจากนี้กรณีผู้เรียนชาวเกาหลีที่เรียนเอกภาษาไทยระดับอุดมศึกษาในหลักสูตรมหาวิทยาลัยฮันกุ๊ก ภาษาและกิจการต่างประเทศ Hankuk University Of Foreign Studies (HUFS) และมหาวิทยาลัยพูซาน ภาษาและกิจการต่างประเทศ Busan University of Foreign Studies (BUFS) 2 แห่ง กำหนดให้นักศึกษาเข้าร่วมโครงการแลกเปลี่ยนที่ประเทศไทยในชั้นปีที่ 3 ระยะเวลา 6 เดือน หรือ 1 ปี เพื่อสร้างประสบการณ์การเรียนรู้เกี่ยวกับภาษาและสังคมไทย และมีโปรแกรมกิจกรรมต่าง ๆ ในประเทศไทยระยะเวลาสั้นประมาณ 1 - 4 อาทิตย์ (Busan University of Foreign Studies, 2024; Hankuk University of Foreign Studies, 2024) ผู้เรียนชาวเกาหลีจึงต้องมาพำนักในประเทศไทย

อย่างไรก็ตาม มีข่าวหลายประเด็นเกิดขึ้นซึ่งแสดงให้เห็นว่า คนเกาหลีอาจมีความเข้าใจผิดหรืออาจไม่มีความรู้เรื่องข้อปฏิบัติต่าง ๆ สำหรับชาวเกาหลีที่มาพำนักในประเทศไทย (Embassy of the Republic of Korea in Thailand, 2024) เช่น (1) ข่าวประกาศเรื่อง “ใบขับขี่รถจักรยานยนต์ที่สามารถขับรถได้อย่างถูกต้องตามกฎหมายในประเทศไทยสำหรับคนเกาหลี” เนื่องจากเมื่อวันที่ 4 ก.ค. มีคนเกาหลีขี่รถจักรยานยนต์โดยพกใบอนุญาตขับรถระหว่างประเทศ ซึ่งเป็นการขับรถผิดประเภทจึงถูกควบคุมและชำระค่าปรับ (2) ข่าวประกาศเรื่อง “ห้ามบริโภคสินค้าใส่กัญชา” เนื่องจากเมื่อวันที่ 7 มิ.ย. มีข่าวเกี่ยวกับคนเกาหลีรับประทาน หรือนำขนมใส่กัญชา เช่น เยลลี่ คุกกี้ มาประเทศเกาหลี และถูกตั้งข้อหา (3) ข่าวประกาศเรื่อง “อุบัติเหตุระหว่างการข้ามถนน” เนื่องจากเมื่อวันที่ 8 พ.ค. มีข่าวเกี่ยวกับคนเกาหลีถูกรถชนและเสียชีวิตระหว่างการข้ามถนนที่ไม่ใช่ทางม้าลาย ฯลฯ

จากปรากฏการณ์หลากหลายที่เกิดจากคนเกาหลีที่ใช้ชีวิตในสังคมไทย ผู้วิจัยพบว่า อาจมีความเข้าใจผิดหรือขาดความรู้เรื่องข้อปฏิบัติที่ถูกต้อง และมีความแตกต่างด้านข้อปฏิบัติระหว่างไทยกับเกาหลี เนื่องจากคนเกาหลีไม่ว่าจะอยู่ประเทศไทยหรือเกาหลีก็ตามต้องถือกฎระเบียบทั้งสองประเทศ

โดยหลักการถือสัญชาติตามพ่อแม่ของประเทศเกาหลี ซึ่งเป็นความแตกต่างทางขอบเขตการใช้กฎหมายของประเทศชาติที่ต่างจากประเทศไทยที่ใช้หลักการถือสัญชาติตามภูมิลำเนา

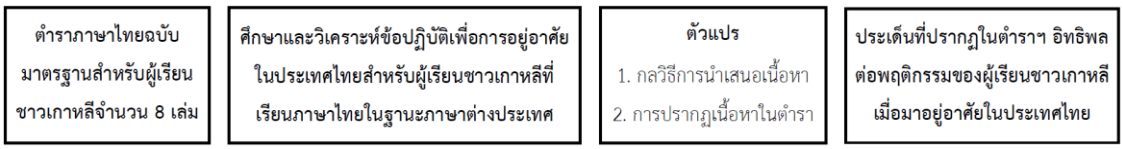
ผู้วิจัยศึกษางานวิจัยที่เกี่ยวข้อง 2 เรื่อง ได้แก่ บทความเรื่อง การวิเคราะห์มิติทางวัฒนธรรมไทยและกลวิธีการถ่ายทอดวัฒนธรรมในแบบเรียนภาษาและวัฒนธรรมไทยของผู้เรียนชาวเกาหลี (โยทกา พูลทอง และ นิธิอร พรอำไพสกุล, 2566) และบทความเรื่อง การคุกคามในที่ทำงาน: ศึกษาเปรียบเทียบกฎหมายแรงงานเกาหลีและไทย (โชคชัย เชื้อเทศขจร, 2565) แล้วพบว่า ทั้งสองประเทศมีความแตกต่างกันทางด้านวัฒนธรรมและกฎหมาย ซึ่งเป็นปัจจัยสำคัญที่อาจส่งผลต่อพฤติกรรมของชาวเกาหลีที่มาอยู่อาศัยในประเทศไทยได้ อีกทั้งยังไม่มีเนื้อหากล่าวถึงข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทยสำหรับผู้เรียนชาวเกาหลีที่เรียนภาษาไทยในฐานะภาษาต่างประเทศ

ด้วยเหตุนี้ ผู้วิจัยจึงศึกษาและวิเคราะห์ตำราภาษาไทยของผู้เรียนชาวเกาหลี 8 เล่ม ได้แก่ ตำราภาษาไทยฉบับมาตรฐานระดับ A0 A1 A2 B1 และ B2 จำนวน 5 เล่มจากมหาวิทยาลัยฮันกุ๊กภาษาและกิจการต่างประเทศ (HUFS) และตำรามาตรฐานไทย A2 ตำราภาษาไทยฉบับมาตรฐาน B1 และตำรามาตรฐานไทย B2 จำนวน 3 เล่มจากมหาวิทยาลัยพูซานภาษาและกิจการต่างประเทศ (BUFS) ซึ่งเป็นตำราภาษาไทยฉบับล่าสุดที่ใช้ในการสอนภาษาไทยให้แก่นักศึกษาชาวเกาหลีระดับอุดมศึกษาและผู้เรียนชาวเกาหลีทั่วไประดับพื้นฐานในประเทศเกาหลี (Critical Foreign Languages Education Promotion, 2024) เพื่อวิเคราะห์เนื้อหาเกี่ยวข้องกับการปฏิบัติตนและการใช้ชีวิตในประเทศไทยที่ผู้เรียนชาวเกาหลีกำลังศึกษาและเปรียบเทียบเนื้อหาระหว่างไทยกับเกาหลีเพราะอาจมีความแตกต่างรายละเอียดด้านข้อปฏิบัติ ซึ่งอาจเป็นพื้นฐานในการทำความเข้าใจเรื่องข้อปฏิบัติสำหรับการเรียนรู้เรื่องประเทศไทย

วัตถุประสงค์ของการวิจัย

1. เพื่อวิเคราะห์ข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทยจากแบบเรียนภาษาไทยสำหรับผู้เรียนชาวเกาหลี จำนวน 8 เล่ม
2. เพื่อเปรียบเทียบข้อมูลระหว่างไทยกับเกาหลีทางด้านข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทยสำหรับชาวเกาหลี

แนวคิด ทฤษฎี กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

การวิจัยครั้งนี้เป็นวิจัยเชิงคุณภาพเน้นการวิเคราะห์เนื้อหา (Contents Analysis) จากตำราภาษาไทยสำหรับผู้เรียนชาวเกาหลีเล่มใหม่ ทั้ง 8 เล่ม ซึ่งเป็นตำรามาตรฐานชุดแรกที่ผลิตโดยรัฐบาลเกาหลีสนับสนุนและปัจจุบันใช้ในการเรียนการสอนภาษาไทยให้แก่ทั้งนักศึกษากับผู้เรียนชาวเกาหลีทั่วไป และนำเสนอผลการศึกษาแบบพรรณนาวิเคราะห์ (Analytical Description)

ผลการวิจัย

ผู้วิจัยศึกษาและวิเคราะห์ข้อมูลข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทยจากตำราภาษาไทยของผู้เรียนชาวเกาหลี 8 เล่ม โดยใช้เกณฑ์การจำแนกประเภท ได้แก่ ประเด็นข้อควรระวังที่มีความแตกต่างระหว่างราชอาณาจักรไทยกับสาธารณรัฐเกาหลี พบว่า ตำรานำเสนอเนื้อหาที่เกี่ยวข้องกับด้านข้อควรปฏิบัติ 8 ประเด็น ได้แก่ การตรวจคนเข้าเมือง การควบคุมโรค ศุลกากร การจราจร การเช่าที่พัก การควบคุมเครื่องดื่มแอลกอฮอล์ ยาเสพติด และการหมิ่นประมาทพระมหากษัตริย์ มีรายละเอียดดังนี้

1.การวิเคราะห์ตำราภาษาไทยสำหรับชาวเกาหลี

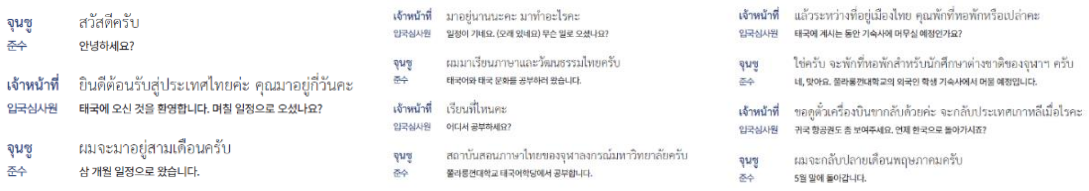
ผู้วิจัยวิเคราะห์เนื้อหาด้านข้อปฏิบัติในตำราภาษาไทยของผู้เรียนชาวเกาหลี 8 เล่ม ได้แก่ ตำราภาษาไทยฉบับมาตรฐานระดับ A0 A1 A2 B1 และ B2 ทั้ง 5 เล่ม 1 ชุดของมหาวิทยาลัยฮันกุ๊กภาษาและกิจการต่างประเทศ (HUFS) และตำราภาษาไทยฉบับมาตรฐานระดับ A2 ตำรามาตรฐานไทย B1 และตำราภาษาไทยฉบับมาตรฐานระดับ B2 ทั้ง 3 เล่ม 1 ชุดของมหาวิทยาลัยพูซานภาษาและกิจการต่างประเทศ (BUFS) มีรายละเอียดการวิเคราะห์ดังนี้

1.1 ตำรามาตรฐานไทย (A0) มหาวิทยาลัยฮันกุ๊กภาษาและกิจการต่างประเทศ (HUFS) ไม่ปรากฏประเด็นเกี่ยวกับข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทย (Park, Shin, & Lee, 2019)

1.2 ตำรามาตรฐานไทย (A1) มหาวิทยาลัยฮันกุ๊กภาษาและกิจการต่างประเทศ (HUFS) ไม่ปรากฏประเด็นเกี่ยวกับข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทย (Park, & Shin, 2019)

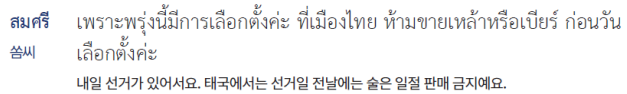
1.3 ตำรามาตรฐานไทย (A2) มหาวิทยาลัยฮันกุ๊กภาษาและกิจการต่างประเทศ (HUFS) มีเนื้อหาเกี่ยวกับข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทย 3 บท ได้แก่ บทที่ 6 กรุณามองกล้องด้วย บทที่ 8 ที่นี่ห้ามถ่ายรูป และบทที่ 11 อาจารย์ให้นักศึกษาส่งการบ้าน (Park, & Shin, 2020) มีรายละเอียดดังนี้

(1) บทที่ 6 กรุณามองกล้องด้วย ปรากฏข้อปฏิบัติในหน้า 97-98 ส่วนบทสนทนามีเนื้อหาเกี่ยวกับกระบวนการผ่านการตรวจคนเข้าเมือง ณ ท่าอากาศยานนานาชาติของประเทศไทย ระหว่างเจ้าหน้าที่กับจุนซูถามตอบเรื่อง ระยะเวลาการพำนัก เป้าหมายการเข้าเมือง ข้อมูลรายละเอียดตามเป้าหมายการเข้าเมือง สถานที่ที่พัก และตั๋วเครื่องบินขากลับ



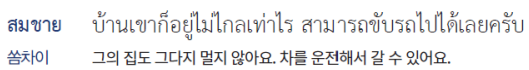
ภาพที่ 2 เนื้อหาเกี่ยวกับการตรวจคนเข้าเมืองในตำรามาตรฐาน A2 ของ HUFS (Park and Shin, 2020)

(2) บทที่ 8 ที่นี่ห้ามถ่ายรูป ปรากฏข้อปฏิบัติในหน้า 129 ส่วนบทสนทนามีเนื้อหาเกี่ยวกับประเทศไทยห้ามจำหน่ายเหล้าก่อนวันเลือกตั้ง สมศรีพูดว่า “พรุ่งนี้มีการเลือกตั้งค่ะ ที่เมืองไทย ห้ามขายเหล้าหรือเบียร์ ก่อนวันเลือกตั้งค่ะ”



ภาพที่ 3 เนื้อหาเกี่ยวกับการควบคุมเครื่องดื่มแอลกอฮอล์ในหน้า 129 ตำรามาตรฐาน A2 ของ HUFS (Park and Shin, 2020)

(3) บทที่ 11 อาจารย์ให้นักศึกษาส่งการบ้าน ปรากฏข้อปฏิบัติในหน้า 181 ส่วนบทสนทนา ตอนสุดท้ายมีประโยคหนึ่งว่า “สามารถขับรถไปได้เลยครับ” คนเกาหลีสามารถขับรถได้ในประเทศไทยหรือไม่



ภาพที่ 4 เนื้อหาเกี่ยวกับการจราจรในตำรามาตรฐาน A2 ของ HUFS (Park and Shin, 2020)

ผู้วิจัยพบว่า มีประเด็นเกี่ยวกับด้านข้อปฏิบัติ 3 ประเด็น ได้แก่ (1) การตรวจคนเข้าเมือง มีเนื้อหา ได้แก่ การตรวจคนเข้าเมือง ณ ท่าอากาศยานนานาชาติ เช่น ระยะเวลาการพำนัก เป้าหมายการเข้าเมือง ข้อมูลรายละเอียดตามเป้าหมายการเข้าเมือง สถานที่ที่พัก และตั๋วเครื่องบินขากลับ (2) การควบคุมเครื่องดื่มแอลกอฮอล์ มีการกำหนดวันห้ามจำหน่ายสุรา คือ วันก่อนเลือกตั้ง และ (3) การจราจร ได้แก่ การขับรถ และระบบจราจร

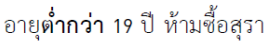
1.4 ตำรามาตรฐานไทย (B1) มหาวิทยาลัยฮันกุ๊กภาษาและกิจการต่างประเทศ (HUFS) มีเนื้อหาเกี่ยวกับข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทย 4 บท ได้แก่ บทที่ 3 ฉันจะเรียนไปด้วยทำงานไปด้วย บทที่ 4 อายุไม่เกิน 7 ขวบ เข้าฟรี บทที่ 6 วันเข้าพรรษาเป็นวันสำคัญทางพุทธศาสนาของไทย และบทที่ 10 ถ้าต้องการเปิดบัญชี จำเป็นต้องใช้วีซ่า (Park, K., Shin, G., Kewalin, S., Narisara, T., Somchai, S., & Wirat, S., 2021). มีรายละเอียดดังนี้

(1) บทที่ 3 ฉันจะเรียนไปด้วยทำงานไปด้วย ปรากฏข้อปฏิบัติในหน้า 40 ชื่อบทเรียน “ฉันจะเรียนไปด้วย ทำงานไปด้วย” และหน้า 45 ส่วนไวยากรณ์ ข้อที่ 3 มีตัวอย่างประโยค “เขาอยากเรียนไปด้วยแล้วก็ทำงานไปด้วย”



ภาพที่ 5 เนื้อหาเกี่ยวกับการตรวจคนเข้าเมืองในตำรามาตรฐาน B1 ของ HUFS (Park et al., 2021)

(2) บทที่ 4 อายุไม่เกิน 7 ขวบ ปรากฏข้อปฏิบัติในหน้า 62 ส่วนไวยากรณ์ ข้อที่ 4 มีตัวอย่างประโยค “อายุต่ำกว่า 19 ปีห้ามซื้อสุรา”



ภาพที่ 6 เนื้อหาเกี่ยวกับการควบคุมเครื่องดื่มแอลกอฮอล์ในตำรามาตรฐาน B1 ของ HUFS (Park et al., 2021)

(3) บทที่ 6 วันเข้าพรรษาเป็นวันสำคัญทางพุทธศาสนาของประเทศไทย ปรากฏข้อปฏิบัติในหน้า 101 ส่วนบทสนทนาตอนสุดท้ายมีเนื้อหา “ในปี 2551 รัฐบาลกำหนดให้วันเข้าพรรษาเป็นวันงดดื่มสุราแห่งชาติด้วยนะ”

ชาลี ปกติเราจะไปทำบุญตักบาตรและปล่อยปลาที่วัด บางคนถวายเทียน บ้างก็ถวายหลอดไฟ ในปี 2551 รัฐบาลกำหนดให้วันเข้าพรรษาเป็นวันงดดื่มสุราแห่งชาติด้วยนะ

ภาพที่ 7 เนื้อหาเกี่ยวกับการควบคุมเครื่องดื่มแอลกอฮอล์ในตำรามาตรฐาน B1 ของ HUFS (Park et al., 2021)

(4) บทที่ 10 ถ้าต้องการเปิดบัญชี จำเป็นต้องใช้วีซ่า ปรากฏข้อปฏิบัติในหน้า 183 ส่วนเรียนวัฒนธรรมไทยมีเนื้อหาเกี่ยวกับเงินตราไทยและย่อหน้าสุดท้าย มีเนื้อหาเกี่ยวกับมาตรา 112 ประมาณ 4-5 ประโยคด้วยภาษาเกาหลี เช่น “ปัจจุบันธนบัตรและเหรียญของประเทศไทยมีรูปภาพพระมหากษัตริย์ไทย...(การละข้อความตอนกลาง)...ผู้ใดทำให้รูปภาพหรือภาพวาดของพระมหากษัตริย์ไทยเสียหาย ต้องระวางโทษจำคุกตั้งแต่ 3 ปีถึง 15 ปี เนื่องจากพฤติกรรมนั้นจะถือเป็นความผิดต่อพระมหากษัตริย์ไทย"

현재 태국의 모든 지폐와 동전의 앞면에는 현 국왕인 와치라롱껀 왕(라마 10세)의 초상화가 그려져 있습니다. 2016년 푸미폰 국왕 서거 이후 와치라롱껀 왕이 왕위를 계승했고, 2018년 라마 10세의 초상이 담긴 새로운 화폐가 발행되었습니다. 라마 9세의 얼굴이 그려져 있는 화폐도 함께 통용되고 있습니다.



태국에서는 국왕의 사진이나 초상을 훼손하게 되면 형법 112조에 따라 최저 3년에서 최고 15년의 징역형에 처해집니다. 따라서 태국에서 지폐에 낙서를 하거나 밟는 등의 훼손 행위를 하게 되면 왕을 모독하는 행위로 간주되어 처벌을 받을 수 있습니다.

ภาพที่ 8 เนื้อหาเกี่ยวกับการหมิ่นประมาทพระมหากษัตริย์ในตำรามาตรฐาน B1 ของ HUFS (Park et al., 2021)

ผู้วิจัยพบว่า มีประเด็นเกี่ยวกับด้านข้อปฏิบัติ 3 ประเด็น ได้แก่ (1) การตรวจคนเข้าเมือง มีเนื้อหา ได้แก่ “เรียนไปด้วยทำงานไปด้วย” ซึ่งในประเทศไทยอาจมีข้อกำหนดว่าต้องขออนุญาตการทำงานจากหน่วยงานที่เกี่ยวข้องล่วงหน้า ผู้ที่ถือวีซ่านักศึกษาสามารถทำงานได้หรือไม่ (2) การควบคุมเครื่องดื่มแอลกอฮอล์ มีเนื้อหาการจำกัดอายุของผู้บริโภคสุรา และการกำหนดวันที่งดหรือห้ามจำหน่ายสุรา และ (3) การหมิ่นประมาทพระมหากษัตริย์ มีเนื้อหา ได้แก่ การบีบอัดหรือวาดภาพต่าง ๆ ต่อเงินตราไทยที่มีรูปภาพของกษัตริย์ สามารถถูกปรับหรือถูกลงโทษตามมาตรา 112 ได้

1.5 ตำรามาตรฐานไทย (B2) มหาวิทยาลัยฮันกุ๊กภาษาและกิจการต่างประเทศ (HUFS) มีเนื้อหาเกี่ยวกับข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทย 5 บท ได้แก่ บทที่ 1 ลักษณะเฉพาะของภาษาไทย บทที่ 2 บริษัทนำเข้าสินค้าเกาหลี บทที่ 3 ความสัมพันธ์ระหว่างประเทศไทยกับสาธารณรัฐเกาหลี บทที่ 4 สถิติคนไทยที่พำนักอยู่ในเกาหลีใต้ และบทที่ 5 เรือนไทย วิถีชีวิตและภูมิปัญญาของคนไทย (Park et al., 2022) มีรายละเอียดดังนี้

(1) บทที่ 1 ลักษณะเฉพาะของภาษาไทย ปรากฏข้อปฏิบัติในหน้า 16 ส่วนไวยากรณ์ ข้อที่ 1 มีตัวอย่างประโยค 2 ประโยค ได้แก่ 1. “เนื่องจากสถานการณ์การแพร่ระบาดของโรคโควิด-19 ธนาคารและร้านอาหารในห้างสรรพสินค้า จึงจำเป็นต้องปิดให้บริการชั่วคราว” 2. “ผู้ที่(มีความ)จำเป็นเร่งด่วนในการกลับประเทศไทยในช่วงการแพร่ระบาดของโรคโควิด-19 ต้องลงทะเบียนเพื่อขอรับหนังสือรับรองการเดินทางเข้าประเทศไทยก่อน”

- เนื่องจากสถานการณ์การแพร่ระบาดของโรคติดเชื้อไวรัสโควิด-19 ธนาคารและร้านอาหารในห้างสรรพสินค้าจึง**จำเป็น**ต้องปิดให้บริการชั่วคราว

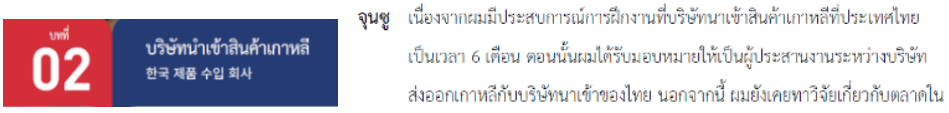
코로나-19 바이러스의 확산 사태로 인하여 백화점 안의 은행과 식당은 일시적으로 휴업을 해야 했다.

- ผู้ที่**(มีความ)จำเป็น**เร่งด่วนในการกลับประเทศไทยในช่วงการแพร่ระบาดของโรคโควิด-19 ต้องลงทะเบียนเพื่อขอรับหนังสือรับรองการเดินทางเข้าประเทศไทยก่อน

코로나-19 확산 기간 동안 태국으로 급히 귀국해야 할 필요성이 있는 사람들은 태국으로 우선 귀국에 대한 증명서를 발급받기 위해 등록을 해야 했다.

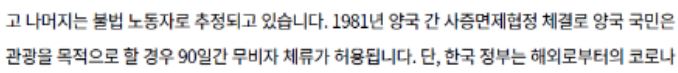
ภาพที่ 9 เนื้อหาเกี่ยวกับการควบคุมโรคในตำรามาตรฐาน B2 ของ HUFS (Park et al., 2022)

(2) บทที่ 2 บริษัทนำเข้าสินค้าเกาหลี ปรากฏข้อปฏิบัติในหน้า 30 ชื่อบทเรียน “บริษัทนำเข้าสินค้าเกาหลี” และหน้าที่ 31 บทสนทนามีเนื้อหากล่าวถึงสัมภาษณ์งานบริษัทไทยที่นำเข้าสินค้าจากประเทศเกาหลี



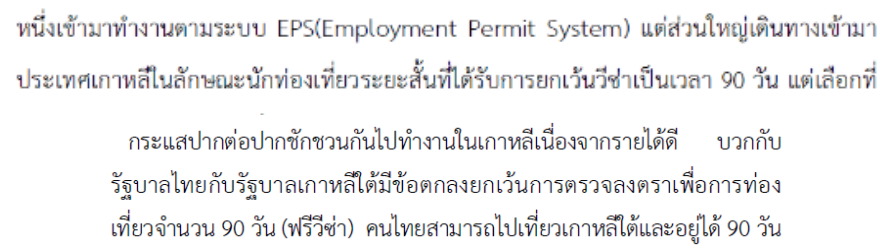
ภาพที่ 10 เนื้อหาเกี่ยวกับศุลกากรในตำรามาตรฐาน B2 ของ HUFS (Park et al., 2022)

(3) บทที่ 3 ความสัมพันธ์ระหว่างประเทศไทยกับสาธารณรัฐเกาหลี ปรากฏข้อปฏิบัติในหน้า 64 - 65 เรื่องเกร็ดความรู้ทางสังคมและวัฒนธรรมไทย มีเนื้อหาเกี่ยวกับความสัมพันธ์ระหว่างไทยกับเกาหลีทางการต่างประเทศและสนธิสัญญายกเว้นการตรวจลงตราระหว่างไทยกับเกาหลี เช่น “ในปีค.ศ. 1981 ทั้งสองประเทศมีความตกลงยกเว้นการตรวจลงตราสำหรับประชาชนไทยกับเกาหลีที่เป็นนักท่องเที่ยวโดยสามารถพำนักได้ไม่เกิน 90 วัน”


고 나머지는 불법 노동자로 추정되고 있습니다. 1981년 양국 간 사증면제협정 체결로 양국 국민은
관광을 목적으로 할 경우 90일간 무비자 체류가 허용됩니다. 단, 한국 정부는 해외로부터의 코로나

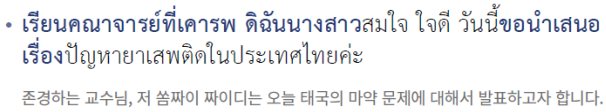
ภาพที่ 11 เนื้อหาเกี่ยวกับการตรวจคนเข้าเมืองในตำรามาตรฐาน B2 ของ HUFS (Park et al., 2020)

(4) บทที่ 4 สถิติคนไทยที่พำนักอยู่ในเกาหลีใต้ ปรากฏข้อปฏิบัติในหน้า 68 ส่วนบทอ่านตอนย่อหน้าสุดท้ายมีเนื้อหาเกี่ยวกับ “ข้อตกลงยกเว้นการตรวจลงตราเพื่อการท่องเที่ยวจำนวน 90 วัน (ฟรีวีซ่า)” และคนที่อยู่เกินอย่างผิดกฎหมาย และหน้า 80 - 81 ส่วนแบบฝึกหัดเสริมทักษะการอ่านมีเนื้อหาเกี่ยวกับตรวจคนเข้าเมืองเกาหลีและปัญหาแรงงานผิดกฎหมาย


หนึ่งเข้ามาทำงานตามระบบ EPS(Employment Permit System) แต่ส่วนใหญ่เดินทางเข้ามา
ประเทศเกาหลีในลักษณะนักท่องเที่ยวระยะสั้นที่ได้รับการยกเว้นวีซ่าเป็นเวลา 90 วัน แต่เลือกที่
กระแสปากต่อปากชักชวนกันไปทำงานในเกาหลีเนื่องจากรายได้ดี บวกกับ
รัฐบาลไทยกับรัฐบาลเกาหลีใต้มีข้อตกลงยกเว้นการตรวจลงตราเพื่อการท่อง
เที่ยวจำนวน 90 วัน (ฟรีวีซ่า) คนไทยสามารถไปเที่ยวเกาหลีใต้และอยู่ได้ 90 วัน

ภาพที่ 12 เนื้อหาเกี่ยวกับการตรวจคนเข้าเมืองในตำรามาตรฐาน B2 ของ HUFS (Park et al., 2022)

(5) บทที่ 8 เรือนไทย วิถีชีวิตและภูมิปัญญาของคนไทย ปรากฏข้อปฏิบัติในหน้า 149 ไวยากรณ์ข้อที่ 1 มีตัวอย่างประโยค “เรียนคณาจารย์ที่เคารพ ดิฉันนางสาวสมใจ ใจดี วันนี้ขอนำเสนอเรื่องปัญหายาเสพติดในประเทศไทยค่ะ”


• **เรียนคณาจารย์ที่เคารพ ดิฉันนางสาว**สมใจ ใจดี วันนี้**ขอนำเสนอ**
เรื่องปัญหายาเสพติดในประเทศไทยค่ะ
존경하는 교수님, 저 쏨짜이 짜이디는 오늘 태국의 마약 문제에 대해서 발표하고자 합니다.

ภาพที่ 13 เนื้อหาเกี่ยวกับยาเสพติดในตำรามาตรฐาน B2 ของ HUFS (Park et al., 2022)

ผู้วิจัยพบว่า มีประเด็นเกี่ยวกับด้านข้อปฏิบัติ 4 ประเด็น ได้แก่ (1) การควบคุมโรค มีเนื้อหา ได้แก่ สถานการณ์โรคโควิด-19 เช่น การแจ้งทะเบียนข้อมูลประวัติฉีดวัคซีน (2) ศุลกากร มีเนื้อหา ได้แก่ การนำเข้าสินค้าในไทยจากเกาหลี (3) การตรวจคนเข้าเมือง มีเนื้อหา ได้แก่ ข้อตกลงยกเว้นการตรวจลงตราเพื่อการท่องเที่ยว จำนวน 90 วัน (ฟรีวีซ่า) ระหว่างประเทศไทยกับเกาหลี ระยะเวลาการพำนักและการทำกิจกรรมสำหรับผู้ที่ถือวีซ่านักศึกษาหรือนักท่องเที่ยว และ (4) ปัญหายาเสพติด

การวิเคราะห์ตำราภาษาไทย HUFS ทั้ง 5 เล่ม ผู้วิจัยพบว่า มีข้อปฏิบัติที่สำคัญ 7 ประเด็น ได้แก่ **การตรวจคนเข้าเมือง** เช่น วีซ่าสำหรับแรงงานต่างชาติ สิทธิการทำงานของผู้เรียนชาวเกาหลี ระยะเวลาการพำนัก จุดประสงค์การเข้าเมืองให้ชัดเจน กิจกรรมถูกกฎหมายที่คนเกาหลีถือวีซ่านักศึกษา หรือผู้ที่เข้ามาโดยฟรีวีซ่า 90 วันในประเทศไทย อายุที่เหลือของหนังสือเดินทาง และเอกสารเพิ่มเติมที่รับรองเป้าหมายการเข้าเมืองตามสภาพตนเอง **การควบคุมโรค** เช่น การปฏิบัติตัวสำหรับสถานการณ์ฉุกเฉินโรคโควิด-19 การแจ้งทะเบียนข้อมูลการเดินทางที่สถานทูตเกาหลีในไทยล่วงหน้า **ศุลกากร** เช่น ภาษีและหลักเกณฑ์สิ่งของต่างๆ ของศุลกากรไทยสำหรับชาวเกาหลี **การจราจร** เช่น ประเภทใบขับขี่สำหรับคนเกาหลีในประเทศไทย และระบบจราจรซ้ายมือและขวามือ **การควบคุมเครื่องดื่มแอลกอฮอล์** เช่น วันที่ห้ามจำหน่ายสุรา และการจำกัดอายุของผู้บริโภคสุรา **ยาเสพติด** เช่น การบริโภคผลิตภัณฑ์ที่ใส่วัตถุดิบกัญชาของคนเกาหลี และ**การหมิ่นประมาทพระมหากษัตริย์** เช่น การกระทำผิดประมวลกฎหมายอาญา มาตรา 112

1.6 ตำรามาตรฐานไทย (A2) มหาวิทยาลัยพูซานภาษาและกิจการต่างประเทศ (BUFS) มีเนื้อหาเกี่ยวกับข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทย 6 บท ได้แก่ บทที่ 1 ชื่อไทยว่ามนตรีครับ บทที่ 5 เราจะทำอะไรที่พัทยา บทที่ 6 มีอะไรให้ช่วยไหมคะ บทที่ 8 ตั้งแต่สัปดาห์หน้าอากาศจะหนาวขึ้น บทที่ 9 มีห้องว่างไหมครับ และบทที่ 12 ค่อยดีขึ้นครับ (Kim et al., 2019) มีรายละเอียดดังนี้

(1) บทที่ 1 ชื่อไทยว่ามนตรีครับ ปรากฏข้อปฏิบัติในหน้า 17 ไวยากรณ์ ข้อที่ 2 มีตัวอย่างประโยค “ดิฉันอยู่เมืองไทยมา 5 ปีแล้วค่ะ” ซึ่งเป็นเรื่องการพำนักในประเทศไทย



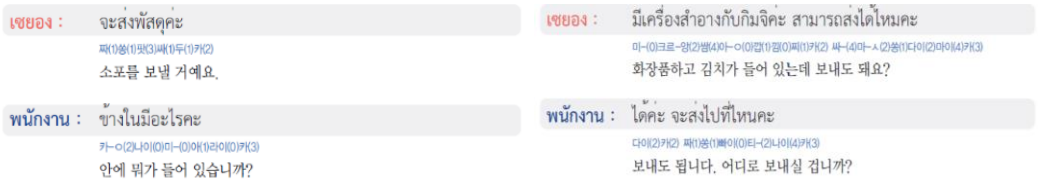
ภาพที่ 14 เนื้อหาเกี่ยวกับการตรวจคนเข้าเมืองในตำรามาตรฐาน A2 ของ BUFS (Kim et al., 2019)

(2) บทที่ 5 เราจะทำอะไรที่พัทยา ปรากฏข้อปฏิบัติในหน้า 86 ไวยากรณ์มีตัวอย่างประโยค “ผมอยู่เมืองไทย 1 ปีเต็ม” เป็นเนื้อหาเกี่ยวกับระยะเวลาการพำนักในประเทศไทย



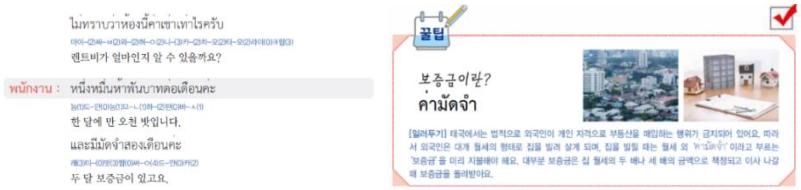
ภาพที่ 15 เนื้อหาเกี่ยวกับการตรวจคนเข้าเมืองในตำรามาตรฐาน A2 ของ BUFS (Kim et al., 2019)

(3) บทที่ 6 มีอะไรให้ช่วยไหมคะ ปรากฏข้อปฏิบัติในหน้า 95 บทสนทนา A มีเนื้อหาเกี่ยวกับการส่งของพัสดุระหว่างประเทศไทยกับสาธารณรัฐเกาหลี



ภาพที่ 16 เนื้อหาเกี่ยวกับศุลกากร และการควบคุมโรคในตำรามาตรฐาน A2 ของ BUFS (Kim et al., 2019)

(4) บทที่ 9 มีห้องว่างไหมครับ ปรากฏข้อปฏิบัติในหน้า 156 ส่วนบทสนทนา A มีเนื้อหาเกี่ยวกับการเช่าห้องที่ประเทศไทยและหน้า 175 ส่วนข้อมูลที่มีประโยชน์มีเนื้อหาเกี่ยวกับค่ามัดจำที่อธิบายด้วยภาษาเกาหลี เนื้อหาที่เกี่ยวข้องกับการเช่าและเรื่องที่พักอาศัยในประเทศไทย



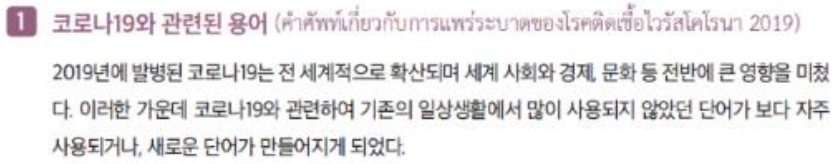
ภาพที่ 17 เนื้อหาเกี่ยวกับการเช่าที่พักในตำรามาตรฐาน A2 ของ BUFS (Kim et al., 2019)

ผู้วิจัยสรุปว่า มีประเด็นเกี่ยวกับด้านข้อปฏิบัติ 3 ประเด็น ได้แก่ (1) การตรวจคนเข้าเมือง มีเนื้อหา ได้แก่ ระยะเวลาการพำนักสำหรับผู้ที่ถือวีซ่านักศึกษาหรือผู้ที่เข้ามาโดยฟรีวีซ่า 90 วัน (2) ศุลกากร มีเนื้อหา ได้แก่ การนำเข้าสินค้าระหว่างประเทศไทยกับเกาหลี (3) การเช่าที่พัก มีเนื้อหา ได้แก่ การเช่าห้องและค่ามัดจำ

1.7 ตำราภาษาไทยฉบับมาตรฐาน (B1) มหาวิทยาลัยพูซานภาษาและกิจการต่างประเทศ (BUFS) ไม่ปรากฏประเด็นเกี่ยวกับข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทย (Kim, Han, Tidarat, Lee & Ong, 2020)

1.8 ตำรามาตรฐานไทย (B2) มหาวิทยาลัยพูซานภาษาและกิจการต่างประเทศ (BUFS) มีเนื้อหาเกี่ยวกับข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทย 3 บท ได้แก่ บทที่ 5 เศรษฐกิจไทย บทที่ 7 การเมืองไทย และบทที่ 8 กฎหมายน่ารู้สำหรับชาวต่างชาติ (Ong et al., 2021) มีรายละเอียดดังนี้

(1) บทที่ 5 เศรษฐกิจไทย ปรากฏข้อปฏิบัติในหน้า 77 คำศัพท์มีเนื้อหาเกี่ยวกับการแพร่ระบาดของโรคติดเชื้อไวรัสโควิด-19



한국어	태국어	한국어	태국어
코로나 19	โรคโควิด 19	팬더믹W	การระบาดใหญ่ทั่วโลก
감염 상황	สถานการณ์แพร่ระบาด	감염 경로	ช่องทางการติดเชื้อ

ภาพที่ 18 เนื้อหาเกี่ยวกับการควบคุมโรคในตำรามาตรฐาน B2 ของ BUFS (Ong et al., 2021)

(2) บทที่ 7 การเมืองไทย ปรากฏข้อปฏิบัติในหน้า 111 บทสนทนามีเนื้อหาเกี่ยวกับประเทศไทยห้ามขายสุราก่อนวันเลือกตั้ง

มานี ค่ะ ใช่ค่ะ หากยึดตามกฎหมายเลือกตั้งจะห้ามขายแอลกอฮอล์ตั้งแต่ 6 โมงเย็นของวันก่อนเลือกตั้งจนถึงเที่ยงคืนของวันเลือกตั้งเลยค่ะ

ภาพที่ 19 เนื้อหาเกี่ยวกับการควบคุมเครื่องดื่มแอลกอฮอล์ในตำรามาตรฐาน B2 ของ BUFS (Ong et al., 2021)

(3) บทที่ 8 กฎหมายน่ารู้สำหรับชาวต่างชาติ ปรากฏข้อปฏิบัติตามข้อมูลกฎหมายที่เกี่ยวข้องเบื้องต้นทั้งบทเรียนในหน้า 113-125 มีเนื้อหา ได้แก่ 1. การพำนักอาศัยในไทยเกี่ยวกับประเภทวีซ่า การต่อวีซ่า และการแจ้งที่พัก 90 วัน 2. การลงทุนและธุรกิจสำหรับชาวต่างชาติเกี่ยวกับอสังหาริมทรัพย์ และ 3. อาชีพที่ห้ามคนต่างชาติทำ เช่น งานกสิกรรม งานมัคคุเทศก์

1. กฎหมายเกี่ยวกับการพำนักอาศัยในประเทศไทย

ชาวต่างชาติที่ประสงค์เดินทางเข้ามาพำนักอาศัยในประเทศไทยต้องทำการยื่นขอวีซ่า ณ สถานทูตไทยประจำประเทศต้นทางที่ชาวต่างชาติจะเดินทางเข้ามา โดยวีซ่าสำหรับชาวต่างชาติหลัก ๆ มี 6 ประเภท ได้แก่ วีซ่าสำหรับคนเดินทางผ่านราชอาณาจักร (Transit Visa) วีซ่านักท่องเที่ยว (Tourist Visa) วีซ่าคนอยู่ชั่วคราว (Non-Immigrant Visa) วีซ่าทูต (Diplomatic Visa) วีซ่าราชการ (Official Visa) และวีซ่าอัธยาศัยไมตรี (Courtesy Visa) ซึ่งวีซ่าแต่ละประเภทมีวัตถุประสงค์ในการเดินทางเข้าประเทศไทยและหลักเกณฑ์ในการยื่นขอที่แตกต่างกัน โดยเฉพาะอย่างยิ่งเอกสารที่ยื่นขอวีซ่าบางประเภทจำเป็นต้องผ่านการรับรองนิติกรณ์ก่อน

จินโฮ อ่อ อย่างนี้นี่เองและผมได้ยินมาว่า ชาวต่างชาติ ไม่ว่าคนประเทศไหนก็ตามถ้าอาศัยอยู่ในประเทศไทย เป็นเวลานาน จะต้องแจ้งที่พักอาศัย ทุก ๆ 90 วัน ใช่ไหมครับ

มานี ใช่ค่ะ แจ้งก่อน 15 วัน หรือหลัง 7 วันนับจากวันครบกำหนดค่ะ ถ้าไม่แจ้งภายในเวลาที่กำหนด ก็จะถูกปรับ 2,000 บาทค่ะ

จินโฮ 2,000 บาท ถือว่าไม่ใช่น้อยนะครับ ผมคงต้องขยันเรียนภาษาไทยให้มากขึ้นกว่าเดิม จะได้เข้าใจกฎหมายไทยและไม่ให้เกิดเรื่องแบบนั้น

ภาพที่ 20 เนื้อหาเกี่ยวกับการตรวจคนเข้าเมืองในตำรามาตรฐาน B2 ของ BUFS (Ong et al., 2021)

ผู้วิจัยสรุปว่า มีประเด็นเกี่ยวกับด้านข้อปฏิบัติ 3 ประเด็น ได้แก่ (1) การควบคุมโรค มีเนื้อหา ได้แก่ สถานการณ์โรคติดเชื้อไวรัสโคโรน่า-19 (2) การควบคุมเครื่องดื่มแอลกอฮอล์ มีเนื้อหา ได้แก่ การจำกัดเวลาขายสุราและการกำหนดวันที่งดหรือห้ามขายสุรา และ (3) การตรวจคนเข้าเมือง มีเนื้อหา ได้แก่ ประเภทและลักษณะของวีซ่า หน้าที่แจ้งที่พักทุก 90 วัน การลงทุน และอาชีพที่ห้ามคนต่างชาติ

ผู้วิจัยวิเคราะห์ตำราภาษาไทย BUFS ทั้ง 3 เล่มว่า ปรากฏข้อปฏิบัติ 5 ประเด็น ได้แก่ **การตรวจคนเข้าเมือง** เช่น ระยะเวลาการพำนัก การขออนุญาตกลับเข้ามาในราชอาณาจักรอีก (Re-entry Permit) ประเภทวีซ่าเหมาะสมกับเป้าหมายการเข้าเมืองไทย หน้าที่แจ้งทะเบียนข้อมูลใหม่ เช่น ออกหนังสือเดินทางเล่มใหม่ เปลี่ยนที่พัก อาชีพที่ห้ามคนเกาหลีทำ และสิทธิการทำงาน **การควบคุมโรค** เช่น สถานการณ์ฉุกเฉินโควิด-19 **ศุลกากร** เช่น ประเภทของพัสดุ และภาษีตามเกณฑ์ศุลกากรไทย **การเช่าที่พัก** เช่น เงื่อนไขต่างๆ และข้อควรเช็คการเช่าที่พักในประเทศไทย และ**การควบคุมเครื่องดื่มแอลกอฮอล์** เช่น วันที่ห้ามจำหน่ายสุรา เวลาจำหน่ายสุรา และการจำกัดอายุของผู้บริโภคสุรา

จากการวิเคราะห์แล้วผู้วิจัยสามารถสรุปผลการวิเคราะห์ประเด็นเกี่ยวกับข้อปฏิบัติที่ปรากฏในตำราภาษาไทยของผู้เรียนชาวเกาหลีทั้ง 8 เล่ม ในตารางดังนี้

ตารางที่ 1 การสรุปประเด็นของด้านข้อปฏิบัติจากตำราภาษาไทยทั้ง 8 เล่ม

ตำรา / ข้อปฏิบัติ	ตำราฯ (A0) HUFS	ตำราฯ (A1) HUFS	ตำราฯ (A2) HUFS	ตำราฯ (B1) HUFS	ตำราฯ (B2) HUFS	ตำราฯ (A2) BUFS	ตำราฯ (B1) BUFS	ตำราฯ (B2) BUFS
1. การตรวจคนเข้าเมือง	-	-	✓	✓	✓	✓	-	✓
2. การควบคุมเครื่องดื่มแอลกอฮอล์	-	-	✓	✓	-	-	-	✓
3. การควบคุมโรค	-	-	-	-	✓	-	-	✓
4. ศุลกากร	-	-	-	-	✓	✓	-	-
5. การจราจร	-	-	✓	-	-	-	-	-
6. การเช่าที่พัก	-	-	-	-	-	✓	-	-
7. ยาเสพติด	-	-	-	-	✓	-	-	-
8. การหมิ่นประมาทพระมหากษัตริย์	-	-	-	✓	-	-	-	-

จากตารางที่ 1 ผู้วิจัยวิเคราะห์ได้ว่า ข้อปฏิบัติที่ปรากฏในตำราภาษาไทยของผู้เรียนชาวเกาหลีทั้ง 8 เล่ม เรียงลำดับมากไปหาน้อย ได้แก่ การตรวจคนเข้าเมือง การควบคุมเครื่องดื่มแอลกอฮอล์ การควบคุมโรค ศุลกากร การจราจร การเช่าที่พัก ยาเสพติด และการหมิ่นประมาทพระมหากษัตริย์

2.การวิเคราะห์เปรียบเทียบข้อปฏิบัติไทยและเกาหลี

ผู้วิจัยจึงศึกษาข้อมูลกฎหมายของราชอาณาจักรไทยกับสาธารณรัฐเกาหลีที่เกี่ยวข้องกับทั้ง 8 ประเด็น จากนั้นนำข้อมูลมาเปรียบเทียบข้อปฏิบัติไทยและเกาหลีเพื่อการอยู่อาศัยในประเทศไทย โดยเก็บข้อมูลจากแหล่งข้อมูลที่เกี่ยวข้องกับกฎหมายต่าง ๆ ได้แก่ (1) เว็บไซต์กระทรวงร่างกฎหมายของสาธารณรัฐเกาหลี ศูนย์ข้อมูลกฎหมายของเกาหลี (Korean Law information center, 2024) และ (2) ศูนย์ข้อมูลกฎหมายของโลก (World laws information center, 2024) ซึ่งเป็นเว็บไซต์หน่วยงานของ

รัฐบาลเกาหลีที่ให้ข้อมูลกฎหมายเกาหลีและกฎหมายต่างประเทศด้วยภาษาเกาหลีและภาษาของประเทศชาตินั้น และมีรายละเอียดดังนี้

ตารางที่ 2 การเปรียบเทียบข้อปฏิบัติไทยและเกาหลีเพื่อการอยู่อาศัยในประเทศไทย

ข้อปฏิบัติ	เนื้อหาจากตำรา	ข้อมูลกฎหมายไทยและเกาหลี
1. การตรวจคนเข้าเมือง	1. ชาวต่างชาติต้องพกเอกสารแสดงตนที่ถูกต้องและผ่านการตรวจคนเข้าเมือง	ทั้งสองประเทศกำหนดให้คนต่างด้าวต้องมีหนังสือเดินทางหรือเอกสารที่ใช้แทนหนังสือเดินทางที่ถูกต้อง และสมบูรณ์และผ่านการตรวจคนเข้าเมืองกับเจ้าหน้าที่ของหน่วยงาน
	2. ชาวไทยและเกาหลีสามารถเดินทางระหว่างประเทศซึ่งกันและกันโดยฟรีวีซ่า 90 วัน	ทั้งสองประเทศมีข้อตกลงสนธิสัญญาละเว้นการตรวจลงตราซึ่งอนุญาตให้ประชาชนไทยกับเกาหลีเดินทางระหว่างประเทศโดยไม่ต้องขอวีซ่า สำหรับการพำนักที่ไม่เกิน 90 วัน โดยมีวัตถุประสงค์เพื่อการท่องเที่ยว เยี่ยมครอบครัว ประชุมสัมมนาหรือดำเนินธุรกิจที่ไม่มีการแสวงหาผลกำไร
	3. ผู้ที่ถือวีซ่านักท่องเที่ยวสามารถเปิดบัญชีในประเทศไทยและประเทศเกาหลี	ทั้งสองประเทศเปิดบัญชีได้เฉพาะธนาคารบางแห่งเท่านั้น แต่ธนาคารส่วนใหญ่ไม่เปิดบัญชีให้แก่นักท่องเที่ยวต่างชาติ และพระราชบัญญัติคนเข้าเมืองไทยกับกฎหมายคนเข้าเมืองเกาหลีไม่กำหนดเรื่อง
	4. ผู้ที่ถือวีซ่านักศึกษามีสิทธิการทำงาน	ทั้งสองประเทศกำหนดว่า ไม่สามารถทำงานได้ แต่กรณีนักศึกษาต่างชาติต้องการทำงาน จำเป็นต้องขออนุญาตทำงานล่วงหน้าจากสำนักงานตรวจคนเข้าเมือง
	5. ผู้ที่ถือวีซ่าพำนักอาศัยอยู่ในประเทศไทยและเกาหลีเกิน 90 วันได้ และมีหน้าที่การแจ้งที่พักอาศัยทุก 90 วัน	ทั้งสองประเทศต้องแจ้งที่พักอาศัยปัจจุบัน แต่รายละเอียดต่างกัน กรณีไทยให้คนต่างชาติแจ้งที่พักทุก 90 วัน ส่วนเกาหลีให้คนต่างชาติแจ้งตอนทะเบียนข้อมูลครั้งแรก ยกเว้นถ้าคนต่างชาติย้ายที่พักต้องแจ้งที่พักใหม่ภายใน 15 วันนับตั้งแต่วันที่เริ่มสัญญาตามที่ระบุไว้ในหนังสือสัญญาเช่าบ้านต่าง ๆ
	6. ผู้ที่อาศัยอยู่ในประเทศไทยโดยถูกต้องตามกฎหมาย ควรระวังการหางานเพราะมีอาชีพที่ห้ามสำหรับคนต่างชาติ	ทั้งสองประเทศกำหนดอาชีพที่ห้ามคนต่างชาติทำ แต่ประเภทและรายละเอียดไม่เหมือนกัน ไทยมีอาชีพสงวนตามกฎหมายโดยตรง มักเป็นงานฝีมือ ส่วนเกาหลีคนต่างชาติต้องขอวีซ่าตามงานที่ตนจะทำ และต้องทำงานเฉพาะตามที่วีซ่ากำหนดไว้เท่านั้น มักเป็นงานราชการหรือด้านความมั่นคง
2. การควบคุมโรค	การเดินทางระหว่างประเทศไทยกับเกาหลีโดยไม่บังคับให้สวมใส่หน้ากากอนามัยและฉีดวัคซีนโควิด-19	ทั้งสองประเทศปลดล็อคการควบคุมโรคโควิด-19 เช่นกัน จึงไม่บังคับให้ผู้เดินทางเข้าประเทศสวมใส่หน้ากากอนามัย และไม่จำเป็นต้องมีเอกสารรับรองการฉีดวัคซีนป้องกันเชื้อโรคโควิด-19 ตั้งแต่วันที่ 1 ตุลาคม พ.ศ. 2565 ถึงปัจจุบัน
3. ศุลกากร	การกำหนดเกณฑ์ศุลกากรสำหรับนำเข้าสิ่งของในประเทศไทยกับเกาหลี	ทั้งสองประเทศกำหนดหลักเกณฑ์ตามกฎหมายศุลกากร เช่น ของไม่ต้องสำแดง ของต้องสำแดง ของต้องจำกัด และของต้องห้าม แต่รายละเอียดเกณฑ์มีความแตกต่างกัน เช่น ประเภท จำนวน และปริมาณ

ตารางที่ 2 (ต่อ)

ข้อปฏิบัติ	เนื้อหาจากตำรา	ข้อมูลกฎหมายไทยและเกาหลี
4. การจราจร	1. การใช้ใบขับขี่สากลในประเทศไทยกับเกาหลี	ทั้งสองประเทศเข้าร่วมเป็นภาคีอนุสัญญาทั้งข้อตกลงของอนุสัญญาเจนีวาและอนุสัญญาเวียนนาแล้ว จึงสามารถขับรถโดยใช้ใบขับขี่สากลได้
5. การเช่าที่พัก	1. การทำหนังสือสัญญาเช่าที่พัก	ทั้งสองประเทศกำหนดกฎหมายว่า ผู้ให้เช่า และผู้เช่าจำเป็นต้องเขียนหนังสือสัญญาเช่าบ้านฉบับสมบูรณ์เมื่อทำสัญญาเช่าอสังหาริมทรัพย์
	2. การกำหนดระยะเวลาสัญญาและขอบเขตของจำนวนเงินมัดจำ	ทั้งสองประเทศกำหนดระยะเวลาสัญญาขั้นต่ำหนึ่งปีและขอบเขตของจำนวนเงินมัดจำ แต่รายละเอียดมีความแตกต่างกัน กรณีไทยกำหนดค่ามัดจำด้วยคูณสองเท่าของค่าเช่ารายเดือน ส่วนเกาหลีกำหนดค่ามัดจำตามมูลค่าพื้นที่ในปัจจุบัน และค่าเช่ารายเดือน
6. การควบคุมเครื่องดื่มแอลกอฮอล์	1. การกำหนดเวลาจำหน่ายเครื่องดื่มแอลกอฮอล์	ไทยกำหนดเวลาจำหน่ายเครื่องดื่มแอลกอฮอล์ ได้แก่ เวลา 11.00-14.00 น. และ 17.00-24.00 น. เท่านั้น ส่วนเกาหลีไม่กำหนดเวลา
	2. การกำหนดวันที่ห้ามขายเครื่องดื่มแอลกอฮอล์	ไทยกำหนดวันที่ห้ามขายเครื่องดื่มแอลกอฮอล์ ได้แก่ วันสำคัญทางศาสนาพุทธ และวันก่อนเลือกตั้ง ส่วนเกาหลีไม่กำหนดวัน
	3. การจำกัดอายุของผู้บริโภคเครื่องดื่มแอลกอฮอล์	ไทยจำกัดอายุของผู้บริโภคเครื่องดื่มแอลกอฮอล์ไว้ อายุ 20 บริบูรณ์ขึ้นไป ส่วนเกาหลีจำกัดอายุของผู้บริโภคเครื่องดื่มแอลกอฮอล์ไว้ อายุ 19 ปีบริบูรณ์ขึ้นไป
7. ยาเสพติด	การใช้กัญชาของคนไทยและเกาหลี	ไทยปลดล็อกกัญชาออกจากยาเสพติด ปัจจุบันประชาชนทั่วไปที่อายุมากกว่า 20 ปี และไม่ใช่สตรีมีครรภ์ รวมถึงนักท่องเที่ยวต่างชาติ สามารถบริโภคกัญชาได้ ส่วนเกาหลีห้ามใช้กัญชาทุกรูปแบบ
8. การหมิ่นประมาทพระมหากษัตริย์	การกระทำผิดเกี่ยวกับการหมิ่นประมาทพระมหากษัตริย์ฯ (ม.112)	ทั้งสองประเทศมีกฎหมายเกี่ยวกับการหมิ่นประมาท แต่มีความแตกต่างกันอยู่ที่บุคคลที่กำหนดไว้เป็นพิเศษ คือ พระมหากษัตริย์ไทย ซึ่งเป็นจุดเด่นที่ไม่มีในเกาหลี

สรุปและอภิปรายผล

จากการวิเคราะห์ข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทยจากแบบเรียนภาษาไทยสำหรับผู้เรียนชาวเกาหลี จำนวน 8 เล่ม ปรากฏเนื้อหาข้อปฏิบัติที่มีความแตกต่างระหว่างไทยกับเกาหลี 8 ประเด็นจาก 8 เล่ม พบ 5 เล่ม ได้แก่ การตรวจคนเข้าเมือง ได้แก่ หน้าที่ และข้อจำกัดเกี่ยวกับการพำนักในฐานะชาวต่างประเทศ การควบคุมเครื่องดื่มแอลกอฮอล์ ได้แก่ วันที่ห้ามจำหน่ายสุรา และเวลาจำหน่ายสุรา การควบคุมโรค ได้แก่ หลักเกณฑ์สำหรับชาวต่างประเทศ ศุลกากร ได้แก่ หลักเกณฑ์ และภาษีสำหรับชาวต่างชาติ การจราจร ได้แก่ ประเภทใบขับขี่ และระบบจราจร การเช่าที่พัก ได้แก่ ค่ามัดจำ และเงื่อนไขการเช่าที่พัก ยาเสพติด ได้แก่ การใช้กัญชา และการหมิ่นประมาทพระมหากษัตริย์ ได้แก่ การกระทำผิดกฎหมายอาญา มาตรา 112

การเปรียบเทียบข้อมูลกฎหมายที่เกี่ยวข้องกับข้อปฏิบัติไทยและเกาหลีเพื่อการอยู่อาศัยในประเทศไทย พบว่า ราชอาณาจักรไทยและสาธารณรัฐเกาหลี มีข้อปฏิบัติที่แตกต่างกันหลายด้าน ได้แก่ กฎหมายคนเข้าเมืองของกฎหมายควบคุมโรค กฎหมายศุลกากร กฎหมายการจราจรทางบก ประมวลกฎหมายแพ่งและพาณิชย์ กฎหมายควบคุมเครื่องดื่มแอลกอฮอล์ กฎหมายยาเสพติด และประมวลกฎหมายอาญา รวมถึงขอบเขตการใช้กฎหมายของประเทศ ซึ่งทำให้มีความแตกต่างของการใช้ชีวิตระหว่างไทยกับเกาหลี และให้คนเกาหลีไม่ว่าจะอยู่ประเทศไทยหรือเกาหลีก็ตามต้องถือกฎระเบียบทั้งสองประเทศชาติ เพราะฉะนั้น การขาดความรู้เรื่องข้อปฏิบัติเหล่านั้น เป็นเหตุผลที่อาจก่อให้เกิดปัญหาทางกฎหมายสำหรับชาวเกาหลี เมื่อมาอยู่อาศัยในประเทศไทย

การที่ชาวเกาหลีมาเรียนต่อในฐานะนักศึกษาแลกเปลี่ยนที่ประเทศไทย เป็นการเรียนรู้ภาษาโดยผ่านการเรียนรู้แบบข้ามวัฒนธรรม (Cross Culture) เป็นการเรียนรู้ภาษาที่สามารถนำมาใช้สื่อสารกับเจ้าของภาษานั้น ๆ ได้อย่างน่าประทับใจรวมทั้งปฏิบัติด้วยท่าทีที่เหมาะสม (อารดี อภิวงค์งาม, 2557) และดังที่โยทกา พูลทอง และนิธิอร พรอำไพสกุล (2566) กล่าวว่า ตำราภาษาไทยของผู้เรียนชาวเกาหลีมีการบูรณาการมิติทางวัฒนธรรมไทย เพื่อเสริมสร้างความเข้าใจและความตระหนักในวัฒนธรรมไทย ซึ่งสอดคล้องกับความสำคัญของผลการศึกษาครั้งนี้ เพราะฉะนั้นผู้วิจัยจึงสรุปได้ว่า การเรียนรู้เรื่องข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทยสำหรับชาวเกาหลีนั้น มีประโยชน์ และมีความสำคัญมาก เนื่องจากการขาดความรู้เรื่องข้อปฏิบัติเหล่านั้น เป็นเหตุผลสำคัญที่อาจก่อให้เกิดปัญหาทางกฎหมายสำหรับชาวเกาหลี เมื่อมาแลกเปลี่ยนเรียนอยู่อาศัยในประเทศไทย ผลการวิจัยครั้งนี้จะเป็นสื่อสำคัญสำหรับผู้เรียนชาวเกาหลีที่เรียนภาษาไทยในฐานะภาษาต่างประเทศ อีกทั้งจะเป็นแนวทางปฏิบัติตนที่ถูกต้องเหมาะสมกับสังคมไทยสำหรับผู้เรียนชาวเกาหลีที่จะเตรียมตัวมาอยู่อาศัยในประเทศไทยได้ ตั้งแต่ก่อนเดินทางจนถึงเดินทางกลับ

ข้อเสนอแนะ

1. ควรศึกษาและวิเคราะห์ข้อปฏิบัติเพื่อการอยู่อาศัยในประเทศไทยสำหรับผู้เรียนชาวต่างชาติอื่น
2. ควรนำผลการวิจัยไปสร้างสื่อการเรียนการสอนภาษาไทยในฐานะภาษาต่างประเทศสำหรับผู้เรียนชาวเกาหลีได้

เอกสารอ้างอิง

กระทรวงการท่องเที่ยวและกีฬา. (2566). สถิตินักท่องเที่ยวชาวต่างชาติที่เดินทางเข้าประเทศไทย ม.ค. - ธ.ค. ปี 2566. https://www.mots.go.th/news/category/706

โชคชัย เชื้อเทศขจร. (2565). การคุกคามในที่ทำงาน: ศึกษาเปรียบเทียบกฎหมายแรงงานเกาหลีและไทย. Journal of Korean Association of Thai Studies, 28(2), 325-352. https://www.kci.go.kr/kciportal/landing/article.kci?arti_id=ART002814932

โยทกา พูลทอง และนิธิอร พรอำไพสกุล. (2566). การวิเคราะห์มิติทางวัฒนธรรมไทยและกลวิธีการถ่ายทอดวัฒนธรรมในแบบเรียนภาษาและวัฒนธรรมไทยของผู้เรียนชาวเกาหลี. วารสารภาษา ศาสนา และวัฒนธรรม มหาวิทยาลัยขอนแก่น, 12(2), 28-67. https://so03.tci-thaijo.org/index.php/gshskku/article/view/271449

อารดี อภิวงค์งาม. (2557). การเรียนรู้ภาษาผ่านการเรียนรู้แบบข้ามวัฒนธรรม. วารสารศิลปศาสตร์ มหาวิทยาลัยแม่โจ้, 2(1), 105-117. https://so03.tci-thaijo.org/index.php/liberalartsjournal/article/view/95656/74707

Busan University of Foreign Studies. (2024). curriculum of Thai major. https://www.bufs.ac.kr/bbs/board.php?bo_table=thai_curriculum&wr_id=4

Critical Foreign Languages Education Promotion. (2024). Notice on Thai language education in Republic of Korea. National Institute for International Education. https://cfl.niied.go.kr/info/info

Embassy of the Republic of Korea in Thailand. (2024). ข่าวประกาศ Overseas Travel Safety Information. https://overseas.mofa.go.kr/th-ko/brd/m_27055/list.do

Hankuk University of Foreign Studies. (2024). Curriculum of Thai major. https://thai.hufs.ac.kr/thai/3290/subview.do

Kim, H., Han, S., Tidarat, N., Lee, M., & Ong, J. (2020). 태국어 표준 교재 (B1) ตำราภาษาไทยฉบับมาตรฐาน. Busan: Institute of Critical foreign Language.

Kim, H., Lee, J., Han, S., Phatjiraphan, K., Jeon, N., & Lee, M. (2019). 태국어 표준 교재 (A2) ตำรามาตรฐานไทย. Busan: Institute of Critical foreign Language.

Korean Law information center. (2024). Korean Law information. Korea Ministry of Government Legislation. https://law.go.kr/

Ong, J., Lee, M., Supaporn, B., Juthamad, B., Wanida, K., & Pautcharayar, P. (2021). 태국어 표준 교재 (B2) ตำรามาตรฐานไทย. Busan: Institute of Critical foreign Language.

Park, K., & Shin, G. (2019). ตำราภาษาไทยฉบับมาตรฐาน 태국어 표준 교재 (A1). Seoul: Hankuk University of Foreign Studies Publishing Department Knowledge Publishing House (HUINE).

Park, K., & Shin, G. (2020). ตำราภาษาไทยฉบับมาตรฐาน 태국어 표준 교재 (A2). Seoul: Hankuk University of Foreign Studies Publishing Department Knowledge Publishing House (HUINE).

Park, K., Shin, G., & Lee, J. (2019). ตำราภาษาไทยฉบับมาตรฐาน 태국어 표준 교재 (A0). Seoul: Hankuk University of Foreign Studies Publishing Department Knowledge Publishing House (HUINE).

Park, K., Shin, G., Kewalin, S., Narisara, T., Somchai, S., & Wirat, S. (2021). ตำราภาษาไทยฉบับมาตรฐาน 태국어 표준 교재 (B1). Seoul: Hankuk University of Foreign Studies Publishing Department Knowledge Publishing House (HUINE).

Park, K., Shin, G., Lee, J., Lee, C., Cheon, H., Kewalin, S., Narisara, T., & Wirat, S. (2022). ตำราภาษาไทยฉบับมาตรฐาน 태국어 표준 교재 (B2). Seoul: Hankuk University of Foreign Studies Publishing Department Knowledge Publishing House (HUINE).

World Laws Information Center. (2024). World laws information. Korea Ministry of Government Legislation. https://world.moleg.go.kr/web/main/index.do?1=1

การศึกษาภาพพจน์และแนวคิดที่ปรากฏในบทเพลงของ ภูมิมินท์ บึงชารี
The Study of Figures of Speech and Concepts in The Songs of Phumin Buengchari

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาภาพพจน์และแนวคิดที่ปรากฏในบทเพลงของ ภูมิมินท์ บึงชารี โดยใช้ข้อมูลเพลง จำนวน 38 เพลงเป็นตัวอย่างในการวิเคราะห์ข้อมูล ผลการวิจัยพบว่า ภาพพจน์มีทั้งสิ้น 7 ประเภท พบการใช้อุปลักษณ์มากที่สุด จำนวน 22 เพลง รองลงมา คือ คำถามเชิงวาทศิลป์ จำนวน 12 เพลง อุปมา จำนวน 8 เพลง อติพจน์และนามนัย จำนวน 7 เพลง สัญลักษณ์ จำนวน 6 เพลง และบุคลาธิษฐาน จำนวน 4 เพลง ตามลำดับแนวคิดมีทั้งสิ้น 6 ประเภท ได้แก่ แนวคิดเกี่ยวกับความรักมากที่สุด จำนวน 16 เพลง รองลงมา คือ แนวคิดเกี่ยวกับการให้ความสำคัญกับคนรอบตัว จำนวน 9 เพลง แนวคิดเกี่ยวกับการใช้ชีวิตให้ดีก่อนที่จะสายไป จำนวน 6 เพลง แนวคิดเกี่ยวกับความพยายาม จำนวน 4 เพลง แนวคิดเกี่ยวกับการพอใจในสิ่งที่ตนมี จำนวน 2 เพลง และแนวคิดเกี่ยวกับการรักตัวเอง จำนวน 1 เพลง ตามลำดับ ซึ่งผลการวิจัยครั้งนี้สะท้อนเห็นว่าบทเพลงของภูมิมินทร์ บึงชารี มีคุณค่าด้านการใช้ภาษาที่สวยงามและมีแนวคิดที่เป็นประโยชน์ต่อผู้ฟังด้านการดำเนินชีวิตให้มีความสุข

คำสำคัญ: บทเพลง, ภาพพจน์, แนวคิด, ภูมิมินท์ บึงชารี

Abstract

This research aimed to study the figures of speech and concepts that appear in the songs of Pumin Buengchari. There were 38 songs used as a sample. The results of the research showed that: A total of 7 types of figures of speech were found, with the most common use being metaphor (22 songs), followed by rhetorical question (12 songs), simile (8 songs), hyperbole and metonymy (7 songs), symbol (6 songs), and personification (4 songs), respectively. A total of 6 types of the concepts were found, including the concept about love the most (16 songs), followed by the concept about giving importance

to people around you (9 songs), the concept about living life well before it's too late (6 songs), the concept about making effort (4 songs), the concept about being satisfied with what you have (2 songs), and the concept about loving yourself (1 songs), respectively. The results of the research reflected that the songs of Pumin Buengchari had beautiful language value and useful concept for listeners to live a happy life.

Keywords: songs, figures of speech, the concepts, Phumin Buengchari

บทนำ

บทเพลงเป็นรูปแบบหนึ่งของการประพันธ์ที่เป็นศิลปะ โดยอาศัยภาษาประกอบเข้ากับท่วงทำนองดนตรีเพื่อถ่ายทอดแนวความคิดและเรื่องราวความเป็นไปของสังคมในแต่ละยุคสมัย (สินศักดิ์ ไตรสารศรี, 2538 : 1) นอกจากนี้บทเพลงยังเป็นวรรณกรรมที่เข้าถึงผู้รับสารหรือผู้ฟังได้ง่าย ทั้งยังสื่อสาระสุนทรียภาพตลอดจนสร้างความสะเทือนอารมณ์ให้แก่ผู้ฟังได้ ดังที่ บุญยงค์ เกศเทศ (2536 : 116-117) กล่าวถึงวรรณกรรมเพลงไว้ว่า "เป็นบันเทิงคดีที่มีสาระประเภทหนึ่งในวงวรรณกรรมไทย เพราะเพลงจะเข้าถึงผู้คนได้ดีกว่าวรรณกรรมประเภทอื่น โดยไม่ต้องไปพะวงอ่านเพียงผ่านหูก็เกิดสุนทรียภาพ มีรสชาติและเกิดความสะเทือนอารมณ์ได้"

ผู้วิจัยพบว่า ปัจจุบันมีบทเพลงหนึ่งที่โด่งดังมากในสื่อโซเชียล โดยมีเนื้อเพลงดังนี้

“จงมีชีวิตในวันต่อวันอย่างธรรมดา เก็บเกี่ยวไขว้คว้าแค่เพียงที่ไหวแล้วใจไม่เจ็บช้ำ แล้วภูมิใจกับสิ่งที่ทำรวมทั้งจดจำแค่สิ่งที่ดี ไม่มีใครรู้ว่าพรุ่งนี้ เราอาจจะมีโอกาสอีกไหม ขอให้เราเป็นหนึ่งคนเมื่อแก่ชราที่มองขอบฟ้าเมื่อสุริยากำลังจะตกพื้น แล้วไม่มีสิ่งใดติดอยู่ในใจที่เคยหลงลืม ทำได้เพียงแค่ยื่นโบกมือให้แก่ความหลังที่มันงดงาม เพียงแค่นั้น ....”

(สุดทาง: ภูมิมินท์ บึงชารี, 2566)

เนื้อเพลงดังกล่าวข้างต้น เป็นเหมือนการเล่าเรื่องราวที่แฝงไปด้วยข้อคิดในการใช้ชีวิต เป็นพลังบวกและสิ่งที่เตือนสติผู้ฟังได้ดี แสดงให้เห็นว่าเป็นเพลงที่กลั่นกรองออกมาจากใจ มีความงดงามทั้งภาษาและความหมาย ซึ่งบทเพลงหลายเพลงของภูมิมินท์มักจะมีรูปแบบการนำเสนอที่มีเอกลักษณ์โดดเด่น และมีเสน่ห์เฉพาะตัว กล่าวคือ เนื้อหามักมีรูปแบบยาวคล้ายบทกวี มีการปรากฏแนวคิดสอนใจและมักใช้ภาพพจน์ในการนำเสนอเนื้อหา

ภูมิมินท์ บึงชารี หรืออาร์ต นักร้องนำวงภูมิมินท์ ศิลปินอินดี้ขวัญใจคนรุ่นใหม่มีเพลงฮิตของวง คือ “หล่นหายระหว่างทาง” “ผ่านวัยเยาว์” และ “ใครงามเลิศในปฐพี” แม้บทเพลงของภูมิมินท์จะใช้ถ้อยคำง่าย ๆ ในการแต่งและสื่อสารแต่ในแต่ละวรรคตอนนั้น ได้แฝงไปด้วยเรื่องราวให้ขบคิดทุกบทเพลงที่ได้รับฟังได้สื่อถึงความเป็นธรรมชาติและสัจธรรมของมนุษย์ทุก ๆ คน และยังเป็นบทเพลงแห่งกำลังใจ รวมถึงเป็นพลังแห่งความหวังให้กับผู้คนที่ได้รับฟัง ภูมิมินท์เป็นทั้งนักร้องและนักแต่งเพลง ทุกบทเพลงล้วนมีความหมายแฝงไปด้วยข้อคิด สัจธรรมและปรัชญาการใช้ชีวิต ในการแต่งเพลงก็ได้นำเรื่องราวชีวิตตน ที่ได้พบเจอแต่งเป็นเนื้อเพลงและถ่ายทอดออกมาเป็นบทเพลงให้กับผู้ฟัง โดยส่วนใหญ่จะสอนแนวคิดเกี่ยวกับการพบเจอ การจากลา และการสูญเสีย ทำให้บทเพลงของภูมิมินท์มีคุณค่าและโดดเด่นเฉพาะตัวรวมไปถึงมีอิทธิพลต่อผู้ฟังอีกด้วย

วัตถุประสงค์ของการวิจัย

เพื่อศึกษาภาพพจน์และแนวคิดที่ปรากฏในบทเพลงของภูมิมินท์ บึงชารี

แนวคิด ทฤษฎี กรอบแนวคิด

ผู้วิจัยได้ทบทวนเอกสารแนวคิด ทฤษฎี และงานวิจัยที่เกี่ยวข้อง ดังมีรายละเอียดต่อไปนี้

1. ภาพพจน์

สุจิตรา จงสถิตวัฒนา (2548 :52) กล่าวว่า ภาพพจน์มีหลายประเภท สรุปได้ดังนี้

1. อุปมา (Simile) คือ ภาพพจน์เปรียบเทียบสิ่งที่เหมือนกันโดยมีคำเชื่อมโยง เช่นคำว่า เหมือน ดุจ ดั่ง เช่นปาน ราว ประหนึ่ง เพียง เทียม ฯลฯ เช่น บ้านหลังนี้เงียบราวกับป่าช้า

2. อุปลักษณ์ (Metaphor) คือ ภาพพจน์เปรียบเทียบที่นำลักษณะเด่นของสิ่งที่ต้องการมากล่าวทันทีโดยไม่มีคำเชื่อมโยงหรือบางครั้งหากมีคำว่า “เป็น” เช่น ไก่ค่อยผันค่อยผาย ระร่ายลายตีน เดินดำเนินหงส์ยกย่าง ในที่นี้เปรียบการเดินของไก่กับลีลาของหงส์

3. อนุนามนัย (Synecdoche) คือ ภาพพจน์ที่เกิดจากการใช้คุณสมบัติเด่น ๆ ส่วนหนึ่งเพื่อแทนความหมายทั้งหมด เช่น การเวลาคร่าทุกสิ่งไปจากฉันทิ้งไว้แต่ความทรงจำและรอยย่นที่ขอบตา รอยย่นที่ขอบตา เป็นเพียงส่วนเดียวของร่างกายที่แสดงถึงความชราในที่นี้รอยย่นที่ขอบตา หมายถึง ความแก่ชรา หรือความร่วงโรยของสังขาร (ร่างกายทั้งร่าง)

4. อธินามนัย (Metonymy) คือ ภาพพจน์ที่เกิดจากการใช้ชื่อเรียกรวม ๆ แทนสิ่งใดสิ่งหนึ่งหรือบุคคลกลุ่มใดกลุ่มหนึ่งหรือคนหนึ่งเช่น ไทยนี้รักสงบ ปกติเมื่อพูดว่า ไทยอาจรวมทั้งประเทศผู้คน แต่ในที่นี้ชาวไทย คือ คนไทยเท่านั้นไม่ใช่อย่างอื่น

5. บุคลาธิษฐาน (Personification) คือ ภาพพจน์ที่เกิดจากการเปรียบเทียบโดยนำสิ่งไม่มีชีวิตหรือมีชีวิตแต่ไม่ใช่คนมากล่าวถึงราวกับเป็นคน เช่น ทะเลไม่เคยหลับใหล ใครตอบได้ไหมไฉนจึงตื่นนาข้าวและธัญพืชทั้งมวล ล้วนโค้งศีรษะให้อุทก

6. อติพจน์ (Hyperbole) คือ ภาพพจน์เปรียบเทียบเกินความจริง เช่น รักคุณเท่าฟ้า เรียมร่ำน้ำเนตรถ้วมถึงพรหม ภาพพจน์เกินความจริงเช่นนี้เป็นจริงได้ในความรู้สึก

7. สัทพจน์ (Onomatopoeia) คือ ภาพพจน์เปรียบเทียบโดยใช้คำเลียนเสียงหรือการใช้คำที่มีเสียง สี แสง ท่าทาง เช่น เปรตกู่ก้องน้องตะเบิม

8. วิภาษ (Oxymoron) คือ ภาพพจน์ที่เกิดจากการใช้คำที่มีความหมายขัดแย้งกัน นำมาคู่กันได้อย่างกลมกลืน เช่น ลมหนาวพัดอ้าวจนหนาวเหน็บเจ็บกระดูก

9. อรรถวิภาษ (Paradox) คือ ภาพที่เกิดจากการแสดงความหมายที่ดูเหมือนจะขัดแย้งกัน หรือเป็นไปไม่ได้ แต่เมื่อวิเคราะห์ความหมายลึกลงไปอาจตีความได้อย่างกลมกลืน เช่น อกชลคลาแคล้วแผ่นปฐพีอก ให้ความรู้สึกอบอุ่นนุ่มนวล แต่ ชล มีลักษณะไหลให้ความชุ่มชื่น ความเย็น ลักษณะทั้ง 2 อย่างนี้ขัดแย้งกันแต่ปรากฏอยู่ในสิ่งเดียวกัน เป็นความขัดแย้งที่ไปด้วยกันได้ “วิภาษ” เป็น การใช้คำที่ขัดแย้งมาเข้าคู่กันแต่อรรถวิภาษ หมายถึง ความที่ขัดแย้งกันแต่ไปด้วยกันได้

ในขณะที่ ศกุนตลา กะราลัย (2549 :17-20) ได้ศึกษาและสรุปประเภทของภาพพจน์ไว้ 12 ประเภท ดังนี้ อุปมา (simile) อุปลักษณ์ (metaphor) สัญลักษณ์ (symbol) นามนัย (metonymy) อติพจน์ (hyperbole) บุคลาธิษฐาน (personification) ปฏิทรรศน์ (paradox) ปฏิพจน์ (oxymoron) คำถามเชิง

วาทศิลป์ (rhetorical question) การเลียนเสียงธรรมชาติ (onomatopoeia) สัมพจนัย (synecdoche) และการกล่าวอ้างถึง (allusion)

2. แนวคิดหรือข้อคิด

คำว่า “ข้อคิด” มีความหมายคล้ายคลึงกับคำว่า “แนวคิด” ซึ่งอธิบายได้ดังนี้

พจนานุกรมฉบับราชบัณฑิตยสถาน (2554: 178) ได้ให้ความหมายของ “ข้อคิด”ไว้ว่า ประเด็นที่เสนอให้คิด, ประเด็นที่ชวนคิด

กุหลาบ มัลลิกะมาส (2546: 105) กล่าวถึงแนวคิดไว้ว่า แนวคิด หมายถึง ทัศนะ หรือมุมมองที่ส่งจากผู้เขียนมายังผู้อ่าน ผู้ประพันธ์จะมีแนวความคิดของตนที่มีอยู่ต่อโลก ต่อสังคมและต่อชีวิตมนุษย์แตกต่างกัน แนวคิดหรือปรัชญาของนักเขียนจึงมีหลายแนวและต่างพยายาม ถ่ายทอดแนวความคิดหรือปรัชญาต่าง ๆ นั้นในงานเขียนที่ตนแต่งขึ้นเสมอ

บุญยงค์ เกศเทศ (2525: 30) กล่าวถึงแนวคิดไว้ว่า แนวคิด หมายถึง ความคิดสำคัญที่สุดของเรื่องที่นักประพันธ์ต้องการแสดงในหนังสือเล่มนั้น ๆ เป็นเสมือนแนวในการดำเนินเรื่องของนักประพันธ์ นักประพันธ์จะแสดงแนวคิดได้โดยอาศัยตัวละครบทสนทนา และเหตุการณ์ในเรื่องเพื่อย้ำแนวคิดของเรื่อง

ธัญญา สังขพันธานนท์ (2539: 250) กล่าวถึงแนวคิดไว้ว่าคือ "ความคิดอันเป็นศูนย์กลางในงานเขียนที่แสดงให้เห็นความเป็นจริงเกี่ยวกับประสบการณ์ของมนุษย์"

อิราวดี ไตลังคะ (2543: 66) กล่าวว่า "แนวคิด หมายถึง ความคิดที่นำเสนอในเรื่อง ซึ่งสรุปจากสถานการณ์เฉพาะของโลกบันเทิงคดีออกมาเป็นความเข้าใจทั่ว ๆ ไปเกี่ยวกับโลกในชีวิตจริง แนวคิดในงานประพันธ์มี 2 ลักษณะ คือ

1. แนวคิดสำคัญหรือสาระสำคัญของเรื่อง บางทีเรียกว่า "แก่นเรื่อง" หมายถึงความคิดสำคัญที่ผู้แต่งใช้เป็นแนวทางในการผูกโครงเรื่อง เช่น แนวคิดสำคัญของเรื่อง ธรรมาธรรมะสงคราม คือ ธรรมะย่อมชนะอธรรม

2. แนวคิดอื่น ๆ คือ ความคิด หรือ ข้อคิด แง่คิดต่าง ๆ หรือ "สาร" ที่ผู้แต่งแทรกไว้ในเรื่อง เช่น แนวคิดอื่น ๆ ในเรื่องธรรมาธรรมะสงคราม นอกเหนือจากแนวคิดสำคัญมีหลายประการ พอจะยกเป็นตัวอย่างได้ดังนี้ ขันติจะช่วยให้ชนะอธรรมได้ ผู้ประพฤติธรรมย่อมก่อให้เกิดผลดีทั้งแก่ตนเองและแก่สังคมโดยส่วนรวม

เว็บไซต์ Icon Collective (2568) ได้ให้ความหมายไว้ว่าข้อคิดในเพลง หมายถึง แนวคิดหรือแง่คิดที่ผู้แต่งเพลงต้องการสื่อสารให้ผู้ฟังได้รับรู้ ซึ่งมักจะเป็นข้อความที่สะท้อนถึงประสบการณ์ชีวิต ความรู้สึกหรือคำแนะนำที่มีคุณค่า โดยผ่านการเล่าเรื่องหรือเนื้อเพลง เพลงบางเพลงอาจให้ข้อคิดเกี่ยวกับความรักการต่อสู้ในชีวิต หรือการมองโลกในแง่บวกข้อคิดในเพลงจึงเป็นเหมือนการสะท้อนความรู้สึก หรือแง่มุมต่าง ๆ ที่อาจช่วยให้ผู้ฟังได้เรียนรู้หรือปรับตัวในชีวิตจริง

ข้อคิดในเพลงสามารถแบ่งออกได้หลายประเภท ขึ้นอยู่กับเนื้อหาและความหมายของเพลงนั้น ๆ โดยทั่วไป สามารถแบ่งได้เป็นประเภทต่าง ๆ เช่น

1. ข้อคิดด้านความรัก เพลงที่พูดถึงความรู้สึกในความรักทั้งในแง่ดีและแง่ร้าย เช่น ความรักที่ต้องการการดูแลเอาใจใส่ หรือการเจ็บปวดจากความรัก

2. ข้อคิดด้านชีวิตและการใช้ชีวิต เพลงที่สะท้อนถึงการใช้ชีวิตการมองโลกในแง่บวกหรือลบ การต่อสู้กับอุปสรรค หรือการหาความสุขในชีวิต

3. ข้อคิดด้านการต่อสู้และความพยายาม เพลงที่ให้กำลังใจเกี่ยวกับการเอาชนะอุปสรรค ความพยายามในการทำสิ่งต่าง ๆ และการไม่ยอมแพ้

4. ข้อคิดด้านสังคมและโลก เพลงที่สะท้อนถึงปัญหาสังคม เช่น ความยากจน ความไม่เป็นธรรม หรือการเรียกร้องความเท่าเทียมในสังคม

5. ข้อคิดด้านความฝันและการสร้างแรงบันดาลใจ เพลงที่พูดถึงการตามหาฝัน ความเชื่อมั่นในตัวเอง หรือการเดินตามเส้นทางที่ตัวเองต้องการ

6. ข้อคิดด้านการเรียนรู้และการเติบโต เพลงที่สะท้อนการเรียนรู้จากความผิดพลาด การเติบโตจากประสบการณ์และการพัฒนาเป็นคนที่ดีขึ้น

วิธีดำเนินการวิจัย

1. การสำรวจข้อมูล

ผู้วิจัยได้สำรวจข้อมูลบทเพลงของภูมิมินท์ บึงชารี ทางช่องยูทูบ Phumin (Official) โดยการศึกษาบทเพลงตั้งแต่ปี พ.ศ. 2564 จนถึง ปี พ.ศ. 2567 เป็นจำนวน 38 เพลงพร้อมทั้งศึกษาค้นคว้าเกี่ยวกับเอกสารและงานวิจัยที่เกี่ยวข้องกับภาพพจน์และแนวคิดที่ปรากฏในบทเพลง เพื่อนำมาใช้เป็นแนวทางในการศึกษา

2. การคัดเลือกข้อมูล

ผู้วิจัยได้คัดเลือกบทเพลงของภูมิมินท์ บึงชารี ทางช่องยูทูบ Phumin (Official) เฉพาะ ปี พ.ศ. 2564 จนถึง ปี พ.ศ. 2567 รวมทั้งสิ้นจำนวน 38 เพลง ซึ่งถือเป็นตัวแทนในการวิเคราะห์ข้อมูลที่เพียงพอและเป็นผลงานการประพันธ์ของภูมิมินท์ บึงชารี ทั้งหมด ดังต่อไปนี้

ปี พ.ศ. 2564 มีจำนวน 9 เพลง ดังนี้ 1. ปู่ย่าหลาน 2. เสรีอัญชัน 3. จักรวาลสัมพันธ์กันอยู่ 4. ยินดีมากกว่า 5. ไม่ถือโทษโกรธเคือง 6. ใครงามเลิศในปฐพี : ร้องคู่กับศิลปิน วรินทร์ (ศิวรินทร์ พูลวงษ์) 7. อัสดง 8. แสงตะเกียงปลายดอย และ 9. เรือน้อยผู้ยิ่งใหญ่

ปี พ.ศ. 2565 มีจำนวน 13 เพลง ดังนี้ 1. มัธยม 2. บันทึกชีวิตในสมุดสีดำ 3. หากเวียนมาพบกันใหม่ 4. การจากลาคือเรื่องหนึ่ง 5. ฉันยินดีโอบกอดเธอ 6. หากมีรัก 7. นายหญิง 8. หิ่งห้อย พระจันทร์ดวงดาว 9. ภาพทรงจำในกาลเวลา 10. หล่นหายระหว่างทาง 11. จดหมายถึงดาวพลูโต 12. ผ่านวัยเยาว์ และ 13. อยากให้ลองฟัง

ปี พ.ศ. 2566 มีจำนวน 11 เพลง ดังนี้ 1. ตกตะกอน 2. ผู้มีอิทธิพล 3. ดอกไม้ที่ไร้กลิ่น 4. สุดทาง 5. พอแล้วพอ 6.ท้องฟ้าต่างกันฉันใด 7. สุดจะเกินใจ 8. ฉันโคตรฝืน 9. วัฏจักรความรู้สึก 10. ประกายฝน และ 11. ค่ำผ่านทาง

ปี พ.ศ. 2567 มีจำนวน 5 เพลง ดังนี้ 1. เปลี่ยนผันไปตามวิถี 2. รัตติกาล 3. เราไม่ใช่ส่วนเกิน 4. ไม่มีพรุ่งนี้ไว้รอใคร และ 5. เพราะเธอคือดอกไม้ : ร้องคู่กับศิลปิน วรินทร์ (ศิวรินทร์ พูลวงษ์)

3. การเก็บรวบรวมข้อมูล

ผู้วิจัยเก็บรวบรวมข้อมูลทางอินเทอร์เน็ตจากเว็บไซต์ http://www.youtube.com โดยข้อมูลที่ผู้วิจัยนำมาใช้ในการศึกษาครั้งนี้ ผู้วิจัยได้ถ่ายถอดเทปของบทเพลงทั้งหมดมาเป็นตัวอักษรด้วยตนเอง เพื่อคัดเลือกข้อมูลและคัดเฉพาะข้อมูลที่เป็นการใช้ภาพพจน์ และแนวคิดที่ปรากฏในบทเพลง

4. การวิเคราะห์ข้อมูล

ในการจัดกลุ่มข้อมูลจากการวิเคราะห์และได้เรียบเรียงผลการวิจัย โดยวิธีพรรณนาวิเคราะห์ผู้วิจัยได้แบ่งข้อมูลด้านเนื้อหาเป็น 2 ประเด็น ได้แก่

1. ภาพพจน์ที่ปรากฏในบทเพลงของ ภูมิมินท์ บึงชารี
2. แนวคิดที่ปรากฏในบทเพลงของ ภูมิมินท์ บึงชารี

ผลการวิจัย

จากการศึกษาการใช้ภาพพจน์และแนวคิดที่ปรากฏในบทเพลงของภูมิมินท์ บึงชารี ทั้งหมด 38 เพลง พบภาพพจน์และแนวคิด ที่ปรากฏดังรายละเอียดต่อไปนี้

1. ภาพพจน์ที่ปรากฏในบทเพลงของ ภูมิมินท์ บึงชารี

ภาพพจน์เป็นศิลปะในการใช้ภาษาอย่างหนึ่ง โดยมีจุดประสงค์เพื่อจะขยายความและเพื่อถ่ายทอดความรู้สึกนึกคิด เมื่อผู้ประพันธ์นำโวหารมาประกอบในการแต่งบทเพลงก็จะทำให้ผู้ฟังเกิดอารมณ์คล้อยตามและเข้าใจความหมายได้อย่างกว้างขวางและลึกซึ้ง จากการศึกษาบทเพลงของภูมิมินท์ พบภาพพจน์ทั้งสิ้น 7 ประเภท ได้แก่ อุปมา อุปลักษณ์ สัญลักษณ์ นามนัย อติพจน์ บุคลาธิษฐาน และคำถามเชิงวาทศิลป์ ดังต่อไปนี้

1.1 อุปมา (simile) คือ การเปรียบเทียบสิ่งหนึ่งกับอีกสิ่งหนึ่ง ที่โดยธรรมชาติแล้วมีสภาพที่แตกต่างกัน แต่มีลักษณะเด่นร่วมกันและใช้คำที่มีความหมายว่าเหมือนหรือคล้ายเป็นคำแสดงเปรียบเทียบเพื่อเน้นให้เห็นจริงว่าเหมือนอย่างไรและในลักษณะใด เช่น ให้เห็นความงาม ความรัก เป็นต้น และจะใช้คำเชื่อมแสดงการเปรียบเทียบไว้อย่างชัดเจน เช่น คล้าย เหมือน ดั่ง ดังหนึ่ง ราว ราวกับ ดุจ ประดุจ เปรียบปาน เป็นต้น จากการศึกษาพบการใช้อุปมา ดังตัวอย่างต่อไปนี้

> “เธอ**<u>เปรียบดั่ง</u>**ต้นไม้ ที่เด่นสวยหลายราตรี ผลัดใบสีเขียวขจี สง่าสูง
> เทียบแผ่นฟ้า มีต้นไม้มากมาย ที่ผุดขึ้นตามกาลเวลา **<u>เปรียบดั่ง</u>**ผู้คน
> นานา ที่ผ่านมาในชีวิตเธอ”
>
> (ฉันยินดีโอบกอดเธอ: ภูมิมินท์ บึงชารี, 2565)

จากตัวอย่างข้างต้นคำอุปมาที่พบ คือคำว่า “เปรียบดั่ง” จากเนื้อหาของเพลงเป็นการกล่าวถึงการเปรียบเทียบผู้หญิงเหมือนต้นไม้ใหญ่ที่เด่นและสวยงาม มีต้นไม้มากมายที่โตขึ้นรอบ ๆ ต้นไม้ใหญ่เหมือนผู้คนที่ผ่านเข้ามาและอยู่ล้อมรอบตัวเธอ

> “ไม่ต้องห่วงฉัน เพราะฉันสบายดี แต่แค่ในตอนนี้ ฉันนั้นยังไม่ชิน
> **<u>เหมือน</u>**นกที่ไม่กล้าบินออกสู่ฟ้าไกล ขอให้เธอโชคดี ฉันยินดีเสมอ
> ขอให้เธอได้เจอ รักที่มันคู่ควร”
>
> (ฉันโคตรฝืน: ภูมิมินท์ บึงชารี, 2566)

จากตัวอย่างข้างต้นคำอุปมาที่พบ คือ คำว่า “เหมือน” จากเนื้อหาของเพลงเป็นการกล่าวถึงการเปรียบเทียบความไม่กล้าหาญพอ เหมือนกับนกที่ไม่กล้าบินออกไปยังโลกกว้างเพื่อเผชิญความจริง ว่าในชีวิตนั้นไม่ได้มีคนรักคนเดิมอยู่ในชีวิตแล้ว

1.2 อุปลักษณ์ (metaphor) คือ การเปรียบเทียบด้วยการกล่าวว่าสิ่งหนึ่งเป็นอีกสิ่งหนึ่งโดยใช้คำแสดงการเปรียบเทียบว่า "เป็น" หรือ "คือ" ความหมายจึงลึกซึ้งกว่าอุปมาจากการศึกษาพบการใช้อุปลักษณ์ ดังตัวอย่างต่อไปนี้

"ฉัน**เป็น**นกเสรีที่จะบินไปที่ใดก็ได้ สูงจากพื้นดินขึ้นไปสามารถบินไปได้ทั่วแผ่นฟ้า แต่ฉันไม่ไปดีกว่าเพราะว่านภาไม่ใช่ที่ฝัน แต่ลองมองกลับกัน ถ้าเป็นอัญชันอยู่ไหนก็ไปหา"

(เสรีอัญชัน: ภูมิมินท์ บึงชารี, 2564)

จากตัวอย่างข้างต้นคำอุปลักษณ์ที่พบ คือ คำว่า "เป็น จากเนื้อหาของเพลงเป็นการกล่าวถึงการเปรียบตัวเองเป็นนกที่เสรีเพราะนกเสรีนั้น สามารถบินไปที่ไหนก็ได้ตามใจต้องการและมีอิสระ บินไปได้จากพื้นดินไปยังทั่วแผ่นฟ้า

"ถ้าดังตัวฉัน**เป็น**เรือ ฉันจะยังต้องเดินต่อไป เพื่อคนข้างหลังมากมาย เฝ้ารอจุดหมายหมายถึงความมุ่งมั่น ให้เลวร้ายเพียงใดก็จะไปให้ถึง

(เรือน้อยผู้ยิ่งใหญ่: ภูมิมินท์ บึงชารี, 2564)

จากตัวอย่างข้างต้นคำอุปลักษณ์ที่พบ คือ คำว่า "เป็น" จากเนื้อหาของเพลงเป็นการกล่าวถึงการเปรียบตัวเองเป็นเรือ คือ การที่ต้องเป็นผู้นำในการปกป้องและนำพาทุกคนให้ไปถึงจุดหมายเหมือนเรือที่บรรทุกสินค้า แต่เปลี่ยนเป็นการบรรทุกผู้คนและความหวังมากมายเพื่อให้ถึงฝั่งฝัน แม้จะเจอปัญหาหรืออุปสรรคที่เลวร้ายมากเพียงใด ก็ต้องปกป้องคนในเรือให้ปลอดภัย

1.3 สัญลักษณ์ (symbol) คือ การเปรียบเทียบที่เรียกสิ่งหนึ่งสิ่งใด โดยใช้คำอื่นแทนคำที่ใช้เรียก นั้นเกิดจากการเปรียบเทียบและตีความ ซึ่งใช้กันมานานจนเป็นที่เข้าใจโดยทั่วไปจากการศึกษาพบการใช้สัญลักษณ์ ดังตัวอย่างต่อไปนี้

"ในวันที่เลวร้ายยังมี**ดอกไม้ขึ้นบนเปลวไฟ** เสียงปืนดังมาแต่ไกล แต่ว่าเสียงหัวใจมันดังกว่าปืน ผ่านมาไม่กี่ปีสงครามกลางเมืองเคลื่อนมาที่ไทย"

(ปู่ย่าหลาน: ภูมิมินท์ บึงชารี, 2564)

จากตัวอย่างข้างต้นคำสัญลักษณ์ที่พบ คือ "ดอกไม้" และ "เปลวไฟ" กล่าวคือ ดอกไม้ ในนี้ที่ไม่ได้หมายถึงพืชแต่เป็นการใช้เรียกแทนสิ่งดี ๆ ที่เกิดขึ้นท่ามกลางวันเวลาที่กำลังเลวร้าย เปลวไฟ ในที่นี้ไม่ได้หมายถึงไฟแต่เป็นการใช้เรียกแทนเหตุการณ์ที่เลวร้าย จากเนื้อหาของเพลงเป็นการกล่าวถึงว่าแม้ในช่วงเวลาที่เลวร้ายก็มีสิ่งดี ๆ เกิดขึ้นมาท่ามกลางเปลวไฟได้

"การศึกษาเด็กน้อยบนภูเขา คือ ด้านมืดที่เราไม่เคยจะเอามาแก้ไขสักที พี่จ๋าเด็กน้อยอยู่บนนั้น เขาต้องมีความสำคัญ เท่าเทียมเด็กน้อยที่อยู่พื้นล่าง คือคำขอข้อสุดท้ายของ**เรือจ้าง**"

(แสงตะเกียงปลายดอย: ภูมิมินท์ บึงชารี, 2564)

จากตัวอย่างข้างต้นคำสัญลักษณ์ที่พบ คือ "เรือจ้าง" ซึ่งเป็นคำที่ใช้เปรียบเปรยกับอาชีพครูหรืออาจารย์ ที่เป็นเหมือนเรือจ้างคอยส่งลูกศิษย์ให้ถึงฝั่ง จากเนื้อหาของเพลงเป็นการกล่าวถึงการศึกษาไทยในพื้นที่บนดอยที่ห่างไกลความเจริญ

1.4 นามนัย (metonymy) คือ การใช้คำหรือวลี ซึ่งแบ่งลักษณะหรือคุณสมบัติของสิ่งหนึ่งสิ่งใดมาแสดงความความหมายแทนสิ่งนั้นทั้งหมด จากการศึกษาพบการใช้นามนัย ดังตัวอย่างต่อไปนี้

"ครูถวิลลาแล้ว**เมืองตึกสูง** และเส้นทางที่มุ่งจะมุ่งสู่ดอยทุรกันดารที่ตรงนั้นยังมีเพียงน้องฉันเด็กน้อยยังรอวันที่การศึกษาเข้ามาชโลมใจ"

(แสงตะเกียงปลายดอย: ภูมิมินท์ บึงชารี, 2564)

จากตัวอย่างข้างต้นคำนามนัยที่พบ คือ “เมืองตึกสูง” เป็นคำใช้เรียกลักษณะเมืองที่มีความเจริญก้าวหน้าและทันสมัย เนื้อหากล่าวถึงครูที่ออกจากเมืองเดินทางไปยังดอยที่ทุรกันดาร

“มีบางคำที่ยังค้างคาจากชายชราผู้เปลี่ยวเหงา วันเวลากำลังจะพรากเอา ตัวของเขา**<u>คืนสู่ดิน</u>**”

(หล่นหายระหว่างทาง: ภูมิมินท์ บึงชารี, 2565)

จากตัวอย่างข้างต้นคำนามนัยที่พบ คือ “คืนสู่ดิน” เป็นคำที่ใช้เรียกลักษณะ คือ ความตาย เพราะเมื่อเราตายก็จะกลับคืนสู่ธรรมชาติ จากเนื้อหาของเพลงเป็นการกล่าวถึง วันเวลากำลังจะผ่านพ้นไปและจะพาชายชราสู่ความตายที่ไม่อาจหนีได้

1.5 อติพจน์ (hyperbole) คือ การกล่าวเกินจริง ซึ่งเป็นความรู้สึกหรือความคิดของผู้กล่าว ที่ต้องการย้ำความหมายให้ฟังหนักแน่นจริงจัง ทั้งผู้กล่าวและผู้ฟังก็เข้าใจว่ามิใช่เป็นการกล่าวเท็จจากการศึกษาพบการใช้อติพจน์ ดังตัวอย่างต่อไปนี้

“ครั้งเมื่อเรามีกันข้างกาย ความไว้ใจมากมายเพียงนี้ เหมือนเวลาสั้นลงทุกที **<u>อยากให้มีวันหนึ่งสักล้านชั่วโมง</u>** ลมพัดมาเวลาเริ่มเปลี่ยนเรื่องราวก็ผิดเพี้ยนไปจากความเดิม”

(หากมีรัก: ภูมิมินท์ บึงชารี, 2565)

จากตัวอย่างข้างต้นเป็นการกล่าวเกินจริง คือ “อยากให้มีวันหนึ่งสักล้านชั่วโมง” เนื้อหาของเพลงเป็นการกล่าวถึงตอนที่ไม่มีคนที่รักอยู่ข้างกายแล้ว ทำได้เพียงคิดถึงเวลาที่เคยมีร่วมกันในตอนนั้น ทำให้อยากมีเวลาวันหนึ่งมีสักล้านชั่วโมง เพราะในความเป็นจริงแล้วเวลาในหนึ่งวันมีเพียง 24 ชั่วโมงเท่านั้น

“ทำไมในยามที่ฉันเริ่มรู้สึกตัวความตายคืบคลาน **<u>บริวารเป็นหมื่นแสนล้าน</u>**ไม่เจอสักคนหากเมื่อต้องลา”

(ผู้มีอิทธิพล: ภูมิมินท์ บึงชารี, 2566)

จากตัวอย่างข้างต้นเป็นอติพจน์การกล่าวเกินจริง คือ “บริวารเป็นหมื่นแสนล้าน” จากเนื้อหาของเพลงเป็นการกล่าวถึงว่าเมื่อความตายเข้ามาใกล้ตัว จะมีบริวารมากมายขนาดไหนแต่ก็ไม่มีใครสักคนที่อยู่ในช่วงเวลาที่ต้องการ จึงเป็นการกล่าวเกินจริงโดยเปรียบเทียบว่าเหมือนมีบริวารเป็นแสนหมื่นล้านคนก็ไม่มีความหมาย

1.6 บุคลาธิษฐาน (personification) คือ การสมมติให้สิ่งที่ไม่มีชีวิต ไม่มีมีความคิด สิ่งที่เป็นนามธรรม หรือสัตว์ให้มีสติปัญญาอารมณ์หรือกิริยาอาการเหมือนมนุษย์ จากการศึกษาพบการใช้บุคลาธิษฐาน ดังตัวอย่างต่อไปนี้

“แต่ถ้ามันเป็น**<u>ภูเขาที่คอยอุ้มชูพงศ์พันธ์</u>**หน้าหนาวมากมายต่อให้จะเสื่อมสลายก็จะกล้ำกลายมาเป็นปุ๋ยดิน”

(ผู้มีอิทธิพล: ภูมิมินท์ บึงชารี, 2566)

จากตัวอย่างข้างต้นเป็นบุคลาธิษฐาน คือ การกล่าวถึงภูเขา เป็นสิ่งที่ไม่มีชีวิต ให้มีกิริยาอาการเหมือนมนุษย์ โดยการใช้คำกริยาคำว่า อุ้มชู จากเนื้อหาของเพลงเป็นการกล่าวถึงบุคคลที่คอยดูแลคนอื่นแต่สุดท้ายเมื่อตายจากก็ต้องถูกลืม

“ไม่ใช่ฝนไม่ใช่ลำธารที่หล่อเลี้ยงความงามของเจ้า **<u>ดอกหญ้าไม่คิดบ้างเลยหรือเปล่า</u>** ว่าเจ้าสวยงามทุกวันนี้เพราะใคร”

(วัฏจักรความรู้สึก: ภูมิมินท์ บึงชารี, 2566)

จากตัวอย่างข้างต้นเป็นบุคลาธิษฐาน คือ การกล่าวถึงดอกหญ้าที่ไม่มีความคิด เป็นเพียงพืชชนิดหนึ่ง ซึ่งทำให้มีความรู้สึกนึกคิดเหมือนมนุษย์ จากเนื้อหาของเพลงเป็นการกล่าวถึงการถามคำถามต่ออีกฝ่าย ว่ารู้หรือเปล่าที่ได้สวยงามอยู่ทุกวันนี้เพราะใครที่คอยดูแล

1.7 คำถามเชิงวาทศิลป์ (Rhetorical question) คือ การตั้งคำถามแต่มิได้หวังคำตอบหรือถ้ามีคำตอบก็เป็นคำตอบที่ทั้งผู้ถามและผู้ตอบรู้ดีอยู่แล้ว จากการศึกษาพบการใช้คำถามเชิงวาทศิลป์ ดังตัวอย่างต่อไปนี้

> “นานวัน กว่าความรัก จะตกตะกอนเป็นความหวานฉ่ำ **<u>เธอคิดให้ดีหรือยัง</u>** ถ้าในสักวันต้องกลายเป็นคนแปลกหน้า”
>
> (อยากให้ลองฟัง: ภูมิมินท์ บึงชารี, 2565)

จากตัวอย่างข้างต้นเป็นคำถามเชิงวาทศิลป์ คือ การถามที่ไม่ต้องการคำตอบในประโยคที่ว่า “เธอคิดให้ดีหรือยัง” จากเนื้อของเพลงเป็นประโยคที่ทำให้ผู้ฟังลองคิดและไตร่ตรอง เพื่อปลุกความสงสัยและเน้นย้ำประโยคให้มีความน่าสนใจ เนื่องจากไม่มีคำตอบที่ชัดเจนสำหรับคำถามนี้

> “เวลาที่เหลือ คงมืดสนิท **<u>คงไม่อยากคิดจะทำสิ่งใด</u>** ฉันเลยปล่อยวาง
> ใครเข้าใครออก ก็ปล่อยให้เขานั้นได้เลือกเองที่เป็นแบบนี้”
>
> (ดอกไม้ที่ไร้กลิ่น: ภูมิมินท์ บึงชารี, 2566)

จากตัวอย่างข้างต้นเป็นคำถามเชิงวาทศิลป์ คือ การถามที่ไม่ต้องการคำตอบในประโยคที่ว่า “คงไม่อยากคิดจะทำสิ่งใด” จากเนื้อหาของเพลงเป็นการสื่อถึงการไม่อยากจะทำสิ่งใดเลย ซึ่งเป็นการเน้นย้ำประโยค เนื่องจากไม่จำเป็นต้องมีคำตอบสำหรับประโยคดังกล่าว

2. แนวคิดที่ปรากฏในบทเพลงของ ภูมิมินท์ บึงชารี

บทเพลงเป็นวรรณกรรมประเภทหนึ่งที่แฝงแนวคิดหรือข้อคิดคติเตือนใจต่าง ๆ ไปในเนื้อหาของเพลง ทำให้ผู้ฟังหรือผู้อ่านสามารถรับรู้ได้ว่าเนื้อเพลงมีแนวคิดที่เป็นประโยชน์อย่างไร แล้วจึงนำแนวคิดเหล่านั้นมาปรับใช้ในชีวิต และเพื่อรับรู้ว่าผู้แต่งต้องการให้แนวคิดกับผู้ฟังอย่างไร จากการศึกษาพบแนวคิด 6 ประเภท ได้แก่ การใช้ชีวิตให้ดีก่อนที่จะสายไป การให้ความสำคัญกับคนรอบตัว ความรัก ความพยายาม การพอใจในสิ่งที่ตนมี และการรักตัวเอง ดังรายละเอียดต่อไปนี้

2.1 การใช้ชีวิตให้ดีก่อนที่จะสายไป หมายถึง การทำในสิ่งต่าง ๆ ที่อยากทำโดยไม่ต้องรอคอยเวลาให้ผ่านไปอย่างสูญเปล่า จากการศึกษาพบแง่คิดเกี่ยวกับการใช้ชีวิตให้ดีก่อนที่จะสายไป ดังตัวอย่างต่อไปนี้

> “อยากจะย้อนกลับไปแก้ไข อยากกลับไปใช้ช่วงเวลาให้พอใจ
> เพราะถ้าฉันรู้แบบนี้ ก็คงไม่รอให้มันสาย ถ้าเกิดสุดท้ายต้องมา
> เสียดายคืนวัน ความฝันที่หลุดลอย เพราะฉันมัวคอยเวลาอยู่อย่างนั้น
> ในตอนนี้ที่ทำไว้คือหายใจเพื่อผ่านวัน ระลึกความฝันที่หล่นหาย”
>
> (หล่นหายระหว่างทาง: ภูมิมินท์ บึงชารี, 2565)

จากตัวอย่างข้างต้นเป็นการให้แนวคิดเกี่ยวกับการใช้ชีวิตให้ดีก่อนที่จะสายไป คือ อย่ารอให้วันเวลามันสายไป จนปล่อยให้ความฝันที่อยากทำหล่นหาย จากเนื้อหาของเพลงเป็นการกล่าวถึงคนหนึ่งที่เพิ่งจะนึกถึงความฝันในวันวานที่เขาไม่ได้ลงมือทำแต่ตอนนี้ เขาไม่มีแม้แต่แรงที่จะก้าวเดินเพื่อทำสิ่งเหล่านั้น ทำให้เขาคิดอยากจะย้อนเวลากลับไปทำในสิ่งที่ค้างคาใจ แต่ก็ทำได้เพียงระลึกถึงความฝันเท่านั้น

> “เพราะเราต่างล้วนอยากย้อนเวลากลับไปเริ่มใหม่ ไม่มีใครไหนอยากให้หัวใจเจ็บปวดสักคน แต่สุดท้ายก็ต้องจำนน นี่คือเหตุผลขอการเติบโต ถ้าย้อนเวลาไปได้ก็คง ไม่มีพรุ่งนี้ไว้รอใคร ไม่อาจหยุดยั้งให้เข็มเวลาไม่ผ่านพ้นไป ไม่อาจไขว่คว้าจะยื้อให้ใครอยู่เคียงข้างเรา ที่ผ่านมาแล้วขอให้แล้วไป ที่เคยหล่นหายล้วนเพียงส่วนนึง ถ้าเกิดว่าใจนั้นยังคิดถึงก็เก็บให้ลึกลงข้างใน”

(ไม่มีพรุ่งนี้ไว้รอใคร: ภูมิมินท์ บึงชารี, 2567)

จากตัวอย่างข้างต้น เป็นการให้แนวคิดเกี่ยวกับการใช้ชีวิตให้ดีก่อนที่จะสายไป คือ สิ่งที่ผ่านมาแล้วไม่สามารถที่จะย้อนกลับไปแก้ไขได้เพราะเวลามักเดินไปข้างหน้าเสมอ จากเนื้อหาของเพลงเป็นการกล่าวถึงว่า เราทุกคนล้วนอยากย้อนเวลากลับไปแก้ไขเรื่องราวต่าง ๆ แต่สุดท้ายก็ต้องยอมจำนนต่อเวลา ทำได้เพียงทำเรื่องราววันนี้ให้ดีที่สุดเพื่อการเติบโตของตนเองและเก็บเรื่องราวที่เคยผิดพลาดไว้ในใจ

2.2 การให้ความสำคัญกับคนรอบตัว คือ คนที่อยู่ใกล้ตัวเราที่สุดและคอยช่วยเหลือเรามากที่สุดแต่เรามักมองข้ามคนที่อยู่ใกล้ตัวที่สุดมักเป็นสิ่งที่ไม่สำคัญที่สุด สิ่งที่เราเห็นอยู่ทุกวันจนเราละเลยและมองข้ามความสำคัญของคนเหล่านี้ไป จากการศึกษาพบแนวคิดการให้ความสำคัญกับคนรอบตัวดังตัวอย่างต่อไปนี้

> “ไม่อยากจากไปทั้งที่ใจยังโหยหา ตะวันสิ้นแสงฉันคงต้องลา อย่างไม่เสียน้ำตาสักเพียงนิดเดียว การเดินทางทุกช่วงชีวิต จะคิดเพียงแค่ไปให้ถึงแค่นั้น จนบางครั้งเผลอลืมคะนึง คนที่ซึ่งอยู่เคียงข้างกายเพราะว่ามีความรักย่อมดีกว่าชัง มีความหวังย่อมดีกว่าไร้ มีความรู้สึกย่อมดีกว่าไม่ เพราะถ้าจากไปก็ไร้ตัวตนตลอดการ”

(บันทึกชีวิตในสมุดสีดำ: ภูมิมินท์ บึงชารี, 2565)

จากตัวอย่างข้างต้นเป็นการให้แง่คิดเกี่ยวกับการให้ความสำคัญกับคนรอบตัว คือ การใช้ชีวิตจนลืมนึกถึงคนที่อยู่ข้างกาย จากเนื้อหาของเพลงเป็นการกล่าวถึงการนึกถึงคนข้างกาย ให้ความสำคัญกับคนรอบตัวไว้ดีกว่าไม่มีใครให้เรานึกถึงหรือคอยเป็นห่วง เพราะถ้าเราจากไปก็จะไม่มีความหมายต่อคนรอบข้างหรือความทรงจำที่ดีต่อกันเลย

> “และบทเพลงนี้ถึงเธอผู้อยู่แสนไกล ทั้งจากกันไปด้วยตายหรือว่ายังมีชีวิต ขอให้จงโปรดรู้ว่าอยู่ตรงนี้เหงาเกินกว่าคิด ผู้อยู่ทางนั้นมีไหมสักนิดที่คิดถึงกัน ขอโทษบางครั้งถ้าฉันนั้นอาจหลงลืม ขอโทษที่คิดว่าเธอจะยืนที่เดิม ต่อให้เราได้พบคนทั้งหลายก็ไม่ลืม หรือต่อให้มีวันคืนได้เรียนรู้ผู้คนมากมาย แต่ที่ครั้งนึงเสียไปไม่มีสิ่งไหนเข้ามาทดแทนจากด้วยความที่คิดว่าเธอจะยืนอยู่ที่เดิม”

(สุดจะเกินใจ: ภูมิมินท์ บึงชารี, 2566)

จากตัวอย่างข้างต้นเป็นการให้แนวคิดเกี่ยวกับการให้ความสำคัญกับคนรอบตัว คือ อย่าคิดว่าจะมีคนรอบตัวอยู่ข้างกายไปตลอดชีวิต จากเนื้อหาของเพลงเป็นการกล่าวถึงคนที่อยู่แสนไกล ทั้งจากกันทั้งที่ยังมีชีวิตหรือจากกันไปด้วยความตายมาพรากไป อยากให้คนที่อยู่ไกลได้รู้ว่ายังคิดถึงและห่วงใยเพราะในตอนที่ยังอยู่ด้วยกันนั้น อาจหลงลืมหรือละเลยกันไป

2.3 ความรัก หมายถึง ความรู้สึกสภาพทางอารมณ์และเจตคติต่าง ๆ ซึ่งอาจมีตั้งแต่ความพอใจทั่วไปจนถึงความดึงดูดระหว่างบุคคล อีกทั้งความรักยังสามารถหมายถึงความต้องการความสัมพันธ์ทางเพศจากการศึกษาพบแง่เกี่ยวกับความรัก ดังตัวอย่างต่อไปนี้

> “ฉันเขียนบทเพลงนี้ให้ความรักที่มันกำลังจะจบ ให้ลองได้ทบทวนถึงความสัมพันธ์ที่มันกำลังจะขาด นานวัน กว่าความรักจะตกตะกอนเป็นความหวานฉ่ำ เธอคิดให้ดีหรือยังถ้าในสักวันต้องกลายเป็นคนแปลกหน้า ฉันแค่เป็นห่วงเพราะฉันนั้นรัก ฉันเลยอยากมาเตือนก็แค่นั้น คิดดูให้ดีกว่าจะพบกันกว่าจะรักกันมันไม่ใช่เรื่องง่าย”
>
> (อยากให้ลองฟัง: ภูมิมินท์ บึงชารี,2565)

จากตัวอย่างข้างต้นเป็นการให้แนวคิดเกี่ยวกับความรัก คือ การทบทวนเรื่องราวความรักให้ดีก่อนที่จะต้องเลิกกัน จากเนื้อหาของเพลงเป็นการกล่าวถึงความรักนั้นไม่ได้มีแค่เรื่องที่แย่ ก่อนที่จะเลิกรากันไปอยากให้ลองทบทวนถึงเรื่องราวความรักที่เคยมีต่อกันว่ามีความสุขเพียงใด กว่าความรักจะก่อตัวขึ้นมาในใจต้องใช้เวลาเท่าไหร่ กว่าจะได้พบกันหรือรักกันไม่ใช่เรื่องที่ง่าย

> “เหมือนว่ายังวนเวียนเป็นส่วนหนึ่งอยู่ในชีวิต เหมือนไม่มีสิ่งใด จะหลุดลอยจากใจไปได้ และเหมือนบางคนไม่เคย ที่จะเลือนจากใจไปไหน แค่เพียงย้ายจากข้างๆ กาย สู่ความทรงจำ เมื่อที่ครั้งได้พบ ยินดีที่ได้รู้จัก และเมื่อยามหมดรักจากกันก็ยังยินดี เพราะถ้าความรักมันก่อตัว ต่อให้อีกคนหลุดลอยไปไหน แต่ความหมายทุกๆ เรื่องราวไม่ลบเลือนลาง”
>
> (ตกตะกอน: ภูมิมินท์ บึงชารี, 2566)

จากตัวอย่างข้างต้นเป็นการให้แนวคิดเกี่ยวกับความรัก คือ การยินดีที่ได้พบและได้รักใครสักคนถึงแม้จะหมดรักกัน จากเนื้อหาของเพลงเป็นการกล่าวถึงช่วงชีวิตที่ได้พบเจอกับความรักที่ดี การได้พบเจอกับบางคนที่เข้ามาเป็นความทรงจำที่ดีในชีวิต เราควรจะยินดีที่ได้พบเจอถึงแม้ต้องจากกัน เพราะเป็นความรักที่ได้ก่อตัวขึ้นมาภายในใจที่สวยงาม

2.4 ความพยายาม หมายถึง การลงมือทำสิ่งต่าง ๆ อย่างเต็มที่โดยไม่ย่อท้อต่ออุปสรรคหรือปัญหาเพื่อเป้าหมายและความสำเร็จ จากการศึกษาพบแนวคิดเกี่ยวกับการความพยายาม ดังตัวอย่างต่อไปนี้

> “เพื่อคนข้างหลังมากมาย เฝ้ารอจุดหมายถึงความมุ่งมั่น เจตนารมณ์ที่กว้างไกล บวกเข้ากับใจที่มั่นคง จะเอาชนะคลื่นและลม ไม่เคยจะสนแม้ทางจะไกล เปรียบเรือลำน้อยแค่เศษไม้ เทียบกับทะเลกว้างไกลไพศาล แต่สุดท้ายยังไงก็ตาม ฉันจะแบกฝันผู้คนในเรือให้ไปถึง”
>
> (เรือน้อยผู้ยิ่งใหญ่: ภูมิมินท์ บึงชารี, 2564)

จากตัวอย่างข้างต้นเป็นการให้แนวคิดเกี่ยวกับความพยายาม คือ ความพยายามเพื่อทำตามความฝันและเพื่อคนที่อยู่ข้างหลัง จากเนื้อหาของเพลงเป็นการกล่าวถึงการพยายามฟันฝ่าอุปสรรคต่าง ๆ เพื่อความหวังของคนข้างหลังที่เปรียบเหมือนตนนั้น เป็นเรือน้อยมีความมุ่งมั่นที่จะเอาชนะคลื่นลมต่าง ๆ เพื่อส่งคนในเรือให้ถึงฝั่งได้อย่างปลอดภัย

> “บทเพลงนี้ที่ฉันเขียน เขียนแทนการให้กำลังใจ ให้เธอเก็บเอาไว้ เอาไว้ฟังตอนที่เธอเหนื่อยล้า หากท้องฟ้ามันไม่เป็นดั่งใจ มองไปบนนั้นมีเมฆปกคลุม อย่าคิดมากเลยคุณ ท้องฟ้าวันพรุ่งอาจแปรเป็นอื่น ใช่ว่าชีวิตจะต้องเป็นแบบนี้ ทุกๆนาทีย่อมมีการเปลี่ยนแปลง สุดขอบฟ้าดวงดาวไร้แสง พรุ่งนี้มะรืนอาจคืนความงาม”
>
> (ท้องฟ้าต่างกันฉันใด: ภูมิมินท์ บึงชารี, 2566)

จากตัวอย่างข้างต้นเป็นการให้แนวคิดเกี่ยวกับความพยายาม คือ การให้กำลังใจในความพยายามเมื่อหลาย ๆ อย่างไม่เป็นดั่งใจที่หวัง จากเนื้อหาของเพลงเป็นการกล่าวถึงการให้กำลังใจผ่านบทเพลงเมื่อต้องเจอกับวันที่เหนื่อยล้า หรือเจอกับหลายอย่างที่ไม่ได้เป็นไปตามที่หวัง แต่สุดท้ายแล้วทุกอย่างก็จะผ่านไปเพราะชีวิตใช่ว่าจะเจอกับปัญหาอยู่ตลอดเวลา พรุ่งนี้อาจจะดีกว่าเมื่อวาน

2.5 การพอใจในสิ่งที่ตนมี คือ พอใจในสิ่งที่มีแปลว่าได้เท่าไรก็พอใจ แม้คนอื่นจะได้มากกว่าก็ไม่เป็นทุกข์ ไม่โลภมากและไม่เอาตัวเองเข้าไปเปรียบเทียบกับใคร จากการศึกษาพบแนวคิดเกี่ยวกับการพอใจในสิ่งที่ตนมี ดังตัวอย่างต่อไปนี้

> “คุณค่าของแต่ละอย่างอยู่ที่การให้ค่าของคน อย่างดอกไม้ข้างทางถนน หากมองจากคนที่ชอบก็ว่าสวย ชีวิตของคุณก็ด้วยจะดูสดสวยเมื่อคนมองมา บางครั้งก็ดูไร้ค่าถ้าที่แห่งนั้นไม่ควรคู่เรา ก่อนเคยคิดว่าตัวเอง ไม่ได้เลิศหรูสมบูรณ์เหมือนใครใคร แต่มาวันนี้ก็เพิ่งเข้าใจไม่มีใครไหนจะถูกใจคนทั้งโลก อย่างดอกไม้ที่ราคาแพงก็เหี่ยวเฉาถูกแมลงกัดกินได้เหมือนกัน หรือเป็นดอกไม้อยู่บนภูเขาสูงชันพอผ่านนานวันก็ร่วงโรยลงสู่พื้น”
>
> (ใครงามเลิศในปฐพี: ภูมิมินท์ บึงชารี และศิวรินทร์ พูลวงษ์, 2564)

จากตัวอย่างข้างต้นเป็นการให้แนวคิดเกี่ยวกับการพอใจในสิ่งที่ตนมี คือ คำว่าดีที่สุดแต่ละคนไม่เท่ากัน และความสวยแต่ละคนก็ไม่เหมือนกัน แต่ละคนมีความสวยและความสมบูรณ์ในแบบของตัวเอง จากเนื้อหาของเพลงเป็นการกล่าวถึง คุณค่าของแต่ละอย่างอยู่ที่คนๆนั้นจะให้ค่าอย่างไร บางคนแค่ดอกไม้ข้างถนนก็มีค่า ฉะนั้นแล้วความสมบูรณ์แบบและความงามแต่ละคนนั้นย่อมไม่เหมือนกัน เพราะแต่ละคนย่อมมีคุณค่าในแบบของตัวเอง

> “เราต่างเกิดมาเพื่อมีเวลาที่ไม่สมดุล บางคนเกิดมาก็มีต้นทุนที่วางอยู่รายล้อม บางคนเกิดมาบนความไม่พร้อม แต่เราทั้งหลายต่างก็ต้องยอม ต้องยอมรับว่าที่เรามีไม่ได้ต่างอะไรกับใครสักคน คือจิตใจของเราที่ใช้เก็บเกี่ยวความสำคัญ เก็บบันทึกความงดงามในช่วงที่อยู่บนเส้นทาง รักษามันให้ดีอย่าเก็บมาคิดจนใจบอบช้ำ ปรารถนาถึงการที่เราเกิดมาอย่างพึงพอใจ มีแค่ไหนไปแค่นั้นอย่างคอยระวัง”
>
> (สุดทาง: ภูมิมินท์ บึงชารี, 2566)

จากตัวอย่างข้างต้นเป็นการให้แนวคิดเกี่ยวกับการพอใจในสิ่งที่ตนมี คือ การพอใจในสิ่งตนมีและไม่เอาตัวเองไปเปรียบเทียบกับใคร จากเนื้อหาของเพลงเป็นการกล่าวถึงว่าคนเรานั้นต่างเกิดมาไม่สมดุลกัน บางคนเกิดมามีต้นทุนที่ดีบางคนเกิดมาต้องดิ้นรนหลายอย่าง แต่เราทุกคนต้องยอมรับว่าเราก็ไม่ต่างอะไรกับทุกคน คือ มีจิตใจเหมือนกันแค่เราเกิดมาและพึงพอใจในสิ่งที่เรามีก็เพียงพอ

2.6 การรักตัวเอง หมายถึง การเมตตากรุณาต่อตนเอง การยอมรับนับถือตัวเอง เห็นความสำคัญของตัวเองและเอาใจใส่ดูแลความเป็นอยู่ของเราในทุก ๆ การเติบโตในชีวิตจากการศึกษาพบแนวคิดเกี่ยวกับการรักตัวเอง ดังตัวอย่างต่อไปนี้

> “ถ้าตัวเธอนั้นถ้ารักตัวเองมากกว่านี้ วันนึงจะรู้ว่ารักที่ดีเป็นอย่างไร รักที่มันสมบูรณ์คือการที่รักใคร แล้วรับรู้ว่าไม่ได้รักเขาฝ่ายเดียว ถ้าตัวเธอนั้นห่วงใยตัวเองมากกว่านี้ วันนึงจะรู้สถานที่ดีเป็นอย่างไร สถานที่ดีก็คือที่ที่มันสุขใจ ไม่ต้องพยายามเพื่อที่เข้าไปเป็นส่วนเกิน”
>
> (เราไม่ใช่ส่วนเกิน: ภูมิมินท์ บึงชารี, 2567)

จากตัวอย่างข้างต้นเป็นการให้แนวคิดเกี่ยวกับการรักตัวเอง คือ การไม่เอาตัวเองเข้าไปในอยู่ในจุดที่ไม่ใช่ที่ของเรา เพราะถ้าเรารักตัวเองมากพอจะรู้ว่าที่แห่งใดที่จะคู่ควรกับเรา จากเนื้อหาของเพลงเป็นการกล่าวถึง การไม่ยัดเยียดตัวเองเข้าไปเป็นความสุขใครถ้าเขาไม่ได้ต้องการ ไม่ต้องพยายามจะเป็นส่วนหนึ่งของสังคมไหนที่พยายามไล่เราออกมา เมื่อไหร่ที่เรารักตัวเองมากพอเราก็ไม่จำเป็นต้องเรียกร้องอะไรจากคนอื่นและสามารถพาตัวไปในสถานที่ที่มีความสุขได้ โดยไม่ต้องพึ่งพาใคร

สรุปและอภิปรายผล

จากการศึกษาการใช้ภาพพจน์และแนวคิดที่ปรากฏในบทเพลงของ ภูมิมินท์ บึงชารี สามารถสรุปและอภิปรายผล ได้ดังต่อไปนี้

ภาพพจน์ที่ปรากฏในบทเพลงของภูมิมินท์ บึงชารี ปรากฏดังนี้ จากการศึกษาบทเพลง จำนวน 38 เพลง พบการใช้ภาพพจน์ทั้งสิ้น 7 ประเภท พบการใช้อุปลักษณ์มากที่สุด จำนวน 22 เพลง รองลงมา คือ คำถามเชิงวาทศิลป์ จำนวน 12 เพลง อุปมา จำนวน 8 เพลง อติพจน์และนามนัย จำนวน 7 เพลง สัญลักษณ์ จำนวน 6 เพลง และบุคลาธิษฐาน จำนวน 4 เพลง ตามลำดับ

แนวคิดที่ปรากฏในบทเพลงของภูมิมินท์ บึงชารี ปรากฏดังนี้ จากการศึกษาบทเพลง จำนวน 38 เพลง พบแนวคิด 6 ประเภท ได้แก่ แนวคิดเกี่ยวกับความรักมากที่สุด จำนวน 16 เพลง รองลงมา คือ แนวคิดเกี่ยวกับการให้ความสำคัญกับคนรอบตัว จำนวน 9 เพลง แนวคิดเกี่ยวกับการใช้ชีวิตให้ดีก่อนที่จะสายไป จำนวน 6 เพลง แนวคิดเกี่ยวกับความพยายาม จำนวน 4 เพลง แนวคิดเกี่ยวกับการพอใจในสิ่งที่ตนมี จำนวน 2 เพลง และแนวคิดเกี่ยวกับการรักตัวเอง จำนวน 1 เพลง ตามลำดับ

จากการศึกษาครั้งนี้ ผู้วิจัยพบว่าการใช้ภาษาที่ปรากฏในบทเพลงของภูมิมินท์ บึงชารี สามารถสะท้อนให้เห็นถึงการนำเสนอภาษาที่สวยงามของเพลงผ่านเรื่องราวที่ต้องการนำเสนอ โดยการใช้ภาพพจน์ในรูปแบบต่าง ๆ ซึ่งทำให้เพลงเกิดความไพเราะและเกิดความน่าสนใจ อีกทั้งยังแสดงให้เห็นถึงความรู้สึก อารมณ์รวมถึงจินตนาการ สามารถก่อให้เกิดอารมณ์สะเทือนใจกับเพลงนั้น ๆ โดยประเด็นที่พบมากที่สุด คือ อุปลักษณ์ รองลงมา คือ คำถามเชิงวาทศิลป์ ซึ่งการใช้ภาพพจน์สอดคล้องกับงานวิจัยของชูวงศ์ กลิ่นเขา (2548) ที่ศึกษาเรื่อง “การศึกษาวิเคราะห์คุณค่าของวรรณกรรมเพลงรำวง” โดยพบการวิเคราะห์ภาพพจน์ ที่สอดคล้องกันดังนี้ อุปมา อุปลักษณ์ บุคลาธิษฐาน สัญลักษณ์ อติพจน์ และยังสอดคล้องกับงานวิจัยของ ชิดชนก ผลาผล (2561) ที่ศึกษาเรื่อง “คุณค่าที่ปรากฏในบทเพลงของก้อง ห้วยไร่” โดยพบคุณค่าด้านศิลปะการใช้ภาษา ที่สอดคล้องกันดังนี้ นามนัย บุคลาธิษฐาน ปฏิพจน์ อติพจน์ อุปลักษณ์ และอุปมา แสดงให้เห็นว่าบทเพลงนั้นมีกลวิธีการใช้ภาษาในการแต่งเพลงที่สละสลวย มีการเรียบเรียงหรือเรียงร้อยถ้อยคำของผู้แต่งอย่างประณีต แต่ละถ้อยคำย่อมต้องผ่านการคิดและ

ไตร่ตรอง ถึงสิ่งที่ต้องการจะสื่อถึงผู้ฟังอย่างถี่ถ้วน ทำให้เห็นถึงความตั้งใจและเอาใจใส่ของผู้แต่ง ดังนั้น ผู้ฟังจึงเข้าถึงบทเพลงนั้น ๆ ได้อย่างลึกซึ้ง

ต่อมาคือ การศึกษาแนวคิดที่ปรากฏในบทเพลงของ ภูมิมินท์ บึงชารี ผู้วิจัยพบว่า ผู้แต่งเพลงมักจะมีการนำเรื่องราวที่เกิดขึ้นในชีวิตที่ได้พบเจอมาแต่งเป็นเนื้อหา มีเอกลักษณ์ของเนื้อหาที่โดดเด่น และบอกเล่าความเป็นตัวเองสูง ทั้งเรื่องราวของความรัก การพบเจอและการจากลารวมไปถึงความสุขและความทุกข์ในชีวิต อีกทั้งยังมีเนื้อหาการให้กำลังใจและการรักตัวเองอีกด้วย ซึ่งประเด็นที่พบมากที่สุด คือ แนวคิดเกี่ยวกับความรัก ผลการวิจัยดังกล่าวสอดคล้องกับงานวิจัยของ ธงชัย บุญนำสุขสกุล (2564) ที่ศึกษาเรื่อง “บทเพลงวงบอดี้สแลม : คุณค่าและความคิดเห็นของผู้ฟังเกี่ยวกับผลกระทบของบทเพลงต่อพฤติกรรมของตน” โดยพบเนื้อหาที่สอดคล้องกัน คือ คุณค่าด้านการให้แนวคิด แสดงให้เห็นว่าผู้แต่งให้ความสำคัญกับเนื้อหาของบทเพลงเป็นอย่างดี และเพื่อให้ผู้ฟังได้ประโยชน์จากการฟัง เพราะเพลงถือเป็นวรรณกรรมหนึ่งที่เข้าถึงง่าย ไม่จำกัดอายุ เพศ หรือสถานะทางสังคม

บทเพลงที่จะได้รับความนิยมหรือมีคุณค่านั้น จำเป็นต้องใช้ภาพพจน์เพื่อให้มีภาษาที่สละสลวยและมีการสอดแทรกข้อคิดคติเตือนใจต่อผู้ฟังเพื่อให้เกิดประโยชน์ ดังนั้นจึงสรุปได้ว่าบทเพลงของภูมิมินท์ที่ได้รับความนิยมนั้น เกิดจากความตั้งใจและความสามารถในการเลือกใช้ภาษาและเนื้อหาในการแต่ง จึงนับได้ว่าเป็นบทเพลงเป็นรูปแบบวรรณกรรมประเภทหนึ่ง ที่ควรค่าแก่การศึกษาและทำความเข้าใจ พร้อมทั้งมีประเด็นต่างๆ มากมายไว้เป็นประโยชน์ให้ศึกษาต่อไป

ข้อเสนอแนะ

1. ควรจะศึกษาการใช้ภาพพจน์ที่ปรากฏในบทเพลงของศิลปินอินดี้ท่านอื่น ๆ ที่เป็นที่ยอมรับและได้รับความนิยมในปัจจุบัน

2. ควรจะศึกษาการให้แง่คิดในบทเพลงของศิลปินอินดี้ท่านอื่น ๆ เพื่อเปรียบเทียบให้เห็นถึงความหลากหลายด้านกลวิธีการนำเสนอแนวคิด

เอกสารอ้างอิง

กุหลาบ มัลลิกะมาส. (2546). วรรณคดีวิจารณ์. พิมพ์ครั้งที่ 11. กรุงเทพฯ: รามคำแหง.

ชิดชนก ผลาผล. (2561). คุณค่าที่ปรากฏในบทเพลงของก้อง ห้วยไร่. มหาวิทยาลัยราชภัฏสวนสุนันทา.

ชูวงศ์ กลิ่นเขา (2548). การศึกษาวิเคราะห์คุณค่าของวรรณกรรมเพลงรำวง. วิทยานิพนธ์. มหาวิทยาลัยธรรมศาสตร์.

ธงชัย บุญนำสุขสกุล (2564)). บทเพลงวงบอดี้สแลม : คุณค่าและความคิดเห็นของผู้ฟัง เกี่ยวกับผลกระทบของบทเพลงต่อพฤติกรรมของตน. ปริญญามหาบัณฑิตภาควิชาภาษาไทย บัณฑิตวิทยาลัย. มหาวิทยาลัยศิลปากร.

ธัญญา สังขพันธานนท์. (2539). วรรณกรรมวิจารณ์. ปทุมธานี : นาคร.

บุญยงค์ เกศเทศ. (2525). วรรณกรรมวิเคราะห์. กรุงเทพฯ : โอเดียนสโตร์.

บุญยงค์ เกศเทศ. (2536). แลลอดวรรณกรรม. กรุงเทพฯ : โอเดียนสโตร์.

ภูมิมินท์ บึงชารี. (2564). ช่อง Phumin [Official]. สืบค้นเมื่อวันที่ 14 มีนาคม 2568 จาก https://www.youtube.com/channel/UCTu7lRr5SVFHOtHUrmWnlOQ.

ภูมิมินท์ บึงชารี. (2565). ช่อง Phumin [Official]. สืบค้นเมื่อวันที่ 14 มีนาคม 2568 จาก https://www.youtube.com/channel/UCTu7lRr5SVFHOtHUrmWnlOQ

ภูมิมินท์ บึงชารี. (2566). ช่อง Phumin [Official]. สืบค้นเมื่อวันที่ 14 มีนาคม 2568 จาก https://www.youtube.com/channel/UCTu7lRr5SVFHOtHUrmWnlOQ

ภูมิมินท์ บึงชารี. (2567). ช่อง Phumin [Official]. สืบค้นเมื่อวันที่ 14 มีนาคม 2568 จาก https://www.youtube.com/channel/UCTu7lRr5SVFHOtHUrmWnlOQ

ราชบัณฑิตยสถาน. (2554). พจนานุกรมฉบับราชบัณฑิตยสถาน พ.ศ. 2554. กรุงเทพฯ : นานมีบุ๊คส์พับลิเคชั่นส์.

ศกุนตลา กะราลัย. (2549). การศึกษาเชิงวิเคราะห์การใช้โวหารภาพพจน์ที่ปรากฏในวรรณกรรมเพลงไทยลูกทุ่ง ศึกษาเฉพาะกรณีของราชินีลูกทุ่ง พุ่มพวง ดวงจันทร์. กรุงเทพฯ : มหาวิทยาลัยเกษตรศาสตร์.

ศิวรินทร์ พูลวงษ์. (2564). ช่อง Phumin [Official]. สืบค้นเมื่อวันที่ 14 มีนาคม 2568 จาก https://www.youtube.com/channel/UCTu7lRr5SVFHOtHUrmWnlOQ

สินศักดิ์ ไตรสารศรี. (2538). เพลงเพื่อชีวิต: ภาพสะท้อนการเปลี่ยนแปลงด้านเศรษฐกิจและการเมืองไทย. กรุงเทพฯ: สถาบันบัณฑิตพัฒนบริหารศาสตร์.

สุจิตรา จงสถิตย์วัฒนา. (2548). เจิมจันทร์กังสดาล ภาษาวรรณศิลป์ในวรรณคดีไทย (พิมพ์ครั้งที่2). กรุงเทพฯ: โครงการเผยแพร่ผลงานวิชาการ คณะอักษรศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย.

อิราวดี ไตลังคะ. (2543). ศาสตร์และศิลป์แห่งการเล่าเรื่อง. กรุงเทพฯ : สำนักพิมพ์มหาวิทยาลัยเกษตรศาสตร์.

Icon Collective. (2568). บทความดนตรีออนไลน์. สืบค้นเมื่อวันที่ 14 มีนาคม 2568 จาก https://www.iconcollective.edu.

กลวิธีทางภาษาในการพาดหัวข่าวที่ปรากฏในเฟซบุ๊กแฟนเพจนำเสนอข่าวออนไลน์
A Study of Linguistic Strategies in News Headlines on Facebook Fan Pages of Online News Media

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บทคัดย่อ

บทความนี้มีวัตถุประสงค์เพื่อศึกษากลวิธีทางภาษาในการพาดหัวข่าวที่ปรากฏในเฟซบุ๊กแฟนเพจนำเสนอข่าวออนไลน์ โดยรวบรวมข้อมูลตัวอย่างพาดหัวข่าวที่ปรากฏในเฟซบุ๊กเพจนำเสนอข่าวออนไลน์จำนวน 10 เว็บเพจ ที่มีจำนวนผู้ติดตามและมีจำนวนการกดถูกใจ ตั้งแต่ 1 ล้านคนขึ้นไป ซึ่งแนวคิดที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ แนวคิดที่เกี่ยวข้องกับการพาดหัวข่าว กลวิธีการสื่อความหมาย และแนวคิดในการนำเสนอข่าว ผลการศึกษาวิเคราะห์พาดหัวข่าว จำนวน 400 การพาดหัว พบกลวิธีทางภาษาในการพาดหัวข่าว 15 กลวิธี ได้แก่ 1. การพาดหัวข่าวโดยใช้คำเร้าอารมณ์ความรู้สึก 2. การพาดหัวข่าวโดยใช้คำเรียกสมญานาม 3. การพาดหัวข่าวโดยใช้คำทับศัพท์และภาษาต่างประเทศ 4. การพาดหัวข่าวโดยใช้คำเรียกอาชีพ 5. การพาดหัวข่าวโดยใช้คำสแลง 6. การพาดหัวข่าวโดยใช้คำแทนสถานภาพ 7. การพาดหัวข่าวโดยใช้คำถาม 8. การพาดหัวข่าวโดยใช้คำเฉพาะกลุ่ม 9. การพาดหัวข่าวโดยใช้อักษรย่อหรือคำย่อ 10. การพาดหัวข่าวโดยใช้คำอ้างอิงตัวเลข 11. การพาดหัวข่าวโดยใช้การระบุคำเรียกเพศ 12. การพาดหัวข่าวโดยใช้คำเรียกชื่อหน่วยงาน 13. การพาดหัวข่าวโดยการละข้อมูลบางส่วน 14. การพาดหัวข่าวโดยอาศัยการตีความ และ 15. การพาดหัวข่าวโดยใช้ถ้อยคำเปรียบเทียบ จะเห็นได้ว่ากลวิธีทางภาษาในการพาดหัวข่าวที่ปรากฏในเฟซบุ๊กแฟนเพจนำเสนอข่าวออนไลน์ที่ผู้วิจัยศึกษามีหลากหลาย เนื่องจากเนื้อหาข่าวที่นำเสนอในช่วงระยะเวลานั้นมีเหตุการณ์ต่าง ๆ เกิดขึ้นมากมาย ทั้งด้านการเมือง เศรษฐกิจ สังคมวัฒนธรรม ความบันเทิง รวมทั้งข่าวภัยพิบัติทางธรรมชาติทั้งในประเทศและต่างประเทศ ซึ่งความหลากหลายของเนื้อหาทำให้ผลการศึกษามีความน่าสนใจและทันสมัยกับสถานการณ์ในปัจจุบัน

คำสำคัญ: กลวิธีทางภาษา, พาดหัวข่าว, เฟซบุ๊กแฟนเพจ, การสื่อความหมาย, รูปแบบการนำเสนอเนื้อหาข่าว

Abstract

The purpose of this paper is to study the language method of headlines appearing on Facebook fan pages. By collecting the sample data of headlines appearing on Facebook fan pages, the news of 10 web pages is presented online. The number of followers is more than 1 million. The ideas adopted in data analysis include concepts related to headlines, media methods, semantics theory, and news presentation ideas. Results: 400 titles were analyzed and the language presentation methods of 15 titles were found. 1. News headlines use emotional words. 2. News headlines use three quotation marks. 3. News headlines use syllables and foreign languages. 4. News headlines use occupation. 5. The use of slang in news headline writing. 6. News headline usage status. 7. Headline construction using questions. 8. Headline construction using group-specific terminology. 9. Headline construction using acronyms or abbreviations. 10. Headline construction using numerical references. 11. Headline construction using gender references. 12. Headline construction using the reference to organizational names. 13. The use of partial information in news headlines. 14. News headlines based on interpretation. 15. The news title adopts comparative wording, shows that the language strategy and content presentation model of news headlines appearing on Facebook fan pages present the diversity of online news studied by researchers. Because the news content presented in this period involves politics, economy, society, culture, entertainment and natural disaster news at home and abroad, the diversity of content makes the research results attractive and modern to the current situation.

Keywords: Linguistic strategies, News Headline, Facebook Fanpage, Semantic Communication, Presentation formats of news content

บทนำ

ปัจจุบันสังคมมีการเปลี่ยนแปลงอยู่ตลอดเวลา เทคโนโลยีการติดต่อสื่อสารและการแลกเปลี่ยนข้อมูลข่าวสารก็มีการเปลี่ยนแปลงพัฒนาและก้าวหน้าเช่นเดียวกัน ทำให้เกิดเป็นพื้นที่สาธารณะออนไลน์ในการแสดงความคิดเห็นผ่านสื่อออนไลน์ มีการนำเสนอข้อมูลข่าวสารต่าง ๆ ผ่านช่องทางการสื่อสาร แต่ละประเภทตามความต้องการของผู้ใช้ ผู้วิจัยสังเกตเห็นว่า มีผู้ใช้ไม่น้อยที่เลือกใช้ช่องทางการสื่อสารผ่านทางเฟซบุ๊ก เนื่องจากเป็นสื่อออนไลน์ที่มีผู้ใช้เป็นจำนวนมาก รายงานจาก We Are Social และ Hootsuite ที่เผยแพร่ในปี 2564 ระบุว่า ไทยมีผู้ใช้งานเฟซบุ๊กประมาณ 51 ล้านคน เพิ่มขึ้นกว่า 8.5% ในปี 2564 จากสถิติปี 2563 ซึ่งมียอดผู้ใช้งานประมาณ 47 ล้านคน (Dataxet InfoQuest, 2565) ซึ่งจะเห็นว่าจำนวนผู้ใช้เฟซบุ๊กเพิ่มขึ้นเรื่อย ๆ ตามลำดับ และในส่วนของสถานีโทรทัศน์มักนิยมใช้เฟซบุ๊กไลฟ์ (Facebook Live) ออกอากาศรายการของสถานีควบคู่ไปกับทางโทรทัศน์ด้วยเช่นกัน เช่น รายการโหนกระแส ซึ่งเชิญแขกมาไลฟ์ประเด็นที่สังคมให้ความสนใจจนทำให้จำนวนการรับชมเพิ่มขึ้น ตามลำดับ หรือจะเป็นช่องอื่น ๆ ที่มีการถ่ายทอดสดบ่อยครั้งกว่า เช่น Amarin TV HD, ช่อง One31 และ Workpoint นอกจากนี้การนำเสนอข่าวผ่านคลิปวิดีโอก็ยังถูกนำมาใช้งานอยู่เช่นกัน โดย Facebook

Journalism Project ได้ลงบทความเกี่ยวกับ Facebook Page ของข่าวสด (Khaosod – ข่าวสด) ซึ่งยกให้เป็นตัวอย่างความสำเร็จของการเผยแพร่วิดีโอที่สามารถสร้างการมีส่วนร่วมของผู้รับชม ผู้ใช้จึงมีตัวเลือกในการติดตามข่าวได้หลากหลาย ซึ่งประกอบไปด้วยกลุ่มคนที่ชื่นชอบด้านต่าง ๆ ไม่ว่าจะเป็นการเมือง การศึกษา กีฬา เศรษฐกิจ สังคมวัฒนธรรม เรื่องบันเทิง หรือชื่นชอบข่าวสารบ้านเมืองที่ทันต่อกระแสสังคมในปัจจุบัน เฟซบุ๊กจึงเป็นเหมือนสำนักข่าวที่รายงานข่าวประเด็นร้อนที่กำลังเป็นที่พูดถึงอยู่และจะถูกอัปเดต (เคลื่อนไหว) อย่างต่อเนื่อง ผู้ใช้เฟซบุ๊กจึงต้องติดตามข่าวสารดังกล่าวผ่านทางเพจต่าง ๆ และที่สำคัญเป็นสื่อหนึ่งที่ผู้คนสามารถแสดงความคิดเห็นได้อย่างเสรี เนื่องจากมีกลุ่มคนหลากหลาย เพศ วัย และหลายความชอบ เฟซบุ๊กจึงเป็นตัวเลือกหนึ่งของผู้เสพข่าวสารผ่านช่องทางออนไลน์

สุพจน์ กล้าหาญ (2553) อธิบายความหมายของพาดหัวข่าวว่า เป็นส่วนที่นำเสนอประเด็นหรือเรื่องราวไว้อย่างกระชับ เป็นข้อความส่วนสรุปใจความสำคัญของเนื้อข่าว อาจมีสาระสำคัญหลายประการโดยนำเสนอเรียงตามลำดับความสำคัญ และเป็นเนื้อหาส่วนแรกของเนื้อข่าวที่สามารถกระตุ้นความรู้สึกอยากรู้อยากเห็น ดึงดูดความสนใจ และสร้างอารมณ์คล้อยตามจนต้องอ่านเนื้อข่าวตั้งแต่ต้นจนจบ ซึ่งการพาดหัวข่าวในเฟซบุ๊กเพจปรากฏอยู่จำนวนมาก เนื่องจากมีบริษัทด้านสื่อ/ข่าวสาร บริษัทผลิตงาน แพร่ภาพและสื่อ บริษัทหนังสือพิมพ์ ช่องโทรทัศน์ รายการโทรทัศน์ เว็บไซต์ข่าวและสื่อ รวมถึงผู้เผยแพร่สื่อที่นำเสนอข้อมูลข่าวสารในปัจจุบันผ่านเฟซบุ๊กเพจ เพื่อให้ผู้ติดตามข่าวสาร เลือกรับข้อมูลได้อย่างหลากหลาย การใช้คำพาดหัวข่าวที่ปรากฏก็นับเป็นกลวิธีที่มีความน่าสนใจที่จะศึกษา ตัวอย่างเช่น “สะเทือนใจทั้งโลก.. สรุปปมโศกนาฏกรรม #อิแทวอน เหยียบกันตาย สังเวยฮาโลวีน 153 ศพ เลวร้ายที่สุดในรอบ 8 ปีของเกาหลีใต้” (ไทยรัฐออนไลน์, 2565)

จากการพาดหัวข่าวข้างต้นมีการใช้คำเร้าอารมณ์ความรู้สึกเพื่อสร้างแรงดึงดูดและกระตุ้นความสนใจให้เกิดการติดตามเนื้อหาข่าวต่อไป โดยเฉพาะการกระตุ้นให้ผู้อ่านเกิดความรู้สึกร่วม ไม่ว่าจะเป็นความประหลาดใจ ตกใจ ตื่นตะลึง เศร้าโศก หรือแม้กระทั่งความสุข ซึ่งถือเป็นกลวิธีสำคัญในการนำเสนอข่าวสารในยุคปัจจุบัน ตัวอย่างเช่น การใช้คำว่า “โศกนาฏกรรม” หรือ “สังเวย” ซึ่งเป็นถ้อยคำที่สื่อถึงเหตุการณ์รุนแรงและสูญเสียอย่างร้ายแรง โดยมีนัยเชิงอารมณ์ที่ทำให้ผู้อ่านเกิดความรู้สึกหดหู่ หรือสะเทือนใจต่อเหตุการณ์นั้น ๆ ทั้งนี้ ยังพบว่าผู้เขียนข่าวมักอ้างอิงข้อมูลเชิงปริมาณ เช่น จำนวนผู้เสียชีวิตหรือผู้บาดเจ็บอย่างชัดเจน ซึ่งยิ่งเสริมให้ข่าวมีน้ำหนักและสร้างความสะเทือนใจแก่ผู้อ่านได้มากยิ่งขึ้น ด้วยเหตุผลดังกล่าวข้างต้น ผู้วิจัยจึงมีความสนใจที่จะศึกษากลวิธีทางภาษาในการพาดหัวข่าวที่ปรากฏในเฟซบุ๊กแฟนเพจที่นำเสนอข่าวออนไลน์

วัตถุประสงค์ของการวิจัย

เพื่อศึกษากลวิธีทางภาษาในการพาดหัวข่าวที่ปรากฏในเฟซบุ๊กแฟนเพจนำเสนอข่าวออนไลน์

แนวคิด ทฤษฎี กรอบแนวคิด

การศึกษาครั้งนี้มุ่งวิเคราะห์ข้อความพาดหัวข่าวโดยใช้แนวคิดและทฤษฎีที่เกี่ยวข้องกับการใช้ภาษาในสื่อมวลชน โดยเฉพาะการพาดหัวข่าวซึ่งมีบทบาทสำคัญในการสื่อสารสาระสำคัญของเนื้อหาอย่างกระชับ ชัดเจน และดึงดูดความสนใจของผู้อ่าน (นนท์ธวัช ไชยวัง, 2560) แนวคิดหลักที่นำมาใช้ในการศึกษาครั้งนี้ประกอบด้วย

1. แนวคิดเกี่ยวกับการพาดหัวข่าว การพาดหัวข่าวถือเป็นส่วนสำคัญของบทความข่าว มีหน้าที่กระตุ้นความสนใจของผู้อ่าน และถ่ายทอดเนื้อหาหลักของข่าวอย่างรวบรัด การเลือกใช้ถ้อยคำ การจัด

โครงสร้างประโยค และการสื่อความหมายอย่างมีประสิทธิภาพจึงเป็นองค์ประกอบสำคัญของพาดหัวข่าว

2. แนวคิดเกี่ยวกับกลวิธีการสื่อความหมาย กลวิธีการสื่อความหมายในพาดหัวข่าวครอบคลุมการใช้ถ้อยคำ สำนวน และโครงสร้างทางภาษาเพื่อถ่ายทอดเจตนาของผู้เขียนข่าว โดยกลวิธีเหล่านี้มีบทบาทในการสร้างอารมณ์ ความรู้สึก และทัศนคติของผู้อ่าน

3. แนวคิดเรื่องกลวิธีทางภาษา โดยจำแนกกลวิธีทางภาษาออกเป็นหลากหลายลักษณะ เช่น การพาดหัวข่าวโดยใช้ถ้อยคำเชิงอารมณ์ การพาดหัวข่าวโดยการตั้งคำถามเพื่อกระตุ้นการคิด และการพาดหัวข่าวโดยการละข้อมูลบางส่วน เป็นต้น แนวคิดนี้จึงถูกนำมาประยุกต์ใช้ในการวิเคราะห์ข้อความพาดหัวข่าวในงานวิจัยนี้ เพื่อศึกษากลวิธีทางภาษาในการพาดหัวข่าวที่ปรากฏในเฟซบุ๊กแฟนเพจนำเสนอข่าวออนไลน์

วิธีดำเนินการวิจัย

1. กำหนดขอบเขตและโครงเรื่องของการวิจัย
2. ศึกษาเอกสารและงานวิจัยที่เกี่ยวข้อง
3. เก็บรวบรวมข้อมูลตัวอย่างการพาดหัวข่าวที่ปรากฏในเฟซบุ๊กเพจนำเสนอข่าวออนไลน์ จำนวน 10 เว็บเพจ ตั้งแต่เดือนตุลาคม 2565 - เดือนธันวาคม 2566 โดยใช้วิธีการสุ่มแบบเจาะจง ประกอบด้วย 1) ไทยรัฐออนไลน์ จำนวน 49 การพาดหัว 2) ข่าวสด จำนวน 38 การพาดหัว 3) PostToday จำนวน 31 การพาดหัว 4) ข่าวช่องวัน จำนวน 34 การพาดหัว 5) เรื่องเล่าเช้านี้ จำนวน 42 การพาดหัว 6) คมชัดลึก จำนวน 39 การพาดหัว 7) THE STANDARD จำนวน 40 การพาดหัว 8) The MATTER จำนวน 32 การพาดหัว 9) Thai PBS จำนวน 56 การพาดหัว 10) เดลินิวส์ออนไลน์ จำนวน 39 การพาดหัว
4. เก็บข้อมูลการพาดหัวข่าว 400 การพาดหัว โดยมีเกณฑ์การคัดเลือกข้อมูล ดังนี้ เว็บเพจที่มีจำนวนผู้ติดตามและมีจำนวนการกดถูกใจตั้งแต่ 1 ล้านคนขึ้นไป
5. วิเคราะห์กลวิธีทางภาษาในการพาดหัวข่าวที่ปรากฏในเฟซบุ๊กแฟนเพจนำเสนอข่าวออนไลน์

ผลการวิจัย

จากการศึกษาวิเคราะห์กลวิธีทางภาษาในการพาดหัวข่าวที่ปรากฏในเฟซบุ๊กเพจนำเสนอข่าวออนไลน์ พบ 15 กลวิธี ดังนี้

1. การพาดหัวข่าวโดยใช้คำเร้าอารมณ์ความรู้สึก เป็นการใช้ถ้อยคำหรือวลีที่กระตุ้นอารมณ์ของผู้อ่าน เช่น ความตื่นเต้น ความโกรธ ความเศร้า ความสงสาร หรือความตกใจ เพื่อดึงดูดความสนใจให้คนอยากอ่านข่าวต่อ ดังตารางที่ 1

ตารางที่ 1 การพาดหัวข่าวโดยใช้คำเร้าอารมณ์ความรู้สึก

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	25 ตุลาคม 2566	ผงะ! พบศพชายเมียนมาร์ถูกควักดวงตา นอนเสียชีวิตปริศนาบนดาดฟ้า คาดเสียชีวิตมาแล้วไม่ต่ำกว่า 18 ชั่วโมง เจ้าหน้าที่เร่งสอบสาเหตุเสียชีวิต	เรื่องเล่าเช้านี้ (2566)
2	30 ตุลาคม 2565	สะเทือนใจทั้งโลก.. สรุปปมโศกนาฏกรรม #อิแทวอน เหยียบกันตาย สังเวยฮาโลวีน 153 ศพ เลวร้ายที่สุดในรอบ 8 ปีของเกาหลีใต้	ไทยรัฐออนไลน์ (2565)

จากตัวอย่างการพาดหัวข่าวข้างต้นมีการใช้คำเร้าอารมณ์ความรู้สึก “ผงะ!” คำเหล่านี้จัดอยู่ในวัจนกรรมประเภทแสดงความรู้สึกและปลุกเร้าให้เกิดปฏิกิริยา ซึ่งมักมาพร้อมกับเครื่องหมายอัศเจรีย์ (!) เพื่อเพิ่มระดับความรู้สึกตกใจ ตื่นตระหนก หรือเร่งเร้าอารมณ์ให้กับผู้อ่าน เครื่องหมายอัศเจรีย์ในบริบทของข่าวยังทำหน้าที่เป็นตัวช่วยเน้นข้อความให้มีน้ำหนักมากขึ้น โดยแสดงถึงความรู้สึกประหลาดใจ ความรุนแรง หรือความเร่งด่วนของเหตุการณ์ที่เกิดขึ้น เครื่องหมาย อัศเจรีย์ (!) ก็ทำหน้าที่เชิงวัจนกรรมเช่นกัน เป็นตัวช่วยเพิ่มระดับของ *intonation* ทางภาษาเขียน เสมือนการตะโกนหรือเร่งน้ำหนักของวัจนกรรม นอกจากนี้ยังมีการใช้คำที่สะท้อนความโศกเศร้า เช่น “โศกนาฏกรรม” “เหยียบกันตาย” “ศพ” “สังเวย” และ “เสียชีวิต” ซึ่งเป็นคำที่กระตุ้นความหดหู่ใจและชวนให้เกิดความรู้สึกเศร้าเสียใจต่อเหตุการณ์ดังกล่าว อีกทั้งคำว่า “สะเทือนใจ” ยังสื่อถึงผลกระทบทางอารมณ์ที่ลึกซึ้ง ซึ่งมักจะเกิดขึ้นจากเหตุการณ์ที่รุนแรงหรือเศร้าโศก โดยทั่วไปการพาดหัวข่าวที่ใช้คำเร้าอารมณ์ความรู้สึกมักพบในข่าวที่นำเสนอเรื่องราวเกี่ยวกับความรุนแรง อุบัติเหตุ เหตุการณ์ระทึกขวัญ หรือเรื่องโศกเศร้า

2. การพาดหัวข่าวโดยใช้คำเรียกสมญานาม เป็นการใช้ชื่อเล่น ฉายา หรือคำขนานนามที่สื่อถึงลักษณะเด่น พฤติกรรม หรือบทบาทของบุคคลหรือสิ่งนั้น ๆ มาใช้ในพาดหัวข่าวแทนการใช้ชื่อจริงทั้งหมด เพื่อให้พาดหัวดูน่าสนใจ ชวนติดตาม และจดจำง่ายขึ้น ดังตารางที่ 2

ตารางที่ 2 การพาดหัวข่าวโดยใช้คำเรียกสมญานาม

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	1 ธันวาคม 2566	ตำรวจแกะรอยสัญญาณ เสี่ยแป้ง นาโหนด หลังคลิปที่ 3 โผล่พร้อมบุกค้นบ้านอีกรอบ	คมชัดลึก (2566)
2	25 พฤศจิกายน 2566	ปารีณา ถอนฟ้องเพนกวิ้น ด่าบิ๊กตู่ หลังเจอตร. รัวโทร. เกือบด่ารำคาญแล้ว	ข่าวสด (2566ก)

จากการพิจารณาตัวอย่างการพาดหัวข่าวที่ใช้คำเรียกสมญานาม เช่น “เสี่ยแป้ง นาโหนด” พบว่าคำดังกล่าวมีการอ้างอิงถึงสถานที่อยู่อาศัยหรือถิ่นฐานของบุคคลนั้น ซึ่งในกรณีนี้หมายถึง ตำบลนาโหนด อำเภอเมือง จังหวัดพัทลุง โดยสมญานามลักษณะนี้มีบทบาทในการระบุอัตลักษณ์เฉพาะบุคคล อีกทั้งยังสะท้อนความใกล้ชิดในระดับท้องถิ่นและสถานะทางสังคมของบุคคลนั้นด้วย อีกตัวอย่างหนึ่ง คือ คำว่า “บิ๊กตู่” ซึ่งเป็นสมญานามที่ใช้เรียก พลเอก ประยุทธ์ จันทร์โอชา อดีตนายกรัฐมนตรีของประเทศไทย โดยคำว่า “บิ๊ก” มักใช้เรียกขานนายทหารชั้นผู้ใหญ่ในบริบทสื่อมวลชนไทย จึงเป็นคำที่มีนัยยะถึงตำแหน่งทางอำนาจ และการใช้ชื่อเล่นร่วมกับตำแหน่ง ยิ่งช่วยสร้างภาพลักษณ์เฉพาะบุคคลที่สื่อสารได้อย่างรวบรัดและมีพลังทางความหมาย จากการศึกษาการใช้คำเรียกสมญานามในการพาดหัวข่าวพบว่า มักใช้กับบุคคลที่มีชื่อเสียง ไม่ว่าจะอยู่ในวงการการเมือง บันเทิง กีฬา หรือธุรกิจ โดยมีวัตถุประสงค์ในการระบุตัวบุคคลให้ชัดเจนขึ้น สร้างภาพจำ และลดความสับสนในกรณีที่บุคคลมีชื่อเหมือนกัน

3. การพาดหัวข่าวโดยใช้คำทับศัพท์และภาษาต่างประเทศ เป็นการเลือกใช้คำในภาษาอังกฤษหรือภาษาต่างประเทศ มาอยู่ในพาดหัวข่าว เพื่อให้ข่าวดูทันสมัย ดึงดูดกลุ่มเป้าหมาย โดยเฉพาะกลุ่มวัยรุ่นหรือคนในแวดวงสากล เช่น วงการบันเทิง ธุรกิจ เทคโนโลยี และแฟชั่น ดังตารางที่ 3

ตารางที่ 3 การพาดหัวข่าวโดยใช้คำทับศัพท์และภาษาต่างประเทศ

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	4 ธันวาคม 2566	ปลดล็อกไทย-ฮ่องกง สแกนจ่ายเงิน QR สะดวกข้ามประเทศ	เดลินิวส์ออนไลน์ (2566)
2	25 พฤศจิกายน 2566	หวานได้อีก ดาวโอเกะ แชร์โมเม้นน่ารัก แกงส้มช็อตแรกเข้าใจผิดทั้งประเทศ	ข่าวสด (2566ข)

จากตัวอย่างการพาดหัวข่าวข้างต้นมีการใช้คำทับศัพท์และภาษาต่างประเทศ โดยคำที่ปรากฏในตัวอย่าง คือ “ปลดล็อก” “สแกน” “แชร์” “โมเม้น” “ช็อต” ซึ่งคำเหล่านี้เป็นการใช้คำทับศัพท์ โดยเลือกใช้คำศัพท์ภาษาอังกฤษเขียนเป็นตัวอักษรภาษาไทย และมีการใช้คำภาษาต่างประเทศ คือ “QR” มาจากคำว่า QR Code (คิวอาร์ โค้ด) ย่อมาจาก Quick Response คือ สัญลักษณ์สี่เหลี่ยมที่ใช้เป็นสัญลักษณ์แทนข้อมูลต่าง ๆ ซึ่งผู้เขียนข่าวนิยมใช้คำทับศัพท์หรือใช้คำศัพท์ภาษาอังกฤษเพื่อให้ทันต่อกระแสนิยมในปัจจุบัน บ้างก็ใช้คำศัพท์ภาษาอังกฤษปนกับภาษาไทย ส่วนใหญ่จะเลือกใช้ภาษาที่ผู้คนนิยมใช้กันทั่วไปและสามารถสื่อสารกันเข้าใจ เพื่อความสะดวกและง่ายต่อการส่งสารแก่ผู้อ่าน จากการศึกษาการพาดหัวข่าวจากแหล่งข้อมูลต่าง ๆ กลวิธีการพาดหัวข่าวประเภทนี้ พบมากเป็นอันดับแรก มักเป็นคำศัพท์ที่ผู้คนทั่วไปใช้หรือรู้จักกัน และเนื่องด้วยบางครั้งการใช้คำไทยอาจยืดยาว ผู้เขียนข่าวจึงเลือกใช้คำภาษาอังกฤษหรือทับศัพท์สั้น ๆ และใช้คำที่ผู้อ่านสามารถเข้าใจได้ง่ายเช่นกัน

4. การพาดหัวข่าวโดยใช้คำเรียกอาชีพ เป็นกลวิธีทางภาษาที่สื่อมวลชนมักใช้เพื่อชี้ระบุตัวตนของบุคคลที่เกี่ยวข้องในข่าวผ่านบทบาท หน้าที่ หรือสถานภาพทางสังคมของบุคคลนั้นแทนการเอ่ยนามโดยตรง วิธีนี้ช่วยให้พาดหัวข่าวกระชับ ชัดเจน และให้ความรู้สึกเป็นทางการหรือเป็นกลาง ขึ้นอยู่กับเจตนาและบริบทของผู้เขียนข่าว ดังตารางที่ 4

ตารางที่ 4 การพาดหัวข่าวโดยใช้คำเรียกอาชีพ

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	23 พฤศจิกายน 2566	ชื่นชม ครูฮีโร่ ช่วยนักเรียน-ครู จากเหตุชายคลั่งบุกโรงเรียน กำชับเข้มความปลอดภัย	ข่าวสด (2566ค)
2	4 ตุลาคม 2566	เสื้อเกราะต้องมา “ดีเจเอกกี้” ข้องใจ! เด็ก 14 ซื้อปืนมาจากไหน ทำไมพกเข้าห้างได้ ความปลอดภัยมันอยู่ตรงไหนกัน	ไทยรัฐออนไลน์ (2566ก)

จากตัวอย่างการพาดหัวข่าวข้างต้นมีการใช้คำเรียกอาชีพในพาดหัวข่าว เป็นกลวิธีที่มีความสำคัญในด้านการดึงดูดความสนใจและกระตุ้นความอยากรู้อยากเห็นของผู้อ่าน ซึ่งสามารถสังเกตได้จากตัวอย่างคำเรียกอาชีพที่ปรากฏในข่าว เช่น “ครู” “ดีเจ” “นักเรียน” การเลือกใช้คำเหล่านี้มีการสะท้อนถึงลักษณะของอาชีพที่ทุกคนในสังคมรู้จักเป็นอย่างดี ซึ่งช่วยให้ผู้อ่านสามารถทำความเข้าใจเหตุการณ์ในข่าวได้ทันที การใช้คำเรียกอาชีพในข่าวและการสร้างความดึงดูดใจ การใช้เพื่อการชื่นชมในหน้าที่การงานโดยเฉพาะในกรณีที่มีการกล่าวถึงการกระทำที่มีผลในทางบวก หรือการที่บุคคลในข่าวมีบทบาทสำคัญในเหตุการณ์ที่เกิดขึ้น เช่น “ครู” ที่ช่วยเด็กในสถานการณ์ที่ยากลำบาก หรือ “ดีเจ” ที่มีส่วนช่วยในการสร้างความบันเทิงและผ่อนคลายให้แก่ผู้ฟัง การใช้คำเหล่านี้ช่วยสร้างภาพลักษณ์ในเชิงบวกและส่งเสริมความ

น่าเชื่อถือในตัวบุคคลหรืออาชีพนั้น ๆ การเลือกใช้คำเรียกอาชีพเหล่านี้ในพาดหัวข่าวยังสะท้อนถึงการเชื่อมโยงระหว่างอาชีพต่าง ๆ กับผลกระทบที่เกิดขึ้นในสังคม

5. การพาดหัวข่าวโดยใช้คำสแลง เป็นกลวิธีหนึ่งที่ได้รับความนิยมในการดึงดูดความสนใจของผู้อ่าน คำสแลงที่ใช้ในพาดหัวข่าวมักมีลักษณะเฉพาะที่ไม่เป็นทางการและมีความเป็นเอกลักษณ์ สามารถทำให้ข่าวดูมีชีวิตชีวา ดังตารางที่ 5

ตารางที่ 5 การพาดหัวข่าวโดยใช้คำสแลง

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	1 ธันวาคม 2566	เกือบขิต 'ชักโครกอัจฉริยะ' ระเบิด ไฟลุกท่วมขณะกำลังถ่าย โดดหนีตายแทบไม่ทัน ใครจะซื้อคิดให้ดี อาจดับคาห้องน้ำ	คมชัดลึก (2566ข)
2	5 พฤษภาคม 2566	มงคลกิตติ์ จะเคลียร์ยังไง เมื่อคนมองว่าหิวแสง	ข่าวช่องวัน (2566ก)

จากตัวอย่างการพาดหัวข่าวข้างต้นมีการใช้คำสแลง คำหรือประโยคที่ปรากฏในตัวอย่าง คือ “เกือบขิต” มาจากคำว่า สู่สุคติ ซึ่งผู้คนมักนำคำว่า “ขิต” มาใช้แทน ในบริบทนี้หมายถึง อาการที่รู้สึกเหมือนคนกำลังจะตาย และ คำว่า “หิวแสง” มักใช้เรียกคนที่ต้องการเป็นจุดสนใจจากสังคมผ่านการสร้างคอนเทนต์ในรูปแบบเกาะกระแสเพื่อให้ได้มาซึ่งจำนวนคนกดไลก์ จำนวนรีทวีต จำนวนแชร์ จำนวนคนติดตามที่มากมาย ซึ่งบางครั้งความอยากเป็นจุดสนใจมากเกินไปก็ทำให้คนคนนั้น ๆ เลือกใช้วิธีการผิด ๆ เช่น โจมตีด่าทอคนอื่น สร้างความเกลียดชังด้วยคำพูดหรือการกระทำ ซึ่งการใช้คำสแลง ผู้เขียนข่าวมักใช้คำตามกระแสนิยม เนื่องจากคำสแลงจะนิยมใช้ในกลุ่มวัยรุ่นส่วนใหญ่ และมีความเปลี่ยนแปลงไม่มีที่สิ้นสุด บางคำก็นิยมใช้แค่ช่วงเวลาหนึ่ง โดยผู้คนมักสร้างคำใหม่ขึ้นมาเรื่อย ๆ การใช้คำสแลงและคำที่สร้างขึ้นใหม่ในพาดหัวข่าวสะท้อนถึงการใช้ภาษาในบริบททางสังคมและความสัมพันธ์ระหว่างผู้ใช้ภาษาที่มีการเปลี่ยนแปลงตามยุคสมัยและกระแสการสื่อสารที่นิยมในปัจจุบัน

6. การพาดหัวข่าวโดยใช้คำแทนสถานภาพ เป็นการใช้คำหรือวลีที่บ่งบอกถึงตำแหน่ง สถานะหรือบทบาทของบุคคลหรือเหตุการณ์ในข่าวนั้น ๆ เพื่อดึงดูดความสนใจของผู้อ่าน โดยที่คำเหล่านั้นจะช่วยบอกถึงบทบาทสำคัญหรือคุณสมบัติของบุคคลหรือเหตุการณ์ในทันที ซึ่งสามารถทำให้เนื้อหาดูโดดเด่นและเข้าใจได้ง่าย ดังตารางที่ 6

ตารางที่ 6 การพาดหัวข่าวโดยใช้คำแทนสถานภาพ

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	16 พฤศจิกายน 2566	"เบนาซีร์ บุตโต" หญิงแกร่งแห่งตะวันออก นายกรัฐมนตรีหญิงคนแรกแห่งโลกมุสลิม	ไทยพีบีเอส (2566ก)
2	3 ธันวาคม 2566	จวกหัวหน้ากู้ภัย เตะลูกน้องโชว์ ลั่นแค่สั่งสอนใส่เสื้อไม่เรียบร้อย ซัดฝีมือกู้ภัยฝ่ายตรงข้ามปล่อยคลิป	ข่าวสด (2566ง)

จากตัวอย่างการพาดหัวข่าวข้างต้น พบว่า การใช้คำแทนสถานภาพของบุคคลที่ปรากฏในข่าวมีบทบาทสำคัญในการสะท้อนถึงลักษณะเฉพาะตัวของแต่ละบุคคลในสังคม โดยคำที่ใช้แทนสถานภาพเหล่านี้มักสะท้อนถึงคุณลักษณะต่าง ๆ ที่กำหนดบุคคลให้มีความแตกต่างกันในแง่มุมต่างๆ ของชีวิต เช่น ตำแหน่งทางการเมือง ความสัมพันธ์ทางครอบครัว เพศ อายุ หรืออาชีพ ซึ่งสามารถจำแนกได้ดังนี้

คำที่ใช้แทนสถานภาพทางการเมือง เช่น “นายกรัฐมนตรีหญิง” ล้วนเป็นคำที่สะท้อนถึงตำแหน่งหรือสถานภาพทางการเมืองของบุคคล ซึ่งเป็นตำแหน่งที่ได้รับมาอันเนื่องจากความสามารถและการเลือกตั้งในระบบการเมือง คำที่ใช้แทนสถานภาพทางอาชีพ เช่น “หัวหน้ากู้ภัย” และ “ลูกน้อง” เป็นคำที่บ่งบอกตำแหน่งในสาขาอาชีพที่บุคคลนั้น ๆ ประกอบอยู่ ซึ่งสามารถสะท้อนถึงความสำคัญและบทบาทในการทำงาน นอกจากนี้ ยังพบว่าในการศึกษาการพาดหัวข่าวที่ใช้คำแทนสถานภาพ ยังมีการใช้คำแทนสถานภาพในด้านการศึกษา การสมรส และเชื้อชาติ ซึ่งเป็นลักษณะเฉพาะที่เกี่ยวข้องกับบุคคลในแต่ละมิติของชีวิต โดยการใช้คำเหล่านี้มักจะสะท้อนถึงลักษณะของบุคคลตามลำดับความสำคัญหรือความเด่นชัดในสังคม

7. การพาดหัวข่าวโดยใช้คำถาม เป็นกลวิธีหนึ่งในการเขียนพาดหัวข่าวที่มุ่งเน้นการดึงดูดความสนใจของผู้อ่าน โดยอาศัยการตั้งคำถามเพื่อกระตุ้นให้เกิดความสงสัยหรือความอยากรู้ ทำให้ผู้อ่านต้องการอ่านเนื้อหาข่าวเพื่อค้นหาคำตอบ ซึ่งเป็นกลวิธีที่พบได้บ่อยในงานข่าวสมัยใหม่ โดยเฉพาะในสื่อออนไลน์หรือข่าวเชิงวิเคราะห์ ดังตารางที่ 7

ตารางที่ 7 การพาดหัวข่าวโดยใช้คำถาม

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	2 ธันวาคม 2566	ตากระตุก เป็นลางหรือเป็นโรค?	ข่าวช่องวัน (2566ข)
2	30 พฤศจิกายน 2566	ทำไมเด็กช่างตีกัน? สำรวจเบื้องหลังความรุนแรงของเด็กช่างจากงานวิจัย	The MATTER (2566ก)

จากตัวอย่างการพาดหัวข่าวข้างต้นมีการพาดหัวข่าวโดยใช้คำถาม ซึ่งประโยคคำถามที่ปรากฏในตัวอย่าง คือ “เป็นลางหรือเป็นโรค?” “ทำไมเด็กช่างตีกัน?” จากการสังเกตประโยคเหล่านี้มักมีเครื่องหมาย (?) หรือ ปรัศนี (question mark) ปรากฏอยู่ด้านหลังประโยค จะเห็นได้ว่าทั้งหมดใช้รูปแบบประโยคคำถาม ซึ่งกลวิธีนี้จัดอยู่ในลักษณะของ “คำถามเพื่อกระตุ้นความสนใจ” มากกว่าจะเป็นคำถามที่คาดหวังคำตอบโดยตรงจากผู้อ่าน การตั้งคำถามลักษณะนี้มักไม่ให้คำตอบในตัวเอง แต่เป็นการเปิดประเด็นเพื่อให้ผู้อ่านติดตามเนื้อหาภายใน ซึ่งมักจะเป็นการนำเสนอข้อมูลเชิงลึก การวิเคราะห์ หรือความคิดเห็นจากผู้เชี่ยวชาญในประเด็นนั้น ๆ ซึ่งเป็นการใช้กลวิธีในการตั้งคำถามเพื่อให้ผู้อ่านต้องการติดตามข่าวสารต่อ ซึ่งส่วนใหญ่ที่พบ ผู้เขียนข่าวเลือกวิธีการพาดหัวข่าวโดยใช้คำถามแต่ไม่อธิบายสาเหตุหรือบอกรายละเอียดแก่ผู้อ่าน เป็นการตั้งคำถามโดยไม่ต้องการคำตอบ แต่จะเน้นให้ผู้อ่านกดอ่านข่าวนั้น เพื่อดูรายละเอียดที่อธิบายเพิ่มเติมในเนื้อหาข่าว

8. การพาดหัวข่าวโดยใช้คำเฉพาะกลุ่ม เป็นกลวิธีทางภาษาที่นิยมใช้ในสื่อปัจจุบัน โดยเฉพาะในข่าวสารที่มีเป้าหมายผู้อ่านเฉพาะกลุ่ม หรือเป็นกลุ่มผู้อ่านที่มีความสนใจตรงกับเนื้อหา เช่น ข่าวบันเทิง ข่าวเกม ข่าวเทคโนโลยี ข่าวกีฬา หรือข่าวสังคมออนไลน์ ดังตารางที่ 8

ตารางที่ 8 การพาดหัวข่าวโดยใช้คำเฉพาะกลุ่ม

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	2 ธันวาคม 2566	แฟนลูกยางห่วงใย คาดสาเหตุทำหนึ่งในนักวอลเลย์บอลหญิงทีมชาติไทย ลบรูปออกจากอินสตาแกรมส่วนตัวทั้งหมด	ไทยรัฐออนไลน์ (2566ข)
2	19 พฤศจิกายน 2566	ก้าวไกลวุ่นอีก ด้อมส้ม ไม่พอใจพฤติกรรม สส. จ่อยื่นลาออกสมาชิกพรรค	ข่าวสด (2566จ)

จากตัวอย่างการพาดหัวข่าวข้างต้นมีการพาดหัวข่าวโดยใช้คำเฉพาะกลุ่ม คำที่ปรากฏในตัวอย่าง คือ “แฟนลูกยาง” ใช้เรียกกลุ่มผู้ที่ชื่นชอบกีฬาวอลเลย์บอล หรือ “แฟนลูกหนัง” หมายถึง หมายถึง ผู้ติดตามกีฬาฟุตบอลซึ่งหากคนที่ไม่ได้อยู่ในวงการกีฬาก็อาจไม่เข้าใจความหมาย ส่วนคำว่า “ด้อมส้ม” เป็นคำเรียกกลุ่มผู้สนับสนุนพรรคการเมืองหนึ่งในประเทศไทย โดยผู้อ่านที่ไม่มีภูมิหลังหรือความรู้เกี่ยวกับกลุ่มเฉพาะนั้น ๆ อาจไม่สามารถตีความหมายของพาดหัวข่าวได้อย่างชัดเจน ข่าวประเภทนี้ที่ผู้อ่านรู้จักกันแค่เฉพาะกลุ่มใดกลุ่มหนึ่งที่มีความชื่นชอบเหมือนกัน เช่น แฟนเพลง แฟนด้อมการเมือง หรือกลุ่มที่ชื่นชอบกีฬา เกม ศิลปินจีน ศิลปินเกาหลี นักร้องสากล เหล่านี้ล้วนมีคำที่ใช้กันเฉพาะกลุ่มและทราบกันแค่กลุ่มนั้น ๆ ผู้อ่านจึงต้องมีความรู้หรือภูมิหลังเกี่ยวกับเนื้อหาข่าวสารนั้น ๆ ด้วย จึงจะสามารถเข้าใจเรื่องที่ผู้เขียนจะสื่อสารออกมา

9. การพาดหัวข่าวโดยใช้อักษรย่อหรือคำย่อ เป็นกลวิธีในการเขียนพาดหัวข่าวที่เลือกใช้ “คำย่อ” หรือ “อักษรย่อ” แทนคำเต็ม เพื่อให้พาดหัวมีความกระชับ รวดเร็ว และทันสมัย เหมาะกับพื้นที่จำกัดของพาดหัวข่าว และสามารถดึงดูดความสนใจของผู้อ่านได้อย่างมีประสิทธิภาพ ดังตารางที่ 9

ตารางที่ 9 การพาดหัวข่าวโดยใช้อักษรย่อหรือคำย่อ

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	30 กันยายน 2566	“สว.คนนี้ผมไม่เอา” สรุปเหตุการณ์คนไทยในไอซ์แลนด์ ไล่ “หมอพรทิพย์” ออกจากร้านอาหาร	The MATTER (2566ก)
2	2 ธันวาคม 2566	ก.เกษตรฯ เสนอ ครม.ไฟเขียวหน่วยงานราชการใช้ล้อยาง กยท. เพื่อเพิ่มการใช้งานในประเทศ ขับเคลื่อนการทำถนนยางพาราซอยล์ซีเมนต์	ไทยรัฐออนไลน์ (25566ค)

จากตัวอย่างการพาดหัวข่าวข้างต้นมีการพาดหัวข่าวโดยใช้อักษรย่อหรือคำย่อ อักษรย่อ (abbreviations) ที่ปรากฏในพาดหัวข่าวมักเกิดจากการนำพยัญชนะตัวแรกของคำในชื่อองค์กรหรือหน่วยงานต่าง ๆ มารวมกัน พร้อมกับการออกเสียงแบบแยกพยัญชนะ เช่น “ก.เกษตรฯ” หมายถึง “กระทรวงเกษตรและสหกรณ์” หรือ “กยท.” หมายถึง “การยางแห่งประเทศไทย” ซึ่งในเชิงสัญศาสตร์ (semiotics) ถือเป็นการสร้าง “รหัสทางภาษา” ที่สามารถสื่อความหมายได้อย่างเฉพาะเจาะจงและมีประสิทธิภาพต่อกลุ่มผู้อ่านที่มีความรู้พื้นฐานร่วมกัน ซึ่งคำที่ปรากฏในตัวอย่าง คือ “ก.เกษตรฯ” (กระทรวงเกษตรและสหกรณ์ ประเทศไทย) “ครม.” (คณะรัฐมนตรี) “กยท.” (การยางแห่งประเทศไทย) “สว.” (สมาชิกวุฒิสภา) คำที่ผู้เขียนข่าวนำมาพาดหัวข่าวโดยใช้อักษรย่อหรือคำย่อมักเป็นชื่อขององค์กรหรือหน่วยงาน เนื่องจากเป็นชื่อหน่วยงานที่ยืดยาวก็เลยมีการย่อคำให้สั้นลงและง่ายต่อการเขียนข่าว

10. การพาดหัวข่าวโดยใช้คำอ้างอิงตัวเลข เป็นการใช้ตัวเลขหรือข้อมูลเชิงปริมาณเป็นส่วนประกอบสำคัญในพาดหัวข่าว เพื่อเน้นย้ำข้อเท็จจริงที่ชัดเจน สร้างความสนใจ และเพิ่มความน่าเชื่อถือให้กับเนื้อหา โดยตัวเลขที่ใช้มักเป็นจำนวนคน เปอร์เซ็นต์ สถิติ ช่วงเวลา อัตราเปรียบเทียบ หรือแม้แต่ลำดับเหตุการณ์ ดังตารางที่ 10

ตารางที่ 10 การพาดหัวข่าวโดยใช้คำอ้างอิงตัวเลข

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	26 พฤศจิกายน 2566	งานพลุพัทยา คนนับแสนทะลัก เต็มชายหาด อลังการแสงสีเสียง คาดสะพัด 500 ล้าน	The MATTER (2566ข)
2	5 พฤศจิกายน 2566	เหนือ อีสาน มีหมอกในตอนเช้า ภาคใต้ ฝน 60%	ข่าวสด (2566ช)

จากตัวอย่างการพาดหัวข่าวข้างต้นมีการใช้คำอ้างอิงตัวเลข “คนนับแสน”, “500 ล้าน”, “60%” เหล่านี้ล้วนเป็นการใช้ตัวเลขที่มีความเฉพาะเจาะจง และสามารถสร้างภาพจำให้กับผู้อ่านได้ทันที อีกทั้งยังช่วยให้ผู้อ่านสามารถประเมินสถานการณ์หรือขอบเขตของเหตุการณ์ได้อย่างรวดเร็ว เช่น การระบุจำนวนผู้ได้รับผลกระทบ จำนวนความเสียหาย มูลค่าความเสียหาย หรือความถี่ของเหตุการณ์ ซึ่งล้วนมีผลต่อการรับรู้ข่าวสารและการตัดสินใจของผู้อ่านในสถานการณ์ต่าง ๆ โดยเฉพาะในข่าวเกี่ยวกับภัยพิบัติหรือเหตุการณ์สำคัญ ตัวเลขเหล่านี้ทำหน้าที่เป็นเครื่องมือสื่อสารที่ช่วยให้ประชาชนรับทราบสถานการณ์ได้อย่างมีประสิทธิภาพ เช่น การรายงานระดับน้ำท่วมเป็นเซนติเมตรหรือเมตร การแจ้งเตือนระดับความแรงของแผ่นดินไหวเป็นริกเตอร์ ซึ่งล้วนแล้วแต่ช่วยให้ประชาชนสามารถเตรียมรับมือ ป้องกัน หรือหาวิธีบรรเทาผลกระทบที่อาจเกิดขึ้นได้ ดังนั้น การพาดหัวข่าวโดยใช้คำอ้างอิงตัวเลขจึงไม่เพียงแต่เป็นการดึงดูดความสนใจเท่านั้น แต่ยังเป็นการถ่ายทอดสาระสำคัญของข่าวอย่างมีประสิทธิภาพ

11. การพาดหัวข่าวโดยใช้การระบุคำเรียกเพศ เป็นการใช้คำที่แสดงหรือระบุเพศของบุคคลในพาดหัวข่าว เช่น ใช้คำว่า หนุ่ม สาว ชาย หญิง แม่ พ่อ เด็กหญิง เด็กชาย เป็นต้น เพื่อสื่อถึงตัวตนของบุคคลในข่าวอย่างชัดเจนว่าเป็นเพศใด ซึ่งมีผลต่อการสร้างภาพจำหรือความเข้าใจของผู้อ่านที่มีต่อเหตุการณ์หรือบุคคลนั้น ดังตารางที่ 11

ตารางที่ 11 การพาดหัวข่าวโดยใช้การระบุคำเรียกเพศ

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	3 ธันวาคม 2566	เด็กชายวัย 10 ขวบที่ถูกน้ำป่าพัดหายไปในพื้นที่ อ.สวี จ.ชุมพร ตั้งแต่เมื่อวานนี้	ไทยพีบีเอส (2566ข)
2	15 พฤศจิกายน 2566	ร่างทรงละเมิดสาว 17 อ้างแก้กาลกิณี แม่ไม่เชื่อลูกท้ากินน้ำสาบาน #เรื่องใหญ่รายวัน	ข่าวช่องวัน (2566ค)

จากตัวอย่างการพาดหัวข่าวข้างต้นมีการพาดหัวข่าวโดยใช้การระบุคำเรียกเพศ ซึ่งเป็นการพาดหัวข่าวโดยบอกให้ทราบถึงลักษณะว่าเหตุการณ์นี้เกิดขึ้นกับเพศไหน โดยการระบุคำเรียกเพศ เป็นสิ่งที่คนส่วนใหญ่ทราบกันดีแล้ว ซึ่งคำที่ปรากฏในตัวอย่าง คือ “เด็กชาย” และ “สาว 17” ล้วนสะท้อนการใช้ภาษาเพื่อเจาะจงอัตลักษณ์ทางเพศและช่วงวัยของบุคคลในข่าวอย่างชัดเจน ซึ่งทำให้ผู้อ่านสามารถรับสารและตีความบริบทของเหตุการณ์ได้อย่างรวดเร็ว โดยไม่ต้องพิจารณารายละเอียดเพิ่มเติมในเนื้อข่าว ทั้งนี้อาจถือเป็นกลวิธีทางภาษาที่สื่อใช้เพื่อดึงดูดความสนใจ และกระตุ้นอารมณ์หรือทัศนคติของผู้อ่านต่อบุคคลในข่าว ซึ่งการพาดหัวข่าวโดยใช้กลวิธีการพาดหัวข่าวประเภทนี้เป็นการนำเสนอข่าวที่มีความชัดเจนเช่นเดียวกับการใช้คำอ้างอิงตัวเลข มีการระบุเพศและบอกช่วงอายุ ทำให้ผู้อ่านสามารถรับรู้ข่าวสารและเหตุการณ์ที่เกิดขึ้นได้ทันที โดยไม่ต้องทำความเข้าใจหรือดูรายละเอียดเพิ่มเติม

12. การพาดหัวข่าวโดยใช้คำเรียกชื่อหน่วยงาน เป็นการเขียนหัวข้อข่าวโดยระบุชื่อของหน่วยงานที่เกี่ยวข้องกับเนื้อหาข่าว อีกทั้งยังแสดงความน่าเชื่อถือของข่าว เพราะมีหน่วยงานอ้างอิงชัดเจนเพื่อสื่อให้ผู้อ่านทราบว่าหน่วยงานนั้นเป็นผู้กระทำ หรือเป็นผู้มีบทบาทสำคัญในเหตุการณ์ที่รายงาน ดังตารางที่ 12

ตารางที่ 12 การพาดหัวข่าวโดยใช้คำเรียกชื่อหน่วยงาน

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	6 พฤศจิกายน 2566	กองปราบปราม บอกยังไม่ได้รับการประสานดูแลคดีคนร้ายมอมยา 2 ตายายรูดทรัพย์ ขโมยเงินสด 8 พันบาท โทรศัพท์ 2 เครื่อง	ไทยพีบีเอส (2566ค)
2	10 สิงหาคม 2566	วันแม่ 12 ส.ค. 66 นี้ กรมอุทยานฯ เปิดให้เที่ยวฟรีในอุทยานแห่งชาติ	ข่าวช่องวัน (2566ง)

จากตัวอย่างการพาดหัวข่าวข้างต้น มีการพาดหัวข่าวโดยใช้คำเรียกชื่อหน่วยงาน ซึ่งเป็นการพาดหัวข่าวโดยบอกให้ทราบถึงหน่วยงานที่มีส่วนเกี่ยวข้องในข่าว โดยการใช้คำเรียกชื่อหน่วยงานนั้น มักพาดหัวข่าวโดยเขียนชื่อเต็มของหน่วยงาน และมีการใช้เครื่องหมาย ฯ ซึ่งคำที่ปรากฏในตัวอย่าง คือ“กองปราบปราม” และ“กรมอุทยานฯ” (กรมอุทยานแห่งชาติสัตว์ป่าและพันธุ์พืช) ซึ่งการพาดหัวข่าวโดยใช้กลวิธีการพาดหัวข่าวประเภทนี้มักพบเป็นอันดับแรก ๆ จากการศึกษาการพาดหัวข่าวในแหล่งข้อมูลต่าง ๆ และพบกลวิธีนี้ในทุกเพจนำเสนอข่าวออนไลน์ การพาดหัวข่าวช่วยสร้างภาพลักษณ์ของหน่วยงานนั้น ๆ ตัวอย่างเช่น “กองปราบ” หมายถึง แข็งแกร่ง ปราบปรามอาชญากรรม ซึ่งภาษาที่เลือกใช้ช่วยกำหนดบทบาทของหน่วยงานในสังคม

13. การพาดหัวข่าวโดยใช้การละข้อมูลบางส่วน เป็นการใช้กลวิธีทางภาษาที่มุ่งกระตุ้นอารมณ์และความสนใจของผู้อ่านโดยเจตนาให้ผู้อ่านรู้สึกต้องการรู้ข้อมูลที่หายไป และคลิกข่าวต่อ ดังตารางที่ 13

ตารางที่ 13 การพาดหัวข่าวโดยการละข้อมูลบางส่วน

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	17 พฤศจิกายน 2566	ปังกว่านี้มีอีกมั้ย! ‘ญาญ่า’ร่วมงานฮอลลีวูดครั้งแรก ประกบ 2 พระเอกชื่อดัง...	เดลินิวส์ออนไลน์ (2566)
2	1 ธันวาคม 2566	เฉลยแล้ว คู่รักดาราลบรูป-ซ่อนรูป อักษรย่อชัดมาก	ข่าวสด (2566ซ)

จากการศึกษาตัวอย่างการพาดหัวข่าวโดยการละข้อมูลบางส่วน ซึ่งเป็นกลวิธีการเสนอข่าวที่บอกรายละเอียดเพียงคร่าว ๆ พร้อมแทรก “คำใบ้” หรือ “คีย์เวิร์ด” ที่ตั้งใจให้ผู้อ่านเกิดความสงสัย ต้องการติดตามเนื้อหาข่าวเพิ่มเติม โดยเฉพาะในบริบทของข่าวออนไลน์ที่เน้นความเร็ว กระชับ และการกระตุ้นให้เกิดการคลิกเข้าสู่เนื้อหาข่าวเต็ม ตัวอย่างพาดหัวข่าวว่า “เฉลยแล้ว คู่รักดาราลบรูป-ซ่อนรูป อักษรย่อชัดมาก” ที่มีการใช้ภาพเงาของบุคคลโดยไม่เปิดเผยชื่อจริงของคู่รักดารา เป็นการเว้นข้อมูลสำคัญเพื่อเปิดพื้นที่ให้ผู้อ่านคาดเดา หรือมีปฏิสัมพันธ์ผ่านการแสดงความคิดเห็น และการแชร์ต่อ ซึ่งถือเป็นกลยุทธ์การสื่อสารแบบมีส่วนร่วมที่สื่อใช้เพื่อกระตุ้นการมีส่วนร่วมของผู้เสพข่าว นอกจากนี้ยังมีตัวอย่างอื่น ๆ ที่พาดหัวข่าวด้วยการละชื่อบุคคลที่มีชื่อเสียง เช่น “ประกบ 2 พระเอกชื่อดัง...” โดยใช้เพียงตำแหน่งหรือบทบาทของบุคคลเพื่อสร้างความสงสัย กระตุ้นให้ผู้อ่านต้องการทราบว่าใครคือบุคคลในข่าวนั้น

14. การพาดหัวข่าวโดยอาศัยการตีความ เป็นการพาดหัวข่าวที่ไม่ได้ระบุข้อเท็จจริงทั้งหมดอย่างชัดเจนในเชิงข้อมูล แต่เน้นการใช้ภาษาที่เปิดโอกาสให้ผู้อ่านตีความหรือแปลความหมายด้วยตนเองโดยอาศัยบริบท ประสบการณ์ หรือความรู้ที่มีอยู่ เพื่อเข้าใจเจตนาหรือความหมายแฝงของพาดหัวนั้น ดังตารางที่ 14

ตารางที่ 14 การพาดหัวข่าวข้างต้นมีการพาดหัวข่าวโดยอาศัยการตีความ

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	20 กันยายน 2566	อย่ามองข้าม จุดร่วมดราม่า! จากสมาคมแท็กซี่ไทยไม่ให้พูดอีสาน สู่ดราม่าเพลงคนจนมีสิทธิมั้ยคะ? เปิดแผลกดทับความเป็นท้องถิ่นที่ต่อสู้กับความเป็นคนเมืองมานานหลายสิบปี	โพสต์ทูเดย์ (2566)
2	21 ตุลาคม 2566	‘สงครามข่าวสาร ปฏิบัติการ IO’ มองปัญหาการ ‘บิดเบือนข้อมูล’ สงครามอิสราเอล-ฮามาส ในยุคโซเชียลมีเดีย	THE STANDARD (2566ก)

จากตัวอย่างการพาดหัวข่าวข้างต้นมีการพาดหัวข่าวโดยอาศัยการตีความ ซึ่งเป็นการพาดหัวข่าวที่ผู้อ่านไม่สามารถเข้าใจข่าวที่จะสื่อได้ทันที แต่อาจต้องอาศัยการตีความ หรือมีความรู้เกี่ยวกับเรื่องที่อ่านอย่างถ่องแท้ ซึ่งประโยคการพาดหัวข่าวที่ปรากฏในตัวอย่าง คือ “อย่ามองข้าม จุดร่วมดราม่า! จากสมาคมแท็กซี่ไทยไม่ให้พูดอีสาน สู่ดราม่าเพลงคนจนมีสิทธิมั้ยคะ? เปิดแผลกดทับความเป็นท้องถิ่นที่ต่อสู้กับความเป็นคนเมืองมานานหลายสิบปี” ประโยคนี้มีเจตนาเชิงกระตุ้นให้ผู้อ่านมองเห็นมิติทางชนชั้นและแรงงานมากกว่าความบันเทิงภายนอก และ “สงครามข่าวสาร ปฏิบัติการ IO มองปัญหาการ ‘บิดเบือนข้อมูล’ สงครามอิสราเอล-ฮามาส ในยุคโซเชียลมีเดีย” การใช้ภาษานี้ไม่ชัดเจนในแง่ของการอธิบายเหตุการณ์ แต่ตั้งคำถามหรือกระตุ้นให้ผู้อ่านต้องการเข้าถึงเนื้อหาข่าว เพื่อตอบคำถามว่าการบิดเบือนข้อมูลในสงครามอิสราเอล-ฮามาสนั้นมีลักษณะอย่างไร และโซเชียลมีเดียมีบทบาทอย่างไรในการบิดเบือนข้อมูลนั่นเอง ตัวอย่างเหล่านี้เป็นเนื้อหาสาระที่ต้องทำความเข้าใจ ต้องอาศัยการตีความ เนื่องจากเป็นข้อมูลที่อาจจะเป็นข้อเท็จจริงหรือความจริง และแน่นอนว่ามีความคิดเห็นของนักวิชาการหลายท่านที่ต่างคนต่างมุมมอง ซึ่งการพาดหัวข่าวโดยใช้กลวิธีการพาดหัวข่าวประเภทนี้ต้องใช้ความรู้ความเข้าใจ และผู้อ่านต้องสนใจที่จะศึกษาเนื้อหาในข่าวสารนั้น ๆ ด้วย มักพบข่าวที่อธิบายเป็นบทความสั้น ๆ ทำให้ผู้อ่านได้รับสาระความรู้จากข่าว แต่ข่าวประเภทนี้ต้องใช้วิจารณญาณในการเสพข่าวสารเช่นกัน กลวิธีการพาดหัวข่าวประเภทนี้เป็นกลวิธีทางภาษาและการสื่อสารที่เปิดพื้นที่ให้ผู้อ่านมีบทบาทในการทำความเข้าใจข่าวสาร โดยเน้นการใช้ภาษาที่มีความหมายหลายระดับ หรือมีนัยแฝงทางสังคม การเมือง หรือวัฒนธรรม การใช้กลวิธีนี้จึงไม่ได้มุ่งให้ผู้อ่านรับสารแบบตรงไปตรงมา แต่กลับกระตุ้นให้ผู้อ่านใช้วิจารณญาณ ความรู้พื้นฐาน และประสบการณ์ส่วนบุคคลในการทำความเข้าใจข่าวอย่างลึกซึ้ง

15. การพาดหัวข่าวโดยใช้ถ้อยคำเปรียบเทียบ เป็นการใช้ภาษาที่ไม่ตรงตัว แต่ให้ความหมายในเชิงอุปมาอุปไมยหรือเปรียบเทียบ เพื่อสร้างความน่าสนใจ สะท้อนมุมมองและกระตุ้นให้ผู้อ่านตีความหรือมีปฏิกิริยาทางอารมณ์ต่อข่าวสารนั้น ซึ่งเป็นเทคนิคที่มักพบในสื่อที่ต้องการดึงดูดความสนใจและสร้างความจดจำ ดังตารางที่ 15

ตารางที่ 15 การพาดหัวข่าวโดยใช้ถ้อยคำเปรียบเทียบ

ลำดับที่	วัน/เดือน/ปี	ตัวอย่างพาดหัวข่าว	แหล่งข้อมูล
1	21 พฤศจิกายน 2566	ถอดแนวคิด Soft Power เมื่อแนวทางเพื่อไทยเจอความเห็นต่าง ไม่ใช่สินค้า แต่เป็นแนวคิด?	THE STANDARD (2566ข)
2	30 พฤศจิกายน 2566	‘ความหรูหรา’ ของแต่ละคนไม่เท่ากัน นักวิจัยชี้ Gen Z มักใช้เงินกับเทคโนโลยี ขณะที่ Gen Y ลงไป เน้นสิ่งของ-สุขภาพ	The MATTER (2566ค)

จากตัวอย่างการพาดหัวข่าวข้างต้นมีการพาดหัวข่าวโดยการใช้ถ้อยคำเปรียบเทียบ เป็นการพาดหัวข่าวโดยการเปรียบเทียบสิ่งหนึ่งกับอีกสิ่งหนึ่ง ซึ่งประโยคการพาดหัวข่าวที่ปรากฏในตัวอย่าง คือ “ถอดแนวคิด Soft Power เมื่อแนวทางเพื่อไทยเจอความเห็นต่าง ไม่ใช่สินค้า แต่เป็นแนวคิด?” เป็นการใช้โครงสร้างเปรียบเทียบ “ไม่ใช่...แต่เป็น...” เพื่อเน้นความแตกต่างในมุมมองเกี่ยวกับ soft power ระหว่างมุมมองทางการตลาด (สินค้า) กับมุมมองเชิงวัฒนธรรมและอุดมการณ์ (แนวคิด) และ “ความหรูหรา ของแต่ละคนไม่เท่ากัน นักวิจัยชี้ Gen Z มักใช้เงินกับเทคโนโลยี ขณะที่ Gen Y ลงไป เน้นสิ่งของ-สุขภาพ” เป็นการใช้โครงสร้างเปรียบเทียบ “ขณะที่...” เพื่อชี้ให้เห็นความแตกต่างระหว่างเจเนอเรชั่นในด้านความหมายของความหรูหราอันเป็นนามธรรมที่ต้องตีความ สังเกตได้ว่าผู้อ่านใช้ถ้อยคำเปรียบเทียบระหว่างคน 2 กลุ่ม เช่น “ขณะที่” ความเห็นต่าง 2 แนวทาง “ไม่ใช่..แต่” ซึ่งนอกจากมีการเปรียบเทียบแล้วในบางบริบทยังมีการกล่าวแย้งเพิ่มมาด้วย ซึ่งการพาดหัวข่าวโดยใช้กลวิธีการพาดหัวข่าวประเภทนี้มักพบข่าวที่อธิบายคุณลักษณะของคน 2 คนหรือมีเนื้อหาอธิบายเรื่องราวที่เป็นบทความสั้น ๆ ทำให้ผู้อ่านได้รับสาระความรู้จากข่าวและมองเห็นมุมมองที่หลากหลาย

สรุปและอภิปรายผล

จากผลการศึกษากลวิธีทางภาษาในการพาดหัวข่าวที่ปรากฏในเฟซบุ๊กแฟนเพจนำเสนอข่าวออนไลน์ ผู้วิจัยสามารถสรุปได้ดังต่อไปนี้

ตารางที่ 16 แสดงจำนวนและร้อยละของการศึกษากลวิธีทางภาษาในการพาดหัวข่าวที่ปรากฏในเฟซบุ๊กแฟนเพจนำเสนอข่าวออนไลน์

กลวิธีทางภาษาในการพาดหัวข่าว	จำนวน (การพาดหัวข่าว)	ร้อยละ
1. การพาดหัวข่าวโดยใช้คำเร้าอารมณ์ความรู้สึก	50	12.50
2. การพาดหัวข่าวโดยใช้คำเรียกสมญานาม	11	2.75
3. การพาดหัวข่าวโดยใช้คำทับศัพท์และภาษาต่างประเทศ	48	12.00
4. การพาดหัวข่าวโดยใช้คำเรียกอาชีพ	15	3.75
5. การพาดหัวข่าวโดยใช้คำสแลง	18	4.50
6. การพาดหัวข่าวโดยใช้คำแทนสถานภาพ	18	4.50
7. การพาดหัวข่าวโดยใช้คำถาม	34	8.50
8. การพาดหัวข่าวโดยใช้คำเฉพาะกลุ่ม	12	3.00
9. การพาดหัวข่าวโดยใช้อักษรย่อหรือคำย่อ	31	7.75
10. การพาดหัวข่าวโดยใช้คำอ้างอิงตัวเลข	36	9.00
11. การพาดหัวข่าวโดยใช้การระบุคำเรียกเพศ	12	3.00
12. การพาดหัวข่าวโดยใช้คำเรียกชื่อหน่วยงาน	28	7.00
13. การพาดหัวข่าวโดยการละข้อมูลบางส่วน	37	9.25
14. การพาดหัวข่าวโดยอาศัยการตีความ	45	11.25
15. การพาดหัวข่าวโดยใช้ถ้อยคำเปรียบเทียบ	5	1.25
รวม	**400**	**100.00**

จากการศึกษากลวิธีทางภาษาในการพาดหัวข่าวที่ปรากฏในเฟซบุ๊กแฟนเพจของสื่อออนไลน์ พบว่า กลวิธีที่ถูกนำมาใช้มากที่สุด คือ การใช้คำเร้าอารมณ์ความรู้สึก ซึ่งเป็นเทคนิคที่มีพลังในการดึงดูดความสนใจของผู้อ่านได้อย่างรวดเร็ว โดยเฉพาะในบริบทของข่าวประเภทอาชญากรรม ที่เนื้อหามัก

เกี่ยวข้องกับความรุนแรง การสูญเสีย หรือประเด็นทางสังคมที่มีความอ่อนไหว การใช้คำว่า “โศกนาฏกรรม”, “สะเทือนใจ” หรือ “สังเวย” เป็นต้น ถือเป็นกลวิธีที่สามารถกระตุ้นอารมณ์ของผู้อ่านได้โดยทันที ส่งผลให้ผู้อ่านรู้สึกมีส่วนร่วมทางอารมณ์กับเหตุการณ์นั้น ๆ และพร้อมที่จะกดเข้าไปอ่านรายละเอียดเพิ่มเติม ซึ่งสะท้อนให้เห็นถึงลักษณะของการเสพข่าวในสื่อออนไลน์ที่เน้นความรวดเร็ว กระชับ และกระตุ้นความสนใจ นอกจากนี้ยังพบว่ากลวิธีการพาดหัวข่าวโดยการตีความและการใช้คำทับศัพท์หรือภาษาต่างประเทศ เป็นอีกสองกลวิธีที่พบได้ รองลงมา โดยกลวิธีการตีความมักปรากฏในข่าวที่มีเนื้อหาอ่อนไหว หรือข่าวที่ต้องการหลีกเลี่ยงการใช้ภาษาตรงไปตรงมา เช่น ข่าวที่เกี่ยวข้องกับการวิพากษ์วิจารณ์บุคคลสำคัญ หรือกรณีที่มีข้อกฎหมายเข้ามาเกี่ยวข้อง ขณะที่การใช้คำทับศัพท์หรือภาษาต่างประเทศนั้น มีแนวโน้มเพิ่มขึ้นอย่างต่อเนื่อง โดยเฉพาะในข่าวบันเทิง เทคโนโลยี หรือวัฒนธรรมร่วมสมัย ซึ่งสะท้อนถึงการเปลี่ยนแปลงทางภาษาและอิทธิพลของโลกาภิวัตน์ที่ส่งผลต่อภาษาไทยในยุคปัจจุบัน กลวิธีทางภาษาที่เลือกใช้เหล่านี้ ส่งผลโดยตรงต่อผู้อ่านทั้งในด้านการรับรู้ การตีความ และทัศนคติที่มีต่อเนื้อหาข่าว ในแง่หนึ่ง กลวิธีที่เน้นความเร้าอารมณ์อาจช่วยให้ข่าวสารเป็นที่สนใจและเกิดการพูดถึงในวงกว้าง แต่ในอีกด้านหนึ่งหากใช้มากเกินไปหรือขาดความระมัดระวัง ก็อาจนำไปสู่การบิดเบือนข้อมูล ทำให้สังคมเกิดความเข้าใจผิด หรือกระตุ้นอารมณ์ในทางลบโดยไม่จำเป็น จึงจำเป็นที่ผู้เขียนข่าวควรมีความรับผิดชอบต่อสังคมควบคู่กันไป

อีกประเด็นที่น่าสนใจ คือ ความแตกต่างระหว่างองค์กรข่าวที่เติบโตมาจากสื่อยุคเก่ากับองค์กรข่าวที่เกิดและเติบโตมาพร้อมกับสื่อออนไลน์ โดยกลุ่มแรกมักเน้นรูปแบบการพาดหัวข่าวที่เป็นทางการ ใช้ภาษากระชับ สุภาพ และมีแนวโน้มที่จะใช้ถ้อยคำที่สื่อความหมายตรงไปตรงมา ขณะที่กลุ่มหลังมีความกล้าในการทดลองใช้ภาษา มีความยืดหยุ่นสูง และใช้ภาษาที่ทันสมัย รวมถึงคำแสลงหรือคำยืมจากภาษาอื่น ซึ่งเข้ากับพฤติกรรมของผู้ใช้งานโซเชียลมีเดียที่ชื่นชอบเนื้อหาที่มีความเร็วและร่วมสมัย สิ่งที่ได้เรียนรู้จากการศึกษาครั้งนี้ คือ การพาดหัวข่าวไม่ใช่เพียงแค่การสรุปเนื้อหา แต่เป็นการสื่อสารที่มีพลังในการโน้มน้าว ดึงดูด และสร้างการมีส่วนร่วมกับผู้อ่านได้ในระดับอารมณ์และความคิด ความสามารถในการเลือกใช้กลวิธีทางภาษาให้เหมาะสมจึงมีความสำคัญอย่างยิ่ง ไม่เพียงในด้านการสื่อสาร แต่ยังรวมถึงบทบาทของสื่อในการสะท้อนและมีอิทธิพลต่อทิศทางของสังคมไทยในยุคปัจจุบัน

ข้อเสนอแนะ

1. ผลการวิจัยสามารถนำไปประยุกต์ใช้ในการจัดการเรียนการสอนในรายวิชาที่เกี่ยวข้องกับภาษานิเทศศาสตร์ หรือการสื่อสารมวลชน โดยเฉพาะอย่างยิ่งในประเด็นที่เกี่ยวข้องกับกลวิธีทางภาษา การใช้วัจนกรรม (Speech Acts) การสร้างวาทกรรม (Discourse) และการใช้ภาษาในสื่อดิจิทัล ซึ่งจะช่วยให้มีความเข้าใจที่ลึกซึ้งยิ่งขึ้นเกี่ยวกับบทบาทของภาษาในการสื่อสารผ่านสื่อออนไลน์

2. สามารถนำผลงานวิจัยไปเผยแพร่ในงานวิชาการหรือตีพิมพ์ลงวารสารต่าง ๆ เพื่อเป็นแนวทางในการศึกษาข้อมูลสำหรับผู้ที่สนใจ

3. ควรมีการศึกษาการนำเสนอข่าวผ่านช่องทางอื่น เช่น ทวิตเตอร์ ยูทูบ หรือเว็บไซต์ข่าว เพื่อเปรียบเทียบการปรับเปลี่ยนกลวิธีการใช้ภาษาและรูปแบบการนำเสนอในแต่ละบริบท

4. สำหรับผู้ผลิตสื่อและเพจข่าวออนไลน์ ควรให้ความสำคัญกับความถูกต้องของข้อมูล ความเหมาะสมของระดับภาษา และจรรยาบรรณในการสื่อสารข่าว โดยเฉพาะในประเด็นที่มีความอ่อนไหวหรืออาจส่งผลต่อความรู้สึกของผู้อ่าน ควรอยู่ภายใต้กรอบของความรับผิดชอบต่อสังคม

เอกสารอ้างอิง

ข่าวช่องวัน (2566ก). มงคลกิตติ์ จะเคลียร์ยังไง เมื่อคนมองว่าหิวแสง. สืบค้นเมื่อ 5 พฤษภาคม 2566 จาก https://www.facebook.com/watch/?v=232010746098181

ข่าวช่องวัน (2566ข). ตากระตุก เป็นลางหรือเป็นโรค?. สืบค้นเมื่อ 2 ธันวาคม 2566 จาก https://www.tiktok.com/@onenews31/video/7307555032474373378

ข่าวช่องวัน (2566ค). ร่างทรงละเมิดสาว แม่ไม่เชื่อ ชี้ลูกแต่งเรื่อง. สืบค้นเมื่อ 15 พฤศจิกายน 2566 จาก https://www.youtube.com/watch?v=Eb5KZ6uDOcM

ข่าวช่องวัน (2566ง). วันแม่ 12 ส.ค. 66 นี้ กรมอุทยานฯ เปิดให้เที่ยวฟรีในอุทยานแห่งชาติ. สืบค้นเมื่อ 10 สิงหาคม 2566 จาก

ข่าวสด (2566ก). ปารีณา ถอนฟ้องเพนกวิ้น ด่าบิ๊กตู่ หลังเจอตร.รัวโทร. เกือบด่ารำคาญแล้ว. สืบค้นเมื่อ 25 พฤศจิกายน 2566 จาก https://www.khaosod.co.th/special-stories/news_7981139

ข่าวสด (2566ข). หวานได้อีก ดาวโอเกะ แชร์โมเม้นน่ารัก แกงส้ม ช็อตแรกเข้าใจผิดทั้งประเทศ. สืบค้นเมื่อ 25 พฤศจิกายน 2566 จาก https://www.khaosod.co.th/entertainment/news_7980647

ข่าวสด (2566ค). ชื่นชม ครูฮีโร่ ช่วยนักเรียน-ครู จากเหตุชายคลั่งบุกโรงเรียน กำชับเข้มความปลอดภัย. สืบค้นเมื่อ 23 พฤศจิกายน 2566 จาก https://www.khaosod.co.th/breaking-news/news_7976540

ข่าวสด (2566ง). จวกหัวหน้ากู้ภัย เตะลูกน้องโชว์ ลั่นแค่สั่งสอนใส่เสื้อไม่เรียบร้อย ซัดฝีมือกู้ภัยฝ่ายตรงข้ามปล่อยคลิป. สืบค้นเมื่อ 3 ธันวาคม 2566 จาก https://www.facebook.com/watch/?v=901686631563967

ข่าวสด (2566จ). ก้าวไกลวุ่นอีก ด้อมส้ม ไม่พอใจพฤติกรรม สส. จ่อยื่นลาออกสมาชิกพรรค. สืบค้นเมื่อ 19 พฤศจิกายน 2566 จาก https://www.khaosod.co.th/politics/news_7971244

ข่าวสด (2566ช). เหนือ อีสาน มีหมอกในตอนเช้า ภาคใต้ ฝน 60%. สืบค้นเมื่อ 5 พฤศจิกายน 2566 จาก https://www.khaosod.co.th/technologychaoban/techno-news/article_10607

ข่าวสด (2566ซ). เฉลยแล้ว คู่รักดาราลบรูป-ซ่อนรูป อักษรย่อชัดมาก. สืบค้นเมื่อ 1 ธันวาคม 2566 จาก https://www.youtube.com/watch?v=ZqrlolWYGtY

คมชัดลึก (2566). ตำรวจแกะรอยสัญญาณ เสี่ยแป้ง นาโหนด หลังคลิปที่ 3 โผล่พร้อมบุกค้นบ้านอีกรอบ. สืบค้นเมื่อ 1 ธันวาคม 2566 จาก https://www.youtube.com/watch?v=is8HPqfoom0

คมชัดลึก (2566ข). เกือบขิต ‘ชักโครกอัจฉริยะ’ ระเบิด ไฟลุกท่วมขณะกำลังถ่าย โดดหนีตายแทบไม่ทัน ใครจะซื้อคิดให้ดี อาจดับคาห้องน้ำ. สืบค้นเมื่อ 1 ธันวาคม 2566 จาก https://www.komchadluek.net/hot-social/Social/564491

เดลินิวส์ออนไลน์ (2566). ปลดล็อกไทย-ฮ่องกง สแกนจ่ายเงิน QR สะดวกข้ามประเทศ. สืบค้นเมื่อ 4 ธันวาคม 2566 จาก https://www.dailynews.co.th/news/2962869/

เดลินิวส์ออนไลน์ (2566). ปังกว่านี้มีอีกมั้ย! ‘ญาญ่า’ร่วมงานฮอลลีวูดครั้งแรก ประกบ 2 พระเอกชื่อดัง. สืบค้นเมื่อ 17 พฤศจิกายน 2566 จาก https://www.dailynews.co.th/news/2910090/

ไทยพีบีเอส (2566ก). เบนาซีร์ บุตโต หญิงแกร่งแห่งตะวันออก นายกรัฐมนตรีหญิงคนแรกแห่งโลกมุสลิม. สืบค้นเมื่อ 27 พฤศจิกายน 2566 จาก https://www.thaipbs.or.th/now/content/505?fbclid=IwY2xjawKSUtpleHRuA2FlbQIxMABicmlkETFHcXVLVW5Bd2sxbkR2UVh1AR7ntP2yTalBBDRJPgjMX8EFadhRW5UNUkuyttEsP-r3Nljfcoroug1PAqk_dA_aem_7zkS-JAHjCOhKO2ICRo-_A

ไทยพีบีเอส (2566ข). พบร่างเด็กชายวัย 10 ขวบถูกน้ำป่าพัดแล้ว. สืบค้นเมื่อ 3 ธันวาคม 2566 จาก https://www.facebook.com/watch/?v=1147030646278329

ไทยพีบีเอส (2566ค). กองปราบปราม บอกยังไม่ได้รับการประสานดูแลคดีคนร้ายมอมยา 2 ตายยายรูดทรัพย์ ขโมยเงินสด 8 พันบาท โทรศัพท์ 2 เครื่อง. สืบค้นเมื่อ 6 พฤศจิกายน 2566 จาก https://ch3plus.com/news/social/morning/373350

ไทยรัฐออนไลน์ (2566ค). ก.เกษตรฯ เสนอ ครม.ไฟเขียวหน่วยงานราชการใช้ล้อยาง กยท. เพื่อเพิ่มการใช้งานในประเทศ. สืบค้นเมื่อ 2 ธันวาคม 2566 จาก https://www.thairath.co.th/agriculture/agricultural-policy/2745099

ไทยรัฐออนไลน์ (2565). สะเทือนใจทั้งโลก สรุปปมโศกนาฏกรรม #อิแทวอน เหยียบกันตาย สังเวยฮาโลวีน 153 ศพ เลวร้ายที่สุดในรอบ 8 ปีของเกาหลีใต้. สืบค้นเมื่อ 30 ตุลาคม 2565 จาก https://www.thairath.co.th/news/foreign/2539846

ไทยรัฐออนไลน์ (2566ก). เสื้อเกราะต้องมา “ดีเจเอกกี้” ข้องใจ! เด็ก 14 ซื้อปืนมาจากไหน ทำไมพกเข้าห้างได้ ความปลอดภัยมันอยู่ตรงไหนกัน. สืบค้นเมื่อ 4 ตุลาคม 2566 จาก https://www.thairath.co.th/video/news/topnews/hotclip/765921

ไทยรัฐออนไลน์ (2566ข). เกิดอะไรขึ้น แฟนลูกยางตกใจ “นักวอลเลย์บอลหญิงไทย” ชุดใหญ่ ลบรูปเกลี้ยงไอจี. สืบค้นเมื่อ 2 ธันวาคม 2566 จาก https://www.thairath.co.th/sport/worldsport/volleyball/2745147#google_vignette

นนท์ธวัช ไชยวัง. (2560). รูปแบบการพาดหัวข่าวในเว็บไซต์หนังสือพิมพ์ไทย (สารนิพนธ์นิเทศศาสตรมหาบัณฑิต). มหาวิทยาลัยธุรกิจบัณฑิตย์, กรุงเทพฯ.

โพสต์ทูเดย์ (2566). อย่ามองข้าม จุดร่วมดราม่า! จากสมาคมแท็กซี่ไทยไม่ให้พูดอีสาน สู่ดราม่าเพลงคนจนมีสิทธิมั้ยคะ? เปิดแผลกดทับความเป็นท้องถิ่นที่ต่อสู้กับความเป็นคนเมืองมานานหลายสิบปี. สืบค้นเมื่อ 20 กันยายน 2566 จาก https://www.posttoday.com/lifestyle/699407

เรื่องเล่าเช้านี้ (2566). ผงะ! พบศพชายเมียนมาร์ถูกควักดวงตา นอนเสียชีวิตปริศนาบนดาดฟ้า. สืบค้นเมื่อ 25 ตุลาคม 2566 จาก https://ch3plus.com/news/social/morning/371807?fbclid=IwY2xjawKST-1leHRuA2FlbQIxMABicmlkETFHcXVLVW5Bd2sxbkR2UVh1AR5FTUaE4-0P9XtXRXe2hCcen2B2bF2__1J4HdWHf0BrDeB3B2hKJUavtETYeA_aem_hvm2BMjDWi6CP6cRPS_RGQ

สุพจน์ กล้าหาญ. (2553). วิธีการเขียนข่าวเพื่อการประชาสัมพันธ์. สืบค้นเมื่อ 16 ตุลาคม 2565 จาก http://www.prakan2.com/km/?name=research&file=readresearch&id=22 pdf

Dataxet InfoQuest (2565). ภูมิทัศน์สื่อไทย 2564-2565. สืบค้นเมื่อ 16 ตุลาคม 2565 จาก https://www.infoquest.co.th/thailand-media-landscape-2022/facebook

The MATTER (2566ก). “สว.คนนี้ผมไม่เอา” สรุปเหตุการณ์คนไทยในไอซ์แลนด์ ไล่ “หมอพรทิพย์” ออกจากร้านอาหาร. สืบค้นเมื่อ 30 กันยายน 2566 จาก https://thematter.co/brief/214108/214108

The MATTER (2566ก). ทำไมเด็กช่างตีกัน? สำรวจเบื้องหลังความรุนแรงของเด็กช่างจากงานวิจัย. สืบค้นเมื่อ 30 พฤศจิกายน 2566 จาก https://thematter.co/social/vocational-student-and-violence/218210

The MATTER (2566ข). งานพลุพัทยา คนนับแสนทะลัก เต็มชายหาด อลังการแสงสีเสียง คาดสะพัด 500 ล้าน. สืบค้นเมื่อ 26 พฤศจิกายน 2566 จาก https://www.facebook.com/search/posts/?q=The%20MATTER%20(2566ข).%20งานพลุพัทยา%20คนนับแสนทะลัก%25252520เต็มชายหาด%20อลังการแสงสีเสียง%20คาดสะพัด%20500%20ล้าน

The MATTER (2566ค). ‘ความหรูหรา’ ของแต่ละคนไม่เท่ากัน นักวิจัยชี้ Gen Z มักใช้เงินกับเทคโนโลยี ขณะที่ Gen Y ลงไป เน้นสิ่งของ-สุขภาพ. สืบค้นเมื่อ 30 พฤศจิกายน 2566 จาก https://www.facebook.com/story.php/?story_fbid=907654587585909&id=100050241290149&_rdr

THE STANDARD (2566ก). สงครามข่าวสาร ปฏิบัติการ IO’ มองปัญหาการ ‘บิดเบือนข้อมูล’ สงครามอิสราเอล-ฮามาส ในยุคโซเชียลมีเดีย. สืบค้นเมื่อ 21 ตุลาคม 2566 จาก https://thestandard.co/israel-hamas-gaza-misinformation-fact-check/

THE STANDARD (2566ข). ถอดแนวคิด Soft Power เมื่อแนวทางเพื่อไทยเจอความเห็นต่าง ไม่ใช่สินค้า แต่เป็นแนวคิด?. สืบค้นเมื่อ 21 พฤศจิกายน 2566 จาก https://www.youtube.com/watch?v=Eq_wFnovDHk







(ระดับชาติ)

กลุ่มสังคมศาสตร์

ปัญหาการใช้ดุลยพินิจในการในการปล่อยตัวชั่วคราวในคดีอาญาตามประมวลกฎหมายวิธีพิจารณาความอาญามาตรา 108/1

Problems in the Exercise of Judicial Discretion in Granting Temporary Release in Criminal Cases Under Section 108/1 of the Criminal Procedure Code

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บทคัดย่อ

กฎหมายว่าด้วยการควบคุมตัวผู้ต้องหาหรือจำเลยชั่วคราวในระหว่างการพิจารณาคดีของศาลตามกฎหมายวิธีพิจารณาความอาญา มาตรา 108/1 เป็นเรื่องที่กระทบต่อสิทธิและเสรีภาพของประชาชนมากที่สุดเรื่องหนึ่ง ซึ่งปัจจุบันกฎหมายไทยเปิดช่องให้เจ้าพนักงานหรือศาลใช้ดุลยพินิจในการไม่ปล่อยตัวชั่วคราวได้แม้ในบางกรณีจะไม่มีพยานหลักฐานเพียงพอว่าผู้ต้องหาหรือจำเลยจะไปกระทำผิดเงื่อนไขในการประกันตัวก็ตาม ทำให้ผู้ต้องหาหรือจำเลยที่อาจจะเป็นผู้บริสุทธิ์ไม่ได้รับสิทธิในการปล่อยตัวชั่วคราวต้องถูกควบคุมตัวหรือจองจำในเรือนจำชั่วคราว จนกว่าจะมีคำพิพากษาถึงที่สุด ซึ่งการถูกควบคุมตัวชั่วคราวนี้กระทบต่อชีวิตและจิตใจของผู้บริสุทธิ์ที่ไม่ได้รับสิทธิ์นั้นๆทั้งสิ้น ซึ่งในเรื่องมีประเด็นที่จะต้องพิจารณาว่าการได้รับสิทธิในการขอปล่อยตัวชั่วคราวหรือประกันตัวนั้นหรือไม่นั้น ควรใช้หลักการใดระหว่างดุลยพินิจหรือหลักว่าหากไม่มีพยานหลักฐานหรือข้อเท็จจริงเพียงพอว่าผู้ต้องหาหรือจำเลยได้กระทำผิดข้อห้ามในการประกันตัว รัฐควรให้สิทธิในการประกันตัว ซึ่งในเรื่องนี้ตรงกับกฎหมายของสหรัฐอเมริกา ที่กำหนดว่าต้องมีหลักฐานที่ชัดเจนและน่าเชื่อถือ (clear and convincing evidence) ก่อนการตัดสินใจไม่ให้ประกันตัว จะตัดสิทธิในการประกันตัวชั่วคราวโดยที่ใช้เพียงดุลยพินิจไม่ได้

คำสำคัญ: ปล่อยตัวชั่วคราวในระหว่างการพิจารณาคดี

Abstract

The Law on the Temporary Detention of the Accused or Defendant During the Trial of the Court under the Criminal Procedure Law, Section 108/1 is one of the most affecting rights and freedoms of the people. Currently, Thai law allows officials or courts to exercise their discretion in not releasing bail even if in some cases there is insufficient evidence that the accused or defendant has violated the conditions of bail. As a result, the accused or defendant who may be innocent does not have the right to temporary release must be detained or imprisoned in a temporary prison until the final verdict is issued. This temporary detention affects the lives and minds of innocent people who are not entitled

to such rights. In the matter, there is an issue to consider whether or not to obtain the right to apply for temporary release or bail. What principle should be applied, between discretion or the principle that if there is no sufficient evidence or factual facts that the accused or defendant has committed a breach of the prohibition on bail? The state should grant bail. This is in line with U.S. law, which requires clear and convincing evidence before deciding not to grant bail.

Keyword: Temporary release during the trial

บทนำ

ปัจจุบันกระบวนการปล่อยตัวชั่วคราวของผู้ต้องหาเป็นหัวข้อที่สำคัญในบริบทกฎหมายระหว่างประเทศ เนื่องจากผลกระทบโดยตรงต่อการคุ้มครองสิทธิเสรีภาพของผู้ต้องหา ในกรณีประเทศไทยแม้ว่าจะมีกฎหมายเกี่ยวกับการปล่อยตัวชั่วคราว แต่จากการศึกษายังพบปัญหาในการบังคับใช้กฎหมายนำไปสู่การตั้งคำถามเกี่ยวกับความยุติธรรมและการคุ้มครองสิทธิของผู้ต้องหาในระบบกฎหมายไทย (ณัฐพงษ์ ชูชมกลิ่น, ม.ป.ป.; วิภารัตน์ สุขสุวรรณ์, 2557)

ในประเด็นนี้ขอหยิบยก Bail Reform Act of 1987 (Federal Judicial Center, 2022) ระบบการปล่อยตัวชั่วคราวผู้ต้องหาของประเทศสหรัฐอเมริกาที่มีความชัดเจนและครอบคลุมอย่างมาก ระบบประกันตัวในสหรัฐฯ ได้รับการพัฒนามายาวนานและมีบทบาทในการคุ้มครองสิทธิเสรีภาพของผู้ต้องหาอย่างโดยมีหลักเกณฑ์การปล่อยตัวชั่วคราวของผู้ต้องหาในคดีอาญาที่เรียกว่า“หลักอันตรายต่อความปลอดภัยของชุมชน” มีหลักเกณฑ์ว่าถ้าไม่มีวิธีการหรือข้อเท็จจริง เข้าข้อยกเว้นอย่างใดอย่างหนึ่งใน 7 ข้อที่กำหนดไว้ดังต่อไปนี้กฎหมายกำหนดว่าให้สามารถประกันตัวได้ ซึ่งหลักเกณฑ์ทั้ง 7 ข้อ ประกอบด้วย

1. คดีมีความเกี่ยวข้องกับอาชญากรรมที่ใช้ความรุนแรง (Crime of viclence) หรืออาชญากรรม การก่อการร้าย (Crime of terrorism) ที่มีโทษจำคุกสูงสุดอย่างน้อย 10 ปี

2. คดีที่มีโทษสูงสุดจำคุกตลอดชีวิตหรือประหารชีวิต

3. คดีเกี่ยวกับการกระทำความผิดเกี่ยวกับสารเคมีควบคุม ที่มีโทษจำคุกสูงสุดอย่างน้อย 10 ปี

4. คดีที่มีความผิดร้ายแรงและผู้ต้องหาเคยโดนศาลตัดสินว่าได้กระทำผิดฐานความผิดที่ (1) (2) หรือ (3) แล้วอย่างน้อย 2 ความผิด

5. ความผิดร้ายแรงที่ไม่ใช่อาชญากรรมที่ใช้ความรุนแรง (Crime of violence) แต่มีเด็กเป็นผู้เสียหายหรือมีการครอบครองอาวุธปืน อุปกรณ์ทำลายล้าง หรืออาวุธอันตรายอื่น

6. มีความเสี่ยงร้ายแรงว่าผู้ต้องหาจะหลบหนี

7. มีความเสี่ยงร้ายแรงว่าผู้ต้องหาจะกระทำการอันเป็นอุปสรรคต่อกระบวนการยุติธรรม ขู่หรือทำร้ายพยานหรือลูกขุน

เมื่อไม่เข้าข้อยกเว้นดังกล่าวทางผู้พิพากษาจะต้องทำการปล่อยตัวชั่วคราวซึ่งเห็นได้ว่าหลักการดังกล่าวทำให้ผู้ต้องหาเป็นหรือจำเลยได้รับความเป็นธรรมไม่ถูกริดรอนเสรีภาพ เพราะเมื่อยังไม่มีคำพิพากษาก็ถือว่าเป็นผู้บริสุทธิ์ ซึ่งจะเห็นได้ว่ามาตรการดังกล่าวมีความแตกต่างกับประเทศไทยอย่างมาก เพราะปัจจุบันระบบการปล่อยตัวชั่วคราวผู้ต้องหาในคดีอาญาของประเทศไทยนั้น วิธีการขอปล่อยตัวชั่วคราวระหว่างการพิจารณาคดี 3 วิธี (พระราชบัญญัติให้ใช้ประมวลกฎหมายวิธีพิจารณาความอาญา

พ.ศ. 2477; วันชัย โตความรู้, ม.ป.ป.; ทิพย์รัตน์ กุหลาบแก้ว, ศิวพร เสาวคนธ และ คมสัน สุขมาก, 2564) กล่าวคือ

1) การขอปล่อยตัวชั่วคราวระหว่างการพิจารณาคดีโดยไม่มีประกัน

2) การขอปล่อยตัวชั่วคราวระหว่างการพิจารณาคดีโดยมีประกัน

3) การขอปล่อยตัวชั่วคราวระหว่างการพิจารณาคดีโดยมีประกันและหลักประกัน

ผู้ที่พิจารณา อนุญาตการปล่อยตัวชั่วคราวผู้ต้องหาหรือจำเลยระหว่างการดำเนินคดีอาญา คือ ตำรวจ (พนักงานสอบสวน) พนักงานอัยการหรือศาลที่ต้องใช้หลักนิติธรรมในการพิจารณาหากองค์กรหรือบุคคลที่มีอำนาจไม่อยู่ภายใต้จริยธรรมคุณธรรมและหลักนิติธรรมแล้ว การปล่อยตัวชั่วคราวระหว่างการพิจารณาก็จะไม่เกิดขึ้นและส่งผลถึงการพิจารณาคดีที่ผู้ต้องหาหรือจำเลยที่มีความจำเป็นต้องแสวงหาพยานหลักฐานมาแสดงเพื่อสนับสนุนว่าผู้ต้องหาหรือจำเลยไม่ได้กระทำความผิดดังที่ได้ถูกกล่าวหาในความผิดนั้นไม่สามารถที่จะกระทำได้เนื่องจากไม่ได้รับประกันตัว นอกจากนี้ปัญหาดังกล่าวยังส่งผลต่อมาทำให้จำเลยที่ไม่ได้รับการประกันตัวต้องอุทธรณ์คำสั่งศาลและต้องขอเพิ่มวงเงินหรือหลักทรัพย์ในการประกันตัว เมื่อขาดหลักทรัพย์ในการประกันตัวก็ต้องใช้บริการนายประกันอาชีพเพื่อขอเช่าหลักทรัพย์ประกันตัวทำให้ผู้ต้องหาหรือจำเลยตกเป็นเครื่องมือในการประกอบธุรกิจของไทยประกันอาชีพอีกด้วย

จากสภาพปัญหาที่เกิดขึ้นในปัจจุบันทำให้ที่มีนักโทษล้นเรือนจำและมีแนวโน้มว่าจะเพิ่มขึ้นทุกปี สภาพความแออัดที่ก่อให้เกิดปัญหานักโทษหลบหนีหรือสร้างความเสียหายเป็นภาระอันหนักยิ่งของกรมราชทัณฑ์และที่สำคัญที่สุด บุคคลผู้ถูกกล่าวหาว่ากระทำความผิดทั้งที่ศาลยังไม่มีคำพิพากษาว่าเป็นผู้กระทำความผิดแต่กลับต้องถูกจองจำตัวชั่วคราว หากต่อมาศาลพิพากษาว่าแท้จริงแล้วบุคคลดังกล่าวเป็นผู้บริสุทธิ์ก็อาจได้รับผลกระทบต่อชีวิต จิตใจ จนไม่สามารถกลับมาเป็นเหมือนเดิมได้อีกแล้ว (ไทยพับลิก้า, 2567)

จากการศึกษาทำให้ทราบปัญหากฎหมายเกี่ยวกับการปล่อยตัวชั่วคราวในคดีอาญาของประเทศไทยที่ยังไม่ชัดเจนไม่ครอบคลุมด้วยกันหลายประการ ซึ่งสรุปได้ดังต่อไปนี้

ปัญหาที่หนึ่ง คือ การกำหนดให้มีประกันหรือหลักประกันในการขอปล่อยตัวชั่วคราวตามประมวลกฎหมายวิธีพิจารณาความอาญามาตรา 108/1 (พระราชบัญญัติให้ใช้ประมวลกฎหมายวิธีพิจารณาความอาญา พ.ศ. 2477) การสั่งไม่ให้ปล่อยชั่วคราวจะกระทำได้ต่อเมื่อมีเหตุอันควรเชื่อเหตุใดเหตุหนึ่งดังต่อไปนี้ ได้แก่ ผู้ต้องหาจะหลบหนี ผู้ต้องหาหรือจำเลยจะไปยุ่งเหยิงกับพยานหลักฐาน ผู้ต้องหาหรือจำเลยจะไปก่อเหตุอันตรายประการอื่น ผู้ร้องขอประกันหรือหลักประกันไม่น่าเชื่อถือ หรือการปล่อยตัวชั่วคราวจะเป็นอุปสรรคหรือก่อให้เกิดความเสียหายต่อการสอบสวนของเจ้าพนักงานหรือการดำเนินคดีในศาล ประการที่สำคัญในการที่เป็นอุปสรรคในชั้นพนักงานสอบสวนหรือชั้นศาลจะใช้วิธีการปล่อยตัวชั่วคราว คือ ผู้ร้องขอประกันไม่สามารถหาหลักประกันได้ ซึ่งเป็นประเด็นปัญหาใหญ่ที่เกิดขึ้นในการขออนุญาตปล่อยตัวชั่วคราว จึงส่งผลให้ผู้ต้องหาที่มีฐานะยากจนและถูกดำเนินคดีด้วยข้อหาที่ไม่ร้ายแรงไม่สามารถหาหลักประกันดังกล่าวมาประกันตนเพื่อคุ้มครองสิทธิเสรีภาพขั้นพื้นฐานของตนเองได้ทำให้ต้องถูกปฏิเสธในการปล่อยตัวชั่วคราว เมื่อผู้ต้องหาถูกปฏิเสธทำให้ต้องถูกคุมขังตั้งแต่ในชั้นของพนักงานสอบสวนเรื่อยมาจนถึงในชั้นศาล ซึ่งอาจกินระยะเวลานานส่งผลต่อการต่อสู้คดีและส่งผลกระทบต่อการใช้ชีวิตครอบครัว เช่น ผู้ต้องหาเป็นหัวหน้าครอบครัวหรือเสาหลักของการหารายได้ของครอบครัวก็จะทำให้เกิดผลกระทบไปยังสมาชิกครอบครัวอื่น ๆ ด้วยทำให้เกิดปัญหาสังคมตามมาอีกมากมาย

ประเทศไทยมีบทบัญญัติรับรองสิทธิในการประกันตัวอยู่ในรัฐธรรมนูญแห่งราชอาณาจักรไทย พ.ศ. 2560 แต่การใช้ประมวลกฎหมายวิธีพิจารณาความอาญาโดยให้ศาลมีคำสั่งไม่อนุญาตปล่อยตัวชั่วคราว โดยไม่มีมาตรฐานการพิสูจน์ที่มีความชัดเจนเพียงพอ อนุญาตให้คุมขังผู้ต้องหาได้เพียงมีเหตุอันควรเชื่อได้ถึงแม้ว่าศาลจะไม่แน่ใจว่าผู้ต้องหาจะไปก่อเหตุนั้นหรือไม่ก็ตาม ความไม่ชัดเจนของคำว่าอันตรายประการอื่นภายใต้มาตรา 108/1 (พระราชบัญญัติให้ใช้ประมวลกฎหมายวิธีพิจารณาความอาญา พ.ศ. 2477) ซึ่งยังไม่มีความชัดเจนนี้จะเป็นการให้ดุลพินิจต่อศาลและพนักงานอัยการมากจนเกินไป ทำให้ผู้ต้องหาหรือจำเลยขาดหลักประกันทางเสรีภาพ

เมื่อเปรียบเทียบกับ Bail Reform Act of 1987 (Federal Judicial Center, 2022) จะเห็นว่ากฎหมายของอเมริกามีความชัดเจนกว่ากฎหมายไทย มีการกำหนดขอบเขตและความหมายของคำว่าอันตรายต่อความปลอดภัยของผู้อื่นและชุมชนไว้ในบทบาทกฎหมายและคำพิพากษา ทำให้บุคคลทั่วไปสามารถเข้าใจได้ว่าการกระทำใดบ้างที่เข้าข่ายอันตราย ซึ่งอาจเป็นเหตุให้ผู้ต้องหาไม่ได้การปล่อยตัวชั่วคราว อีกทั้งกฎหมายยังกำหนดมาตรฐานการพิสูจน์ไว้อย่างชัดเจนว่าโจทก์ต้องนำเสนอหลักฐานที่ชัดเจนและน่าเชื่อถือได้ จึงเห็นว่าควรแก้ไขระบบการปล่อยตัวชั่วคราวของประเทศให้มีมาตรฐานมากขึ้นโดยนำหลักเกณฑ์การปล่อยตัวชั่วคราวของสหรัฐอเมริกามาใช้กับไทย

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาปัญหาการใช้ดุจพินิจในการปล่อยตัวชั่วคราวผู้ต้องหาในคดีอาญาในประเทศไทยและผลกระตามมา

2 เพื่อศึกษาหลักการปล่อยตัวชั่วคราวผู้ต้องหาในคดีอาญาของประเทศสหรัฐอเมริการวมถึงทฤษฎีและแนวปฏิบัติเพื่อนำมาปรับใช้ในประเทศไทย

3 เพื่อเสนอให้มีการแก้ไขปรับปรุงระบบการปล่อยตัวชั่วคราวผู้ต้องหาในคดีอาญาในประเทศไทยให้มีบรรทัดฐานประสิทธิภาพ เพื่อเป็นหลักประกันของประชาชนคนไทย

แนวคิด ทฤษฎี กรอบแนวคิด

แนวคิดเกี่ยวกับการปล่อยตัวชั่วคราว

แนวคิดเกี่ยวกับการศึกษาเรื่อง กฎหมายการปล่อยตัวผู้ต้องหาในคดีอาญาของไทยและสหรัฐอเมริกา เน้นวิเคราะห์ถึงความสำคัญของสิทธิเสรีภาพในการดำเนินคดีการคุ้มครองสิทธิมนุษยชนและการรักษาความยุติธรรมในกระบวนการทางกฎหมาย แนวคิดหลักที่สามารถนำมาใช้ในการศึกษานี้ (ศูนย์ทนายความเพื่อสิทธิมนุษยชน, 2566ข) ได้แก่

1. สิทธิเสรีภาพและความยุติธรรม กระบวนการปล่อยตัวชั่วคราวมีความเกี่ยวข้องโดยตรงกับหลักสิทธิเสรีภาพส่วนบุคคล โดยต้องคำนึงถึงการให้สิทธิแก่ผู้ต้องหาที่ไม่ถูกตัดสินว่าเป็นผู้กระทำความผิด ขณะเดียวกันต้องรักษาความสมดุลกับการปกป้องสังคมจากความเสี่ยงที่ผู้ต้องหาอาจก่อขึ้น การเปรียบเทียบระหว่างไทยและสหรัฐฯ จะช่วยให้เห็นถึงวิธีการจัดการสิทธิเหล่านี้อย่างมีประสิทธิภาพในแต่ละประเทศ

2. หลักการประกันตัว ในระบบกฎหมายของสหรัฐอเมริกา การปล่อยตัวชั่วคราวหรือการประกันตัวมีบทบาทสำคัญในการคุ้มครองสิทธิเสรีภาพของผู้ต้องหา ซึ่งจะพิจารณาปัจจัยต่างๆ เช่น ความเสี่ยงในการหลบหนี ความร้ายแรงของอาชญากรรม และความปลอดภัยของสาธารณะ ส่วนใน

ประเทศไทย การปล่อยตัวชั่วคราวถูกกำหนดตามหลักการที่คล้ายคลึงกัน แต่ยังมีข้อจำกัดในทางปฏิบัติและเงื่อนไขที่เข้มงวดมากกว่า

3. ความเสี่ยงและความปลอดภัยของสังคม การศึกษากฎหมายการปล่อยตัวในคดีอาญาต้องคำนึงถึงความเสี่ยงที่ผู้ต้องหาอาจหลบหนี หรือสร้างความเสียหายแก่สังคม การนำแนวคิดเรื่องความปลอดภัยของสาธารณะมาพิจารณาในการประกันตัว จึงเป็นสิ่งที่สำคัญและแตกต่างกันในแต่ละระบบกฎหมาย

4. กระบวนการยุติธรรมเชิงป้องกัน การเปรียบเทียบระบบกฎหมายการปล่อยตัวระหว่างไทยและสหรัฐฯ ช่วยให้เห็นถึงการวางมาตรการป้องกันอาชญากรรมล่วงหน้า ในขณะที่ยังคงรักษาสิทธิเสรีภาพของผู้ต้องหา โดยจะมองเห็นถึงการใช้กลไกทางกฎหมายและเทคโนโลยีในการตรวจสอบผู้ต้องหาในช่วงปล่อยตัวชั่วคราว

5. ความเสมอภาคและความเป็นธรรมในระบบยุติธรรม การวิจัยนี้สามารถนำเสนอถึงความแตกต่างในเรื่องการเข้าถึงสิทธิประกันตัวที่เกิดขึ้นในประเทศไทยและสหรัฐฯ โดยเน้นเรื่องความเสมอภาคทางกฎหมายและการประกันตัวในกรณีต่าง ๆ เพื่อให้แน่ใจว่าผู้ต้องหาทุกคนได้รับการปฏิบัติอย่างเท่าเทียม

แนวคิดและทฤษฎีที่เกี่ยวข้องกับการศึกษาเรื่องการปล่อยตัวผู้ต้องหาในคดีอาญาของไทยและสหรัฐอเมริกา

แนวคิดดังกล่าวมีพื้นฐานมาจากหลักการทางกฎหมายและสิทธิมนุษยชนที่ได้รับการยอมรับในกระบวนการยุติธรรมทั่วโลก การปล่อยตัวผู้ต้องหาในคดีอาญา (หรือการประกันตัว) เป็นกระบวนการที่สำคัญซึ่งมีเป้าหมายหลักเพื่อปกป้องสิทธิเสรีภาพของผู้ต้องหาที่จะไม่ถูกควบคุมตัวเกินความจำเป็น ตราบใดที่ยังไม่ได้มีคำพิพากษาถึงที่สุดว่ามีความผิด การประกันตัวจึงเป็นกระบวนการที่คุ้มครองสิทธิของผู้ต้องหาที่จะสันนิษฐานได้ว่าเป็นผู้บริสุทธิ์จนกว่าศาลจะพิสูจน์ความผิด และยังเป็นเครื่องมือในการปกป้องความปลอดภัยของสังคมในกรณีที่มีความเสี่ยงในการหลบหนีหรือการก่ออาชญากรรมเพิ่มเติม

หลักการสันนิษฐานว่าผู้ต้องหาหรือจำเลยเป็นผู้บริสุทธิ์จนกว่าจะได้รับการพิสูจน์ว่ามีความผิด หรือที่เรียกว่า *Presumption of Innocence* เป็นพื้นฐานสำคัญในกระบวนการพิจารณาคดีในระบบยุติธรรมทั้งในไทยและสหรัฐอเมริกา โดยแนวคิดนี้มุ่งเน้นถึงสิทธิขั้นพื้นฐานของผู้ต้องหาที่ไม่ควรถูกกักขังโดยปราศจากเหตุผลอันสมควร หากไม่มีความจำเป็นจริง ๆ ที่จะต้องควบคุมตัวไว้ การปล่อยตัวผู้ต้องหาในระหว่างการพิจารณาคดีจึงถือว่าเป็นกระบวนการที่เหมาะสมที่สุด เนื่องจากเป็นการรักษาสมดุลระหว่างสิทธิของผู้ต้องหาที่จะมีเสรีภาพส่วนบุคคล กับความจำเป็นของการรักษาความปลอดภัยของสังคม (ศูนย์ทนายความเพื่อสิทธิมนุษยชน 2566ก)

การปล่อยตัวผู้ต้องหาในคดีอาญายังสัมพันธ์กับสิทธิเสรีภาพของบุคคล (Right to Liberty) ซึ่งเป็นสิทธิขั้นพื้นฐานที่ได้รับการคุ้มครองตามกฎหมายระหว่างประเทศ เช่น กติการะหว่างประเทศว่าด้วยสิทธิพลเมืองและสิทธิทางการเมือง (ICCPR) หลักการนี้ระบุว่าบุคคลใด ๆ ที่ถูกจับกุมหรือถูกควบคุมตัวจะต้องมีสิทธิที่จะถูกปล่อยตัวชั่วคราวในระหว่างการพิจารณาคดี ตราบใดที่ไม่มีเหตุจำเป็นที่จะกักขังไว้ต่อไป หลักการนี้เป็นหลักสำคัญในการคุ้มครองเสรีภาพของบุคคลในกระบวนการยุติธรรมอาญา ซึ่งจะช่วยลดโอกาสในการเกิดการละเมิดสิทธิมนุษยชนและการใช้อำนาจโดยมิชอบของเจ้าหน้าที่รัฐ (ศูนย์ทนายความเพื่อสิทธิมนุษยชน, 2566ข)

ในด้านการประกันตัว ระบบกฎหมายของไทยและสหรัฐอเมริกามีการพัฒนาทฤษฎีและหลักการเพื่อสนับสนุนความเสมอภาคและความยุติธรรม (Equality Before the Law) ผู้ต้องหาทุกคนควรได้รับการปฏิบัติอย่างเท่าเทียมในกระบวนการยุติธรรม การประกันตัวไม่ควรเป็นเรื่องที่คนรวยเท่านั้นที่สามารถเข้าถึงได้ โดยเฉพาะในกรณีของการประกันตัวด้วยเงิน (Bail System) ที่มักจะสร้างความเหลื่อมล้ำในสังคม การออกแบบระบบการปล่อยตัวควรคำนึงถึงปัจจัยทางสังคมและฐานะทางการเงินของผู้ต้องหาเพื่อให้มั่นใจว่าผู้ที่มีฐานะยากจนยังคงสามารถได้รับการปล่อยตัวชั่วคราว โดยอาจใช้วิธีการค้ำประกันในรูปแบบอื่น ๆ ที่ไม่ใช่เงินสด เช่น การให้บุคคลมาค้ำประกัน การกำหนดให้รายงานตัวต่อเจ้าหน้าที่หรือการใช้มาตรการควบคุมทางเทคโนโลยี (ศาลฎีกา, 2563)

อีกหลักการที่สำคัญในเรื่องนี้ คือ หลักความจำเป็นและความได้สัดส่วน (Necessity and Proportionality) การพิจารณาว่าควรปล่อยตัวผู้ต้องหาหรือไม่ต้องขึ้นอยู่กับการประเมินความเสี่ยงตามข้อเท็จจริงเฉพาะของคดีการกักขังผู้ต้องหาควรทำเฉพาะในกรณีที่มีเหตุผลที่ชัดเจน เช่น ความเสี่ยงในการหลบหนี หรือความเสี่ยงที่จะก่ออันตรายต่อสังคม การปล่อยตัวผู้ต้องหาไม่ควรทำในกรณีที่ผู้ต้องหามีความเสี่ยงในการกระทำความผิดซ้ำหรือก่อให้เกิดอันตรายต่อสาธารณะ ในขณะเดียวกัน หากผู้ต้องหามีความเสี่ยงต่ำและมีโอกาสที่จะปฏิบัติตามเงื่อนไขการปล่อยตัว ควรพิจารณาใช้วิธีการที่เบากว่า เช่น การติดตามผลด้วยอุปกรณ์อิเล็กทรอนิกส์หรือการรายงานตัวเป็นระยะ (ศูนย์ทนายความเพื่อสิทธิมนุษยชน, 2566ข)

วิธีดำเนินการวิจัย

การวิจัยในครั้งนี้เป็นการศึกษารูปแบบวิจัยเชิงคุณภาพ ศึกษาเกี่ยวกับการปล่อยตัวชั่วคราวในระหว่างการพิจารณาคดี โดยใช้วิธีการศึกษาดังนี้

1. เชิงเอกสาร โดยวิธีพัฒนาเชิงวิเคราะห์ ใช้กระบวนการศึกษาค้นคว้า และรวบรวมข้อมูลจากตำรา หนังสือ บทความ วารสาร เอกสารที่เผยแพร่ทางราชการหรือหน่วยงานต่าง ๆ รวมทั้งข้อมูลข่าวสารจากอินเตอร์เน็ต

2. ศึกษาเชิงคุณภาพ โดยศึกษาหาจากการสัมภาษณ์ ผู้มีส่วนได้เสีย เช่น พนักงานสอบสวน อัยการ ผู้พิพากษา

ผลการวิจัย

จากการศึกษาเรื่อง การปล่อยตัวผู้ต้องหาชั่วคราว ตามประมวลกฎหมายวิธีพิจารณาความอาญา มาตรา 108/1 ฉบับแก้ไขเพิ่มเติม พ.ศ. 2566 สามารถสรุปผลการศึกษาและข้อเสนอแนะดังต่อไปนี้

ในปัจจุบันปัญหาการปล่อยตัวผู้ต้องหาชั่วคราวในคดีอาญาเผชิญกับความซับซ้อนหลายประการ ซึ่งการตีความของศาลต่อข้อกำหนดเกี่ยวกับ “อันตรายประการอื่น” กลายเป็นประเด็นสำคัญที่ทำให้กระบวนการปล่อยตัวมีความยากลำบาก โดยเฉพาะในกรณีที่ผู้ต้องหาไม่มีความเสี่ยงที่จะหลบหนีหรือสร้างอันตรายทางร่างกายแก่บุคคลอื่นในหลายกรณีปัญหานี้ถูกพบในคดีที่เกี่ยวข้องกับนักเคลื่อนไหวทางการเมือง ซึ่งศาลมักมองว่าการปล่อยตัวอาจส่งผลกระทบต่อความสงบเรียบร้อยของสังคม ทั้งที่ไม่มีหลักฐานที่ชัดเจน

มาตรฐานการพิสูจน์ในกฎหมายไทยยังคงมีความคลุมเครือ ซึ่งเมื่อเปรียบเทียบกับประเทศสหรัฐอเมริกา จะเห็นว่ามีการใช้หลักฐานที่ชัดเจนและน่าเชื่อถือ (clear and convincing evidence) ในการพิสูจน์ว่าผู้ต้องหามีความเสี่ยงที่จะก่ออันตรายก่อนที่จะตัดสินใจไม่ปล่อยตัว โดยเฉพาะอย่างยิ่ง

ในกฎหมาย Bail Reform Act of 1984 (Federal Judicial Center, 2022) ที่มีความชัดเจนกว่ากฎหมายไทยที่มีข้อบกพร่องที่ควรปรับปรุง

ขอบเขตของคำว่า “อันตราย” ในกฎหมายสหรัฐฯ ถูกระบุไว้อย่างชัดเจน พร้อมกับความจำเป็นที่ต้องมีหลักฐานที่ชัดเจนและน่าเชื่อถือ หากจะไม่อนุญาตให้มีการปล่อยตัวชั่วคราว ซึ่งความหมายของ “อันตรายต่อความปลอดภัยของผู้อื่นหรือชุมชน” ภายใต้การตีความของศาลในสหรัฐอเมริกามีความชัดเจน ซึ่งมีอยู่ 7 กรณี (Federal Judicial Center, 2022) ได้แก่

1. คดีมีความเกี่ยวข้องกับอาชญากรรมที่ใช้ความรุนแรง (crime of violence) หรืออาชญากรรมการก่อการร้าย (crime of terrorism) ที่มีโทษจำคุกสูงสุดอย่างน้อย 10 ปี
2. คดีที่มีโทษสูงสุดจำคุกตลอดชีวิตหรือประหารชีวิต
3. คดีเกี่ยวกับการกระทำความผิดเกี่ยวกับสารเคมีควบคุม ที่มีโทษจำคุกสูงสุดอย่างน้อย 10 ปี
4. คดีที่มีความผิดร้ายแรง และผู้ต้องหาเคยโดยศาลตัดสินว่าได้กระทำผิดฐานความผิดที่ (1), (2), หรือ (3) แล้วอย่างน้อย 2 ความผิด
5. ความผิดร้ายแรงที่ไม่ใช่อาชญากรรมที่ใช้ความรุนแรง (crime of violence) แต่มีเด็กเป็นผู้เสียหาย หรือมีการครอบครองอาวุธปืน อุปกรณ์ทำลายล้าง หรืออาวุธอันตรายอื่น
6. มีความเสี่ยงร้ายแรงว่าผู้ต้องหาจะหลบหนี
7. มีความเสี่ยงร้ายแรงว่าผู้ต้องหาจะกระทำการอันเป็นอุปสรรคต่อกระบวนการยุติธรรม ขู่หรือทำร้ายพยานหรือลูกขุน

ในขณะที่ในประเทศไทย ขาดมาตรฐานการพิสูจน์เชิงกฎหมายทำให้เกิดความไม่แน่นอนและไม่ชัดเจน ส่งผลให้การไม่อนุญาตให้ประกันตัวในบางคดีอาจเป็นการลิดรอนสิทธิของผู้ต้องหาโดยไม่จำเป็นหรือถูกใช้เป็นเครื่องมือในการควบคุมผู้ที่เกี่ยวข้องกับการเมืองหรือการชุมนุม สถานการณ์ดังกล่าวสะท้อนให้เห็นถึงช่องว่างในระบบกฎหมายไทย โดยเฉพาะในคดีที่เกี่ยวข้องกับนักเคลื่อนไหวทางการเมือง เช่น คดี “เก็ท” และ “ใบปอ” ที่ทั้งสองถูกจับกุมและปฏิเสธการประกันตัวหลายครั้ง ส่งผลให้ผู้ต้องหาหรือจำเลยไม่สามารถทราบได้ว่ากิจกรรมหรือการกระทำใดที่ศาลอาจตีความว่าเป็น “อันตรายประการอื่น” ซึ่งทำให้ไม่สามารถวางแผนชีวิตได้อย่างชัดเจน (ไทยรัฐออนไลน์, 2566)

สรุปและอภิปรายผล

การปรับปรุงระบบการปล่อยตัวผู้ต้องหาชั่วคราวจึงเป็นเรื่องที่สำคัญและจำเป็นอย่างยิ่ง เพื่อให้สอดคล้องกับหลักสิทธิมนุษยชนและสร้างความเป็นธรรมในกระบวนการยุติธรรม นอกจากการชี้แจงและกำหนดมาตรฐานการพิสูจน์ที่ชัดเจนและการประสานงานระหว่างหน่วยงานรัฐและองค์กรภาคประชาชนก็จะช่วยในการเฝ้าระวังและตรวจสอบกระบวนการปล่อยตัวผู้ต้องหา เพื่อให้การปฏิบัติตามกฎหมายเป็นไปอย่างถูกต้องและเป็นธรรม อีกทั้งยังเป็นการสร้างความเชื่อมั่นในกระบวนการยุติธรรมของประชาชน

ความเข้าใจในความแตกต่างระหว่างกฎหมายไทยและสหรัฐอเมริกาเกี่ยวกับการปล่อยตัวผู้ต้องหาชั่วคราวมีความสำคัญต่อการพัฒนากฎหมายไทยให้ทันสมัยและตอบสนองต่อความต้องการของสังคมอย่างมีประสิทธิภาพ การศึกษาแนวทางที่ใช้ในต่างประเทศและการปรับใช้ให้เข้ากับบริบทของไทยจะช่วยลดความท้าทายที่เกิดขึ้นในกระบวนการนี้ โดยเฉพาะการตีความ “อันตรายประการอื่น” ที่มี

ขอบเขตกว้าง ส่งผลให้ผู้ต้องหาหลายคนไม่ได้รับการประกันตัว แม้รัฐธรรมนูญจะรับรองสิทธินี้ เพื่อเสริมสร้างความเป็นธรรมแล้วก็ตาม

ข้อเสนอแนะ

ควรมีแนวทางการตีความคำว่า “อันตรายประการอื่น” ตามประมวลกฎหมายวิธีพิจารณาความอาญามาตรา 108/1 ที่ชัดเจนว่ามีประการบ้าง ให้เหมือนกับของประเทศสหรัฐอเมริกาที่มีการกำหนดอย่างชัดเจนว่า การก่ออันตรายประการอื่นมี 7 กรณี หากข้อเท็จจริงไม่เข้าหลักเกณฑ์ 7 กรณีดังกล่าว ถือว่าไม่มีการก่ออันตรายประการอื่นรัฐต้องปล่อยตัวชั่วคราว นอกจากนี้ควรมีมาตรการที่ช่วยลดความเหลื่อมล้ำในการเข้าถึงสิทธิประกันตัว โดยเฉพาะสำหรับกลุ่มคนที่มีรายได้น้อย ซึ่งอาจนำไปสู่การสร้างโอกาสให้ทุกคนมีสิทธิในการประกันตัวอย่างเท่าเทียม การมีส่วนร่วมของประชาชนและองค์กรต่าง ๆ

การไม่ปล่อยชั่วคราวจะต้องมีเหตุผลตามกฎหมายในการออกคำสั่งเพื่อก่อให้เกิดความยุติธรรมกับผู้รับคำสั่ง และถ้าไม่มีเหตุผลอื่น ๆ ตามมาตรา 108/1 ก็จะต้องระบุถึงเหตุผลความจำเป็นในการเรียกหลักประกัน โดยระบุเหตุผลให้ชัดแจ้งเป็นหนังสือ เพื่อให้โอกาสผู้ต้องหาหรือจำเลยได้ทราบถึงเหตุผลในการไม่อนุญาตให้ปล่อยตัวชั่วคราว

กฎหมายไทยมีการกำหนดขอบเขตและความหมายของคำว่าอันตรายต่อความปลอดภัยของผู้อื่นและชุมชนไว้ในบทบาทกฎหมายและคำพิพากษา ทำให้บุคคลทั่วไปสามารถเข้าใจได้ว่าการกระทำใดบ้างที่เข้าข่ายอันตราย ซึ่งอาจเป็นเหตุให้ผู้ต้องหาไม่ได้การปล่อยตัวชั่วคราว อีกทั้งกฎหมายยังกำหนดมาตรฐานการพิสูจน์ไว้อย่างชัดเจนว่าโจทก์ต้องนำเสนอหลักฐานที่ชัดเจนและน่าเชื่อถือได้ว่ามีเหตุห้ามมิให้ประกันตัว จึงเห็นว่าควรแก้ไขระบบการปล่อยตัวชั่วคราวของประเทศให้มีมาตรฐานมากขึ้นโดยนำหลักเกณฑ์การปล่อยตัวชั่วคราวของสหรัฐอเมริกามาใช้กับไทย

เอกสารอ้างอิง

ณัฐพงษ์ ชูชมกลิ่น (ม.ป.ป.) ปัญหากฎหมายเกี่ยวกับการปล่อยตัวชั่วคราวในคดีอาญา (ค้นคว้าอิสระหลักสูตรนิติศาสตรมหาบัณฑิต). มหาวิทยาลัยรามคำแหง, ตรัง.

ทิพย์รัตน์ กุหลาบแก้ว, ศิวพร เสาวคนธ และ คมสัน สุขมาก (2564). ปัญหาทางกฎหมายในการปล่อยตัวชั่วคราวโดยไม่ต้องมีประกันหรือหลักประกันในชั้นสอบสวน. วารสารการศึกษาและการพัฒนาสังคม , 15(1), 98-107.

ไทยพับลิก้า (2567). จาก “นักโทษล้นคุก” ถึงวิกฤติหลักนิติธรรม กับ “ปริญญา เทวานฤมิตรกุล”. สืบค้นเมื่อ 1 มกราคม 2568 จาก: https://thaipublica.org/2024/04/rule-of-law-crisis/

ไทยรัฐออนไลน์ (2566). ศาลสั่งถอนประกัน เก็ท โสภณ และใบปอ ณัฐนิช ผิดเงื่อนไข ม.112 ชุมนุมช่วงเอเปก สืบค้นเมื่อ 1 กุมภาพันธ์ 2568 จาก https://plus.thairath.co.th/topic/politics&society/102647

พระราชบัญญัติให้ใช้ประมวลกฎหมายวิธีพิจารณาความอาญา พ.ศ. 2477.

วันชัย โตความรู้ (ม.ป.ป.) หลักนิติธรรมกับการปล่อยตัวชั่วคราวผู้ต้องหาหรือจำเลยในคดีอาญา (รายงานหลักสูตรนิติธรรมเพื่อประชาธิปไตย รุ่นที่ 4) วิทยาลัยรัฐธรรมนูญ, สำนักงานศาลรัฐธรรมนูญ.

วิภารัตน์ สุขสุวรรณ์ (2557) การใช้ดุลพินิจในการปล่อยชั่วคราว : ศึกษากรณีศาลจังหวัดทุ่งสง (ค้นคว้าอิสระ หลักสูตรผู้พิพากษาผู้บริหารในศาลชั้นต้น). สถาบันพัฒนาข้าราชการศาลยุติธรรม.

ศาลฎีกา (2563). การขอปล่อยชั่วคราว. สืบค้นเมื่อ 20 มกราคม 2568 จาก https://www.supremecourt.or.th/division/แผนกคดีอาญาของผู้ดำรงตำแหน่งทางการเมือง/การขอปล่อยชั่วคราว

ศูนย์ทนายความเพื่อสิทธิมนุษยชน. (2566ก). พิจารณา “ปัญหาสิทธิประกันตัว” จากตัวบทกฎหมายในไทยถึงสหรัฐ. สืบค้นเมื่อ 20 มกราคม 2568 จาก https://tlhr2014.com/archives/52922

ศูนย์ทนายความเพื่อสิทธิมนุษยชน. (2566ข). สำรวจ “สิทธิในการประกันตัว” ในกฎหมายสิทธิมนุษยชนระหว่างประเทศ. สืบค้นเมื่อ 20 มกราคม 2568 จาก https://tlhr2014.com/archives/54837

Federal Judicial Center (2022). The Bail Reform Act of 1984 (4th edition). Washington DC.

มาตรการทางกฎหมายเกี่ยวกับปัญหาการโฆษณาของวิชาชีพทนายความ ตามข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529

Legal Measures Concerning the Problems of Lawyer Advertising under the Lawyers Council's Code of Conduct B.E. 2529

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาแนวทางการแก้ไขข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ ในประเด็นการโฆษณาของผู้ประกอบวิชาชีพทนายความ โดยใช้วิธีการวิจัยเชิงคุณภาพ ซึ่งประกอบด้วยการวิจัยเอกสารและการสัมภาษณ์เชิงลึก โดยเก็บข้อมูลจากการสัมภาษณ์ ซึ่งใช้วิธีการเลือกบุคคลผู้ให้สัมภาษณ์แบบเจาะจง ประกอบด้วย ทนายความ 20 คน ลูกความ 20 คน และผู้ทรงคุณวุฒิทางด้านกฎหมาย 5 คน เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล คือ แบบสัมภาษณ์ชนิดมีโครงสร้าง (Structured Interview) และจากการวิจัยเอกสารแล้วนำมาศึกษาวิเคราะห์ร่วมกับการสัมภาษณ์เชิงลึก ผลการวิจัย พบว่า สภาทนายความ ซึ่งเป็นองค์กรกำกับดูแลผู้ประกอบวิชาชีพทนายความได้ตราข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ขึ้น เพื่อเป็นแนวทางปฏิบัติสำหรับทนายความ ซึ่งข้อบังคับดังกล่าว ในข้อ 17 ได้ห้ามทนายความโฆษณาข้อมูลส่วนตัวและข้อมูลการประกอบวิชาชีพ ซึ่งก่อให้เกิดปัญหาในทางปฏิบัติหลายประการ ทั้งต่อตัวทนายความ ผู้มีอรรถคดี วงการวิชาชีพและสังคมโดยรวม และเมื่อศึกษาของต่างประเทศ พบว่า ในปัจจุบันหลายประเทศได้อนุญาตให้ทนายความโฆษณาข้อมูลส่วนตัวและข้อมูลการประกอบวิชาชีพได้ภายใต้เงื่อนไขที่กำหนด ดังนั้น ด้วยเหตุดังกล่าวสภาทนายความจึงควรพิจารณาแก้ไขข้อบังคับว่าด้วยมรรยาททนายความ พ.ศ. 2529 ข้อ 17 ในเรื่องการโฆษณา โดยอนุญาตให้ทนายความโฆษณาข้อมูลส่วนตัวและข้อมูลการประกอบวิชาชีพได้ ภายใต้เงื่อนไขที่เหมาะสมเพื่อแก้ไขปัญหาที่เกิดขึ้น

คำสำคัญ: การโฆษณาของวิชาชีพทนายความ, มรรยาททนายความ

Abstract

This research aims to study the guidelines for amending the Lawyers Council's Code of Conduct regarding lawyer advertising. This qualitative research employed documentary research and in-depth interviews. Data were collected through purposive sampling interviews with 20 lawyers, 20 clients, and 5 legal experts. The structured interview form was used as the data collection instrument. The collected data from the documents and in-depth interviews were analyzed.

The research found that the Lawyers Council, the regulatory body for attorneys, issued the Lawyers Council's Code of Conduct B.E. 2529 to guide attorneys' conduct. Article 17 of the Code of Conduct prohibits attorneys from advertising personal information and professional information. This regulation has caused several practical problems for attorneys, clients, the legal profession, and society. The study of foreign practices revealed that many countries currently allow attorneys to advertise personal and professional information under specific conditions.

Therefore, the Lawyers Council should consider amending Article 17 of the Lawyers Council's Code of Conduct B.E. 2529 regarding advertising, allowing attorneys to advertise personal and professional information under appropriate conditions to address the problems.

Keywords: Advertising of the legal profession, Lawyer's ethics

บทนำ

คำว่า "การโฆษณา" ตรงกับคำศัพท์ภาษาอังกฤษว่า "Advertising" มีที่มาจากรากศัพท์ในภาษาลาตินว่า "ad vertere" ซึ่งแปลว่า "การหันเหจิตใจไปสู่" หรือ "To turn the mind toward" ซึ่งหมายความถึง การกระตุ้นเร้าใจให้ผู้บริโภคหรือผู้ซื้อหันเหความสนใจจากสิ่งอื่น ๆ มาสนใจงานโฆษณาจนตัดสินใจซื้อผลิตภัณฑ์ที่เสนอขายนั้น (กัญจณิพัฐ วงศ์สุเมธรต์, 2549)

การโฆษณาถือเป็นส่วนหนึ่งของระบบเศรษฐกิจและมีความสัมพันธ์ โดยตรงกับการผลิต การจัดจำหน่ายสินค้า การตลาด และการขาย ผู้ประกอบธุรกิจจึงจำเป็นต้องใช้การโฆษณา เพื่อให้ผู้ซื้อได้รับรู้ข้อมูลของสินค้าหรือบริการที่ผู้ขายประสงค์ที่จะเสนอขาย บทบาทหน้าที่พื้นฐานของการโฆษณา คือการสื่อสารจากผู้โฆษณาไปยังกลุ่มเป้าหมาย เพื่อสร้างแรงจูงใจให้กับกลุ่มเป้าหมายและตอบสนองต่อวัตถุประสงค์ทางการตลาดของผู้โฆษณา การโฆษณาจึงต้องประกอบด้วยกิจกรรมหลายอย่าง โดยการใช้สื่อหลากหลายประเภทเพื่อที่จะสามารถเข้าถึงผู้รับสารกลุ่มเป้าหมายที่กำหนดไว้ ทั้งนี้ ผู้โฆษณาจะต้องพยายามสร้างสรรค์งานโฆษณาให้น่าสนใจจึงจะสามารถดึงดูดความสนใจของกลุ่มเป้าหมายได้ (ธัชมน ศรีแก่นจันทร์, 2546) อย่างไรก็ตามมีประเด็นที่น่ากังวล เช่น การให้ข้อมูลที่เป็นเท็จ การโฆษณาโอ้อวดเกินจริง หรือการโฆษณาที่ขัดต่อศีลธรรมอันดี ซึ่งเป็นปัญหาที่ประเทศไทยพยายามหามาตรการมาควบคุมดูแล เพื่อคุ้มครองผู้บริโภคและรักษาความเป็นธรรมในการแข่งขัน

ในประเทศไทย มีกฎหมายหลายฉบับที่เกี่ยวข้องกับการควบคุมการโฆษณาหนึ่งในนั้น คือ พระราชบัญญัติคุ้มครองผู้บริโภค พ.ศ. 2522 ซึ่งได้กำหนดให้มีคณะกรรมการว่าด้วยการโฆษณาเพื่อทำหน้าที่กำกับดูแลการโฆษณาของผู้ประกอบธุรกิจ ซึ่งโดยทั่วไปแล้วผู้ประกอบธุรกิจสามารถทำการโฆษณาได้ แต่ต้องอยู่ภายใต้กรอบของกฎหมายที่เกี่ยวข้อง นอกจากนี้ ผู้ประกอบธุรกิจบางสาขาอาชีพที่มีลักษณะเป็น "วิชาชีพ" ก็ยังต้องปฏิบัติตามข้อบังคับขององค์กรวิชาชีพนั้น ๆ ในการโฆษณาอีกด้วย

"วิชาชีพ" หมายถึง อาชีพที่มีลักษณะเป็นผู้มีความรู้ชั้นสูงที่จะต้องผ่านการศึกษาอบรมมาเป็นเวลาหลายปีและเป็นอาชีพที่มีสังคมเป็นหมู่คณะ มีขนบธรรมเนียมและจรรยาบรรณของหมู่คณะโดยเฉพาะและหมู่คณะวิชาชีพนั้น ๆ จะคอยสอดส่องดูแลมวลสมาชิกให้อยู่ในกรอบของขนบธรรมเนียมของวิชาชีพ (จิตติ ติงศภัทิย์, 2542)

ในประเทศไทย วิชาชีพทนายความมีบทบาทสำคัญอย่างยิ่ง ในการธำรงความยุติธรรมและรักษาความศักดิ์สิทธิ์ของกฎหมาย การปฏิบัติหน้าที่ของทนายความจึงต้องตั้งอยู่บนพื้นฐานของจริยธรรมและมรรยาทแห่งวิชาชีพ เพื่อเสริมสร้างความน่าเชื่อถือและความไว้วางใจจากประชาชนผู้รับบริการทางกฎหมาย ด้วยเหตุนี้ วิชาชีพทนายความจึงอยู่ภายใต้การดูแลของสภาทนายความ ซึ่งเป็นองค์กรที่ก่อตั้งขึ้นตามพระราชบัญญัติทนายความ พ.ศ. 2528 โดยมีอำนาจหน้าที่ในการออกข้อบังคับและระเบียบต่าง ๆ เพื่อควบคุมการดำเนินงานของทนายความทั่วประเทศ หนึ่งในข้อบังคับที่สำคัญ คือ “ข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529” ซึ่งเป็นกลไกหลักในการกำหนดแนวทางและข้อห้ามในการประกอบวิชาชีพทนายความ โดยมีข้อกำหนดหลายประการที่ทนายความต้องปฏิบัติตามรวมถึงข้อ 17 ที่เกี่ยวข้องกับการจำกัดการโฆษณาของทนายความ ซึ่งในอดีตที่ผ่านมาการที่การโฆษณาของทนายความยังไม่มีหลักเกณฑ์ที่ชัดเจน อาจนำมาซึ่งประเด็นปัญหาที่ควรพิจารณา ดังนี้

1. การแข่งขันที่ไม่สมบูรณ์ กล่าวคือ ทนายความบางรายอาจใช้การสื่อสารประชาสัมพันธ์ในลักษณะที่มุ่งเน้นการสร้างความได้เปรียบทางการแข่งขัน โดยอาจนำเสนอเงื่อนไขหรืออัตราค่าบริการที่ต่ำกว่ามาตรฐาน ซึ่งอาจส่งผลกระทบต่อความเป็นธรรมทั้งต่อผู้บริโภคและเพื่อนร่วมวิชาชีพ

2. การนำเสนอคุณสมบัติที่เกินจริง กล่าวคือ การสื่อสารประชาสัมพันธ์ที่ไม่เหมาะสมอาจก่อให้เกิดความเข้าใจผิดแก่ผู้บริโภคเกี่ยวกับความรู้ ความสามารถที่แท้จริงของทนายความและนำไปสู่การตัดสินใจเลือกทนายความที่ไม่สอดคล้องกับความต้องการของตนเอง

3. การชักจูงผู้มีคดีความด้วยกลยุทธ์เชิงธุรกิจ กล่าวคือ การสื่อสารประชาสัมพันธ์ที่เน้นเพียงผลประโยชน์ทางธุรกิจ อาจทำให้ทนายความให้ความสำคัญกับการแสวงหาผลกำไรมากกว่าการให้บริการทางกฎหมายอย่างเต็มที่ และอาจละเลยผลประโยชน์ของผู้บริโภคในภาพรวม

เพื่อแก้ไขปัญหาที่เกิดจากการโฆษณาของทนายความดังกล่าวข้างต้น ทำให้สภาทนายความออกข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ในหมวดที่ 4 ว่าด้วยมรรยาทต่อทนายความด้วยกันต่อประชาชนผู้มีอรรถคดีและอื่น ๆ โดยมีข้อบังคับในหมวดนี้ ข้อที่ 17 เป็นหนึ่งในข้อบังคับที่สำคัญ ซึ่งมีเจตนารมณ์เพื่อป้องกันการโฆษณาที่โอ้อวดเกินจริงเป็นเชิงชักชวน หรือก่อให้เกิดความเข้าใจผิดแก่ประชาชน โดยได้บัญญัติห้ามมิให้ทนายความประกาศโฆษณา หรือยอมให้ผู้อื่นประกาศโฆษณาใด ๆ ดังต่อไปนี้

1. อัตราค่าจ้างว่าความ หรือแจ้งว่าไม่เรียกร้องค่าจ้างว่าความ เว้นแต่การประกาศโฆษณาของทนายความเกี่ยวกับการช่วยเหลือประชาชนทางกฎหมาย ซึ่งดำเนินการโดยสภาทนายความเองหรือโดยสถาบัน สมาคม องค์การ หรือส่วนราชการใดที่เกี่ยวข้อง หรือ

2. ชื่อ คุณวุฒิ ตำแหน่ง ถิ่นที่อยู่ หรือสำนักงานอันเป็นไปในทางโอ้อวดเป็นเชิงชักชวนให้ผู้มีอรรถคดีมาหาเพื่อเป็นทนายความว่าต่างหรือแก้ต่างให้เว้นแต่การแสดง ชื่อ คุณวุฒิ หรืออื่น ๆ ดังกล่าวตามสมควรโดยสุภาพ

จากข้อบังคับในข้อ 17 นี้ สามารถสรุปได้ว่า

1. ห้ามมิให้ทนายความโฆษณาหรือยอมให้ผู้อื่นโฆษณาอัตราค่าจ้างว่าความ

ข้อบังคับข้อนี้ ห้ามทั้งตัวทนายความเองและบุคคลอื่นที่ไม่ใช่ทนายความ มิให้ทำการโฆษณาอัตราค่าจ้างว่าความของทนายความ ซึ่งอัตราค่าจ้างว่าความของทนายความ ก็หมายถึง อัตราค่าตอบแทนในการดำเนินคดีในชั้นศาลที่ทนายความจะคิดจากลูกความ ในปัจจุบันการกำหนดอัตราค่าจ้าง

ว่าความของทนายความไม่มีหลักเกณฑ์หรือมาตรฐานที่แน่นอนตายตัวกำหนดไว้ แต่จะขึ้นอยู่กับการกำหนดของทนายความแต่ละคน และความพึงพอใจของลูกความแต่ละราย

แต่แม้ว่าจะไม่มีหลักเกณฑ์ที่แน่นอนในการกำหนดอัตราค่าจ้างว่าความ แต่ทนายความส่วนใหญ่ก็มักจะกำหนดอัตราค่าจ้างว่าความโดยพิจารณาจากปัจจัยต่าง ๆ เช่น ทุนทรัพย์ในคดี ความยากง่ายของคดี ประสบการณ์และความเชี่ยวชาญของทนายความ เช่น ตัวอย่างคดีจัดการมรดก โดยลักษณะคดีจะเป็นคดีที่เกี่ยวข้องกับการรวบรวมทรัพย์สินของผู้ตาย การชำระหนี้สิน และการแบ่งปันทรัพย์สินให้แก่ทายาท ซึ่งอาจมีทั้งกรณีที่ไม่มีข้อพิพาทและกรณีที่มีข้อพิพาทระหว่างทายาท การคิดค่าจ้างโดยประมาณก็จะแบ่งเป็นกรณีไม่มีข้อพิพาท กรณีนี้ทนายความอาจคิดค่าจ้างเป็นรายครั้งหรือรายชั่วโมง สำหรับการดำเนินการ เช่น การยื่นคำร้องต่อศาล การติดต่อหน่วยงานราชการ หรืออาจคิดเป็นค่าบริการเหมาจ่ายสำหรับการดำเนินการทั้งหมดจนแล้วเสร็จ ซึ่งอาจมีราคาตั้งแต่ 15,000 บาท ไปจนถึง 50,000 บาท หรือมากกว่านั้น ขึ้นอยู่กับความซับซ้อนของทรัพย์มรดกและจำนวนทายาท ส่วนกรณีมีข้อพิพาท ค่าจ้างทนายความมักจะสูงกว่ากรณีไม่มีข้อพิพาท เนื่องจากต้องมีการดำเนินกระบวนพิจารณาในศาล มีการสืบพยาน และอาจต้องใช้เวลาและทักษะในการต่อสู้คดีมากขึ้น ค่าจ้างอาจคิดเป็นรายครั้ง/รายชั่วโมง หรือค่าบริการเหมาจ่ายที่สูงขึ้น เช่น เริ่มต้นที่ 50,000 บาท หรืออาจคิดเป็นเปอร์เซ็นต์จากทรัพย์มรดกที่แบ่งได้ นอกจากนี้ตัวอย่างคดีละเมิด เช่น อุบัติเหตุจราจร ลักษณะคดีจะเป็นคดีที่ผู้เสียหายได้รับความเสียหายต่อชีวิต ร่างกาย หรือทรัพย์สิน อันเนื่องมาจากการกระทำโดยประมาทหรือจงใจของผู้อื่น ซึ่งการคิดค่าจ้างในคดีละเมิดมักจะผันแปรตามความเสียหายที่เกิดขึ้น ความซับซ้อนของข้อเท็จจริงและข้อกฎหมายและระยะเวลาในการดำเนินคดี ทนายความอาจคิดค่าจ้างเป็นรายครั้งหรือรายชั่วโมง สำหรับการให้คำปรึกษา การเจรจาไกล่เกลี่ย หรือการดำเนินการในชั้นศาล ในบางกรณีอาจมีการตกลงค่าจ้างเป็นเปอร์เซ็นต์จากค่าสินไหมทดแทนที่เรียกร้องได้ เช่น 10 - 30% ขึ้นอยู่กับการตกลงและความยากง่ายของคดี และหากเป็นการฟ้องร้องต่อศาลค่าบริการเหมาจ่ายอาจเริ่มต้นที่ 20,000 บาท หรือสูงกว่านั้น ขึ้นอยู่กับทุนทรัพย์ที่เรียกร้องและขั้นตอนการดำเนินคดี

ข้อบังคับข้อนี้ เป็นการห้ามเด็ดขาดไม่ว่าจะเป็นการโฆษณาในช่องทาง หรือวิธีการใดทั้งการโฆษณาในนามบัตร หนังสือเชิญชวนทั้งทางไปรษณีย์ โทรสาร หรือระบบการสื่อสารอย่างอื่น การติดโฆษณาบนกระจกหน้าสำนักงาน บนป้ายโฆษณาในที่สาธารณะ การลงโฆษณาในหนังสือพิมพ์ นิตยสาร ใบปลิว แผ่นพับ การออกอากาศทางวิทยุ หรือโทรทัศน์ หรือแม้แต่การทำหนังสือเวียนหาสมาชิกรายปี หรือตลอดชีพ ซึ่งมีสิทธิพิเศษมอบให้ เช่น ได้รับบริการการว่าความโดยไม่เสียค่าจ้าง (คณะทำงานและประสานงานคดีมรรยาททนายความ, 2548; สมชัย โรจน์วณิชย์, 2542)

2. ห้ามมิให้ทนายความโฆษณา หรือยอมให้ผู้อื่นโฆษณาว่าไม่เรียกร้องค่าจ้างว่าความ

ข้อบังคับข้อนี้ ห้ามทั้งตัวทนายความเองและบุคคลอื่นที่ไม่ใช่ทนายความ มิให้ทำการโฆษณาว่าทนายความรับที่จะว่าความให้โดยไม่เรียกร้องค่าจ้างว่าความ ซึ่งในประเด็นนี้เคยมีข้อถกเถียงระหว่างทนายความหลายคนว่า ถ้าทนายความประกาศโฆษณาว่ารับว่าความให้กับประชาชนผู้ยากไร้ โดยมีเจตนาเพื่อช่วยเหลือให้ประชาชนได้รับความยุติธรรมตามกฎหมาย โดยยืนยันว่าจะไม่คิดค่าใช้จ่ายใด ๆ ทั้งสิ้น ทนายความผู้นั้น จะผิดมรรยาททนายความตามข้อบังคับข้อนี้หรือไม่ ปัญหานี้ถ้าพิจารณากันตามตัวข้อบังคับแล้วก็ต้องถือว่าผิด เพราะเท่ากับเป็นการประกาศโฆษณาว่าไม่เรียกร้องค่าจ้างว่าความอยู่ดี แม้ว่าจะมีเจตนาดีเพียงใดก็ตาม (สุรชัย สุวรรณปรีชา, 2531) ดังนั้นข้อบังคับข้อนี้เป็นการห้ามเด็ดขาดไม่ว่าจะเป็นการโฆษณาในช่องทาง หรือวิธีการใดเช่นเดียวกับการห้ามโฆษณาอัตราค่าจ้างว่าความ แต่ข้อบังคับข้อนี้

มีข้อยกเว้นให้สามารถโฆษณาว่าไม่เรียกร้องค่าจ้างว่าความได้ ในกรณีที่เป็นการโฆษณาของทนายความเกี่ยวกับการช่วยเหลือประชาชนทางกฎหมาย ซึ่งดำเนินการโดยสภาทนายความเอง หรือโดยสถาบันสมาคม องค์การ หรือส่วนราชการที่เกี่ยวข้อง เช่น สำนักงานคณะกรรมการช่วยเหลือประชาชนทางกฎหมาย สภาทนายความ เป็นต้น

3. ห้ามมิให้ทนายความโฆษณาหรือยอมให้ผู้อื่นโฆษณา ชื่อ คุณวุฒิ ตำแหน่ง ถิ่นที่อยู่ หรือสำนักงาน อันเป็นไปในทางโอ้อวดเป็นเชิงชักชวนให้ผู้มีอรรถคดีมาหา เพื่อเป็นทนายความว่าต่างหรือแก้ต่างให้

ข้อบังคับข้อนี้ ห้ามทั้งตัวทนายความเองและบุคคลอื่นที่ไม่ใช่ทนายความ มิให้ทำการโฆษณาในทางโอ้อวด โดยมีจุดประสงค์เพื่อชักชวนให้ผู้มีคดีความเข้ามาติดต่อให้เป็นทนายความในคดีให้ เช่น โฆษณาว่าจบการศึกษามาจากที่ใดดำรง หรือเคยดำรงตำแหน่งอะไร โฆษณาว่าเป็นผู้เชี่ยวชาญทางคดีประเภทใด มีความสามารถมากกว่าทนายความคนอื่นอย่างไร หรือโฆษณาว่าเคยไปศึกษาที่ต่างประเทศ ซึ่งมีวิธีการที่จะฟ้องเรียกค่าเสียหายจากการละเมิดได้มากและมีวิธีการสืบสวนที่ทันสมัย ซึ่งจะทำให้สามารถเรียกค่าเสียหายได้สูงกว่าทนายความคนอื่น หรือพิมพ์นามบัตรระบุข้อความว่าเป็นผู้เชี่ยวชาญ ในการเขียนคำร้องขอรอการลงอาญา ซึ่งทำแล้วศาลรอการลงอาญาทุกคดีและสามารถทำให้โทษหนักกลายเป็นโทษเบาได้ หรือพิมพ์นามบัตรระบุชื่อตัว ชื่อสกุล วุฒิการศึกษา โดยเน้นวุฒิการศึกษาว่าจบการศึกษาเนติบัณฑิตไทย จบการศึกษาปริญญาโท หรือปริญญาเอกจากต่างประเทศด้วยตัวอักษรที่ใหญ่กว่า และเน้นเข้มกว่าตัวอักษรชื่อตัว ชื่อสกุล เหล่านี้เป็นต้น (คณะทำงานส่งเสริมและประสานงานคดีมรรยาททนายความ, 2548)

การจำกัดสิทธิในการประกาศโฆษณาตามข้อบังคับสภาทนายความ ว่าด้วยมรรยาททนายความข้อที่ 17 ดังกล่าว เป็นผลมาจากแนวความคิดที่สั่งสมกันมาเป็นเวลานาน ว่าวิชาชีพทนายความเป็นวิชาชีพชั้นสูง เป็นวิชาชีพที่มีเกียรติ ได้รับความเชื่อถือจากคนในสังคมดังนั้น จึงไม่ควรที่ผู้ประกอบวิชาชีพทนายความจะทำการประกาศโฆษณาตนเองในเชิงแข่งขันกัน เพื่อให้มีผู้ว่าจ้างให้ว่าความ (Hazard, Pearce, & Stempel, 1983) ดังนั้นการประกาศโฆษณาตนเองในเชิงแข่งขัน จึงถือเป็นการลดคุณค่าและความน่าเชื่อถือของวิชาชีพ นอกจากนี้ ยังมีเจตนารมณ์เพื่อรักษามาตรฐานและจริยธรรมของวิชาชีพทนายความ เพื่อป้องกันไม่ให้มีการเอารัดเอาเปรียบผู้บริโภคป้องกันการโอ้อวดเกินจริง ป้องกันการชักชวนที่ไม่เหมาะสม และเพื่อให้การแข่งขันในวิชาชีพเป็นไปอย่างเป็นธรรม (ชิตชัย ชินสันติ, 2556)

ในขณะที่สภาทนายความของประเทศไทยไม่อนุญาตให้ทนายความทำการประกาศโฆษณา แต่ก็มีองค์กรควบคุมวิชาชีพทนายความในหลายประเทศ ที่อนุญาตให้ทนายความทำการประกาศโฆษณาได้ภายใต้เงื่อนไขที่กำหนด เช่น ประเทศสหรัฐอเมริกา ประเทศอังกฤษ ประเทศแคนาดา ประเทศเยอรมนี ประเทศญี่ปุ่น ประเทศสิงคโปร์ นอกจากนี้แล้วองค์กรที่ควบคุมวิชาชีพอื่น ๆ หลายวิชาชีพในประเทศไทย เช่น วิชาชีพครู แพทย์ เภสัชกรรม วิศวกรรม สถาปนิก และบัญชี ก็ไม่ได้มีข้อกำหนดห้ามการประกาศโฆษณา แต่กลับอนุญาตให้มีการประกาศโฆษณาได้ภายใต้เงื่อนไขที่กำหนด (ชิดชัย ชินสันติ, 2556)

ดังนั้น แนวคิดในการจำกัดสิทธิในการประกาศโฆษณาของทนายความ จึงอาจนำมาซึ่งข้อจำกัดและผลกระทบที่น่าพิจารณาในหลายประการ ดังนี้

1. ทนายความที่มีความรู้ความเชี่ยวชาญเฉพาะทางอาจไม่สามารถสื่อสารข้อมูล ไปยังประชาชนได้อย่างกว้างขวางทำให้ประชาชนขาดข้อมูลสำคัญ ในการพิจารณาเลือกทนายความที่ตรงกับความต้องการของคดี (ชิดชัย ชินสันติ, 2556) ดังที่เคยปรากฏในบริบทของประเทศอังกฤษ ในอดีตที่มีการจำกัดการโฆษณาของทนายความอย่างเข้มงวด โดยอนุญาตให้แสดงเพียงป้ายชื่อสำนักงานขนาดเล็ก

เท่านั้น ข้อจำกัดดังกล่าวส่งผลให้ทนายความจำนวนไม่น้อยประสบความยากลำบากในการประกอบวิชาชีพ (ธานินทร์ กรัยวิเชียร และมุนินทร์ พงศาปาน, 2550)

2. ผู้ที่ต้องการความช่วยเหลือทางกฎหมายอาจมีข้อมูลที่จำกัด ในการประกอบการตัดสินใจเลือกทนายความทำให้บางครั้ง ต้องพึ่งพาคำแนะนำจากคนใกล้ชิด ซึ่งอาจไม่ได้มีความเข้าใจอย่างลึกซึ้งในประเด็นทางกฎหมายที่เกี่ยวข้อง หรืออาจไม่ทราบถึงทนายความที่มีความเชี่ยวชาญเฉพาะด้าน

3. การเข้าถึงบริการทางกฎหมายของประชาชน ผู้มีรายได้น้อยอาจถูกจำกัดมากยิ่งขึ้น หากทนายความที่ประสงค์จะให้ความช่วยเหลือ โดยไม่คิดค่าใช้จ่ายไม่สามารถประชาสัมพันธ์บริการของตนเองได้อย่างมีประสิทธิภาพ ทำให้ผู้ที่ต้องการความช่วยเหลืออาจไม่ทราบช่องทางในการติดต่อทนายความเหล่านั้น

4. กลไกการแข่งขันในการบริการทางกฎหมายที่อยู่ภายใต้ข้อจำกัดด้านการโฆษณา อาจส่งผลให้ผู้ที่มีคดีความมีทางเลือกที่น้อยลง และอาจต้องเผชิญกับอัตราค่าบริการที่สูงกว่าความเป็นจริง เนื่องจากขาดข้อมูลเปรียบเทียบที่เพียงพอ

5. การจำกัดการสื่อสารข้อมูลความรู้ความสามารถของทนายความสู่สาธารณะ อาจส่งผลกระทบต่อพลวัตและการพัฒนาของวิชาชีพทนายความในระยะยาว และอาจไม่เอื้อต่อการสร้างความเชื่อมั่นและความโปร่งใสในระบบการให้บริการทางกฎหมาย

อย่างไรก็ตาม แม้จะมีข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ ข้อที่ 17 แล้วก็ตาม ปัญหาการโฆษณาที่ไม่เหมาะสมของทนายความก็ยังคงมีอยู่ ทั้งนี้อันเนื่องมาจากเหตุดังต่อไปนี้

1. ความชัดเจนของข้อบังคับ ซึ่งข้อบังคับในปัจจุบันอาจยังไม่มีความชัดเจนและครอบคลุมเพียงพอ โดยเฉพาะอย่างยิ่งในประเด็นที่เกี่ยวกับการโฆษณาผ่านช่องทางสื่อสังคมออนไลน์ ซึ่งเป็นช่องทางที่ได้รับความนิยมในปัจจุบันทำให้เกิดความสับสนในการตีความ และการบังคับใช้ข้อบังคับ

2. การบังคับใช้ข้อบังคับ ซึ่งการบังคับใช้ข้อบังคับยังไม่เข้มงวดเท่าที่ควร ทำให้ทนายความบางรายยังคงฝ่าฝืนข้อบังคับโดยไม่มีการลงโทษอย่างจริงจัง ซึ่งส่งผลให้ข้อบังคับไม่มีประสิทธิภาพในการควบคุมพฤติกรรมของทนายความ

3. การเปลี่ยนแปลงของเทคโนโลยี ซึ่งปัจจุบันเทคโนโลยีที่เปลี่ยนแปลงไปอย่างรวดเร็วทำให้เกิดรูปแบบการโฆษณาใหม่ ๆ ที่ซับซ้อนมากขึ้น ซึ่งอาจเข้าข่ายเป็นการฝ่าฝืนข้อบังคับแต่ยังไม่มีแนวทางการตีความและการบังคับใช้ที่ชัดเจน

ดังนั้น หากทนายความฝ่าฝืนข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ ข้อที่ 17 ดังกล่าวจะต้องได้รับโทษทางวินัยตามที่บัญญัติไว้ในมาตรา 52 แห่งพระราชบัญญัติทนายความ พ.ศ. 2528 ซึ่งมีโทษ 3 สถาน ได้แก่ ภาคทัณฑ์ ห้ามทำการเป็นทนายความมีกำหนดไม่เกินสามปี หรือลบชื่อออกจากทะเบียนทนายความ

จากสภาพปัญหาและเหตุผลที่กล่าวมาข้างต้น ผู้วิจัยจึงสนใจที่จะศึกษามาตรการทางกฎหมายเกี่ยวกับปัญหาการโฆษณาของวิชาชีพทนายความ ตามข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 เพื่อศึกษาและวิเคราะห์ข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ที่เกี่ยวกับการโฆษณาของวิชาชีพทนายความอย่างละเอียด และเพื่อหาแนวทางในการปรับปรุงแก้ไขข้อบังคับและแนวทางการบังคับใช้ข้อบังคับให้มีประสิทธิภาพยิ่งขึ้น อีกทั้งเพื่อให้การควบคุมการโฆษณาของทนายความเป็นไปอย่างเหมาะสม และเป็นธรรมต่อทุกฝ่าย

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาข้อดีข้อเสียของข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ที่เกี่ยวกับการโฆษณาของวิชาชีพทนายความ

2. เพื่อศึกษาเปรียบเทียบข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ที่เกี่ยวกับการโฆษณาของวิชาชีพทนายความของประเทศไทยกับต่างประเทศ

3. เพื่อศึกษาปัญหาและอุปสรรคในการบังคับใช้ข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ที่เกี่ยวกับการโฆษณาของวิชาชีพทนายความ

4. เพื่อเสนอแนวทางในการปรับปรุงแก้ไขข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ที่เกี่ยวกับการโฆษณาของวิชาชีพทนายความ

แนวคิด ทฤษฎี กรอบแนวคิด

1. แนวคิดในการห้ามการโฆษณาของวิชาชีพทนายความ ตามข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529

การที่สภาทนายความตราข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 โดยบัญญัติห้ามมิให้ทนายความโฆษณาตนเอง หรือยอมให้ผู้อื่นโฆษณาตัวทนายความนั้น มีที่มาจากเหตุผลและแนวคิดดังต่อไปนี้

1.1 อาชีพทนายความมีลักษณะของความเป็นวิชาชีพ ซึ่งผู้ประกอบวิชาชีพทนายความมีเกียรติมีศักดิ์ศรีเป็นที่นับหน้าถือตาของคนในสังคม อีกทั้งการบริการของทนายความเป็นการบริการทางด้านวิชาชีพ ไม่ใช่การขายสินค้าหรือการให้บริการทั่ว ๆ ไป จึงไม่จำเป็นต้องมีการโฆษณา เพื่อเสนอบริการวิชาชีพให้กับประชาชน เป็นหน้าที่ของประชาชนผู้มีอรรถคดีที่จะต้องเข้ามาขอความช่วยเหลือจากทนายความ โดยหากอนุญาตให้ผู้ประกอบวิชาชีพทนายความทำการโฆษณาได้ จะเป็นการทำลายเกียรติและศักดิ์ศรีของวงการวิชาชีพทนายความ (อุทิศ สวยรูป อ้างถึงใน ชิดชัย ชินสันติ, 2557)

1.2 วิชาชีพทนายความไม่ใช่การประกอบธุรกิจการค้าที่มุ่งหวังแต่จะหาผลประโยชน์ ใส่ตนเอง จึงจำเป็นต้องแยกการประกอบวิชาชีพทนายความออกจากการทำการค้า วิชาชีพทนายความจึงต้องไม่มีพฤติการณ์ที่ส่อไปในทางการประกอบธุรกิจการค้า วัตถุประสงค์ของการกำหนดมรรยาททนายความในข้อนี้เพื่อมิให้การประกอบวิชาชีพทนายความเป็นไปในเชิงการค้า (คณะทำงานส่งเสริมและประสานงานคดีมรรยาททนายความ, 2548)

1.3 หากอนุญาตให้ทนายความทำการโฆษณาได้ ทนายความที่ไม่สุจริตอาจจะใช้การโฆษณาเป็นช่องทางในการให้ข้อมูลที่ไม่ถูกต้องหลอกลวงให้ประชาชนหลงเชื่อ เพื่อจะได้ว่าจ้างตนให้เป็นทนายความว่าความหรือดำเนินกระบวนพิจารณาในคดี อันจะส่งผลเสียต่อประชาชนและสังคมโดยรวม (อุทิศ สวยรูป อ้างถึงใน ชิดชัย ชินสันติ, 2557)

2. ทฤษฎีจริยธรรมวิชาชีพและความสำคัญในวิชาชีพทนายความ

เป็นแนวคิดที่เกี่ยวข้องกับการปฏิบัติงานของบุคคลในวิชาชีพต่าง ๆ โดยมีเป้าหมายเพื่อรักษามาตรฐานทางจริยธรรมและส่งเสริมความไว้วางใจในวิชาชีพนั้น ๆ สำหรับวิชาชีพทนายความ ทฤษฎีนี้มีความสำคัญอย่างยิ่ง เนื่องจากทนายความมีบทบาทสำคัญในกระบวนการยุติธรรมและการปกป้องสิทธิของประชาชน จริยธรรมในวิชาชีพทนายความไม่ได้เป็นเพียงแนวปฏิบัติ แต่เป็นรากฐานสำคัญที่กำหนดว่าทนายความควรทำหน้าที่อย่างไรในสถานการณ์ที่เกี่ยวข้องกับข้อพิพาทและความขัดแย้ง ทฤษฎีนี้มุ่งเน้น

ให้ทนายความปฏิบัติหน้าที่ด้วยความซื่อสัตย์ความเป็นกลาง และการยึดถือผลประโยชน์ของลูกความภายใต้กรอบของกฎหมาย (ชิตชัย ชินสันติ, 2556)

ความสำคัญของจริยธรรมวิชาชีพต่อทนายความ (ชิตชัย ชินสันติ, 2556) จริยธรรมในวิชาชีพเป็นสิ่งที่ช่วยกำหนดแนวทางการปฏิบัติหน้าที่ของทนายความ ในสถานการณ์ที่อาจเกิดความขัดแย้งทางจริยธรรมหรือกฎหมาย การยึดมั่นในจริยธรรมช่วยให้ทนายความสามารถรักษาความไว้วางใจจากลูกความ และสังคมได้ นอกจากนี้ ยังช่วยให้ระบบยุติธรรมดำเนินไปได้อย่างมีประสิทธิภาพและโปร่งใส เมื่อทนายความยึดมั่นในจริยธรรมวิชาชีพ จะช่วยสร้างสมดุลระหว่างผลประโยชน์ของลูกความและความยุติธรรมโดยรวม สิ่งนี้สะท้อนให้เห็นถึงบทบาทของทนายความในฐานะตัวกลางที่ช่วยปกป้องสิทธิของประชาชน ในขณะเดียวกันก็ช่วยรักษาความสงบเรียบร้อยในสังคม

3. งานวิจัยที่เกี่ยวข้อง

ชิตชัย ชินสันติ (2556) ได้ศึกษาเรื่อง ปัญหาการโฆษณาของวิชาชีพทนายความ ตามข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 พบว่า ข้อบังคับมรรยาททนายความซึ่งกำหนดห้ามมิให้มีการโฆษณาข้อมูลส่วนตัวและข้อมูลการประกอบวิชาชีพของทนายความ ทำให้เกิดปัญหาในทางปฏิบัติหลายประการ ได้แก่ 1. ทนายความที่มีความรู้ความสามารถ มีประสบการณ์หรือมีความเชี่ยวชาญเฉพาะด้าน ไม่สามารถโฆษณาเพื่อบอกกล่าวให้ประชาชนทั่วไปได้รับทราบถึงความรู้ความสามารถประสบการณ์ และความเชี่ยวชาญที่ตนเองมีอยู่ประชาชนจึงไม่ทราบข้อมูลเหล่านี้ เพื่อใช้ประกอบในการพิจารณาว่าจ้างทนายความ ทำให้ทนายความไม่มีลูกความว่าจ้างให้ว่าความ 2. ประชาชนผู้มีอรรถคดีไม่มีข้อมูลที่จะใช้ประกอบการพิจารณาตัดสินใจ เลือกทนายความที่จะว่าจ้างให้ว่าความดำเนินคดี ให้แก่ตน ทำให้อาจเลือกว่าจ้างทนายความไม่ตรงกับลักษณะคดี หรือไม่ตรงตามความต้องการที่แท้จริงอันส่งผลเสียหายต่อคดี 3. ประชาชนผู้มีอรรถคดีซึ่งไม่มีกำลังทรัพย์ในการว่าจ้างทนายความ ไม่มีช่องทางในการทราบข้อมูลการให้บริการของทนายความที่ประสงค์จะว่าความ โดยไม่เรียกร้องค่าจ้างว่าความส่งผลทำให้ประชาชนเหล่านี้ ไม่สามารถเข้าถึงกระบวนการยุติธรรม หรือเข้าถึงกระบวนการยุติธรรมอย่างไม่มีประสิทธิภาพ 4. เกิดการผูกขาดในวิชาชีพทนายความ มีผลทำให้ทนายความเรียกค่าจ้างว่าความในอัตราที่สูงเกินควร และ 5. เกิดปัญหาความไม่ยุติธรรมขึ้นในสังคม

จากปัญหาในทางปฏิบัติที่กล่าวมา ชิตชัย ชินสันติ (2556) ได้เสนอแนะว่า สภาทนายความควรพิจารณาทบทวนข้อบังคับว่าด้วยมรรยาททนายความในส่วนที่เกี่ยวข้องกับการโฆษณา โดยควรมีการปรับปรุงแก้ไขให้มีความยืดหยุ่นและสอดคล้องกับสภาพการณ์ในปัจจุบันมากขึ้น เช่น การอนุญาตให้ทนายความสามารถให้ข้อมูลเกี่ยวกับความเชี่ยวชาญ ประสบการณ์ และคุณวุฒิของตนเองได้ ภายใต้หลักเกณฑ์และวิธีการที่สภาทนายความกำหนด เพื่อให้ประชาชนได้รับข้อมูลที่เพียงพอต่อการตัดสินใจเลือกใช้บริการทางกฎหมาย และส่งเสริมการแข่งขันที่เป็นธรรมในวิชาชีพ

อย่างไรก็ตาม งานวิจัยของชิตชัย ชินสันติ มุ่งเน้นไปที่การวิเคราะห์ปัญหาและเสนอแนะแนวทางการปรับปรุงแก้ไขข้อบังคับในภาพรวม สำหรับบทความนี้ ผู้เขียนมีความสนใจที่จะศึกษาในเชิงลึกถึงมาตรการทางกฎหมายที่เฉพาะเจาะจงในการควบคุมการโฆษณาของวิชาชีพทนายความ ตามข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 โดยจะทำการวิเคราะห์ถึงความชัดเจน ความเหมาะสม และประสิทธิภาพของข้อบังคับในแต่ละประเด็น โดยเฉพาะอย่างยิ่งในบริบทของสื่อสังคมออนไลน์และเทคโนโลยีที่เปลี่ยนแปลงไป ซึ่งเป็นประเด็นที่ยังไม่ได้ศึกษาอย่างละเอียดในงานวิจัยของ ชิตชัย ชินสันติ ทั้งนี้ เพื่อนำมาเป็นข้อมูลในการเสนอแนะแนวทางการปรับปรุงกฎหมายและแนวทางการบังคับใช้

ในประเทศไทยให้มีประสิทธิภาพและเป็นธรรมต่อทุกฝ่ายมากยิ่งขึ้น

วิธีดำเนินการวิจัย

ผู้วิจัยได้เลือกใช้วิธีการวิจัยเชิงคุณภาพ วิธีการนี้มุ่งเน้นการทำความเข้าใจปรากฏการณ์ทางสังคมในเชิงลึก โดยอาศัยข้อมูลที่ได้จากการวิจัยเอกสาร และการสัมภาษณ์เชิงลึกเป็นเครื่องมือสำคัญในการเก็บรวบรวมข้อมูล

การวิจัยเอกสาร (Documentary Research) ผู้วิจัยได้ทำการศึกษาเอกสาร และงานวิจัยที่เกี่ยวข้องอย่างครอบคลุม ซึ่งรวมถึงข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 วิทยานิพนธ์ บทความวิจัย หนังสือ ตำราทางกฎหมาย ฐานข้อมูลออนไลน์ และเอกสารอื่น ๆ ที่เกี่ยวข้องกับปัญหาการโฆษณาของวิชาชีพทนายความ ทั้งในบริบทของประเทศไทยและต่างประเทศ ผลจากการวิเคราะห์เอกสารเหล่านี้จะถูกนำมาใช้เป็นพื้นฐานในการทำความเข้าใจประเด็นปัญหา บริบททางกฎหมาย และแนวคิดทางทฤษฎีที่เกี่ยวข้อง

การสัมภาษณ์เชิงลึก ผู้วิจัยยังได้ทำการสัมภาษณ์เชิงลึกกับผู้ให้ข้อมูลสำคัญ (Key Informants) ที่มีความเกี่ยวข้องกับประเด็นการวิจัยโดยตรง ซึ่งประกอบด้วย ทนายความที่มีประสบการณ์ในการประกอบวิชาชีพ ลูกความที่เคยใช้บริการทนายความ และผู้ทรงคุณวุฒิทางด้านกฎหมายที่มีความเชี่ยวชาญในเรื่องจริยธรรมวิชาชีพและการกำกับดูแลทนายความ ในประเด็นเกี่ยวกับความคิดเห็น ประสบการณ์และมุมมองต่อข้อบังคับเกี่ยวกับการโฆษณา ปัญหาและอุปสรรคในการบังคับใช้รวมถึงแนวทางในการปรับปรุงแก้ไข

การศึกษาเชิงเปรียบเทียบกฎหมายต่างประเทศ นอกเหนือจากการศึกษาบริบทของประเทศไทยแล้ว ผู้วิจัยยังได้ทำการศึกษาเชิงเปรียบเทียบข้อกฎหมายและแนวทางการกำกับดูแลการโฆษณาของวิชาชีพทนายความในประเทศสหรัฐอเมริกา ประเทศเยอรมนี และประเทศอังกฤษ

ผลจากการวิเคราะห์ข้อมูลที่ได้จากการวิจัยเอกสารและการสัมภาษณ์เชิงลึก จะถูกนำมาสังเคราะห์ร่วมกับการศึกษาเชิงเปรียบเทียบกฎหมายต่างประเทศ เพื่อให้ได้องค์ความรู้ที่รอบด้านและนำไปสู่การเสนอแนวทางในการปรับปรุงแก้ไขข้อบังคับสภาทนายความ ว่าด้วยมรรยาททนายความ พ.ศ. 2529 ข้อ 17 ให้มีประสิทธิภาพและสอดคล้องกับบริบทของประเทศไทยมากยิ่งขึ้น

ประชากรและกลุ่มตัวอย่าง

ผู้วิจัยใช้วิธีการสุ่มตัวอย่างแบบเจาะจง (Purposive Sampling) ซึ่งเป็นการเลือกที่มีลักษณะเฉพาะโดยผู้วิจัยกำหนดคุณลักษณะ ได้แก่ ทนายความ 20 คน ลูกความ 20 คน และผู้ทรงคุณวุฒิทางด้านกฎหมาย 5 คน

เครื่องมือในการวิจัย

ผู้วิจัยใช้แบบสัมภาษณ์ชนิดมีโครงสร้าง (Structured Interview) หรือการสัมภาษณ์แบบเป็นทางการ (Formal Interview) เป็นเครื่องมือในการวิจัยโดยกำหนดหัวข้อของการสัมภาษณ์ไว้อย่างชัดเจน เพื่อผู้วิจัยจะได้ข้อมูลจากการสัมภาษณ์อย่างครบถ้วนสมบูรณ์ ซึ่งสาระสำคัญของแบบสัมภาษณ์ แบ่งเป็น 3 ส่วน ได้แก่

ส่วนที่ 1 ข้อมูลทั่วไปของผู้ให้สัมภาษณ์

ส่วนที่ 2 ความคิดเห็นของผู้ให้สัมภาษณ์ในประเด็นคำถามที่สัมภาษณ์

ส่วนที่ 3 ความคิดเห็นและข้อเสนอแนะอื่น ๆ

การวิเคราะห์ข้อมูล

ผู้วิจัยใช้วิธีการนำข้อมูลที่ได้จากการสัมภาษณ์เชิงลึกมาเปรียบเทียบความเหมือน และความแตกต่างของแต่ละบุคคลและจัดลำดับความสำคัญ แล้วนำข้อมูลที่จัดลำดับความสำคัญมาเทียบเคียงหรือเปรียบเทียบกับข้อมูลที่ได้มาจากการวิจัยเอกสารต่าง ๆ ที่เกี่ยวข้องไม่ว่าจะเป็นแนวคิด ทฤษฎี และงานวิจัยที่เกี่ยวข้อง เพื่อหาความเหมือนและความแตกต่างกันที่เกิดขึ้น แล้วนำมาวิเคราะห์ร่วมกันอย่างเป็นระบบเพื่อหาบทสรุป

ผลการวิจัย

ผู้วิจัยจัดลำดับประเด็นในการนำเสนอผลการวิจัยตามวัตถุประสงค์การวิจัย ดังนี้

ผลการวิจัยตามวัตถุประสงค์การวิจัย ข้อ 1 เพื่อศึกษาข้อดีข้อเสียของข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ที่เกี่ยวกับการโฆษณาของวิชาชีพทนายความ

จากการวิจัยเอกสารและสัมภาษณ์เชิงลึก พบว่า ข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ที่เกี่ยวกับการโฆษณาของวิชาชีพทนายความ อยู่ในข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ข้อ 17 ซึ่งข้อบังคับข้อนี้มีความสำคัญในการควบคุมการโฆษณาของทนายความและจากการสัมภาษณ์เชิงลึก ทั้งกลุ่มทนายความ ลูกความ และผู้ทรงคุณวุฒิทางด้านกฎหมาย พบว่า มีความเห็นสอดคล้องกันในเรื่องข้อดีข้อเสียของข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ที่เกี่ยวกับการโฆษณาของวิชาชีพทนายความดังนี้

ประเด็นที่ 1 ข้อบังคับห้ามโฆษณาอัตราค่าจ้างว่าความ

ข้อดี

1) ป้องกันการแข่งขันด้านราคาที่อาจนำไปสู่การลดคุณภาพการให้บริการทางกฎหมาย

2) รักษามาตรฐานวิชาชีพ โดยเน้นที่คุณภาพของบริการมากกว่าราคา

3) ป้องกันการเอารัดเอาเปรียบผู้บริโภค โดยเฉพาะผู้ที่ขาดความรู้ความเข้าใจด้านกฎหมาย

4) สร้างความเท่าเทียมในวิชาชีพ รักษาสถานะและอัตลักษณ์ทนายความ

ข้อเสีย

1) จำกัดสิทธิของผู้บริโภคในการเข้าถึงข้อมูลเปรียบเทียบอัตราค่าจ้างว่าความ

2) อาจทำให้เกิดความไม่โปร่งใสในเรื่องอัตราค่าจ้างว่าความ

3) อาจเป็นอุปสรรคต่อทนายความรุ่นใหม่หรือทนายความที่มีฐานลูกค้าจำกัดในการสร้างฐานลูกค้า

4) ลูกความเข้าถึงข้อมูลค่าใช้จ่ายยาก ขาดข้อมูลตัดสินใจในการเลือกทนายความ เปิดโอกาสเรียกอัตราค่าจ้างว่าความเกินจริง แข่งขันด้านราคาแต่ไม่สอดคล้องคุณภาพ

ประเด็นที่ 2 ข้อบังคับห้ามโฆษณาว่าไม่เรียกร้องค่าจ้างว่าความ

ข้อดี

1) ป้องกันการสร้างภาพลักษณ์ที่ไม่เป็นจริง หรือการโฆษณาที่อาจนำไปสู่การเข้าใจผิด

2) รักษามาตรฐานวิชาชีพ โดยเน้นการให้บริการที่เป็นไปตามหลักวิชาชีพ

3) ป้องกันการแข่งขันที่ไม่เป็นธรรม

4) มีความเหมาะสม ส่งผลต่อภาพลักษณ์และความเป็นกลางของทนายความ

ข้อเสีย

1) อาจจำกัดโอกาสในการให้บริการทางกฎหมายแก่ผู้ที่ขาดแคลนทุนทรัพย์

2) อาจเป็นอุปสรรคต่อการส่งเสริมการให้บริการทางกฎหมายเพื่อสังคม

3) ประชาชนบางส่วนอาจเดือดร้อนหรือเกิดความสับสนในเรื่องค่าจ้างว่าความ

ประเด็นที่ 3 ข้อบังคับห้ามโฆษณาชื่อ คุณวุฒิ ตำแหน่ง ถิ่นที่อยู่ หรือสำนักงาน อันเป็นไปในทางโอ้อวด เป็นเชิงชักชวนให้ผู้มีอรรถคดีมาหาเพื่อเป็นทนายความว่าต่าง หรือแก้ต่างให้

ข้อดี

1) รักษาภาพลักษณ์และความน่าเชื่อถือของวิชาชีพทนายความ

2) ป้องกันการโฆษณาที่เกินจริง หรืออาจก่อให้เกิดความเข้าใจผิด

3) ป้องกันการแข่งขันที่ไม่เป็นธรรมระหว่างทนายความ โดยให้เน้นที่คุณภาพของการบริการมากกว่าการโฆษณา

4) ลดการแบ่งแยกหรือตัดสินคุณภาพทนายความจากการโฆษณาสถาบันที่สำเร็จการศึกษา

5) ป้องกันการโฆษณาที่โอ้อวดเกินจริง และการชักชวนที่อาจก่อให้เกิดความเข้าใจผิดแก่ประชาชน

ข้อเสีย

1) ลูกความเข้าถึงทนายความที่มีความเชี่ยวชาญเฉพาะด้านที่ตนเองต้องการยากขึ้น

2) เป็นการจำกัดสิทธิของทนายความในการนำเสนอข้อมูลที่เป็นประโยชน์ต่อผู้ที่มีคดีความ

3) ข้อจำกัดในการโฆษณาอาจทำให้ประชาชนเข้าถึงข้อมูลเกี่ยวกับทนายความได้ยาก

4) เป็นการจำกัดสิทธิเสรีภาพในการแสดงออกของทนายความ

ผลการวิจัยตามวัตถุประสงค์การวิจัย ข้อ 2) เพื่อศึกษาเปรียบเทียบข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ที่เกี่ยวกับการโฆษณาของวิชาชีพทนายความของประเทศไทยกับต่างประเทศ

จากการวิจัยเอกสารข้อบังคับมรรยาททนายความ ที่เกี่ยวกับการโฆษณาของวิชาชีพทนายความของประเทศไทยและต่างประเทศ พบว่า ข้อบังคับมรรยาททนายความในเรื่องการโฆษณาของวิชาชีพทนายความในประเทศไทยที่ห้ามทนายความโฆษณาชื่อ คุณวุฒิ ตำแหน่ง หรืออัตราค่าว่าความมีจุดประสงค์หลักในการรักษาจรรยาบรรณ และความเป็นมืออาชีพของอาชีพทนายความ ข้อบังคับนี้ช่วยป้องกันการโฆษณาที่อาจหลอกลวงหรือทำให้ประชาชนเข้าใจผิดเกี่ยวกับบริการทางกฎหมาย นอกจากนี้ยังช่วยควบคุมไม่ให้ทนายความแข่งขันกันในลักษณะที่อาจละเมิดจริยธรรมทางวิชาชีพ เมื่อเปรียบเทียบกับประเทศสหรัฐอเมริกา อังกฤษ และเยอรมนี มีความแตกต่างกันในหลายด้าน โดยสรุปได้ดังนี้

1. ความแตกต่างของข้อบังคับมรรยาททนายความของประเทศไทยกับประเทศสหรัฐอเมริกา

1.1 ข้อจำกัดในการโฆษณา

ประเทศไทย: ทนายความไม่สามารถโฆษณาชื่อ คุณวุฒิ ตำแหน่ง หรืออัตราค่าว่าความในลักษณะเชิงพาณิชย์ได้การโฆษณาใด ๆ ที่เกี่ยวข้องกับอาชีพทนายความมักถูกจำกัดอย่างเข้มงวด เพื่อรักษาความเป็นมืออาชีพและป้องกันการแสวงหาผลประโยชน์โดยไม่เป็นธรรม

ประเทศสหรัฐอเมริกา: ทนายความสามารถโฆษณาบริการได้โดยเสรี แต่ต้องปฏิบัติตามกฎเกณฑ์ เช่น ห้ามใช้การโฆษณาที่ทำให้เข้าใจผิด โฆษณาต้องให้ข้อมูลที่เป็นข้อเท็จจริง และทนายความไม่สามารถ

รับประกันผลลัพธ์ของคดีได้ข้อบังคับเหล่านี้ถูกบังคับใช้ เพื่อปกป้องผู้บริโภคและคงความเป็นธรรมในการแข่งขันทางวิชาชีพ.

1.2 การโฆษณาอัตราค่าว่าความ

ประเทศไทย: ห้ามทนายความโฆษณาอัตราค่าว่าความ หรือใช้วิธีการดึงดูดลูกค้าด้วยการเสนอบริการในราคาถูกหรือสูงเกินไป ซึ่งอาจทำให้เกิดการแข่งกันในลักษณะเชิงพาณิชย์ที่ไม่เหมาะสม

ประเทศสหรัฐอเมริกา: ทนายความสามารถโฆษณาค่าบริการได้ ตราบใดที่ข้อมูลเป็นความจริงและไม่ได้ทำให้ผู้บริโภคเข้าใจผิด หลายรัฐในสหรัฐฯ อนุญาตให้ทนายประกาศอัตราค่าบริการของตนผ่านเว็บไซต์หรือสื่ออื่น ๆ ได้อย่างชัดเจน

สรุป ประเทศไทยมีกฎระเบียบที่เข้มงวดกว่าเกี่ยวกับการโฆษณาบริการของทนายความ เพื่อป้องกันไม่ให้เกิดการแข่งขันในเชิงพาณิชย์ที่อาจทำลายความน่าเชื่อถือและจรรยาบรรณของอาชีพ ในขณะที่สหรัฐอเมริกาให้เสรีภาพมากกว่าในเรื่องการโฆษณา แต่ยังคงมีข้อกำหนดเพื่อป้องกันการละเมิดความเชื่อถือของประชาชนและรักษามาตรฐานทางจริยธรรมของทนาย

2. ความแตกต่างของข้อบังคับมรรยาททนายความของประเทศไทยกับประเทศเยอรมนี

2.1 ข้อจำกัดในการโฆษณา

ประเทศไทย: ข้อบังคับของสภาทนายความไทยห้ามทนายความโฆษณาชื่อตำแหน่ง คุณวุฒิ หรืออัตราค่าว่าความในลักษณะเชิงพาณิชย์อย่างชัดเจน เพื่อป้องกันการโฆษณาเกินจริงหรือการชักชวนลูกค้าในลักษณะที่ไม่เหมาะสม การประชาสัมพันธ์ทนายความจึงถูกจำกัด เพื่อรักษาความเป็นมืออาชีพและจรรยาบรรณในสายตาของประชาชน

ประเทศเยอรมนี: ในประเทศเยอรมนี ทนายความสามารถโฆษณาบริการได้ตามกฎหมาย แต่ต้องเป็นไปตามกฎที่ออกโดย Federal Lawyers' Act (BRAO) และ Rules of Professional Practice (BORA) ข้อบังคับเหล่านี้ อนุญาตให้ทนายสามารถโฆษณาผลงาน คุณวุฒิ และตำแหน่งได้ แต่การโฆษณาต้องเป็นความจริงและไม่ทำให้เข้าใจผิด ข้อมูลที่แสดงต้องสอดคล้องกับมาตรฐานความเป็นมืออาชีพ

2.2 การโฆษณาอัตราค่าว่าความ

ประเทศไทย: ทนายความในประเทศไทยถูกห้ามโฆษณาอัตราค่าว่าความ ซึ่งเป็นมาตรการที่ป้องกันการใช้ราคาเป็นเครื่องมือในการดึงดูดลูกค้าหรือสร้างการแข่งขันเชิงพาณิชย์ ในลักษณะที่อาจทำให้ทนายความละเมิดจริยธรรม

ประเทศเยอรมนี: ในเยอรมนี ทนายความสามารถแจ้งอัตราค่าบริการของตนได้ตามกฎหมาย ทั้งนี้ การกำหนดอัตราค่าว่าความ มักจะต้องปฏิบัติตามกฎ Law on the Remuneration of Lawyers (RVG) ที่ระบุเกี่ยวกับค่าธรรมเนียมขั้นต่ำ และสูงสุดสำหรับการว่าความในบางประเภทการเปิดเผยอัตราค่าบริการจึงไม่ถูกห้าม แต่ต้องทำอย่างโปร่งใสและไม่เกินจริง

สรุป ข้อบังคับของไทยและเยอรมนีมีความแตกต่างกัน ในระดับของการควบคุมการโฆษณาของทนายความ ในขณะที่ประเทศไทยมีข้อบังคับที่เข้มงวดในการห้ามทนายโฆษณาชื่อตำแหน่ง คุณวุฒิ และอัตราค่าว่าความ

3. ความแตกต่างของข้อบังคับมรรยาททนายความของประเทศไทยกับประเทศอังกฤษ

3.1 ข้อจำกัดในการโฆษณา

ประเทศไทย: ข้อบังคับของสภาทนายความไทยห้ามทนายความโฆษณาชื่อตำแหน่ง คุณวุฒิ และอัตราค่าว่าความอย่างเคร่งครัด ทนายความไม่สามารถใช้การโฆษณาเพื่อดึงดูดลูกค้าได้ เนื่องจากเป็นการปกป้องจรรยาบรรณและป้องกันการโฆษณาเกินจริงที่อาจก่อให้เกิดความเข้าใจผิด

ประเทศอังกฤษ: ทนายความในอังกฤษสามารถโฆษณาบริการได้ โดยต้องปฏิบัติตามข้อบังคับของ Solicitors Regulation Authority (SRA) สำหรับทนายความ (Solicitors) และ Bar Standards Board (BSB) สำหรับทนายว่าความในศาล (Barristers) การโฆษณาสามารถทำได้ในกรอบที่ไม่หลอกลวงหรือเกินจริง ทนายสามารถโปรโมตชื่อ คุณวุฒิ และตำแหน่งของตนได้ภายใต้ข้อบังคับที่กำหนด เพื่อให้ข้อมูลที่ถูกต้องแก่ประชาชน

3.2 การโฆษณาอัตราค่าว่าความ

ประเทศไทย: ทนายความในประเทศไทยห้ามโฆษณาอัตราค่าว่าความ หรือใช้วิธีการประชาสัมพันธ์ที่เน้นเรื่องราคา เพื่อป้องกันไม่ให้เกิดการแข่งขันเชิงพาณิชย์ที่อาจทำให้คุณภาพของงานทนายลดลง

ประเทศอังกฤษ: ทนายความในอังกฤษสามารถโฆษณาค่าบริการได้ โดยเฉพาะ Solicitors ที่สามารถเปิดเผยข้อมูลเกี่ยวกับค่าธรรมเนียมในการให้คำปรึกษาหรือว่าความผ่านเว็บไซต์หรือสื่ออื่น ๆ ได้ ทั้งนี้ ต้องทำให้ข้อมูลชัดเจนและไม่ทำให้เกิดความเข้าใจผิด ส่วน Barristers ที่มีค่าบริการอาจไม่ได้กำหนดอย่างชัดเจน เพราะขึ้นอยู่กับการทำงานในลักษณะจ้างชั่วคราวผ่าน Solicitors.

สรุป ประเทศไทยและอังกฤษมีความแตกต่างกันอย่างชัดเจน ในเรื่องการโฆษณาของทนายความ ประเทศไทยมีกฎระเบียบที่เข้มงวดและจำกัด เพื่อปกป้องจรรยาบรรณทางวิชาชีพ ขณะที่อังกฤษให้เสรีภาพมากขึ้น แต่ยังคงมีการควบคุมอย่างรัดกุมเพื่อรักษามาตรฐานและปกป้องผู้บริโภคจากการโฆษณาที่เกินจริง

ผลการวิจัยตามวัตถุประสงค์การวิจัย ข้อ 3) เพื่อศึกษาปัญหาและอุปสรรคในการบังคับใช้ข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ที่เกี่ยวกับการโฆษณาของวิชาชีพทนายความ

จากการวิจัยเอกสารและความเห็นของผู้ให้สัมภาษณ์เชิงลึก พบว่า สอดคล้องกัน โดยพบว่าปัญหาและอุปสรรคในการบังคับใช้ข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ที่เกี่ยวกับการโฆษณาของวิชาชีพทนายความข้อ 17 มีหลายประการดังนี้

1. ความไม่ชัดเจน ไม่ครอบคลุม และคลุมเครือของข้อบังคับ โดยข้อบังคับยังขาดความชัดเจน ไม่ครอบคลุม และยังไม่ทันต่อการเปลี่ยนแปลงของเทคโนโลยีและพฤติกรรมผู้บริโภค โดยเฉพาะอย่างยิ่งการโฆษณาผ่านสื่อสังคมออนไลน์ ทำให้เกิดรูปแบบการโฆษณาใหม่ ๆ ที่ซับซ้อน ซึ่งอาจเข้าข่ายเป็นการฝ่าฝืนข้อบังคับ แต่ยังไม่มีแนวทางการตีความและการบังคับใช้ที่ชัดเจน ทำให้ไม่สามารถตรวจสอบและควบคุมการโฆษณาในรูปแบบใหม่ ๆ ได้อย่างมีประสิทธิภาพ

2. การขาดแนวทางการตีความ และการบังคับใช้ที่ชัดเจนทำให้การบังคับใช้กฎหมายไม่มีประสิทธิภาพและไม่เป็นธรรม

3. การขาดความร่วมมือและการสนับสนุนจากหน่วยงานที่เกี่ยวข้อง ทำให้การบังคับใช้กฎหมายไม่มีประสิทธิภาพเท่าที่ควร

4. การขาดทรัพยากรและบุคลากร ทำให้การบังคับใช้กฎหมายไม่มีประสิทธิภาพเท่าที่ควร

5. การตีความข้อบังคับที่แตกต่างกันอาจทำให้เกิดความไม่สม่ำเสมอในการบังคับใช้ หากมีการตีความคำว่า “โอ้อวด” หรือ “เชิงชักชวน” ที่มีความแตกต่างกัน อาจนำไปสู่ปัญหาในการบังคับใช้ได้

6. ข้อบังคับอาจเข้มงวดเกินไป ทำให้ทนายความไม่สามารถให้ข้อมูลที่จำเป็นแก่ประชาชนได้อย่างเพียงพอ

7. การบังคับใช้ข้อบังคับยังไม่เข้มงวดและไม่เป็นธรรมเท่าที่ควร ทำให้ทนายความบางรายยังคงฝ่าฝืนข้อบังคับ

สรุปและอภิปรายผล

ผลการวิจัยนี้ได้สำรวจความคิดเห็นของทนายความ ลูกความ และผู้เชี่ยวชาญทางวิชาการเกี่ยวกับข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 โดยเฉพาะในประเด็นที่เกี่ยวข้องกับการโฆษณาอัตราค่าจ้างว่าความ การไม่เรียกค่าจ้างและการเปิดเผยข้อมูลส่วนตัวของทนายความ

ผลการวิจัยพบว่า ข้อบังคับดังกล่าวมีทั้งข้อดีและข้อเสีย โดยข้อดี คือ ช่วยรักษามาตรฐานและความน่าเชื่อถือของวิชาชีพทนายความ ป้องกันการแข่งขันที่ไม่เป็นธรรม และส่งเสริมความเท่าเทียมกันในหมู่ทนายความ อย่างไรก็ตาม ข้อเสีย คือ อาจทำให้ลูกความเข้าถึงข้อมูลที่จำเป็นในการตัดสินใจเลือกทนายความได้ยากขึ้น และอาจจำกัดโอกาสในการเข้าถึงบริการทางกฎหมายของประชาชนบางกลุ่ม

เมื่อเปรียบเทียบกับประเทศอื่น ๆ เช่น สหรัฐอเมริกา อังกฤษ และเยอรมนี พบว่า ประเทศไทยมีข้อบังคับที่เข้มงวดกว่าโดยประเทศเหล่านี้ มีความยืดหยุ่นในการโฆษณามากกว่า แต่ก็มีข้อกำหนดและมาตรฐานที่ชัดเจน เพื่อป้องกันการโฆษณาที่เกินจริงและไม่เป็นธรรม

ข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ข้อ 17 ยังคงมีความสำคัญในการควบคุมการโฆษณาของทนายความ แต่จำเป็นต้องมีการปรับปรุงแก้ไขให้มีความชัดเจน ครอบคลุม และสอดคล้องกับสภาพการณ์ในปัจจุบัน โดยเฉพาะอย่างยิ่งในประเด็นที่เกี่ยวกับการโฆษณาผ่านสื่อสังคมออนไลน์ การเปลี่ยนแปลงของเทคโนโลยีและการบังคับใช้ข้อบังคับให้มีประสิทธิภาพยิ่งขึ้น

ปัญหาและอุปสรรคในการบังคับใช้ข้อบังคับส่วนใหญ่เกิดจากความไม่ชัดเจนของข้อบังคับ การขาดแนวทางการตีความและการบังคับใช้ที่ชัดเจน การเปลี่ยนแปลงของเทคโนโลยีและพฤติกรรมผู้บริโภค การขาดความร่วมมือและการสนับสนุนจากหน่วยงานที่เกี่ยวข้อง และการขาดทรัพยากรและบุคลากร

แนวทางในการปรับปรุงแก้ไขข้อบังคับหรือแนวทางการบังคับใช้ข้อบังคับให้มีประสิทธิภาพยิ่งขึ้น ควรเริ่มจากการปรับปรุงแก้ไขข้อบังคับให้มีความชัดเจน ทันสมัย และครอบคลุม กำหนดแนวทางการตีความและการบังคับใช้ที่ชัดเจน ส่งเสริมความร่วมมือและการสนับสนุนจากหน่วยงานที่เกี่ยวข้อง เพิ่มทรัพยากรและบุคลากร พัฒนาระบบการติดตามและตรวจสอบและส่งเสริมความรู้ความเข้าใจเกี่ยวกับข้อบังคับ

ข้อเสนอแนะ

1. ข้อเสนอแนะเชิงนโยบาย

ควรมีการทบทวนและปรับปรุงแก้ไข ข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ข้อ 17 ให้มีความชัดเจน ทันสมัย และสอดคล้องกับสภาพการณ์ในปัจจุบัน โดยเฉพาะอย่างยิ่งในประเด็นที่เกี่ยวกับการโฆษณาผ่านสื่อสังคมออนไลน์ และรูปแบบการโฆษณาที่ซับซ้อนมากขึ้น และอนุญาตให้ทนายความสามารถโฆษณาข้อมูลที่จำเป็นได้ แต่ต้องอยู่ภายใต้ข้อกำหนดและมาตรฐานที่ชัดเจน

เพื่อป้องกันการโฆษณาที่เกินจริงและไม่เป็นธรรม โดยข้อเสนอแนะการปรับแก้ข้อความในข้อบังคับข้อ 17 เป็นดังนี้

“ข้อ 17 ทนายความต้องปฏิบัติตามข้อบังคับนี้ ในการโฆษณาหรือประชาสัมพันธ์ตนเอง และต้องไม่กระทำการใด ๆ ที่เป็นการฝ่าฝืนข้อบังคับนี้ ไม่ว่าการกระทำนั้นจะกระทำด้วยตนเอง หรือยินยอมให้ผู้อื่นกระทำ

1. อัตราค่าจ้างว่าความ หรือแจ้งว่าไม่เรียกร้องค่าจ้างว่าความ เว้นแต่การประกาศหรือประชาสัมพันธ์เกี่ยวกับการช่วยเหลือประชาชนทางกฎหมาย ซึ่งดำเนินการโดยสภาทนายความเอง หรือโดยสถาบันสมาคม องค์การ หรือส่วนราชการใดที่เกี่ยวข้อง หรือการให้ข้อมูลเกี่ยวกับค่าบริการตามที่กฎหมายกำหนด

2. ข้อมูลส่วนตัว เช่น ชื่อ คุณวุฒิ ตำแหน่ง ถิ่นที่อยู่ หรือสำนักงาน ที่แสดงต่อสาธารณะต้องเป็นไปตามหลักเกณฑ์ที่สภาทนายความกำหนด โดยคำนึงถึงความสุภาพ เหมาะสม และไม่เป็นการโอ้อวด เป็นเชิงชักชวนให้ผู้มีอรรถคดีมาหาเพื่อเป็นทนายความว่าต่างหรือแก้ต่างให้ การโฆษณาหรือประชาสัมพันธ์ใด ๆ ที่เป็นการให้ข้อมูลเกินกว่าความเป็นจริง หรือก่อให้เกิดความเข้าใจผิดแก่ประชาชน ถือเป็นการฝ่าฝืนข้อบังคับนี้

การโฆษณาหรือประชาสัมพันธ์ผ่านสื่อสังคมออนไลน์ ต้องเป็นไปตามข้อบังคับนี้ และหลักเกณฑ์ที่สภาทนายความกำหนดเพิ่มเติม โดยคำนึงถึงลักษณะเฉพาะของสื่อสังคมออนไลน์แต่ละประเภท

การโฆษณาหรือประชาสัมพันธ์ในรูปแบบอื่น ๆ ที่มีความซับซ้อน ต้องเป็นไปตามข้อบังคับนี้ และหลักเกณฑ์ที่สภาทนายความกำหนดเพิ่มเติม โดยคำนึงถึงความเหมาะสม และไม่เป็นการฝ่าฝืนเจตนารมณ์ของข้อบังคับนี้

ทนายความที่ฝ่าฝืนข้อบังคับนี้ อาจถูกลงโทษตามที่สภาทนายความกำหนด”

จากข้อเสนอแนะให้ปรับปรุงแก้ไขข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529 ข้อ 17 ข้างต้น ในประเด็นการโฆษณาหรือประชาสัมพันธ์ผ่านสื่อสังคมออนไลน์นั้น ในทางปฏิบัติจะต้องเป็นไปตามข้อบังคับนี้ และหลักเกณฑ์ที่สภาทนายความกำหนดเพิ่มเติม โดยคำนึงถึงลักษณะเฉพาะของสื่อสังคมออนไลน์แต่ละประเภท ซึ่งหลักเกณฑ์ในทางปฏิบัติที่กำหนดสำหรับการโฆษณาประชาสัมพันธ์ผ่านสื่อสังคมออนไลน์อาจกำหนดไว้ดังนี้

(1) การสร้างบัญชีผู้ใช้งาน ทนายความสามารถสร้างบัญชีผู้ใช้งานในแพลตฟอร์มต่าง ๆ เช่น LinkedIn, Facebook Page, เว็บไซต์ส่วนตัว ได้ โดยต้องระบุชื่อ-นามสกุลจริง และหมายเลขทะเบียนทนายความให้ชัดเจนข้อมูลในบัญชีต้องเป็นความจริง ไม่โอ้อวด หรือก่อให้เกิดความเข้าใจผิดสามารถระบุประวัติการศึกษา ประสบการณ์ทำงาน (เช่น ประเภทคดีที่เคยทำ) และความเชี่ยวชาญเฉพาะทางได้ ตัวอย่างเช่น ทนาย ก. สร้างบัญชี LinkedIn โดยระบุชื่อ "ทนาย ก. (เลขที่ทะเบียนทนายความ)" พร้อมทั้งระบุประวัติการศึกษา นิติศาสตรบัณฑิตจากมหาวิทยาลัย... และประสบการณ์ทำงานด้านคดีแพ่งและพาณิชย์มา 10 ปี

(2) การนำเสนอเนื้อหา ทนายความสามารถเผยแพร่บทความให้ความรู้ทางกฎหมายในประเด็นที่ตนเองเชี่ยวชาญได้ โดยเนื้อหาต้องถูกต้องเป็นประโยชน์ และไม่ชี้นำให้เกิดการว่าจ้างโดยตรง สามารถแชร์ข่าวสารหรือความเห็นเกี่ยวกับประเด็นทางกฎหมายที่เป็นประโยชน์ต่อสาธารณะได้ ห้ามทำการโพสต์ข้อความในลักษณะ "ชนะคดี 100% ทุกคดี" หรือ "ปรึกษาฟรี! ว่าจ้างแล้วรวย" ตัวอย่างเช่น ทนาย ข. แชร์บทความบน Facebook Page ของตนเอง เรื่อง "สิทธิของผู้บริโภคเมื่อซื้อสินค้าออนไลน์" โดยให้ข้อมูลทางกฎหมายที่เป็นประโยชน์และอ้างอิงแหล่งที่มาที่น่าเชื่อถือ

(3) การปฏิสัมพันธ์กับผู้ใช้งาน ทนายความสามารถตอบคำถามทางกฎหมายเบื้องต้นได้ แต่ต้องระมัดระวังไม่ให้เป็นการให้คำปรึกษาทางคดี เฉพาะเจาะจงจนอาจนำไปสู่ความรับผิดชอบทางวิชาชีพ สามารถเข้าร่วมกลุ่มสนทนา หรือแสดงความคิดเห็นในประเด็นทางกฎหมายได้อย่างสุภาพและเหมาะสม ตัวอย่างเช่น ผู้ใช้งานสอบถามในคอมเมนต์ของทนาย ค. เกี่ยวกับขั้นตอนการฟ้องหย่าเบื้องต้น ทนาย ค. สามารถให้ข้อมูลเกี่ยวกับขั้นตอนทั่วไปได้ แต่ไม่สามารถให้คำแนะนำเฉพาะเจาะจงเกี่ยวกับข้อเท็จจริงในกรณีของผู้ถามได้

(4) สิ่งที่ต้องห้าม ห้ามกล่าวอ้างถึงผลสำเร็จของคดีในอดีต หรือใช้คำพูดที่อาจทำให้ผู้รับสารคาดหวังผลลัพธ์ในลักษณะเดียวกัน ห้ามให้คำมั่นสัญญา หรือรับประกันผลลัพธ์ของคดี ห้ามเปรียบเทียบตนเองกับทนายความอื่นในเชิงแข่งขัน หรือกล่าวหา โจมตีทนายความอื่น ห้ามเสนอค่าบริการในลักษณะของการลด แลก แจก แถม หรือเสนอราคาที่ต่ำกว่ามาตรฐานอย่างไม่มีเหตุผล ห้ามใช้ภาพ เสียง หรือสื่ออื่น ๆ ที่ไม่สุภาพ ไม่เหมาะสม หรืออาจก่อให้เกิดความเสื่อมเสียต่อวิชาชีพ

(5) การรับรองข้อมูล สภาทนายความอาจมีกลไกในการรับรองข้อมูลที่ทนายความนำเสนอในสื่อสังคมออนไลน์ เพื่อสร้างความน่าเชื่อถือและความมั่นใจแก่ประชาชน ตัวอย่าง สภาทนายความอาจมีเครื่องหมายรับรอง (Verified Badge) สำหรับบัญชีทนายความที่ผ่านการตรวจสอบข้อมูลแล้ว

2. ข้อเสนอแนะเชิงปฏิบัติ

1. กำหนดแนวทางการตีความและการบังคับใช้ข้อบังคับให้ชัดเจน เพื่อให้การตีความและการบังคับใช้เป็นไปในทิศทางเดียวกัน และมีความเป็นธรรมแก่ทุกฝ่าย

2. ส่งเสริมความร่วมมือและการสนับสนุนจากหน่วยงานที่เกี่ยวข้อง เช่น สื่อมวลชน ผู้ให้บริการสื่อสังคมออนไลน์ และหน่วยงานภาครัฐ ในการบังคับใช้ข้อบังคับ

3. เพิ่มทรัพยากรและบุคลากรให้เพียงพอต่อการตรวจสอบและติดตามการโฆษณาของทนายความ

4. พัฒนาระบบการติดตามและตรวจสอบการโฆษณาให้มีประสิทธิภาพ โดยจัดตั้งหน่วยงานหรือสร้างระบบกลไกในการกำกับดูแล ตรวจสอบและควบคุมการโฆษณาของทนายความ หรืออาจมีการนำเทคโนโลยีมาใช้ในการตรวจสอบและติดตาม เพื่อให้การโฆษณาเป็นไปตามข้อกำหนด มีความถูกต้องเป็นธรรม และไม่ละเมิดจริยธรรมทางวิชาชีพ

5. ส่งเสริมความรู้ความเข้าใจเกี่ยวกับข้อบังคับแก่ทนายความและประชาชน เพื่อให้ทุกคนมีความเข้าใจที่ถูกต้องและปฏิบัติตามข้อบังคับได้อย่างถูกต้อง

6. ควรมีการกำหนดแนวทางการโฆษณาที่ชัดเจน เพื่อให้ทนายความสามารถโฆษณาบริการของตนได้อย่างถูกต้องและเป็นธรรม โดยไม่ทำให้เกิดความเข้าใจผิดหรือหลอกลวงผู้บริโภค ตัวอย่างเช่น การออกคู่มือหรือแนวปฏิบัติที่ชัดเจนเกี่ยวกับการโฆษณา ทั้งทางไม่ออนไลน์และทางใช้สื่อสังคมออนไลน์ในการประชาสัมพันธ์ตนเองของทนายความ

7. สภาทนายความควรกำหนดอัตราค่าบริการที่ชัดเจนตามประเภทคดี เพื่อสร้างมาตรฐานและความโปร่งใส ตัวอย่างเช่น การกำหนดช่วงอัตราค่าบริการขั้นต่ำและสูงสุดสำหรับคดีแพ่ง คดีอาญา หรือคดีปกครองแต่ละประเภท

8. สภาทนายความควรส่งเสริมความโปร่งใสในวิชาชีพทนายความ โดยกำหนดให้มีการเปิดเผยข้อมูลที่จำเป็น เช่น ชื่อ คุณวุฒิ ประสบการณ์ เพื่อให้ประชาชนมีข้อมูลเพียงพอในการตัดสินใจเลือกทนายความ ตัวอย่างเช่น การจัดทำระบบฐานข้อมูลทนายความที่ประชาชนสามารถเข้าถึงได้ ซึ่งมีข้อมูล

เกี่ยวกับประวัติการศึกษา ประสบการณ์ทำงาน และความเชี่ยวชาญของทนายความแต่ละราย

เอกสารอ้างอิง

กัญจณิพัฐ วงศ์สุเมธรต์. (2549). กระบวนการดำเนินงานโฆษณา. โรงพิมพ์มหาวิทยาลัยราชภัฏสวนสุนันทา.

คณะทำงานส่งเสริมและประสานงานคดีมรรยาททนายความ. (2548). คู่มือการสอบสวนคดีมรรยาททนายความ. ธรรมสาร.

จิตติ ติงศภัทิย์. (2542). หลักวิชาชีพนักกฎหมาย (พิมพ์ครั้งที่ 8). สำนักพิมพ์มหาวิทยาลัยธรรมศาสตร์.

ชิตชัย ชินสันติ. (2556). ปัญหาการโฆษณาของวิชาชีพทนายความ ตามข้อบังคับสภาทนายความว่าด้วยมรรยาททนายความ พ.ศ. 2529. (วิทยานิพนธ์มหาบัณฑิต, คณะนิติศาสตร์ มหาวิทยาลัยธรรมศาสตร์)

ธานินทร์ กรัยวิเชียร และ มุนินทร์ พงศาปาน. (2550). หลักวิชาชีพนักกฎหมายในประเทศที่ใช้กฎหมายระบบคอมมอนลอว์. สมพ์เดือนตุลา.

ธัชมน ศรีแก่นจันทร์. (2546). สื่อสารมวลชนเพื่อการโฆษณา (พิมพ์ครั้งที่ 3). สำนักพิมพ์มหาวิทยาลัยรามคำแหง.

สมชัย โรจน์วณิชย์. (2542). ทนายความกับมรรยาททนายความ. ในคณะกรรมการมรรยาททนายความ (บ.ก.), คู่มือการสอบสวนคดีมรรยาททนายความ (น. 98-99). โรงพิมพ์เดือนตุลา.

สุรชัย สุวรรณปรีชา. (2531). การว่าความ (พิมพ์ครั้งที่ 4). บริษัทประชาชนจำกัด.

Hazard, G. C., Jr., Pearce, R., & Stempel, J. (1983). Why lawyers should be allowed to advertise: A market analysis of legal services. Yale Law School Legal Scholarship Repository, 1088.

ผลกระทบการจำกัดสิทธิการเลือกตั้งของพระภิกษุและสามเณร
Effects of Limiting the Voting Rights of Monks and Novices

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บทคัดย่อ

วิจัยฉบับนี้มุ่งศึกษาถึงผลกระทบการจำกัดการใช้สิทธิออกเสียงเลือกตั้งของผู้เป็นภิกษุและสามเณรในประเทศไทย ที่ปรากฏในรัฐธรรมนูญแห่งราชอาณาจักรไทยและกฎหมายการเลือกตั้งมาตั้งแต่หลังการเปลี่ยนแปลงการปกครองเมื่อปี พ.ศ. 2475

จากการศึกษาค้นคว้าพบว่า การจำกัดสิทธิการเลือกตั้งของพระภิกษุ สามเณร มีผลกระทบดังนี้ การที่รัฐธรรมนูญแห่งราชอาณาจักรไทย พุทธศักราช 2560 มาตรา 96 (1) ได้บัญญัติห้ามมิให้ผู้เป็นภิกษุ สามเณร นักพรต หรือนักบวช ในวันเลือกตั้ง ใช้สิทธิออกเสียงเลือกตั้งอันเป็นสิทธิทางการเมืองขั้นพื้นฐานของพลเมืองในระบอบประชาธิปไตยนั้น เป็นสิ่งที่ขัดต่อหลักเกณฑ์ พื้นฐานของการเลือกตั้งในรัฐเสรีประชาธิปไตย ในเรื่องหลักการออกเสียงเลือกตั้งโดยทั่วถึง และขัดต่อหลักแห่งความเสมอภาค อีกทั้งไม่เป็นไปตามตามพันธกรณีตามกฎหมายมหาชนระหว่างประเทศที่ประเทศไทยได้ให้สัตยาบันไว้ จากการจำกัดสิทธิการเลือกตั้งดังกล่าวก่อให้เกิดผลกระทบในแง่ของการบังคับใช้กฎหมายดังกล่าว อันได้แก่ ปัญหาการเสียสิทธิทางการเมืองอื่น ๆ จากการเป็นผู้มีลักษณะต้องห้ามมิให้ใช้สิทธิเลือกตั้ง รวมทั้งปัญหาความไม่ชัดเจนของถ้อยคำ “ภิกษุ สามเณร นักพรต หรือนักบวช” และ “ในวันเลือกตั้ง” ว่าบทบัญญัติดังกล่าวใช้บังคับกับบุคคลใดบ้าง และมีผลใช้บังคับเมื่อใด

ดังนั้น จึงเห็นควรแก้ไขกฎหมายเพื่อให้การรับรองการใช้สิทธิออกเสียงเลือกตั้งให้แก่บุคคล ซึ่งมีสถานภาพดังกล่าว

คำสำคัญ: พระภิกษุ, สามเณร

Abstract

This study aims to study the impact of restricting the exercise of voting rights by Monke and Nouieco. It has appeared in the Constitution of the Kingdom of Thailand and the Election Law since the change of the Government in B.E.2475(1932)

The study found that the restriction on the voting rights of monks and novices has the following impacts: The fact that Section 96 (1) of the Constitution of the Kingdom of Thailand Buoldhiot Ena 2560 (2017) prohibits monks, novices, hermits, or clergy from exercising their voting rights, which is a basic political right of citizens in a democratic regime, on election day is contrary to the basic principles of elections in a democratic state regarding the principle of universal suffrage and the principle of equality. It also does

not comply with the international legal obligations that Thailand has ratified. Such restriction on the voting rights has an impact on the enforcement of the law, namely the problem of losing other political rights from being prohibited from exercising the right to vote, as well as the problem of the unclear wording of "monks, novices, hermits, or clergy" and "on election day", as to which persons these provisions apply to and when they come into effect.

Therefore, it is appropriate to amend the law to provide recognition of voting rights for persons with such status.

Keywords: Monks, Novices

บทนำ

ประเทศไทยเป็นรัฐเดี่ยว ซึ่งมีการปกครองในกรอบประชาธิปไตยระบบรัฐสภา ภายใต้รัฐธรรมนูญ โดยมีพระมหากษัตริย์ทรงเป็นประมุข หมายถึง การปกครองที่เป็นของประชาชน โดยประชาชน และเพื่อประชาชน ตลอดจนเป็นหลักในการดำเนินชีวิตของคนในการอยู่ร่วมกันโดยสันติ เท่าเทียมกัน คือ ได้รับการคุ้มครองจากรัฐตามกฎหมาย และโอกาสที่จะได้รับการบริการต่าง ๆ ในกฎหมายรัฐธรรมนูญไทยปัจจุบันเมื่อถึงวาระการเลือกตั้งพรรคการเมืองต่าง ๆ ประชาชนทั่วประเทศต่างก็จะได้ใช้สิทธิและหน้าที่ขั้นพื้นฐานในการเลือกตั้งตามกฎหมายรัฐธรรมนูญ แต่อีกมุมหนึ่งของสังคมไทย ประชาชนกลุ่มหนึ่งซึ่งมีจำนวนไม่น้อยถูกละเลยสิทธิขั้นพื้นฐานนี้ เพียงเพราะว่าบุคคลเหล่านั้น ถูกเรียกว่า “พระสงฆ์” เป็นนักบวชในพระพุทธศาสนา แต่พระสงฆ์ ก็คือประชาชนซึ่งมีสิทธิและหน้าที่ตามบทบัญญัติของรัฐธรรมนูญแห่งราชอาณาจักรไทย พุทธศักราช 2560 ตามมาตรา 5 ที่ว่า “ประชาชนชาวไทยไม่ว่าเหล่ากำเนิด เพศ หรือศาสนาใด ย่อมอยู่ในความคุ้มครองแห่งรัฐธรรมนูญนี้เสมอกัน” การนับถือศาสนาในประเทศไทยมีผู้ที่นับถือศาสนาพุทธ (ร้อยละ 92.5) รองลงมา นับถือศาสนาอิสลาม (ร้อยละ 5.4) และศาสนาคริสต์ (ร้อยละ 1.2) ที่เหลือเป็นผู้ที่นับถือศาสนาอื่น ๆ รวมทั้งผู้ที่ไม่มีศาสนา (ร้อยละ 3.8) นอกจากพระภิกษุสามเณรแล้ว ตามรัฐธรรมนูญแห่งประเทศไทย พุทธศักราช 2560 มาตรา 96 บุคคลดังต่อไปนี้ถือเป็นบุคคลต้องห้ามมิให้ใช้สิทธิเลือกตั้ง (1) เป็นภิกษุ สามเณร นักพรต หรือนักบวช การที่รัฐธรรมนูญไทยจำกัดสิทธิการเลือกตั้งของพระภิกษุ สามเณร มีผลกระทบในการสรรหานักการเมืองไทย เนื่องจากจำนวนพระภิกษุ สามเณรในประเทศไทย มีพระภิกษุ จำนวน 251,616 รูป และสามเณร จำนวน 36,952 รูป รวมเป็น 288,568 รูป จากจำนวนดังกล่าว การที่พระภิกษุและสามเณร ถูกจำกัดสิทธิ การถือเกณฑ์จำนวนราษฎรต่อสมาชิกสภาผู้แทนราษฎร (ส.ส) หนึ่งคนให้คำนวณโดยนำเอาจำนวนราษฎรทั้งประเทศตามทะเบียนราษฎรที่ประกาศในปีสุดท้ายก่อนมีการเลือกตั้ง เฉลี่ยด้วยจำนวนสมาชิกสภาผู้แทนราษฎร จำนวน 400 คน ซึ่งปัจจุบันประชากรหรือราษฎรทั้งประเทศประมาณ 63 ล้านคน เฉลี่ยจำนวนราษฎรต่อ ส.ส. หนึ่งคนจะได้ประมาณ 162,766 คน ถูกจำกัดสิทธินั้นทำให้เสียคะแนนไปบางส่วน แต่ในทางกลับกันในประเทศไทยมีผู้นำทางศาสนาในศาสนาอื่น เช่น อิหม่ามในศาสนาอิสลาม และบาทหลวงในศาสนาคริสต์ เป็นต้น ซึ่งไม่ได้ถูกจำกัดสิทธิการเลือกตั้งดั่งเช่นในศาสนาพุทธ รวมทั้งประเทศอื่น ๆ นอกเหนือจากประเทศไทย สาธารณรัฐแห่งสหภาพเมียนมาร์ ราชอาณาจักรภูฏาน ซึ่งเป็นประเทศที่นำถือศาสนาพุทธ และกระทรวงกลาโหมกำหนดให้พระสงฆ์ซึ่งเป็นนักบวชในพระพุทธศาสนา มีหน้าที่ต้องไปเกณฑ์ทหารในฐานะประชาชนไทยคนหนึ่ง แต่กระทรวงมหาดไทย กลับปฏิเสธสิทธิในการออกเสียงเลือกตั้งของพระสงฆ์อันเป็นสิทธิขั้นพื้นฐานของประชาชน การตีความสิทธิและหน้าที่ของพระสงฆ์ในฐานะประชาชนของ

กระทรวงกลาโหมและกระทรวงมหาดไทยจึงขัดแย้งกัน ทั้ง ๆ ที่ต่างก็เป็นหน่วยงานของรัฐทั้งคู่ตามรัฐธรรมนูญแห่งราชอาณาจักรไทย พุทธศักราช 2560 มาตรา 26 ระบุว่า “การใช้อำนาจโดยองค์กรของรัฐทุกองค์กร ต้องคำนึงถึงศักดิ์ศรีความเป็นมนุษย์ สิทธิและเสรีภาพตามบทบัญญัติแห่งรัฐธรรมนูญนี้” ในเมื่อพระสงฆ์และสามเณรต่างก็เป็นทั้งนักบวชในพระพุทธศาสนาและประชาชนในเวลาเดียวกัน การห้ามพระภิกษุ และสามเณรไม่ให้ไปใช้สิทธิ์ออกเสียงเลือกตั้ง จึงน่าจะขัดต่อรัฐธรรมนูญแห่งราชอาณาจักรไทย พุทธศักราช 2560 และมิชอบด้วยกฎหมาย ดังมาตรา 6 ที่ว่า “รัฐธรรมนูญเป็นกฎหมายสูงสุดของประเทศ บทบัญญัติใดของกฎหมาย กฎ หรือข้อบังคับ ขัดหรือแย้งต่อรัฐธรรมนูญนี้ บทบัญญัตินั้นเป็นอันใช้บังคับมิได้” เพราะการใช้สิทธิ์ออกเสียงเลือกตั้งเป็นคนละอย่างกับการเล่นการเมือง การที่พระสงฆ์มีสิทธิออกเสียงเลือกตั้ง (ดังเช่นในประเทศพม่า) มิได้หมายความว่าพระสงฆ์จะสมัครเป็นสมาชิกสภาผู้แทนราษฎร (แม้ว่าประเทศพระพุทธศาสนาอย่างศรีลังกา พระสงฆ์มีสิทธิทั้งลงคะแนนเลือกตั้งและสมัครผู้แทนราษฎร และเวลานี้ก็มีพระสงฆ์ศรีลังกานั่งอยู่ในสภาผู้แทนราษฎร ทำหน้าที่ฝ่ายนิติบัญญัติอยู่ด้วย

ผู้วิจัยจึงมีความประสงค์ศึกษาเกี่ยวกับผลกระทบการจำกัดสิทธิในการเลือกตั้งของพระภิกษุ และสามเณร ขัดต่อกฎหมายหรือเจตนารมณ์ของกฎหมายหรือไม่

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาถึงบทบัญญัติของกฎหมายต่างประเทศที่เกี่ยวข้องมาเปรียบเทียบกับกฎหมายไทยเกี่ยวกับกับสิทธิออกเสียงเลือกตั้งของพระภิกษุและสามเณร
2. เพื่อศึกษาถึงหลักเกณฑ์ต่าง ๆ ซึ่งเป็นผลกระทบที่รัฐใช้ในการจำกัดสิทธิออกเสียงเลือกตั้งของพระภิกษุและสามเณร
3. เพื่อแสวงหาแนวทางแก้ไขปัญหาเกี่ยวกับความสมบูรณ์ของสิทธิออกเสียงเลือกตั้งของผู้เป็นภิกษุและสามเณร ที่เหมาะสมกับประเทศไทยและสอดคล้องกับศาสนาธรรมทุกศาสนาในประเทศไทย

แนวคิด ทฤษฎี และงานวิจัยที่เกี่ยวข้อง

เป็นการศึกษาถึงเจตนารมณ์ของกฎหมายที่มีการบังคับใช้กฎหมายอย่างถูกต้องตรงตามเจตนารมณ์ที่แท้จริงของกฎหมายหรือไม่ เพื่อให้เกิดสิทธิ์ต่อประชาชนผู้อยู่ภายใต้กฎหมายและย่อมต้องได้รับการคุ้มครอง ภายใต้หลักแห่งความเสมอภาค แนวคิด และทฤษฎีในทางกฎหมายว่าด้วยอำนาจอธิปไตย ทั้งนี้เพื่อให้ทราบแนวคิดและความสำคัญของการใช้สิทธิเลือกตั้งอันเป็นสิทธิขั้นพื้นฐานในระบอบประชาธิปไตย

หลักสิทธิมนุษยชนในระดับสากล

หลักสิทธิมนุษยชนเป็นสากล และไม่สามารถถ่ายโอนกันได้ (Universality & Inalienability) หมายความว่า สิทธิมนุษยชนนั้นเป็นของคนทุกคน ไม่มีพรมแดน คนทุกคนย่อมถือว่าเป็นคน ไม่ว่าอยู่ที่ไหนในโลก ไม่ว่าจะมีเชื้อชาติสัญชาติเหล่ากำเนิดใดก็ตาม ย่อมมีสิทธิ มนุษยชนประจำตัวทุกคนไป จึงเรียกได้ว่าสิทธิมนุษยชนเป็นของคนทุกคน ไม่ว่าคน ๆ นั้น จะยากจนหรือร่ำรวย เป็นคนพิการ เป็นเด็ก เป็นผู้หญิง

1. แนวคิดเกี่ยวกับศักดิศรีความเป็นมนุษย์ (Human Dignity) มนุษย์ทั้งหลายเกิดมาเท่าเทียมกัน มีสิทธิบางประการที่ติดตัวมาแต่กำเนิดจนกระทั้งถึงแก่ความตาย สิทธิดังกล่าวได้แก่สิทธิในชีวิต เสรีภาพในร่างกาย และความเสมอภาคซึ่งเป็นสิทธิที่ไม่อาจโอนให้แก่กันได้และใครจะล่วงละเมิดมิได้ หากมีการล่วงละเมิดก็อาจจะก่อให้เกิดอันตราย หรือกระทบกระเทือนเสื่อมเสีย

2. แนวความคิดเกี่ยวกับสิทธิมนุษยชน (Human Rights) การให้การยอมรับว่ามีสิทธิมนุษยชนที่แท้จริง และเป็นสากล โดยการให้การรับรองปฏิญญาสากลว่าด้วยสิทธิมนุษย์

หลักการพื้นฐานของหลักประชาธิปไตย

1. อำนาจอธิปไตยเป็นของปวงชน (Popular Sovereignty) คือ ปัจจัยที่เชื่อว่าสังคมก่อตั้งขึ้นโดยความยินยอมของประชาชน ในการที่จะให้อำนาจอธิปไตยของสังคมส่วนรวมเข้ามาแทนที่เสรีภาพธรรมชาติ โดยทุกคนจะมีส่วนในอธิปไตยนั้น ๆ เท่าเทียมกัน ตามหลักการนี้ การปกครองในระบอบประชาธิปไตยจึงเป็นการปกครองที่ประชาชนเป็นทั้งผู้ปกครอง

2. หลักเสรีภาพ (Liberty) คือ ความสามารถของบุคคลในการกระทำการใด ๆ ได้ตามความประสงค์ โดยปราศจากการแทรกแซงหรือข้อจำกัดจากผู้อื่นหรือรัฐ ตราบเท่าที่การใช้เสรีภาพนั้นนั้นไม่ละเมิดสิทธิของผู้อื่น หรือขัดต่อความสงบเรียบร้อยของสังคม ตัวอย่างเช่น เสรีภาพในการแสดงความคิดเห็น เสรีภาพในการนับถือศาสนา หรือเสรีภาพในการชุมนุมโดยสงบ

3. หลักความเสมอภาค (Equality) หลักความเสมอภาคจึงมิได้หมายถึงความเท่าเทียมกันในทุกกรณี แต่สาระสำคัญก็คือ เป็นหลักการที่เรียกร้องให้“ต้องปฏิบัติต่อบุคคลที่มีสาระสำคัญเหมือนกันอย่างเท่าเทียมกัน

4. หลักการปกครองโดยเสียงข้างมากที่เคารพเสียงข้างน้อย (The Majority Rule With Respect to Minority Rights)

5. หลักนิติธรรม (Rule of Law)

งานวิจัยที่เกี่ยวข้อง

วชิรา นาวาศรีพร (2560) ศึกษาถึงการจำกัดการใช้สิทธิออกเสียงเลือกตั้งของผู้เป็นภิกษุ สามเณร นักพรต และนักบวชในประเทศไทย ที่ปรากฏในรัฐธรรมนูญแห่งราชอาณาจักรไทยและกฎหมายการเลือกตั้งมาตั้งแต่หลังการเปลี่ยนแปลงการปกครองเมื่อปี พ.ศ. 2475 จากการศึกษาพบว่า การจำกัดการใช้สิทธิออกเสียงเลือกตั้งของผู้เป็นภิกษุ สามเณร นักพรต และนักบวชในประเทศไทย มีสาเหตุมาจากปัจจัยด้าน (1) ศาสนธรรมของพระพุทธศาสนาที่มุ่งเน้นลักษณะอันเป็นอุดมคติของนักบวช (2) จารีตประเพณีเกี่ยวกับความสัมพันธ์ระหว่างรัฐไทยกับพระพุทธศาสนาเถรวาท (Theravada Buddhism) และ (3) ความต่อเนื่องยาวนานของการจำกัดการใช้สิทธิดังกล่าว หาได้มีสาเหตุมาจากการที่รัฐหรือชนชั้นนำได้อาศัยการจำกัดการใช้สิทธิออกเสียงเลือกตั้งเป็นเครื่องมือในการกีดกันคนบางกลุ่มบางจำพวกมิให้มีส่วนร่วมทางการเมืองดังเช่นที่ปรากฏในประวัติพัฒนาการเกี่ยวกับสิทธิออกเสียงเลือกตั้งในหลาย ๆ ประเทศ ทั้งนี้ เมื่อพิจารณาในเชิงกฎหมายเปรียบเทียบพบว่า ปัจจุบันมีเพียงประเทศไทย เมียนมาร์ และภูฏาน เท่านั้น ที่ยังคงปรากฏบทบัญญัติในลักษณะดังกล่าว ซึ่งสวนทางกับพัฒนาการของสิทธิออกเสียงเลือกตั้งในทางสากลที่เป็นไปในเชิงขยายสิทธิ

วิธีดำเนินการวิจัย

ผู้วิจัยใช้กระบวนวิธีการวิจัยเชิงคุณภาพโดยได้กำหนดกลุ่มเป้าหมายไว้คือ ผู้ซึ่งได้รับผลกระทบจากการถูกจำกัดสิทธิในการเลือกตั้ง คือ พระภิกษุ จำนวน 50 รูป และสามเณร อายุ 18 ปี จำนวน 50 รูป ซึ่งใช้วิธีการเก็บรวบรวมข้อมูลโดยการสัมภาษณ์ เป็นการกำหนดตัวผู้ตอบเป็นการเฉพาะเจาะจง เพราะผู้ตอบเป็นกลุ่มเป้าหมายที่เหมาะสมกับความต้องการของผู้วิจัย ซึ่งบุคคลประเภทนี้เรียกว่า “ผู้ให้ข้อมูล

สำคัญ” ทั้งนี้ การเลือกตัวอย่างครั้งนี้ผู้วิจัยได้ดำเนินการพิจารณาเลือกตัวอย่างด้วยตนเอง เพื่อที่จะได้นำข้อมูลที่ได้รับจากกระบวนวิธีการวิจัยเชิงคุณภาพมาดำเนินการประมวลผลข้อมูลอันนำไปสู่การค้นพบต่อไป

ผลการวิจัย

จากการศึกษาวิจัยฉบับนี้ พบว่า การศึกษาสอดคล้องกับสมมุติฐานของการวิจัย คือ ตามรัฐธรรมนูญแห่งราชอาณาจักรไทย พุทธศักราช 2560 มาตรา 95 บุคคลซึ่งมีคุณสมบัติตามมาตรานี้เป็นผู้มีสิทธิเลือกตั้ง ซึ่งพระภิกษุ และสามเณร ก็เป็นบุคคลที่มีคุณสมบัติตามมาตรานี้ครบถ้วน แต่เนื่องจากตามรัฐธรรมนูญแห่งราชอาณาจักรไทย พุทธศักราช 2560 มาตรา 96 (1) ได้มีการจำกัดสิทธิการเลือกตั้งของพระภิกษุและสามเณร โดยระบุให้พระภิกษุ สามเณร เป็นบุคคลต้องห้ามมิให้ใช้สิทธิเลือกตั้ง แต่ตามตัวบทกฎหมายนี้ไม่ได้มีการจำกัดสิทธิการลือกตั้งของอิหม่าม บาทหลวง หรือผู้นำศาสนาอื่นภายในประเทศ ดังนั้น จึงทำให้เกิดความเลื่อมล้ำขึ้น การที่รัฐธรรมนูญไทย พุทธศักราช 2560 จำกัดสิทธิการเลือกตั้งของพระภิกษุและสามเณร มีผลกระทบในการสรรหานักการเมืองในไทย กล่าวคือ เนื่องจากจำนวนพระภิกษุในประเทศไทย จำนวน 251,616 รูป และสามเณรที่มีสิทธิเลือกตั้ง จำนวน 36,952 รูป รวมเป็น 288,568 รูป จากจำนวนดังกล่าว การที่พระภิกษุและสามเณร ถูกจำกัดสิทธินั้นทำให้เสียคะแนนในการสรรหานักการเมือง (สส.) เกือบ 2 ที่นั่ง เนื่องจากปัจจุบันประชากรหรือราษฎรทั้งประเทศประมาณ 63 ล้านคน เฉลี่ยจำนวนราษฎรต่อ ส.ส. หนึ่งคนจะได้ประมาณ 157,500 คน และการจำกัดสิทธิการเลือกตั้งของพระภิกษุและสามเณร ยังขัดต่อระบอบประชาธิปไตยซึ่งเป็นหลักปกครองของไทย เมื่อพระภิกษุและสามเณร ก็เป็นประชาชนและเป็นบุคคลที่มีคุณสมบัติครบถ้วนตามกฎหมายรัฐธรรมนูญแห่งราชอาณาจักร พุทธศักราช 2560 มาตรา 95 ดังนั้น พระภิกษุและสามเณรควรเป็นผู้มีสิทธิเลือกตั้ง ดังนั้นจึงควรต้องแก้ไขหรือยกเลิกบทบัญญัติจำกัดสิทธิการเลือกตั้งของพระภิกษุและสามเณร

สรุปและอภิปรายผล

จากการวิจัยข้อเสนอแนะให้ยกเลิกกฎหมายว่าด้วยการจำกัดสิทธิการเลือกตั้งของพระภิกษุและสามเณร กล่าวคือรัฐธรรมนูญแห่งราชอาณาจักรไทย พุทธศักราช 2560 มาตรา 96 บัญญัติให้บุคคลผู้มีลักษณะดังต่อไปนี้ในวันเลือกตั้ง เป็นบุคคลต้องห้ามมิให้ใช้สิทธิเลือกตั้ง (1) เป็นพระภิกษุ สามเณร นักพรต หรือนักบวช และพระราชบัญญัติประกอบรัฐธรรมนูญว่าด้วยการเลือกตั้งสมาชิกผู้แทนราษฎร มาตรา 32 บุคคลผู้มีลักษณะดังต่อไปนี้ในวันเลือกตั้ง เป็นบุคคลต้องห้ามมิให้ใช้สิทธิเลือกตั้ง (1) เป็นภิกษุ สามเณร นักพรต หรือนักบวชเพื่อให้พระภิกษุ และสามเณร เป็นผู้มีสิทธิเลือกตั้ง และเพื่อไม่ให้มีผลกระทบดังที่กล่าวมาในบทสรุป ดังนั้นควรต้องมีการยกเลิกบทบัญญัติดังกล่าวของรัฐธรรมนูญแห่งราชอาณาจักรไทย พุทธศักราช 2560 มาตรา 96 (1) เพื่อให้พระภิกษุและสามเณร มีสิทธิในการเลือกตั้งและพระราชบัญญัติประกอบรัฐธรรมนูญว่าด้วยการเลือกตั้งสมาชิกผู้แทนราษฎร พ.ศ 2561 มาตรา 32 บุคคลผู้มีลักษณะดังต่อไปนี้ในวันเลือกตั้ง เป็นบุคคลต้องห้ามมิให้ใช้สิทธิเลือกตั้ง (1) เป็นภิกษุสามเณร นักพรต หรือนักบวช และในการเลือกตั้งควรจัดแจงให้ชัดเจนในรายละเอียดการใช้สิทธิการเลือกตั้งของพระภิกษุ สามเณร ว่าควรใช้สถานที่ไหน เวลาไหน ฯลฯ เพื่ออำนวยความสะดวกแก่ภิกษุ และสามเณรในการเลือกตั้ง

เอกสารอ้างอิง

วชิรา นาวาศรีพร. (2560). ปัญหาการจำกัดการใช้สิทธิออกเสียงเลือกตั้งของผู้เป็นภิกษุ สามเณร และนักบวช (ปริญญานิติศาสตรมหาบัณฑิต). มหาวิทยาลัยธรรมศาสตร์, กรุงเทพฯ.

ศักยภาพด้านที่พักในการจัดการท่องเที่ยวสายมูเตลู ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส

Accommodation Potential in Managing Mutelu Tourism in Phu Khao Thong Subdistrict, Sukhirin District, Narathiwat Province

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บทคัดย่อ

บทความนี้มีวัตถุประสงค์เพื่อศึกษาสถานภาพที่พักในปัจจุบันของพื้นที่ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส และประเมินศักยภาพด้านที่พักสำหรับการท่องเที่ยวสายมูในพื้นที่ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส วิธีดำเนินการวิจัยใช้วิธีการเชิงปริมาณและเชิงคุณภาพ เชิงปริมาณเก็บข้อมูลจากแบบสอบถาม จำนวน 400 ชุด จากกลุ่มตัวอย่าง วิเคราะห์ข้อมูลหาค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน ส่วนเชิงคุณภาพเก็บข้อมูลจากการสังเกต และสัมภาษณ์แบบเจาะลึกจากผู้ให้ข้อมูล ได้แก่ เจ้าของรีสอร์ทและโฮมสเตย์ หน่วยงานภาครัฐ ประชาชน นักท่องเที่ยวทั่วไป และนักท่องเที่ยวสายมู จำนวน 17 คน วิเคราะห์ข้อมูลเชิงเนื้อหาโดยการนำข้อมูลมาจำแนกหมวดหมู่ตีความตามประเด็น ตีความสร้างข้อสรุป นำเสนอข้อมูลเชิงพรรณนาวิเคราะห์ ผลการวิจัยพบว่า สถานภาพที่พักในปัจจุบันของพื้นที่ตำบลภูเขาทอง มี 2 ลักษณะ คือ เป็นที่พักของเอกชนลักษณะเป็นรีสอร์ท ห้องพักทำเป็นหลังสามารถพักได้ 2 คน มีระเบียง เป็นห้องปรับอากาศ สะดวกสบาย แต่ราคาแพง มีการตกแต่งตามหลักฮวงจุ้ย ส่วนที่พัก

ของชุมชนที่เป็นโฮมสเตย์ ราคาประหยัด สามารถอยู่รวมกันหลายคนใน 1 ห้อง มีทั้งที่เป็นพัดลมและห้องปรับอากาศมีการตกแต่งตามหลักความเชื่อของสายมูอยู่บางแห่ง สำหรับการประเมินศักยภาพความพร้อมการบริหารจัดการที่พักของการท่องเที่ยวสายมูเตลู โดยรวมอยู่ในระดับมาก ($\overline{X}$ = 3.68, S.D. = .73) ศักยภาพด้านที่พักภายใต้หลักการพัฒนาการท่องเที่ยวอย่างยั่งยืนของการท่องเที่ยวสายมูเตลู โดยรวมอยู่ในระดับมาก ($\overline{X}$ = 3.63, S.D. = .96) ส่วนการประเมินศักยภาพที่พักตามความเชื่อของการท่องเที่ยวสายมูโดยภาพรวมอยู่ในระดับมาก ($\overline{X}$ = 3.56, S.D. = .57)

คำสำคัญ: ที่พักแหล่งท่องเที่ยว, การท่องเที่ยวสายมูเตลู, ศักยภาพที่พักในแหล่งท่องเที่ยว

Abstract

This article aims to study the current accommodation status in Phu Khao Thong Sub-district, Sukhirin District, Narathiwat Province and assess the potential of accommodation for Mutelu tourism in Phu Khao Thong Sub-district, Sukhirin District, Narathiwat Province. The research methodology used quantitative and qualitative methods. The quantitative method collected data from 400 questionnaires from the sample group. The data were analyzed to find the mean and standard deviation. The qualitative method collected data from observation and in-depth interviews with 17 informants, including resort and homestay owners, government agencies, the general public, general tourists, and Mutelu tourists. The content analysis was conducted by categorizing the data, interpreting the issues, making conclusions, and presenting descriptive data. The research results found that the current status of accommodation in Phu Khao Thong Sub-district is divided into 2 types: private accommodation in the form of resorts, with rooms made into houses that can accommodate 2 people and have balconies; air-conditioned rooms, which are comfortable but expensive, and decorated according to Feng Shui principles; and community accommodation in the form of homestays, which are inexpensive and can accommodate many people in 1 room. There are both fan rooms and air - conditioned rooms, and some are decorated according to spiritual beliefs. The assessment of the potential and readiness of accommodation management for spiritual tourism is overall at a high level ($\overline{X}$ = 3.68, S.D. = .73). The potential of accommodation under the principles of sustainable tourism development of spiritual tourism is overall at a high level ($\overline{X}$ = 3.63, S.D. = .96) The assessment of the potential of accommodation based on the beliefs of Mutelu tourism is overall at a high level. ($\overline{X}$ = 3.56, S.D. = .57)

Keywords: Tourist Accommodation, Mutelu Tourism, Accommodation Potential in Tourist Attractions

บทนำ

ปัจจุบันมนุษย์เกิดวิกฤติในด้านเศรษฐกิจสังคม จึงได้พยายามหาทางออกโดยการเดินทางท่องเที่ยวที่ก่อให้เกิดความอิ่มใจสุขใจ เบิกบาน ทั้งกาย และใจ เมื่ออยู่ในสถานที่นั้น ๆ ยิ่งไปกว่านั้นยังก่อให้เกิดปัญญาสั่งสมที่ปลดปล่อยตัวเองจากความทุกข์ได้ การได้เดินทางไปเยี่ยมชมสถาปัตยกรรมอันสวยงามของวัดวาอาราม สถูปเจดีย์ วิหารรูปเคารพของศาสนาต่าง ๆ ก่อให้เกิดความสงบใจ และรำลึกถึงบุญกุศลอันดีงาม การเที่ยวอย่างใฝ่รู้ อีกทั้งมีความเข้าใจในสถานที่ทางศาสนาและความเชื่อ (กรุงเทพธุรกิจ, 2566) ซึ่งการเดินทางประเภทนี้ยังก่อให้เกิดการพัฒนาคุณภาพชีวิตและจิตใจของ ผู้เดินทาง ซึ่งแสดงให้เห็นว่า กิจกรรมทางศาสนาเป็นแรงจูงใจหนึ่งที่ทำให้ผู้คนเดินทางไปยังสถานที่ต่าง ๆ (จีรนันต์ ไชยงามนอกซ์ ภัทรีพันธุ์ พันธุ และเลหล้า ตรีเอกานุกูล, 2559) ปรากฏการณ์การเดินทางไปยังสถานที่ศักดิ์สิทธิ์ เป็นการท่องเที่ยวสายมูเตลู ซึ่งได้เข้ามามีบทบาทเป็นอย่างมากในประเทศไทย ทั้งนี้การบูชาและความเชื่อในสิ่งศักดิ์สิทธิ์เกี่ยวกับเครื่องรางของขลังต่าง ๆ โดยให้ความหมายไปในเชิงบวก ตัวอย่างเช่น ทำให้ร่ำรวยขึ้น ทำให้มีเสน่ห์ดึงดูด เพศตรงข้าม ดึงดูดทรัพย์ โชคดี แคล้วคลาดปลอดภัย (อธิป จันทร์สุรีย์, 2564) ดังนั้นการกระทำของมนุษย์ส่วนใหญ่จึงออกมาในรูปแบบของการอ้อนวอน การร้องขอต่อสิ่งศักดิ์สิทธิ์ให้ช่วยปัดเป่าความชั่วร้ายหรือเลวร้ายออกจากตนเอง ดังนั้นจึงเป็นเรื่องปกติที่มนุษย์จะเสาะแสวงหาสถานที่ศักดิ์สิทธิ์ตามความเชื่อ เพื่อให้ได้สัมผัสกับพลังเหนือธรรมชาติ (ประเมศฐ์ พิชญ์พันธ์เดชา, 2561) ความเชื่อเกี่ยวกับศาสนาที่มีการชี้นำการกระทำตน อาทิ การดูหมอดู การทำนายจากใบเซียมซี หรือการบนบานศาลกล่าว ซึ่งแต่ละการกระทำล้วนตั้งอยู่บนพื้นฐานความเชื่อในการรักษาโรคภัยไข้เจ็บของคนในสังคมที่การแพทย์ปัจจุบันไม่สามารถรักษาให้หาย มนุษย์ก็จะอาศัยการรักษาจากอำนาจสิ่งศักดิ์สิทธิ์และคำขอพรต่าง ๆ โดยความเชื่อที่ว่าอำนาจสิ่งศักดิ์สิทธิ์ จะช่วยปัดเป่าสิ่งชั่วร้ายที่ทำให้เกิดโรคภัยไข้เจ็บได้ (ชนัญ วงษ์วิภาค, 2552)

กิจกรรมทางการท่องเที่ยวสายมู ส่งผลกระทบต่อการจัดกิจกรรมและโปรแกรมการท่องเที่ยว ชุมชนทำให้ชุมชนสร้างเรื่องเล่าให้สถานที่ต่าง ๆ เป็นพื้นที่ศักดิ์สิทธิ์หรือการจัดการท่องเที่ยวการขอพรจากพระ สิ่งศักดิ์สิทธิ์ในวัด หรือศาลเจ้า เกิดการจัดการท่องเที่ยวในแหล่งชุมชน และขยายกิจกรรมที่พักรูปแบบโฮมสเตย์ (Homestay) ให้มีความเป็นสายมูเพิ่มมากขึ้น (พัชราภรณ์ จันทรฆาฏ, 2563) ซึ่งประเทศไทยมีจุดเด่นในเรื่องของยุทธศาสตร์ทางการท่องเที่ยว และเป็นช่องทางหนึ่งเพื่อสร้างรายได้เสริมให้กับครอบครัว หรือสร้างมูลค่าเพิ่มทางเศรษฐกิจให้กับชุมชนนั้น ๆ ทั้งนี้ยังถือเป็นการช่วยเผยแพร่วัฒนธรรมท้องถิ่นในรูปแบบต่าง ๆ ออกสู่สายตาของนักท่องเที่ยวทั้งชาวไทยและชาวต่างประเทศ การจัดการท่องเที่ยวสายมูยังช่วยส่งเสริมการนำวัฒนธรรมท้องถิ่นมาทำให้เกิดความศักดิ์สิทธิ์ (สำนักงานพัฒนาการท่องเที่ยว กระทรวงการท่องเที่ยวและกีฬา, 2548)

ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส พื้นที่ส่วนใหญ่เป็นภูเขาสูงชันและป่ารกทึบ มีสภาพผืนป่าที่มีความอุดมสมบูรณ์ อากาศภายในอำเภอสุคิรินค่อนข้างเย็นสบายเกือบตลอดทั้งปี จนได้รับการเรียกขานว่าเป็น “สวิตเซอร์แลนด์เมืองไทย” (องค์การบริหารส่วนตำบลภูเขาทอง, 2567) ซึ่งชาวบ้านในชุมชนเป็นผู้นำเที่ยว มีกิจกรรมมากมาย ทั้งการท่องเที่ยวแบบมูเตลู นั่นคือ การท่องเที่ยวที่เชื่อมโยงกับความเชื่อความศรัทธาในสิ่งศักดิ์สิทธิ์ในอดีต นักท่องเที่ยวมีการรับรู้ชื่อเสียงของเหมืองแร่ทองคำโต๊ะโมะ และองค์เจ้าแม่โต๊ะโมะ ซึ่งมีประวัติศาสตร์ในเรื่องความศักดิ์สิทธิ์และเหตุการณ์สำคัญที่เกิดขึ้นมาอย่างยาวนาน (Kreiner & Wall, 2015) การที่นักท่องเที่ยวเข้ามาร่วมกิจกรรมการร่อนทองจากสายแร่ทองคำเหมืองแร่โต๊ะโมะ และการเข้าร่วมเคารพบูชาเจ้าแม่โต๊ะโมะจะมีความเชื่อในเรื่อง

โชคลาภ การคุ้มครองให้ปลอดภัย การขอพรให้ได้มีงานทำ การเข้าร่วมกิจกรรมการท่องเที่ยวเหล่านี้ สิ่งสำคัญที่จะขาดไม่ได้ คือ สิ่งอำนวยความสะดวกด้านที่พัก เป็นปัจจัยสำคัญที่จะสามารถดึงดูดนักท่องเที่ยวต่างถิ่นให้สามารถเข้ามาพักแรมในพื้นที่ตำบลภูเขาทอง ได้เป็นอย่างดีแต่อย่างไรก็ตามที่พักที่มีในพื้นที่ตำบลภูเขาทอง ยังมีน้อยและไม่เพียงพอต่อนักท่องเที่ยว ทั้งด้านความแตกต่างระหว่างที่พักสำหรับรองรับนักท่องเที่ยวทั่วไปที่มีเพียงสิ่งอำนวยความสะดวก แต่หากเป็นที่พักของนักท่องเที่ยวสายมูจะต้องมีลักษณะที่พิเศษที่รองรับความเป็นสายมูที่คนมาแสวงหาความเงียบสงบ ความสุขทางใจ มีความเป็นธรรมชาติ แต่อย่างไรก็ตามมีที่พักบางแห่งยังเป็นที่พักที่รองรับนักท่องเที่ยวทั่วไป แต่บางแห่งสามารถรองรับนักท่องเที่ยวสายมูได้นั่นคือ การสร้างที่พักตามหลักฮวงจุ้ย การใช้โทนสีสว่างจะช่วยกระตุ้นพลังงานและสร้างความอบอุ่น ยิ่งไปกว่านั้น การตกแต่งที่พักด้วยต้นไม้มงคล เช่น ต้นนางกวักที่ช่วยกวักเงินโชคลาภเข้าบ้าน ต้นเสน่ห์จันทร์แดง ช่วยเรื่องเมตตามหานิยม มีคนรักใคร่ การแขวนกระดิ่ง โมบายหน้าบ้านจะช่วยเพิ่มกระแสการไหลเวียนพลังงานบวก

จากปรากฏการณ์ข้างต้นผู้วิจัย จึงเกิดคำถามว่าที่พักในพื้นที่ตำบลภูเขาทอง มีสถานภาพอย่างไรในปัจจุบัน ซึ่งสถานภาพดังกล่าวเป็นการประเมินถึงความพร้อมที่มีอยู่ในปัจจุบันของที่พักทั้งที่เป็นรีสอร์ทของเอกชน และโฮมสเตย์ของชุมชนและของชาวบ้าน ว่าตอบโจทย์นักท่องเที่ยวสายมูหรือไม่อย่างไร และมีศักยภาพอย่างไร โดยการประเมิน 3 ส่วน คือ การประเมินศักยภาพด้านการบริหารจัดการที่พัก การประเมินศักยภาพภายใต้หลักการพัฒนาการท่องเที่ยวอย่างยั่งยืน และการประเมินศักยภาพตามหลักความเชื่อของการท่องเที่ยวสายมู เพื่อที่จะทำให้เกิดการหาแนวทางการเพิ่มศักยภาพการบริการด้านสถานที่พักให้มีประสิทธิภาพและให้เกิดความพึงพอใจต่อนักท่องเที่ยวสายมูเตลูมากยิ่งขึ้น

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาสถานภาพที่พักโฮมสเตย์และรีสอร์ทในปัจจุบันของพื้นที่ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส
2. เพื่อประเมินศักยภาพด้านที่พักสำหรับการท่องเที่ยวสายมูในพื้นที่ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส

แนวคิด ทฤษฎี กรอบแนวคิด

การท่องเที่ยวสายมูเตลู

อาหมัดอัลซารีย์ มูเก็ม (2559) กล่าวว่า ความเชื่อ เป็นเรื่องราวของความศรัทธาที่คนในท้องถิ่นมีต่อสิ่งนั้น ๆ ซึ่งมักเป็นความเชื่อต่อสิ่งนอกเหนือธรรมชาติที่จะสามารถทำให้ตนมีความสุขหรือความทุกข์ในชีวิตได้ โดยเฉพาะเรื่องผี วิญญาณ ที่อยู่คู่กับพื้นที่มาอย่างยาวนานจนเป็นส่วนหนึ่งของชีวิตคนในท้องถิ่นสู่การกำหนดเป็นสิ่งสูงสุดที่ต้องเคารพนับถือและการมีความเชื่อดังกล่าว จึงนำมาสู่การปฏิบัติในรูปแบบของการประกอบพิธีกรรมหรือกราบไหว้ เพื่อการขอพร บนบาน หรือการขอความช่วยเหลือ สิ่งที่อยู่นอกเหนือจากธรรมชาติ

อธิป จันทร์สุริย์ (2565) อธิบายคำว่า “มูเตลู” ไว้ว่า เป็นการบูชาเครื่องรางของขลัง อย่าง ตะกรุด กำไลหินมงคลเสริมดวง โดยมีทั้งกลุ่มดารา บุคคล ที่มีชื่อเสียงให้ความสนใจ จึงทำให้เกิดคำว่า “สายมู” ที่ใช้เรียกแทนบุคคลที่บูชาสิ่งศักดิ์สิทธิ์และเครื่องรางของขลังต่าง ๆ โดยรวมความหลากหลายทางความเชื่อและศาสนาเป็นสิ่งที่ช่วยยึดเหนี่ยวจิตใจให้กับผู้ที่ศรัทธาในด้านบวก

สุรพร อ่อนพุทธา วิญญู ปรอยกระโทก วรางกูร อิศรางกูร ณ อยุธยา และสัจจากาจ จอมโนนเขวา (2566) ศึกษาคุณภาพการบริการที่ส่งผลต่อการรับรู้คุณค่าและการตัดสินใจท่องเที่ยวของนักท่องเที่ยวเจนซีสายมูเตลู ทำการเก็บข้อมูลจากคนเจนเนอเรชั่นซีที่มีความชอบในการเดินทางไปวัดสายมูเตลูในพื้นที่กรุงเทพมหานครและปริมณฑลพบว่า มิติคุณภาพการบริการของวัดสายมูเตลู ประกอบไปด้วย 6 มิติ ได้แก่ ความน่าเชื่อถือ การให้ความเชื่อมั่น สิ่งที่จับต้องได้ การเห็นอกเห็นใจ การตอบสนอง และความสามัคคีส่งผลทางตรงและทางอ้อมต่อการรับรู้คุณค่าและการตัดสินใจเดินทาง อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.01

ธนาภรณ์ วงศ์ชู (2566) ศึกษาแนวทางการพัฒนาแหล่งท่องเที่ยวเชิงศรัทธา (สายมู) เพื่อส่งเสริมการท่องเที่ยวเมืองรอง พบว่า ลักษณะและองค์ประกอบทางกายภาพของแหล่งท่องเที่ยวเชิงศรัทธากรณีศึกษา ในบริบทเมืองรองประเทศไทยและต่างประเทศที่มีศักยภาพสูงที่สุด สามารถแบ่งผลออกเป็น 2 ส่วน 1) ลักษณะทางกายภาพของพื้นที่โดยรอบสถานที่เชิงศรัทธา ประกอบด้วย สิ่งดึงดูดใจในพื้นที่ศึกษา การเข้าถึงที่พัก สิ่งอำนวยความสะดวก และกิจกรรมอื่น ๆ ในพื้นที่ และ 2) ลักษณะทางกายภาพของสถานที่เชิงศรัทธา ประกอบด้วย รูปแบบสถานที่เชิงศรัทธา รูปแบบการใช้งานพื้นที่ (Programming) ลักษณะการจัดวางผัง และรูปแบบการสักการะ โดยในบริบทเมืองรองประเทศไทย จะมีจุดร่วมของลักษณะทางภาพของสถานที่เชิงศรัทธาไปในทิศทางเดียวกัน ส่วนบริบทต่างประเทศ จะมีลักษณะของจุดร่วมที่หลากหลาย ซึ่งมีข้อดีและข้อเสียที่แตกต่างกันไปในแต่ละรูปแบบ

ศิริวรรณ สิทธิกา (2566) อธิบายถึงจักรวาลสายมู การตลาดที่ขับเคลื่อนด้วยความเชื่อกับวัตถุที่ถูกทำให้ศักดิ์สิทธิ์ สะท้อนให้เห็นว่า ความเชื่อและบูชาสิ่งศักดิ์สิทธิ์และเครื่องรางของขลังของผู้คนในจักรวาล ‘มูเตลู’ นำมาสู่ธุรกิจสายมูที่สร้างเม็ดเงินมหาศาล ในโลกที่เราต้องยืนอยู่ท่ามกลางสภาวะไม่แน่นอนของเศรษฐกิจ สังคม การเมือง โรคอุบัติใหม่ ในขณะที่ยุคสมัยมีแต่ก้าวไปข้างหน้า ในทางกลับกัน ความเชื่อในสิ่งศักดิ์สิทธิ์ ไสยศาสตร์ ที่ดูเหมือนว่าจะเป็นตัวแทนของความล้าหลังกลับเติบโต เคียงคู่กันอย่างไม่เคยแยกจากการขอพรอธิษฐาน สวดอ้อนวอน การบนบานศาลกล่าว การคาดหวังความช่วยเหลือจากสิ่งที่วิทยาศาสตร์พิสูจน์ไม่ได้ กลายมาเป็นคำที่เราคุ้นหูอย่างคำว่า ‘มูเตลู’ หรือคำว่า ‘สายมู’ ที่นำมาใช้เรียกบุคคลทั่วไปที่มีความเชื่อและบูชาในสิ่งศักดิ์สิทธิ์และเครื่องรางของขลัง เพื่อประโยชน์กับตัว ไม่ว่าจะเป็นการเงิน การงาน ความรัก สุขภาพ ความปลอดภัย ที่ให้ผลเบื้องต้นแน่นอน ในฐานะที่พึ่งทางใจ

Dickman (1996) ได้อธิบายองค์ประกอบหลักของการท่องเที่ยว 5A ที่พัก (Accommodation) เป็นองค์ประกอบหนึ่งที่สำคัญที่ต้องมีพร้อม เพื่อให้นักท่องเที่ยวสามารถพักค้างคืนได้ อาจเรียกได้ว่า เป็นจุดหมายปลายทางที่แท้จริงของการท่องเที่ยว ซึ่งที่พักสามารถเป็นได้ทั้ง โรงแรม โมเต็ล เกสต์เฮาส์ รีสอร์ต โฮมสเตย์

สรุปการสร้างที่พักเหล่านี้ ส่วนใหญ่ผู้ประกอบการหรือชุมชนจะสร้างและตกแต่งตามหลักฮวงจุ้ยเพื่อความเป็นสิริมงคลในการประกอบการอยู่แล้ว ดังนั้นการประเมินศักยภาพตามความเชื่อของการท่องเที่ยวสายมูจะประเมินเป็น 2 ด้าน คือ 1) การสร้างที่พักตามความเชื่อของการท่องเที่ยวสายมู 2) การตกแต่งที่พักตามความเชื่อของการท่องเที่ยวสายมู

แนวคิดที่พักโฮมสเตย์

สริตา ศรีสุวรรณ และบงกช เดชมิตร (2562) ได้ศึกษาเรื่อง แนวทางการจัดการที่พักแบบโฮมสเตย์ให้คงเสน่ห์ และแตกต่างอย่างมีอัตลักษณ์เพื่อตอบโจทย์การท่องเที่ยวอย่างยั่งยืน ผลการวิจัยพบว่าแนวทางการจัดการที่พักแบบโฮมสเตย์ให้ตอบโจทย์การท่องเที่ยวอย่างยั่งยืนมีดังนี้ 1) สร้างอัตลักษณ์

เอกลักษณ์ คงเสน่ห์ตัวตนของชุมชนและโฮมสเตย์ที่โดดเด่นและเข้มแข็ง 2) สร้างความรู้สึกความเป็นเจ้าของให้กับคนในชุมชน 3) สร้างการเชื่อมโยงภาคีเครือข่ายของแหล่งท่องเที่ยวในท้องถิ่น 4) สร้างจิตสำนึกที่ดีให้แก่นักท่องเที่ยวที่เข้ามาพักโฮมสเตย์ และ 5) สร้างการเชื่อมโยงและบูรณาการโฮมสเตย์กับการท่องเที่ยวในรูปแบบต่าง ๆ นอกจากนั้น ยังมีงานศึกษาของกาญจนา สุคัณธสิริกุล (2558) ได้ศึกษาเรื่อง การพัฒนาศักยภาพการตลาดบริการของโฮมสเตย์ที่ได้รับรองมาตรฐาน ในจังหวัดนครราชสีมา ผลการวิจัยพบว่า 1) โฮมสเตย์ที่ได้รับการรับรองมาตรฐานมีศักยภาพการตลาดบริการครอบคลุมทั้ง 7 ด้าน ได้แก่ ด้านผลิตภัณฑ์และบริการ ด้านราคา ด้านช่องทางการจัดจำหน่ายและการกระจายสินค้า ด้านการส่งเสริมการตลาด ด้านบุคลากร ด้านกระบวนการ และด้านลักษณะทางกายภาพ ตามกรอบมาตรฐานโฮมสเตย์ไทย 2) ปัญหาและอุปสรรคด้านการตลาดบริการของโฮมสเตย์ ได้แก่ การปรับปรุงคุณภาพของที่พักและบริการยังสู้กับเอกชนไม่ได้ การปรับราคาไม่สามารถทำได้ง่ายนักเนื่องจากมีราคาใกล้เคียงกับคู่แข่งขัน สถานที่ตั้งของกลุ่มโฮมสเตย์ตั้งอยู่ในพื้นที่ชนบทการเดินทางไม่สะดวกในบางฤดูกาล ช่องทางที่ใช้ในการติดต่อส่วนใหญ่ผ่านทางโทรศัพท์บางครั้งไม่สามารถติดต่อได้ การส่งเสริมการตลาดยังคงอาศัยหน่วยงานจากภาครัฐช่วยเหลือในการจัดทำใบปลิวและฝากเว็บไซต์ไว้กับหน่วยงานต่าง ๆ บุคลากรบางส่วนยังขาดความรู้และมีจำนวนไม่เพียงพอในการบริการนักท่องเที่ยว ด้านกระบวนการชุมชนบางส่วนยังขาดความรู้ความเข้าใจในการบริหารจัดการ การดำเนินงาน หรือการสร้างรายได้จากบริการอื่น ๆ ด้านสิ่งแวดล้อมทางกายภาพเป็นพื้นที่ชนบทห่างไกลสิ่งอำนวยความสะดวก

การประเมินศักยภาพภายใต้หลักการพัฒนาการท่องเที่ยวอย่างยั่งยืน

มีการประเมินเป็นใน 3 ประเด็น คือ (สถาบันวิจัยสภาวะแวดล้อม จุฬาลงกรณ์มหาวิทยาลัย. 2550, น.3)

1. ความเป็นมิตรกับสิ่งแวดล้อม มีตัวบ่งชี้ 2 ข้อ ได้แก่ (1) การวางแผนเกี่ยวกับสิ่งแวดล้อมว่าด้วยนโยบายและการจัดการ และ (2) การอนุรักษ์สิ่งแวดล้อมและการศึกษาด้านสิ่งแวดล้อม

2. ความเป็นมิตรกับชุมชน มีตัวบ่งชี้ 2 ข้อ ได้แก่ (1) ความสัมพันธ์กับชุมชน และ (2) ส่งเสริมการมีส่วนร่วมและสนับสนุนโอกาสทางเศรษฐกิจในชุมชน

3 ความเป็นมิตรกับนักท่องเที่ยว มีตัวบ่งชี้ 3 ข้อ ได้แก่ (1) การรักษาสภาพเดิมและความงดงามของสถานที่ (2) ความปลอดภัย ความสะอาดและความสะดวกสบายในที่พักแรม และ (3) การเปิดโอกาสให้นักท่องเที่ยวได้เรียนรู้เกี่ยวกับธรรมชาติและวัฒนธรรมท้องถิ่น

การประเมินศักยภาพด้านการบริหารจัดการที่พัก

การประเมินองค์ประกอบตามมาตรฐานสิ่งอำนวยความสะดวกด้านที่พัก มีตัวชี้วัด 4 ด้าน คือ (พัชราภรณ์ จันทรฆาฏ, 2563)

1. ด้านความสะอาด มีตัวชี้วัด 4 ตัวคือ 1) มีห้องพักเป็นสัดส่วน 2) มีอุปกรณ์เครื่องนอนที่สะอาดเปลี่ยนทุกครั้งที่มีการเข้าพัก 3) ห้องน้ำสะอาดและมิดชิด มีอากาศถ่ายเทได้สะดวก 4) บริเวณห้องครัวมีความสะอาด 5) มีการจัดเก็บอุปกรณ์เป็นระเบียบมีภาชนะใส่อาหารที่สะอาด

2. ด้านความสะดวกสบาย ได้แก่ 1) ที่พักอยู่ใกล้แหล่งท่องเที่ยว 2) จำนวนที่พักเพียงพอต่อนักท่องเที่ยว 3) มีการให้การต้อนรับและแนะนำข้อมูลให้ผู้เข้าพัก 4) มีร้านสะดวกซื้อตั้งอยู่ในบริเวณใกล้เคียง

3. ด้านความปลอดภัย ภายในที่พักมีอุปกรณ์ปฐมพยาบาลเบื้องต้น มีระบบการส่งต่อผู้ประสบภัย/ผู้ป่วยไปยังหน่วยงานที่มีความเชี่ยวชาญหรือมืออาชีพในการแก้ไขปัญหาอันเกิดจากกรณีฉุกเฉิน เช่น

หน่วยกู้ภัย โรงพยาบาล คลินิก มีมาตรฐานความปลอดภัยด้านสุขอนามัย

4. ด้านการบริการ ได้แก่ 1) ราคามีความเหมาะสม 2) ผู้ให้บริการมีอัธยาศัยที่ดีต่อผู้เข้าพัก

วิธีดำเนินการวิจัย

ผู้วิจัยใช้วิธีวิจัยเก็บข้อมูลทั้งเชิงปริมาณและเชิงคุณภาพ

1. ประชากร และกลุ่มตัวอย่างที่ใช้ในการวิจัยเชิงปริมาณ

ประชากรที่ใช้ในการวิจัย ได้แก่ ประชาชน และนักท่องเที่ยวที่มาเที่ยวในงานประเพณีบุญบั้งไฟและฉลองสมโภชน์องค์เจ้าแม่โต๊ะโมะ ศาลเจ้าโต๊ะโมะ ในพื้นที่ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส

การกำหนดขนาดตัวอย่าง

ผู้วิจัยใช้สูตรของคอแครน (Cochran, 1977) ใช้ในกรณีที่ไม่ทราบขนาดของประชากรที่แน่นอน ที่ระดับความเชื่อมั่น 95% ได้จำนวนตัวอย่างอย่างน้อยเท่ากับ 385 ตัวอย่าง ทั้งนี้ผู้วิจัยได้เก็บข้อมูลจากกลุ่มตัวอย่าง 400 ตัวอย่าง เพื่อให้ข้อมูลที่ได้น่าเชื่อถือมากที่สุด

การสุ่มตัวอย่าง

ผู้วิจัยใช้วิธีการสุ่มตัวอย่างอย่างง่าย โดยการกำหนดสัดส่วนประชาชนในแต่ละหมู่บ้าน และนักท่องเที่ยวที่มาเที่ยวงานฉลองสมโภชน์ศาลเจ้าโต๊ะโมะ และงานประเพณีบุญบั้งไฟ

2. ผู้ให้ข้อมูลที่ใช้ในการวิจัยเชิงคุณภาพ

เจ้าของโฮมสเตย์ จำนวน 3 คน เจ้าของและผู้ดูแลรีสอร์ท 2 คน ประชาชนในพื้นที่ 2 คน นักท่องเที่ยวทั่วไป 2 คน นักท่องเที่ยวสายมู จำนวน 5 คน และหน่วยงานภาครัฐ จำนวน 3 คน การกำหนดขนาดตัวอย่างของผู้ให้ข้อมูลใช้วิธีการสัมภาษณ์จนกว่าข้อมูลจะอิ่มตัว (ประไพพิมพ์ สุธีวสินนนท์ และประสพชัย พสุนนท์, 2559)

3. เครื่องมือที่ใช้ในการวิจัยและการตรวจสอบคุณภาพเครื่องมือ

3.1 แบบสอบถามประเมินศักยภาพ มีทั้งหมด 3 ตอน คือ

ตอนที่ 1 ศักยภาพการบริหารจัดการที่พักของการท่องเที่ยวสายมู

ตอนที่ 2 ศักยภาพด้านที่พักภายใต้หลักการพัฒนาการท่องเที่ยวอย่างยั่งยืน

ตอนที่ 3 ศักยภาพด้านที่พักตามหลักความเชื่อของการท่องเที่ยวสายมู

เป็นแบบมาตราส่วนประมาณค่า 5 ระดับ (ชูศรี วงศ์รัตนะ, 2553 อ้างถึงใน เจตน์สฤษฎ์ สังขพันธ์, 2563) มีเกณฑ์ดังนี้

คะแนน 5 หมายถึง ความคิดเห็นความพร้อมอยู่ในระดับมากที่สุด

คะแนน 4 หมายถึง ความคิดเห็นความพร้อมอยู่ในระดับมาก

คะแนน 3 หมายถึง ความคิดเห็นความพร้อมอยู่ในระดับปานกลาง

คะแนน 2 หมายถึง ความคิดเห็นความพร้อมอยู่ในระดับน้อย

คะแนน 1 หมายถึง ความคิดเห็นความพร้อมอยู่ในระดับน้อยที่สุด

โดยมีเกณฑ์การแปลความหมาย (ชูศรี วงศ์รัตนะ, 2553 อ้างถึงใน เจตน์สฤษฎ์ สังขพันธ์, 2563) ดังนี้

ค่าเฉลี่ย 4.50 – 5.00 หมายความว่า มีศักยภาพความพร้อมอยู่ในระดับมากที่สุด
ค่าเฉลี่ย 3.50 – 4.49 หมายความว่า มีศักยภาพความพร้อมอยู่ในระดับมาก
ค่าเฉลี่ย 2.50 – 3.49 หมายความว่า มีศักยภาพความพร้อมอยู่ในระดับปานกลาง
ค่าเฉลี่ย 1.50 – 2.49 หมายความว่า มีศักยภาพความพร้อมอยู่ในระดับน้อย
ค่าเฉลี่ย 1.00 – 1.49 หมายความว่า มีศักยภาพความพร้อมอยู่ในระดับน้อยที่สุด

การตรวจสอบคุณภาพแบบสอบถามโดยการให้ผู้ทรงคุณวุฒิ 3 ท่าน ประเมินค่า IOC ได้เท่ากับ .67 ขึ้นไป ซึ่งถือว่าผ่านเกณฑ์ (บุญชม ศรีสะอาด, 2554) และนำไป Try Out กับประชาชน และนักท่องเที่ยวที่ไม่ใช่กลุ่มตัวอย่าง จำนวน 30 คน วิเคราะห์หาค่าความเชื่อมั่นจากสูตรสัมประสิทธิ์อัลฟาของครอนบัค (Cronbach's Alpha Coefficient) แบบวัดจะต้องมีค่าสัมประสิทธิ์อัลฟาไม่ต่ำกว่า .70 ซึ่งอยู่ในเกณฑ์ที่มีความเชื่อถือได้ (Cronbach, 1990) ปรากฏว่า แบบสอบถามตอนที่ 1 ภาพรวมมีค่าเท่ากับ .84 ด้านความสะอาด มีค่าเท่ากับ .83 ด้านความสะดวก มีค่าเท่ากับ .79 ด้านความปลอดภัย มีค่าเท่ากับ .81 ด้านการบริการ มีค่าเท่ากับ .85 ตอนที่ 2 ภาพรวม มีค่าเท่ากับ .87 ด้านความเป็นมิตรกับสิ่งแวดล้อม มีค่าเท่ากับ .85 ด้านเป็นมิตรกับชุมชน มีค่าเท่ากับ .86 ด้านเป็นมิตรกับนักท่องเที่ยว มีค่าเท่ากับ .88 ตอนที่ 3 ที่พักตามหลักความเชื่อของการท่องเที่ยวสายมู ภาพรวมมีค่าเท่ากับ .83 ด้านการสร้างที่พักตามความเชื่อของการท่องเที่ยวสายมู มีค่าเท่ากับ .82 และด้านการตกแต่งที่พักตามความเชื่อของการท่องเที่ยวสายมู มีค่าเท่ากับ .84 ซึ่งถือว่าผ่านเกณฑ์

3.2 แบบสัมภาษณ์แบบเจาะลึก เป็นแบบสัมภาษณ์ที่ถามความคิดเห็นเกี่ยวกับสถานภาพที่พักในปัจจุบันของพื้นที่ตำบลภูเขาทอง ความพร้อมในการรองรับการท่องเที่ยวด้านที่พักในแหล่งท่องเที่ยวในพื้นที่ตำบลภูเขาทอง และการสร้างที่พักตามความเชื่อของการท่องเที่ยวสายมู เพื่อให้ได้ข้อมูลที่สมบูรณ์ขึ้น

3.3 การสังเกตแบบมีส่วนร่วมโดยการเข้าพักในที่พักที่เป็นรีสอร์ท และโฮมสเตย์ที่มีการตกแต่งแบบสายมู และการสังเกตแบบไม่มีส่วนร่วม โดยการสังเกตสภาพภูมิทัศน์บริเวณรีสอร์ทและโฮมสเตย์ในพื้นที่ศึกษา

4. การเก็บรวบรวมข้อมูล

4.1 การเก็บรวบรวมข้อมูลเชิงปริมาณ ผู้วิจัยนำแบบสอบถามไปถามกลุ่มตัวอย่างที่เป็นประชาชน ทั้ง 8 หมู่บ้าน และนักท่องเที่ยวที่มาเที่ยวในงานฉลองสมโภชน์องค์เจ้าแม่โต๊ะโมะ และในงานประเพณีบุญบั้งไฟหนึ่งเดียวในภาคใต้ จำนวน 400 ชุด

4.2 การเก็บรวบรวมข้อมูลเชิงคุณภาพ ผู้วิจัยเก็บข้อมูลโดยการสัมภาษณ์แบบเจาะลึกจากผู้ให้ข้อมูลจนกว่าข้อมูลจะอิ่มตัวได้ผู้ให้ข้อมูล จำนวน 17 คน ได้แก่ เจ้าของโฮมสเตย์ จำนวน 3 คน เจ้าของและผู้ดูแลรีสอร์ท 2 คน ประชาชน 2 คน นักท่องเที่ยวสายมู 5 คน นักท่องเที่ยวทั่วไป 3 คน และหน่วยงานภาครัฐ จำนวน 2 คน นอกจากนั้นยังใช้วิธีการสังเกตแบบไม่มีส่วนร่วมโดยการสังเกตสภาพภูมิทัศน์ของที่พักสำหรับนักท่องเที่ยว และสังเกตแบบมีส่วนร่วมโดยการเข้าพักในที่พักดังกล่าวจากกลุ่มตัวอย่างแล้วนำมาวิเคราะห์ข้อมูล

5. การวิเคราะห์ข้อมูลและสถิติที่ใช้

ข้อมูลเชิงปริมาณ ผู้วิจัยนำแบบสอบถามทั้ง 3 ตอนมาตรวจสอบความสมบูรณ์ แล้วนำมาหาค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน นำเสนอผลการวิจัยเป็นตารางและอธิบายใต้ตาราง

ข้อมูลเชิงคุณภาพ ผู้วิจัยใช้วิธีการจำแนกหมวดหมู่ตามประเด็น ตีความ สร้างข้อสรุป วิเคราะห์เชิงเนื้อหา นำเสนอข้อมูลเชิงพรรณนา

ผลการวิจัย

1. สถานภาพที่พักในปัจจุบันของพื้นที่ตำบลภูเขาทอง

ความพร้อมในการรองรับการท่องเที่ยวด้านที่พักในแหล่งท่องเที่ยวในพื้นที่ตำบลภูเขาทอง มีหลายระดับ ทั้งที่เป็นของเอกชนและชุมชน ได้แก่

1) ที่พักของเอกชน คือ ไร่ไอปาโจ ลักษณะเป็นรีสอร์ท ห้องพักทำเป็นหลังสามารถพักได้ 2 คน บางหลังสามารถพักได้ 3 คน มีระเบียง เป็นห้องปรับอากาศ สะดวกสบาย บรรยากาศสบายเหมือนเมืองในหมอก ราคาประมาณ 1,200 – 1,500 บาท ฟรีอาหารเช้า มีร้านอาหารและมีร้านบริการเครื่องดื่มเป็นของรีสอร์ท เปิดบริการเวลาประมาณ 7.00 - 19.00 น. (นฤพนธ์ โยงปราง, สัมภาษณ์วันที่ 6 มิถุนายน 2567 ; ฟาซียะห์ ลอกอ, สัมภาษณ์วันที่ 6 มิถุนายน 2567 ; อุสมัน, สัมภาษณ์วันที่ 6 มิถุนายน 2567) การสร้างรีสอร์ทจะหันหน้าห้องพักไปในทิศตามหลักฮวงจุ้ย ด้านหลังที่พักจะเป็นเนินสูง ด้านหน้าที่พักจะมีสระน้ำ และมีปลูกต้นไม้มงคลรอบ ๆ ที่พัก นอกจากนั้นยังมีการปลูกต้นทุเรียนกระจายรอบที่พัก มีการใช้สีโทนสว่างบางห้อง และบางห้องจะเป็นสีของเนื้อไม้เป็นแบบธรรมชาติ บางหลังจะแขวนโมบาย กระดิ่งให้มีเสียงดังเวลาลมพัดจะดังกรุ๋งกริ๋ง (การสังเกตสภาพภูมิทัศน์ด้านที่พักรีสอร์ทของผู้วิจัย, วันที่ 6 มิถุนายน 2567)



ภาพที่ 1 รีสอร์ท ไร่ไอร์ปาโจ หมู่ 1 ต.ภูเขาทอง อ.สุคิริน จ.นราธิวาส

2) ที่พักของชุมชนเป็นโฮมสเตย์ มีลักษณะบ้านเป็นหลังแบบครอบครัวสามารถอาศัยอยู่ได้หลายคน หรือเป็นเพื่อนที่มาเป็นกลุ่มใหญ่ ห้องนอนปรับอากาศนอนได้ประมาณ 10 คน เป็นที่นอนวางเรียงต่อกัน มีบริเวณห้องนั่งพักผ่อน 1 ห้องเป็นพัดลม และมีห้องครัวสำหรับประกอบอาหารหรือจัดเตรียมอาหารที่สะอาดถูกสุขลักษณะ มีมาตรฐานความปลอดภัยด้านสุขอนามัย มีห้องน้ำ 2 ห้องรองรับนักท่องเที่ยว

ภายในบ้าน ราคาประมาณ 200 บาท ต่อคน (เทียม ชัยโคตร, สัมภาษณ์วันที่ 20 พฤษภาคม 2567 ; อัมพร ฤทธิ์ชารี, สัมภาษณ์วันที่ 20 พฤษภาคม 2567 ; ปราณี ทวีรัตน์, สัมภาษณ์วันที่ 22 พฤษภาคม 2567) ส่วนโฮมสเตย์อีกแห่งหนึ่งจะจัดห้องเป็นส่วนหนึ่งอยู่ในบ้านของเจ้าของบ้านแบ่งเป็นห้องพัดลมนอนได้ประมาณ ห้องละ 6 คน ราคาประมาณห้องละ 800 บาท (ดำ พันธ์มณี, สัมภาษณ์วันที่ 6 มิถุนายน 2567) แต่อย่างไรก็ตามพบว่า ราคามีความเหมาะสม อยู่ในระดับปานกลาง ซึ่งจากการสัมภาษณ์เพิ่มเติมพบว่า ถ้าเป็นรีสอร์ทจะมีราคาสูงเกินไปเมื่อเปรียบเทียบกับคุณภาพ หากเป็นโฮมสเตย์จะมีราคาถูกกว่า ข้อเสีย คือ โฮมสเตย์ส่วนใหญ่จะมีพัดลม ไม่มีเครื่องปรับอากาศ ซึ่งจะมีผลกระทบต่อนักท่องเที่ยวในช่วงฤดูร้อน ที่อากาศร้อนอบอ้าว นักท่องเที่ยวบางกลุ่มจะชอบความสะดวกสบายมากกว่า (กฤษ เสนาพันธ์, สัมภาษณ์วันที่ 21 พฤษภาคม 2567; สุภาพ จามิกรณ์, สัมภาษณ์วันที่ 21 พฤษภาคม 2567; ปาน ทะขุ่ย, สัมภาษณ์วันที่ 22 พฤษภาคม 2567) นอกจากนั้นจากการสังเกตพบว่า จามิกรณ์โฮมสเตย์จะสร้างที่พักที่มีสีสันสดใส มีสระน้ำที่ใช้เลี้ยงปลาอยู่หน้าที่พักรอบ ๆ ที่พักจะมีการปลูกต้นไม้มงคล และมีกระดิ่งลมแขวนอยู่หน้าห้องพักเสียงดัง ส่วนโฮมสเตย์ประชารัฐของชุมชนจะปลูกเฉพาะต้นไม้มงคลข้างหน้าที่พัก โฮมสเตย์ของนายดำ พันธ์มณีเป็นที่พักแบบทั่วไป (สังเกตที่พักโฮมสเตย์ของผู้วิจัย, วันที่ 21 พฤษภาคม 2567)



ภาพที่ 2 โฮมสเตย์ประชารัฐ หมู่ 3 บ้านโต๊ะโมะ ต.ภูเขาทอง อ.สุคีริน จ.นราธิวาส



ภาพที่ 3 จามิกรณ์ โฮมสเตย์ หมู่ 3 บ้านโต๊ะโมะ ต.ภูเขาทอง อ.สุคิริน จ.นราธิวาส



ภาพที่ 4 โฮมสเตย์นางดำ พันธ์มณี หมู่ 3 บ้านโต๊ะโมะ ต.ภูเขาทอง อ.สุคิริน จ.นราธิวาส

2. ประเมินศักยภาพด้านที่พักสำหรับการท่องเที่ยวสายมู

ในพื้นที่ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส ผู้วิจัยมีการประเมิน 3 ด้าน คือ ด้านศักยภาพการบริหารจัดการที่พักของการท่องเที่ยวสายมู ด้านศักยภาพสถานที่พักแรมภายใต้หลักการพัฒนาการท่องเที่ยวอย่างยั่งยืน และด้านที่พักตามหลักความเชื่อของการท่องเที่ยวสายมู ดังตารางที่ 1 - 3 ดังนี้

2.1 ศักยภาพการบริหารจัดการที่พักของการท่องเที่ยวสายมู

ผู้วิจัยเก็บข้อมูลจากประชาชนและนักท่องเที่ยวที่มาเที่ยวงานประเพณีบุญบั้งไฟ และฉลองสมโภชน์องค์เจ้าแม่โต๊ะโมะ ใช้แบบสอบถาม จำนวน 400 ชุด โดยวิเคราะห์หาค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน ดังตารางที่ 1

ตารางที่ 1 ศักยภาพด้านบริหารจัดการที่พักของการท่องเที่ยวสายมู

เกณฑ์การประเมินศักยภาพด้านการบริหารจัดการที่พัก	ค่าเฉลี่ย	S.D.	ระดับศักยภาพ
1. ด้านความสะอาด	**3.56**	**.97**	**มาก**
1.1 ห้องพักสะอาด อุปกรณ์ครบครันพร้อมบริการนักท่องเที่ยว	3.78	.84	มาก
1.2 มีอุปกรณ์เครื่องนอนที่สะอาดเปลี่ยนทุกครั้งที่มีการเข้าพัก	3.60	1.08	มาก
1.3 ห้องน้ำสะอาดและมิดชิด มีอากาศถ่ายเทได้สะดวก	3.25	1.01	ปานกลาง
1.4 บริเวณห้องครัวมีความสะอาด	3.40	1.00	ปานกลาง
1.5 มีการจัดเก็บอุปกรณ์เป็นระเบียบมีภาชนะใส่อาหารที่สะอาด	3.59	.88	มาก
2. ด้านความสะดวกสบาย	**3.60**	**.84**	**มาก**
2.1 ที่พักอยู่ใกล้แหล่งท่องเที่ยว	3.55	.84	มาก
2.2 จำนวนที่พักเพียงพอต่อนักท่องเที่ยว	3.63	.83	มาก
2.3 มีการให้การต้อนรับและแนะนำข้อมูลให้ผู้เข้าพัก	3.63	.96	มาก
2.4 มีร้านสะดวกซื้อตั้งอยู่ในบริเวณใกล้เคียง	3.32	1.06	ปานกลาง
3. ด้านความปลอดภัย	**3.61**	**.83**	**มาก**
3.1 ภายในที่พักมีอุปกรณ์ปฐมพยาบาลเบื้องต้น	3.56	.97	มาก
3.2 มีระบบการส่งต่อผู้ประสบภัย/ผู้ป่วยไปยังหน่วยงานที่มีความเชี่ยวชาญ หรือมืออาชีพในการแก้ไขปัญหาอันเกิดจากกรณีฉุกเฉิน เช่น หน่วยกู้ภัย โรงพยาบาล คลินิก	3.59	.96	มาก
3.3 มีมาตรฐานความปลอดภัยด้านสุขอนามัย	3.70	.82	มาก
4. ด้านการบริการ	**3.59**	**.96**	**มาก**
4.1 ราคามีความเหมาะสม	3.44	.92	ปานกลาง
4.2 ผู้ให้บริการมีอัธยาศัยที่ดีต่อผู้เข้าพัก	3.63	.96	มาก
รวม	**3.68**	**.73**	**มาก**

จากตารางที่ 1 พบว่า ศักยภาพการบริหารจัดการที่พักของการท่องเที่ยวสายมูเตลู โดยรวมอยู่ในระดับมาก ($\overline{X}$ = 3.68, S.D. = .73) เมื่อพิจารณารายด้าน พบว่า ด้านที่มีระดับศักยภาพค่าเฉลี่ยสูงสุด คือ ด้านความปลอดภัยอยู่ในระดับมาก ($\overline{X}$ = 3.61, S.D. = .83) รองลงมา ด้านความสะดวกสบาย อยู่ในระดับมาก ($\overline{X}$ = 3.60, S.D. = .84)

2.2 ศักยภาพด้านที่พักภายใต้หลักการพัฒนาการท่องเที่ยวอย่างยั่งยืน

มีองค์ประกอบในการประเมินศักยภาพดังนี้ 1) ความเป็นมิตรกับสิ่งแวดล้อม มีตัวบ่งชี้ 2 ข้อ ได้แก่ (1) การวางแผนเกี่ยวกับสิ่งแวดล้อมว่าด้วยนโยบายและการจัดการ และ (2) การอนุรักษ์สิ่งแวดล้อมและการศึกษาด้านสิ่งแวดล้อม 2) ความเป็นมิตรกับชุมชน มีตัวบ่งชี้ 2 ข้อ ได้แก่ (1) ความสัมพันธ์กับชุมชน และ (2) ส่งเสริมการมีส่วนร่วมและสนับสนุนโอกาสทางเศรษฐกิจในชุมชน 3) ความเป็นมิตรกับนักท่องเที่ยว มีตัวบ่งชี้ 3 ข้อ ได้แก่ (1) การรักษาสภาพเดิมและความงดงามของสถานที่ (2) ความปลอดภัย ความสะอาดและความสะดวกสบายในที่พักแรม และ (3) การเปิดโอกาสให้นักท่องเที่ยวได้เรียนรู้เกี่ยวกับธรรมชาติและวัฒนธรรมท้องถิ่น ดังตารางที่ 2

ตารางที่ 2 ศักยภาพด้านที่พักภายใต้หลักการพัฒนาการท่องเที่ยวอย่างยั่งยืน

เกณฑ์การประเมินศักยภาพด้านที่พักภายใต้หลักการพัฒนาการท่องเที่ยวอย่างยั่งยืน	ค่าเฉลี่ย	ส่วนเบี่ยงเบนมาตรฐาน	ระดับศักยภาพ
1. ความเป็นมิตรกับสิ่งแวดล้อม	**3.62**	**.74**	**มาก**
1.1 การวางแผนเกี่ยวกับสิ่งแวดล้อมว่าด้วยนโยบายและการจัดการ	3.67	.92	มาก
1.2 การอนุรักษ์สิ่งแวดล้อมและการศึกษาด้านสิ่งแวดล้อม	3.56	1.08	มาก
2. ความเป็นมิตรกับชุมชน	**3.68**	**.74**	**มาก**
2.1 ความสัมพันธ์กับชุมชน	3.63	.96	มาก
2.2 ส่งเสริมการมีส่วนร่วมและสนับสนุนโอกาสทางเศรษฐกิจในชุมชน	3.70	.91	มาก
3. ความเป็นมิตรกับนักท่องเที่ยว	**3.61**	**.83**	**มาก**
3.1 การรักษาสภาพเดิมและความงดงามของสถานที่	3.56	.93	มาก
3.2 ความปลอดภัย ความสะอาดและความสะดวกสบายในที่พักแรม	3.63	.96	มาก
3.3 การเปิดโอกาสให้นักท่องเที่ยวได้เรียนรู้เกี่ยวกับธรรมชาติและวัฒนธรรมท้องถิ่น	3.55	.97	มาก
รวม	**3.63**	**.96**	**มาก**

จากตารางที่ 2 พบว่า ศักยภาพด้านที่พักภายใต้หลักการพัฒนาการท่องเที่ยวอย่างยั่งยืนของการท่องเที่ยวสายมูเตลู โดยรวมอยู่ในระดับมาก ($\overline{X}$ = 3.63, S.D. = .96) เมื่อพิจารณาเป็นรายด้านพบว่าด้านที่มีระดับศักยภาพค่าเฉลี่ยสูงสุด คือความเป็นมิตรกับชุมชนอยู่ในระดับมาก ($\overline{X}$ = 3.68, S.D. = .74) รองลงมาได้แก่ ความเป็นมิตรกับสิ่งแวดล้อมอยู่ในระดับมาก ($\overline{X}$ = 3.61, S.D. = .83) และความเป็นมิตรกับนักท่องเที่ยวอยู่ในระดับมากเช่นกัน ($\overline{X}$ = 3.61, S.D. = .83)

เมื่อพิจารณาเป็นรายข้อพบว่า ข้อที่สูงที่สุด คือ ส่งเสริมการมีส่วนร่วมและสนับสนุนโอกาสทางเศรษฐกิจในชุมชนอยู่ในระดับมาก ($\overline{X}$ = 3.70, S.D. = .91) รองลงมา ได้แก่ การวางแผนเกี่ยวกับสิ่งแวดล้อมว่าด้วยนโยบายและการจัดการ อยู่ในระดับมาก ($\overline{X}$ = 3.67, S.D. = .92) และความปลอดภัย ความสะอาดและความสะดวกสบายในที่พักแรม และความสัมพันธ์กับชุมชนอยู่ในระดับมาก ($\overline{X}$ = 3.63, S.D. = .96)

2.3 ศักยภาพที่พักตามหลักความเชื่อของการท่องเที่ยวสายมู

มีองค์ประกอบในการประเมินศักยภาพดังนี้ 1) การสร้างที่พักตามความเชื่อของการท่องเที่ยวสายมู 2) การตกแต่งที่พักตามความเชื่อของการท่องเที่ยวสายมู นำเสนอตามตารางที่ 3

ตารางที่ 3 การประเมินศักยภาพที่พักตามหลักความเชื่อของการท่องเที่ยวสายมู

เกณฑ์การประเมินศักยภาพด้านที่พักตามหลักความเชื่อของการท่องเที่ยวสายมู	ค่าเฉลี่ย	ส่วนเบี่ยงเบนมาตรฐาน	ระดับศักยภาพ
1. การสร้างที่พักตามความเชื่อของการท่องเที่ยวสายมู	**3.52**	**.73**	**มาก**
1.1 ด้านหลังที่พักเป็นเนินสูงเปรียบเหมือนภูเขา	3.62	.79	มาก
1.2 ด้านหน้าที่พักมีแหล่งน้ำ	3.44	.79	ปานกลาง
1.3 สร้างที่พักหันไปทิศใต้เพื่อให้ลมพัดผ่านได้ตลอดทั้งปี	3.66	.87	มาก
1.4 สร้างที่พักให้มีแสงสว่างส่องถึง	3.55	.79	มาก
1.5 ที่พักอยู่ใกล้กับสถานที่ศักดิ์สิทธิ์	3.52	.80	มาก
2. การตกแต่งที่พักตามความเชื่อของการท่องเที่ยวสายมู	**3.60**	**.72**	**มาก**
2.1 การใช้สีโทนสว่างภายในและภายนอกที่พักเพื่อเพิ่มพลังบวกให้กับคนที่มาพัก	3.78	.75	มาก
2.2 การปลูกพืชบริเวณหน้าบ้านพักที่มีความหมายที่ดี เจริญรุ่งเรือง	3.52	.93	มาก
2.3 มีต้นไม้ใหญ่รอบที่พักเพื่อให้เกิดความร่มรื่น	3.40	.79	ปานกลาง
2.4 มีเครื่องรางของขลังประดับอยู่บริเวณที่พัก เช่น กระดิ่งลม แขวนหน้าบ้าน น้ำพุอยู่หน้าบ้านจะทำให้อยู่เย็นเป็นสุข และนำพาโชคลาภเข้ามาสู่คนที่มาพัก	3.48	.84	ปานกลาง
2.5 มีอากาศถ่ายเทสะดวกจะช่วยให้พลังงานไหลเวียนได้ดี	3.67	.78	มาก
2.6 ที่พักสะอาดเป็นระเบียบเพื่อเปิดรับพลังงานและโอกาสดี ๆ ใหม่ๆ เข้ามาให้กับนักท่องเที่ยวที่มาพัก	3.71	.72	มาก
รวม	**3.56**	**.57**	**มาก**

จากตารางที่ 3 พบว่า การประเมินศักยภาพความพร้อมด้านที่พักตามหลักความเชื่อของการท่องเที่ยวสายมู โดยภาพรวมอยู่ในระดับมาก ($\overline{X}$ = 3.56, S.D. = .57) เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านที่มีระดับศักยภาพสูงที่สุด คือ การตกแต่งที่พักตามความเชื่อของการท่องเที่ยวสายมูอยู่ในระดับมาก ($\overline{X}$ = 3.60, S.D. = .72) รองลงมา ได้แก่ การสร้างที่พักตามความเชื่อของการท่องเที่ยวสายมู อยู่ในระดับมาก ($\overline{X}$ = 3.52, S.D. = .73) เมื่อพิจารณาเป็นรายข้อ พบว่า ข้อที่มีศักยภาพความพร้อมด้านที่พักตามหลักความเชื่อของการท่องเที่ยวสายมูมากที่สุด คือ การใช้สีโทนสว่างภายในและภายนอกที่พักเพื่อเพิ่มพลังบวกให้กับคนที่มาพักอยู่ในระดับมาก ($\overline{X}$ = 3.78, S.D. = .75) รองลงมา ได้แก่ ที่พักสะอาดเป็นระเบียบเพื่อเปิดรับพลังงานและโอกาสดี ๆ ใหม่ ๆ เข้ามาให้กับนักท่องเที่ยวที่มาพักอยู่ในระดับมาก ($\overline{X}$ = 3.70, S.D. = .72) และมีอากาศถ่ายเทสะดวกจะช่วยให้พลังงานไหลเวียนได้ดีอยู่ในระดับมาก ($\overline{X}$ = 3.67, S.D. = .78)

นอกจากนั้น ผู้ให้ข้อมูลยังให้สัมภาษณ์ถึงศักยภาพของที่พักตามหลักความเชื่อของการท่องเที่ยวสายมู ในพื้นที่ตำบลภูเขาทอง ตามรายละเอียดดังนี้

> “...การสร้างที่พักโฮมสเตย์ ครั้งแรกที่สร้างไม่คิดอะไรมากนักหรอก คิดแค่ว่าทำที่พักหันหน้าเข้าหาทิศใต้เป็นทิศทางที่ดีที่สุด เพราะเปิดรับแสงแดดและกระแสลมดี ๆ ที่พัดผ่านเข้ามาทางทิศนี้ตลอดทั้งปี ป้าก็คิดว่าเป็นการช่วยเพิ่มพลังงานชีวิต โชคลาภ สิริมงคล...” (จามิกรณ์, สัมภาษณ์วันที่ 20 มิถุนายน 2567)

“...เวลามาพักก็จะดูประตูบ้านต้องไม่ตรงกับประตูห้องน้ำ กลัวสิ่งที่มองไม่เห็น...ดูการหันหน้าที่พัก ว่าไปทิศใด ดูว่าสะอาดเป็นระเบียบไหม...” (ชัญญา, สัมภาษณ์วันที่ 9 มิถุนายน 2567)

“...เวลามาพักจะชอบสีของที่พักสีสว่างสดใสสีส้ม สีเขียวอ่อนอะไรประมาณนี้ ประตูก็ต้องเป็นประตูที่มีโทนสีสว่าง ประตูโฮมสเตย์และรีสอร์ทที่เคยมาพักก็จะเปิดเข้าข้างในถือว่าเป็นการรับพลังงานดี ๆ เข้าสู่ที่พัก แต่บางแห่งประตูเปิดออกไปนอกที่พักเพราะจะทำให้ได้พื้นที่ในห้องมากขึ้น เราก็ขอเปลี่ยนใหม่เขาก็ให้นะ...” (สุนิสา, สัมภาษณ์วันที่ 9 มิถุนายน 2567)

“...ห้องครัวเป็นห้องที่เกี่ยวเนื่องกับสุขภาพและธาตุไฟ ไม่สร้างห้องครัวไว้หน้าบ้านหรือประตูบ้าน ป้าสร้างห้องครัวไว้หลังบ้าน เวลาป้าจะสร้างที่พักโฮมสเตย์ก็ศึกษาหลาย ๆ อย่าง และมีความเชื่อเรื่องธาตุไฟและธาตุน้ำในครัวไม่ให้ตีกัน เวลาเราสั่งตู้เย็นมาก็ต้องหาที่วางแยกกับเตาและซิงค์ ห้องครัว ห้องนั่งเล่น และห้องกินข้าวอยู่ในห้องเดียวกัน...พื้นที่มีไม่มาก ส่วนใหญ่จะให้พื้นที่ห้องนอนมากกว่า...” (สุกัญญา, สัมภาษณ์วันที่ 10 มิถุนายน 2567)

“...เวลาลุงสร้างประตูห้องนอนก็จะไม่ให้ตรงกับบันไดเพราะเชื่อว่าเป็นทางผีผ่าน..” (วีระ, สัมภาษณ์วันที่ 10 มิถุนายน 2567)

“...เวลาเลือกที่พักจะเลือกที่อยู่ไกลจากเสียงดังห้องสงบเงียบ ปลอดภัย แต่บางทีมันมีเสียงบ้างเวลารถผ่าน และหันหน้าไปทางตะวันออกเฉียงใต้ก็ยังดีอยู่...” (แซนดี้, สัมภาษณ์วันที่ 20 มิถุนายน 2567)

“...ที่พักที่ภูเขาทองเป็นรีสอร์ทก็สร้างหลังเล็ก ๆ พักได้ 2 - 3 คน มีเฉพาะห้องนอนกับห้องน้ำ ส่วนห้องครัวก็แยกต่างหาก ไม่เหมือนโฮมสเตย์ที่เคยไปพักเขาจะสร้างหลังใหญ่ เพราะพักได้หลายคน สะอาด น่าเข้าพักถูกหลักฮวงจุ้ย ห้องน้ำก็สำคัญ ของเขาสะอาด มีความเชื่อว่าจะนำพลังดี ๆ เข้ามาในที่พัก คนมาพักก็รู้สึกสงบร่มเย็นเป็นสุข...” (สุรภีร์, สัมภาษณ์วันที่ 20 มิถุนายน 2567)

จากข้อความดังกล่าวข้างต้นสะท้อนให้เห็นว่า โฮมสเตย์ที่ชาวบ้านสร้างขึ้นจะสร้างหันหน้าไปทางทิศใต้ เนื่องจากลมสามารถพัดผ่านเข้ามาได้ตลอดทั้งปี และเปิดรับแสงแดดช่วยเพิ่มพลังงานชีวิต โชคลาภ สิริมงคล ทาสีที่พักสดใส เพื่อให้เด่น มีห้องครัว ห้องน้ำ 2 ห้อง เพียงพอต่อการพักหลายคนห้องนอนจะเป็นห้องนอนรวมสามารถนอนได้หลายคนเป็นห้องแอร์ มีห้องครัวให้ทำกับข้าวได้ มีตู้เย็นให้แช่อาหารได้อีกด้วย มีห้องนั่งเล่น สามารถนั่งทำงานได้ มีโทรทัศน์ พัดลม รีสอร์ทก็เช่นเดียวกันที่ใช้สีสันสดใส แต่รีสอร์ทจะมีเฉพาะห้องนอนกับห้องน้ำ ส่วนห้องนั่งเล่นจะเป็นระเบียงหน้าบ้านใช้รับลมได้ ประตูบ้านที่ดีต้องสะอาด แข็งแรง มีคุณภาพ และต้องไม่ตรงกับประตูบานอื่น ๆ โดยเฉพาะประตูห้องน้ำเพื่อป้องกันไม่ให้พลังงานดี ๆ ถูกพัดผ่านออกไป นอกจากนี้เนื่องจากตามหลักฮวงจุ้ยแล้วประตูเป็นด่านแรกในการต้อนรับพลังงานเข้าบ้าน ยิ่งประตูสะอาด แข็งแรง และมีคุณภาพดีมากเท่าไร ก็ยิ่งสื่อถึงพลังงานบวกที่จะเข้ามามากเท่านั้น ซึ่งโดยทั่วไปแล้วควรใช้ประตูที่มีโทนสีสว่าง นอกจากนี้ลักษณะประตูควรต้องเป็นประตูที่เปิดเข้ามาข้างในบ้าน เพราะประตูที่เปิดเข้ามาในที่พักจะเป็นการนำพาพลังงานดี ๆ เข้าสู่บ้าน จากปรากฏการณ์ดังกล่าวแสดงให้เห็นถึงศักยภาพความพร้อมในการรองรับนักท่องเที่ยวสายมูอยู่ในระดับดี สำหรับรีสอร์ทจะมีห้องอาหารแยกต่างหาก

สรุปและอภิปรายผล

1. สถานภาพที่พักในปัจจุบันของพื้นที่ตำบลภูเขาทอง มี 2 ลักษณะ คือ เป็นที่พักของเอกชน จะเป็นรีสอร์ทห้องปรับอากาศ ทำเป็นบ้านพักเป็นหลัง มีทั้งแบบครอบครัวและมากันเป็นคู่ สะดวกสบาย แต่ราคาแพงกว่าที่พักของชุมชนที่เป็นโฮมสเตย์ ราคาประหยัด แต่อาจต้องอยู่รวมกันหลายคน ที่เป็นเช่นนี้ เนื่องจากนักท่องเที่ยวมีหลายระดับ การสร้างความรู้สึกความเป็นเจ้าของให้กับคนในชุมชน แต่ก็มีส่วนที่ส่งผลกระทบอยู่บ้างเมื่อเทียบกับรีสอร์ทไร้ไอปาโจ นั่นคือ การปรับปรุงคุณภาพของที่พักและบริการของโฮมสเตย์ยังสู้กับเอกชนไม่ได้ การปรับราคาไม่สามารถทำได้ง่ายนัก เนื่องจากมีราคาใกล้เคียงกับคู่แข่ง สถานที่ตั้งของกลุ่มโฮมสเตย์ตั้งอยู่ในพื้นที่ชนบทการเดินทางไม่สะดวกในบางฤดูกาล ซึ่งสอดคล้องกับงานวิจัยของสริตา ศรีสุวรรณ และบงกช เดชมิตร (2562) ที่มีมุมมองในการจัดการที่พักแบบโฮมสเตย์ให้คงเสน่ห์และแตกต่างอย่างมีอัตลักษณ์เพื่อตอบโจทย์การท่องเที่ยวอย่างยั่งยืน โดยเฉพาะการสร้างภาคีเครือข่ายกับท้องถิ่นใกล้เคียง เช่นเดียวกับงานศึกษาของกาญจนา สุคัณธสิริกุล (2558) ที่สะท้อนให้เห็นถึงการบริหารจัดการโฮมสเตย์ที่ยังมีปัญหาอุปสรรคในเรื่องระยะทาง ของที่พักโฮมสเตย์ห่างไกลจากความเจริญ

2. ศักยภาพการบริหารจัดการที่พักของการท่องเที่ยวสายมูเตลู โดยรวมอยู่ในระดับมาก ส่วนศักยภาพด้านที่พักภายใต้หลักการพัฒนาการท่องเที่ยวอย่างยั่งยืนของการท่องเที่ยวสายมูเตลู โดยรวมอยู่ในระดับมากและทุกด้านอยู่ในระดับมาก เช่นเดียวกันที่เป็นเช่นนี้ เนื่องจากในการบริหารจัดการที่พักของเอกชนที่เป็นรีสอร์ท ได้ให้บริการสิ่งอำนวยความสะดวกด้านที่พักได้มาตรฐานของการบริหารจัดการโฮมสเตย์และการบริหารจัดการภายใต้หลักการพัฒนาการท่องเที่ยวอย่างยั่งยืน สอดคล้องกับสถาบันวิจัยสภาวะแวดล้อม จุฬาลงกรณ์มหาวิทยาลัย (2550) ที่ได้คำนึงถึงความเป็นมิตรกับชุมชนความเป็นมิตรต่อสิ่งแวดล้อม และความเป็นมิตรกับนักท่องเที่ยว จึงได้จัดบริการที่พักที่สร้างสรรค์บรรยากาศแบบสบาย ๆ และใช้วัสดุที่เป็นมิตรกับสิ่งแวดล้อม ตลอดจนการบริหารจัดการโดยชุมชนซึ่งสอดคล้องกับงานศึกษาของพัชราภรณ์ จันทรฆาฎ (2563)

นอกจากนั้นยังพบว่า ศักยภาพความพร้อมด้านที่พักตามหลักความเชื่อของการท่องเที่ยวสายมู โดยภาพรวมอยู่ในระดับมาก เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านที่มีระดับศักยภาพสูงที่สุด คือ การตกแต่งที่พักตามความเชื่อของการท่องเที่ยวสายมูอยู่ในระดับมาก รองลงมาได้แก่ การสร้างที่พักตามความเชื่อของการท่องเที่ยวสายมูอยู่ในระดับมาก เมื่อพิจารณาเป็นรายข้อ พบว่า ข้อที่มีศักยภาพความพร้อมด้านที่พักตามหลักความเชื่อของการท่องเที่ยวสายมูมากที่สุด คือ การใช้สีโทนสว่างภายในและภายนอก ที่พักเพื่อเพิ่มพลังบวกให้กับคนที่มาพักอยู่ในระดับมาก รองลงมา ได้แก่ ที่พักสะอาดเป็นระเบียบเพื่อเปิดรับพลังงานและโอกาสดี ๆ ใหม่ ๆ เข้ามาให้กับนักท่องเที่ยวที่มาพักอยู่ในระดับมาก และมีอากาศถ่ายเทสะดวกจะช่วยให้พลังงานไหลเวียนได้ดี อยู่ในระดับมากเช่นกัน ที่เป็นเช่นนี้เนื่องจากการจัดสร้างที่พัก และการวางห้องพักต่าง ๆ มีการตกแต่งตามหลักฮวงจุ้ย เพื่อให้คนที่เข้าพักรู้สึกสะดวกสบายและอยากกลับมาพักซ้ำในการมาเยือนครั้งต่อไป นอกจากนั้นนักท่องเที่ยวที่มาพักส่วนใหญ่จะมาฉลองสมโภชน์องค์เจ้าแม่โต๊ะโมะ และมาเที่ยวประเพณีบุญบั้งไฟ ซึ่งมีความเชื่อเกี่ยวกับสิ่งศักดิ์สิทธิ์ ความเชื่อโชคลางอยู่แล้ว การเลือกที่พักจึงต้องการเพิ่มพลังงานบวก และให้มีการไหลเวียนของพลังงานชี่ ซึ่งเป็นสิ่งที่ดีในชีวิต ซึ่งสอดคล้องกับงานศึกษาของ อธิป จันทร์สุริย์ (2565) อธิบายคำว่า “มูเตลู” ไว้ว่า เป็นการบูชาเครื่องรางของขลังมงคลเสริมดวงจึงทำให้เกิดคำว่า “สายมู” ที่ใช้เรียกแทนบุคคลที่บูชาสิ่งศักดิ์สิทธิ์และเครื่องรางของขลังต่าง ๆ โดยรวมความหลากหลายทางความเชื่อและศาสนา เป็นสิ่งที่ช่วยยึดเหนี่ยวจิตใจให้กับผู้ที่ศรัทธาในด้านบวก เช่นเดียวกับหลักการจัดบ้านตามหลักฮวงจุ้ยในงานศึกษา

แนวทางในการปรับที่พักให้สอดคล้องกับนักท่องเที่ยวสายมู จะต้องคำนึงถึงหลักความเชื่อของสายมู คือ สงบ สะดวกสบาย มีการนำสิ่งที่ทำให้พลังงานไหลเวียนเข้าสู่ที่พักเพื่อเพิ่มพลังบวก ซึ่งในพื้นที่ตำบลภูเขาทอง สามารถตอบโจทย์นักท่องเที่ยวสายมูได้เป็นบางแห่ง แต่บางแห่งอาจต้องมีการเพิ่มการตกแต่งเพิ่มเติม โดยการให้ข้อเสนอแนะ

ข้อเสนอแนะ

ข้อเสนอแนะสำหรับการนำผลวิจัยไปใช้

1. ชุมชนที่ให้บริการที่พักโฮมสเตย์ ควรจัดให้มีห้องครัวที่สะอาดที่สามารถทำครัวได้ และควรจัดให้มีบริการห้องน้ำที่สะอาดและมิดชิด มีอากาศถ่ายเทได้สะดวก

2. ควรมีร้านสะดวกซื้อตั้งอยู่ในบริเวณใกล้เคียงที่พักโฮมสเตย์ของชุมชน เพื่อความสะดวกให้กับนักท่องเที่ยว ในขณะที่ชุมชนควรรักษาสภาพเดิม และความงดงามของสถานที่

3. ที่พักควรอยู่ใกล้แหล่งท่องเที่ยวเพื่อให้เกิดความสะดวกสบายแก่นักท่องเที่ยว

4. ควรเปิดโอกาสให้นักท่องเที่ยวได้เรียนรู้เกี่ยวกับธรรมชาติและวัฒนธรรมท้องถิ่น ซึ่งชุมชนสามารถจัดประสบการณ์การท่องเที่ยวด้านที่พักที่มีความเป็นมิตรกับนักท่องเที่ยวได้ โดยจัดที่พักโฮมสเตย์ให้เป็นไปตามธรรมชาติของชุมชน

5. ควรเพิ่มการตกแต่งที่พักตามความเชื่อของนักท่องเที่ยวสายมู

ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

1. ควรศึกษาเกี่ยวกับแนวทางการเพิ่มศักยภาพของการบริหารจัดการที่พัก ตามหลักความเชื่อของการท่องเที่ยวสายมูในพื้นที่ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส

2. ควรศึกษาความคาดหวังและความพึงพอใจด้านที่พักของการท่องเที่ยวสายมูในพื้นที่ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส

เอกสารอ้างอิง

กาญจนา สุคุณธสิริกุล. (2558). การพัฒนาศักยภาพการตลาดบริการของโฮมสเตย์ที่ได้รับรองมาตรฐานในจังหวัดนครราชสีมา. สืบค้นเมื่อ 2 มกราคม 2568, จาก http://sutir.sut.ac.th:8080/jspui/bitstream/123456789/5660/1/Fulltext.pdf

กรุงเทพธุรกิจ. (2566). 'เที่ยวสายมู' มาแรงจัด! ททท. คาดปี 66 รายได้สะพัดกว่า 1.5 หมื่นล้าน. สืบค้นเมื่อวันที่ 2 พฤษภาคม 2568, จาก: https://www.bangkokbiznews.com/business/business/ 1074244

จีรนันต์ ไชยงามนอกซ์, ภัทรีพันธุ์ พันธุ และเลหล้า ตรีเอกานุกูล. (2559). ปัจจัยที่มีผลต่อพฤติกรรมการท่องเที่ยวทางพระพุทธศาสนา. ในการประชุมวิชาการระดับชาติและนานาชาติ ราชภัฏวิจัยครั้งที่ 4 ที่หอประชุมมหาวิทยาลัยราชภัฏบุรีรัมย์. (หน้า 377-387). มหาวิทยาลัยราชภัฏบุรีรัมย์, บุรีรัมย์.

เจตน์สฤษฎ์ สังขพันธ์. (2563). การพัฒนารูปแบบการสรางชุมชนเขมแข็งในอำเภอสทิงพระ จังหวัดสงขลา. (วิทยานิพนธ์ปรัชญาดุษฎีบัณฑิต สาขาวิชาพัฒนามนุษยและสังคม). มหาวิทยาลัยสงขลานครินทร, สงขลา.

ชนัญ วงษ์วิภาค. (2552). เอกสารประกอบการสอนวิชาการจัดการท่องเที่ยววัฒนธรรม. นครปฐม: คณะวิทยาการจัดการและคณะโบราณคดี มหาวิทยาลัยศิลปากร

ชูศรี วงศ์รัตนะ. (2553). เทคนิคการใช้สถิติเพื่อการวิจัย (พิมพ์ครั้งที่12). กรุงเทพฯ: ไทเนรมิตกิจ อินเตอร์โปรเกรสซิฟ.

ธนาภรณ์ วงศ์ชู. (2566). แนวทางการพัฒนาแหล่งท่องเที่ยวเชิงศรัทธา (สายมู) เพื่อส่งเสริมการท่องเที่ยวเมืองรอง. (วิทยานิพนธ์สถาปัตยกรรมศาสตรมหาบัณฑิต คณะสถาปัตยกรรมศาสตร์และการผังเมือง). มหาวิทยาลัยธรรมศาสตร์, ปทุมธานี.

บุญชม ศรีสะอาด. (2554). หลักการวิจัยเบื้องต้น. (พิมพ์ครั้งที่ 9). กรุงเทพฯ: สุวิริยาสาส์น.

ประไพพิมพ์ สุธีวสินนนท์ และประสพชัย พสุนนท์. (2559) กลยุทธ์การเลือกตัวอย่างสำหรับการวิจัยเชิงคุณภาพ. วารสารปาริชาต มหาวิทยาลัยทักษิณ, 29(2), 32-48.

ประเมศฐ์ พิชญ์พันธ์เดชา. (2561). การจัดการการท่องเที่ยวเชิงศาสนา ของเกาะฮ่องกงที่มีอิทธิพลต่อนักท่องเที่ยวชาวไทย. (วิทยานิพนธ์ศิลปศาสตรมหาบัณฑิต สาขาวิชาการจัดการมรดกวัฒนธรรมและอุตสาหกรรมสร้างสรรค์วิทยาลัยนวัตกรรม). มหาวิทยาลัยธรรมศาสตร์, ปทุมธานี.

พัชราภรณ์ จันทรฆาฎ. (2563). การศึกษาศักยภาพชุมชนด้านการบริหารจัดการที่พักแบบมาตรฐานโฮมสเตย์ไทยในจังหวัดสระแก้ว. วารสารวิทยาการจัดการปริทัศน์, 22(1), 105-111.

ศิริวรรณ สิทธิกา. (2566, 16 สิงหาคม) จักรวาลสายมู การตลาดที่ขับเคลื่อนด้วยความเชื่อกับวัตถุที่ถูกทำให้ศักดิ์สิทธิ์ ไทยรัฐออนไลน์. สืบค้นเมื่อวันที่ 20 มกราคม 2568, จาก https://plus.thairath.co.th/topic/politics&society/103603.

สถาบันวิจัยสภาวะแวดล้อม จุฬาลงกรณ์มหาวิทยาลัย. (2550). การพัฒนาการท่องเที่ยวอย่างยั่งยืน. กรุงเทพฯ: จุฬาลงกรณ์มหาวิทยาลัย.

สริตา ศรีสุวรรณ และบงกช เดชมิตร. (2562). แนวทางการจัดการที่พักแบบโฮมสเตย์ให้คงเสน่ห์ และแตกต่างอย่างมีอัตลักษณ์เพื่อตอบโจทย์การท่องเที่ยวอย่างยั่งยืน. วารสารการจัดการธุรกิจ มหาวิทยาลัยบูรพา, 8(1), 8-16.

สำนักงานคณะกรรมการพัฒนาเศรษฐกิจและสังคมแห่งชาติ. (2559). ยุทธศาสตร์ชาติ 20 ปี (พ.ศ.2560-2579). กรุงเทพฯ: สำนักงานคณะกรรมการพัฒนาเศรษฐกิจและสังคมแห่งชาติ.

สำนักงานพัฒนาการท่องเที่ยว กระทรวงการท่องเที่ยวและกีฬา. (2548). ระเบียบสำนักพัฒนาการท่องเที่ยวว่าด้วยการประเมินมาตรฐานโฮมสเตย์. กรุงเทพฯ: กระทรวงการท่องเที่ยวและกีฬา.

สุรพร อ่อนพุทธา วิญญู ปรอยกระโทก วรางกูร อิศรางกูร ณ อยุธยา และสัจจากาจ จอมโนนเขวา. (2566). คุณภาพการบริการที่ส่งผลต่อการรับรู้คุณค่าและการตัดสินใจท่องเที่ยว: นักท่องเที่ยวเจนซีสายมูเตลู. สยามวิชาการ, 24(42), 75-94.

องค์การบริหารส่วนตำบลภูเขาทอง. (2567). ศาลเจ้าแม่โต๊ะโมะ. สืบค้นเมื่อวันที่ 19 กุมภาพันธ์ 2567, จาก http://phukao-thong.go.th/index.php?op=

อธิป จันทร์สุรีย์. (2564). มูเตลู: ความเชื่อกับการทองเที่ยว. วารสารทีทัศน์วัฒนธรรม สำนักศิลปะและวัฒนธรรม มหาวิทยาลัยราชภัฏบ้านสมเด็จเจ้าพระยา, 20(1), 220-240.

อาหมัดอัลซารีย์ มูเก็ม. (2559). ประเพณี พิธีกรรม ความเชื่อ ที่มีความสัมพันธ์ต่อวิถีชีวิตของชนกลุ่มชาติพันธุ์เขมรบนพื้นที่บ้านจารย์ อำเภอสังขะ จังหวัดสุรินทร์. (ประกาศนียบัตรบัณฑิต สาขาวิชาบัณฑิตอาสาสมัคร). วิทยาลัยพัฒนศาสตร์ ป๋วย อึ๊งภากรณ์ มหาวิทยาลัยธรรมศาสตร์, ปทุมธานี.

Cochran, W. G. (1977). Sampling techniques (3rd Ed.). New York: John Wiley and Sons

Cronbach, L. J. (1990). Essentials of psychological testing (5th ed.). New York: Harper & Row.

Dickman, C. R. (1996). Overview of the impacts of feral cats on Australian native fauna. Australian Canberra: Australian Nature Conservation Agency.

Kreiner, G., & Wall, G. (2015). Tourism and religion: Spiritual journeys and their consequences. New York: Springer.

Knight Frank Thailand. (2568). เปิดตำรา มู (เตลู) 5 ของแต่งบ้าน เสริมเฮง สืบค้นเมื่อวันที่ 20 มกราคม 2568, จาก https://thailandpropertynews.knightfrank.co.th/

บุคลานุกรม

กฤษ เสนาพันธ์. (2567, พฤษภาคม 21). บ้านวังน้ำเย็น ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

จามิกรณ์. (2567, มิถุนายน 20). จามิกรณ์โฮมสเตย์ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ชัญญา. (2567, มิถุนายน 9). รีสอร์ทไร่ไอปาโจ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

แซนดี้. (2567, มิถุนายน 20). ไอปาโจ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ดำ พันธ์มณี. (2567, มิถุนายน 6). โฮมสเตย์บ้านโต๊ะโมะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

เทียม ชัยโคตร. (2567, พฤษภาคม 20). อบต.ภูเขาทอง ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

นฤพนธ์ โยงปราง. (2567, มิถุนายน 6). บ้านไอปาโจ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ปราณี ทวีรัตน์. (2567, พฤษภาคม 22). บ้านโต๊ะโมะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ปาน ทะขุ่ย. (2567, พฤษภาคม 22). ศาลเจ้าแม่โต๊ะโมะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ฟาซียะห์ ลอกอ. (2567, มิถุนายน 6). รีสอร์ทไร่ไอปาโจ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

วีระ. (2567, มิถุนายน 10). บ้านภูเขาทอง ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

สุกัญญา. (2567, มิถุนายน 9). รีสอร์ทไร่ไอปาโจ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

สุนิสา. (2567, มิถุนายน 9). รีสอร์ทไร่ไอปาโจ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

สุภาพ จามิกรณ์. (2567, พฤษภาคม 21). จามิกรณ์โฮมสเตย์บ้านโต๊ะโมะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

สุรภีร์. (2567, มิถุนายน 20). บ้านโต๊ะโม๊ะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

อัมพร ฤทธิ์ชารี. (2567, พฤษภาคม 20). อบต.ภูเขาทอง ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

อุสมัน. (2567, มิถุนายน 6). รีสอร์ไร่ไอปาโจ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ศักยภาพด้านผลิตภัณฑ์และการตลาดในการจัดการท่องเที่ยวสายมูเตลู ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส

Product and Marketing Potential in Managing Mutelu Tourism in Phu Khao Thong Subdistrict, Sukhirin District, Narathiwat Province

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บทคัดย่อ

บทความนี้มีวัตถุประสงค์เพื่อ 1) ศึกษาสภาพทั่วไปของผลิตภัณฑ์สายมูและการตลาดในปัจจุบันของพื้นที่ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส 2) ประเมินศักยภาพด้านผลิตภัณฑ์ชุมชนและการตลาดของผลิตภัณฑ์สายมู วิธีดำเนินการวิจัยใช้วิธีการเชิงปริมาณและเชิงคุณภาพ เชิงปริมาณเก็บข้อมูลจากแบบสอบถาม จำนวน 400 ชุด จากกลุ่มตัวอย่าง วิเคราะห์ข้อมูลหาค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน ส่วนเชิงคุณภาพเก็บข้อมูลจากการสังเกต และสัมภาษณ์แบบเจาะลึกจากผู้ให้ข้อมูล ได้แก่ วิสาหกิจชุมชน กลุ่มที่ผลิตสินค้าที่ระลึก ประชาชน นักท่องเที่ยว และหน่วยงานภาครัฐ จำนวน 22 คน วิเคราะห์ข้อมูลโดยการนำข้อมูลมาจำแนกหมวดหมู่ตีความตามประเด็น สร้างข้อสรุป นำเสนอข้อมูลเชิงพรรณนาวิเคราะห์ ผลการวิจัยพบว่า 1) สภาพทั่วไปของผลิตภัณฑ์สายมูและการตลาดในปัจจุบัน

พบว่า ผลิตภัณฑ์สายมูมีความหลากหลายมีอัตลักษณ์แสดงถึงภูมิปัญญา วัฒนธรรม และความเชื่อของท้องถิ่น มีคุณภาพ ตอบโจทย์ความต้องการของนักท่องเที่ยว ส่วนช่องทางการตลาดหลักในปัจจุบัน คือ เพจ เฟสบุ๊ก กลุ่มไลน์ และการบอกต่อ ซึ่งยังมีประสิทธิภาพจำกัด จำเป็นต้องขยายช่องทางการตลาดไปยังช่องทางออนไลน์ เช่น เว็บไซต์ ร้านค้าออนไลน์ โซเชียลมีเดีย ควรให้มีการเปิดตลาดนัดชุมชนหรือร้านค้าชุมชน เพื่อให้นักท่องเที่ยวสามารถซื้อผลิตภัณฑ์ได้สะดวกและควรนำสินค้าออกไปจำหน่ายนอกพื้นที่ เช่น ตามสถานที่ท่องเที่ยว โรงแรม ซุปเปอร์มาเก็ต 2) ศักยภาพของผลิตภัณฑ์สายมู พบว่า ภาพรวมอยู่ในระดับปานกลาง ($\overline{X}$ = 3.43, SD = .74) เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านที่มีศักยภาพสูงที่สุด คือ ด้านเรื่องราวหรือตำนานเกี่ยวกับสิ่งศักดิ์สิทธิ์ของผลิตภัณฑ์อยู่ในระดับปานกลาง ($\overline{X}$ = 3.42, S.D. = .69) รองลงมา ได้แก่ ด้านบรรจุภัณฑ์สายมู อยู่ในระดับปานกลาง ($\overline{X}$ = 3.34, S.D. =.76) และด้านรูปแบบ สีสัน ของผลิตภัณฑ์สายมู อยู่ในระดับปานกลาง ($\overline{X}$ = 3.27, S.D. = .62) สำหรับศักยภาพการตลาดของผลิตภัณฑ์สายมู โดยภาพรวมพบว่าอยู่ในระดับปานกลาง ($\overline{X}$ = 3.44, S.D. = .60) เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านที่มีศักยภาพสูงที่สุด คือ ด้านการจัดกิจกรรมพิเศษและสร้างประสบการณ์ อยู่ในระดับปานกลาง ($\overline{X}$ = 3.51, S.D. = .81) รองลงมา ได้แก่ การตลาดออนไลน์และสื่อสังคมออนไลน์ อยู่ในระดับปานกลาง ($\overline{X}$ = 3.42, S.D. = .69) และด้านการโฆษณาอยู่ในระดับปานกลาง ($\overline{X}$ = 3.38, S.D. = .74)

คำสำคัญ: การท่องเที่ยวสายมูเตลู, ศักยภาพผลิตภัณฑ์ชุมชน, ช่องทางการตลาด

Abstract

This article aims to 1) study the general condition of Sai Mu products and the current marketing of Sai Mu products in Phu Khao Thong Subdistrict, Sukhirin District, Narathiwat Province, and 2) assess the potential of community products and the marketing of Sai Mu products. The research methodology used quantitative and qualitative methods. The quantitative method collected data from 400 questionnaires from the sample group. The data were analyzed to find the mean and standard deviation. The qualitative method collected data from observation and in-depth interviews with 17 informants, including community enterprises, souvenir product groups, the general public, tourists, and government agencies. The data were analyzed by categorizing the data, interpreting the issues, creating conclusions, and presenting descriptive data. The research results found that 1) the general condition of Sai Mu products and the current marketing found that Sai Mu products are diverse, have identities that reflect local wisdom, culture, and beliefs, are of high quality, and meet the needs of tourists. The main marketing channels at present are Facebook pages, Line groups, and word-of-mouth, which are still limited in efficiency. It is necessary to expand the marketing channels to online channels, such as websites, online stores, and social media. There should be community markets or community stores to facilitate tourists to buy products and should take the products to sell outside the area, such as at tourist attractions, hotels, supermarkets 2) The potential of spiritual products was found to be at a moderate level overall ($\overline{X}$ = 3.43, SD = .74). When considering each

aspect, the aspect with the highest potential was the story or legend about the sacred objects of the product, which was at a moderate level ($\overline{X}$ = 3.42, S.D. = .69), followed by spiritual packaging, which was at a moderate level ($\overline{X}$ = 3.34, S.D. = .76), and the design and colors of spiritual products, which were at a moderate level ($\overline{X}$ = 3.27, S.D. = .62). The overall marketing potential of spiritual products was found to be at a moderate level ($\overline{X}$ = 3.44, S.D. = .60). When considering each aspect, the aspect with the highest potential was the aspect of organizing special events and creating experiences, which was at a moderate level ($\overline{X}$ = 3.51, S.D. = .81), followed by online marketing and social media, which was at a moderate level ($\overline{X}$ = 3.42, S.D. = .69), and advertising, which was at a moderate level ($\overline{X}$ = 3.38, S.D. = .74).

Keywords: Mutelu tourism, community product potential, marketing channels

บทนำ

คำว่า ‘มูเตลู’ มีรากศัพท์มาจากชื่อภาพยนตร์สยองขวัญสัญชาติอินโดนีเซียเรื่อง ‘Mutelu: Occult War’ ซึ่งเคยเข้าฉายในประเทศไทยภายใต้ชื่อ ‘มูเตลู ศึกไสยศาสตร์’ ภาพยนตร์ดังกล่าวมีเนื้อหาเกี่ยวกับสตรีสองนางที่ใช้มนตร์คาถาเพื่อแย่งชิงชายคนรัก โดยมีบทสวดที่ขึ้นต้นด้วยวลี ‘มูเตลู...มูเตลู’ แม้ภาพยนตร์เรื่องนี้จะออกฉายตั้งแต่ปี ค.ศ. 1979 แต่คำว่า “มูเตลู” ได้รับการฟื้นฟูและกลายเป็นคำที่ใช้กันอย่างแพร่หลายในยุคปัจจุบัน เพื่ออธิบายถึงการประกอบพิธีกรรมบูชาและความเชื่อในสิ่งศักดิ์สิทธิ์ (อธิป จันทร์สุริย์, 2564) ปรากฏการณ์นี้สอดคล้องกับการเติบโตของการท่องเที่ยวเชิงศรัทธา ซึ่งสร้างมูลค่าทางเศรษฐกิจมหาศาลทั่วโลก โดยมีมูลค่าถึง 13.7 พันล้านเหรียญสหรัฐ ในปี 2565 และคาดว่าจะเพิ่มขึ้นเป็น 40.92 พันล้านเหรียญสหรัฐ ในปี 2576 หรือคิดเป็นการเติบโตเกือบสามเท่าภายในระยะเวลาหนึ่งทศวรรษ

ในประเทศไทย การท่องเที่ยวสายมูมีขนาดตลาดที่ใหญ่และสร้างรายได้หมุนเวียนในระบบเศรษฐกิจอย่างมีนัยสำคัญ การท่องเที่ยวแห่งประเทศไทย (ททท.) คาดการณ์ว่าในปี 2566 การท่องเที่ยวเชิงศรัทธาและความเชื่อ หรือ “สายมู” จะสามารถสร้างรายได้หมุนเวียนในประเทศไม่ต่ำกว่า 10,800 ล้านบาท ตัวเลขดังกล่าวสะท้อนให้เห็นถึงศักยภาพทางเศรษฐกิจอันมหาศาลของการท่องเที่ยวรูปแบบนี้ ซึ่งไม่ได้จำกัดอยู่เพียงค่าใช้จ่ายในการเดินทาง แต่ยังครอบคลุมถึงการใช้จ่ายในกิจกรรมที่เกี่ยวข้องกับความเชื่อโดยตรง เช่น การทำบุญ การบริจาค การเช่าบูชาวัตถุมงคล และการใช้บริการพยากรณ์ต่าง ๆ (กรุงเทพธุรกิจ, 2566; กรมประชาสัมพันธ์, 2566) การเติบโตนี้ยังสอดรับกับรายงานจากศูนย์วิจัยกสิกรไทยที่ประเมินว่าธุรกิจที่เกี่ยวข้องกับความเชื่อและโหราศาสตร์มีมูลค่าตลาดรวมกว่า 1 หมื่นล้านบาท แม้ว่าตัวเลขนี้จะครอบคลุมธุรกิจในวงกว้างกว่าการท่องเที่ยวโดยเฉพาะ แต่ก็ชี้ให้เห็นถึงเม็ดเงินจำนวนมากที่หมุนเวียนในระบบเศรษฐกิจ อันเนื่องมาจากอุปสงค์ของผู้บริโภคสายมู โดยนักท่องเที่ยวกลุ่มนี้มักมีค่าใช้จ่ายเฉลี่ยสูงกว่านักท่องเที่ยวทั่วไป คืออยู่ที่ประมาณ 6,000 บาทต่อคนต่อทริป ซึ่งส่วนใหญ่หมดไปกับการเดินทาง ที่พัก อาหาร และที่สำคัญคือการซื้อของที่ระลึกและวัตถุมงคล การขยายตัวทางเศรษฐกิจนี้ไม่เพียงกระจุกตัวในเมืองใหญ่ แต่ยังกระจายรายได้ไปสู่ชุมชนท้องถิ่นที่มีแหล่งท่องเที่ยวเชิงศรัทธาตั้งอยู่ (วิจัยกรุงศรี, 2567)

การท่องเที่ยวมูเตลูส่งผลต่อการพัฒนาผลิตภัณฑ์และการตลาดในหลายมิติ ประการแรก คือ การสร้างอุปสงค์โดยตรง ณ แหล่งท่องเที่ยว เมื่อนักท่องเที่ยวเดินทางไปยังศาสนสถานหรือสถานที่ศักดิ์สิทธิ์ พวกเขามักมีความต้องการซื้อวัตถุมงคล เครื่องราง ของที่ระลึก หรือของถวาย ซึ่งกระตุ้นให้เกิดการผลิตและจำหน่ายสินค้าที่เชื่อมโยงกับสถานที่หรือสิ่งศักดิ์สิทธิ์นั้น ๆ ประการที่สอง คือ การท่องเที่ยวมูเตลูกำหนดเทรนด์และความนิยมของผลิตภัณฑ์ โดยกระแสความนิยมในสถานที่หรือสิ่งศักดิ์สิทธิ์บางอย่าง เช่น ไอ้ไข่ วัดเจดีย์ หรือท้าวเวสสุวรรณ มักเกิดจากการเดินทางไปสักการะ การบอกต่อ และอิทธิพลของสื่อหรือบุคคลที่มีชื่อเสียง ส่งผลให้เกิดการพัฒนาผลิตภัณฑ์ที่เกี่ยวข้องอย่างรวดเร็ว ตั้งแต่วัตถุมงคลแบบดั้งเดิมไปจนถึงการนำภาพลักษณ์ไปใช้บนสินค้าไลฟ์สไตล์อื่น ๆ ประการที่สาม คือ การตอบสนองต่อแรงจูงใจของนักท่องเที่ยวสายมูที่มักขอพรในด้านต่าง ๆ เช่น โชคลาภ การงาน การเงิน ความรัก สุขภาพ หรือการแสวงหาที่พึ่งทางใจ ผู้พัฒนาผลิตภัณฑ์จึงสร้างสรรค์สินค้าที่ตอบโจทย์ความต้องการเหล่านี้โดยตรง และประการสุดท้าย คือการขับเคลื่อนนวัตกรรมไปสู่ “มูเดิร์น” (Mutelu + Modern) และดิจิทัล เพื่อตอบสนองความต้องการของนักท่องเที่ยวรุ่นใหม่ โดยเฉพาะกลุ่ม Gen Y และ Gen Z ที่ต้องการผสมผสานความเชื่อเข้ากับไลฟ์สไตล์สมัยใหม่ เกิดเป็นผลิตภัณฑ์ เช่น เครื่องประดับดีไซน์มินิมอล เสื้อผ้าสีมงคล หรือผลิตภัณฑ์ดิจิทัลอย่างวอลเปเปอร์มือถือเสริมดวง (บุญยิ่ง คงอาชาภัทร, 2564)

ในพื้นที่ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส มีศักยภาพสูงสำหรับการท่องเที่ยวสายมูเตลู เนื่องจากมีสถานที่ทางประวัติศาสตร์ ศาสนา และวัฒนธรรมที่หลากหลาย เช่น เหมืองแร่โต๊ะโมะ ซึ่งเป็นดินแดนกลางหุบเขาที่เติบโตด้วยทองคำ ศาลเจ้าโต๊ะโมะ และสถานที่ศักดิ์สิทธิ์อื่น ๆ นักท่องเที่ยวที่มาเยือนมักได้รับแรงบันดาลใจจากเหตุผลทางศาสนา โหราศาสตร์ ศาสตร์แห่งความโชคดี และการบูชาเครื่องรางของขลัง เพื่อเสริมความมั่นคงในชีวิตและสมหวัง นอกจากนี้ยังได้รับความรู้ด้านตำนานประวัติศาสตร์ ศิลปวัฒนธรรมท้องถิ่น และมรดกทางภูมิปัญญาของชุมชน (อธิป จันทร์สุริย์, 2564) ความเชื่อสายมูได้กลายเป็นกลไกทางการตลาดที่สร้างเม็ดเงิน โดยอาศัยพื้นฐานความเชื่อศรัทธาและความหวัง ท่ามกลางความไม่แน่นอนทางเศรษฐกิจและสังคม (ศิริวรรณ สิทธิกา, 2566) การท่องเที่ยวลักษณะนี้ส่งผลให้ชุมชนหันมาพัฒนาผลิตภัณฑ์และสินค้าที่ระลึกที่เชื่อมโยงกับความเชื่อ ก่อให้เกิดความร่วมมือทางเศรษฐกิจและสังคม และธุรกิจชุมชน การทำผลิตภัณฑ์จากความเชื่อถือเป็นการสร้างมูลค่าเพิ่มที่ส่งผลต่อการรับรู้ของผู้บริโภค นำไปสู่ความมั่นใจในการตัดสินใจซื้อผลิตภัณฑ์และบริการ (วิลัดดา เตชะเวช, 2547)

อย่างไรก็ตาม แม้ตำบลภูเขาทองจะมีเรื่องราวความเชื่อเกี่ยวกับพื้นที่ศักดิ์สิทธิ์มากมาย แต่ผลิตภัณฑ์ชุมชนและช่องทางการตลาดสำหรับการท่องเที่ยวสายมูเตลูในพื้นที่ยังคงมีข้อจำกัด ผลิตภัณฑ์ที่ตอบโจทย์นักท่องเที่ยวสายมูและช่องทางการตลาดยังมีน้อย ทำให้การดึงดูดนักท่องเที่ยวและการสร้างรายได้ของชุมชนจากการนำเรื่องเล่าทางประวัติศาสตร์ ตำนาน และความเชื่อมาพัฒนาผลิตภัณฑ์และบริการยังไม่ดีเท่าที่ควร (ศศิธร พึ่งพา, สัมภาษณ์วันที่ 7 มิถุนายน 2567; ยายร่วม บุญบำรุง, สัมภาษณ์วันที่ 7 มิถุนายน 2567; และเทียม ชัยโคตร, สัมภาษณ์วันที่ 7 มิถุนายน 2567) จากปรากฏการณ์ดังกล่าว ผู้วิจัยจึงสนใจที่จะศึกษาสภาพทั่วไปของผลิตภัณฑ์ชุมชนสายมูในพื้นที่ตำบลภูเขาทองในปัจจุบัน รวมถึงประเมินศักยภาพของผลิตภัณฑ์สินค้าที่ระลึกสายมู เพื่อแสวงหาแนวทางการเพิ่มศักยภาพด้านผลิตภัณฑ์ชุมชนและการตลาดให้มีประสิทธิภาพ สร้างความพึงพอใจแก่นักท่องเที่ยว และเปิดพื้นที่ทางเศรษฐกิจให้แก่ชุมชนในการจำหน่ายผลิตภัณฑ์ต่อไป

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาสภาพทั่วไปของผลิตภัณฑ์สายมูและการตลาดในปัจจุบันของพื้นที่ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส

2. เพื่อประเมินศักยภาพด้านผลิตภัณฑ์สายมูและการตลาดของผลิตภัณฑ์สายมูในพื้นที่ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส

แนวคิด ทฤษฎี กรอบแนวคิด

การศึกษาศักยภาพด้านผลิตภัณฑ์และการตลาดในการจัดการท่องเที่ยวสายมูเตลู จำเป็นต้องอาศัยแนวคิดและทฤษฎีที่หลากหลาย เพื่อให้เข้าใจบริบทและสามารถวิเคราะห์ได้อย่างครอบคลุม โดยแนวคิดสำคัญ ประกอบด้วย ศักยภาพผลิตภัณฑ์ชุมชน การพัฒนาผลิตภัณฑ์ชุมชน วิวัฒนาการของผลิตภัณฑ์สายมูและการตลาดสายมู

แนวคิดเกี่ยวกับศักยภาพและการพัฒนาผลิตภัณฑ์ชุมชน

ศักยภาพของสินค้าชุมชนเป็นปัจจัยสำคัญในการขับเคลื่อนเศรษฐกิจฐานราก อัจจิมา ศุภจริยาวัตร และสิทธิ จิตติชานนท์ (2562) ได้อธิบายองค์ประกอบของศักยภาพสินค้าชุมชนว่าประกอบด้วย 4 ด้านหลัก ได้แก่ ด้านรูปแบบผลิตภัณฑ์ ด้านบรรจุภัณฑ์ ด้านคุณภาพผลิตภัณฑ์ และด้านอัตลักษณ์ภูมิปัญญาท้องถิ่น นอกจากนี้ ยังได้เสนอเกณฑ์การประเมินศักยภาพผลิตภัณฑ์ชุมชนและช่องทางการตลาด ซึ่งแบ่งออกเป็น 4 ด้าน ได้แก่ 1) ด้านคุณภาพและมาตรฐานผลิตภัณฑ์ ซึ่งพิจารณาถึงคุณภาพ ความปลอดภัย การรับรองมาตรฐาน เอกลักษณ์ และความเหมาะสมของบรรจุภัณฑ์และฉลาก 2) ด้านศักยภาพการผลิต ครอบคลุมความเพียงพอของวัตถุดิบ เทคโนโลยี กำลังการผลิต ระบบการจัดการ และต้นทุน 3) ด้านศักยภาพการตลาด พิจารณาตลาดรองรับ กลุ่มลูกค้าเป้าหมาย ความต้องการสินค้า ราคา ช่องทางการจำหน่าย และกลยุทธ์การตลาด และ 4) ด้านศักยภาพของกลุ่มผู้ผลิต ซึ่งรวมถึงความสามัคคี ทักษะความรู้ด้านการผลิตและการตลาด การจัดการ และการพัฒนาอย่างต่อเนื่อง ทั้งนี้อาจมีเกณฑ์เพิ่มเติมตามประเภทผลิตภัณฑ์ เช่น ผลิตภัณฑ์ OTOP อาจประเมินด้านการออกแบบและพัฒนาผลิตภัณฑ์ การสร้างแบรนด์ ส่วนผลิตภัณฑ์เกษตรเน้นความปลอดภัยของอาหาร และผลิตภัณฑ์หัตถกรรมเน้นความประณีตและภูมิปัญญาท้องถิ่น

ด้านการพัฒนาศักยภาพผลิตภัณฑ์ชุมชนนั้น พนิดา รัตนสุภา, อรอุมา สำลี, เสาวลักษณ์ บุญรอด และวัลลภา พัฒนา (2563) ได้ชี้ให้เห็นถึงองค์ประกอบสำคัญในการเชื่อมโยงกับการท่องเที่ยวชุมชนและการส่งออก ประกอบด้วย การพัฒนาผลิตภัณฑ์ชุมชนให้สอดรับกับนักท่องเที่ยวและการส่งออก การจัดการต้นทุนและการกำหนดราคา การออกแบบบรรจุภัณฑ์เพื่อสื่อสารการตลาด และการวิเคราะห์ศักยภาพผู้ประกอบการเพื่อรองรับการส่งออก

ผลิตภัณฑ์ชุมชนโดยนิยาม คือ ผลผลิตจากการประกอบกิจการของชุมชน ซึ่งไม่เพียงสร้างรายได้และเสริมสร้างความเข้มแข็งทางเศรษฐกิจของชุมชนและรัฐ แต่ยังต้องสามารถตอบสนองความต้องการของผู้บริโภค มีความคงทน และเป็นสินค้าที่จับต้องได้ (วรรณพรรธน์ ริมผดี, 2554) ที่สำคัญ ผลิตภัณฑ์เหล่านี้จะต้องสะท้อนถึงวัฒนธรรมและประเพณีของท้องถิ่นนั้น ๆ (พนิดา รัตนสุภา, อรอุมา สำลี, เสาวลักษณ์ บุญรอด, และวัลลภา พัฒนา, 2563) รากฐานของผลิตภัณฑ์ชุมชนมักเกิดจากการนำภูมิปัญญาท้องถิ่นและทักษะการพึ่งตนเองของคนในชุมชนมาประยุกต์ใช้ โดยการนำทรัพยากรในชุมชนมาใช้อย่างสมดุล ไม่ว่าจะเป็นการเกษตร ศิลปหัตถกรรมพื้นบ้าน อาหารแปรรูป หรือบริการอื่น ๆ

กระบวนการผลิตมักยืดหยุ่นและสอดคล้องกับวิถีชีวิต ทำให้เกิดการสืบทอดภูมิปัญญาเป็นทุนทางปัญญาของชุมชน จุดกำเนิดของการผลิตผลิตภัณฑ์ชุมชนจึงมาจากความผูกพันทางวิถีชีวิต ภูมิปัญญาท้องถิ่น ความต้องการตอบสนองตลาด การสร้างมูลค่าเพิ่มให้วัตถุดิบ กระบวนการเรียนรู้ของชุมชน และการสนับสนุนจากภายนอก โดยมีองค์ประกอบภายในชุมชนเป็นหลัก เช่น ภูมิปัญญาท้องถิ่น ศักยภาพท้องถิ่น วัตถุดิบ เทคโนโลยีชาวบ้าน และแรงงาน

วิวัฒนาการผลิตภัณฑ์สายมู

ปรากฏการณ์ “สายมู” หรือการยึดเหนี่ยวความเชื่อในสิ่งศักดิ์สิทธิ์ มีความเชื่อมโยงกับสภาวะความไม่แน่นอนทางสังคมและเศรษฐกิจ งานวิจัย ‘Marketing in the Uncertain World การตลาดของคนอยู่เป็น’ โดยวิทยาลัยการจัดการ มหาวิทยาลัยมหิดล พบว่า ทุกเจเนอเรชันมีความกังวลร่วมกันในด้านโรคระบาดและสิ่งแวดล้อม ขณะที่ความกังวลอื่น ๆ แตกต่างกันไปตามช่วงวัย เช่น กลุ่ม Gen Z กังวลด้านสังคม Gen Y ด้านเศรษฐกิจ และ Gen X กับ Baby Boomer ด้านเทคโนโลยี ท่ามกลางความไม่แน่นอนเหล่านี้ ผู้คนหันมาพึ่งพิงความเชื่อเพื่อเป็นเครื่องยึดเหนี่ยวจิตใจ โดย 5 อันดับความเชื่อด้านโชคลางยอดนิยม ได้แก่ การพยากรณ์, พระเครื่องวัตถุมงคล, สีมงคล, ตัวเลขมงคล, และเรื่องเหนือธรรมชาติ สอดคล้องกับการสำรวจของบริษัท Lucky Heng Heng ที่พบว่าคนไทย 75% เชื่อเรื่องดูดวง โดยกลุ่ม Gen Y มีสัดส่วนความเชื่อสูงสุด (43.4%) สะท้อนถึงความไม่มั่นคงทางจิตใจจากสภาวะแวดล้อมเชิงลบ (ศิริวรรณ สิทธิกา, 2566)

ธุรกิจสายมูเริ่มเด่นชัดในช่วงทศวรรษ 2520 พร้อมกับการเติบโตของลัทธิบูชาความมั่งคั่ง วงการพระเครื่องเฟื่องฟู และศาสนากับการค้าเริ่มผนวกกัน เพื่อตอบสนองความต้องการที่พึ่งทางใจและความหวังในความมั่งคั่ง สื่อมวลชนมีบทบาทสำคัญในการขยายความศักดิ์สิทธิ์ของวัตถุมงคล เมื่อลัทธิความมั่งคั่งผสมผสานกับการตลาดสมัยใหม่ ศาสนาก็กลายเป็นสินค้าประเภทหนึ่ง โดยเฉพาะในช่วงเศรษฐกิจรุ่งเรือง ทศวรรษ 2520 - 2530 ที่มีการใช้จ่ายเงินและเวลาไปกับพิธีกรรมความเชื่อจำนวนมาก ธุรกิจสายมูแสดงให้เห็นถึงความยืดหยุ่น โดยไม่ซบเซาตามภาวะเศรษฐกิจ ข้อมูลจากกระทรวงพาณิชย์ชี้ว่าตั้งแต่ปี 2563 ถึง 2566 ความนิยมในการมูเตลูเพิ่มขึ้นอย่างก้าวกระโดด โดยรายได้รวมของธุรกิจสายมูปลายปี 2564 พุ่งขึ้นกว่า 113% ท่ามกลางความผันผวนทางเศรษฐกิจและปัจจัยที่คาดไม่ถึง เช่น โรคอุบัติใหม่ ปัญหาสิ่งแวดล้อม การเมือง และเทคโนโลยี ภาคธุรกิจจึงนำความเชื่อมาสร้างรายได้และผลกำไรผ่านการท่องเที่ยว สินค้า และบริการ โดยใช้ศาสตร์ความเชื่อในการวางกลยุทธ์ทางการตลาด ซึ่งนำไปสู่ “การทำให้วัตถุกลายเป็นสิ่งศักดิ์สิทธิ์” (ศิริวรรณ สิทธิกา, 2566)

การทำให้วัตถุมีความศักดิ์สิทธิ์ปรากฏในหลายรูปแบบในสังคมไทย เช่น วัตถุเสริมดวง สีเสื้อมงคล เครื่องรางนำโชค หมายเลขโทรศัพท์มงคล หรือฤกษ์ยามต่าง ๆ ความเชื่อเหล่านี้บางส่วนฝังรากลึกในวัฒนธรรม ขณะที่บางส่วนเกิดจากกระแสที่ถูกปลุกปั่นและจางหายไปตามกาลเวลา สังคมไทยมีความเชื่อที่หลากหลายและผสมผสาน ทั้งแบบดั้งเดิมและสร้างขึ้นใหม่ เพื่อตอบสนองธุรกิจความเชื่อที่เติบโตและสร้างรายได้มหาศาลในแต่ละปี ผู้บูชาคาดหวังคุณวิเศษจากวัตถุมงคลเหล่านั้น ซึ่งความศักดิ์สิทธิ์มักต้องอาศัยองค์ประกอบสำคัญ ได้แก่ เรื่องเล่าหรือตำนาน, พิธีกรรม, ปาฏิหาริย์หรือประสบการณ์ และรูปแบบที่เป็นเอกลักษณ์ ตัวอย่างเช่น ปรากฏการณ์จตุคามรามเทพในปี 2549 ที่ความต้องการสูงมากจากเรื่องเล่าหลากหลาย แต่ความนิยมก็ลดลงในเวลาไม่กี่ปี ชี้ให้เห็นว่าตลาดและกระแสมีอิทธิพลต่อความนิยมมากกว่าตัวผู้บูชาเอง วัตถุศักดิ์สิทธิ์อื่น ๆ เช่น แม่ยั่วเมือง หรือไอ้ไข่ ก็ล้วนมีวงจรความนิยมที่เกิดขึ้นและจางไป ก่อนจะมีวัตถุใหม่เข้ามาแทนที่ (ศิริวรรณ สิทธิกา, 2566; วิทยาลัยการจัดการ มหาวิทยาลัยมหิดล,

2564) ความเชื่อในสิ่งศักดิ์สิทธิ์และไสยศาสตร์นี้ แม้จะดูขัดแย้งกับความทันสมัย แต่ก็ยังคงเติบโตเคียงคู่กัน คำว่า “มูเตลู” หรือ “สายมู” จึงใช้เรียกบุคคลที่มีความเชื่อและบูชาสิ่งศักดิ์สิทธิ์เพื่อประโยชน์ส่วนตนในด้านต่าง ๆ

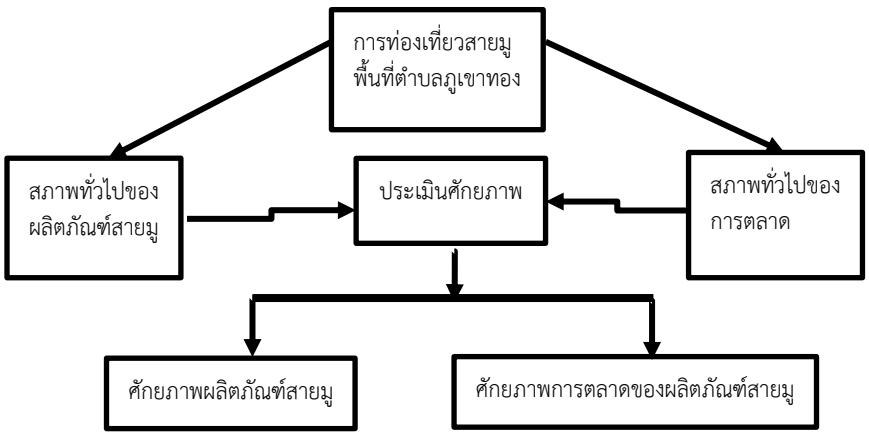
การตลาดสายมู (Muketing)

การตลาด (Marketing) คือ กระบวนการสร้าง ส่งเสริม และนำเสนอผลิตภัณฑ์หรือบริการสู่ผู้บริโภคเพื่อสร้างความต้องการและยอดขาย ซึ่งครอบคลุมการวิเคราะห์ตลาด การวางแผน พัฒนาโฆษณา และบริการลูกค้า “การตลาดสายมู” หรือ “Muketing” เป็นการนำความเชื่อ ความศรัทธาในดวงชะตาและสิ่งศักดิ์สิทธิ์มาใช้ในการทำตลาดสินค้าหรือบริการ เพื่อดึงดูดกลุ่มเป้าหมายสายมู สินค้าเหล่านี้มักผ่านพิธีปลุกเสก มีการใช้เลขมงคล สีมงคล หรือสัญลักษณ์ศักดิ์สิทธิ์ (Mandala Team, 2024)

แนวคิดการตลาดสมัยใหม่ยังรวมถึงการตลาดความสัมพันธ์ที่มุ่งเน้นลูกค้า การตลาดเชิงธุรกิจและการตลาดเชิงสังคม การตลาดผ่านอินเทอร์เน็ต (Internet Marketing) หรือชื่ออื่น ๆ เช่น e-marketing, online marketing, digital marketing ได้กลายเป็นเครื่องมือสำคัญ โดยอาศัยเว็บไซต์ค้นหาข้อมูล การโฆษณาบนหน้าจอคอมพิวเตอร์ และการแบ่งกลุ่มลูกค้าอย่างละเอียดเพื่อการตลาดที่แม่นยำขึ้น (personalized marketing หรือ one-to-one marketing) การตลาดผ่านอินเทอร์เน็ตยังครอบคลุมการตลาดผ่านอีเมล สื่อไร้สาย และการผลักดันผู้บริโภคจากสื่อดั้งเดิมไปสู่แพลตฟอร์มออนไลน์ (Adcock, 2001)

หนึ่งในโมเดลการตลาดที่สำคัญคือ STP Marketing ซึ่งย่อมาจาก Segmentation (การแบ่งส่วนตลาด) Targeting (การกำหนดเป้าหมาย) และ Positioning (การวางตำแหน่งผลิตภัณฑ์) โมเดลนี้ช่วยให้นักการตลาดสามารถปรับกลยุทธ์ให้เหมาะสมกับแต่ละส่วนของตลาด เพิ่มความแม่นยำและประสิทธิภาพ (Rocket, 2024) กลยุทธ์การตลาดดิจิทัลที่นิยมใช้ในปัจจุบัน ได้แก่ การตลาดผ่านผู้มีอิทธิพล (Influencer Marketing) การโฆษณาผ่าน Facebook (Facebook Ads) การตลาดผ่านโซเชียลมีเดีย (Social Media Marketing) การบริหารความสัมพันธ์ลูกค้า (CRM) การตลาดเนื้อหา (Content Marketing) การตลาดผ่านอีเมล (Email Marketing) การตลาดผ่านเครื่องมือค้นหา (SEO Marketing) และการโฆษณาแบบจ่ายต่อคลิก (PPC Advertising) (Rocket, 2024) การทำความเข้าใจแนวคิดและกลยุทธ์เหล่านี้มีความสำคัญอย่างยิ่งต่อการพัฒนาศักยภาพผลิตภัณฑ์และการตลาดของการท่องเที่ยวสายมูเตลูในพื้นที่เป้าหมาย

กรอบแนวคิดการวิจัย



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

การวิจัยครั้งนี้เป็นการวิจัยแบบผสมผสาน (Mixed Methods Research) โดยใช้ทั้งวิธีการวิจัยเชิงปริมาณ (Quantitative Research) และการวิจัยเชิงคุณภาพ (Qualitative Research) เพื่อให้ได้ข้อมูลที่ครอบคลุมและรอบด้านในการศึกษาสภาพทั่วไปและประเมินศักยภาพด้านผลิตภัณฑ์และการตลาดในการจัดการท่องเที่ยวสายมูเตลูในพื้นที่ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส โดยมีรายละเอียดดังนี้

1. การวิจัยเชิงปริมาณ การดำเนินการวิจัยเชิงปริมาณ มีขั้นตอนดังนี้

ประชากรและกลุ่มตัวอย่าง ประชากรที่ใช้ในการวิจัย คือ ประชาชนและนักท่องเที่ยวที่เดินทางมาในงานประเพณีบุญบั้งไฟและงานฉลองสมโภชน์องค์เจ้าแม่โต๊ะโมะ ณ ศาลเจ้าโต๊ะโมะ ในพื้นที่ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส การกำหนดขนาดกลุ่มตัวอย่างใช้วิธีการคำนวณจากสูตรของคอแครน (Cochran, 1977) สำหรับกรณีที่ไม่ทราบจำนวนประชากรที่แน่นอน ที่ระดับความเชื่อมั่น 95% ได้ขนาดกลุ่มตัวอย่างอย่างน้อย 385 คน อย่างไรก็ตาม เพื่อให้ข้อมูลมีความน่าเชื่อถือมากยิ่งขึ้น ผู้วิจัยได้เก็บรวบรวมข้อมูลจากกลุ่มตัวอย่างทั้งสิ้น 400 คน สำหรับการสุ่มตัวอย่าง ผู้วิจัยใช้วิธีการสุ่มตัวอย่างอย่างง่าย (Simple Random Sampling) โดยกำหนดสัดส่วนของประชาชนในแต่ละหมู่บ้านและนักท่องเที่ยวที่เข้าร่วมงานดังกล่าว

เครื่องมือที่ใช้ในการวิจัย เครื่องมือที่ใช้คือแบบสอบถาม (Questionnaire) เกี่ยวกับการประเมินศักยภาพผลิตภัณฑ์สายมูในด้านเรื่องราวหรือตำนานเกี่ยวกับสิ่งศักดิ์สิทธิ์ และด้านการตลาดของผลิตภัณฑ์สายมู ลักษณะแบบสอบถามเป็นแบบมาตราส่วนประมาณค่า (Rating Scale) 5 ระดับ ตามแนวคิดของชูศรี วงศ์รัตนะ (2553 อ้างถึงใน เจตน์สฤษฎ์ สังขพันธ์, 2563) โดยแบ่งออกเป็น 2 ด้านหลัก ได้แก่ ด้านที่ 1 ศักยภาพด้านผลิตภัณฑ์ตามความเชื่อสายมู และด้านที่ 2 ศักยภาพด้านการตลาดของผลิตภัณฑ์สายมู เกณฑ์การให้คะแนนและความหมายมีดังนี้: 5 คะแนน (มากที่สุด) 4 คะแนน (มาก) 3 คะแนน (ปานกลาง) 2 คะแนน (น้อย) และ 1 คะแนน (น้อยที่สุด) ส่วนเกณฑ์การแปลความหมายค่าเฉลี่ยเป็นดังนี้: 4.50 - 5.00 หมายถึง มีศักยภาพความพร้อมระดับมากที่สุด, 3.50 - 4.49 หมายถึง มีศักยภาพความพร้อมระดับมาก, 2.50 - 3.49 หมายถึง มีศักยภาพความพร้อมระดับปานกลาง, 1.50 - 2.49 หมายถึง มีศักยภาพความพร้อมระดับน้อย และ 1.00 - 1.49 หมายถึง มีศักยภาพความพร้อมระดับน้อยที่สุด (ชูศรี วงศ์รัตนะ, 2553 อ้างถึงใน เจตน์สฤษฎ์ สังขพันธ์, 2563)

การตรวจสอบคุณภาพเครื่องมือ แบบสอบถามได้รับการตรวจสอบความตรงเชิงเนื้อหา (Content Validity) จากผู้ทรงคุณวุฒิ 3 ท่าน โดยมีค่าดัชนีความสอดคล้อง (IOC) ตั้งแต่ .67 ขึ้นไป ซึ่งถือว่าผ่านเกณฑ์ (บุญชม ศรีสะอาด, 2554) จากนั้นนำไปทดลองใช้ (Try-out) กับประชาชนและนักท่องเที่ยวที่ไม่ใช่กลุ่มตัวอย่าง จำนวน 30 คน เพื่อหาค่าความเชื่อมั่น (Reliability) ด้วยสูตรสัมประสิทธิ์อัลฟาของครอนบัค (Cronbach's Alpha Coefficient) ผลการตรวจสอบ พบว่า ค่าความเชื่อมั่นของแบบสอบถามทั้งฉบับเท่ากับ .86 โดยด้านที่ 1 ผลิตภัณฑ์ตามความเชื่อสายมู มีค่าความเชื่อมั่น .87 และด้านที่ 2 การตลาดของผลิตภัณฑ์สายมู มีค่าความเชื่อมั่น .85 ซึ่งทุกค่าสูงกว่าเกณฑ์ .70 (Cronbach, 1990) แสดงว่าแบบสอบถามมีความน่าเชื่อถือ

การเก็บรวบรวมข้อมูล ผู้วิจัยดำเนินการเก็บข้อมูลด้วยตนเองโดยใช้แบบสอบถามกับกลุ่มตัวอย่างที่เป็นประชาชนจากทั้ง 8 หมู่บ้าน และนักท่องเที่ยวที่มาในงานฉลองสมโภชน์องค์เจ้าแม่โต๊ะโมะและงานประเพณีบุญบั้งไฟ จำนวน 400 ชุด

การวิเคราะห์ข้อมูล ข้อมูลเชิงปริมาณที่ได้จากแบบสอบถามจะถูกตรวจสอบความสมบูรณ์ จากนั้นนำมาวิเคราะห์โดยใช้สถิติเชิงพรรณนา (Descriptive Statistics) ได้แก่ ค่าเฉลี่ย (Mean) และส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation) ผลการวิเคราะห์จะนำเสนอในรูปแบบตารางประกอบคำอธิบาย

2. การวิจัยเชิงคุณภาพ การดำเนินการวิจัยเชิงคุณภาพมีขั้นตอนดังนี้

ผู้ให้ข้อมูลสำคัญ กลุ่มผู้ให้ข้อมูลสำคัญ ประกอบด้วย บุคคลที่เกี่ยวข้องกับผลิตภัณฑ์สินค้าที่ระลึกและการตลาด จำนวน 17 คน ได้แก่ กลุ่มออนซอนโต๊ะโมะ 3 คน ผู้ดูแลศาลเจ้าโต๊ะโมะ 2 คน กลุ่มผลิตภัณฑ์ชุมชนบ้านภูเขาทอง 3 คน ประชาชนในพื้นที่ 2 คน นักท่องเที่ยวทั่วไป 2 คน นักท่องเที่ยวสายมู 3 คน และหน่วยงานภาครัฐ 2 คน การเลือกผู้ให้ข้อมูลใช้วิธีการสัมภาษณ์จนกว่าข้อมูลจะอิ่มตัว (ประไพพิมพ์ สุธีวสินนนท์ และประสพชัย พสุนนท์, 2559)

เครื่องมือที่ใช้ในการวิจัย เครื่องมือหลักคือแบบสัมภาษณ์แบบเจาะลึก (In-depth Interview) ซึ่งมีโครงสร้างคำถามที่มุ่งเน้นความคิดเห็นเกี่ยวกับสภาพทั่วไปของผลิตภัณฑ์ในปัจจุบัน ความพร้อมในการผลิตสินค้า และการตลาดในแหล่งท่องเที่ยวของตำบลภูเขาทอง นอกจากนี้ยังใช้การสังเกตแบบไม่มีส่วนร่วม (Non-participant Observation) เพื่อสังเกตกิจกรรมการจัดทำผลิตภัณฑ์ สินค้าที่ระลึก และการตลาดในพื้นที่ศึกษา

การเก็บรวบรวมข้อมูล ผู้วิจัยเก็บรวบรวมข้อมูลโดยการสัมภาษณ์แบบเจาะลึกผู้ให้ข้อมูลสำคัญทั้ง 17 คนจนกระทั่งข้อมูลอิ่มตัว ควบคู่ไปกับการสังเกตการณ์กิจกรรมการทำผลิตภัณฑ์และการตลาดในพื้นที่ศึกษา

การวิเคราะห์ข้อมูล ข้อมูลเชิงคุณภาพที่ได้จะนำมาวิเคราะห์โดยการจำแนกหมวดหมู่ตามประเด็นที่ศึกษา ทำการตีความ สร้างข้อสรุป และวิเคราะห์เชิงเนื้อหา (Content Analysis) จากนั้นนำเสนอผลการวิเคราะห์ในรูปแบบพรรณนาวิเคราะห์

ผลการวิจัย

การวิจัยนี้ได้ค้นพบข้อมูลสำคัญเกี่ยวกับศักยภาพด้านผลิตภัณฑ์และการตลาดในการจัดการท่องเที่ยวสายมูเตลู ณ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส โดยแบ่งผลการวิจัยออกเป็นสองส่วนหลักดังนี้

1. สภาพทั่วไปของผลิตภัณฑ์สายมูและการตลาดในปัจจุบันของพื้นที่ตำบลภูเขาทอง

จากการศึกษาพบว่า ผลิตภัณฑ์สินค้าที่ระลึกสายมูในพื้นที่ตำบลภูเขาทองมีความหลากหลายและมีเอกลักษณ์เฉพาะถิ่น ดังนี้

1.1 รูปหล่อองค์เจ้าแม่โต๊ะโมะ เจ้าแม่โต๊ะโมะมีตำนานความศักดิ์สิทธิ์ที่เล่าขานมายาวนาน ทำให้เป็นที่สนใจและศรัทธาของผู้คน วัตถุมงคลมีหลายรูปแบบ ตอบสนองความต้องการที่หลากหลายของผู้บูชา โดยผลิตภัณฑ์บางส่วนมีการใช้วัสดุและงานฝีมือท้องถิ่น สะท้อนเอกลักษณ์ชุมชน และแต่ละรุ่นมีจำนวนจำกัด อย่างไรก็ตาม การออกแบบบางชนิดยังดูเรียบง่ายและขาดความดึงดูดใจ จึงควรพัฒนาให้สวยงาม ทันสมัย และตรงใจนักท่องเที่ยวมากขึ้น รวมถึงการพัฒนาบรรจุภัณฑ์ การสร้างแบรนด์ และปรับปรุงระบบโลจิสติกส์ อุปสรรคสำคัญ คือ การแข่งขันจากวัตถุมงคลอื่น ๆ และการเข้าถึงกลุ่มผู้ที่ไม่ศรัทธาในไสยศาสตร์ ช่องทางการตลาดปัจจุบันจำกัดอยู่เพียงเพจเฟซบุ๊ก การจำหน่าย ณ ศาลเจ้า และการบอกต่อ ควรพัฒนาช่องทางออนไลน์ให้มีประสิทธิภาพยิ่งขึ้น ขยายไปยังแพลตฟอร์มอีคอมเมิร์ซ และเข้าร่วมงานแสดงสินค้าเพื่อขยายฐานลูกค้า (สังวาล ชัยโครต, สัมภาษณ์วันที่ 22 มิถุนายน 2567; ยองใย

ด่านวันดี, สัมภาษณ์วันที่ 30 มีนาคม 2567; และชินแสวิโรจน์ ปริธัญ (เก่ง), สัมภาษณ์วันที่ 23 กรกฎาคม 2567)



ภาพที่ 2 เจ้าแม่โต๊ะโมะ ต้นแบบองค์ 300 ปี รุ่นประวัติศาสตร์ เนื้อทองคำแท้
ที่มา: ศาลเจ้าแม่โต๊ะโมะ วันที่ 22 มิถุนายน 2567

1.2 พิณหัวนกเงือก เป็นผลิตภัณฑ์ที่มีเอกลักษณ์เฉพาะถิ่น โดยนกเงือกเป็นสัญลักษณ์ของความอุดมสมบูรณ์และความร่ำรวย ผลิตภัณฑ์นี้ผสมผสานงานฝีมือ ภูมิปัญญาท้องถิ่น และความเชื่อ สามารถใช้เป็นเครื่องดนตรี ของตกแต่งบ้าน หรือของสะสมได้ การผลิตต้องใช้ทักษะสูง วัตถุดิบบางชนิดหายาก ทำให้ราคาสูง และการตลาดยังไม่เป็นระบบ สินค้ายังไม่เป็นที่รู้จักในวงกว้าง แนวทางการพัฒนา คือ การสร้างความหลากหลายของรูปแบบผลิตภัณฑ์ เช่น ขนาดต่างๆ แบบตั้งโต๊ะ แบบแขวนผนัง ลวดลายที่แตกต่างกัน รวมถึงการพัฒนาบรรจุภัณฑ์และสร้างแบรนด์ (ฉันทิสุทธ์ แก้วคง, สัมภาษณ์วันที่ 12 สิงหาคม 2567; สัณฐิติสุข แก้วคง, สัมภาษณ์วันที่ 12 สิงหาคม 2567; นฤพนธ์ โยงปราง, สัมภาษณ์วันที่ 12 สิงหาคม 2567) ปัจจุบันการตลาดอาศัยการจำหน่ายที่บ้าน ฝากขายในงานแสดงสินค้า และการบอกต่อ ควรมีการโฆษณาผ่านสื่อต่าง ๆ และพัฒนาช่องทางขายออนไลน์ (ไพทูรย์ แสงงาม, สัมภาษณ์วันที่ 20 พฤษภาคม 2567 และอัมพร ฤทธิ์ชารี, สัมภาษณ์วันที่ 20 พฤษภาคม 2567)



ภาพที่ 3 พิณหัวนกเงือก

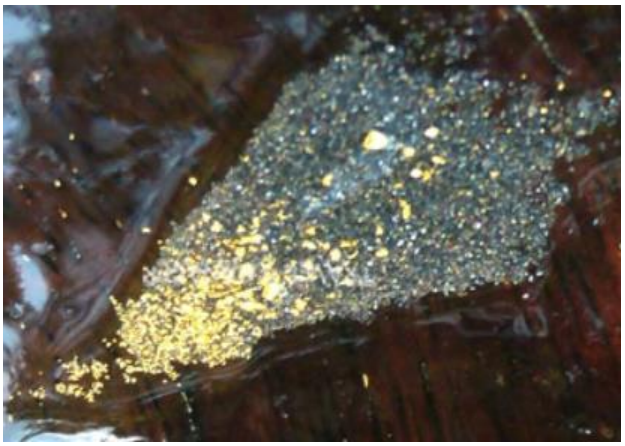
1.3 พวงกุญแจเลียงร่อนทอง ผลิตภัณฑ์สายมูนี้สื่อถึงการร่อนสิ่งดีๆ และโชคลาภมาให้ผู้ครอบครอง เป็นสินค้าที่สะท้อนภูมิปัญญา เอกลักษณ์ท้องถิ่น งานฝีมือ และวิถีการร่อนทองดั้งเดิมของชาวสุคิริน สามารถใช้เป็นของใช้ประจำวัน ของสะสม หรือของขวัญ โดยมีกลุ่มเป้าหมาย คือ สายมูเตลู ผู้ชื่นชอบงานฝีมือ และนักสะสม ทั้งยังช่วยสร้างรายได้เสริมให้ชาวบ้าน มีทั้งเลียงขนาดใหญ่สำหรับ

ร่อนทองจริง และขนาดเล็กสำหรับทำพวงกุญแจ ราคาประมาณ 50 - 200 บาท ขึ้นอยู่กับขนาด วัสดุ (เช่น ไม้พยอม ไม้ตะเคียนทอง หรือโลหะ) และลวดลาย การผลิตต้องใช้เวลาและทักษะ วัตถุดิบบางชนิดหายาก และการตลาดยังไม่เป็นระบบ ควรพัฒนาสินค้าให้หลากหลายรูปแบบยิ่งขึ้น (จุฑามาศ นิสัยค้า, สัมภาษณ์วันที่ 15 มิถุนายน 2567; อำนวย ทะขุ่ย, สัมภาษณ์วันที่ 15 มิถุนายน 2567; และปาน อังคณา สัมภาษณ์วันที่ 15 มิถุนายน 2567) ช่องทางการตลาดปัจจุบันจำกัดอยู่ที่การรับซื้อหน้าร้าน การบอกต่อ และจำหน่ายที่กลุ่มออนซอนโต๊ะโมะ รวมถึงงานแสดงสินค้า ควรพัฒนาช่องทางการจัดจำหน่ายและโฆษณาผ่านสื่อออนไลน์ (Facebook, Line) และขยายการขายไปยังร้านค้าต่าง ๆ (วารินทร์ ศรีสมบัติ, สัมภาษณ์วันที่ 16 มิถุนายน 2567; จิรศักดิ์ โมรานอก, สัมภาษณ์วันที่ 16 มิถุนายน 2567; และฐิตาภา สายยศ, สัมภาษณ์วันที่ 16 มิถุนายน 2567)



ภาพที่ 4 พวงกุญแจเลียงร่อนทอง

1.4 แร่ทองคำ นักท่องเที่ยวสามารถเข้าร่วมกิจกรรมร่อนทองในแม่น้ำลำคลองพื้นที่ตำบลภูเขาทอง ซึ่งมีต้นน้ำผ่านเหมืองแร่ทองคำ และนำทองที่ร่อนได้ไปจำหน่ายหรือแปรรูปเป็นเครื่องประดับ วัตถุมงคล หรือของตกแต่งบ้าน กลุ่มลูกค้าเป้าหมาย คือ นักท่องเที่ยวสายมู ผู้ชื่นชอบเครื่องประดับ และนักสะสม อย่างไรก็ตาม แหล่งทองคำมีจำกัด ขึ้นกับฤดูกาล กระบวนการร่อนใช้เวลานาน ต้องอาศัยทักษะ ราคาผันผวนตามกลไกตลาด และการตลาดยังไม่เป็นระบบ ควรมีการออกแบบกิจกรรมร่อนทองให้นักท่องเที่ยวได้มีประสบการณ์ตรง และพัฒนาผลิตภัณฑ์จากทองคำให้หลากหลาย เช่น เครื่องประดับ วัตถุมงคล ของตกแต่งบ้าน หรือส่วนผสมในเครื่องสำอาง ควบคู่กับการพัฒนาบรรจุภัณฑ์ รักษามาตรฐาน และคุณค่าทางวัฒนธรรม (โสภา โยงปราง, สัมภาษณ์วันที่ 28 มีนาคม 2567; พัฒนา จำปาเรียง, สัมภาษณ์วันที่ 28 มีนาคม 2567; และบัวตอง กองแก้ว, สัมภาษณ์วันที่ 28 มีนาคม 2567) การตลาดปัจจุบันยังจำกัด โดยเป็นการรับซื้อขายหน้าร้านและการบอกต่อ จึงควรพัฒนาช่องทางการสื่อสารและการจัดจำหน่ายผ่านสื่อออนไลน์และขยายไปยังร้านค้าต่าง ๆ (นิอามาน บินนิมุ, สัมภาษณ์วันที่ 30 มีนาคม 2567 และพัน ตั้งอยู่, สัมภาษณ์วันที่ 30 มีนาคม 2567)



ภาพที่ 5 ทองที่ร่อนได้จากแม่น้ำ

2. การประเมินศักยภาพผลิตภัณฑ์สายมูและการตลาด

จากการเก็บข้อมูลด้วยแบบสอบถาม จำนวน 400 ชุด เพื่อประเมินศักยภาพและความพร้อมของผลิตภัณฑ์สายมูและการตลาด พบผลดังแสดงตารางที่ 1 - 2 ดังนี้

ตารางที่ 1 ศักยภาพผลิตภัณฑ์สายมู

รายการประเมินศักยภาพผลิตภัณฑ์สายมู	$\overline{X}$	S.D.	ระดับศักยภาพ
1. รูปแบบ สีสันของผลิตภัณฑ์สายมู	3.27	.62	ปานกลาง
2. ด้านเรื่องเล่าหรือตำนานเกี่ยวกับสิ่งศักดิ์สิทธิ์ของผลิตภัณฑ์	3.42	.69	ปานกลาง
3. ด้านบรรจุภัณฑ์สายมู	3.34	.76	ปานกลาง
รวม	**3.43**	**.74**	**ปานกลาง**

จากตารางที่ 1 พบว่า ภาพรวมศักยภาพผลิตภัณฑ์สายมูอยู่ในระดับปานกลาง (ค่าเฉลี่ย $\overline{X}$ = 3.43, ส่วนเบี่ยงเบนมาตรฐาน S.D. = .74) เมื่อพิจารณารายด้าน พบว่า ด้านที่มีศักยภาพสูงที่สุด คือ ด้านเรื่องราวหรือตำนานเกี่ยวกับสิ่งศักดิ์สิทธิ์ของผลิตภัณฑ์ ซึ่งอยู่ในระดับปานกลาง ($\overline{X}$ = 3.42, S.D. = .69) รองลงมา คือ ด้านบรรจุภัณฑ์สายมู อยู่ในระดับปานกลาง ($\overline{X}$ = 3.34, S.D. = .76) และด้านรูปแบบสีสันของผลิตภัณฑ์สายมู อยู่ในระดับปานกลาง ($\overline{X}$ = 3.27, S.D. = .62) และเมื่อพิจารณารายข้อ พบว่า ข้อที่ผลิตภัณฑ์สายมูมีศักยภาพสูงที่สุด คือ มีเรื่องเล่าของผลิตภัณฑ์เป็นตำนานของท้องถิ่นและพัฒนาตามความเชื่อสายมูเพิ่มเติม อยู่ในระดับปานกลาง ($\overline{X}$ = 3.47, S.D. = .74) รองลงมา คือ บรรจุภัณฑ์แบบสมัยใหม่ดึงดูดใจ กระตุ้นยอดขายสินค้าที่ระลึกสายมู อยู่ในระดับปานกลาง ($\overline{X}$ = 3.44, S.D. = .74) ตามมาด้วยรูปแบบ สีสันของผลิตภัณฑ์มีความหมายที่ดีในด้านโชคลาภ เสริมพลังบวกเชื่อมโยงกับผลิตภัณฑ์ และผลิตภัณฑ์มีเรื่องเล่าพร้อมทั้งวิธีการนำเสนอ เช่น มีเอกสารหรือคำอธิบายประกอบเกี่ยวกับสิ่งศักดิ์สิทธิ์ของผลิตภัณฑ์ ซึ่งอยู่ในระดับปานกลางเช่นกัน (ทั้งสองข้อมีค่า $\overline{X}$ = 3.43, S.D. = .69)

ตารางที่ 2 ศักยภาพด้านการตลาดของผลิตภัณฑ์สายมู

รายการประเมินศักยภาพการตลาดของผลิตภัณฑ์สายมู	$\overline{X}$	S.D.	ระดับศักยภาพ
1. ด้านการโฆษณา	3.38	.74	ปานกลาง
2. ส่งเสริมการขาย	3.34	.56	ปานกลาง
3. การจัดกิจกรรมพิเศษและสร้างประสบการณ์	3.51	.81	มาก
4. การประชาสัมพันธ์และการเผยแพร่สู่สาธารณะ	3.33	.730	ปานกลาง
5. การตลาดออนไลน์และสื่อสังคมออนไลน์	3.42	.69	ปานกลาง
6. การตลาดทางตรงและฐานข้อมูล	3.21	.57	ปานกลาง
รวม	**3.44**	**.60**	**ปานกลาง**

จากตารางที่ 2 พบว่า ภาพรวมศักยภาพการตลาดของผลิตภัณฑ์สายมูอยู่ในระดับปานกลาง ($\overline{X}$ = 3.44, S.D. = .60) เมื่อพิจารณารายด้าน พบว่า ด้านที่มีศักยภาพสูงที่สุด คือ ด้านการจัดกิจกรรมพิเศษและสร้างประสบการณ์ อยู่ในระดับปานกลาง ($\overline{X}$ = 3.51, S.D. = .81) รองลงมา คือ การตลาดออนไลน์และสื่อสังคมออนไลน์ อยู่ในระดับปานกลาง ($\overline{X}$ = 3.42, S.D. = .69) และด้านการโฆษณาอยู่ในระดับปานกลาง ($\overline{X}$ = 3.38, S.D. = .74) และเมื่อพิจารณารายข้อ พบว่า ข้อที่การตลาดของผลิตภัณฑ์สายมูมีศักยภาพสูงที่สุด คือ การจัดกิจกรรมพิเศษ เช่น การแสดง กิจกรรมบันเทิง ทำให้เกิดความสนใจและตัดสินใจซื้อผลิตภัณฑ์ อยู่ในระดับปานกลาง ($\overline{X}$ = 3.55, S.D. = .79) รองลงมา คือ การจัดกิจกรรมพิเศษช่วยให้ลูกค้ามีส่วนร่วมในกิจกรรมและตัดสินใจซื้อผลิตภัณฑ์สายมู อยู่ในระดับปานกลาง ($\overline{X}$ = 3.51, S.D. = .86) ตามมาด้วยการจัดกิจกรรมพิเศษในเทศกาลประจำปีหรืองานประเพณีต่าง ๆ ช่วยในการตัดสินใจซื้อผลิตภัณฑ์สายมู อยู่ในระดับปานกลาง ($\overline{X}$ = 3.47, S.D. = .84) และการใช้วีดีโอออนไลน์กับข่าวสารหรือผลิตภัณฑ์สายมู เช่น YouTube ช่วยให้เข้าถึงลูกค้า อยู่ในระดับปานกลาง ($\overline{X}$ = 3.45, S.D. = .73)

สรุปและอภิปรายผล

จากการศึกษาสภาพทั่วไปและประเมินศักยภาพด้านผลิตภัณฑ์และการตลาดในการจัดการท่องเที่ยวสายมูเตลู ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส สามารถสรุปและอภิปรายผลการวิจัยได้ดังนี้

1. สภาพทั่วไปของผลิตภัณฑ์สายมูและการตลาดในปัจจุบันของพื้นที่ตำบลภูเขาทอง พบว่า ผลิตภัณฑ์สายมูของชุมชนมีความหลากหลาย มีเอกลักษณ์ที่โดดเด่น แสดงถึงภูมิปัญญา วัฒนธรรม และความเชื่อของท้องถิ่น ทั้งยังมีคุณภาพที่สามารถตอบโจทย์ความต้องการของนักท่องเที่ยวได้ ลักษณะเช่นนี้มีปัจจัยส่วนหนึ่งมาจากการที่ชาวบ้านในตำบลภูเขาทองจำนวนมากอพยพมาจากภาคอีสาน ทำให้มีอัตลักษณ์ ภูมิปัญญา และวัฒนธรรมในการสร้างสรรค์ผลิตภัณฑ์ที่เชื่อมโยงกับภูมิลำเนาเดิม เช่น การทำพิณหัวนกเงือก ซึ่งเป็นสัญลักษณ์ของความอุดมสมบูรณ์และความมั่งมีศรีสุข และการทำพวงกุญแจเลียงที่ใช้ร่อนทอง ซึ่งเป็นการผสมผสานวัฒนธรรมของชุมชนในพื้นที่ภาคใต้เข้ากับความเชื่อเรื่องโชคดีจากการได้ทองคำ ผลการค้นพบนี้สอดคล้องกับงานศึกษาของอัจจิมา ศุภจริยาวัตร (2565) และงานวิจัยของมาโนชย์ นวลสระ และคณะ (2564) ที่ได้เน้นย้ำถึงความสำคัญของการสร้างผู้ประกอบการให้มีความรู้ความเข้าใจในการพัฒนาผลิตภัณฑ์ให้ตรงตามความต้องการของลูกค้า ควบคู่ไปกับการรักษาอัตลักษณ์ของท้องถิ่นและการสร้างมาตรฐานให้แก่สินค้า โดยเฉพาะสินค้าชุมชน

ในด้านการตลาด พบว่า ช่องทางหลักที่ใช้ในปัจจุบันคือ เพจเฟซบุ๊ก (Facebook Page) กลุ่มไลน์ (Line group) และการบอกต่อปากต่อปาก ซึ่งยังมีประสิทธิภาพที่จำกัด จึงมีความจำเป็นอย่างยิ่งที่จะต้องขยายช่องทางการตลาดไปยังแพลตฟอร์มออนไลน์อื่น ๆ เช่น เว็บไซต์ ร้านค้าออนไลน์ และโซเชียลมีเดีย รวมถึงการเปิดตลาดนัดชุมชนหรือร้านค้าชุมชนเพื่ออำนวยความสะดวกให้นักท่องเที่ยวสามารถเข้าถึงและซื้อผลิตภัณฑ์ได้ง่ายขึ้น นอกจากนี้ ควรนำสินค้าไปจำหน่ายนอกพื้นที่ เช่น ตามสถานที่ท่องเที่ยว โรงแรม หรือซูเปอร์มาร์เก็ต เนื่องจากพื้นที่ตั้งของแหล่งท่องเที่ยวอาจอยู่ห่างไกลจากความเจริญและยังไม่เป็นที่รู้จักในวงกว้าง การขยายช่องทางการตลาดจะช่วยประชาสัมพันธ์ผลิตภัณฑ์และการท่องเที่ยวให้เป็นที่รู้จักมากขึ้น แนวทางดังกล่าวสอดคล้องกับงานศึกษาของจรัลศรี โนมี, วรีวรรณ เจริญรูป และจิตรานุช ชัยนันท์ (2562) ที่ชี้ให้เห็นว่าการพัฒนาผลิตภัณฑ์และช่องทางการตลาดควรดำเนินการตามแนวคิดส่วนประสมทางการตลาด และควรนำภูมิปัญญาท้องถิ่นรวมถึงเทคโนโลยีที่เหมาะสมมาประยุกต์ใช้เพื่อเพิ่มมูลค่าทางการตลาด

2. ศักยภาพของผลิตภัณฑ์สายมู โดยภาพรวมพบว่าอยู่ในระดับปานกลาง เมื่อพิจารณาในรายด้าน พบว่า ด้านที่มีศักยภาพสูงที่สุด คือ ด้านเรื่องราวหรือตำนานเกี่ยวกับสิ่งศักดิ์สิทธิ์ของผลิตภัณฑ์ รองลงมา คือ ด้านบรรจุภัณฑ์สายมู และด้านรูปแบบ สีสันของผลิตภัณฑ์สายมู ตามลำดับ ซึ่งทั้งหมดนี้อยู่ในระดับปานกลางเช่นกัน เมื่อวิเคราะห์เป็นรายข้อ พบว่า ข้อที่ผลิตภัณฑ์สายมูมีศักยภาพสูงที่สุด คือ การมีเรื่องเล่าของผลิตภัณฑ์ที่เป็นตำนานท้องถิ่นและมีการพัฒนาเพิ่มเติมตามความเชื่อสายมู รวมถึงบรรจุภัณฑ์ที่มีรูปแบบทันสมัย สามารถดึงดูดใจและกระตุ้นยอดขายสินค้าที่ระลึกสายมูได้ รองลงมา คือ รูปแบบและสีสันของผลิตภัณฑ์ที่มีความหมายที่ดีในด้านโชคลาภและการเสริมพลังบวกที่เชื่อมโยงกับผลิตภัณฑ์ และการมีเรื่องเล่าพร้อมวิธีการนำเสนอ เช่น เอกสารหรือคำอธิบายประกอบเกี่ยวกับความศักดิ์สิทธิ์ของผลิตภัณฑ์ ซึ่งทั้งหมดนี้ยังคงอยู่ในระดับปานกลาง การที่ศักยภาพของผลิตภัณฑ์โดยภาพรวมและในรายละเอียดยังอยู่ในระดับปานกลางนั้น อาจเนื่องมาจากแม้ว่าชุมชนในพื้นที่ตำบลภูเขาทองจะมีแหล่งท่องเที่ยวที่เชื่อมโยงกับสิ่งศักดิ์สิทธิ์และความเชื่อด้านโชคลาภและไสยศาสตร์ แต่การผลิตสินค้าที่ระลึกยังขาดความหลากหลายในรูปแบบและประโยชน์ใช้สอย แนวทางการเพิ่มศักยภาพจึงควรเน้นกระบวนการมีส่วนร่วมของชุมชนในการออกแบบผลิตภัณฑ์ให้ตรงตามความต้องการของนักท่องเที่ยวสายมู โดยให้ความสำคัญกับการสร้างเรื่องราว (Storytelling) และการทำให้วัตถุสิ่งของเกิดความศักดิ์สิทธิ์ ซึ่งสอดคล้องกับงานศึกษาของศิริวรรณ สิทธิกา (2566) ที่ชี้ให้เห็นถึงการนำความเชื่อในสิ่งศักดิ์สิทธิ์มาสร้างรายได้และผลกำไร ทั้งในภาคการท่องเที่ยว สินค้า และบริการ รวมถึงการนำศาสตร์แห่งความเชื่อมาวางแผนกลยุทธ์ทางการตลาดและการประชาสัมพันธ์ เพื่อทำให้วัตถุกลายเป็นสิ่งศักดิ์สิทธิ์ เช่น วัตถุเสริมดวง สีเสื้อมงคล หรือเครื่องรางนำโชค

ศักยภาพการตลาดของผลิตภัณฑ์สายมู โดยภาพรวม พบว่า อยู่ในระดับปานกลางเช่นกัน เมื่อพิจารณารายด้าน พบว่า ด้านที่มีศักยภาพสูงที่สุด คือ ด้านการจัดกิจกรรมพิเศษและการสร้างประสบการณ์ รองลงมา คือ ด้านการตลาดออนไลน์และสื่อสังคมออนไลน์ และด้านการโฆษณา ซึ่งทั้งหมดนี้ยังคงอยู่ในระดับปานกลาง เมื่อวิเคราะห์เป็นรายข้อ พบว่า ข้อที่การตลาดของผลิตภัณฑ์สายมูมีศักยภาพสูงที่สุด คือ การจัดกิจกรรมพิเศษ เช่น การแสดง หรือกิจกรรมบันเทิง ที่สามารถสร้างความสนใจและนำไปสู่การตัดสินใจซื้อผลิตภัณฑ์ รองลงมา คือ การจัดกิจกรรมที่เปิดโอกาสให้ลูกค้ามีส่วนร่วมและตัดสินใจซื้อผลิตภัณฑ์สายมู การจัดกิจกรรมพิเศษในเทศกาลประจำปีหรืองานประเพณีต่าง ๆ เพื่อกระตุ้นการตัดสินใจซื้อ และการใช้วิดีโอออนไลน์ผ่านแพลตฟอร์มอย่าง YouTube เพื่อนำเสนอข่าวสาร

หรือผลิตภัณฑ์สายมูให้เข้าถึงลูกค้าได้มากขึ้น ทั้งหมดนี้ก็ยังคงอยู่ในระดับปานกลาง สาเหตุที่ผลการวิจัยปรากฏเช่นนี้ อาจเนื่องมาจากข้อจำกัดทางกายภาพของพื้นที่ตำบลภูเขาทองที่ไม่ได้เป็นเส้นทางผ่านหลัก ทำให้การสร้างช่องทางการตลาดที่หลากหลายเป็นเรื่องท้าทาย ผลการศึกษานี้สอดคล้องกับข้อเสนอของอัจจิมา ศุภจริยาวัตร (2565) ที่เน้นการกระตุ้นกระบวนการมีส่วนร่วมของชุมชนผ่านการจัดกิจกรรมพิเศษในโอกาสเทศกาลและประเพณี เพื่อส่งเสริมและพัฒนาคุณภาพมาตรฐานผลิตภัณฑ์ชุมชนให้ตรงตามความต้องการของผู้บริโภคและสร้างความพึงพอใจในตัวผลิตภัณฑ์ นอกจากนี้ยังสอดคล้องกับมุมมองของ Hermawan (2021) ที่ว่าการประชาสัมพันธ์และการเพิ่มช่องทางการจัดจำหน่ายผ่านรูปแบบออนไลน์จะช่วยให้นักท่องเที่ยวเข้าถึงผลิตภัณฑ์ได้ง่ายขึ้น

ข้อเสนอแนะ

จากผลการวิจัยเรื่องศักยภาพด้านผลิตภัณฑ์และการตลาดในการจัดการท่องเที่ยวสายมูเตลูตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส ผู้วิจัยมีข้อเสนอแนะเพื่อการพัฒนาและแนวทางการวิจัยในอนาคต ดังนี้

ข้อเสนอแนะจากการวิจัย

เพื่อให้การพัฒนาผลิตภัณฑ์สายมูและการตลาดในพื้นที่ตำบลภูเขาทองเป็นไปอย่างมีประสิทธิภาพและยั่งยืน ควรมีการดำเนินการในประเด็นต่อไปนี้

1. ด้านการผลิต ควรส่งเสริมให้สมาชิกในชุมชนมีการผลิตสินค้าที่ระลึกหรือผลิตภัณฑ์ชุมชนอย่างต่อเนื่อง และสนับสนุนการขยายกำลังการผลิตจากระดับครัวเรือนไปสู่การรวมกลุ่มในรูปแบบวิสาหกิจชุมชน เพื่อสร้างความเข้มแข็งในการผลิตและลดปัญหาการผลิตแบบต่างคนต่างทำ อันจะนำไปสู่การควบคุมคุณภาพและปริมาณการผลิตให้สอดคล้องกับความต้องการของตลาดได้ดียิ่งขึ้น

2. ด้านการพัฒนาผลิตภัณฑ์ การสร้างสรรค์เรื่องราว (Storytelling) ที่เชื่อมโยงกับความเชื่อหรือความศักดิ์สิทธิ์ของผลิตภัณฑ์สายมูเป็นสิ่งสำคัญอย่างยิ่ง เพื่อสร้างความน่าสนใจและดึงดูดนักท่องเที่ยวกลุ่มเป้าหมาย นอกจากนี้ บรรจุภัณฑ์ควรได้รับการพัฒนาอย่างสม่ำเสมอ ให้มีความแปลกใหม่ สวยงาม และสื่อถึงอัตลักษณ์ของผลิตภัณฑ์ เพื่อดึงดูดความสนใจของนักท่องเที่ยวสายมู รวมถึงการพัฒนารูปแบบและสีสันของผลิตภัณฑ์อย่างต่อเนื่องให้มีความหลากหลายและตอบโจทย์ความต้องการที่เปลี่ยนแปลงไป

3. ด้านการตลาด ควรมีการวางกลยุทธ์เพื่อขยายตลาดไปยังต่างประเทศ โดยเฉพาะประเทศมาเลเซียซึ่งมีพรมแดนติดต่อกับพื้นที่ตำบลภูเขาทอง นอกเหนือจากการจำหน่ายภายในจังหวัดและระหว่างจังหวัด การดำเนินการประชาสัมพันธ์เพื่อเจาะตลาดต่างประเทศควรครอบคลุมทั้งในมิติของการท่องเที่ยวและผลิตภัณฑ์สายมู เพื่อสร้างการรับรู้และดึงดูดนักท่องเที่ยวชาวต่างชาติ

ข้อเสนอแนะในการวิจัยครั้งต่อไป

เพื่อให้เกิดองค์ความรู้ที่สามารถนำไปต่อยอดการพัฒนาการท่องเที่ยวสายมูเตลูและผลิตภัณฑ์ชุมชนในพื้นที่ได้อย่างลึกซึ้งยิ่งขึ้น มีประเด็นที่ควรศึกษาเพิ่มเติมดังนี้

1. ควรมีการศึกษาวิจัยเกี่ยวกับแนวทางการเพิ่มศักยภาพในการพัฒนาผลิตภัณฑ์ชุมชน โดยเน้นการเชื่อมโยงกับความเชื่อและศรัทธาในสิ่งศักดิ์สิทธิ์ ผ่านการใช้ตำนานและเรื่องเล่า เพื่อสร้างมูลค่าเพิ่มและส่งเสริมยอดจำหน่ายให้มากขึ้น

2. ควรศึกษาปัจจัยเชิงลึกที่มีผลต่อความสำเร็จและความล้มเหลวของการตลาดผลิตภัณฑ์สายมูในพื้นที่ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส เพื่อให้เข้าใจถึงกลไกตลาดและสามารถกำหนดกลยุทธ์ทางการตลาดที่เหมาะสมและมีประสิทธิภาพยิ่งขึ้น

เอกสารอ้างอิง

กรมประชาสัมพันธ์. (2566). การท่องเที่ยวสายมูเตลู. Sawasdee Thailand. สืบค้นเมื่อวันที่ 2 มีนาคม 2568 จาก https://thailand.go.th/issue-focus-detail/001_02_365?hl=th

กรุงเทพธุรกิจ. (2566). ‘เที่ยวสายมู’ มาแรงจัด! ททท. คาดปี 66 รายได้สะพัดกว่า 1.5 หมื่นล้าน. ค้นเมื่อวันที่ 2 พฤษภาคม 2568, จาก: https://www.bangkokbiznews.com/business/business/1074244

จรัลศรี โนมี, วรีวรรณ เจริญรูป และจิตรานุช ชัยนันท์. (2562). การเพิ่มมูลค่าให้กับผลิตภัณฑ์ของกลุ่มตะกร้าหวายบ้านทาทรายมูล ตำบลสันกลาง อำเภอพาน จังหวัดเชียงราย. วารสารวิชาการรับใช้สังคม มหาวิทยาลัยเทคโนโลยีราชมงคล, 3(2), 17-24.

เจตน์สฤษฎ์ สังขพันธ์. (2563). การพัฒนารูปแบบการสร้างชุมชนเข้มแข็งในอำเภอสทิงพระ จังหวัดสงขลา. วิทยานิพนธ์ปรัชญาดุษฎีบัณฑิต สาขาวิชาพัฒนามนุษย์และสังคม มหาวิทยาลัยสงขลานครินทร์, สงขลา.

ชูศรี วงศ์รัตนะ. (2553). เทคนิคการใช้สถิติเพื่อการวิจัย. (พิมพ์ครั้งที่12). กรุงเทพฯ: ไทเนรมิตกิจอินเตอร์ โปรเกรสซิฟ.

บุญชม ศรีสะอาด. (2554). หลักการวิจัยเบื้องต้น. (พิมพ์ครั้งที่ 9). กรุงเทพฯ: สุวิริยาสาส์น.

บุญยิ่ง คงอาชาภัทร. (2564). การตลาดของคนอยู่เป็น. กรุงเทพฯ: วิทยาลัยการจัดการ มหาวิทยาลัยมหิดล.

ประไพพิมพ์ สุธีวสินนนท์ และประสพชัย พสุนนท์. (2559) กลยุทธ์การเลือกตัวอย่างสำหรับการวิจัยเชิงคุณภาพ. วารสารปาริชาต มหาวิทยาลัยทักษิณ, 29(2), 32-48.

พนิดา รัตนสุภา, อรอุมา สำลี, เสาวลักษณ์ บุญรอด, และวัลลภา พัฒนา. (2563). การพัฒนาศักยภาพผลิตภัณฑ์ชุมชนเพื่อเชื่อมโยงการท่องเที่ยวชุมชนและรองรับการส่งออก อำเภอฉวาง จังหวัดนครศรีธรรมราช (รายงานการวิจัย). นครศรีธรรมราช: มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย.

มาโนชย์ นวลสระ และคณะ. (2564). แนวทางการพัฒนาผลิตภัณฑ์และตราสินค้าหนึ่งตำบลหนึ่งผลิตภัณฑ์ให้ได้มาตรฐานระดับสากล จังหวัดเชียงราย. วารสารวิทยาลัยดุสิตธานี, 15(1), 119-134.

วรรณพรรธน์ ริมผดี. (2554). กลยุทธ์การสอสารตลาดเชิงบูรณาการสำหรับธุรกิจโรงแรม. กรุงเทพฯ: มหาวิทยาลัยราชภัฏสวนดุสิต.

วิจัยกรุงศรี (2567) มูเตลู ผู้บริโภคไทยกับธุรกิจแห่งศรัทธา. สืบค้นเมื่อวันที่ 20 มีนาคม 2568, จาก: https://www.krungsri.com/th/research/research-intelligence/Muteluh-2024

วิทยาลัยการจัดการ มหาวิทยาลัยมหิดล. (2564). ซีเอ็มเอ็มยู สะท้อนผลวิจัยการตลาด “ยุคโลกผันผวน” ชี้คนไทยเครียดหันหน้าพึ่งสายมู เชื่ออินฟลูเอนเซอร์ และนิยมคลายเหงาในคอมมูนิตี้ออนไลน์. ข่าวเศรษฐกิจ. สืบค้นเมื่อวันที่ 20 เมษายน 2568, จาก: https://www.ryt9.com/s/prg/3191716

วิลัดดา เตชะเวช. (2547). คุณค่าการตลาดท้าทายความสำเร็จธุรกิจยุคใหม่. กรุงเทพฯ : มหาวิทยาลัยธรรมศาสตร์.

ศิริวรรณ สิทธิกา. (2566) จักรวาลสายมู การตลาดที่ขับเคลื่อนด้วยความเชื่อกับวัตถุที่ถูกทำให้ศักดิ์สิทธิ์. ไทยรัฐออนไลน์, สืบค้นเมื่อวันที่ 20 เมษายน 2568 จาก https://plus.thairath.co.th/topic/politics&society/103603

อธิป จันทร์สุริย์. (2564). มูเตลู: ความเชื่อกับการท่องเที่ยว. วารสารทีทัศน์วัฒนธรรม สำนักศิลปะและวัฒนธรรม มหาวิทยาลัยราชภัฏบ้านสมเด็จเจ้าพระยา, 20(1), 220-240.

อัจจิมา ศุภจริยาวัตร และสิทธิ จิตติชานนท์ (2562) ทัศนคติและระบบนิเวศน์ผู้ประกอบการท้องถิ่นที่เปลี่ยนแปลงจากการลงทุนทางตรงโดยต่างชาติในพื้นที่เขตพัฒนาพิเศษภาคตะวันออก (ECC). ชลบุรี: โครงการจัดตั้งคณะพาณิชยศาสตร์และบริหารธุรกิจ มหาวิทยาลัยบูรพา.

อัจจิมา ศุภจริยาวัตร. (2565). แนวทางการพัฒนาผลิตภัณฑ์ชุมชนเพื่อการส่งออก กรณีศึกษา กลุ่มผ้าไหมทอมือบ้านสุขสำราญ จังหวัดสระแก้ว. วารสารศิลปศาสตร์และอุตสาหกรรมบริการ, 5(1), 429-444.

Adcock, Dennis (2001). “Introduction” Marketing: principles and practice. Retrieved 5 April 2025 from https://th.wikipedia.org/wiki/

Cochran, William G. (1977). Sampling Techniques. (3rd Ed.) New York: John Wiley and Sons.

Cronbach, Lee. J. (1990). Essentials of psychological testing. (5th ed.) New York: Harper & Row.

Hermawan, E. (2021). Sustainability of Local Products: Interest to Buy, Product Quality and Promotion. Dinasti International Journal of Economics, Finance and Accounting, 2(3), 336-345.

Kreiner, G., & Wall, G. (2015). Tourism and Religion: Spiritual Journeys and Their Consequences. New York: Springer.

Mandala Team. (2024). การตลาดสายมูคืออะไร? เทคนิคการตลาดดึงดูดลูกค้าสายมู. สืบค้นเมื่อ 21 เมษายน 2568 จาก https://blog.mandalasystem.com/th/what-is-and-how-to-muketing

Rocket. (2024) กลยุทธ์การตลาด คืออะไร มัดใจลูกค้าอย่างไร? รวมสรุปที่กลยุทธ์ทางการตลาด ดิจิทัลต้องรู้. สืบค้นเมื่อวันที่ 25 เมษายน 2568 จาก https://www.rocket.in.th/blog/marketing-strategy/

บุคลานุกรม

จิรศักดิ์ โมรานอก. (2567, มิถุนายน 16). ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

จุฑามาศ นิสัยค้า. (2567, มิถุนายน 15). ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ฉันทิสุทธ์ แก้วคง. (2567, สิงหาคม 12). บ้านภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ซินแสวิโรจน์ ปริธัญ (เก่ง). (2567, กรกฎาคม 23). ศาลเจ้าโต๊ะโมะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ฐิตาภา สายยศ. (2567, มิถุนายน 16). บ้านโต๊ะโมะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

เทียม ชัยโคตร. (2567, มิถุนายน 7). อบต.ภูเขาทอง ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

นฤพนธ์ โยงปราง. (2567, สิงหาคม 12). บ้านไอปาโจ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

นิอามาน บินนิมุ. (2567, มีนาคม 30). อบต.ภูเขาทอง ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

บัวตอง กองแก้ว. (2567, มีนาคม 28). บ้านโต๊ะโมะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ปาน อังคณา. (2567, มิถุนายน 15). บ้านภูเขาทอง ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

พัฒนา จำปาเรียง. (2567, มีนาคม 28). บ้านโต๊ะโมะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

พัน ตั้งอยู่. (2567, มีนาคม 30). ที่ทำการบ้านกำนัน ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ไพฑูรย์ แสงงาม. (2567, พฤษภาคม 20). อบต.ภูเขาทอง ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ยองใย ด่านวันดี. (2567, มีนาคม 30). ศาลเจ้าโต๊ะโมะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ยายร่วม บุญบำรุง. (2567, มิถุนายน 7). กลุ่มทอผ้าบ้านโต๊ะโมะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

วารินทร์ ศรีสมบัติ. (2567, มิถุนายน 16). กลุ่มออนซอนโต๊ะโมะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ศศิธร พึ่งพา. (2567, มิถุนายน 7). บ้านไอปาโจ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

สังวาล ชัยโครต. (2567, มิถุนายน 22). บ้านโต๊ะโมะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

สัณฐิติสุข แก้วคง. (2567, สิงหาคม 12). อบต.ภูเขาทอง ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

โสภา โยงปราง. (2567, มีนาคม 28). บ้านโต๊ะโมะ ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

อัมพร ฤทธิ์ชารี. (2567, พฤษภาคม 20). กลุ่มท่องเที่ยวเชิงวัฒนธรรม ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

อำนวย ทะขุ่ย. (2567, มิถุนายน 15). บ้านภูเขาทอง ตำบลภูเขาทอง อำเภอสุคิริน จังหวัดนราธิวาส. (สัมภาษณ์).

ปัจจัยที่ส่งผลต่อการเปลี่ยนแปลงรูปแบบตึกแถว (เตี้ยมฉู่) กรณีศึกษา เมืองเก่าสงขลาและเมืองเก่าภูเก็ต

Factors Affecting the Change of Shophouses Style (Tiam Chu) Case Study : Songkhla Old town and Phuket Old town

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บทคัดย่อ

การศึกษาปัจจัยที่ส่งผลต่อการเปลี่ยนแปลงรูปแบบตึกแถว (เตี้ยมฉู่) กรณีศึกษา: เมืองเก่าสงขลาและเมืองเก่าภูเก็ต มีจุดมุ่งหมายเพื่อศึกษาปัจจัยที่ส่งผลต่อการเปลี่ยนแปลงรูปแบบตึกแถวเก่าที่มีคุณค่าทางประวัติศาสตร์บนฐานวัฒนธรรมแต่ละถิ่น การวิจัยนี้ได้ทำการวิเคราะห์ข้อมูล แผนงาน นโยบาย และโครงการจากหน่วยงานที่เกี่ยวข้อง การสำรวจ สัมภาษณ์ เพื่อประเมินความคิดเห็นของหน่วยงานภาครัฐฯ และชุมชนในการร่วมมือกันปฏิบัติงาน จากนั้นจึงทำการวิเคราะห์ปัญหาและปัจจัยในการเปลี่ยนแปลง พร้อมทั้งเสนอมาตรการและวิธีการปฏิบัติที่เหมาะสม ซึ่งสามารถนำไปประยุกต์ใช้กับพื้นที่อื่นได้

จากการวิจัยพบว่า ปัจจัยที่ส่งผลต่อการเปลี่ยนแปลงรูปแบบตึกแถวเตี้ยมฉู่ มีปัจจัยตามบริบทของพื้นที่ วิถีการดำรงชีวิต อายุของอาคาร ผู้คนที่อาศัยอยู่ภายในและภายนอกย่าน กล่าวคือ ในกรณีศึกษาเมืองเก่าสงขลา ลักษณะและสภาพของโครงสร้างมีความเก่าแก่มากกว่าทำให้เกิดการเปลี่ยนแปลงตึกแถวเก่า รวมถึงการเคลื่อนย้ายของผู้คนซึ่งเป็นเจ้าของอาคารไปอยู่ยังถิ่นอื่น การปล่อยทิ้งร้างอาคารโดยไม่มีผู้ดูแล การขาดการสนับสนุนซ่อมแซมอาคารจากหน่วยงานภาครัฐฯ ส่วนกรณีศึกษาเมืองเก่าภูเก็ต ซึ่งมีข้อได้เปรียบในส่วนของอายุอาคารที่น้อยกว่า โครงสร้างอาคารมีความแข็งแรง คงอยู่ไม่ให้ทรุดตัวหรือพังทลายลงไป นอกจากนี้การเป็นเมืองท่องเที่ยวได้รับการส่งเสริมให้เป็นแหล่งท่องเที่ยวทางวัฒนธรรมจะเป็นตัวกระตุ้นในการรักษาคุณค่าของตึกแถวเก่า ตลอดจนความเข้มแข็งของชุมชนซึ่งเป็นกำลังสำคัญที่จะรักษาตึกแถวเก่าได้อย่างยั่งยืน

คำสำคัญ: การเปลี่ยนแปลง, เตี้ยมฉู่ ,เมืองเก่าสงขลา , เมืองเก่าภูเก็ต

Abstract

This study explores the factors influencing the transformation of traditional Sino-Portuguese shophouses, locally known as *"Tiam Chu"*, through case studies in Songkhla Old Town and Phuket Old Town. These historic buildings embody the cultural heritage of each locality and are increasingly facing challenges due to urban and societal changes.

The research aims to identify context-specific factors that contribute to the transformation or deterioration of these architectural assets. Data was collected through policy analysis, review of development plans and projects from relevant agencies, as well as field surveys and interviews with local authorities and community members. The study assessed the levels of cooperation and involvement in heritage conservation, examined key issues affecting change, and proposed practical recommendations that can be adapted to similar heritage contexts.

The findings indicate that the disappearance and alteration of old shophouses in both cities are shaped by contextual factors, including lifestyle changes, building age, and the dynamics of local and surrounding populations. In Songkhla, the older and more fragile structures, combined with the migration of building owners, lack of building caretakers, and limited public sector support for restoration, have led to accelerated transformation. In contrast, Phuket's shophouses, which are structurally newer and more resilient, benefit from being located in a tourism-driven area with cultural conservation efforts actively promoted. The strong community involvement further enhances the sustainable preservation of these heritage buildings.

Keywords: Change, Tiam Chu, Songkhla Old Town, Phuket Old Town

บทนำ

ชาวจีนฮกเกี้ยนที่เข้ามาตั้งรกรากอยู่ในสยามประเทศ ต่อมาได้สร้างบ้านเรือนขึ้นคือตึกแถว หรือเตี้ยมฉู่ ที่ผสมผสานเอาความเป็นศิลปะตะวันออกและตะวันตกเข้าไว้ด้วยกันอย่างกลมกลืน จนเป็นเอกลักษณ์ที่โดดเด่นของตึกแถว เรียกกันว่า ชิโน - โปรตุกีส (Sino - Portuguese) ซึ่งมีต้นแบบมาจากปีนัง สิงคโปร์ หรือบางครั้งก็มักจะเรียกว่ารูปแบบโคโรเนียล (Colonial Style) เป็นอาคารตึกแถวสองชั้นใช้พักอาศัยร่วมกันกับร้านค้าหรือที่เรียกว่าบ้าน - ร้านค้า (Shop - House) มีความลึกที่ใช้เป็นที่เก็บสินค้าและใช้สอยตรงกลางบ้านหรือใจบ้าน มีบ่อน้ำบาดาล หรือ ฉิ่มแจ้ ผนังก่อด้วยอิฐขนาดใหญ่ฉาบปูนหนาเพื่อเป็นฉนวนควบคุมความร้อนและความชื้น หลังคามุงกระเบื้องดินเผาแบบจีน (ณธทัย จันเสน, 2558)

จากการที่ตึกแถวเตี้ยมฉู่ ซึ่งเป็นรากทางประวัติศาสตร์ของกลุ่มชาติพันธุ์ชาวจีนฮกเกี้ยน แต่ตึกแถวเหล่านี้กำลังเปลี่ยนแปลง ถึงแม้ตึกแถวที่สร้างขึ้นจากช่างชาวจีนฮกเกี้ยน จะมีความคล้ายคลึงหรือเหมือนกันก็ตาม แต่การตั้งถิ่นฐานภายใต้บริบทแวดล้อมที่แตกต่างกันย่อมมีการผันแปรตามการเปลี่ยนแปลงในมิติต่าง ๆ กัน อาทิ เศรษฐกิจ วัฒนธรรมสังคม ความเชื่อ และค่านิยม นอกจากนี้เวลาเริ่มต้นของการตั้งถิ่นฐานที่มนุษย์ตั้งขึ้นมีพัฒนาการไม่เท่ากัน เมื่อมีการพัฒนาต่อไปนานเข้าจะเห็นถึงความแตกต่างของแต่ละถิ่นฐานมากขึ้น รวมทั้งขนาดบทบาทหน้าที่ของแต่ละถิ่นฐานที่ตั้งไม่เหมือนกันย่อมทำให้แนวทางการพัฒนาอันเป็นพลวัตต่อไปไม่เหมือนกัน หากแต่เป็นการปรับตัวให้เข้ากับกระแสการพัฒนาที่เกิดขึ้น (ประสงค์ เอี่ยมอนันต์, 2549) ด้วยเรื่องราวความแตกต่างของแต่ละถิ่นฐานและวิถีชีวิตเหล่านี้ จึงเกิดเป็นคำถามในการศึกษาครั้งนี้ว่า ถ้าสภาพการตั้งถิ่นฐานที่แตกต่างกันนั้นตึกแถวเตี้ยมฉู่เหล่านี้จะมีวิถีที่เป็นไป หรือมีการเปลี่ยนแปลงที่แตกต่างกันหรือไม่ มีปัจจัยใดที่ทำให้ตึกแถวเตี๊ยมฉู่เหล่านี้

ปรับตัวให้สอดคล้องกับสภาพแวดล้อม และบริบทวิถีชีวิตที่แตกต่างกันในแต่ละถิ่นได้เพื่อให้ตึกแถวที่มีคุณค่าทางประวัติศาสตร์และสถาปัตยกรรมคงอยู่ได้อย่างยั่งยืน

การศึกษาตึกแถวเตี้ยมฉู่ กรณีศึกษา: เมืองเก่าสงขลาและเมืองเก่าภูเก็ต ผลจากพบว่า มีปัจจัยอะไรบ้างที่ส่งผลต่อการเปลี่ยนแปลงที่มีความแตกต่างกันทางวิถีและสภาพแวดล้อม ตลอดจนข้อเด่นและข้อด้อยของแต่ละถิ่นฐานที่ตั้งอยู่ว่ามีส่วนต่อการเปลี่ยนแปลง โดยผลการศึกษานั้นสามารถนำไปประยุกต์ใช้เป็นแนวทางเพื่อวางแผนยุทธศาสตร์การป้องกันรักษา มรดกวัฒนธรรม สถาปัตยกรรม ให้เป็นอนุสรณ์หรือเครื่องช่วยความทรงจำทางประวัติศาสตร์ การตั้งถิ่นฐานของผู้คนชาวจีนโพ้นทะเลและการพัฒนาท้องถิ่น

วัตถุประสงค์ของการวิจัย

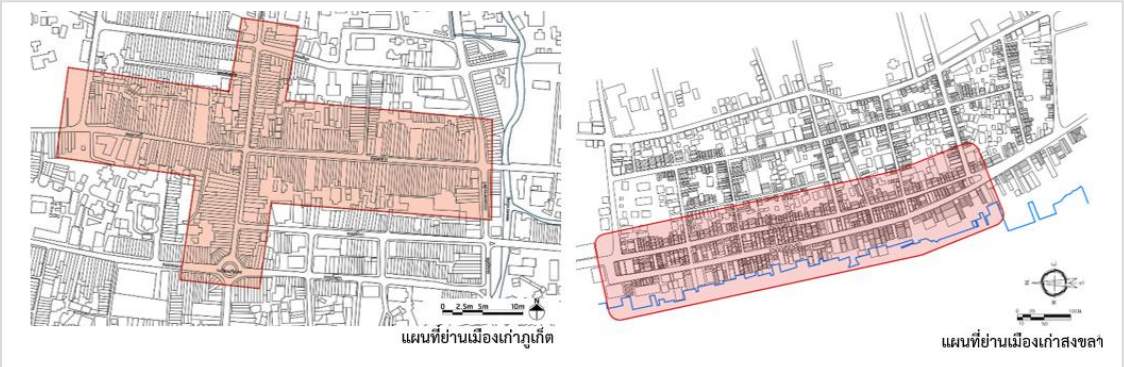
1. ศึกษาลักษณะกายภาพ รูปแบบ และลักษณะตึกแถวเตี้ยมฉู่ กรณีศึกษา เมืองเก่าสงขลา และเมืองเก่าภูเก็ต
2. วิเคราะห์ปัจจัยที่ส่งผลต่อการเปลี่ยนแปลงรูปแบบตึกแถวเตี้ยมฉู่ กรณีศึกษา เมืองเก่าสงขลาและเมืองเก่าภูเก็ต

ขอบเขตการศึกษา

พื้นที่เมืองเก่าสงขลา ประกอบด้วยถนน 3 สาย อันได้แก่ ถนนนครใน เป็นถนนสายการค้าแรกที่เก่าแก่ของย่านเมืองเก่าสงขลา และถนนนครนอก ที่มีพัฒนาการต่อเนื่องกับถนนสายการค้าในเวลาต่อมา และถนนนางงาม

พื้นที่เมืองเก่าภูเก็ต ประกอบด้วยถนน 3 สาย ได้แก่ ถนนถลาง ถนนสายการค้าเก่าแก่สายแรกของย่านเมืองเก่าภูเก็ต ถนนกระบี่และถนนเยาวราช ซึ่งเป็นถนนที่เชื่อมต่อและมีความสัมพันธ์ต่อเนื่อง

โดยพื้นที่ย่านเมืองเก่าทั้งสอง นับเป็นพื้นที่ที่ผู้คนชาวจีนโพ้นทะเล อพยพเดินทางเข้ามาตั้งรกรากฝังตัว และมีวิวัฒนาการปรับตัว การธำรงอยู่ ตามแบบอย่างวิถีชีวิต ประเพณี วัฒนธรรม และการอยู่อาศัย



ภาพที่ 1 แผนที่แสดงย่านเมืองเก่าภูเก็ตและย่านเมืองเก่าสงขลา

แนวคิด ทฤษฎี กรอบแนวคิด

ตึกแถวปรากฏการณ์สิ่งแวดล้อมสรรค์สร้างจากประดิษฐกรรมน้ำมือของมนุษย์บนแผ่นผืนที่ดิน ซึ่งถูกจัดสรรเป็นชิ้นส่วนเล็ก ๆ จัดเรียงติดต่อกันเป็นแถวตามแนวยาวไว้สำหรับเป็นที่พำนักพักพิงและแหล่งที่ทำมาหากิน ซึ่งได้รับความแพร่หลายในช่วงหลายศตวรรษที่ผ่านมา ดังตัวอย่างสถาปัตยกรรมตึกแถวที่ปรากฏพบเห็นในส่วนต่าง ๆ ของโลก ได้แก่ Atrium House ของโรมันโบราณ ซึ่งเป็นบ้านที่หันหน้าเปิดออกสู่ถนน สำหรับร้านค้าหรือ Work Shop ภายใน หรือแม้กระทั่ง Brownstone Rowhouse ในประเทศสหรัฐอเมริกาก่อนปี คศ. 1900 ก็ล้วนจัดเป็นอาคารสำหรับการค้าร่วมกับการพักอาศัยทั้งสิ้น (วีระ สัจกุล, 2526) ทั้งนี้ถึงแม้รูปแบบเปลือกนอกอาคารจะมีความคล้ายคลึง/เหมือนกันก็ตาม หากแต่แตกต่างกันตรงที่การจัดแบ่งพื้นที่และประโยชน์ใช้สอยภายใน ที่สามารถแบ่งออกได้เป็น 3 ลักษณะด้วยกัน ได้แก่ อาคารที่ใช้เป็นที่พักอาศัย อาคารที่ใช้เพื่อประกอบกิจกรรมทางการค้า อาคารที่ใช้เป็นที่พักอาศัยและประกอบกิจกรรมทางการค้าร่วมกัน

สำหรับอาคารในรูปแบบตึกแถวที่เกิดขึ้นในประเทศแถบซีกโลกตะวันออกเฉียงใต้ ตัวอย่างประเทศไทยนั้น เมื่อทบทวนถึงที่มาที่ไปตามเส้นทางการเดินทาง แม้ไม่ปรากฏแห่งหลักฐานที่ใช้อ้างอิงว่าเริ่มต้นกำเนิด ณ เมื่อใดแต่จากศิลาจารึกสมัยสุโขทัยได้มีข้อความบางส่วนกล่าวถึงเมืองสุโขทัยเอาไว้ว่าด้านทิศเหนือนั้นมีตลาดปสาน เข้าใจว่าคำนี้มาจากคำว่า บารร์ซ่า ของเปอร์เซีย คือ มีร้านค้าติดระเบียงทางเดินซึ่งเป็นศูนย์กลางค้าใหญ่ของสุโขทัยในสมัยนั้น (อนุวิทย์ เจริญศุภกุล, 2520) เมื่อนำมาเรียบเรียงร้านค้าที่ติดระเบียงทางเดินก็พอเข้าใจถึงวัฒนธรรมการตั้งถิ่นฐานตามแนวเส้นทางที่ได้อุบัติขึ้น ซึ่งช่างมีความละม้ายคล้ายคลึงกับห้องแถวร้านค้าเป็นอย่างยิ่ง

วิธีดำเนินการวิจัย

ตึกแถวเตี้ยมฉู่ เป็นส่วนหนึ่งของสิ่งแวดล้อมสรรค์สร้างที่เน้นบริบทแวดล้อมสถาปัตยกรรมและกลุ่มชาติพันธุ์ทางสังคม ดังนั้นงานวิจัยนี้จึงเป็นวิธีวิทยาใช้ระเบียบวิจัยเชิงคุณภาพ เริ่มต้นจากการสืบค้นหาความรู้ ผนวกกับทบทวนเอกสารการเชื่อมโยงในบริบทกายภาพและประวัติศาสตร์ของกลุ่มชาติพันธุ์ชาวจีนโพ้นทะเลที่เข้ามาตั้งถิ่นฐานบริเวณชายขอบทะเล 2 ด้านของภาคใต้ ร่วมกับการทำงานภาคสนามการสังเกตการณ์ สำรวจรูปลักษณ์ และปรากฏการณ์ผ่านสถาปัตยกรรมท้องถิ่นซึ่งเป็นชิ้นงานตึกแถวผนวกร่วมกันกับการสัมภาษณ์ ตามลำดับขั้นตอนดังนี้

ขั้นตอนแรกเป็นเนื้อหาทางวิชาการทางสถาปัตยกรรม/ประวัติศาสตร์ท้องถิ่น ขั้นตอนที่สองนำเสนอเป็นสาระทางความคิด โดยการหาความจริงที่ปรากฏผ่านหลักการวิชาและเนื้อหาอันบ่งบอกถึงการเปลี่ยนแปลง การคงอยู่และปัจจัยที่ส่งผลต่อการเปลี่ยนแปลงรูปแบบตึกแถวเตี้ยมฉู่ ขั้นตอนที่สามเป็นมุมมองชาวบ้านในฐานะผู้ดูแลผ่านการแสดงออกทางความคิด การเปิดมุมมองร่วมกันอย่างสร้างสรรค์แลกเปลี่ยนองค์ความรู้ทางวิชาการและประสบการณ์ จากกระบวนการเรียนรู้ร่วมกันในการสรรหา อธิบายภูมิปัญญาในการดำรงชีวิตและขั้นตอนสุดท้าย พิจารณาปัจจัยการเปลี่ยนแปลงรูปแบบเพื่อเสนอแนวทางปกป้องสถาปัตยกรรม ที่ว่าง และสถานที่ต่อไป (ชัยยศ อิษฏ์วรพันธุ์, 2543)

ผลการวิจัย

รูปแบบตึกแถวเตี้ยมฉู่ ปรากฏอยู่ในท้องถิ่นทางใต้ของประเทศ มีที่มาที่ไปคล้ายคลึงกัน จากปัจจัยเดียวกัน โดยเฉพาะแผนผังอาคารที่มีความลึกตั้งแต่ 30 เมตร ไปจนถึง 70 เมตร ถูกจัดแบ่งพื้นที่ใช้สอยออกเป็นส่วน ๆ ทั้งที่เป็นพื้นที่ส่วนตัว สำหรับพักอาศัยอยู่ภายในและพื้นที่ส่วนรวม การจัดพื้นที่ใช้สอยสำหรับการค้าขายซึ่งอยู่ด้านหน้า มีบ่อน้ำอยู่ในส่วนกลางไม่มีหลังคาคลุมมีบันไดขึ้นสู่ชั้นสอง ถัดเข้าไปเป็นส่วนรับประทานอาหารและเตาครัวหรือที่เรียกว่า โพ พื้นที่ใช้สอยชั้นบนเป็นพื้นที่พักผ่อน ทั้งนี้หากจะมีความแตกต่างกันบ้างเพียงเฉพาะรูปลักษณ์ที่บ่งบอกช่วงอายุเวลาและอิทธิพลที่บังคับหรือความพึงพอใจเจ้าของบ้าน แต่ในช่วงแรกที่มีการอพยพของกลุ่มผู้คนชาวจีนเข้ามาตั้งถิ่นฐานในประเทศไทย สมัยรัชกาลที่ 3 (ถนอม พูนวงศ์, 2545) รูปแบบของตึกแถวเตี้ยมฉู่ จึงมีรูปแบบตึกแถวแบบจีนดั้งเดิมตามวัฒนธรรมที่ได้รับมาจากบ้านเกิดเมืองนอน ที่มีลักษณะเป็นตึกแถวชั้นเดียวหรือสองชั้นแต่ก็ยังคงหลงเหลืออยู่น้อยมาก เนื่องจากผ่านเวลาเกือบ 200 ปี ไม่อาจทนต่อสภาวะดินฟ้าอากาศที่มีปริมาณฝนตกหนักชุกชุมถึงแปดเดือนในแต่ละปีได้ (กองโบราณคดี, 2530)

ช่วงอิทธิพลจากตะวันตกและแถบภูมิภาคเอเชียตะวันออกเฉียงใต้ที่มาจากการติดต่อทางการค้าส่งผลต่อรูปแบบอาคารตึกแถวในยุคต่อมา มีการปรับเปลี่ยนรูปแบบที่แผ่กระจายในลักษณะลูกผสมระหว่างจีนกับตะวันตกที่ได้รับความนิยมแพร่หลายเป็นอย่างสูงในเมืองปีนัง มาเลเซีย และในสิงคโปร์ อย่างไรก็ตามรูปลักษณ์จะเริ่มปรับเปลี่ยนไป แต่แผนผังอาคารยังคงยึดมั่นกับแบบแผนประเพณีจีนดั้งเดิมไม่เปลี่ยนแปลงไปมากนัก ซึ่งสิ่งที่ปรากฏให้เห็นได้อย่างชัดเจนนั้นก็คือ รูปด้านตึกแถว พื้นที่ทางเดินด้านหน้าทำเป็นช่องโค้ง (Arch) กั้นระหว่างอาคารแต่ละหลังเรียกกันว่าอาเขต หรือ หง่อคาขี่ ประตูด้านหน้าหากเป็นตึกแถวเพื่อร้านค้าจะเป็นบานเฟี้ยมไม้เปิดออกกว้าง ส่วนตึกแถวเพื่ออยู่อาศัยทำเป็นประตูบานเปิดคู่ไม้แผ่นใหญ่ไว้ตรงกลาง มีหน้าต่างบานเปิดคู่ไม้แผ่น และมีลูกกรงเหล็กแนวตั้งประกบอยู่สองข้าง ชั้นบนเป็นหน้าต่างบานเปิดคู่ยาวจรดพื้น เป็นได้ทั้งสามช่องหรือสี่ช่อง ตัวบานเป็นเกร็ดไม้ปรับได้/ไม่ได้ สำหรับหน้าต่างชนิดบานกระทุ้ง จะแบ่งเป็นสองส่วนโดยส่วนล่างจะติดตาย/เปิดออก และส่วนบนจึงเป็นบานกระทุ้ง เหนือหน้าต่างเป็นช่องแสงโค้งติดกระจกสีแบ่งเสี้ยว บางแห่งแกะสลักและฉลุไม้อย่างประณีตสวยงาม กรอบหน้าต่างเป็นลวดลายปูนปั้น เหนือช่องแสงเป็นปูนปั้นเช่นเดียวกัน มีทั้งเลียนแบบสถาปัตยกรรมตะวันตกตั้งแต่ยุคคลาสสิคเมื่อประมาณ 400 ปี ก่อนคริสตกาลมาจนถึงยุคอาร์ตเดโค (ค.ศ. 1920 - 1939) ส่วนหลังคาเป็นโครงไม้ซุง มุงกระเบื้องดินเผาแบบจีน หรือที่เรียกว่า กาบู

ตึกแถวเตี้ยมฉู่ที่ปรากฏมีรากเหง้าวัฒนธรรมจากชาวจีนจากต้นแบบเดียวกัน แต่เมื่อเข้ามาภายใต้สภาพแวดล้อมในบริบทการเกิดและอิทธิพลที่ได้รับแตกต่างกัน จะเป็นแรงขับเคลื่อนวิถีการดำเนินชีวิตที่ส่งผลกับกายภาพสถาปัตยกรรมของตึกแถวที่รองรับชีวิตและวิถีการดำเนินชีวิตนั้น นอกจากนี้เงื่อนไขแห่งช่วงเวลาที่ต่างกันจะเป็นส่วนหนึ่งในการแสดงออกของคุณภาพตึกแถว



ภาพที่ 2 แผนที่แสดงย่านเมืองเก่าภูเก็ต และเมืองเก่าสงขลา (หอจดหมายเหตุแห่งชาติ)

สถาปัตยกรรมเมืองเก่าภูเก็ตเริ่มต้นจากการค้าแร่ดีบุก และส่งออกไปจำหน่ายในแถบภูมิภาคเอเชียตะวันออกเฉียงใต้ ได้แก่ มาเลเซีย สิงคโปร์ และประเทศต่าง ๆ ทางตะวันตก ส่งผลให้รับอิทธิพลทางรูปแบบสถาปัตยกรรมตึกแถวร้านค้ามีส่วนผสมระหว่างตะวันออกตะวันตกตามแบบอย่างเมืองประเทศต่าง ๆ ที่ได้ติดต่อทำการค้าและรับวัฒนธรรมเข้ามาในพื้นที่ (ปรียชนัน สายสาคเรศ, 2547) ปรากฏรูปแบบเป็นลักษณะเฉพาะตัวตามแบบอย่างที่ได้รับ โดยรูปแบบและลักษณะกายภาพสถาปัตยกรรม มีความแตกต่างกันตามแต่วัฒนธรรมที่ได้รับในช่วงเวลาต่าง ๆ นับตั้งแต่ในช่วงต้นกรุงรัตนโกสินทร์ สมัยพระบาทสมเด็จพระจอมเกล้าเจ้าอยู่หัวรัชกาลที่ 4 เป็นต้นมา โดยสามารถจำแนกออกได้ดังนี้ (แผนกการวางแผนและพัฒนาชุมชนและท้องถิ่น สถาบันเทคโนโลยีแห่งเอเชีย, 2527)



ภาพที่ 3 แสดงชนิดของอาคารตึกแถว “เตี้ยมฉู่” ย่านเมืองเก่าภูเก็ต

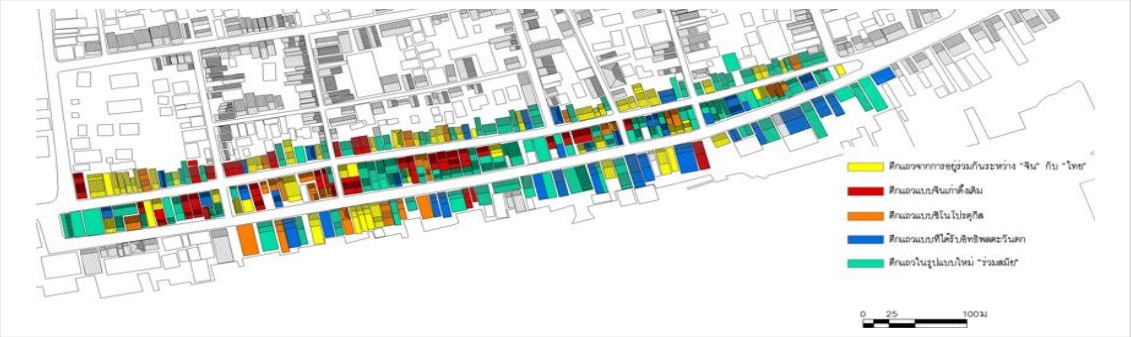
ตึกแถวร้านค้าจากอิทธิพลสถาปัตยกรรมจีน (Chinese Influence) ได้รับอิทธิพลทางรูปแบบและฝีมือช่างก่อสร้างจากชาวจีนในเมืองปีนัง ประเทศมาเลเซีย เข้ามาก่อสร้างอาคารตึกแถวที่ประกอบด้วยส่วนประกอบกิจกรรมการค้าอยู่ด้านหน้า ส่วนอาศัยอยู่ภายใน มีการเว้นพื้นที่ว่างเป็นบ่อน้ำอยู่ตรงกลาง และเปิดช่องโล่งหลังคาสำหรับแสงสว่างและการระบายอากาศ ส่วนพักอาศัยอยู่ชั้นบน หลังคามุงด้วยกระเบื้องดินเผาแบบจีน พื้นปูด้วยกระเบื้อง มีการประดับตกแต่งหลังคา ประตู - หน้าต่างตามแบบอย่างสถาปัตยกรรมจีน

ตึกแถวร้านค้าจากอิทธิพลสถาปัตยกรรมแบบโคโลเนียล (Colonial Influence) ได้รับอิทธิพลทางรูปแบบอาคารจากช่างชาวอังกฤษที่เดินทางเข้ามาอาศัยอยู่ในประเทศสิงคโปร์ ตั้งแต่ยุคอาณานิคมนำเข้ามาแพร่หลายในเมืองปีนัง ดังนั้นสถาปัตยกรรมที่เป็นส่วนผสมกันระหว่างตะวันตกกับตะวันออก

เช่น การประดับตกแต่งลวดลายปูนปั้นอาคาร หน้าต่างโค้ง มีหัวเสาตามอย่างตะวันตกและส่งต่อมารูปแบบสถาปัตยกรรมมายังเมืองภูเก็ต จากการติดต่อทางการค้าระหว่างกัน

ตึกแถวร้านค้าจากอิทธิพลสถาปัตยกรรมยุโรป - อินเดีย (European – Indian Influence) ได้รับอิทธิพลมาจากช่างชาวอังกฤษในประเทศอินเดีย ที่มีการปรับใช้ให้เหมาะกับสภาพภูมิอากาศของประเทศอินเดีย ได้แก่ การใช้หน้าต่างบานเกล็ดไม้ปรับได้เพื่อการระบายอากาศซึ่งเป็นลักษณะอันเด่นชัด ต่อมาอาคารลักษณะนี้ถูกนำมาแพร่หลายเป็นอย่างมากในเมืองปีนัง ประเทศมาเลเซีย และเมืองภูเก็ต

สถาปัตยกรรมเมืองเก่าสงขลา การจัดวางผังเมืองตามแนวเส้นทางที่ขนานไปตามขอบทะเลสาบสงขลา และมีเส้นทางสายย่อยเชื่อมต่อกับเส้นทางสายหลักทั้งสองสาย ได้แก่ ถนนนครนอก ถนนนครในประกอบไปด้วยกลุ่มอาคารร้านค้าและโกดังเก็บสินค้าตั้งเรียงรายอยู่บนถนนสายการค้าหลัก และถนนนครนอก เชื่อมต่อกับชุมทางขนส่งทางน้ำสู่ออกภายนอก มีกลุ่มบ้านเป็นที่อยู่อาศัยแทรกตัวอยู่ตามถนนสายย่อยภายใน อันเป็นลักษณะเฉพาะของย่านที่มีศาลเจ้าตั้งกระจายอยู่โดยรอบ ทำหน้าที่เป็นศูนย์กลางจึงทำให้ย่านเป็นที่รู้จักและรับรู้ของคนทั่วไปถึงชื่อเสียงของการเป็นย่านการค้าและความเชื่อศรัทธาที่มีความสำคัญทางประวัติศาสตร์ (ตรึงใจ พึ่งรัศมี, 2539)



ภาพที่ 4 แสดงชนิดของอาคารตึกแถว “เตี้ยมฉู่” ย่านเมืองเก่าสงขลา

ตึกแถวร้านค้าเมืองเก่าสงขลา ประกอบด้วย ตึกแถวชั้นเดียวและสองชั้นที่มีการใช้ประโยชน์พื้นที่สำหรับอยู่อาศัยร่วมกันกับร้านค้า ที่เรียกกันว่าบ้านร้านค้า (Shop House) สามารถแบ่งออกได้ดังนี้

ตึกแถวร้านค้าแบบไทยกับจีน ผสมผสานรูปแบบไทย - จีน เป็นตึกแถวชั้นเดียวและสองชั้น แบ่งพื้นที่ใช้สอยเป็นส่วนหน้าบ้านซึ่งเป็นร้านค้า เมื่อเข้าสู่ภายในซึ่งเป็นในบ้านพบพื้นที่พักผ่อนภายในครอบครัวที่อยู่ส่วนถัดไป มีส่วนครัวอยู่ท้ายสุดหรือหลังบ้าน ชั้นบนเป็นพื้นที่สำหรับเก็บของใช้ภายในครอบครัว โดยมีบันไดทำหน้าที่เชื่อมต่อพื้นที่ชั้นล่างกับชั้นบน โครงสร้างเป็นผนังก่ออิฐแผ่นใหญ่รับน้ำหนัก พื้นชั้นล่างปูกระเบื้องดินเผาและพื้นชั้นบนเป็นโครงสร้างไม้ หลังคาทรงจั่วตามอย่างเรือนไทยพื้นถิ่นภาคใต้ วัสดุมุงด้วยกระเบื้องดินเผาปลายแหลมจากเกาะยอ

ตึกแถวร้านค้าแบบจีนดั้งเดิม เป็นตึกแถวแห่งแรกของย่านเมืองเก่าสงขลา มีรูปแบบวัฒนธรรมของชาวจีนเข้ามาตั้งถิ่นฐานและนำเอาวัฒนธรรมการอยู่อาศัยและร้านค้า มีรูปแบบด้านกว้างสองช่วงเสา โครงสร้างเป็นผนังรับน้ำหนักด้วยอิฐแผ่นใหญ่ก่อฉาบปูน โครงสร้างหลังคาเป็นไม้ มุงกระเบื้องดินเผากาบกล้วยคว่ำและหงายโค้งแบบจีน พื้นชั้นล่างเป็นแผ่นกระเบื้องดินเผาขนาดใหญ่ ส่วนชั้นบนในภาษาจีนแต้จิ๋ว เรียกว่า เหล่าเต็ง เป็นโครงสร้างไม้สำหรับอยู่อาศัยและเก็บสินค้า ระหว่างกลางของพื้นชั้นสองเจาะเป็นช่องกว้าง 80 x 80 ซม. สามารถเปิด - ปิดได้ เพื่อนำสินค้าจากชั้นล่างขึ้นมาวางเก็บไว้ชั้นบน ปัจจุบันตึกแถวร้านค้าแบบเก่าดั้งเดิมบางหลังชำรุดทรุดโทรมเนื่องจากขาดการเอาใจใส่ดูแลจากผู้เป็นเจ้าของ

บางหลังถูกปล่อยทิ้งร้างจนมีสภาพเสื่อมโทรมและพังทลายลงไป ก่อให้เกิดผลเสียต่อคุณค่าทั้งทางด้านประวัติศาสตร์ สถาปัตยกรรม ศิลปกรรม และผังเมือง ของย่านเก่าโดยรวม

ตึกแถวร้านค้าแบบผสมผสานกันระหว่างตะวันออกกับตะวันตก ได้รับวัฒนธรรมและอิทธิพลทางรูปแบบมาจากการติดต่อทางการค้ากับประเทศสิงคโปร์ ตัวอาคารประกอบด้วยลวดลายและส่วนโค้งครึ่งวงกลมแบบอาร์ต (Arch) บริเวณช่องหน้าต่าง ภายในแบ่งพื้นที่ออกเป็นสองส่วน ส่วนหน้าเป็นพื้นที่สำหรับการค้าขายและส่วนหลังเป็นพื้นที่ครัว โดยมีบ่อน้ำตั้งอยู่ตรงกลาง พื้นชั้นล่างปูด้วยแผ่นกระเบื้องดินเผา ส่วนพื้นชั้นบนเป็นไม้สำหรับอยู่อาศัย นอกจากนี้โครงสร้างอาคารเริ่มปรับเปลี่ยนมาเป็นคอนกรีตเสริมเหล็ก หลังคาทรงจั่วมุงด้วยกระเบื้องดินเผา

ตึกแถวร้านค้าที่ได้รับอิทธิพลสถาปัตยกรรมแบบตะวันตก ได้รับอิทธิพลสถาปัตยกรรมแบบอาร์ตเดโค (Art Deco) ตามอย่างตึกแถวในรัฐปีนัง มาเลเซีย ช่วงระหว่างปี พ.ศ. 2481 - 2492 เป็นอาคารคอนกรีตเสริมเหล็กที่มีความเรียบง่าย ใช้เส้นสายรูปแบบเรขาคณิตอย่างตรงไปตรงมา ตัวอาคารด้านหน้าเป็นลักษณะสมดุลแบบสมมาตร ลดทอนรูปร่างรูป พื้นชั้นล่างปูด้วยกระเบื้องใช้ประโยชน์พื้นที่เป็นร้านค้าและเปิดพื้นที่ว่างโล่งในช่วงกลางเพื่อการระบายอากาศ ในบริเวณนี้บางหลังมีบ่อน้ำไว้สำหรับอาบหรือชำระในชีวิตประจำวัน สำหรับชั้นสองเป็นพื้นไม้เป็นพื้นที่สำหรับอยู่อาศัย ส่วนตึกแถวที่เป็นสามชั้นใช้ชั้นสองเป็นพื้นที่เก็บสินค้าและพักอาศัยขึ้นไปอยู่ชั้นสามแทน หลังคานิยมทำเป็นดาดฟ้าพื้นคอนกรีตและหล่อแผงคอนกรีตปิดบังหลังคาเมื่อมองจากด้านหน้าเห็นเป็นลักษณะขึ้นบันได

สรุปและอภิปรายผล

ด้านกายภาพ จากกรณีศึกษาเมืองเก่าสงขลาและเมืองเก่าภูเก็ต พบว่า ตึกแถวทั้งสองมีลักษณะที่คล้ายคลึงกัน เป็นตึกแถวประวัติศาสตร์ที่ได้รับการสร้างมาจากช่างชาวจีน คือ มีการใช้วัสดุเทคนิควิธีการก่อสร้างและรูปแบบอาคารแบบเดียวกันที่ได้รับอิทธิพลมาจากตึกแถวในปีนัง มาเลเซียและสิงคโปร์ แต่ตึกแถวเก่าเมืองสงขลามีอายุของอาคารหรืออายุของการก่อสร้างที่มากกว่าตึกแถวเก่าเมืองภูเก็ต ความแข็งแรงของโครงสร้างและวัสดุที่ใช้ในการก่อสร้างอาคารจึงมีสภาวะความเสียหาย ชำรุดและเสื่อมโทรมมากกว่าเมืองเก่าภูเก็ต ที่ยังคงอยู่และได้รับการดูแลรักษาให้อยู่ในสภาพเดิม

ภาพรวมของตึกแถวเตี้ยมฉู่ในกรณีศึกษาพบว่า พฤติกรรมการปรับตัวของอาคาร มีการปรับพื้นที่เพื่อใช้สอยให้เป็นไปตามยุคสมัยและความแตกต่างของเวลา การตอบสนองกับวิถีการดำรงชีวิตประจำวันเป็นสาเหตุแห่งปัญหาที่ส่งผลต่อภาพรวมกายภาพสถาปัตยกรรมย่านเมืองเก่า ดังนี้

- ความกลมกลืนของรูปแบบและก้อนมวลอาคาร พบว่า อาคารเก่าที่เกิดจากพัฒนาการตามยุคสมัยที่ผ่านมาแล้ว ยังพบอาคารเก่าที่ได้รับการนำมาปรับปรุงตามแบบอย่างสมัยใหม่ ที่เรียกกันว่าร่วมสมัย อันเกิดจากการปรับประโยชน์พื้นที่ใช้สอยภายใน เพื่อให้ตอบสนองกับวิถีการดำรงชีวิตและรูปลักษณ์อาคารในรูปแบบใหม่ จนไม่ปรากฏร่องรอยของอาคารเก่าดั้งเดิม อันเป็นการทำลายความทรงจำตึกแถวเก่าในอดีตที่มีอยู่เดิมให้เลือนหายไป

- การสร้าง - เสริมส่วนประดับอาคารด้วยวัสดุสมัยใหม่ ปัจจุบันพัฒนาการวัสดุที่มีผลมาจากความก้าวหน้าทางเทคโนโลยีทำให้เกิดวัสดุสมัยใหม่ตามการพัฒนาที่หลากหลายซึ่งสามารถนำมาเลือกและใช้อย่างเหมาะสม หากไม่เช่นนั้นแล้ววัสดุสมัยใหม่เหล่านี้ก็จะเป็นสิ่งประดับประดาที่ขัดแย้งและบั่นทอนภาพลักษณ์อาคารเก่า ขาดความกลมกลืนสวยงามจนกลายเป็นทัศนอุจาดของอาคารเก่าไปในที่สุด เช่น กันสาดอลูมิเนียม ผ้าใบกันแดด และป้ายอันเป็นสัญลักษณ์ในการสื่อสารถึงผู้พบเห็นที่ไม่สอดคล้องกับอาคารเก่าอันเป็นสถาปัตยกรรมที่มีคุณค่าของย่านและของเมือง

เมืองเก่าเป็นชุมชนเก่าที่มีการอยู่อาศัยมาต่อเนื่องยาวนานจนเกิดการซ้อนทับของเรื่องราวแห่งวิถีชีวิตกันอย่างหนาแน่น ดังนั้นในการดำเนินการอนุรักษ์และพัฒนาย่านเมืองเก่า ให้เกิดผลสำเร็จตามความมุ่งหมายได้นั้น จำเป็นต้องได้รับการสนับสนุนและความร่วมมือจากกลุ่มผู้คนหลายฝ่ายทั้งจากกลุ่มผู้คนภายในชุมชน องค์กรเอกชน และหน่วยงานภาครัฐฯ ได้เข้ามาดำเนินการ เพื่อช่วยกันประคับประคองดูแล เริ่มต้นตั้งแต่ขั้นตอนระดับนโยบายจนถึงระดับปฏิบัติงานควบคู่กันไปอย่างต่อเนื่องจึงจะเกิดผลเป็นรูปธรรม ทั้งนี้ชุมชนซึ่งเปรียบเสมือนอวัยวะของร่างกายที่จะต้องได้รับอาหารเลี้ยงดูให้แข็งแรง ชุมชนจึงเป็นส่วนสำคัญส่วนหนึ่งที่รัฐฯจำเป็นต้องให้การดูแลรักษาโดยทั่วถึง รวมทั้งสนับสนุนการพัฒนาชุมชนทั้งงบประมาณและการจัดการชุมชน เพื่อความเป็นระเบียบเรียบร้อยความอยู่ดีกินดีและความอยู่เย็นเป็นสุขของคนในชุมชน (เลอสม สถาปิตานนท์, 2546)

จากการศึกษาผู้ใช้อาคารตึกแถวเตี้ยมฉู่เมืองเก่าสงขลา ด้านกายภาพของพื้นที่ศึกษาที่ได้รับ เพื่อใช้เป็นข้อมูลในการศึกษาวิจัยนี้มีจำนวนทั้งสิ้น 62 ราย จากอาคารตึกแถวเก่าในพื้นที่ศึกษาที่มีอยู่ทั้งหมดจำนวน 348 หลัง หรือคิดเป็นร้อยละ 17.82 ทั้งนี้จากการลงพื้นที่สำรวจภาคสนามพบถึงความแตกต่างของข้อมูลที่ได้รับในหลากหลายประเด็นด้วยกัน ทั้งจากการประกอบกิจกรรมในการดำรงชีวิตของผู้ที่อาศัยอยู่และไม่มีเวลาในการกรอกบันทึกข้อมูล การไม่มีผู้อยู่อาศัยในขณะออกสำรวจ ผู้อยู่อาศัยเป็นเพียงพนักงานไม่กล้าแสดงออกทางความคิดเห็น เจ้าของอาคารซึ่งเป็นเจ้าของอาคารร่วมหลายหลังแต่ได้รับข้อมูลจากเจ้าของเพียงคนเดียว อาคารบางหลังเป็นสำนักงาน ท่าเทียบเรือ ธนาคาร อาคารบางหลังมีแต่ผู้สูงวัย อาคารบางหลังถูกปล่อยทิ้งร้างปิดตายและอาคารบางหลังอยู่ในขณะปรับปรุงซ่อมแซมสำหรับแบบสอบถามซึ่งเป็นเครื่องมือที่ใช้ในการวิจัยได้แบ่งแยกออกในหลายประเด็น เพื่อให้ครอบคลุมเนื้อหาและรายละเอียดที่ต้องการ ได้แก่ ส่วนของข้อมูลผู้อาศัย/ผู้ใช้อาคาร ส่วนของข้อมูลเกี่ยวกับการดูแลรักษาอาคารและส่วนข้อคิดเห็นเพิ่มเติมหรือข้อคิดเห็นส่งท้ายในลักษณะคำถามปลายเปิดเพื่อเปิดโอกาสให้ผู้ตอบคำถามมีส่วนร่วมในการอธิบายแสดงออกถึงเรื่องราว การรับรู้ ความรู้สึก ความต้องการ และปัญหา

การศึกษาความคิดเห็นของผู้ใช้อาคารตึกแถวเตี้ยมฉู่ เมืองเก่าภูเก็ต ด้านกายภาพมีผู้ตอบรับแบบสอบถาม จำนวน 88 ราย หรือคิดเป็นร้อยละ 32.59 ของตึกแถวเก่าที่มีเจ้าของอยู่ภายในย่านทั้งสิ้น 270 ราย ซึ่งจากการลงสำรวจเพื่อสัมภาษณ์พบว่า ผู้คนที่อาศัยอยู่ในย่านมีเหตุผลและความจำเป็นที่ไม่สามารถตอบแบบสอบถามได้ทั้งหมดที่เป็นไปในลักษณะที่เหมือนหรือคล้ายคลึงกันกับบริเวณพื้นที่ย่านเมืองเก่าสงขลาทั้งหมด

ด้านเศรษฐกิจ เปรียบเทียบกัน คือ เมืองเก่าสงขลาได้ให้ความสำคัญอย่างมากกับการอนุรักษ์ตึกแถวเก่ามีความต้องการให้มีการซ่อมแซมตึกแถวเก่าให้กลับมาในรูปแบบดั้งเดิม ขึ้นอยู่กับการสนับสนุนด้านการเงินที่นำมาซ่อมแซมจากหน่วยงานภาครัฐฯ การย้ายของเจ้าของอาคารเพื่อออกไปประกอบกิจกรรมการดำรงชีวิตในพื้นที่ส่วนกลาง คือ กรุงเทพมหานครมีค่อนข้างสูง ผลมาจากการศึกษาเล่าเรียนของคนรุ่นต่อมาที่มีการศึกษาดีขึ้น เมืองเก่าภูเก็ตผู้คนยังคงมีความต้องการที่จะอนุรักษ์ตึกแถวเก่าเตี้ยมฉู่ให้ดำรงคงอยู่ต่อไป พร้อมขอรับความช่วยเหลือทางด้านการเงินจากหน่วยงานภาครัฐฯในการนำมาซ่อมแซม ผู้คนเมืองเก่าภูเก็ตเคลื่อนย้ายออกไปจากพื้นที่น้อยกว่าเมืองเก่าสงขลา หากแต่ส่วนที่เคลื่อนย้ายออกไปทำงานถิ่นอื่นแต่ยังอาศัยอยู่ในพื้นที่ภูเก็ตที่ไปมาหาสู่เยี่ยมบ้านเรือนเหล่าเครือญาติกันตามปกติ

ตารางที่ 1 สอบถามความคิดเห็นของผู้ใช้อาคารตึกแถวเตี้ยมฉู่ ด้านกายภาพ เมืองเก่าสงขลา และเมืองเก่าภูเก็ต

สถานที่ในการอยู่อาศัย	เมืองเก่าสงขลา		เมืองเก่าภูเก็ต	
	ความถี่	ร้อยละ	ความถี่	ร้อยละ
เกิดและอาศัยอยู่สืบทอดกิจการค้ามาตั้งแต่บรรพบุรุษ	22	35.5	36	40.9
เป็นแหล่งท่องเที่ยวที่สามารถทำรายได้ให้กับกิจการค้า	30	48.4	38	43.2
เข้ามาอยู่เพื่อทำงาน	10	16.1	14	15.9
สถานการครอบครองอาคาร				
รับมรดก	16	25.7	18	20.5
ซื้อต่อจากเจ้าของเดิม	4	6.5	12	13.6
เป็นของส่วนกลางหรือครอบครัว (กงสี)	6	9.7	12	13.6
ผู้เช่าอาคาร	36	58.1	46	52.3
การใช้ประโยชน์อาคาร				
ค้าขาย	40	64.6	42	47.7
ร้านอาหาร	8	13.0	30	34.1
บริการเสริมสวย	8	12.6	10	11.4
สำนักงานและอื่นๆ เช่น เสริมสวย ตัดเย็บเสื้อผ้า	6	9.8	6	6.8
รายได้ต่อเดือนของครอบครัว				
น้อยกว่า 50,000 บาท	-	-	24	27.3
น้อย (50,000-80,000 บาท)	24	38.8	36	40.9
ปานกลาง (80,000- 100,000 บาท)	4	6.5	12	13.6
มาก (100,000 บาทขึ้นไป)	-	-	16	18.2
ไม่ระบุ*	34	54.7	-	-
รวม	**62**	**100.00**	**88**	**100.00**

ตารางที่ 2 สอบถามความคิดเห็นของผู้ใช้อาคารตึกแถวเตี้ยมฉู่ ด้านเศรษฐกิจ เมืองเก่าสงขลา และเมืองเก่าภูเก็ต

การซ่อมแซมอาคาร	เมืองเก่าสงขลา		เมืองเก่าภูเก็ต	
	ความถี่	ร้อยละ	ความถี่	ร้อยละ
เคยซ่อมแซม	48	77.4	82	93.2
ไม่เคยซ่อมแซม	10	16.1	6	6.8
ไม่ระบุ *	4	6.5	-	-
การดำเนินการซ่อมแซม				
ซ่อมแซมเอง	20	32.3	42	47.7
เจ้าของอาคาร	32	51.6	42	47.7
ไม่ระบุ *	10	16.1	4	4.6
ลักษณะการซ่อมแซม				
ซ่อมแซมให้กลับคืนสู่สภาพเดิม	36	58.1	56	63.6
ซ่อมแซมอาคารให้มีลักษณะในรูปแบบใหม่	6	9.7	14	15.9
ซ่อมแซมตามจำเป็นสอดคล้องหรือไม่สอดคล้องก็ได้	16	25.8	18	20.5
อื่นๆ	4	6.4	-	-
การซ่อมแซมส่วนต่าง ๆ ของอาคาร				
ทาสีอาคาร	18	29.0	-	-
ซ่อมแซมหลังคา	8	12.9	-	-
ซ่อมแซมพื้น-ผนัง	10	16.1	60	68.2
ซ่อมแซมประตู-หน้าต่าง	4	6.5	-	-
ซ่อมแซมทั้งหมด	12	19.4	28	31.8
ไม่ระบุ	10	16.1	-	-
อุปสรรคต่อการซ่อมแซม				
เงินค่าซ่อมแซม	26	41.9	32	36.4
วัสดุก่อสร้าง	6	9.7	10	11.4
ช่างฝีมือ/ผู้รับเหมา	6	9.7	20	22.7
เงินทุนช่วยเหลือสนับสนุนจากหน่วยงาน/องค์กร	12	19.4	10	11.4
อื่นๆ	12	19.3	16	18.1
รวม	**62**	**100.00**	**88**	**100.00**

การเปรียบเทียบการเปลี่ยนแปลงสภาพสังคมและเศรษฐกิจ พบว่า เมืองเก่าสงขลาภายหลังจากการลดบทบาทของย่านที่เกิดจากนโยบายพัฒนาเมือง ทำให้เกิดการเปลี่ยนแปลงทางสังคม มีผู้คนย้ายออกจากพื้นที่ศูนย์กลางเมืองเก่าเพื่อไปดำรงชีวิตในศูนย์กลางเมืองใหม่ และการแทนที่ด้วยการย้ายเข้ามาของคนนอกทำให้พื้นที่ขาดการดูแลจนกายภาพเสื่อมโทรมเป็นการจุดประกายความคิดอนุรักษ์ให้กับคนรุ่นต่อมาได้รวมพลังปลุกย่านเก่าให้มีชีวิตกลับคืนมา ประกอบกับนโยบายส่งเสริมพื้นที่ย่านเมืองเก่าเป็นแหล่งท่องเที่ยวทางวัฒนธรรม ในเชิงสังคมเมืองเก่าส่งผลให้เกิดขาดความรู้สึกร่วมเป็นเจ้าของความใส่ใจต่อการดูแลรักษาพื้นที่ลดลง ทำให้การเปลี่ยนแปลงที่เกิดขึ้นอาคารที่เปลี่ยนแปลงรูปแบบขาดการดูแลซ่อมบำรุงตามระยะเวลา โครงสร้างทรุดโทรม บางแห่งกลายเป็นพื้นที่รกร้าง การย้ายเข้ามาของคนนอก เช่น ผู้เช่า หรือแรงงานต่างถิ่น ทำให้เกิดช่องว่างทางสังคมระหว่างผู้ครอบครองพื้นที่เดิมกับผู้มาใหม่จึงทำ

ให้ผู้เช่าใหม่มักใช้พื้นที่เพียงเพื่อการค้าหรืออยู่อาศัยชั่วคราว ไม่เกิดการลงทุนในระยะยาว แม้ย่านเก่าฟื้นคืนกลับมาอีกครั้งหนึ่ง ถึงแม้จะไม่มีวันเหมือนอดีตที่เป็นมาก็ตาม แต่หากเมื่อเปรียบเทียบกับเมืองเก่าภูเก็ตแล้วจึงเป็นเรื่องยากลำบากมากกว่าพอสมควร เนื่องจากช่องว่างระหว่างรอยต่อของการซบเซากับความเจริญ มีช่วงระยะเวลาที่เนิ่นนานมากกว่า ส่งผลให้อาคารตึกแถวเก่าชำรุดทรุดโทรมมีจำนวนมาก กรณีเมืองเก่าภูเก็ตผลจากการยุติการทำเหมืองแร่ ส่งผลให้เศรษฐกิจภายในย่านเริ่มซบเซาและมีการปรับตัวจากการเปลี่ยนแปลงบทบาทใหม่ในการเป็นแหล่งท่องเที่ยวทางวัฒนธรรมขณะเดียวกันกิจกรรมการค้าขนาดใหญ่ก็ได้ขยายตัว และมีการเปลี่ยนแปลงรูปแบบจากพื้นที่อยู่อาศัยชุมชนดั้งเดิมไปสู่พื้นที่ท่องเที่ยวทำให้โครงสร้างสังคมเปลี่ยนแปลง การเติบโตของกิจกรรมการค้าขนาดใหญ่เข้ามายึดพื้นที่เชิงพาณิชย์ทำให้ร้านค้าขนาดเล็กต้องปิดตัวลงหรือปรับเปลี่ยนกิจการค้าในรูปแบบการท่องเที่ยวเข้ามาทดแทนเพื่อให้อยู่ได้ ส่งผลต่อสภาพการเปลี่ยนแปลงของอาคาร ที่เกิดขึ้นในช่วงเวลาต่าง ๆ โดยการเปลี่ยนแปลงนี้เกี่ยวข้องกับการใช้ประโยชน์จากอาคาร การบูรณะหรือการปรับเปลี่ยนฟังก์ชันของอาคาร ซึ่งมักเกิดขึ้นตามการพัฒนาและการเจริญเติบโตของเมือง (คณะสถาปัตยกรรมศาสตร์และการผังเมือง มหาวิทยาลัยธรรมศาสตร์, 2556) นอกจากนี้ความสัมพันธ์ระหว่างคนในชุมชนลดลง เนื่องจากผู้อยู่อาศัยเดิมย้ายออก และผู้ประกอบการใหม่เข้ามาแทนที่และชุมชนดั้งเดิมอาจรู้สึกแปลกแยก หรือขาดบทบาทในการกำหนดทิศทางของพื้นที่ตนเอง จึงจำเป็นต้องเกิดการรวมตัวของชุมชนผู้รักถิ่นฐานที่อาสาเข้ามาดูแลย่านจะเป็นส่วนหนึ่งที่จะช่วยประคับประคองให้ย่านเก่าเดินหน้าต่อไป หากแต่แนวทางการอนุรักษ์ย่านเมืองเก่าภูเก็ตที่ให้ความสำคัญกับอาคารในการเป็นส่วนหนึ่งของภาพลักษณ์ทางการค้าที่สำคัญในอดีต จะช่วยให้ตึกแถวเก่าเหล่านี้ได้รับเอาใจใส่จากเจ้าของอาคารอันเป็นการสร้างความภาคภูมิใจให้กับตัวเอง

ในกรณีศึกษาจะเห็นความคล้ายคลึงกัน คือ การเริ่มต้นจากบทบาททางด้านการค้าในยุคที่บ้านเมืองเจริญรุ่งเรืองสูงสุดและได้รับผลกระทบจากนโยบายของภาครัฐฯ ส่งผลให้เศรษฐกิจในย่านถูกลดบทบาทลง จากนั้นจึงเกิดการรวมตัวกันของผู้คนในชุมชนเพื่อช่วยกันแก้ไขปัญหาให้ย่านเก่าได้ฟื้นคืนกลับมา โดยเมืองเก่าสงขลามีแนวความคิดการฟื้นฟูย่านเมืองเก่า คือ การสร้างสรรค์กิจกรรมใหม่ขึ้นภายในพื้นที่เพื่อกระตุ้นย่านเก่าให้กลับมามีชีวิตชีวาอีกครั้ง จนเกิดเป็นกระแสการอนุรักษ์ตึกแถวเก่าขึ้นตามมา ส่วนในกรณีศึกษาเมืองเก่าภูเก็ต มีแนวความคิดในการอนุรักษ์อาคารเก่าและพื้นที่ให้เหมาะสมกับความต้องการในปัจจุบัน โดยใช้การท่องเที่ยวเป็นตัวชักนำเนื่องจากเมืองภูเก็ตมีแหล่งท่องเที่ยวที่สวยงามเป็นที่รู้จักของผู้คนทั้งชาวไทยและชาวต่างชาติ ทำให้มีผู้คนหลั่งไหลเข้ามาท่องเที่ยวเป็นจำนวนมาก แตกต่างจากเมืองเก่าสงขลาที่นักท่องเที่ยวเข้ามามีจำนวนความหลากหลายน้อยกว่าเมืองเก่าภูเก็ต มีนักท่องเที่ยวทั้งที่มาจากประเทศทางตะวันตกและตะวันออก รวมถึงนักท่องเที่ยวที่เป็นชาวไทย ส่วนเมืองเก่าสงขลามีเพียงนักท่องเที่ยวที่มาจากประเทศทางตะวันออกเฉียงใต้และนักท่องเที่ยวชาวไทยเท่านั้น ประกอบกับนโยบายส่งเสริมของรัฐฯ ที่ต้องการส่งเสริมเมืองภูเก็ต ให้เป็นเมืองแห่งการท่องเที่ยวจนได้รับการขนานนามว่า ไข่มุกเอเชีย อันเป็นเสน่ห์ดึงดูดใจผู้คนให้เข้ามาท่องเที่ยว ส่งผลให้เศรษฐกิจภายในย่านได้รับผลที่ดีตามไปด้วย รวมถึงเป็นการสร้างขวัญกำลังใจให้กับผู้คนได้มีกำลังที่จะดูแลรักษาบ้านตึกแถวเก่าของตนเอง เพื่อให้บ้านของเขา ย่านของเขาเป็นที่เชิดหน้าชูตาและส่งเสริมรายได้ให้กับตนเอง (ตารางที่ 2)

ด้านความหมายความเป็นชุมชนและมาตรการโดยกรณีศึกษาทั้งสองกรณีมีความคล้ายคลึงกัน คือ เมืองเก่าสงขลา มีแนวความคิดในการรักษาความหมายของย่านที่เกิดจากวิถีชีวิตชุมชนและลักษณะพื้นถิ่นของย่านที่ดำรงอยู่ผ่านช่วงเวลากาลต่าง ๆ มาได้ ถึงแม้ว่ากายภาพจะสูญเสียไป ส่วนในกรณีเมืองเก่าภูเก็ต

มีแนวความคิดในการรักษาความหมายของย่านเก่าด้วยการรักษาองค์ประกอบทางกายภาพภายในของพื้นที่ ได้แก่ กลุ่มก้อนอาคารเก่า และองค์ประกอบเมืองให้มีรูปแบบดั้งเดิม

จากกรณีทั้งสอง ได้มีการรวมกลุ่มกันของผู้คนในย่าน จัดตั้งองค์กรชุมชนเพื่อร่วมกันแก้ไขปัญหา ในกรณีเมืองเก่าสงขลาผู้คนมีความรักความผูกพันกันในพื้นที่น้อยกว่า สังเกตได้จากจำนวนการย้ายถิ่นของผู้คนที่ย้ายออกไปยังพื้นที่อื่นเพื่ออยู่อาศัยและทำมาหากิน นอกจากนี้การดำเนินงานขององค์กรชุมชนจะพึ่งพางบประมาณจากหน่วยงานภาครัฐฯ เป็นหลัก และมีองค์กรภาคเอกชนเข้ามาร่วมสนับสนุนทางด้านการเงิน ส่วนกรณีเมืองเก่าภูเก็ตชุมชน มีการจัดการหาเงินสนับสนุนด้วยตัวเองจากการดำเนินกิจกรรมแห่งชีวิต และงานเทศกาลต่าง ๆ เพื่อนำรายได้มาอนุรักษ์และพัฒนาย่านเก่าต่อไป

นอกจากนี้มาตรการในการดูแลตึกแถวและย่านกรณีเมืองเก่าภูเก็ต มีการมองถึงการรักษารูปลักษณ์อาคารที่เป็นรูปธรรมมากกว่า โดยการปรับปรุงซ่อมแซมอาคารนั้น จำเป็นต้องได้รับการดูแลจากองค์กรชุมชนเพื่อรักษาเอกลักษณ์และแนวความคิดย่านเก่าดังเดิม ถึงแม้ในด้านกฎหมายหรือมาตรการควบคุมอาคารจะยังอยู่ในขั้นตอนการพิจารณาของรัฐฯ ก็ตาม ส่วนในกรณีเมืองเก่าสงขลา จะควบคุมในภาพกว้างของอาคาร และมีกฎหมายอาคารในการจำกัดความสูง ระยะร่นตามกฎหมายควบคุมอาคารปัจจุบัน ซึ่งอาจขัดกับรูปลักษณ์สัดส่วนที่เกิดจากวิถีชีวิตเดิมของอาคารตึกแถวเก่า

สรุปและอภิปรายผล

ตึกแถวร้านค้าเมืองเก่าสงขลา ลักษณะและสภาพของโครงสร้างอาคารที่มีความเก่ามากกว่าเป็นปัจจัยในการเปลี่ยนแปลงรูปแบบตึกแถวเก่า รวมถึงการเคลื่อนย้ายของผู้คนซึ่งเป็นเจ้าของอาคารไปอยู่ยังถิ่นอื่น รวมถึงการปล่อยให้อาคารตึกแถวเก่าถูกปล่อยทิ้งร้างไม่มีผู้ดูแล การขาดการสนับสนุนซ่อมแซมอาคารจากหน่วยงานภาครัฐ

ตึกแถวร้านค้าเมืองเก่าภูเก็ต ซึ่งมีข้อได้เปรียบในส่วนของอายุอาคารอันมีผลกับโครงสร้างที่ยังมีความแข็งแรงจะเป็นตัวช่วยพยุงอาคารให้คงอยู่ไม่ให้ทรุดตัวหรือพังทลายลงไป นอกจากนั้นบทบาทการเป็นเมืองท่องเที่ยวการได้รับการส่งเสริมให้เป็นแหล่งท่องเที่ยวทางวัฒนธรรมจะเป็นตัวกระตุ้นในการรักษาคุณค่าของตึกแถวเก่าที่เป็นส่วนหนึ่งของโครงการ ตลอดจนความเข้มแข็งของชุมชนซึ่งเป็นกำลังสำคัญที่จะรักษาตึกแถวเก่าได้อย่างยั่งยืน

จากการศึกษาเรื่องราวของตึกแถวเก่าที่มีอยู่ภายในย่านทั้งสอง เพื่อให้เกิดความเข้าใจปรากฏการณ์ต่าง ๆ ที่เกิดขึ้นมาจนถึงขั้นตอนการหาปัจจัยการเปลี่ยนแปลงรูปแบบตึกแถวเตี้ยมฉู่ ผ่านกระบวนการวิเคราะห์เพื่อแสวงหาความแตกต่าง หลากหลาย และทิศทางร่วมกันมาตามลำดับ วิธีวิจัยในการศึกษาขั้นตอนลำดับต่อไป จึงเป็นการนำผลสรุปที่ได้จากการศึกษามาเป็นข้อเสนอสานต่อถึงความเป็นไปได้ของแนวทางในการปกปัก ป้องกัน รักษา และคุ้มครองตึกแถวเก่าที่มีคุณค่าทางประวัติศาสตร์เพื่อสานต่อแนวทางความเป็นไปได้ที่พื้นที่อื่นต่อไป

จากการศึกษานั้นพบว่า แนวทางป้องกันที่ทำให้เกิดเป็นผลสำเร็จรูปธรรมตอบสนองการคงอยู่ของตึกแถวเก่าต้องประกอบขึ้นของกลุ่มคนสามฝ่าย ได้แก่ หน่วยงานภาครัฐฯ ฝ่ายวิชาการ และชาวบ้าน ต้องช่วยกันสนับสนุนตั้งแต่เมื่อเริ่มต้นในการทำงาน จึงจะนำไปสู่การป้องกันไม่ให้ตึกแถวเก่าเลือนหายไปจากความทรงจำ แต่จะทำให้ยังคงอยู่ได้อย่างยั่งยืนต่อไป โดยมีขั้นตอนในการดำเนินงานดังนี้

เสริมสร้างรากฐาน ผ่านแนวคิดการครอบครองอาคาร จากการสำรวจและเปรียบเทียบพบว่าการได้รับมรดก การซื้อขายซื้อต่อจากเจ้าของเดิม และอาคารเป็นของส่วนกลางหรือครอบครัว (กงสี) เมืองเก่าภูเก็ตพบได้มากกว่า ส่งผลให้เจ้าของมีสิทธิ์เต็มที่ในการเปลี่ยนแปลงรูปแบบ และการใช้ประโยชน์อาคาร การเสริมโครงสร้างอาคารเดิมให้แข็งแรง ส่งผลให้อาคารได้รับการปรับปรุงใหญ่ แต่ยังคงเคารพสถาปัตยกรรมเดิม ผู้ครองครองอาคารเองมีสิทธิเต็มที่ในการเปลี่ยนแปลงอาคาร (เช่น ในภูเก็ต) ควรเชื่อมโยงกับความรับผิดชอบต่อประวัติศาสตร์และบริบทชุมชน การปรับเปลี่ยนแปลงรูปแบบอาคารเดิมควรมีแนวทางอนุรักษ์เชิงสร้างสรรค์ (Creative Conservation) ที่ให้ความเคารพต่ออดีตและเปิดพื้นที่ใหม่ในอนาคต สามารถใช้งานได้อย่างยั่งยืนในระยะยาว ส่วนการเช่าอาคารเพื่อนำมาดัดแปลงการใช้ประโยชน์พบได้มากในเมืองเก่าสงขลา ส่งผลให้ผู้เช่ามีข้อจำกัดในการเปลี่ยนแปลงโครงสร้างถาวร จึงมักเน้นการปรับเปลี่ยนแบบชั่วคราว หรือ ดัดแปลงผิวเผิน เช่น ติดตั้งฉากกั้น, ระบบไฟ, ตกแต่งภายในแบบไม่ซับซ้อน และตกแต่งเท่าที่จำเป็นในการใช้งานเพียงเพื่อให้สอดคล้องกับการใช้ประโยชน์ในพื้นที่ที่ต้องการ ส่งผลให้อาคารมีการรูปเปลี่ยนแปลงรูปแบบเพียงเล็กน้อย แต่ยังคงโครงสร้างดั้งเดิม ไม่สามารถพัฒนาแบบลึกหรือต่อเติมมากได้ ในเมืองเก่าสงขลา แม้ผู้เช่าจะไม่มีกรรมสิทธิ์ แต่ผู้ครอบครองอาคารที่เป็นเจ้าของเดิมควรสร้างจิตสำนึกทางวัฒนธรรมที่ลึกซึ้งเกิดการดูแลพื้นที่ร่วมกัน ซึ่งเป็นรูปแบบใหม่ของความเป็นเจ้าของร่วม (Collective Ownership in Practice) แม้การครอบครองแบบเช่ามีข้อจำกัด หากผู้เช่ามีบทบาททางวัฒนธรรมและเศรษฐกิจสำคัญต่อชุมชน ทำให้เกิดแรงกดดันให้เกิดรูปแบบการครอบครองใหม่ที่ยืดหยุ่น เช่น การเช่าระยะยาวแบบมีสิทธิพัฒนา (Heritage Lease)

รัฐบาลร่วมส่งเสริมสนับสนุน การสร้างความเข้าใจ และการสร้างจิตสำนึกในชุมชนจะทำให้เกิดความร่วมมือในการอนุรักษ์ตึกแถวเตี้ยมฉู่ โดยการมีส่วนร่วมของประชาชนในการตัดสินใจ และการดำเนินการช่วยเสริมสร้างความภาคภูมิใจในมรดกทางวัฒนธรรม และมุ่งเน้นให้ข้อมูลการดูแลและอนุรักษ์เพื่อสร้างความทรงคุณค่าการให้ความรู้เกี่ยวกับประวัติศาสตร์ และคุณค่าของตึกแถวเตี้ยมฉู่ช่วยให้ชุมชนเข้าใจถึงความสำคัญของตึกเหล่านี้ในฐานะที่เป็นมรดกทางวัฒนธรรม ตระหนักถึงคุณค่าทางประวัติศาสตร์และความเป็นมาของพื้นที่ รวมถึงการมอบข้อมูลและทรัพยากรต่าง ๆ เกี่ยวกับวิธีการดูแลรักษาตึกแถวเตี้ยมฉู่จะช่วยให้เจ้าของตึกและชุมชนเข้าใจถึงการดูแลที่เหมาะสม โดยเฉพาะในเรื่องของการบำรุงรักษาโครงสร้าง หรือการแนวทางการปรับเปลี่ยนรูปแบบให้สอดคล้องกับลักษณะดั้งเดิมของตึกแถว ที่คำนึงถึงการปรับเปลี่ยนรูปแบบหรือการบูรณะอาคารไม่ควรทำให้สูญเสียคุณลักษณะสำคัญที่ทำให้อาคารเหล่านี้มีความเป็นเอกลักษณ์ เช่น รูปแบบสถาปัตยกรรมที่สะท้อนถึงประวัติศาสตร์และวัฒนธรรมของท้องถิ่น การปรับเปลี่ยนอาจรวมถึงการเสริมโครงสร้างอาคารให้แข็งแรงขึ้น การตกแต่งหรือดัดแปลงบางส่วนเพื่อให้เหมาะสมกับการใช้งานในปัจจุบัน แต่จะต้องคำนึงถึงการรักษาลักษณะภายนอกและความสวยงามของอาคารตามแบบดั้งเดิม

เครื่องมือประสานองค์กรชุมชน ซึ่งเป็นเครื่องมือในการดำเนินงาน ทำหน้าที่ประสานงานหน่วยงานท้องถิ่นภาครัฐฯ เพื่อพิจารณาหาแนวทางวิธีการ มาตรการในการให้ความช่วยเหลือสนับสนุน และส่งเสริมทางด้านการเงินแก่เจ้าของบ้านที่ต้องการซ่อมแซม หรือปรับปรุงอาคารเพื่อการใช้งานภายใต้รูปแบบที่กำหนดในลักษณะของการให้เงินช่วยเหลือกู้ยืมหรือลดหย่อนภาษีให้กับเจ้าของอาคารที่เข้าร่วมโครงการอนุรักษ์ เพื่อช่วยลดภาระทางเศรษฐกิจและสร้างแรงจูงใจในการอนุรักษ์ ในกรณีที่ชาวบ้านเข้าร่วมโครงการซึ่งจะเป็นมาตรการหนึ่งที่ใช้ในการสร้างแรงจูงใจ ผ่านการส่งเสริมให้ประชาชนมีส่วนร่วมในการอนุรักษ์ผ่านการมีส่วนร่วมในการตัดสินใจและการดูแลอาคาร ช่วยสร้างจิตสำนึกความภาคภูมิใจในถิ่นฐาน

และอาคารมรดกของตน พร้อมทั้งป้องกันการเปลี่ยนแปลงรูปแบบอาคารและชุมชนให้กับบุคคลภายนอกที่เข้ามาแสวงหาผลประโยชน์ เพื่อช่วยกระตุ้นให้ผู้คนเห็นถึงความสำคัญมิใช่การปล่อยให้ชาวบ้านดูแลบ้านเก่าของเขาแต่เพียงลำพังโดยมีผู้อื่นเข้ามาหาผลประโยชน์จากการแวะชม ด้วยแนวทางนี้จะทำให้ชาวบ้านเกิดความรู้สึกภาคภูมิใจ ที่มีผู้คนจากภายนอกให้ความสำคัญในบ้านเก่าและย่านเก่าของเขา อันเป็นการสร้างจิตสำนึกความรักในถิ่นฐานให้ผู้เกิดขึ้นกับผู้คน รวมถึงการสนับสนุนความรู้และทรัพยากรที่มอบให้จากหน่วยงานรัฐ เช่น แนวทางการบูรณะให้คงสภาพดั้งเดิม การซ่อมแซมโครงสร้าง และการใช้วัสดุที่สอดคล้องกับบริบทดั้งเดิม ทำให้อาคารได้รับการดูแลอย่างเหมาะสม ลดการเสื่อมโทรมของภูมิทัศน์เมืองเก่า และสามารถใช้งานได้อย่างยั่งยืน โดยใช้แนวทางการฟื้นฟูแบบมีส่วนร่วม เพิ่มการมีส่วนร่วมของชุมชนในการออกแบบการปรับปรุง เช่น ประชาพิจารณ์ร่วมออกแบบสี วัสดุ หรือรูปแบบของตึกแถว เพื่อความรู้สึกร่วมเป็นเจ้าของการดำเนินงานผ่านเครื่องมือประสานองค์กรชุมชน ถือเป็นกลไกสำคัญที่ช่วยให้การอนุรักษ์ตึกแถวเตี้ยมฉู่ไม่ใช่ภาระของประชาชนเพียงลำพัง แต่เป็นความร่วมมือที่เกิดจากความเข้าใจสนับสนุน และการมีส่วนร่วมทุกภาคทั้งภาครัฐ และการรวมกลุ่มเจ้าของอาคาร ช่างฝีมือ ท้องถิ่น นักอนุรักษ์ และเยาวชน เพื่อถ่ายทอดความรู้ระหว่างรุ่น สร้างความสัมพันธ์และเสริมสร้างพลังเครือข่ายการดูแลอาคารร่วมกันส่วนอันจะนำไปสู่การอนุรักษ์ที่มีคุณค่าทั้งในเชิงวัฒนธรรม สังคม เศรษฐกิจอย่างยั่งยืน

เอกสารอ้างอิง

กองโบราณคดี. (2530). รายงานการสำรวจเมืองประวัติศาสตร์ภูเก็ต. โครงการบูรณะและอนุรักษ์เมืองประวัติศาสตร์ภูเก็ต งานผังรูปแบบฯ ฝ่ายอนุรักษ์โบราณสถาน.

คณะสถาปัตยกรรมศาสตร์และการผังเมือง มหาวิทยาลัยธรรมศาสตร์. (2556). รายงานฉบับสมบูรณ์ การศึกษาคุณค่าและประเมินสภาพการเปลี่ยนแปลงอาคาร ย่านการค้าเมืองเก่าภูเก็ต. ภูเก็ต: สำนักงานเทศบาลนครภูเก็ต.

ชัยยศ อิษฏ์วรพันธุ์. (2543). ธรรมชาติ ที่ว่าง และสถานที่. กรุงเทพฯ: โฟคัลอินเมจ พริ้นติ้ง กรุ๊ป.

ณธทัย จันเสน. (2558). ทบทวนการรับรู้อัตลักษณ์ภายใต้คำว่า “ชิโน-โปรตุกีส” ในมุมมองของคนท้องถิ่น: กรณีศึกษาเปรียบเทียบจังหวัดภูเก็ตและสงขลา. วิทยานิพนธ์ปริญญามหาบัณฑิต ภาควิชาสถาปัตยกรรม. มหาวิทยาลัยศิลปากร, กรุงเทพฯ.

ตรึงใจ พึ่งรัศมี. (2539). การศึกษาองค์ประกอบชุมชนเมืองเก่าเพื่อการอนุรักษ์และพัฒนา: กรณีศึกษาชุมชนย่านถนนนครนอก-นครใน สงขลา. วิทยานิพนธ์ปริญญามหาบัณฑิต ภาควิชาวางแผนภาคและเมือง. จุฬาลงกรณ์มหาวิทยาลัย, กรุงเทพฯ.

ถนอม พูนวงศ์. (2545). ประวัติศาสตร์เมืองสงขลา. กรุงเทพฯ: สำนักพิมพ์โอเดียนสโตร์.

ประสงค์ เอี่ยมอนันต์. (2549). การเปลี่ยนแปลงของตึกแถวและพัฒนาการชุมชนชาวจีนฮกเกี้ยนในประเทศไทย. กรุงเทพฯ: สำนักพิมพ์มหาวิทยาลัยธรรมศาสตร์.

ปรียชนัน สายสาคเรศ. (2547). อิทธิพลที่ส่งผลต่อสถาปัตยกรรมย่านเมืองเก่าภูเก็ต. วิทยานิพนธ์ปริญญามหาบัณฑิต ภาควิชาสถาปัตยกรรมศาตร์. จุฬาลงกรณ์มหาวิทยาลัย, กรุงเทพฯ.

แผนกการวางแผนและพัฒนาชุมชนและท้องถิ่น สถาบันเทคโนโลยีแห่งเอเชีย. (2527). รายงานการศึกษาแผนแม่บทการพัฒนาเมืองเก่าภูเก็ต. กรุงเทพฯ: สถาบันเทคโนโลยีแห่งเอเชีย.

เลอสม สถาปิตานนท์. (2546). การอนุรักษ์และพัฒนาย่านเมืองเก่า. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

วีระ สัจกุล. (2526). ตึกแถวกับการพัฒนาสิ่งแวดล้อมเมือง. กรุงเทพฯ: สำนักพิมพ์จุฬาลงกรณ์มหาวิทยาลัย.

อนุวิทย์ เจริญศุภกุล. (2520). วิวัฒนาการรูปแบบสถาปัตยกรรมของตึกแถวในประเทศไทย. กรุงเทพฯ: ภาควิชาสถาปัตยกรรม คณะสถาปัตยกรรมศาสตร์ มหาวิทยาลัยศิลปากร.

การศึกษารูปแบบทางสถาปัตยกรรม กรณีศึกษา อาคารริมถนนชลาทัศน์ ภายในมหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย

Study of Architectural Style Case Study on Chalatat Road Rajamangala University Srivijaya

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อเก็บข้อมูลลักษณะอาคารภายนอก อาคารริมถนนชลาทัศน์ภายในมหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย ให้เป็นข้อมูลพื้นฐานในการกำหนดแนวทางการเลือกใช้รูปแบบทางสถาปัตยกรรมภายนอกอาคาร โดยใช้วิธีการเก็บข้อมูลภาคสนาม ถ่ายภาพ เพื่อนำมาวิเคราะห์และสังเคราะห์สู่การรายงานผล ภายใต้แนวทางการการศึกษารูปแบบเพื่อกำหนดแนวทางในการเลือกใช้รูปแบบทางสถาปัตยกรรมเพื่อให้เกิดความเหมาะสม ประกอบกับหลักการและทฤษฎีในการออกแบบ โดยการศึกษาวิเคราะห์ด้านกายภาพของอาคาร คือ ผังพื้น รูปทรงอาคาร รูปด้าน และหลังคา แบบขยายประตู – หน้าต่าง ซึ่งมีผลต่อรูปด้านภายนอกอาคาร

การวิจัยพบว่า อาคารริมถนนชลาทัศน์ ภายในมหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย รูปแบบภายนอกเป็นไปตามทิศทางเดียวกัน คือ วัสดุหลักอาคารประเภทเดียวกัน รูปแบบหลังคา สี ชนิดเดียวกัน มีความใกล้เคียงกัน และใช้วัสดุประกอบอาคารที่มีปัจจัยเรื่อง ข้อกำหนดในการออกแบบ เรื่องอาคารสาธารณะเพื่อการศึกษาเหมือนกัน แสดงออกถึงความสัมพันธ์กัน แสดงออกมาในรูปแบบของหลังคา สี รูปทรงและความสูงของอาคาร ซึ่งจะเป็นพื้นฐานของรายละเอียดในการออกแบบอาคารริมถนนชลาทัศน์ภายในมหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัยต่อไป

คำสำคัญ: ลักษณะอาคารภายนอก, รูปแบบทางสถาปัตยกรรม, อาคารริมถนนชลาทัศน์

Abstract

The objective of the research project is to gather data related to exterior attributes of Building by on Chalatat Road , Rajamangala University of Srivijaya. The collected data and information can be applied and employed as basic guideline in designing proper architectural pattern of the building.The researcher had utilized various field data collection approaches in gathering and collecting data , making notes, photographs. All of the data will be brought brought to the analysis and the synthesis. After all the procedure, the guideline will be leaded to the selection of suitable architectural pattern. Somehow, related principles and theories are also needed to be considered during designing process

as well. In other words, the study and analyze of physical attributes of a building is mainly related to floor plan, elevation and roof, door and window plan of a building.

The finding of this study has indicated that buildings by on Chalatat Road in Rajamangala University of Srivijaya shared similar exterior design characteristics with others in the same kind. Hence, these buildings have utilized the same building materials, roof pattern and building paint. Furthermore, the buildings also strictly followed the principle on designing public buildings in educational purpose. As a result, the relationship between buildings was reflected through roof pattern, paint, shape and floor height. It is expected that this information and finding will soon be reconsidered as basic approach guideline for designing building near Chalatat Beach in Rajamangala University of Srivijaya.

Keywords: exterior attributes of Building , Architectural style , Building by on Chalatat Road

บทนำ

การศึกษารูปแบบสถาปัตยกรรม สะท้อนให้เห็นถึงสภาพความเป็นอยู่ของผู้คนและกิจกรรมการอยู่ร่วมกัน ภายใต้บริบทของสภาพแวดล้อมเฉพาะพื้นที่ ที่ส่งผลถึงรูปแบบทางสถาปัตยกรรม เป็นการแสดงออกความเป็นตัวตนในพื้นที่นั้น ๆ รวมถึงปัจจัยต่าง ๆ ที่ส่งผลให้เกิดรูปแบบทางสถาปัตยกรรมที่เหมาะสมกับสภาพแวดล้อมที่ที่มีฝนตกชุกเกือบทั้งปี รูปแบบที่เห็นได้ชัด เช่น ส่วนที่ใช้กันแดดกันฝน คือ หลังคา มักจะทำหลังคาทรงสูงมีความลาดชัน เพื่อให้น้ำฝนไหลผ่านสะดวก และมีการต่อชายคาคลุมบันได เนื่องจากภาคใต้มีฝนตกชุกมาก เสาเรือนไม่นิยมฝังลงไปในพื้นดิน แต่จะใช้ตอม่อหรือฐานเสาหรือเรียกว่า ตีนเสา ทำด้วยไม้เนื้อแข็ง ศิลาแลง หรือก่ออิฐฉาบปูนรองรับตัวเรือน ซึ่งจะนิยมสร้างให้สะดวกต่อการเคลื่อนย้าย (กรมส่งเสริมวัฒนธรรม. 2562)

การศึกษารูปแบบทางสถาปัตยกรรมในแต่ละพื้นที่ จะมีลักษณะของสถาปัตยกรรมที่เกิดขึ้นแตกต่างกันอย่างหลากหลายขึ้นอยู่กับแต่ละพื้นที่ เป็นสิ่งที่สะท้อนถึงสภาพของสังคม วัฒนธรรม การอยู่รวมกัน และการใช้งานภายในอาคารนั้น ๆ รูปแบบทางสถาปัตยกรรมในมหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย ก็เช่นกัน ที่มีเรื่องราวต่าง ๆ ของการจัดกิจกรรมในมหาวิทยาลัย บริบทรอบข้าง รวมถึงการขยายตัวของมหาวิทยาลัยเองได้แสดงออกมาในงานสถาปัตยกรรม โดยแฝงอยู่ในรูปทรงและแผนผังของอาคาร หลังจากการศึกษาแล้วได้ทราบถึงกิจกรรมต่าง ๆ ของผู้ใช้ภายในอาคาร ที่อาจจะส่งผลต่อรูปแบบทางสถาปัตยกรรม รวมถึง รูปร่าง ขนาด วัสดุ เฉพาะอาคารนั้น ๆ ด้วย

มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัยสงขลา เป็นสถาบันอุดมศึกษาด้านวิชาชีพและเทคโนโลยี จัดตั้งตามพระราชบัญญัติมหาวิทยาลัยเทคโนโลยีราชมงคล พ.ศ. 2548 มีวัตถุประสงค์ให้การศึกษา ส่งเสริมวิชาการและวิชาชีพชั้นสูงที่เน้นการปฏิบัติ ทำการสอน ทำการวิจัย ผลิตครูวิชาชีพ ให้บริการทางวิชาการในด้านวิทยาศาสตร์และเทคโนโลยี แก่สังคม ทำนุบำรุงศิลปและวัฒนธรรม และอนุรักษ์สิ่งแวดล้อม โดยให้ผู้สำเร็จอาชีวศึกษามีโอกาสในการศึกษาต่อด้านวิชาชีพเฉพาะทางระดับปริญญาเป็นหลัก ปัจจุบัน 2568 มีเป้าหมายเพื่อกำลังคนที่เป็นนักปฏิบัติมืออาชีพ ตอบโจทย์การพัฒนาแห่งอนาคต และเป็นเสาหลักของภูมิภาคเพื่อพัฒนาเศรษฐกิจฐานรากและมรดกทางวัฒนธรรมด้วยวิทยาศาสตร์เทคโนโลยีและนวัตกรรม ตั้งอยู่ที่ เลขที่ 1 ถนนราชดำเนินนอก ตำบลบ่อยาง อำเภอเมือง จังหวัดสงขลา เป็นมหาวิทยาลัย

ตั้งอยู่ติดกับทะเลอ่าวไทย มีสภาพอากาศแบบมรสุมและฝนตกชุกตลอดเกือบทั้งปี ด้วยปัจจัยดังกล่าวทำให้ต้องมีการศึกษารูปแบบและอัตลักษณ์เพื่อกำหนดแนวทางในการเลือกใช้รูปแบบทางสถาปัตยกรรมเพื่อให้เกิดความเหมาะสมและให้สอดคล้องกับวิสัยทัศน์เพื่อเป็นมหาวิทยาลัยมุ่งสร้างความเข้มแข็งและโดดเด่นตามอัตลักษณ์เชิงพื้นที่ โดยปัจจุบันมุ่งผลิตนักปฏิบัติ มืออาชีพที่สร้างสรรค์สังคม นอกเหนือจากผลิตครูวิชาชีพ ดังในอดีต

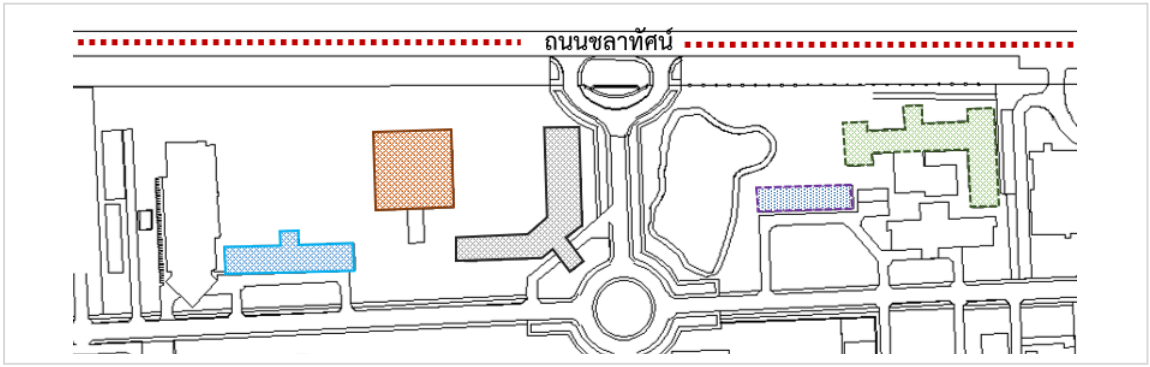
วัตถุประสงค์ของการวิจัย

1. เพื่อเก็บข้อมูลลักษณะรูปแบบภายนอกอาคาร
2. แนวทางการเลือกใช้รูปแบบภายนอกอาคาร และกรอบอาคาร

ขอบเขตการศึกษา

ขอบเขตด้านเนื้อหา : ศึกษารูปแบบภายนอกอาคาร ประกอบไปด้วย หลังคา ดาดฟ้า ผนังภายนอก ประตู หน้าต่าง และกรอบอาคาร องค์ประกอบสถาปัตยกรรมด้านขนาด สัดส่วน คือความสัมพันธ์กันระหว่างขนาด รูปร่าง รูปทรง เนื้อที่ (ฉัตร์ชัย อรรถปักษ์. 2550) ภายในมหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย กรณีศึกษา อาคารริมถนนชลาทัศน์ โดยใช้หลักการวิเคราะห์ และทฤษฎีการออกแบบทางสถาปัตยกรรม

ขอบเขตด้านพื้นที่ : ริมถนนชลาทัศน์ ภายในมหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย อาคาร 31 คณะสถาปัตยกรรมศาสตร์ อาคาร 55, 58, คณะศิลปศาสตร์

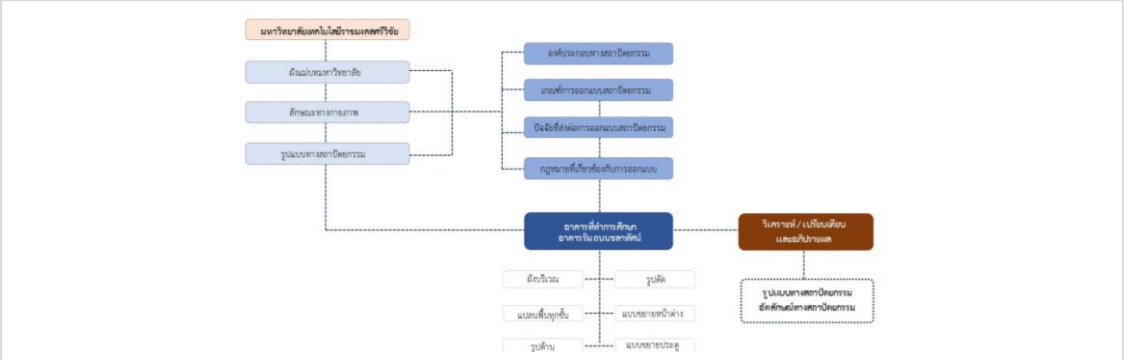


ภาพที่ 1 แผนที่แสดงอาคารริมถนนชลาทัศน์ ภายในมหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย

แนวคิด ทฤษฎี กรอบแนวคิด

ในการศึกษารูปแบบและอัตลักษณ์ทางสถาปัตยกรรมนั้น ต้องใช้แนวคิดและทฤษฎีในหลายองค์ประกอบด้วยกัน ไม่ว่าจะเป็น การศึกษาเรื่องแนวคิดเกี่ยวกับการออกแบบอาคาร การศึกษาลักษณะทางกายภาพอาคาร ทั้งรูปแบบภายนอกอาคาร ประกอบไปด้วย หลังคา ดาดฟ้า ผนังภายนอก ประตู หน้าต่าง กรอบอาคาร ที่ก่อรูปให้เกิดเป็นงานทางด้านสถาปัตยกรรม ซึ่งยังรวมไปถึงการใช้ประโยชน์ในอาคาร ซึ่งส่งผลไปถึงการออกแบบอาคารให้มีความเหมาะสมกับลักษณะเฉพาะของพื้นที่นั้นที่มีความเด่นชัดในเรื่องรูปร่าง รูปทรง วัสดุ และการนำมาใช้อย่างเหมาะสมกับสภาพแวดล้อม ในที่นี้จะหมายถึง กรณีศึกษาริมถนนชลาทัศน์ ภายในมหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัยเท่านั้น

วิธีดำเนินการวิจัย



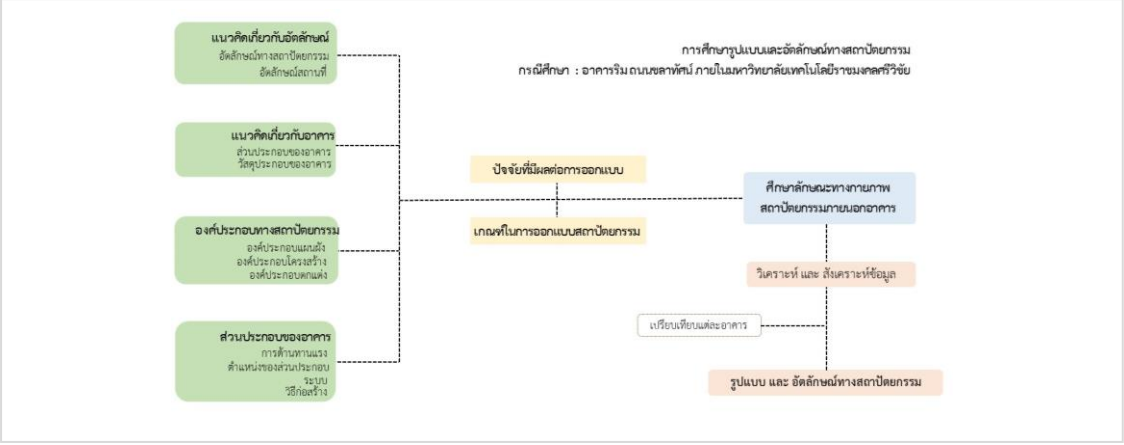
ภาพที่ 2 กรอบแนวคิดในการวิจัย

1. ขั้นสำรวจและศึกษาเอกสารที่เกี่ยวข้อง โดยการสำรวจรวบรวมจากแหล่งเอกสารต่าง ๆ เพื่อนำมาเป็นความรู้พื้นฐานและเป็นแนวทางในการศึกษาค้นคว้า

2. ขั้นเก็บรวบรวมข้อมูล ผู้วิจัยได้เก็บรวบรวมข้อมูลภาคสนามในพื้นที่ ในประเด็นการศึกษาตามขอบเขตด้านเนื้อหา ประกอบด้วยรูปแบบภายนอกอาคาร ประกอบไปด้วย หลังคา ดาดฟ้า ผนังภายนอก ประตู หน้าต่าง และกรอบอาคาร ด้วยวิธีการถ่ายภาพ ขั้นตอนการเขียนแบบอาคาร

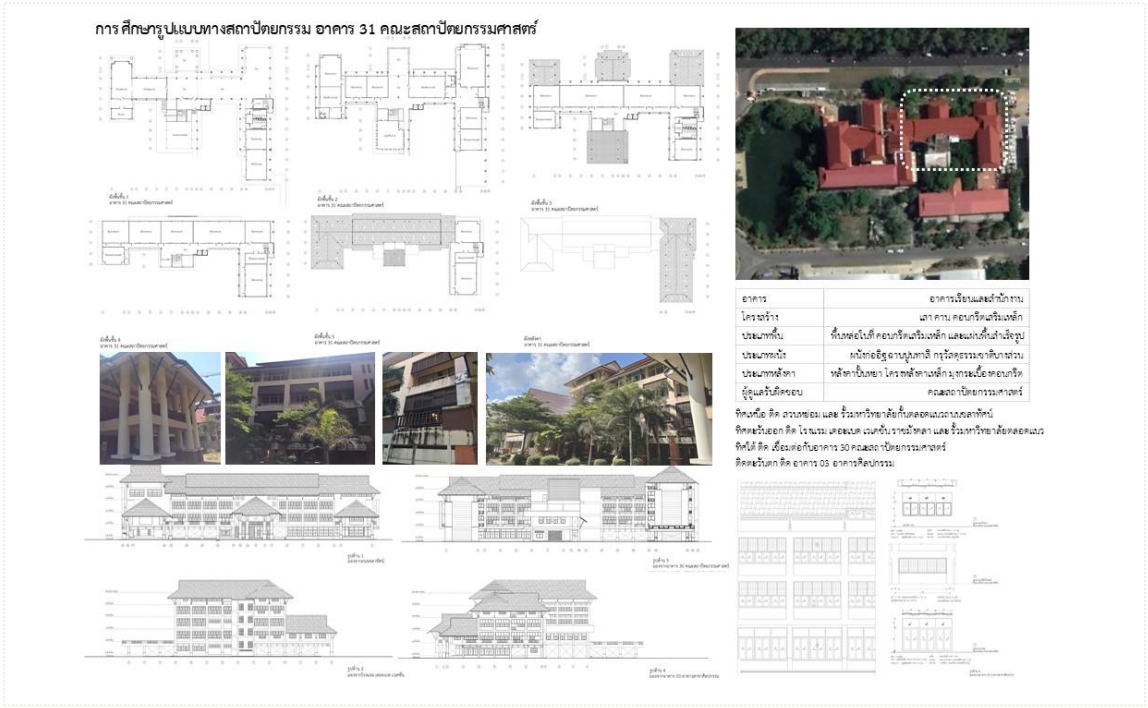
3. ขั้นจัดกระทำกับข้อมูล นำข้อมูลที่ได้จากการสำรวจมาสรุปสาระสำคัญตามในขอบเขตด้านเนื้อหา นำข้อมูลที่ได้จากการจดบันทึกไว้มาสรุปสาระสำคัญ ตามประเด็นที่กำหนดไว้ และนำภาพถ่ายและภาพเขียนลายเส้นมาตรวจสอบความสมบูรณ์และเลือกภาพประกอบให้สอดคล้องตามประเด็นที่กำหนดไว้ในขอบเขตด้านเนื้อหา

4. ขั้นเสนอผลการศึกษาค้นคว้า เสนอผลงานการศึกษาค้นคว้าโดยวิธีพรรณนาวิเคราะห์ มีภาพประกอบบางตอน แบบกรอบอาคาร และแนวคิดรูปแบบการพัฒนารูปแบบของอาคาร

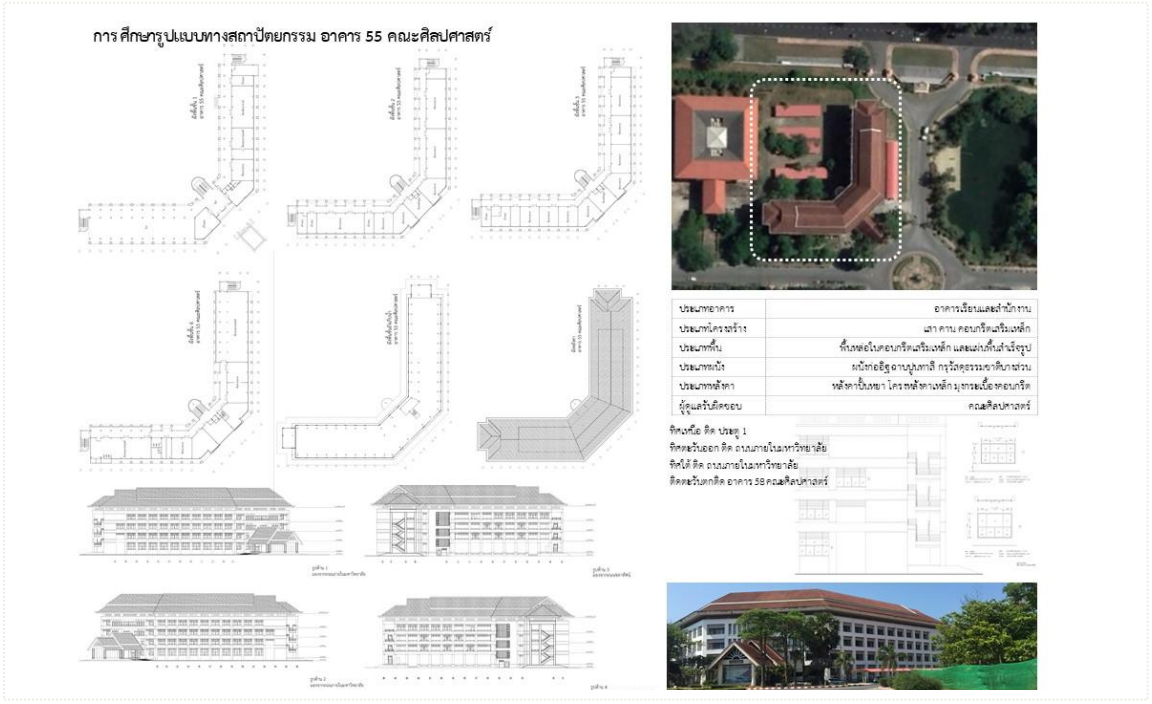


ภาพที่ 3 วิธีการศึกษา

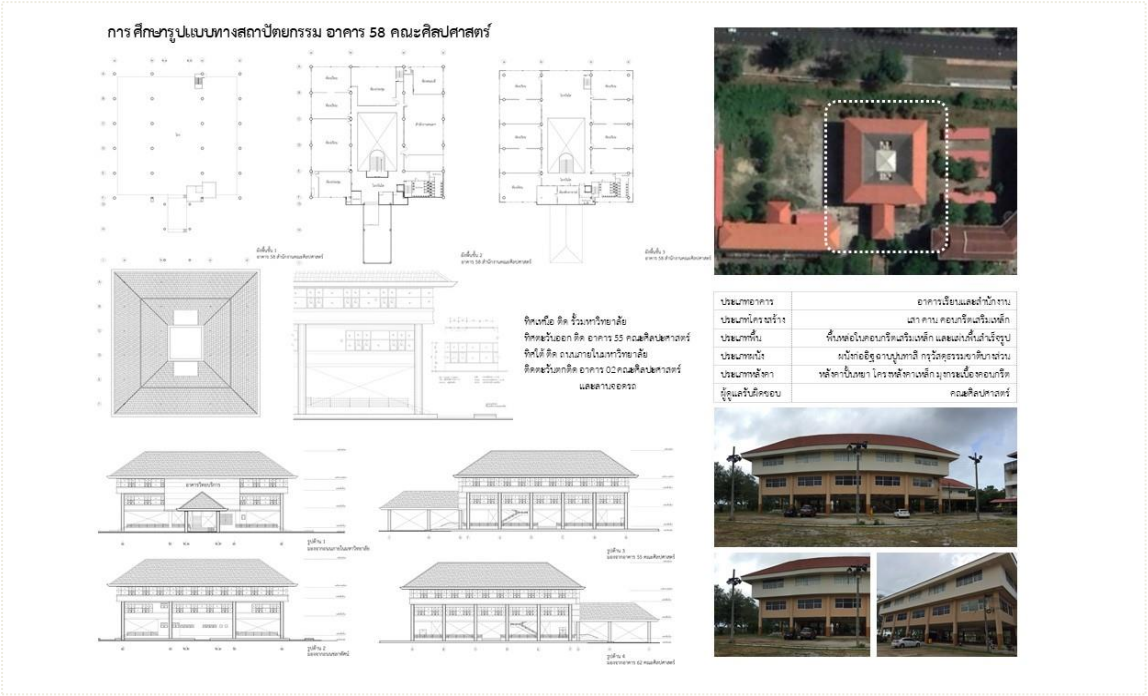
ผลการวิจัย



ภาพที่ 4 ผลการสำรวจ อาคาร 31 คณะสถาปัตยกรรมศาสตร์

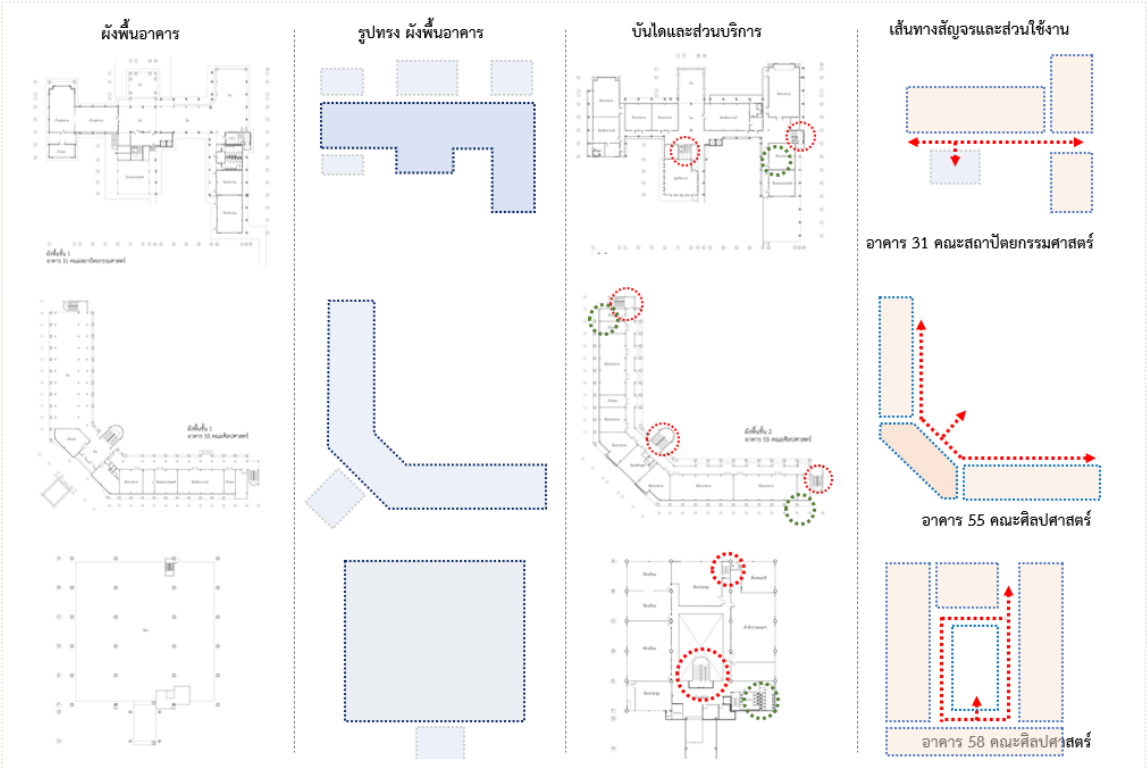


ภาพที่ 5 ผลการสำรวจ อาคาร 55 คณะศิลปศาสตร์



ภาพที่ 6 ผลการสำรวจ อาคาร 58 คณะศิลปศาสตร์

ผลการวิเคราะห์ด้านกายภาพ (ผังพื้นและรูปทรงอาคาร)



ภาพที่ 7 วิเคราะห์ผังพื้นและรูปทรงอาคาร อาคาร 31 , 55 , 58

อาคาร 31 คณะสถาปัตยกรรมศาสตร์ วางผังแบบใช้รูปทรงแนวนอน มากำหนดให้ขนานไปกับรั้วตามแนวแกนเหนือ ใต้ ทำให้เกิดรูปทรงสี่เหลี่ยมผืนผ้าแนวนอนเป็นแกนอาคาร และใช้รูปทรงสี่เหลี่ยมแนวตั้งต่อกันช่วงปลาย และมีปัจจัยในเรื่องการต่อเติมจากอาคารเดิม ต่อเติมส่วนปลายอาคารเดิมเป็นห้องเรียน ห้องปฏิบัติการ และรูปทรงช่วงกลางอาคารเป็นการต่อเติมเป็นระเบียงหน้าของอาคาร มีส่วนบริการอยู่ส่วนกลาง เป็นการจัดผังทางสัญจร เป็นระเบียงริมอาคารทิศใต้ พื้นที่ใช้สอยด้านเดียว ทิศเหนือและพื้นที่ใช้สอยปีกอาคารอยู่ทั้งทิศตะวันตกและตะวันออก ด้านยาวอยู่ทิศเหนือ และทิศใต้ ส่วนด้านสั้นอยู่แนวทิศตะวันตกและทิศตะวันออก

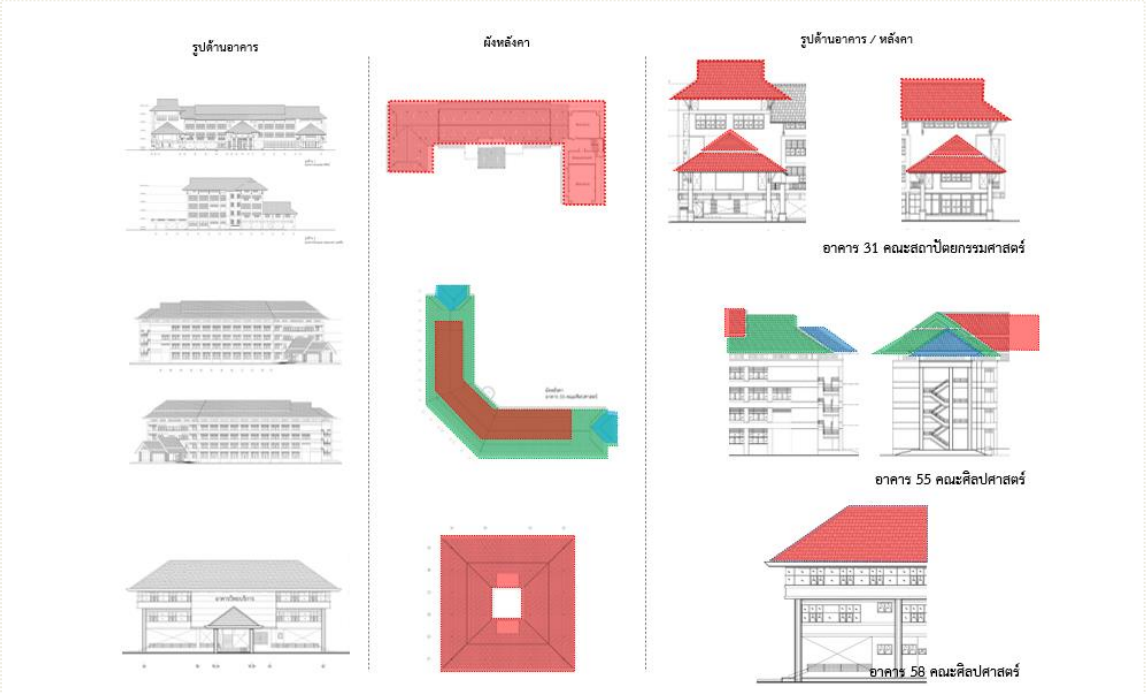
อาคาร 55 คณะศิลปศาสตร์ วางผังแบบใช้รูปทรงแนวตั้งและแนวนอน เป็นตัวกำหนดนำมาต่อกันแล้วใช้เส้นเอียง 45 องศามาเป็นตัวเชื่อมรูปทรง การกำหนดรูปทรงมีปัจจัยเรื่องถนน ตัวอาคารติดถนนหลัก 2 ด้าน และติดลานจอดรถ 2 ด้าน เกิดรูปทรงสี่เหลี่ยมผืนผ้าแนวตั้งและแนวนอนบรรจบกัน ทำมุม 45 องศา ทางสัญจรภายในอาคาร มีทั้งแนวตั้ง แนวนอนและแนวทแยง เพื่อเชื่อมพื้นที่ใช้สอยที่เป็นห้องเรียนส่วนบริการอยู่กลางอาคาร จัดทางสัญจรระเบียงริมอาคาร ทางสัญจรทางทิศตะวันตกเป็นเส้นแนวตั้งและทางสัญจรทางทิศใต้ เป็นเส้นแนวนอน พื้นที่ใช้สอยด้านยาวอยู่ทิศตะวันออก และทิศใต้ ส่วนด้านสั้นอยู่แนวทิศเหนือและทิศตะวันตก

อาคาร 58 คณะศิลปศาสตร์ วางผังแบบใช้รูปทรงสี่เหลี่ยมจัตุรัสมาเป็นตัวกำหนด เจาะช่องกลางอาคารเพื่อนำแสงธรรมชาติเข้ามาใช้ รูปทรงมีปัจจัยเรื่องพลังงานหมุนเวียนในอาคาร ตัวอาคารติดแนวรั้วภายนอก มีพื้นที่สวนหน้าอาคาร ทำให้มีระยะห่างระหว่างตัวอาคารและถนนหลักภายใน ทางสัญจรภายในอาคารสามารถเชื่อมกันเป็นรูปสี่เหลี่ยมตามรูปทรงอาคาร บันไดหลักกลางอาคารเชื่อมพื้นที่ใช้สอยที่เป็นห้องเรียน ห้องปฏิบัติการ ทางสัญจรเป็นแบบระเบียงภายในอาคารสามารถมองเห็นภายในอาคารได้ทุกชั้นจากโถงโล่งชั้น 1

จากการศึกษาเบื้องต้นลักษณะทางกายภาพ (ผังพื้นและรูปทรงอาคาร) พบว่า รูปทรงอาคารมีผลมาจากแกนถนนภายใน 1 อาคาร อาคาร 55 ผลมาจากการการต่อเติม 1 อาคาร อาคาร 31 มีผลมาจากการจัดการเรื่องสภาวะแวดล้อม 1 อาคาร อาคาร 58 โดยทั้งหมดใช้รูปทรงเรขาคณิต ทั้งสิ้น แบ่งเป็นรูปทรงสี่เหลี่ยมจัตุรัส 1 อาคาร อาคาร 58 รูปทรงสี่เหลี่ยมด้านไม่เท่า 2 อาคาร (อาคาร 31, 55) ทำให้การเลือกใช้รูปทรงอาคารมีปัจจัยที่แตกต่างกันออกไป ตามปัจจัยข้างต้นดังกล่าว

จากการสำรวจพบว่า อาคารริมถนนชลาทัศน์มีความหลากหลายทางรูปแบบสถาปัตยกรรมที่สะท้อนถึงการออกแบบเพื่อให้เหมาะสมกับการใช้งาน การจัดการพื้นที่ในอาคารหรือภายในอาคารต้องคำนึงถึงการใช้พื้นที่ให้เกิดประโยชน์สูงสุด เช่น พื้นที่ห้องเรียนในโรงเรียนต้องออกแบบให้สะดวกในการจัดการกับนักเรียนและอุปกรณ์การเรียนการสอน (เลอสม สถาปิตานนท์. 2553) ความต้องการเฉพาะของแต่ละคณะและบริบททางภูมิอากาศในพื้นที่ภาคใต้ของประเทศไทย โดยมีลักษณะเฉพาะ เช่น การเลือกใช้วัสดุสมัยใหม่ การออกแบบเพื่อรองรับการระบายอากาศธรรมชาติ และการใช้แนวคิดการออกแบบสถาปัตยกรรมสมัยใหม่ (MODERNISM) คือ ลักษณะของสถาปัตยกรรมแบบใหม่ที่เกิดขึ้นโดยสืบเนื่องจากหลายปัจจัยทั้งตัวสถาปนิกเอง และสภาพแวดล้อมต่าง ๆ ทั้งในและต่างประเทศ ผลการออกแบบของสถาปนิกไทยรุ่นบุกเบิกผสมผสานกับเอกลักษณ์ท้องถิ่น (ใจรัก จันทร์สิน. 2549)

วิเคราะห์ด้านกายภาพ (รูปด้าน และหลังคา)



ภาพที่ 8 วิเคราะห์รูปด้าน และหลังคา อาคาร 31 ,03 , 02

อาคาร 31 คณะสถาปัตยกรรมศาสตร์ รูปด้านภายนอกอาคารเป็นคอนกรีต เจาะช่องเปิดหน้าต่าง วัสดุอะลูมิเนียมสีเทา กระจกสีขาวใส ขนาดครึ่งความสูงของผนังและมีเกล็ดบังแดดแนวนอน ทำด้วยไม้เนื้อแข็งทาสีน้ำตาลเข้ม ตัวอาคารภายนอกทาสีไข่ไก่ และสีครีม หลังคาคลุมอาคารทรงมะนิลา มุงด้วยกระเบื้องคอนกรีตสีส้มแบบมัน ชายคายาวมีค้ำยันหลังคาทุกช่วงเสา รูปด้านอาคาร 1 มี 3 จั่ว หันด้านหน้าจั่วออกมาทางถนนชลาทัศน์ มีการนำเอกลักษณ์มาใช้ประกอบอาคาร ทั้งรูปทรงหลังคา วัสดุ และรายละเอียดของราวกันตก

อาคาร 55 คณะศิลปศาสตร์ รูปด้านภายนอกอาคารเป็นคอนกรีต เจาะช่องเปิดหน้าต่าง วัสดุอะลูมิเนียมสีเทา กระจกสีขาวใส ขนาดครึ่งความสูงของผนังและมีแผงบังแดดแนวนอนทำด้วยคอนกรีตทาสีขาว อาคารภายนอกสีขาว หลังคาคลุมอาคาร 3 ชั้น ทรงปั้นหยา และหลังคาทรงมะนิลา มุงด้วยกระเบื้องคอนกรีตสีอิฐ ชายคายาวมีช่องระบายอากาศระหว่างตัวอาคารกับหลังคา แผงกันแดดแนวนอนที่ช่องหน้าต่างโดยรอบอาคาร บันไดทางสัญจรปลายอาคารเปิดโล่งโชว์โครงสร้างทั้งสองฝั่ง ลักษณะเฉพาะของการนำมาใช้ประกอบอาคาร ทั้งรูปทรงหลังคา วัสดุ และรายละเอียดของราวกันตก

อาคาร 58 คณะศิลปศาสตร์ รูปด้านภายนอกอาคารเป็นคอนกรีต เจาะช่องเปิดหน้าต่าง วัสดุอะลูมิเนียมสีเทา กระจกสีเขียวใส ขนาดครึ่งความสูงของผนัง ชั้น 1 เป็นโถงโล่ง โชว์โครงสร้างเสากลมจนถึงชั้น 2 เสาชั้น 1 ทาสีน้ำตาลเข้มครึ่งล่าง ตัวอาคารภายนอกทาสีไข่ไก่ และสีเนื้อ รูปทรงขยายออกเป็นแบบพีระมิดหงาย หลังคาคลุมอาคารทรงปั้นหยา ตรงกลางเปิดช่องโล่ง หลังคามุงกระเบื้องคอนกรีตสีอิฐ รูปด้านอาคารเห็นได้จากถนนภายใน รูปด้านอาคาร 2 ไม่ปรากฏลักษณะเฉพาะการนำเอกลักษณ์มาใช้ประกอบอาคาร ทั้งรูปทรงหลังคา วัสดุตกแต่งประกอบอาคาร

จากการศึกษาเบื้องต้นเรื่องลักษณะทางกายภาพ (รูปด้าน และหลังคา) พบว่าใช้รูปทรงหลังคารูปแบบมะนิลา 3 อาคาร (อาคาร 31, อาคาร 03) ใช้รูปทรงหลังคารูปแบบปั้นหยา 2 อาคาร (อาคาร 58, 02) ใช้รูปทรงหลังคารูปแบบปั้นหยาผสมรูปแบบมะนิลา คือ อาคาร 55 โดยทั้งหมด 6 อาคารใช้รูปทรงเรขาคณิต มีความสูงของอาคาร ได้แก่ อาคารคอนกรีตเสริมเหล็กสูง 5 ชั้น 2 อาคาร (อาคาร 31) อาคารคอนกรีตเสริมเหล็กสูง 4 ชั้น 3 อาคาร (อาคาร 03, อาคาร 55, อาคาร 02) อาคารคอนกรีตเสริมเหล็กสูง 3 ชั้น 1 อาคาร (อาคาร 58)

ลักษณะทางกายภาพ (แบบขยายประตู – หน้าต่าง)

อาคาร 31 คณะสถาปัตยกรรมศาสตร์ หน้าต่างอะลูมิเนียม บานเลื่อนสลับ/ ช่องแสงบานติดตาย วงกบอะลูมิเนียม กรอบบานอลูมิเนียมสีขาว หนา 1.2 ม.ม. กระจกใสสีขาว หนา 4.5 ม.ม. ช่องแสงกรอบบานอลูมิเนียมสีขาว หนา 1.2 ม.ม. กระจกใสสีขาว หนา 4.5 ม.ม. แผงเกล็ดกันแดด วงกบกรอบไม้เนื้อแข็ง 2 x 4 นิ้ว ทาสีน้ำมัน แบ่ง 5 ช่อง ระยะช่องละไม่เกิน 0.70 เซนติเมตร เกล็ดกันแดด เป็นเกล็ดไม้สำเร็จรูป หนา ½ นิ้ว กว้าง 4 นิ้ว ทาสีน้ำมัน

อาคาร 55 คณะศิลปศาสตร์ หน้าต่างอะลูมิเนียมบานเลื่อนสลับ/ช่องแสงบานติดตาย วงกบ/กรอบบานอลูมิเนียมสีขาว หนา 1.2 ม.ม. กระจกใสสีขาว 4.5 ม.ม. กรอบบานอลูมิเนียมสีขาว 1.2 ม.ม. กระจกใสสีขาว 4.5 ม.ม. แผงกันแดด คอนกรีตสำเร็จรูป หนา 2 นิ้ว กว้าง 6 นิ้ว 3 ชิ้น ทาสีขาว

อาคาร 58 คณะศิลปศาสตร์ หน้าต่างอะลูมิเนียม บานเลื่อนสลับ/ช่องแสงบาน ติดตาย วงกบ/กรอบบานอลูมิเนียมสีชา 1.2 ม.ม. กระจกสีชา 4.5 ม.ม. ช่องแสงกรอบบานอลูมิเนียมสีชา 1.2 ม.ม. กระจกสีชา 4.5 ม.ม.

จากการศึกษาเบื้องต้นเรื่องลักษณะทางกายภาพ (แบบขยายประตู – หน้าต่าง) จากการศึกษาพบว่า อาคารริมถนนชลาทัศน์ ส่วนใหญ่ใช้หน้าต่างอะลูมิเนียมแบบบานเลื่อน และด้านบนเป็นกรอบหน้าต่างอะลูมิเนียมแบบติดตาย และใช้กระจกใส เพียงแต่มีความแตกต่างเรื่องสีซึ่งจะมีสีขาวใส สีขาวตัดแสง สีชา และ สีเขียว หนา 1.2 ม.ม แทบทั้งสิ้นแต่มี 2 อาคาร (อาคาร 30 , อาคาร 55) ที่มีแผงกันแดดอาคาร โดยอาคาร 30 ใช้วัสดุ วงกบไม้เนื้อแข็ง 2 x 4 นิ้ว ทาสีน้ำมันและเกล็ดกันแดด เป็นเกล็ดไม้สำเร็จรูป หนา ½ นิ้ว กว้าง 4 นิ้ว ทาสีน้ำมันส่วนอาคาร 55 แผงกันแดด วัสดุเป็นคอนกรีตสำเร็จรูป ทาสีขาว ไม่มีวงกบ ซึ่งติดตั้งเข้ากับตัวอาคารเลย

ตารางที่ 1 เปรียบเทียบแนวทางการเลือกใช้รูปแบบลักษณะทางกายภาพของอาคาร

องค์ประกอบ	**อาคาร 31 คณะสถาปัตยกรรมศาสตร์**	**อาคาร 55 คณะศิลปศาสตร์**	**อาคาร 58 คณะศิลปศาสตร์**
รูปทรงอาคาร	สี่เหลี่ยมผืนผ้าแนวนอน ต่อเติมกลาง/ปลายอาคาร	แนวตั้ง - แนวนอน เชื่อมอาคารด้วยมุม 45°	สี่เหลี่ยมจัตุรัส เจาะช่องกลางอาคาร
วัสดุภายนอก	ค.ส.ล. ทาสีไข่ไก่/ครีม	ค.ส.ล. สีขาว	ค.ส.ล. สีไข่ไก่/เนื้อ
ทางสัญจรภายใน	ระเบียงทิศใต้, พื้นที่ใช้สอยทิศเหนือ	แนวตั้ง แนวนอน ทแยง, บริการกลาง	โถงกลาง, ระเบียงภายใน
รูปด้านอาคาร	คอนกรีต, หน้าต่าง อลูมิเนียมกระจกใส เกล็ดไม้	คอนกรีต หน้าต่างอลูมิเนียม กระจกใส บังแดดคอนกรีต	คอนกรีต หน้าต่างอลูมิเนียม สีชา โถงเปิดโล่ง
วัสดุตกแต่งเสริม	เกล็ดไม้เนื้อแข็ง ทาสีน้ำตาลเข้ม	แผงกันแดดแนวตั้งคอนกรีต	ไม่มีเด่นชัด

ตารางที่ 1 (ต่อ)

องค์ประกอบ	อาคาร 31 คณะสถาปัตยกรรมศาสตร์	อาคาร 55 คณะศิลปศาสตร์	อาคาร 58 คณะศิลปศาสตร์
รูปแบบหลังคา	มะนิลา 3 จั่ว กระเบื้องสีส้ม	ปั้นหยาผสมมะนิลา กระเบื้องสีอิฐ	ปั้นหยา พีระมิดหงาย มีช่องเปิดกลางอาคาร
วัสดุประตู – หน้าต่าง	อะลูมิเนียมสีขาวกระจกใส เกล็ดไม้บังแดด	อะลูมิเนียมสีขาวกระจกใส แผงคอนกรีต	อะลูมิเนียมสีชากระจกสีชา
ขนาด/ความสูง	ค.ส.ล. 5 ชั้น	ค.ส.ล. 4 ชั้น	ค.ส.ล. 3 ชั้น
แนวคิดรูปแบบทางสถาปัตยกรรม	ใช้วัสดุธรรมชาติแนวคิด การออกแบบสมัยใหม่	คำนึงถึงบริบทถนน 2 ด้าน	เน้นพลังงานธรรมชาติ แสงและลม
แนวทางเลือกใช้กรอบอาคาร	วัสดุเน้นทนทาน ระบายอากาศดี	ผสมผสานวัสดุสำเร็จรูป	เรียบง่าย โปร่ง

สรุปและอภิปรายผล

ผลจากการวิจัย ผู้วิจัยได้สรุปการวิเคราะห์ด้านกายภาพของอาคาร เป็น 3 หัวข้อ คือ ผังพื้นและรูปทรงอาคาร, รูปด้าน และหลังคา, แบบขยายประตู – หน้าต่าง ซึ่งมีรายละเอียดย่อยในแต่ละหัวข้อ ซึ่งผู้วิจัยได้รายงานผลการเปรียบเทียบดังนี้

การวิเคราะห์ด้านกายภาพ (ผังพื้นและรูปทรงอาคาร) ปัจจัยเรื่องการกำหนดผังพื้นและรูปทรงอาคาร มีประเด็นที่พบจากการสำรวจ คือ ปัจจัยที่ส่งผลในการเลือกใช้รูปทรงอาคาร คือ แนวถนนภายในมหาวิทยาลัย ส่งผลให้แนวแกนหลักของทุกอาคารที่ทำการศึกษาขนานไปกับถนนด้านหน้าตำแหน่ง ส่วนบริการอาคารอยู่ตรงกลาง และ ปลายทั้งสอง ทำให้การเลือกใช้รูปทรงสี่เหลี่ยมผืนผ้ามีความเหมาะสมในการเลือกใช้ นอกจากนั้นยังสำรวจพบอาคารที่มีผลจากปัจจัยดังกล่าวแต่มีถนน 2 ด้าน ทำให้เกิดการเลือกใช้รูปทรงสี่เหลี่ยมผืนผ้ามาต่อกันจากทางตรงและทางนอนแล้วใช้มุม 45 องศา ในการเชื่อมรูปทรงและตำแหน่งส่วนบริการอาคารอยู่ตรงกลางและปลายทั้งสอง เหมือนเดิมและปัจจัยที่ส่งผลโดยตรงต่อการกำหนดขอบเขตอาคารจากการขยายตัวหรือความต้องการพื้นที่ใช้สอยอาคาร ทำให้เกิดรูปร่าง รูปทรงอาคารที่มีความแตกต่างกันออกไป แต่อยู่ภายใต้ปัจจัยเรื่องเกณฑ์การออกแบบอาคารเพื่อการศึกษาที่จะต้องมีรูปแบบพื้นที่ใช้สอยที่เอื้ออำนวยต่อการจัดการเรียนการสอน ทั้งในด้านความสว่าง การจัดวางผังครุภัณฑ์และการเข้าถึงพื้นที่ใช้สอย ปัจจัยเรื่องกฎหมายประกอบอาคาร แต่ยังใช้รูปทรงสี่เหลี่ยมมาเป็นตัวกำหนดรูปทรงอาคารเช่นเดียวกัน ซึ่งเป็นรูปร่างรูปแบบเดียวกันกับอาคารในตำแหน่งอื่น ๆ ภายในมหาวิทยาลัย

การศึกษาเชิงเปรียบเทียบด้านกายภาพ

อาคาร 31 มีรูปทรงแนวนอนแบบสี่เหลี่ยมผืนผ้า ต่อเติมช่วงปลายและกลางอาคาร ตามแนวถนน

อาคาร 55 มีการจัดวางผังผสมแนวตั้ง - แนวนอน เชื่อมด้วยมุม 45 องศา

อาคาร 58 มีลักษณะเป็นสี่เหลี่ยมจัตุรัส เจาะช่องกลางอาคารเพื่อรับแสงจากธรรมชาติ

ทั้งสามอาคารเน้นรูปทรงเรขาคณิตที่เหมาะสมกับการจัดพื้นที่ใช้สอย และการใช้งานภายใน เช่น ห้องเรียนและห้องปฏิบัติการ ส่วนสำนักงาน และแกนบริการอาคาร

การวิเคราะห์ด้านกายภาพ (รูปด้านและหลังคา) ปัจจัยเรื่องการกำหนดรูปทรง รูปด้าน อาคาร ที่พบจากการสำรวจ คือ ทุกอาคารมีรูปทรงรูปด้านเป็นแบบสี่เหลี่ยมผืนผ้าขนาดต่าง ๆ ขึ้นอยู่กับความสูง ของอาคารนั้น ๆ แต่พบอาคารที่รูปด้านมีรูปทรงเป็นแบบพีระมิดคว่ำ ช่องเปิดของอาคารเป็นแบบ สี่เหลี่ยมตามรูปทรงของเปลือกอาคาร ส่วนรูปแบบของหลังคาที่สำรวจพบว่า ทุกอาคารใช้รูปทรงแบบ มะนิลา ที่มีความเหมาะสมกับสภาพอากาศของพื้นที่ และใช้รูปทรงปั้นหยาที่มีความเหมาะสมเรื่องการ ดูแลรักษา และสำรวจพบอาคารใช้รูปแบบหลังคาผสมกัน หลังคาทรงสูงมีความลาดชัน เพื่อให้น้ำฝนไหล ผ่านสะดวก และมีการต่อชายคาคลุมบันไดเนื่องจากภาคใต้มีฝนตกชุกมาก

ลักษณะภายนอกของอาคารทั้งหมดที่สำรวจพบ สีที่ใช้เป็นสีโทนอ่อน ตั้งแต่สีขาว ครีม ไข่ไก่ ส้มอ่อน น้ำตาล เป็นต้น วัสดุหลักอาคารเป็นคอนกรีต ทั้งโครงสร้างและเปลือกอาคาร แต่มีวัสดุอื่น ๆ ที่ใช้ ประกอบอาคาร แต่เป็นวัสดุธรรมชาติ เช่น หินแกรนิต อิฐ ไม้เนื้อแข็ง วัสดุเลียนแบบธรรมชาติอื่น ๆ จะมี ความแตกต่างจากรูปแบบอาคารตำแหน่งอื่น ๆ ในมหาวิทยาลัย เนื่องจากยังไม่ได้รับการปรับปรุง

การศึกษาเชิงเปรียบเทียบรูปด้าน และหลังคา

อาคาร 31 หลังคาทรงมะนิลา 3 จั่ว มุงกระเบื้องสีส้ม พร้อมเกล็ดไม้บังแดด

อาคาร 55 หลังคาผสมมะนิลา-ปั้นหยา มุงกระเบื้องสีอิฐ มีแผงบังแดดคอนกรีต

อาคาร 58 ใช้หลังคาทรงปั้นหยาเปิดช่องกลาง ใต้ถุนชั้น 1 เปิดโล่ง เสาโครงสร้างเด่นชัด

ทุกอาคารมีรูปด้านที่สะท้อนการใช้วัสดุหลักประเภทเดียวกัน คือ คอนกรีต เสริมด้วยวัสดุธรรมชาติ เช่น ไม้และอิฐ เพื่อการตกแต่งอาคาร

การวิเคราะห์ด้านกายภาพ (แบบขยายประตู – หน้าต่าง) ปัจจัยเรื่องการเลือกใช้รูปแบบ และ วัสดุ ของประตู – หน้าต่าง ที่พบจากการสำรวจ คือ วัสดุหลักส่วนใหญ่ของทุกอาคารที่ทำการศึกษาพบว่า เป็นอะลูมิเนียม ใช้รูปแบบบานเลื่อน และบานติดตาย มีผลมากจากเรื่องการบำรุง ดูแลรักษา และความ เหมาะสมกับสภาพแวดล้อม สภาพอากาศ รวมถึงเรื่องอายุการใช้งาน เป็นสำคัญ และใช้วัสดุกระจกกับ บานหน้าต่างทั้งหมด จากการสำรวจไม่ปรากฏบานทึบเลยในทุกอาคาร โดยกระจกที่เลือกใช้มีสีขาวใส สีขาวตัดแสง สีชา สีเขียว ปัจจัยเลือกใช้ คือ เรื่องแสงสว่างภายในห้องเรียนต้องมีความสว่างเพียงพอ ที่เอื้ออำนวยต่อการเรียน จากการสำรวจยังพบการใช้ม่านบังแสงแนวตั้งแบบทึบภายในอาคารอีกด้วย

พบว่า รูปแบบภายนอกเป็นไปตามทิศทางเดียวกัน คือ ใช้วัสดุหลักอาคารประเภทเดียวกัน รูปแบบ หลังคา สี ใกล้เคียงกัน วัสดุประกอบอาคารที่มีปัจจัยเรื่องข้อกำหนดในการออกแบบเรื่องอาคารสาธารณะ เพื่อการศึกษา ซึ่งมีแสดงออกถึงวัสดุที่มีความสัมพันธ์ในมหาวิทยาลัย พบว่ามีความแตกต่างเรื่องวัสดุ สมัยใหม่ที่ส่งผลต่อรูปแบบในแง่ความรู้สึกได้ไม่เท่ากับวัสดุแบบเก่า อย่างไรก็ตาม การประยุกต์ใช้วัสดุ สมัยใหม่โดยเลียนแบบให้คล้ายของเดิม ให้มีประสิทธิภาพ ความคงทน เพื่ออายุของงานสถาปัตยกรรม ที่ยาวนาน จะมีความเหมาะสมเป็นอีกทางเลือกหนึ่ง (เชษฐา พลายชุม , 2562) ที่แสดงออกมาในรูปแบบ ของ รูปแบบหลังคา สี รูปทรง ความสูงของอาคาร ซึ่งจะเป็นพื้นฐานของรายละเอียดในการออกแบบ อาคาร ริมถนนชลาทัศน์ ต่อไป

การศึกษาเชิงเปรียบเทียบประตู–หน้าต่าง และกรอบอาคาร

อาคาร 31 สีขาวพร้อมเกล็ดไม้บังแดด

อาคาร 55 แผงกันแดดคอนกรีตสำเร็จรูป

อาคาร 58 กระจกสีชาและไม่มีแผงกันแดดชัดเจน

อาคารทั้งหมดใช้กรอบหน้าต่างอะลูมิเนียมบานเลื่อนและบานติดตาย ร่วมกับกระจกใส แนวทางเลือกใช้วัสดุมีปัจจัยหลัก คือ ความคงทนต่อสภาพอากาศ ความสะดวกในการบำรุงรักษาและความเหมาะสมด้านการใช้งานเชิงแสง

แม้รูปแบบทางสถาปัตยกรรมที่ปรากฏจะสามารถสะท้อนแนวคิดด้านการออกแบบที่สอดคล้องกับการใช้งานได้ในระดับหนึ่ง แต่อย่างไรก็ตาม ยังพบว่า มีปัจจัยแวดล้อมอื่น ๆ ที่ส่งผลกระทบต่อการกำหนดรูปแบบสถาปัตยกรรม ซึ่งควรได้รับการวิเคราะห์ในเชิงลึกมากขึ้น ได้แก่

- งบประมาณในการก่อสร้าง – งบประมาณที่จำกัดอาจจำกัดวัสดุและแนวทางการออกแบบ
- ราคาวัสดุก่อสร้างในแต่ละช่วงเวลา – มีผลโดยตรงต่อการเลือกใช้วัสดุและองค์ประกอบ
- ความต้องการใช้สอยเฉพาะของแต่ละคณะ – ส่งผลต่อการกำหนดพื้นที่ หน้าที่ใช้สอย ความเฉพาะของวิธีการสอนและรูปแบบที่แตกต่างกัน
- ความก้าวหน้าทางวิศวกรรม – เทคโนโลยีการก่อสร้าง วัสดุเปลี่ยนไป ส่งผลต่อรูปแบบอาคาร
- การออกแบบโดยบุคคลภายนอกมหาวิทยาลัย – สถาปนิกหรือผู้ออกแบบในส่วนที่เกี่ยวข้องไม่ได้อยู่ภายในองค์กร อาจมีแนวคิดที่ไม่สอดคล้องกับภาพรวมของมหาวิทยาลัย

ตารางที่ 2 แนวทางการเลือกใช้รูปแบบภายนอกอาคารและกรอบอาคาร

องค์ประกอบ	แนวทางการเลือกใช้ / แนวคิด
1. รูปแบบหลังคา	ทรงมะนิลา / ปั้นหยา / ผสม เพื่อระบายน้ำฝนได้ดี เหมาะสมกับสภาพอากาศภาคใต้ที่ฝนตกชุก
2. ผนังภายนอก / วัสดุหลัก	โครงสร้าง ค.ส.ล. ผิวภายนอกสีโทนอ่อน (ขาว, ครีม, ไข่ไก่) เพื่อความกลมกลืนกับบริบทธรรมชาติ
3. ช่องเปิด (ประตู-หน้าต่าง)	อะลูมิเนียมบานเลื่อน + ช่องแสงบานติดตาย, กระจกใส (ขาว/เขียว/ชา), ไม่มีบานทึบ เพื่อแสงธรรมชาติ
4. แผงกันแดด / เกล็ดบังแดด	ไม้เนื้อแข็ง หรือคอนกรีตสำเร็จรูป ช่วยลดแสงจ้าและความร้อน เหมาะกับภูมิอากาศเขตร้อน
5. การจัดวางผังอาคาร	รูปทรงเรขาคณิต ขนานแนวถนน, พิจารณาทิศทางลม-แดด, การใช้งานภายใน เช่น ห้องเรียน ห้องปฏิบัติการ
6. ความสูงและขนาดอาคาร	ค.ส.ล. 3–5 ชั้น รองรับจำนวนผู้ใช้และความเหมาะสมตาม หลักเกณฑ์อาคารสาธารณะเพื่อการศึกษา
7. สีและเอกลักษณ์	ใช้สีพื้นโทนอ่อน ผสมผสานวัสดุธรรมชาติ (ไม้ หิน อิฐ) และวัสดุทดแทน เพื่อคงความรู้สึกดั้งเดิม
8. แนวคิดร่วมในการออกแบบ	อิงแนวคิด MODERNISM ผสมเอกลักษณ์ท้องถิ่น คำนึงถึงสภาพภูมิอากาศ บริบท และความต้องการเฉพาะคณะนั้นๆ
9. ปัจจัยเสริมในการตัดสินใจ	งบประมาณก่อสร้าง, ราคาวัสดุ, ความต้องการใช้สอย, วิศวกรรมสมัยใหม่, ผู้ออกแบบภายนอกองค์กร

ข้อเสนอแนะ

- การศึกษาข้อมูลเชิงลึกเพิ่มเติมควรมีการศึกษาข้อมูลเชิงลึกเกี่ยวกับปัจจัยที่มีผลต่อรูปแบบทางสถาปัตยกรรม โดยเฉพาะข้อมูลด้านเศรษฐกิจ เช่น งบประมาณการก่อสร้าง ราคาวัสดุก่อสร้าง ในช่วงเวลานั้น ๆ
- การวิเคราะห์บริบทเฉพาะของผู้ใช้งานอาคาร ควรศึกษาบริบทการใช้งานของแต่ละอาคารอย่างละเอียด เช่น ความต้องการพื้นที่ใช้สอยของแต่ละคณะ เพื่อให้สามารถออกแบบได้ตรงตามความจำเป็นจริง
- การพิจารณาปัจจัยเพิ่มเติมในการออกแบบควรนำปัจจัยอื่นมาวิเคราะห์เปรียบเทียบเพิ่มเติม เช่น ความก้าวหน้าทางวิศวกรรม การออกแบบจากบุคคลภายนอกมหาวิทยาลัย เพื่อนำมาใช้เป็นข้อมูลประกอบการวิเคราะห์เพื่อความแม่นยำ การจัดทำผังการพัฒนาที่ดินภายในมหาวิทยาลัย จำเป็นต้องกำหนดผังการใช้ประโยชน์ที่ดินภายในมหาวิทยาลัย เพื่อให้เกิดประโยชน์สูงสุดและรองรับการพัฒนาในอนาคตอย่างเป็นระบบ

เอกสารอ้างอิง

ฉัตร์ชัย อรรถปักษ์. (2550). องค์ประกอบสถาปัตยกรรม. สำนักพิมพ์มหาวิทยาลัยนเรศวร. (หน้า 57)

ใจรัก จันทร์สิน. (2549). สถาปัตยกรรมสมัยใหม่ของกลุ่มสถาปนิกไทยรุ่นบุกเบิก พ.ศ. 2459–2508. มหาวิทยาลัยศิลปากร

เชษฐา พลายชุม. (2541). รูปแบบสถาปัตยกรรมไทยสมัยใหม่: วัสดุก่อสร้างและเทคโนโลยีที่เกี่ยวข้อง. จุฬาลงกรณ์มหาวิทยาลัย

เลอสม สถาปิตานนท์.(2553). องค์ประกอบสถาปัตยกรรมพื้นฐาน.พิมพ์ครั้งที่4.กรุงเทพฯ : บ วี.พริ้นต์ จก

อัตลักษณ์ของพื้นที่และวัฒนธรรมอาหารในชุมชนท่าข้าม สู่เส้นทางท่องเที่ยว ตำบลท่าข้าม อำเภอหาดใหญ่ จังหวัดสงขลา

The Identity of Place and Food Culture in Thakham Community Area Achieve to Tourism Route. Thakham Subdistrict, Hatyai District, Songkhla Province

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บทคัดย่อ

งานวิจัยฉบับนี้เป็นการศึกษาเพื่อทำความเข้าใจถึงความสัมพันธ์ต่อกันระหว่างลักษณะเฉพาะทางภูมิทัศน์ ซึ่งแสดงถึงอัตลักษณ์เชิงพื้นที่ ที่มีความสัมพันธ์กับแหล่งทรัพยากรทางวัฒนธรรมอาหารของท้องถิ่นตำบลท่าข้าม โดยการค้นหาอัตลักษณ์เฉพาะทางกายภาพ ลักษณะทางภูมิทัศน์ของพื้นที่ชุมชนท่าข้ามที่แสดงถึงลักษณะเฉพาะของพื้นที่ ประกอบกับการสำรวจรวบรวมข้อมูล ลักษณะเฉพาะของแหล่งวัตถุดิบทางอาหาร กลุ่มกิจกรรมด้านอาหาร และผู้ที่เกี่ยวข้อง

นำไปสู่การสังเคราะห์เพื่อกำหนดกลุ่มพื้นที่ ซึ่งมีอัตลักษณ์ร่วมในด้านภูมิทัศน์และวัฒนธรรมอาหารของชุมชนท่าข้าม ส่งผลให้สามารถกำหนดคุณค่าอันโดดเด่นของพื้นที่วิจัย โดยกระบวนการและลำดับขั้นตอนดังกล่าว เพื่อจัดทำข้อเสนอแนะในการพัฒนาชุมชนท่าข้ามไปสู่การท่องเที่ยวทางอาหาร โดยข้อเสนอแนะที่สอดคล้องกับความเป็นท้องถิ่นในด้าน (1) ปัจจัยด้านธรรมชาติและสิ่งแวดล้อม (2) ปัจจัยด้านกายภาพชุมชนและการพัฒนา (3) ปัจจัยด้านสังคมและวิถีชีวิต และ (4) ปัจจัยด้านเศรษฐกิจและการลงทุน เป็นบทสรุปในรูปแบบองค์ของอัตลักษณ์เฉพาะตำบลท่าข้าม ประกอบด้วยข้อเสนอแนะแนวทางในการอนุรักษ์คุณค่าโดยแนวทางในการพัฒนา 3 ระดับ คือ (1) ระดับภาพรวมของพื้นที่และการเข้าถึงแหล่ง (2) ระดับกลุ่มพื้นที่ที่มีอัตลักษณ์เดียวกัน และ (3) แนวคิดส่งเสริมกิจกรรมด้านการท่องเที่ยวเชิงอาหารเพื่อส่งเสริมให้เกิดการพัฒนาที่เคารพในฐานอัตลักษณ์และทรัพยากรสำคัญในท้องถิ่น

คำสำคัญ: อัตลักษณ์, วัฒนธรรมอาหาร, การท่องเที่ยวเชิงอาหาร, ภูมิทัศน์การท่องเที่ยวทางอาหาร

Abstract

This research aims to understand the relationship between landscape characteristics that reflect spatial identity. Related to the local food and cultural resources of ThaKham Subdistrict. By searching for the physical identity and landscape characteristics of the ThaKham community area that show the unique characteristics (Identity factors) of the area. Along with surveys, data collection, characteristics of food raw material sources, food activity groups and related persons.

Leading to the synthesis to define the group of areas that have a shared identity in terms of landscape and food culture of the ThaKham community. This results in being able to determine the outstanding value of the research area by using the process and steps mentioned above to make recommendations for developing the ThaKham community towards food tourism. Suggestions that are consistent with locality in terms of (1) natural and environmental factors; (2) physical community and development factors; (3) social and lifestyle factors; and (4) economic and investment factors. It is a holistic summary of the unique identity of ThaKham Subdistrict. It consists of suggestions for guidelines for conservation of values through development approaches at 3 levels: (1) the overall level of the area and access to the source, (2) the level of groups of areas with the same identity, and (3) the concept of promoting gastronomy tourism activities. To promote development that respects local identity and key local resources.

Keywords: Identity, Food Culture, Food Tourism, Gastronomy Tourism Landscape

บทนำ

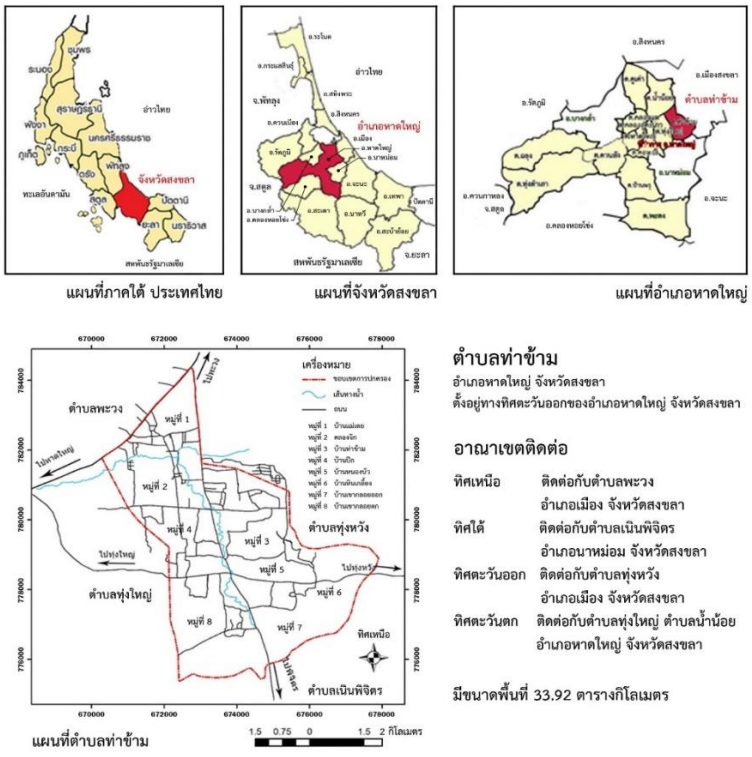
ในปัจจุบันการท่องเที่ยวมีลักษณะรูปแบบต่าง ๆ ที่หลากหลายมีการผสมผสานประสบการณ์และกิจกรรมของท้องถิ่นเข้าด้วยกัน ทำให้นักท่องเที่ยวได้เรียนรู้สภาพแวดล้อมของแหล่งท่องเที่ยว เข้าใจวิถีชีวิตและวัฒนธรรมที่แตกต่าง หนึ่งในพฤติกรรมที่นักท่องเที่ยวส่วนใหญ่ให้ความความสำคัญ คือ วัฒนธรรมด้านอาหาร เนื่องจากเป็นองค์ประกอบร่วมที่สำคัญในกิจกรรมการท่องเที่ยว ซึ่งแสดงถึงลักษณะเฉพาะที่แตกต่างกันไปในแต่ละท้องถิ่น ปัจจัยที่มีอิทธิพลในการบริโภคอาหารของนักท่องเที่ยวที่ส่งผลให้การท่องเที่ยวเชิงอาหารได้รับความนิยมทั้งในปัจจุบันและมีแนวโน้มการขยายตัวในอนาคต

การท่องเที่ยวเชิงวัฒนธรรมอาหารเป็นรูปแบบการท่องเที่ยวที่ได้รับความนิยมเพิ่มมากขึ้นจากนักท่องเที่ยว เพราะสามารถตอบสนองต่อการพัฒนาการท่องเที่ยวในมิติสังคมและวัฒนธรรม อีกทั้งเป็นการท่องเที่ยวที่ใช้ทรัพยากรทางวัฒนธรรมของท้องถิ่นนั้น ๆ มานำเสนอให้กับนักท่องเที่ยว ดังนั้นการท่องเที่ยวเชิงอาหาร จึงเป็นสิ่งสำคัญในอุตสาหกรรมการท่องเที่ยวที่สามารถสร้างความจดจำและสร้างประสบการณ์ให้กับนักท่องเที่ยว (โตมร สุขปรีชา. 2560) ในขณะเดียวกันสามารถพัฒนาคุณภาพชีวิตของคนในท้องถิ่นอันจะนำมาสู่การพัฒนาของประเทศ โดยการเพิ่มมูลค่าของทรัพยากรอาหารที่มีอยู่ในท้องถิ่นสู่การยกระดับเป็นสินค้าและบริการการท่องเที่ยวผ่านรากฐานทางวัฒนธรรมและสังคม รวมทั้งเป็นการส่งเสริมอัตลักษณ์ของชุมชนผ่านวัฒนธรรมอาหารให้กับนักท่องเที่ยว

จากผลการประเมินภาพลักษณ์การท่องเที่ยวด้านอาหารประจำปี 2567 โดยบริษัท เคเนติกส์ คอนซัลติ้ง จำกัด พบว่า นักท่องเที่ยวต่างชาติมองประเทศไทยเป็นจุดหมายปลายทางที่มีภาพลักษณ์เป็น “แหล่งท่องเที่ยวเชิงอาหารที่โดดเด่น” ในระดับ 53% เพิ่มขึ้นจาก 44% ในปี 2566 ครองอันดับ 2 รองจากประเทศญี่ปุ่น (สำนักงานบริหารและพัฒนาองค์ความรู้ องค์การมหาชน, 2568) แสดงให้เห็นว่าการเดินทางของนักท่องเที่ยวสามารถสร้างรายได้เพิ่มให้แก่ชุมชนจากอาหาร เครื่องดื่มและการให้บริการซึ่งเกิดขึ้นในระหว่างการเดินทางท่องเที่ยวกับการรับประทานอาหารและเครื่องดื่ม โดยนักท่องเที่ยวให้ความสำคัญกับอาหารเป็นอันดับต้น ๆ นอกเหนือจากที่พัก การซื้อของที่ระลึก การทำกิจกรรมอื่น ๆ นักท่องเที่ยวนิยมใช้เวลาในการทำกิจกรรมทางด้านอาหารขณะเดินทางท่องเที่ยว สิ่งเหล่านี้เป็นโอกาสสำคัญในการสร้างมูลค่าทางเศรษฐกิจท้องถิ่นของวัฒนธรรมอาหารผ่านการท่องเที่ยว

ตำบลท่าข้าม อำเภอหาดใหญ่ จังหวัดสงขลา จากคำบอกเล่าของผู้เฒ่าผู้แก่ว่าในอดีตก่อนหน้านี้ใช้ชื่อเดิม คือ “ท่านางข้าม” ซึ่งมีเรื่องเล่าว่าเมื่อก่อนที่ภูเขาหลง (ปัจจุบันตั้งอยู่ทางทิศตะวันออกของหมู่ 5 บ้านหนองบัว ซึ่งเป็นเขตพื้นที่ของตำบลทุ่งหวัง อำเภอเมือง จังหวัดสงขลา) นั้นได้มีถ้ำอยู่แห่งหนึ่งในถ้ำแห่งนั้น ได้มีนางผู้ศักดิ์สิทธิ์อาศัยอยู่ภายในถ้ำมีข้าวของเครื่องใช้มากมาย เช่น ถ้วย ชาม และช้อน เป็นต้น ชาวบ้านที่อยู่ในบริเวณนั้น เมื่อมีการจัดเลี้ยงงานบุญขึ้นที่บ้านก็จะเดินทางไปยังปากถ้ำ โดยนำดอกไม้ ธูป เทียน มาบูชา เพื่ออธิษฐานขอยืมเครื่องใช้ต่าง ๆ จากนางผู้ศักดิ์สิทธิ์ เมื่อพูดจบข้าวของเครื่องใช้ต่าง ๆ ที่ต้องการจะปรากฏอยู่ตรงหน้าเมื่อมีการจัดงานเสร็จสิ้น ชาวบ้านก็จะนำเครื่องใช้เหล่านั้นไปคืนที่ปากถ้ำ ในเวลาต่อมาชาวบ้านที่ยืมของไปใช้แล้วไม่นำไปส่งคืนหลายครั้ง เข้านางนั้นเกิดความเสียใจโกรธเคืองเลยได้ปิดปากถ้ำและได้เหาะหนีไปอยู่ที่อื่น โดยได้เหาะผ่านไปทางท่าข้าม ชาวบ้านจึงเรียกว่า “ท่านางข้าม” ต่อมาได้ตัดคำว่านางออกไป เหลือแต่ “ท่าข้าม” ในอดีตตำบลท่าข้ามมีเพียง 5 หมู่บ้านเท่านั้น คือบ้าน แม่เตย บ้านท่าข้าม บ้านหินเกลี้ยง บ้านเขากลอย และบ้านหนองบัว ส่วนบ้านคลองจิก และบ้านปึก (เกาะปลัก) นั้น เพิ่งแยกและตั้งขึ้นใหม่ภายหลัง บ้านเขากลอยเพิ่งแยกออกเป็น 2 หมู่บ้าน คือ เขากลอยออกและเขากลอยตก (องค์การบริหารส่วนตำบลท่าข้าม, 2549)

ตำบลท่าข้าม อำเภอหาดใหญ่ จังหวัดสงขลา มีขนาดพื้นที่ 33.92 ตารางกิโลเมตร ตั้งอยู่ทางทิศตะวันออกของอำเภอหาดใหญ่ จังหวัดสงขลา ห่างจากอำเภอหาดใหญ่ประมาณ 12.6 กิโลเมตร ตามถนนทางหลวงหมายเลข 2085 (ถนนปุณณกัณฑ์) เชื่อมต่อกับถนนทางหลวงหมายเลข 3031 บริเวณวัดเขากลอย และห่างจากอำเภอเมืองสงขลาเป็นระยะทาง 19.6 กิโลเมตร ตามถนนกาญจนวานิช (หาดใหญ่ – สงขลา) เชื่อมต่อกับถนนทางหลวงหมายเลข 3031 บริเวณวัดเนินไศล (ควนหิน)



ภาพที่ 1 แสดงแผนที่ตั้งตำบลท่าข้าม อำเภอหาดใหญ่ จังหวัดสงขลา

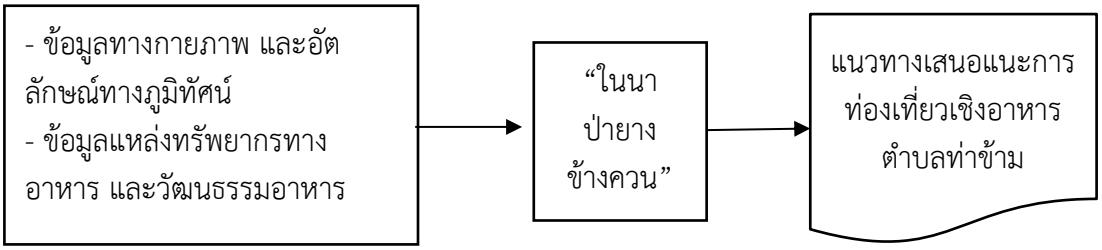
วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาทำความเข้าใจ อัตลักษณ์ทางภูมิทัศน์ (Landscape Identity) ที่มีลักษณะเฉพาะทางกายภาพในบริเวณพื้นที่ชุมชนท่าข้าม
2. เพื่อศึกษาทำความเข้าใจแหล่งผลิตวัตถุดิบอาหาร อาหารท้องถิ่น และกลุ่มผู้มีส่วนเกี่ยวข้อง
3. เพื่อจัดประเภทกลุ่มบริเวณพื้นที่ ที่มีความสอดคล้องกันของอัตลักษณ์ทางภูมิทัศน์และกลุ่มวัฒนธรรมทางอาหาร
4. เพื่อจัดทำข้อเสนอแนะแนวทางการพัฒนาพื้นที่ชุมชนท่าข้ามสู่การท่องเที่ยวทางอาหารและแนวทางการพัฒนาแหล่งท่องเที่ยวทางอาหาร

แนวคิด ทฤษฎี กรอบแนวคิด

งานวิจัยเรื่องการท่องเที่ยวเชิงอาหารเป็นรูปแบบการท่องเที่ยวที่มีแรงจูงใจ และจุดมุ่งหมายในการลิ้มรสชาติทางด้านอาหารและเครื่องดื่ม ในขณะเดียวกันนักท่องเที่ยวก็สามารถเพลิดเพลินไปกับการท่องเที่ยวในพื้นที่ไปด้วยการท่องเที่ยวเชิงอาหาร จึงเป็นการผสมผสานของอาหารและเอกลักษณ์เฉพาะพื้นที่ (เบญจมาภรณ์ ชำนาญฉา, 2561) อัตลักษณ์ของพื้นที่และวัฒนธรรมอาหารในชุมชนท่าข้ามสู่เส้นทางท่องเที่ยว ตำบลท่าข้าม จังหวัดสงขลา เป็นการออกแบบเส้นทางการท่องเที่ยวเชิงอาหาร โดยศึกษาข้อมูลลักษณะทางกายภาพของตำบลท่าข้าม อำเภอหาดใหญ่ จังหวัดสงขลา ภายใต้แนวคิด “ในนาป่ายาง ข้างควน” (มงคล ชนินทรสงขลา, 2562)

รวมข้อมูลโดยการสัมภาษณ์เชิงลึก การสำรวจวัฒนธรรมอาหารที่สอดคล้องกับอัตลักษณ์ชุมชน อันจะนำไปสู่การจัดทำแหล่งท่องเที่ยวเชิงอาหาร



ภาพที่ 2 กรอบแนวคิดการวิจัย

แนวคิดการพัฒนาการท่องเที่ยวแบบยั่งยืน จะต้องคำนึงถึงองค์ประกอบในด้านต่าง ๆ อันประกอบด้วย ด้านทรัพยากรท่องเที่ยว ด้านการสิ่งแวดล้อมในแหล่งท่องเที่ยว ด้านการพัฒนาธุรกิจท่องเที่ยว ด้านการพัฒนาการตลาดท่องเที่ยว ด้านการพัฒนาการมีส่วนร่วมทางการท่องเที่ยวของชุมชนท้องถิ่น และด้านการพัฒนาจิตสำนึกทางการท่องเที่ยว ในการพัฒนาการท่องเที่ยวแบบยั่งยืนของประเทศไทย สามารถส่งเสริมให้เกิดการท่องเที่ยวที่หลากหลาย เช่น การท่องเที่ยวเชิงนิเวศ การท่องเที่ยวเชิงวัฒนธรรม การท่องเที่ยวเชิงเกษตร การท่องเที่ยวเชิงสุขภาพ (บุญเลิศ จิตตั้งวัฒนา, 2557) โดยใช้วัฒนธรรมทางอาหารท้องถิ่นและอัตลักษณ์ทางภูมิทัศน์ของพื้นที่เป็นปัจจัยจูงใจให้เกิดความน่าสนใจ

วิธีดำเนินการวิจัย

ประชากรและกลุ่มตัวอย่าง

ประชากร ประกอบด้วย ตัวแทนจากหน่วยงานภาครัฐและภาคเอกชน ตัวแทนองค์การบริหารส่วนตำบลท่าข้าม ผู้นำชุมชนและกรรมการหมู่บ้าน เจ้าอาวาส ตัวแทนสำนักสงฆ์ และปราชญ์ชาวบ้านวิสาหกิจชุมชน และผู้ประกอบการสถานบริการอาหาร

กลุ่มตัวอย่าง ประกอบด้วย ตัวแทนจากหน่วยงานภาครัฐและภาคเอกชน ตัวแทนองค์การบริหารส่วนตำบลท่าข้าม ผู้นำชุมชนและกรรมการหมู่บ้าน เจ้าอาวาส ตัวแทนสำนักสงฆ์ และปราชญ์ชาวบ้านวิสาหกิจชุมชน และผู้ประกอบการสถานบริการอาหาร ใช้การสุ่มแบบเจาะจง (Purposive Sampling) จำนวน 30 คน โดยจัดให้มีการประชุมเชิงปฏิบัติการ ประกอบด้วย หน่วยงานที่เกี่ยวข้องกับการท่องเที่ยวและกลุ่มตัวอย่างในชุมชน เพื่อระดมความคิดและร่วมค้นหาอัตลักษณ์ทางกายภาพของชุมชนตำบลท่าข้าม

เครื่องมือที่ใช้ในการวิจัย

1. แบบสำรวจ เป็นแบบสำรวจทางกายภาพของตำบลท่าข้ามในปัจจุบัน ประกอบด้วย
   (ก) การสำรวจและจัดทำแผนที่ตำบลท่าข้าม และบันทึกภาพลักษณะทางภูมิทัศน์
   (ข) จัดทำแผนที่และการเขียนภาพร่างแสดงขอบเขตทางภูมิศาสตร์ การตั้งถิ่นฐาน
   (ค) สำรวจและจัดทำแผนผังตำแหน่งชุมชน องค์ประกอบด้านผังชุมชน ประวัติชุมชน
   (ง) สำรวจและจัดทำแผนที่แสดงตำแหน่งกิจกรรมที่เกี่ยวข้องด้านทรัพยากรอาหาร
   (จ) สำรวจด้านการสื่อความหมาย ป้ายและสัญลักษณ์ อุปกรณ์อำนวยความสะดวก

2. แบบสัมภาษณ์เชิงลึก เป็นแบบสัมภาษณ์ที่เตรียมความพร้อมด้านแผนที่เพื่อใช้ระบุตำแหน่งที่ตั้ง และแนวคำถามหลักที่เกี่ยวข้องกับข้อมูลด้านชุมชน ลักษณะเฉพาะทางภูมิศาสตร์ และทรัพยากรทางอาหารไว้ล่วงหน้า โดยมีประเด็นเพื่อให้รู้ถึงอัตลักษณ์อันเป็นลักษณะเฉพาะของตำบลท่าข้าม

การเก็บรวบรวมข้อมูล

1. การสำรวจสภาพทางกายภาพของชุมชนและรายการอาหารพื้นบ้าน ประกอบกับการบันทึกภาพการเขียนภาพร่างตามกรอบการสำรวจเมือง

2. การสัมภาษณ์เชิงลึกผู้ที่เกี่ยวข้องกับพื้นที่ อัตลักษณ์ สภาพทางกายภาพ และอาหารพื้นบ้าน

3. การจัดประชุมเชิงปฏิบัติการ เพื่อระดมความคิดและจัดทำแผนที่เส้นทางท่องเที่ยวเชิงอาหารอันเป็นอัตลักษณ์ของชุมชนท่าข้าม

การวิเคราะห์และการสังเคราะห์ข้อมูล

1. การวิเคราะห์ข้อมูล เพื่อแยกแยะให้เห็นความสัมพันธ์ขององค์ประกอบต่าง ๆ ที่เป็นข้อมูลซึ่งแสดงถึงสภาพทางกายภาพที่มีอัตลักษณ์และแหล่งอาหารพื้นบ้าน โดยใช้ข้อมูลจากการสำรวจทัศนียภาพของพื้นที่ วิเคราะห์ทรัพยากรที่มีคุณค่าและเนื้อหาจากแบบสัมภาษณ์เชิงลึก การสนทนากลุ่มนำมาอธิบายโดยการเขียนเชิงพรรณนา

2. การสังเคราะห์ข้อมูล นำผลของการวิเคราะห์ปัจจัยต่างๆทั้งสองด้าน นำมาสังเคราะห์รวมกันเพื่อกำหนดเป็นกลุ่มพื้นที่ ก่อให้เกิดแนวความคิดภูมิทัศน์ทางการท่องเที่ยวทางอาหารและแนวทางในการปรับปรุงสภาพแวดล้อม

ผลการวิจัย

การศึกษาเพื่อทำความเข้าใจถึงความสัมพันธ์ต่อกันระหว่างลักษณะเฉพาะในเชิงอัตลักษณ์เชิงพื้นที่ ที่มีความสัมพันธ์กับแหล่งทรัพยากรทางวัฒนธรรมอาหารของท้องถิ่นตำบลท่าข้าม เพื่อการกำหนดปัจจัยที่ก่อให้เกิดลักษณะเฉพาะ (Identity Factors) ซึ่งสามารถแสดงคุณค่าอันโดดเด่นของพื้นที่วิจัย ประกอบด้วยกระบวนการและลำดับขั้นตอนในการทำความเข้าใจดังนี้

1. จำแนกประเภท (Typology Classifying) องค์ประกอบที่มีลักษณะเด่นเฉพาะ
2. จัดกลุ่ม (Cluster) จัดประเภทกลุ่มบริเวณที่มีลักษณะที่ชัดเจนเป็นย่านเดียวกัน
3. การเชื่อมโยงความสัมพันธ์ต่อกัน (Relation) ที่มีความเด่นชัดของโครงข่าย (Network)

โดยกระบวนการและลำดับขั้นตอนดังกล่าวจะนำมาซึ่งบทสรุปในรูปแบบองค์รวม (Holistic) ของอัตลักษณ์เฉพาะตำบลท่าข้ามนำไปสู่ข้อเสนอแนะแนวทางในการอนุรักษ์คุณค่า โดยการยกระดับมูลค่าและมาตรการส่งเสริมให้เกิดการพัฒนาที่เคารพในทรัพยากรของท้องถิ่น

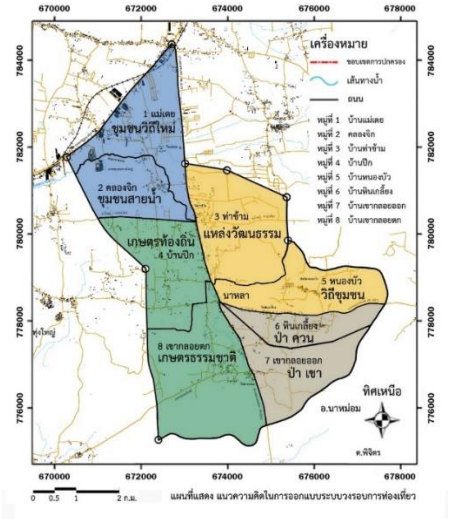
จากผลการศึกษาข้อมูลการสำรวจพื้นที่ และการสัมภาษณ์ผู้มีส่วนเกี่ยวข้องทำให้สามารถจำแนกลักษณะเฉพาะที่แสดงออกถึงเอกลักษณ์ของพื้นที่ได้ 4 กลุ่มบริเวณ คือ

1. พื้นที่วิถีชีวิตใหม่ชุมชนสายน้ำทางตอนเหนือ บริเวณหมู่ที่ 1 บ้านแม่เตย และหมู่ที่ 2 บ้านคลองจิกเป็นพื้นที่รองรับการพัฒนาใหม่ ซึ่งเป็นผลมาจากการมีที่ตั้งอยู่ใกล้กับระบบคมนาคมขนส่งหลักของจังหวัดสงขลา (ทางหลวงแผ่นดินหมายเลข 407) ก่อให้เกิดการขยายตัวในรูปแบบการลงทุนขนาดใหญ่ เป็นพื้นที่ที่มีศักยภาพด้านทรัพยากรแหล่งน้ำ (คลองนายสาม คลองแม่เตย)

2. พื้นที่แหล่งวัฒนธรรมวิถีชุมชนตั้งอยู่ตอนกลาง บริเวณหมู่ที่ 3 บ้านท่าข้าม หมู่ที่ 5 บ้านหนองบัว เป็นที่ตั้งขององค์การบริหารส่วนตำบลท่าข้าม และวัดท่าข้ามสภาพปัจจุบันมีการพัฒนาที่ดินเพื่อการอยู่อาศัยและพาณิชยกรรม

3. พื้นที่แหล่งเกษตรธรรมชาติเกษตรท้องถิ่นทางตะวันตก ตั้งอยู่ในบริเวณ หมู่ที่ 3 บ้านท่าข้าม หมู่ที่ 5 บ้านหนองบัวเป็นชุมชนชนบท ประกอบอาชีพเกษตรกรรม โดยเฉพาะการทำนาข้าว

4. พื้นที่ ควน เขา ป่า บริเวณหมู่ที่ 6 บ้านหินเกลี้ยง และหมู่ที่ 7 บ้านเขากลอยออกเป็นที่ตั้งของวัดเขากลอย มีแหล่งท่องเที่ยวสำคัญ คือ จุดชมทิวทัศน์โพธิ์หินงาม



ภาพที่ 3 แสดงแผนที่ลักษณะเฉพาะที่แสดงออกถึงอัตลักษณ์ของพื้นที่ 4 กลุ่มบริเวณ

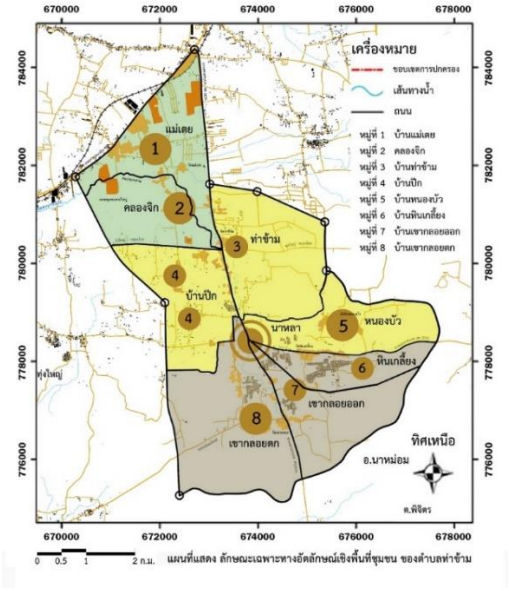
1. การสำรวจและรวบรวมข้อมูลเพื่อจัดทำแผนที่ทางกายภาพเชิงอัตลักษณ์ของพื้นที่

1.1 ลักษณะเฉพาะทางอัตลักษณ์เชิงพื้นที่ จากผลการศึกษาทำให้สามารถจำแนกปัจจัยที่เกี่ยวข้องอันประกอบด้วย

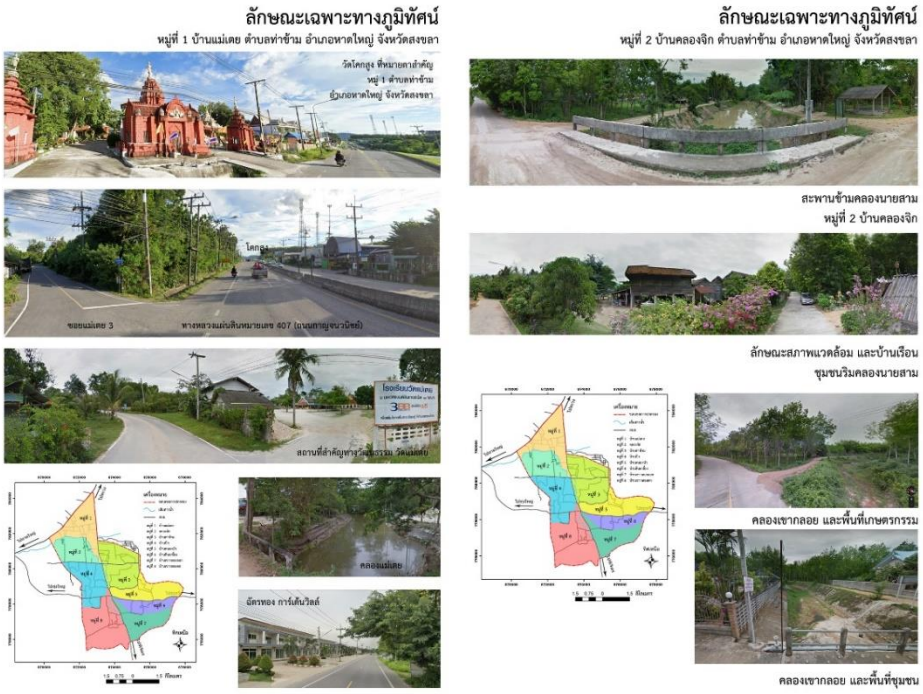
(1) องค์ประกอบเด่นเฉพาะ (Significant elements) องค์ประกอบที่มีศักยภาพในปัจจุบัน

(2) ย่านลักษณะเฉพาะ (Significant cluster Areas) ที่มีความโดดเด่น

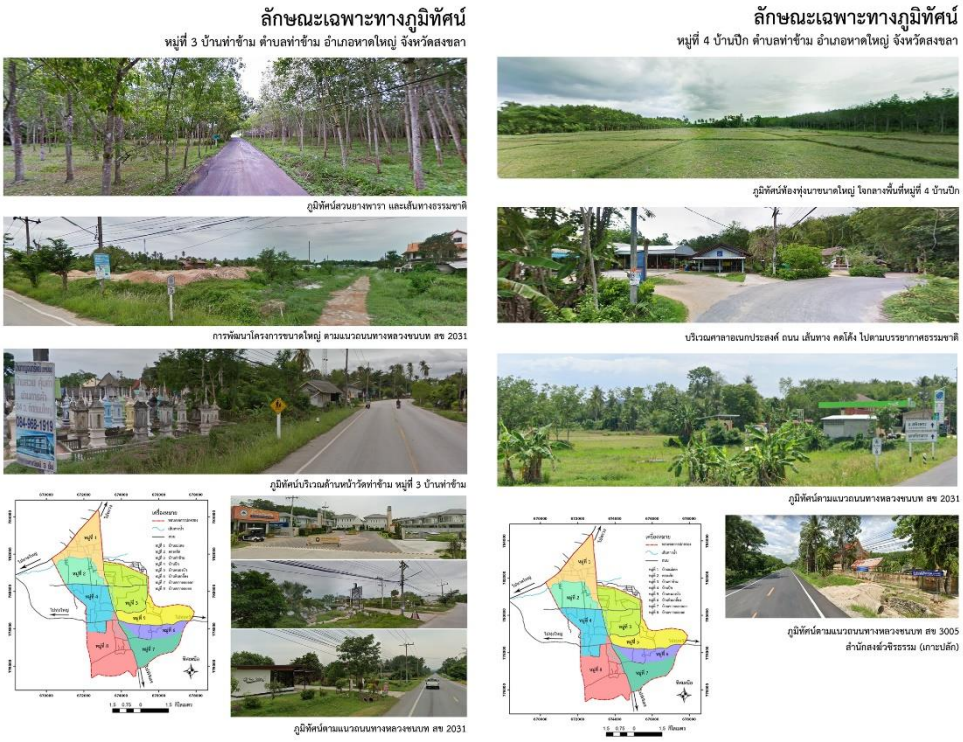
(3) โครงข่ายเฉพาะ (Significant networks) ที่สามารถเชื่อมโยงความสัมพันธ์ระหว่างกลุ่ม



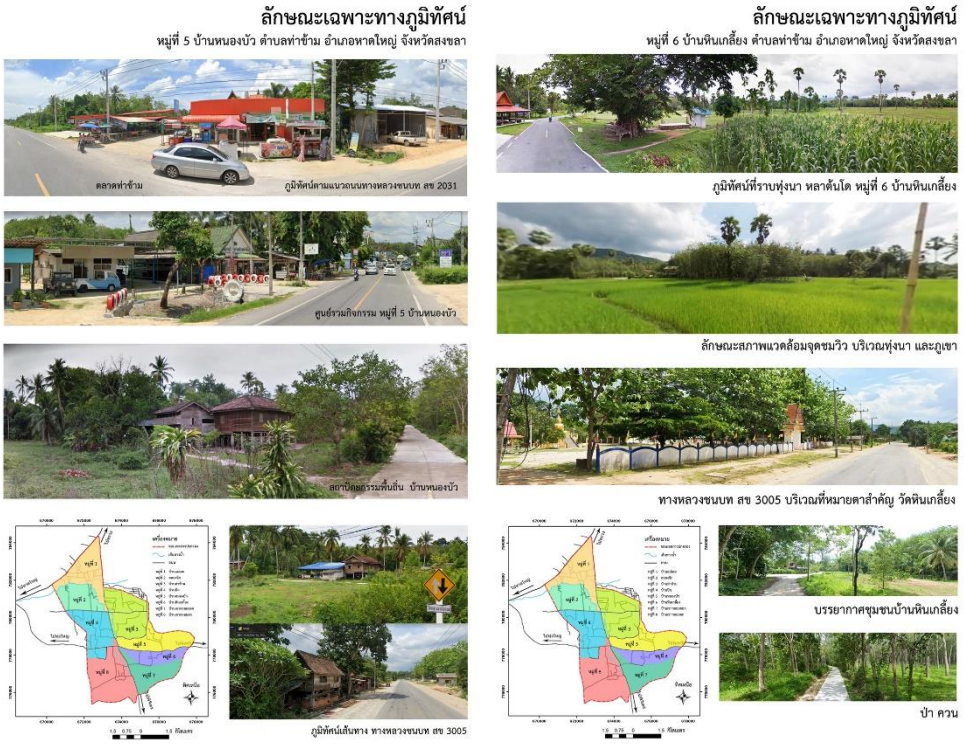
ภาพที่ 4 แสดงแผนที่ลักษณะเฉพาะทางอัตลักษณ์เชิงพื้นที่ชุมชนของตำบลท่าข้าม



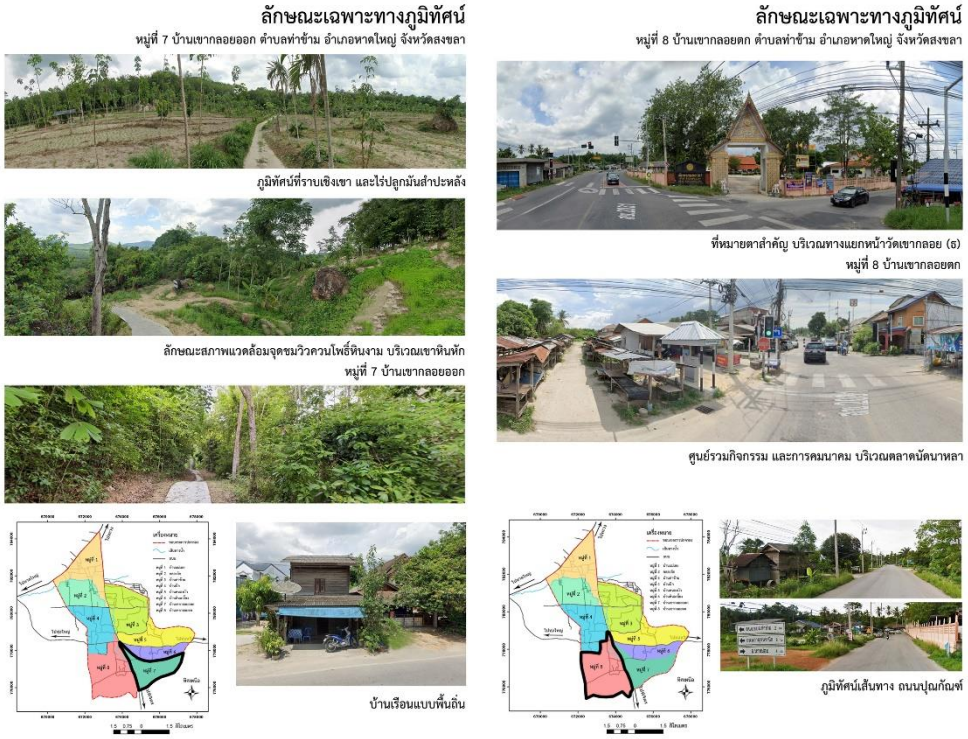
ภาพที่ 5 – 6 แสดงลักษณะทางภูมิทัศน์ชุมชนหมู่ที่ 1 – 8 ตำบลท่าข้าม



ภาพที่ 7 – 8 แสดงลักษณะทางภูมิทัศน์ชุมชนหมู่ที่ 1 – 8 ตำบลท่าข้าม



ภาพที่ 9 – 10 แสดงลักษณะทางภูมิทัศน์ชุมชนหมู่ที่ 1 – 8 ตำบลท่าข้าม



ภาพที่ 11 – 12 แสดงลักษณะทางภูมิทัศน์ชุมชนหมู่ที่ 1 – 8 ตำบลท่าข้าม

1.2 แนวความคิดในการอนุรักษ์และพัฒนาเชิงพื้นที่

(1) แนวคิดการอนุรักษ์คุณค่าโดยการยกระดับมูลค่า

(2) แนวคิดการส่งเสริมการพัฒนาที่เคารพในทรัพยากร

2. การสำรวจและรวบรวมข้อมูลเพื่อจัดทำแผนที่ลักษณะเฉพาะของวัฒนธรรมอาหารพื้นถิ่น

2.1 ลักษณะเฉพาะทางอัตลักษณ์เชิงวัฒนธรรมอาหารพื้นถิ่น จากผลการสำรวจศึกษาข้อมูลและสัมภาษณ์ผู้มีส่วนเกี่ยวข้องทำให้สามารถจำแนกปัจจัยที่เกี่ยวข้อง อันประกอบด้วย

(1) องค์ประกอบเด่นเฉพาะ (Significant Elements) องค์ประกอบที่เด่นชัดสามารถรับรู้ได้อย่างชัดเจนก่อให้เกิดการจดจำ

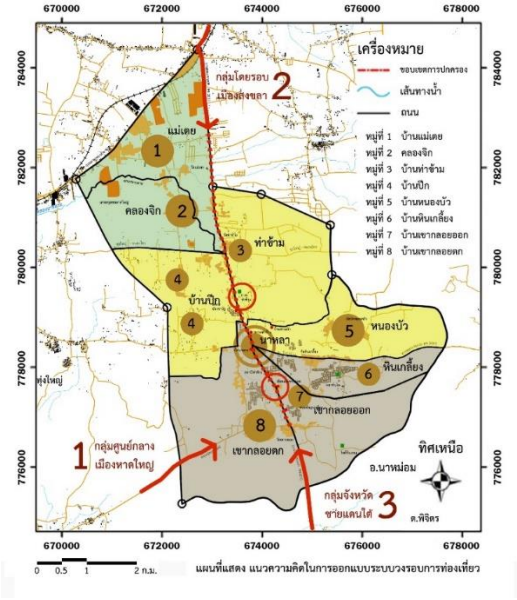
(2) ย่านลักษณะเฉพาะ (Significant Cluster Areas) ที่มีสภาพแวดล้อมเฉพาะมีบรรยากาศที่มีความแตกต่างโดดเด่น

(3) โครงข่ายเฉพาะ (Significant Networks) ที่มีศักยภาพในการเชื่อมโยงความสัมพันธ์ระหว่างองค์ประกอบเฉพาะ และย่านลักษณะเฉพาะ

2.2 แนวความคิดในการอนุรักษ์และพัฒนาแหล่งวัฒนธรรมอาหารพื้นถิ่น

(1) แนวคิดการอนุรักษ์คุณค่าโดยการยกระดับมูลค่าโดยมุ่งเน้นที่คุณภาพปลอดสารพิษ

(2) แนวคิดการส่งเสริมการพัฒนาที่เคารพในวัตถุดิบท้องถิ่น



ภาพที่ 13 แสดงแผนที่แนวคิดในการออกแบบระบบการท่องเที่ยวทางอาหาร ชุมชนท่าข้าม

2.3 แนวคิดในการส่งเสริมแหล่งท่องเที่ยวทางอาหาร

(1) กำหนดพื้นที่สงวนรักษาคุณลักษณะทางด้านภูมิทัศน์ที่มีคุณค่า

(2) ผู้มีส่วนเกี่ยวข้องด้านอาหาร มุ่งเน้นการนำเสนอประสบการณ์เพื่อสร้างมูลค่าเพิ่ม เช่น การใช้วัตถุดิบท้องถิ่น กระบวนการผลิตและการดูแลวัตถุดิบ เพื่อให้นักท่องเที่ยวเข้าใจถึงความดั้งเดิมแท้จริง

(3) นักท่องเที่ยวเข้าถึงความรู้ความเข้าใจด้านอาหาร และมุ่งเน้นอาหารท้องถิ่น (Local-Based Food) เพื่อช่วยผลักดันอุตสาหกรรมท่องเที่ยวเชิงอาหารในท้องถิ่นให้พัฒนาอย่างยั่งยืน

2.4 แนวความคิดการพัฒนาพื้นที่ชุมชนท่าข้าม สู่การเป็นแหล่งท่องเที่ยวทางอาหาร ประกอบด้วย แนวทางในการพัฒนา 3 ระดับ คือ

(1) ระดับภาพรวมของพื้นที่และการเข้าถึงแหล่ง

ก. การเข้าถึงตามเส้นทางจากเมืองหาดใหญ่สู่ย่านอดีตท่าข้าม เสนอแนะให้มีการปรับปรุงสภาพแวดล้อมบริเวณสี่แยกนาหลา (จุดตัดระหว่างทางหลวงชนบท หมายเลข 3005 กับ 2031) โดยการปรับปรุงสภาพแวดล้อมอาคารเก่าและตลาดนัดนาหลา ให้มีบรรยากาศเป็นย่านศูนย์กลางที่มีลักษณะเป็นชุมชนย้อนอดีตของท่าข้าม

ข. การเข้าถึงพื้นที่จากกลุ่มเมืองสงขลา บริเวณสามแยกระหว่างถนนกาญจนวนิช ทางหลวงชนบท สข 2031 เสนอแนะให้มีการจัดทำป้ายบอกทางและสัญลักษณ์กระยางขาว เพื่อสื่อความหมายประตูสู่ท่าข้าม ทำหน้าที่เป็นจุดหมายตาเพื่อให้เกิดการรับรู้และจดจำ

ค. การเข้าถึงส่งเสริมให้เกิดการรับรู้เส้นทางเข้าถึงประตูสู่ท่าข้าม จากพื้นที่จังหวัดชายแดนใต้ โดยการสร้างการรับรู้ผ่านแนวถนนทางหลวงชนบท 2031 ให้มีลักษณะเป็นเส้นทางที่มีบรรยากาศธรรมชาติ มีความเป็นชนบทท้องทุ่งนามีการค้าขายผลิตภัณฑ์ท้องถิ่น อาหารท้องถิ่น โดยมุ่งเน้นการอนุรักษ์และนำเอาอาคารเก่าดั้งเดิมมาใช้งาน

(2) ระดับกลุ่มพื้นที่ที่มีอัตลักษณ์เดียวกัน

ก. พื้นที่ชุมชนวิถีใหม่และสายน้ำกลุ่มหมู่บ้านบริเวณตอนเหนือ (แม่เตย, คลองจิก) ส่งเสริมให้มีการพัฒนาเป็นย่านบริการสำหรับชุมชนที่เกิดขึ้นใหม่ เป็นศูนย์กลางทางการค้าวิถีใหม่ที่มุ่งเน้นด้านสุขภาพและคุณภาพชีวิตที่ดีมีการส่งเสริมพื้นที่ตามแนวคลอง เพื่อใช้ในการออกกำลังกายและการพักผ่อน

ข. พื้นที่วิถีท่าข้าม และวัฒนธรรมข้าว กลุ่มหมู่บ้านบริเวณตอนกลางของตำบลท่าข้าม (ท่าข้าม, บ้านปึก, นาหลา และหนองบัว) กำหนดให้มีศูนย์กลางหลักอยู่ที่กลุ่มอาคารสำนักงานองค์การบริหารส่วนตำบลท่าข้าม ทำหน้าที่เป็นศูนย์ข้อมูลชุมชนศูนย์บริการข้อมูลและคำแนะนำด้านการท่องเที่ยวในตำบลท่าข้ามแบบครบวงจร

ค. พื้นที่ควนเกษตรและป่าเขา ประกอบด้วย กลุ่มหมู่บ้านทางตอนใต้ของตำบลท่าข้าม (เขากลอย, หินเกลี้ยง) ปรับปรุงพื้นที่จำหน่ายสินค้าพื้นเมือง โดยเชื่อมต่อทางเดินเท้าเพื่อเชื่อมโยงกลุ่มร้านค้าให้มีลักษณะเป็นย่านเสริมสร้างด้วยการจัดภูมิทัศน์ ในบรรยากาศความเป็นชนบทมีการจัดระเบียบการจอดรถ

(3) แนวคิดส่งเสริมกิจกรรมด้านการท่องเที่ยวเชิงอาหาร (Gastronomy Tourism)

ก. เส้นทางอาหาร (Food Tours or Routes) รวมถึงเครื่องดื่มต่าง ๆ ทำให้นักท่องเที่ยวได้ประสบการณ์เกิดการแลกเปลี่ยนความคิด สัมผัสรสชาติอาหารจากวัตถุดิบในท้องถิ่น โดยชุมชนนำชมแหล่งอาหารตลาดนัดและกลุ่มผลิตอาหารท้องถิ่น

ข. ศูนย์เรียนรู้อาหาร (Food Learning Center) เล่าเรื่องทรัพยากรอาหารในท้องถิ่น กระบวนการผลิต ส่วนผสม เครื่องปรุง วิธีการทำอาหารประเภทต่าง ๆ ของท้องถิ่นและจัดกิจกรรมทำอาหารให้นักท่องเที่ยวได้ประสบการณ์จริง

ค. เทศกาลอาหาร (Food Festival or Event) จัดในช่วงเวลาสั้น ๆ แต่สร้างความประทับใจและดึงดูดนักท่องเที่ยวมีเทศกาลอาหารประจำฤดูกาล การฉลองซังข้าวมีการสาธิตเมนูหรอยท่าข้ามภายในงานตลอดจนจัดให้มีการแข่งขันด้านอาหาร

ง. ห้องเรียนอาหาร (Cooking Classes) สำหรับนักท่องเที่ยวที่สนใจและอยากมีความรู้เกี่ยวกับวัฒนธรรมอาหารท่าข้ามของแต่ละพื้นที่ จัดให้มีกิจกรรมลักษณะเป็นการฝึกปฏิบัติระยะสั้นโดยใช้พื้นที่ในบรรยากาศจริงของชุมชน

สรุปและอภิปรายผล

ข้อเสนอแนะในการพัฒนาท่าข้ามสู่เส้นทางเพื่อการท่องเที่ยวทางอาหาร ควรให้ความสำคัญกับระบบนิเวศองค์รวมเพื่อให้เกิดการพึ่งพาในระดับท้องถิ่น การพัฒนาที่จะเกิดขึ้นในอนาคตควรคำนึงถึงความยั่งยืน อันประกอบด้วยปัจจัยที่ต้องคำนึงถึง 4 ปัจจัย คือ

1. ปัจจัยด้านธรรมชาติและสิ่งแวดล้อม ควรรักษาอัตลักษณ์เฉพาะทางธรรมชาติของพื้นที่อันเป็นแหล่งทุนทรัพยากรทางอาหารของชุมชน

2. ปัจจัยด้านกายภาพชุมชนและการพัฒนา โครงการพัฒนาพื้นที่จะต้องควบคู่ไปกับการรักษาอัตลักษณ์การตั้งถิ่นฐานของชุมชน โดยการนำเอารูปแบบศิลปสถาปัตยกรรมมาใช้ร่วมในการพัฒนา

3. ปัจจัยด้านสังคมและวิถีชีวิตธำรงรักษาวิถีชีวิต วัฒนธรรมอาหารท้องถิ่นสร้างความสัมพันธ์ทางสังคม โดยการจัดกิจกรรมประเพณีเพื่อให้เกิดการสืบสานสืบทอดสู่คนรุ่นถัดไป

4. ปัจจัยด้านเศรษฐกิจและการลงทุนส่งเสริมให้เกิดการหมุนเวียนระบบเศรษฐกิจ โดยใช้ทรัพยากรอาหารในท้องถิ่นในอันเป็นฐานทุนที่มีอยู่ในพื้นที่

ในการพัฒนาควรบูรณาการองค์ความรู้ด้านการท่องเที่ยวเชิงอาหาร (Gastronomy Tourism) เพื่อเติมเต็มประสบการณ์ท่องเที่ยวทางอาหารที่สมบูรณ์ผ่านการสืบสาน เรื่องราวของอาหารในแต่ละท้องถิ่นโดยคำนึงถึง

(1) รากลึก วัตถุดิบ รูปแบบ วิธีการในแต่ละท้องถิ่น

(2) ตัวตน อาหารที่มีความแตกต่างและโดดเด่น

(3) ท้าทาย ทดลองประสบการณ์อาหารที่แตกต่าง

(4) ค้นพบ พักผ่อนไปกับอาหารไม่ได้กินเป็นประจำ

(5) ความสุข การเติมเต็ม รสชาติและรสสัมผัส

ก่อให้เกิดทิศทางในการพัฒนาที่มีลักษณะเป็นออกแบบภาพรวม (Holistic Design) ในรูปแบบภูมิทัศน์การท่องเที่ยวทางอาหาร (Gastronomy Tourism Landscape)

เอกสารอ้างอิง

บุญเลิศ จิตตั้งวัฒนา. (2557). การพัฒนาการท่องเที่ยวอย่างยั่งยืน (พิมพ์ครั้งที่ 2). กรุงเทพฯ : ธรรมสาร.

เบญจมาภรณ์ ชำนาญฉา. (2561). การท่องเที่ยวเชิงอาหาร: ศักยภาพและความได้เปรียบของประเทศไทย. สมาคมสถาบันอุดมศึกษาเอกชนแห่งประเทศไทย ในพระราชูปถัมภ์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี. 24 (1), 103-116.

มงคล ชนินทรสงขลา. (2562). สำรวจพื้นที่ตำบลท่าข้าม อำเภอหาดใหญ่ จังหวัดสงขลา เบื้องต้น. สงขลา : มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย.

สำนักงานบริหารและพัฒนาองค์ความรู้ (องค์การมหาชน). (2568). GASTRONOMY TOURISM ท่องเที่ยวเชิงอาหาร สัมผัสวัฒนธรรมอาหารท้องถิ่น. สืบค้นเมื่อ 18 เมษายน 2568 จาก https://knowledgeportal.okmd.or.th/valuechain/66ffa4f3bcd34

องค์การบริหารส่วนตำบลท่าข้าม. (2549). ข้อมูลทั่วไป. สืบค้นเมื่อ 3 พฤษภาคม 2562 จาก http://www.thakham.go.th/content/information

โตมร สุขปรีชา. (2560). Food tourism 2.0. TAT Review Magazine, 3(1), 1-2.

พฤติกรรมการชื่นชอบศิลปินเกาหลีของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏแห่งหนึ่ง
The Behavioral Preferences on the Korean Artists of Baccalaureate Students in A Rajabhat University.

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์ 1) เพื่อศึกษาความแตกต่างของปัจจัยส่วนบุคคลที่มีต่อระดับพฤติกรรมการชื่นชอบศิลปินเกาหลีของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏแห่งหนึ่ง 2) เพื่อศึกษาความสัมพันธ์ระหว่างเจตคติที่มีต่อศิลปินเกาหลีกับพฤติกรรมการชื่นชอบศิลปินเกาหลี ของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏแห่งหนึ่ง 3) เพื่อศึกษาความสัมพันธ์ระหว่างค่านิยมที่มีต่อศิลปินเกาหลีกับพฤติกรรมการชื่นชอบศิลปินเกาหลีของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏแห่งหนึ่ง ตัวอย่างที่ศึกษา ได้แก่ นักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏแห่งหนึ่งที่ได้จากการสุ่มตัวอย่างที่ศึกษา จำนวน 400 คน สถิติที่ใช้ในการวิเคราะห์ ได้แก่ ความถี่ ร้อยละ ส่วนเบี่ยงเบนมาตรฐาน t-test F-test และการวิเคราะห์สัมประสิทธิ์สหสัมพันธ์ของเพียร์สัน

ผลการวิจัยพบว่า 1) ระดับพฤติกรรมการชื่นชอบศิลปินเกาหลีอยู่ในระดับปานกลาง ($\bar{X}$ = 3.38) 2) เพศแตกต่างกันมีพฤติกรรมการชื่นชอบศิลปินเกาหลีไม่แตกต่างกัน (P-value = 0.576) และศึกษาต่างคณะกันมีพฤติกรรมการชื่นชอบศิลปินเกาหลีแตกต่างกัน (P-value = .000) 3) ค่านิยมที่มีต่อศิลปินเกาหลีมีความสัมพันธ์เชิงบวกพฤติกรรมการชื่นชอบศิลปินเกาหลี โดยมีค่าระดับความสัมพันธ์ในระดับปานกลาง กล่าวคือ นักศึกษาที่มีค่านิยมที่มีต่อศิลปินเกาหลีสูงจะมีพฤติกรรมการชื่นชอบศิลปินเกาหลีสูง (r = .770**, P-value < .01) และเจตคติที่มีต่อศิลปินเกาหลีมีความสัมพันธ์เชิงบวกกับพฤติกรรมการชื่นชอบศิลปินเกาหลี โดยมีค่าระดับความสัมพันธ์ในระดับสูง กล่าวคือ นักศึกษาที่มีเจตคติที่มีต่อศิลปินเกาหลีสูงจะมีพฤติกรรมการชื่นชอบศิลปินเกาหลีสูง (r = .835** ,P-value < .01) ดังนั้นการพัฒนาเจตคติ

และค่านิยมที่มีต่อศิลปินให้เหมาะสม มีส่วนช่วยให้เกิดการพัฒนาพฤติกรรมการชื่นชอบศิลปินเกาหลีที่ก่อให้เกิดความสุขและแรงบันดาลในการพัฒนาตนเองได้

คำสำคัญ: พฤติกรรมการชื่นชอบศิลปินเกาหลี, เจตคติที่มีต่อศิลปินเกาหลี, ค่านิยมที่มีต่อศิลปินเกาหลี

Abstract

This research aims to: 1) study the differences between the personal factors of students in a Rajabhat University and behavioral preferences on the korean artists of baccalaureate students baccalaureate students in a Rajabhat University and, 3) To study the relationship between the attitudes of fans towards Korean artists and behavioral preferences of students in a Rajabhat University. 3) To study the relationship between the values towards Korean artists and the behavioral preferences of students in a Rajabhat University. The sample group consisted of undergraduate students from a Rajabhat University. The researcher determined the sample size using the calculation formula of (Simple Random Sampling) for random sampling in the study. The number was divided by the faculty proportion of 1:19:4. The statistics used for analysis were frequency, percentage, standard deviation, T-test, F-test, and Pearson's correlation coefficient analysis.

The findings indicate that: 1) the sample group showed a level of behavioral preferences Korean artists ($\bar{X}$ = 3.38); 2) there was no difference in behavioral preferences Korean artists based on gender (p-value = .57), while students from different faculties exhibited varying levels of behavioral preferences Korean artists (p-value = .000); and 3) Values toward Korean artists have a positive relationship with Korean artist liking behavior with a moderate level of relationship value. That is, students who have high values toward Korean artists will have more Korean artist liking behavior (r = .770**, p-value < .01). And attitudes toward Korean artists have a positive relationship with Korean artist liking behavior with a high level of relationship value. That is, students who have high attitudes toward Korean artists will have more Korean artist liking behavior (r = .835**, p-value < .01). Therefore, developing appropriate attitudes and values toward artists helps develop Korean artist liking behavior that leads to happiness and inspiration for self-development. self-improvement.

Keywords: behavioral preferences on Korean artist, attitudes towards Korean artists, values towards Korean artists

บทนำ

ความชื่นชอบศิลปินเกาหลี เช่น ดารา นักร้อง หรือที่เรียกว่าแฟนคลับ โดยแฟนคลับในแต่ละกลุ่มจะมีความชื่นชอบต่างกันจึงมักมีลักษณะต่างกัน ทั้งในด้านของภาพลักษณ์และพฤติกรรมที่แสดงออกในการชื่นชอบต่างกัน ศิลปินเกาหลีถือว่าเป็นวัฒนธรรมส่งออกอย่างหนึ่งของประเทศเกาหลีใต้และเป็นที่แพร่หลายไปยังประเทศอื่น ๆ ทั่วโลก (Seo, 2012) รวมถึงประเทศไทยด้วย ทั้งในรูปแบบของนักแสดง นักดนตรี ศิลปิน ดารา ซึ่งด้วยรูปลักษณ์ ความสามารถ ผลงานต่าง ๆ เหล่านี้ เป็นสิ่งที่ทำให้ศิลปินเกาหลีมีผู้คนให้ความยอมรับ 4 เยาวชนนักศึกษาไทย จำนวนไม่น้อยมีรูปแบบการใช้ชีวิตที่ปฏิบัติตามวัฒนธรรมต่างประเทศหรือมีพฤติกรรมการเลียนแบบศิลปินเกาหลี ที่ตนเองชื่นชอบทั้งการแต่งกายเลียนแบบ การพูด การสะสมของที่ระลึก การไปชมคอนเสิร์ต การเต้นโคฟเวอร์ (Cover Dance) การเขียนนิยายที่เกี่ยวข้องกับศิลปินเกาหลี การฝึกเรียนภาษาเกาหลีตามศิลปิน การซื้อผลิตภัณฑ์ที่ศิลปินเกาหลีเป็นพรีเซ็นเตอร์ หรือกระทั่งการไปทำศัลยกรรมเพื่อให้หน้าตาคล้ายกับศิลปินเกาหลีที่ตนเองชื่นชอบ (วิศรุต สินพงศพร, 2563) การแสดงออกทางพฤติกรรมต่าง ๆ เหล่านี้ทำให้เห็นถึงพฤติกรรมชื่นชอบศิลปินเกาหลี ซึ่งเกิดจากพฤติกรรมบุคคลนั้น มีการปฏิสัมพันธ์ (Interaction) อย่างต่อเนื่องระหว่างบุคคลนั้น (Person) และสิ่งแวดล้อม (Environment) ทำให้บุคคลเกิดการเรียนรู้โดยการให้ตัวแบบ (Learning Through Modeling) โดยจะเลียนแบบจากตัวแบบ และการเลียนแบบนี้เป็นกระบวนการที่เกิดขึ้นอย่างต่อเนื่อง โดยอาศัยการสังเกตพฤติกรรมของตัวแบบ การสังเกตการณ์ตอบสนองและปฏิกิริยาต่าง ๆ ของตัวแบบ สภาพแวดล้อมของตัวแบบ ผลการกระทำ คำบอกเล่า และความน่าเชื่อถือของตัวแบบ ดังนั้นพฤติกรรมชื่นชอบศิลปินเกาหลีที่ได้รับความนิยมเป็นอย่างมากในกลุ่มเยาวชนนักศึกษา จึงเป็นส่วนช่วยให้เกิดการสนใจใคร่รู้เกี่ยวกับเรื่องราวของศิลปินเกาหลีหรือชื่นชอบศิลปินเกาหลีที่สามารถนำเป็นต้นแบบ ในการสร้างแรงบันดาลใจให้แก่เยาวชนนักศึกษาได้ รวมไปถึงการมีเจตคติที่ต่อศิลปินเกาหลีนั้น มีผลต่อการแสดงออกทางพฤติกรรมที่ดีตามไปด้วย เช่น ความรู้สึกประทับใจในตัวศิลปินทั้งอุปนิสัยส่วนตัวและภาพลักษณ์บนเวทีต่าง ๆ และเห็นว่าศิลปินเกาหลีนั้นสามารถเป็นแรงบันดาลใจและให้ข้อคิดในการใช้ชีวิตต่าง ๆ ให้แก่ตนเองได้

ปัจจุบัน วัฒนธรรมเกาหลี หรือ “ศิลปิน K-pop” ได้รับความนิยมเป็นจำนวนมากขึ้นโดยเฉพาะในหมู่วัยรุ่นเยาวชนไทยที่หลงใหลและติดตามศิลปินเกาหลีอย่างมาก การศึกษาพฤติกรรมการชื่นชอบเหล่านี้ สามารถอธิบายได้ผ่านทฤษฎีความดึงดูดใจระหว่างบุคคล (Interpersonal Attraction Theory) ซึ่งเน้นปัจจัย 5 ประการที่อธิบายว่าทำไมเยาวชนถึงรู้สึกดึงดูดใจต่อศิลปินเกาหลี ได้แก่ 1) ความใกล้ชิด ความใกล้ชิดที่เกิดจากการติดตามข่าวสารหรือการสื่อสารผ่านสื่อ 2) ความคล้ายคลึงกัน ลักษณะที่คล้ายคลึงกันในความชอบ ความสนใจ หรือค่านิยม 3) การตอบแทนกัน การรู้สึกได้ผลตอบแทนทางอารมณ์หรือความพึงพอใจ 4) ความดึงดูดทางกายภาพ ลักษณะภายนอกที่น่าสนใจของศิลปิน 5) การเติมเต็มซึ่งกันและกันศิลปินมักจะมีบทบาทในการเติมเต็มความต้องการทางอารมณ์แก่บุคคล (Bengsanguan, 2008)

การเป็นแฟนคลับหรือ “แฟนด้อม” การเป็นแฟนคลับสะท้อนให้เห็นถึงพฤติกรรมการตอบสนองต่อสื่อและวัฒนธรรมที่ศิลปินสร้างขึ้น โดยศิลปินไม่เพียงเป็นต้นแบบในการดำเนินชีวิตเท่านั้น แต่ยังมีบทบาทในการสร้างแรงบันดาลใจให้เกิดการเปลี่ยนแปลงในชีวิตของกลุ่มผู้ติดตาม และกลุ่มผู้ติดตามจะเกิดความภูมิใจและการนับถือตนเอง กลุ่มทำให้รับรู้ถึงอัตลักษณ์ทางโลกสังคมส่งผลให้เสริมสร้างภาพลักษณ์ของตนเองให้แข็งแกร่งมากขึ้น (Turner, Brown, & Tajfel, 1979) หากมีการเข้าใจพฤติกรรม

การเป็นแฟนคลับที่ชื่นชอบศิลปินเกาหลีอย่างถ่องแท้ จะทำให้เราทราบถึงว่าพฤติกรรมการชื่นชอบศิลปินเกาหลีของแฟนคลับแต่ละบุคคลนั้น มีปัจจัยมาจากการมีเจตคติที่ดีต่อศิลปินเกาหลีหรือการได้รับค่านิยมต่าง ๆ ที่มาจากศิลปินเกาหลีแตกต่างกันออกไปตามรูปแบบการรับรู้เรื่องราว และการเปิดรับข่าวสารของศิลปินเกาหลีของแฟนคลับแต่ละบุคคล เนื่องจากกับรับรู้เรื่องราวหรือการเปิดรับข่าวสารของศิลปินเกาหลีที่แตกต่างกันออกไปจะทำให้บุคคลมีพฤติกรรมการชื่นชอบที่ต่างกัน การเป็นแฟนคลับศิลปินเกาหลีสามารถส่งผลต่อสุขภาพจิตและแรงจูงใจของนักศึกษา สามารถเพิ่มความสุขและแรงจูงใจในการเรียนรู้ได้ (Choi, 2024) ดังนั้น การมีศิลปินเกาหลีเป็นต้นแบบและสร้างพลังบวกในชีวิต การได้พูดคุยหรือทำกิจกรรมต่าง ๆ ที่ศิลปินชอบจะรู้สึกดี หรือกระทั่งมีความรู้สึกดีตามไปด้วยเมื่อเห็นศิลปินเกาหลีที่ตนชื่นชอบประสบความสำเร็จ ทั้งนี้ หากไม่เข้าใจพฤติกรรมการชื่นชอบศิลปินเกาหลีอย่างถ่องแท้อาจทำให้ไม่เข้าใจถึงสาเหตุหรือปัจจัยต่าง ๆ ที่มีส่วนทำให้แฟนคลับแสดงพฤติกรรมการชื่นชอบนั้น ออกมาการเข้าใจพฤติกรรมการชื่นชอบศิลปินเกาหลี แนวทางการสร้างความสัมพันธ์ที่ดีในสังคมให้แก่บุคคลที่มีความแตกต่างหลากหลายเพิ่มขึ้น อีกทั้งยังเกิดการเรียนรู้การพัฒนาตนเองอย่างมีต้นแบบไปสู่เป้าหมายความสำเร็จของชีวิตอย่างมีความสุขเพิ่มขึ้นได้

งานวิจัยครั้งนี้จึงมุ่งเน้นศึกษาพฤติกรรมการชื่นชอบศิลปินเกาหลีของนักศึกษาปริญญาตรีของมหาวิทยาลัยราชภัฏแห่งหนึ่ง เนื่องจากกลุ่มนักศึกษาปริญญาตรีมีการรวมตัวเป็นกลุ่มแฟนคลับศิลปินเกาหลีในมหาวิทยาลัยจัดกิจกรรมสนับสนุนศิลปินเกาหลี ซึ่งสอดคล้องกับพัฒนาการในช่วงวัยรุ่นตอนปลายถึงวัยผู้ใหญ่ตอนต้น ซึ่งเป็นช่วงวัยที่มักมีความสนใจในวัฒนธรรมบันเทิงต่างประเทศ โดยเฉพาะศิลปินเกาหลี และอิทธิพลของการชื่นชอบศิลปินเกาหลีมีความสัมพันธ์กับพฤติกรรมและแรงจูงใจในการเรียนรู้ของนักศึกษา (Aidah, & Supartono, 2024) รวมทั้งในสังคมนักศึกษามหาวิทยาลัยยังเป็นแหล่งศูนย์รวมนักศึกษาหลากหลายจากหลายพื้นที่ ทำให้ข้อมูลที่ได้สะท้อนมุมมองและพฤติกรรมที่หลากหลายครอบคุมความแตกต่างภูมิลำเนา โดยศึกษาปัจจัยที่มีความสัมพันธ์ 3 ด้าน ได้แก่ เจตคติที่แฟนคลับมีต่อศิลปินเกาหลี ค่านิยมที่มีผลต่อการชื่นชอบศิลปินเกาหลี พฤติกรรมที่แสดงออกถึงการชื่นชอบศิลปินเกาหลี เพื่อประโยชน์ในการเข้าใจพฤติกรรมการชื่นชอบศิลปินเกาหลี ของนักศึกษาที่สามารถนำเป็นฐานในการพัฒนาการเรียนรู้และจิตใจ เป็นแนวทางในการสร้างแรงบันดาลใจในการพัฒนาตนเองในแง่พฤติกรรมความชื่นชอบศิลปินเกาหลีสู่เป้าหมายความสำเร็จตามต้นแบบที่เหมาะสม

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาความแตกต่างของปัจจัยส่วนบุคคลที่มีต่อระดับพฤติกรรมการชื่นชอบศิลปินเกาหลีของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏแห่งหนึ่ง
2. เพื่อศึกษาความสัมพันธ์ระหว่างเจตคติที่มีต่อศิลปินเกาหลีกับพฤติกรรมการชื่นชอบศิลปินเกาหลีของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏแห่งหนึ่ง
3. เพื่อศึกษาความสัมพันธ์ระหว่างค่านิยมที่มีต่อศิลปินเกาหลีกับพฤติกรรมการชื่นชอบศิลปินเกาหลีของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏแห่งหนึ่ง

แนวคิด ทฤษฎี กรอบแนวคิด

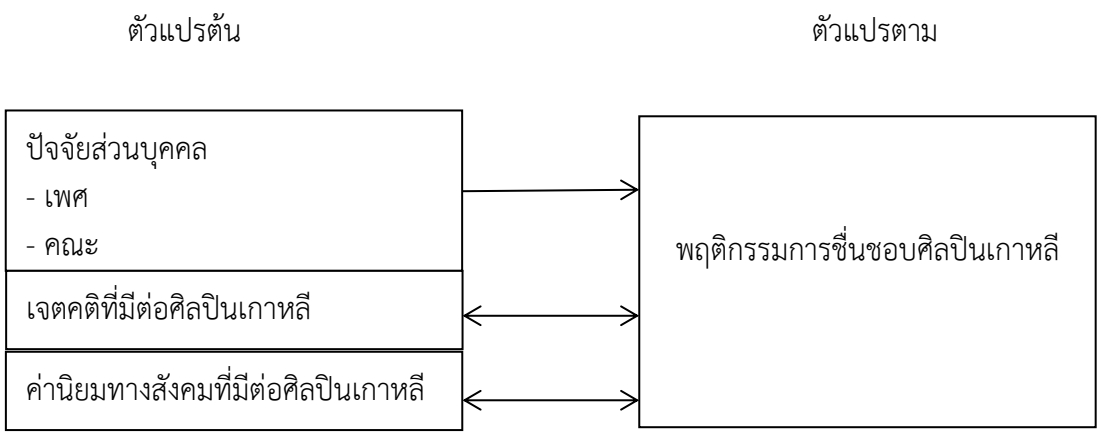
การวิจัยพฤติกรรมการชื่นชอบศิลปินเกาหลีของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏแห่งหนึ่ง ผู้วิจัยได้ศึกษาเอกสารและผลงานวิจัย เพื่อเป็นกรอบแนวคิดในการวิจัยดังนี้

การเป็นแฟนคลับสามารถใช้ได้กับการชื่นชอบสื่อทุกรูปแบบทั้งรายการ หนังสือ ภาพยนตร์บุคคลหรือวัฒนธรรมที่มีชื่อเสียง (Jenkins, 1992) โดยมนุษย์มีการแสดงออกถึงความสนใจอย่างมีพลังและทิศทาง หากสนใจจะแสดงพลังบวก และหากไม่ได้สนใจจะแสดงพลังเป็นลบ ซึ่งจะเกิดการเรียนรู้และการให้ความสนใจ เฉพาะ สิ่งที่เป็นพลังบวกเท่านั้นตาม Field theory in social science (Lewin, 1951) ทำให้กลุ่มบุคคลที่มีพลังเป็นบวกในเรื่องเดียวกันสามารถรวมตัวกันได้โดย Heider (1958) ได้เสนอ Heider's Balance Theory ซึ่งกล่าวว่ามนุษย์ต้องการรักษาความสมดุลทางจิตใจ ทำให้สร้างความสมดุลระหว่างความชอบและความไม่ชอบในความสัมพันธ์ต่าง ๆ โดยหากตกอยู่ในความสัมพันธ์ที่ไม่สมดุลจะเกิดความรู้สึกไม่สบายใจและความขัดแย้งต่าง ๆ ตามกรอบความคิด The POX Triangle นอกจากนี้ กลุ่มแฟนคลับยังมีการกำหนดอัตลักษณ์เฉพาะเพื่อแบ่งแยกและระบุให้ทราบถึงตัวตนของกลุ่มด้วย อธิบายได้จาก Social Identity Theory (Tajfel & Turner, 1979) กล่าวว่ากลุ่มต่าง ๆ ของมนุษย์ล้วนเป็นเสมือนความภูมิใจและการนับถือตนเอง กลุ่มทำให้รับรู้ถึงอัตลักษณ์ทางโลกสังคมได้ ซึ่งมนุษย์จะแบ่งโลกออกเป็น 2 ส่วน คือ บุคคลที่ไม่ได้อยู่กลุ่มเดียวกับตนเองกับบุคคลที่อยู่กลุ่มเดียวกับตนเอง ผ่านการจัดกลุ่มโดยบุคคลมักจะจัดกลุ่มบุคคลอื่น ๆ ด้วยการดูภาพรวมหรือ stereotyping ซึ่งประกอบไปด้วย 2 ปัจจัย ได้แก่ ความแตกต่างระหว่างกลุ่มคนละกลุ่ม และความเหมือนกันระหว่างบุคคลในกลุ่ม ซึ่งสมมติฐานหลักของ Social Identity Theory กล่าวไว้ว่า สมาชิกในกลุ่มแต่ละกลุ่มจะพยายามมองหาข้อเสีย แง่ลบ หรือข้อบกพร่องของกลุ่มอื่น ซึ่งเรียกว่าการใช้มุมมองแบบอคติเพื่อเสริมสร้างภาพลักษณ์ของตนเองให้แข็งแกร่งมากขึ้น

อาจารีย์ ประจวบเหมาะ และคณะ (2565) งานวิจัยเรื่อง การศึกษาเจตคติและพฤติกรรมของกลุ่มแฟนคลับที่มีต่อกระแสความนิยมเพลงเกาหลี พบว่า ส่วนใหญ่เพศหญิง ที่มีรายได้ต่ำกว่า 5,000 บาท มีเจตคติต่อด้านภาพลักษณ์ของศิลปินอยู่ในระดับมาก และมีพฤติกรรมในการติดตามข่าวสารของศิลปินที่ชื่นชอบอย่างต่อเนื่องอยู่ในระดับมาก และเพศ อายุและรายได้ที่แตกต่างกันจะมีเจตคติต่อกระแสความนิยมเพลงเกาหลีต่างกัน

กุลริสา อากาศวิภาต (2564) งานวิจัยเรื่อง พฤติกรรมการเปิดรับสื่อที่มีผลต่อการชื่นชอบศิลปินเกาหลีของแฟนคลับชาวไทยในเขตกรุงเทพมหานคร พบว่า 1) พฤติกรรมการเปิดรับสื่อของแฟนคลับชาวไทยที่ชื่นชอบศิลปินเกาหลี ในเขตกรุงเทพมหานคร มีค่าเฉลี่ยอยู่ในระดับปานกลาง ประกอบไปด้วยด้านการแสวงหาข้อมูล การเปิดรับข้อมูลข่าวสาร และการเปิดรับประสบการณ์และมีพฤติกรรมการบริโภคสื่อเกี่ยวกับศิลปินที่ชื่นชอบทุกวัน 2) การชื่นชอบศิลปินเกาหลีของแฟนคลับชาวไทยในเขตกรุงเทพมหานคร มีค่าเฉลี่ยอยู่ในระดับมาก โดยกลุ่มตัวอย่างชื่นชอบศิลปินเพราะลักษณะนิสัย

จากข้อมูลดังกล่าวสรุปได้ว่า พฤติกรรมการชื่นชอบศิลปินเกาหลี หมายถึง การกระทำพฤติกรรมต่าง ๆ ที่แสดงออกถึงความรู้สึกที่มีต่อศิลปินเกาหลีด้วยการชื่นชอบ หลงใหล เทิดทูนศิลปินเกาหลี สนใจใคร่รู้เกี่ยวกับชีวิตของศิลปินเกาหลีมีเรื่องราวของศิลปินเกาหลีเป็นศูนย์กลางต้นแบบ รู้สึกผูกพันเหมือนเป็นคนใกล้ตัวและมีการเชื่อมโยงตนเองเข้ากับศิลปินเกาหลี ซึ่งมีความสอดคล้องกับเจคคติที่มีต่อศิลปินและค่านิยมที่มีต่อศิลปิน สามารถนำมาพัฒนากรอบแนวคิดในการวิจัยได้ดังนี้



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

ประชากรที่ใช้ในการวิจัย คือ นักศึกษามหาวิทยาลัยราชภัฏแห่งหนึ่ง ในเขตพื้นที่กรุงเทพมหานครและปริมณฑล จำนวนทั้งสิ้น 6,031 คน (สำนักส่งเสริมวิชาการและงานทะเบียน, 2566) เนื่องจากประชากรมีขนาดใหญ่และทราบจำนวนประชากรที่แน่นอน ดังนั้นขนาดตัวอย่างสามารถคำนวณได้จากสูตรที่ทราบขนาดตัวอย่างของ Yamane (1973) โดยกำหนดระดับค่าความเชื่อมั่นร้อยละ 95 และระดับค่าความคลาดเคลื่อนร้อยละ 5 ได้ขนาดกลุ่มตัวอย่าง 377 คน โดยการสุ่มตัวอย่างเป็นการสุ่มกลุ่มตัวอย่างแบบชั้นภูมิ (Stratified Random Sampling) ขั้นตอนที่ 1 กำหนดขนาดของกลุ่มตัวอย่างตามคณะที่เรียน ซึ่งแบ่งออกเป็น 8 คณะ ขั้นตอนที่ 2 เลือกสุ่มกล่มตัวอย่างตามสัดส่วนที่เท่ากันของจำนวนของประชากรในแต่ละคณะ เพื่อให้ได้จำนวนกลุ่มตัวอย่างที่เป็นตัวแทนประชากรที่มีการกระจายกันอย่างเป็นสัดส่วนในทุกคณะของมหาวิทยาลัย ทั้งนี้ เพื่อเพิ่มความน่าเชื่อถือของผลการวิจัย ผู้วิจัยได้เพิ่มขนาดกลุ่มตัวอย่างจาก 377 คน เป็น 400 คน ซึ่งเท่ากับการเพิ่มขึ้นประมาณ ร้อยละ 6.10 จากจำนวนที่คำนวณได้ เพื่อให้ได้ข้อมูลที่มีความแม่นยำมากขึ้น ผู้วิจัยได้รวบรวมแบบสอบถามกลับมาตรวจสอบความสมบูรณ์ของแบบสอบถามได้จำนวน 400 ชุด คิดเป็นร้อยละ 100 ของแบบสอบถามทั้งหมด

เครื่องมือที่ใช้ในงานวิจัยครั้งนี้เป็นแบบสอบถามที่พัฒนานี้มาจากแนวคิด ทฤษฎีดึงดูดใจระหว่างบุคคล (Interpersonal Attraction Theory) ตลอดจนวรรณกรรม เอกสาร และผลงานวิจัยที่เกี่ยวกับพฤติกรรมการชื่นชอบศิลปินเกาหลี เจตคติที่มีต่อศิลปินเกาหลีและค่านิยมที่มีต่อศิลปินเกาหลี รวมถึงได้นำแนวคิดจากผลงานการวิจัยของ กมลมาศ ศรียาพรหม (2561) และแนวคิดผลงานการวิจัยของ สุธารดี ศรีสวัสดิ์ (2559) ซึ่งใช้มาตราส่วนประมาณค่า (Rating scale) โดยแบ่งเป็น 5 ระดับ คือ จริงที่สุด จริงมาก ไม่แน่ใจ ไม่จริง และไม่จริงที่สุด จากการทบทวนวรรณกรรมสามารถนำองค์ความรู้มาพัฒนาแบบสอบถามจำแนกเป็น 4 ส่วน ดังนี้

ส่วนที่ 1 แบบสอบถามเกี่ยวกับข้อมูลปัจจัยส่วนบุคคลของนักศึกษา ประกอบด้วย ข้อคำถามเกี่ยวกับเพศ และคณะที่ผู้ตอบแบบสอบถามกำลังศึกษาอยู่

ส่วนที่ 2 แบบสอบถามเกี่ยวกับเจตคติที่มีต่อศิลปินเกาหลี

ส่วนที่ 3 แบบสอบถามเกี่ยวกับค่านิยมที่มีต่อศิลปินเกาหลี

ส่วนที่ 4 แบบสอบถามเกี่ยวกับพฤติกรรมการชื่นชอบศิลปินเกาหลี

ผู้วิจัยได้การตรวจสอบคุณภาพเครื่องมือ โดยการตรวจสอบความตรงเชิงเนื้อหา (Content Validity) โดยผู้วิจัยได้พัฒนาข้อคำถาม จากแบบสอบถามที่พัฒนาขึ้นโดยแนวคิดทฤษฎีดึงดูดใจระหว่างบุคคล (Interpersonal Attraction Theory) นำไปสร้างนิยามศัพท์ปฏิบัติการและพัฒนาข้อคำถามเสนอต่ออาจารย์ที่ปรึกษาเพื่อตรวจสอบความถูกต้องพัฒนาปรับปรุงจนได้ข้อคำถามที่เหมาะสม จากนั้นจึงนำแบบสอบถามที่พัฒนาขึ้นเสนอต่อผู้เชี่ยวชาญ จำนวน 3 ท่าน เพื่อตรวจสอบความตรงเชิงเนื้อหา โดยพิจารณาจากความสอดคล้องระหว่างข้อคำถามกับเนื้อหาและจุดมุ่งหมายที่ต้องการวัด (Index of Consistency: IOC) ซึ่งแบบสอบถามทั้งหมดมีค่า IOC ตั้งแต่ 0.67 – 1.00 จากนั้นผู้วิจัยจึงได้นำข้อคำถามที่ผ่านการทดสอบความเที่ยงตรงเชิงเนื้อหา ไปทดลองใช้ (Try-Out) กับนักศึกษาระดับปริญญาตรีของมหาวิทยาลัยราชภัฏแห่งหนึ่ง ที่ไม่ใช่ตัวอย่างที่ศึกษา จำนวน 50 คน และนำมาวิเคราะห์ค่าความเชื่อมั่น โดยแบบสอบถามพฤติกรรมการชื่นชอบศิลปินเกาหลี มีค่าความเชื่อมั่นเท่ากับ .93 แบบสอบถามเจตคติที่ดีต่อศิลปินเกาหลี มีค่าความเชื่อมั่นเท่ากับ .96 และแบบสอบถามค่านิยมที่มีต่อศิลปินเกาหลี มีค่าความเชื่อมั่นเท่ากับ .89

การวิเคราะห์ข้อมูล ผู้วิจัยใช้โปรแกรมสำเร็จรูปทางสถิติโดยใช้สถิติเชิงพรรณนา (Descriptive Statistic) ประกอบด้วย ความถี่ (Frequency) ร้อยละ (Percentage) ค่าเฉลี่ย (Mean) ส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation) และสถิติเชิงอนุมาน (Inferential Statistic) ประกอบด้วยการหาความแตกต่างของค่าเฉลี่ยระหว่างกลุ่ม (t-test) การทดสอบความแปรปรวนทางเดียว (One-way ANOVA) และการวิเคราะห์สัมประสิทธิ์สหสัมพันธ์ของเพียร์สัน (Pearson’s product moment correlation coefficient)

ผลการวิจัย

ผลการวิเคราะห์ข้อมูลปัจจัยส่วนบุคคลของตัวอย่างที่ศึกษา ได้แก่ เพศ คณะ พบว่าตัวอย่างที่ศึกษาส่วนใหญ่เป็นเพศหญิง จำนวน 253 คน (ร้อยละ 63.30) และตัวอย่างที่ศึกษาส่วนใหญ่เป็นคณะวิทยาการจัดการ จำนวน 100 คน คิดเป็นร้อยละ 25.00

ผลการวิเคราะห์ค่าเฉลี่ย (mean) และส่วนเบี่ยงเบนมาตฐาน (S.D.) ของตัวแปรที่ใช้ในการวิจัย ได้แก่ พฤติกรรมการชื่นชอบศิลปินเกาหลี เจตคติที่มีต่อศิลปินเกาหลี ค่านิยมที่มีต่อศิลปินเกาหลี พบว่านักศึกษาในมหาวิทยาลัยราชภัฏแห่งหนึ่ง มีพฤติกรรมการชื่นชอบศิลปินเกาหลีในระดับปานกลาง โดยมีค่าเฉลี่ย 3.38 มีเจตคติที่ดีต่อศิลปินเกาหลีในระดับปานกลาง ค่าเฉลี่ย 3.50 และมีค่านิยมที่มีต่อศิลปินเกาหลีในระดับปานกลาง ค่าเฉลี่ย 3.23

ผลการทดสอบสมมุติฐาน

สมมติฐานที่ 1 นักศึกษาที่มีเพศแตกต่างมีพฤติกรรมการชื่นชอบศิลปินเกาหลีแตกต่างกัน ผลการวิเคราะห์ค่าสถิติที่ใช้ในการเปรียบเทียบความแตกต่าง ปัจจัยส่วนบุคคลด้านเพศแตกต่างกันมีพฤติกรรมการชื่นชอบศิลปินเกาหลีแตกต่างกัน ปรากฏดังตารางที่ 1

ตารางที่ 1 แสดงผลการวิเคราะห์พฤติกรรมการชื่นชอบศิลปินเกาหลีในการเปรียบเทียบระหว่างเพศของผู้ตอบแบบสอบถาม (n = 400)

เพศ	n	$\bar{x}$	S.D.	t	P-value	แปลผล
ชาย	147	3.35	0.83	0.560	0.576	ไม่แตกต่าง
หญิง	253	3.40	0.87			

จากตารางที่ 1 นักศึกษาชายมีจำนวน 147 คน ค่าเฉลี่ย 3.35 ส่วนเบี่ยงเบนมาตรฐาน 0.83 และนักศึกษาหญิง จำนวน 253 คน ค่าเฉลี่ย 3.40 ส่วนเบี่ยงเบนมาตรฐาน 0.87 ซึ่งผลการทดสอบสมมติฐานพบว่า t = 0.560, p = .576 ซึ่งมีค่า P - value มากกว่าระดับนัยสำคัญทางสถิติที่กำหนดไว้ที่ .05 แสดงว่า นักศึกษาที่มีเพศแตกต่างกันไม่มีพฤติกรรมการชื่นชอบศิลปินเกาหลีแตกต่างกัน อย่างมีนัยสำคัญทางสถิติ ซึ่งไม่เป็นไปตามสมมติฐานที่ตั้งไว้

สมมติฐานที่ 2 นักศึกษาที่อยู่ต่างคณะกันมีพฤติกรรมการชื่นชอบศิลปินเกาหลีแตกต่างกัน ผลการวิเคราะห์ค่าสถิติที่ใช้ในการเปรียบเทียบความแตกต่าง ปัจจัยส่วนบุคคลด้านคณะแตกต่างกันมีพฤติกรรมการชื่นชอบศิลปินเกาหลีแตกต่างกัน ปรากฏดังตารางที่ 2

ตารางที่ 2 แสดงผลการวิเคราะห์พฤติกรรมการชื่นชอบศิลปินเกาหลีในการเปรียบเทียบระหว่างคณะของผู้ตอบแบบสอบถาม

คณะ	$\bar{x}$	S.D.	P-value	แปลผล
วิทยาการจัดการ	3.19	.68	.000	แตกต่าง
มนุษยศาสตร์และสังคมศาสตร์	3.42	1.14		
ครุศาสตร์	3.20	.84		
วิทยาศาสตร์และเทคโนโลยี	3.30	.58		
สาธารณสุขศาสตร์	3.79	.71		
เทคโนโลยีอุตสาหกรรม	3.89	.56		
เทคโนโลยีการเกษตร	3.29	.85		
นวัตกรรมการจัดการ	4.24	.66		

จากตารางที่ 2 พบว่า นักศึกษาที่มีคณะแตกต่างกันมีพฤติกรรมการชื่นชอบศิลปินเกาหลีแตกต่างกัน จึงทำการทดสอบเปรียบเทียบความแตกต่างรายคู่ LSD (Least Significant Difference) ดังปรากฏ ในตารางที่ 3

ตารางที่ 3 ผลการวิเคราะห์ข้อมูล เปรียบเทียบพฤติกรรมการชื่นชอบศิลปินเกาหลีจำแนกตามคณะ พบว่าคณะที่แตกต่างกันมีพฤติกรรมการชื่นชอบศิลปินเกาหลีแตกต่างกัน จึงได้ทดสอบความแตกต่างรายคู่ของค่าเฉลี่ยของกลุ่มตัวอย่าง ด้วยวิธี LSD

คณะ	Mean	ครุศาสตร์	เทคโนโลยีการเกษตร	เทคโนโลยีอุตสาหกรรม	นวัตกรรมการจัดการ	มนุษยศาสตร์และสังคมศาสตร์	วิทยาการจัดการ	วิทยาศาสตร์และเทคโนโลยี	สาธารณสุขศาสตร์
ครุศาสตร์	3.20	-	.740	.000	.000	.091	.898	.517	.000
เทคโนโลยีการเกษตร	3.29	-	-	.042	.009	.634	.694	.967	.082
เทคโนโลยีอุตสาหกรรม	3.89	-	-	-	.241	.009	.000	.003	.637
นวัตกรรมการจัดการ	4.24	-	-	-	-	.003	.000	.001	.126
มนุษยศาสตร์และสังคมศาสตร์	3.12	-	-	-	-	-	.062	.456	.026
วิทยาการจัดการ	3.19	-	-	-	-	-	-	.444	.000
วิทยาศาสตร์และเทคโนโลยี	3.30	-	-	-	-	-	-	-	.010
สาธารณสุขศาสตร์	3.79	-	-	-	-	-	-	-	-

* มีนัยสำคัญทางสถิติที่ระดับ .05

จากตารางที่ 3 ผลการวิเคราะห์ความแตกต่างพฤติกรรมการชื่นชอบศิลปินเกาหลีเปรียบเทียบรายคู่ จำแนกตามคณะของนักศึกษามหาวิทยาลัยราชภัฏแห่งหนึ่ง พบว่า นักศึกษาคณะครุศาสตร์มีพฤติกรรมการชื่นชอบศิลปินเกาหลีแตกต่างกับคณะเทคโนโลยีอุตสาหกรรม (Sig = .000) คณะครุศาสตร์กับคณะนวัตกรรมการจัดการ (Sig = .000) คณะครุศาสตร์กับคณะสาธารณสุขศาสตร์ (Sig = .000) คณะเทคโนโลยีการเกษตรกับคณะเทคโนโลยีอุตสาหกรรม (Sig = .042) คณะเทคโนโลยีการเกษตรกับคณะนวัตกรรมการจัดการ (Sig = .009) คณะเทคโนโลยีอุตสาหกรรมกับคณะมนุษยศาสตร์และสังคมศาสตร์ (Sig = .009) คณะเทคโนโลยีอุตสาหกรรมกับคณะวิทยาการจัดการ (Sig = .000) คณะเทคโนโลยีอุตสาหกรรมกับคณะวิทยาศาสตร์และเทคโนโลยี (Sig = .003) คณะนวัตกรรมการจัดการกับคณะมนุษยศาสตร์และสังคมศาสตร์ (Sig = .003) คณะนวัตกรรมการจัดการกับคณะวิทยาการจัดการ (Sig = .000) คณะนวัตกรรมการจัดการกับคณะวิทยาศาสตร์และเทคโนโลยี (Sig = .001) คณะมนุษยศาสตร์และสังคมศาสตร์กับคณะสาธารณสุขศาสตร์ (Sig = .026) คณะวิทยาการจัดการกับคณะสาธารณสุขศาสตร์ (Sig = .000) และคณะวิทยาศาสตร์และเทคโนโลยีกับคณะสาธารณสุขศาสตร์ (Sig = .010) อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

สมมติฐานที่ 3 เจตคติที่มีต่อศิลปินเกาหลีมีความสัมพันธ์กับพฤติกรรมการชื่นชอบศิลปินเกาหลี ผลการวิเคราะห์ความสัมพันธ์ระหว่างเจตคติที่มีต่อศิลปินเกาหลีและพฤติกรรมการชื่นชอบศิลปินเกาหลี

ตารางที่ 4 แสดงผลการวิเคราะห์เจตคติที่มีต่อศิลปินเกาหลีมีความสัมพันธ์กับพฤติกรรมการชื่นชอบศิลปินเกาหลี จากการหาค่าสัมประสิทธิ์สหสัมพันธ์

พฤติกรรมการชื่นชอบศิลปินเกาหลี	ค่าสหสัมพันธ์	P	ระดับความสัมพันธ์
เจตคติที่ดีต่อศิลปินเกาหลี	.835**	.000	ระดับสูง

**มีนัยสำคัญทางสถิติที่ .01

จากตารางที่ 4 พบว่า เจตคติที่มีต่อศิลปินเกาหลีและพฤติกรรมการชื่นชอบศิลปินเกาหลี มีความสัมพันธ์กัน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 โดยมีค่าระดับความสัมพันธ์ในระดับสูง กล่าวคือ นักศึกษาที่มีเจตคติที่มีต่อศิลปินเกาหลีมากก็จะมีพฤติกรรมการชื่นชอบศิลปินเกาหลีมากขึ้น (r = .835**)

สมมติฐานที่ 4 ค่านิยมที่มีศิลปินเกาหลีมีความสัมพันธ์กับพฤติกรรมการชื่นชอบศิลปินเกาหลี ผลการวิเคราะห์ความสัมพันธ์ระหว่างค่านิยมที่มีต่อศิลปินเกาหลีและพฤติกรรมการชื่นชอบศิลปินเกาหลี

ตารางที่ 5 แสดงผลการวิเคราะห์ค่านิยมที่มีต่อศิลปินเกาหลีและพฤติกรรมการชื่นชอบศิลปินเกาหลีจากการหาค่าสัมประสิทธิ์สหสัมพันธ์

พฤติกรรมการชื่นชอบศิลปินเกาหลี	ค่าสหสัมพันธ์	P	ระดับความสัมพันธ์
ค่านิยมที่มีต่อศิลปินเกาหลี	.770**	.000	ระดับปานกลาง

**มีนัยสำคัญทางสถิติที่ระดับ .01

จากตารางที่ 5 พบว่า ค่านิยมที่มีต่อศิลปินเกาหลีและพฤติกรรมการชื่นชอบศิลปินเกาหลี มีความสัมพันธ์กัน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 โดยมีค่าระดับความสัมพันธ์ในระดับปานกลาง กล่าวคือ นักศึกษาที่มีค่านิยมต่อศิลปินเกาหลีมากก็จะมีพฤติกรรมการชื่นชอบศิลปินเกาหลีมากขึ้น (r = .770**)

สรุปและอภิปรายผล

การศึกษาเรื่อง ปัจจัยที่มีความสัมพันธ์กับพฤติกรรมการชื่นชอบศิลปินเกาหลีของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏแห่งหนึ่ง สามารถอภิปรายผลการวิจัยจำแนกตามวัตถุประสงค์การวิจัย ดังนี้

1. ศึกษาความแตกต่างของปัจจัยส่วนบุคคลที่มีต่อระดับพฤติกรรมการชื่นชอบศิลปินเกาหลีของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏแห่งหนึ่ง พบว่า

1.1 นักศึกษาที่มีเพศแตกต่างกันมีพฤติกรรมการชื่นชอบศิลปินเกาหลีไม่แตกต่างกัน ซึ่งไม่เป็นไปตามสมมติฐานที่ตั้งไว้ เนื่องจากผลการวิจัยพบว่าในภาพรวมเพศชายและเพศหญิงมีพฤติกรรมการ

ชื่นชอบศิลปินเกาหลีไม่แตกต่างกัน สอดคล้องกับการศึกษาของ (พันธุ์ธัช ศรีทิพันธุ์ และคณะ 2561) ที่ศึกษาเรื่อง อิทธิพลของความแตกต่างระหว่างเพศและบุคลิกภาพที่มีต่อเสียงดิจิตอลที่เร้าอารมณ์ พบว่า ความแตกต่างระหว่างเพศไม่มีอิทธิพลต่อการฟังเสียงดิจิตอลที่เร้าอารมณ์ ด้านการมีอิทธิพลในลักษณะกลัวและไม่กลัว ทั้งนี้ อาจเป็นเพราะเพศชายและเพศหญิง ตอบสนองต่อสิ่งเร้าเสียงในลักษณะกลัว และไม่กลัว คล้าย ๆ กัน จึงไม่มีความแตกต่างกันเนื่องจากกลุ่มตัวอย่างที่ศึกษามีช่วงอายุที่ไม่แตกต่างกันมาก มีอายุระหว่าง 20 - 25 ปี เป็นนักศึกษามีบริบทที่คล้ายคลึงกัน ได้รับอิทธิพลของขนบธรรมเนียม ประเพณี วัฒนธรรมเดียวกัน มีวิถีชีวิตประสบการณ์ การเลี้ยงดู และการอยู่ในสิ่งแวดล้อมแบบไทย ดังนั้นจึงเป็นสาเหตุหนึ่งที่อาจส่งผลให้ ความแตกต่างทางเพศไม่มีอิทธิพลการรับรู้ในอารมณ์ จะต้องอาศัยพื้นฐานประสบการณ์ในการรับรู้เหล่านั้นก่อน จึงจะสามารถแปลผลของรับรู้ออกมาเป็นอารมณ์ ดังนั้นเพศที่แตกต่างกันจึงไม่เป็นตัวแปรที่เกี่ยวข้องกับระดับพฤติกรรมการชื่นชอบของศิลปิน สอดคล้องกับการศึกษาของ (Lang, Bradley, and Cuthbert, 1997) พบว่า การจำแนกอารมณ์ความรู้สึกด้านการมีอิทธิพล (Dominance) เกิดจากอิทธิพลของสิ่งแวดล้อมที่มีต่ออารมณ์ความรู้สึกของแต่ละบุคคลส่งผลต่อความสามารถในการควบคุมอารมณ์ความรู้สึกต่อสิ่งแวดล้อมนั้น ๆ ดังนั้นเมื่อกระตุ้นสิ่งเร้าที่เป็นเสียงผ่านระบบรับสัมผัสทางการได้ยินจึงเกิดกระบวนการรับรู้ตีความตอบสนองออกมา ซึ่งสอดคล้องกับการศึกษาของ (Domes, et al. 2010) ศึกษาปฏิกิริยาการตอบสนองต่อรูปภาพอารมณ์ด้านลบด้วยภาพถ่ายสมองเปรียบเทียบระหว่างเพศชายและเพศหญิง พบว่า ไม่มีความแตกต่างระหว่างเพศต่อการรับรู้อารมณ์ทั้งด้านประทับใจหรือการตื่นตัว ด้วยเหตุนี้จึงทำให้นักศึกษาที่มีเพศแตกต่างกันมีพฤติกรรมการชื่นชอบศิลปินเกาหลีไม่แตกต่างกัน

1.2 นักศึกษาที่มีคณะแตกต่างกันมีพฤติกรรมการชื่นชอบศิลปินเกาหลีแตกต่างกัน ซึ่งเป็นไปตามสมมติฐานที่ตั้งไว้เนื่องจากผลการวิจัยพบว่า นักศึกษาที่อยู่ต่างคณะกันมีพฤติกรรมการชื่นชอบศิลปินเกาหลีที่แตกต่างกันตามทฤษฎีความแตกต่างระหว่างบุคคล (Individual Differences Theory) De Flure (1970) ได้เสนอหลักการไว้ว่า มนุษย์มีความแตกต่างกันอย่างมากในองค์ประกอบทางจิตวิทยาส่วนบุคคล ความแตกต่างบางส่วนมาจากลักษณะความแตกต่างทางชีวภาคหรือทางร่างกายของแต่ละบุคคลแต่ส่วนใหญ่มาจากการเรียนรู้และมนุษย์ที่ถูกชุบเลี้ยงภายใต้สถานการณ์ต่าง ๆ จะเปิดรับความคิดเห็นแตกต่างกันไปอย่างกว้างขวางจากการเรียนรู้สิ่งแวดล้อมทำให้เกิดทัศนคติ ค่านิยม และความเชื่อที่รวมเป็นลักษณะทางจิตวิทยาส่วนบุคคลที่แตกต่างกันไป แสดงให้เห็นถึงพฤติกรรมชื่นชอบและความสนใจของนักศึกษามีความหลากหลายและสัมพันธ์กับคณะที่เรียนซึ่งสอดคล้องกับการศึกษาของ (ธันยากร ช่วยทุกข์เพื่อน, 2558) พบว่า ปัจจัยที่มีอิทธิพลต่อการสนใจและชื่นชอบมีความแตกต่างกันเมื่อจำแนกตามคณะ ดังนั้นเมื่อพิจารณารูปแบบการเรียนรู้แต่ละคณะย่อมมีความเฉพาะเจาะจงในศาสตร์ของตนที่แตกต่างกันอย่างเอกลักษณ์ ด้วยเหตุนี้จึงทำให้นักศึกษาที่มีคณะแตกต่างกันมีพฤติกรรมการชื่นชอบศิลปินเกาหลีแตกต่างกัน

2. ศึกษาความสัมพันธ์ระหว่างเจตคติที่มีต่อศิลปินเกาหลีกับพฤติกรรมการชื่นชอบศิลปินเกาหลีของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏแห่งหนึ่ง พบว่า

2.1 เจตคติที่มีต่อศิลปินเกาหลีมีความสัมพันธ์กับพฤติกรรมการชื่นชอบศิลปินเกาหลี ซึ่งเป็นไปตามสมมติฐานที่ตั้งไว้ ผลการวิจัยพบว่านักศึกษาที่มีเจตคติที่มีต่อศิลปินเกาหลีมากก็จะมีพฤติกรรมการชื่นชอบศิลปินเกาหลีมากขึ้นไปด้วย ซึ่งสอดคล้องตามทฤษฎีแรงจูงใจ (Incentive Theory) ทฤษฎีนี้ให้แนวคิดเกี่ยวกับการเกิดเจตคติว่า เป็นกระบวนการให้น้ำหนักจากคุณและโทษของสิ่งนั้น แล้ว

พิจารณาตัดสินใจเลือกที่เหมาะสมที่สุด เชื่อว่าสิ่งที่เรารักหรือชอบสิ่งใดสิ่งหนึ่งนั้นอยู่ ๆ จะเกิดรักและชอบขึ้นมานั้นเป็นไปไม่ได้ สิ่งที่เรารักหรือชอบจะต้องมีคุณประโยชน์ต่อเราแน่นอนอาจจะมีสิ่งไม่ดีอยู่บ้างแต่เมื่อพิจารณาคุณและโทษแล้วเห็นว่าน้ำหนักคุณประโยชน์สูงกว่าเราก็จะชอบสิ่งนั้น ในทางตรงกันข้ามถ้าสิ่งนั้นมีโทษหรือไร้ประโยชน์มากกว่าก็จะไม่ชอบสิ่งนั้น จากการพิจารณาตัดสินใจโดยกระบวนการแบบนี้จึงทำให้เกิดเจตคติทางบวกหรือทางลบขึ้นได้ (Killeen, 1981) เช่น ถ้าใครคิดว่าการชื่นชอบศิลปินเกาหลีมีประโยชน์เพราะสามารถช่วยให้ผ่อนคลาย สร้างความบันเทิงและจรรโลงใจให้แก่คนที่ชอบผลงานของศิลปินเกาหลีได้ ใครที่คิดเช่นนี้ก็จะมีเจตคติต่อการชื่นชอบศิลปินเกาหลีมากขึ้น ในทางบวกแต่ถ้าใครที่พิจารณาว่าการชื่นชอบศิลปินเกาหลี ทำให้เสียสุขภาพเสียเวลาไร้สาระหรือมีความคิดที่นำไปสู่ผลเสียก็จะมีเจตคติต่อการชื่นชอบศิลปินเกาหลีในทางลบ ดังนั้นจึงขึ้นอยู่กับว่าใครจะพิจารณาเห็นคุณหรือโทษมากกว่ากัน แรงกระตุ้นทางไหนชนะก็เกิดเจตคติทางนั้น ด้วยเหตุนี้จึงทำให้เจตคติที่มีต่อศิลปินเกาหลีมีความสัมพันธ์กับพฤติกรรมการชื่นชอบศิลปินเกาหลี

3. ศึกษาความสัมพันธ์ระหว่างค่านิยมที่มีต่อศิลปินเกาหลีกับพฤติกรรมการชื่นชอบศิลปินเกาหลีของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏแห่งหนึ่ง พบว่า

3.1 ค่านิยมที่มีต่อศิลปินเกาหลีมีความสัมพันธ์กับพฤติกรรมการชื่นชอบศิลปินเกาหลี ซึ่งเป็นไปตามสมมติฐานที่ตั้งไว้ ผลการวิจัยพบว่านักศึกษาที่มีค่านิยมต่อศิลปินเกาหลีมากก็จะมีพฤติกรรมการชื่นชอบศิลปินเกาหลีมากซึ่งสอดคล้องตามทฤษฎีการกระทำทางสังคม (Reeder, 1971) ได้ศึกษาและรวบรวมทฤษฎีต่าง ๆ ทางสังคมเพื่อใช้อธิบายพฤติกรรมต่าง ๆ ของมนุษย์ โดยทั่วไปรูปแบบทางด้านจิตวิทยาสังคม (social psychology) ที่เกี่ยวกับการตัดสินใจแสดงพฤติกรรมของมนุษย์นั้น นักสังคมวิทยาส่วนใหญ่จะมองในด้านสถานภาพทางเศรษฐกิจและสังคม (social economics status) ซึ่งถือว่าเป็นปัจจัยภายนอกที่มีผลต่อการตัดสินใจ แต่รีดเดอร์เชื่อว่า การตัดสินใจเลือกแสดงพฤติกรรมของบุคคลจะประกอบด้วยความเชื่อและความไม่เชื่อหลาย ๆ อย่างรวมกัน คือ บุคคลอาจจะแสดงพฤติกรรมอย่างเดียวกันแต่เหตุผลที่ทำให้เกิดการตัดสินใจอาจแตกต่างกันทฤษฎีการกระทำทางสังคม (social action theory) ของ Reeder เป้าหมายหรือจุดประสงค์ (goals) คือ สิ่งที่ผู้กระทำต้องการให้เกิดขึ้นจากการกระทำโดยผู้กระทำจะมีการกำหนดเป้าหมายไว้ล่วงหน้าและจะพยายามที่จะกระทำทุกวิถีทาง เพื่อให้บรรลุเป้าหมายนั้นความเชื่อ (belief orientation) คือ ความคิด ความรู้ ความเข้าใจของแต่ละบุคคลต่อสิ่งที่เกิดขึ้นโดยความเชื่อจะมีผลต่อการตัดสินใจของบุคคลและพฤติกรรมทางสังคม บุคคลจะเลือกรูปแบบของพฤติกรรมบนความเชื่อที่ตนยึดมั่นอยู่ในการกระทำของสังคมใด ๆ ต้องอาศัยความเชื่ออยู่ด้วยเสมอ แต่อย่างไรก็ตามความเชื่อนี้จะส่งผลกระทบหรือไม่กระทำพฤติกรรมนั้น มาตรฐานค่านิยม (value standard) คือ สิ่งที่บุคคลยึดถือเป็นเครื่องช่วยตัดสินใจและกำหนดการกระทำของตน ค่านิยมของผู้กระทำทางสังคมจะแสดงออกทางเจตคติและพฤติกรรมของผู้กระทำทุกรูปแบบ ค่านิยมจึงมีอิทธิพลต่อการตัดสินใจ โดยบุคคลพยายามที่จะกระทำการใด ๆ ให้สอดคล้องกับค่านิยมที่ตนเองยึดถืออยู่นิสัยและขนบธรรมเนียม (habits and customs) คือ แบบอย่างพฤติกรรมที่สังคมกำหนดไว้แล้ว จะสืบต่อกันมาด้วยประเพณี ซึ่งถ้ามีการละเมิดก็จะถูกบังคับด้วยการที่สังคมไม่เห็นชอบ ด้วยเหตุนี้จึงทำให้ ค่านิยมที่มีต่อการชื่นชอบศิลปินเกาหลีมีความสัมพันธ์กับพฤติกรรมการชื่นชอบศิลปินเกาหลี

ข้อเสนอแนะ

ข้อเสนอแนะจากการวิจัย

1. จากการวิจัยจะเห็นได้ว่า เจตคติที่มีต่อศิลปินเกาหลีมีความสอดคล้องกับพฤติกรรมการชื่นชอบศิลปินเกาหลี ซึ่งมีผลต่อการปฏิบัติตนในชีวิตประจำวันรวมถึงการสร้างแรงบันดาลใจต่าง ๆ และสามารถให้ข้อคิดในการใช้ชีวิตต่าง ๆ แก่กลุ่มนักศึกษาปริญญาตรีได้ เมื่อพิจารณาจากผลการวิเคราะห์ข้อมูลด้านเจตคติที่มีผลต่อการชื่นชอบศิลปินเกาหลี พบว่า การได้ข้อคิดดี ๆ จากพฤติกรรมการชื่นชอบศิลปินเกาหลีสามารถให้เกิดกำลังใจในการใช้ชีวิตได้ ดังนั้นพฤติกรรมการชื่นชอบศิลปินเกาหลีอย่างเหมาะสมสามารถทำให้ค้นพบต้นแบบในการพัฒนาพฤติกรรมที่ดีในการใช้ชีวิตแก่กลุ่มนักศึกษาในการพัฒนาตนเองได้ ซึ่งมีประโยชน์ต่อผู้มีบทบาทในการพัฒนานักศึกษาสามารถนำความชื่นชอบในศิลปินเกาหลีเป็นแนวทางสร้างกิจกรรมพัฒนานักศึกษา เพื่อการแนะแนวด้านการวางแผนชีวิต การพัฒนาตนเอง และการตั้งเป้าหมายในอนาคต โดยใช้กรณีศึกษาเรื่องราวของศิลปินที่นักศึกษาชื่นชอบเป็นแรงผลักดันและแรงบันดาลใจสู่เป้าหมายความสำเร็จได้

2. ค่านิยมที่มีต่อศิลปินเกาหลีที่ได้รับการยอมรับและปฏิบัติตามส่งผลทำให้เกิดพฤติกรรมการชื่นชอบศิลปินเกาหลีต่าง ๆ ดังนั้นการเข้าใจถึงปัจจัยที่ทำให้เกิดพฤติกรรมการชื่นชอบศิลปินเกาหลีสามารถทำให้เข้าใจพฤติกรรม และความรู้สึกนักศึกษาที่แสดงออกต่อการชื่นชอบกลุ่มศิลปินได้เพิ่มมากขึ้น ดังนั้นฝ่ายแนะแนวและพัฒนานักศึกษาสามารถใช้ค่านิยมที่นักศึกษามีต่อศิลปินเกาหลีเป็นเครื่องมือในการวางแผนกิจกรรมแนะแนว เช่น การจัดกิจกรรมสะท้อนอัตลักษณ์ตนเอง หรือการใช้ความสนใจในศิลปินเป็นจุดเริ่มต้นในการสร้างแรงบันดาลใจในการเรียนรู้และพัฒนาตนเอง

3. การส่งเสริมกิจกรรมที่เกี่ยวข้องกับความชื่นชอบในศิลปินเกาหลี เพื่อเป็นเวทีให้นักศึกษาได้แสดงออกอย่างสร้างสรรค์ และเป็นการส่งเสริมความเข้าใจการชื่นชอบที่แตกต่างระหว่างนักศึกษาได้

ข้อเสนอแนะในการทำวิจัยครั้งต่อไป

1. เนื่องจากการศึกษาในครั้งนี้ เป็นการศึกษาวิจัยเชิงปริมาณโดยใช้แบบสอบถามเป็นเครื่องมือหลักในการเก็บรวบรวมข้อมูลการทำวิจัยครั้งต่อไป ควรมีการทำวิจัยเชิงคุณภาพควบคู่กันไปด้วย เพื่อให้ได้ข้อมูลในเชิงลึกมากยิ่งขึ้น ซึ่งอาจเพิ่มเติมในส่วนของการสัมภาษณ์เชิงลึก (In-Depth Interview) เพื่อจะได้ทราบถึงพฤติกรรมการชื่นชอบศิลปินเกาหลีเชิงลึกของกลุ่มเป้าหมายเพิ่มขึ้น

เอกสารอ้างอิง

กมลมาศ ศรียาพรหม. (2561). ความพึงพอใจที่มีต่อนักร้องเกาหลีใต้ของผู้รับข่าวสารทางอินเทอร์เน็ตในประเทศไทย (วิทยานิพนธ์มหาบัณฑิต). บัณฑิตวิทยาลัย, มหาวิทยาลัยศรีนครินทรวิโรฒ.

กุลริสา อากาศวิภาต. (2564). พฤติกรรมการเปิดรับสื่อที่มีผลต่อการชื่นชอบศิลปินเกาหลีของแฟนคลับชาวไทยในเขตกรุงเทพมหานคร. (วิทยานิพนธ์นิเทศศาสตรมหาบัณฑิต). มหาวิทยาลัยกรุงเทพ, ปทุมธานี.

ธันยากร ช่วยทุกข์เพื่อน (2558). การศึกษาปัจจัยที่มีผลต่อการเลือกเรียนในระดับอุดมศึกษาที่มหาวิทยาลัยธุรกิจบัณฑิตย์ของนักศึกษาระดับปริญญาตรี. วารสารสุทธิปริทัศน์, 29(90), 256-271.

พันธุ์ธัช ศรีทิพันธุ์ ,เสรี ชัดแช้ม,พูลพงศ์ สุขสว่าง, และศราวิน เทพสถิตย์ภรณ์ (2561) อิทธิพลของความแตกต่างระหว่างเพศและบุคลิกภาพที่มีต่อเสียงดิจิตอลที่เร้าอารมณ์. สืบค้นเมื่อ 20 สิงหาคม 2567 จาก https://he02.tci-thaijo.org/index.php/Veridian-E-Journal/article/view/166075

วิศรุต สินพงศพร. (2563). กลยุทธ์ K-POP สร้างชาติเกาหลี ครองโลกด้วยวงการบันเทิง. สืบค้นเมื่อ 18 สิงหาคม 2567 จาก https://workpointtoday.com/k-pop/.

สำนักส่งเสริมวิชาการและงานทะเบียน มหาวิทยาลัยราชภัฏแห่งหนึ่ง. (2566). สถิติข้อมูลนักศึกษา. สืบค้นเมื่อ 28 สิงหาคม 2567 จาก https://acad.vru.ac.th/acad/about_acad/ac_StudentActive.php

สุธารดี ศรีสวัสดิ์. (2559). อิทธิพลของความคลั่งไคล้ศิลปินเกาหลีที่มีต่อพฤติกรรมการซื้อสินค้าที่มีความเกี่ยวพันต่ำ (สารนิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยมหิดล, นครปฐม.

อาจารีย์ ประจวบเหมาะ และคณะ. (2565). การศึกษาเจตคติและพฤติกรรมของกลุ่มแฟนคลับที่มีต่อกระแสความนิยมเพลงเกาหลี. วารสารการบริหารนิติบุคคลและนวัตกรรมท้องถิ่น. 8(4)38.

Aidah, S., & Supartono, S. (2024). The Influence of Korean Wave K-Pop, Lifestyle, and Fanaticism on the Consumptive Behavior of K-Pop Fans on Students at the Bekasi Branch of Universitas Pelita Bangsa. Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE), 7(2), 3473-3485. https://doi.org/10.31538/iijse.v7i2.5010

Bengsanguan, T. (2008). Effects of Emotional Reliance, Attitude Valence for the Third Person, and Similarity on Interpersonal Attraction. (Master's thesis). Chulalongkorn University.

Choi H. J. (2024). Do K-Pop Consumers' Fandom Activities Affect Their Happiness, Listening Intention, and Loyalty?. Behavioral sciences (Basel, Switzerland), 14(12), 1136. https://doi.org/10.3390/bs14121136

De Flure, M. (1970). Theories of Mass Communication. New York: McKay. directive factors in believer and social action. New York: McGraw Hill.

Domes, G., Schulze, L., Böttger, M., Grossmann, A., Hauenstein, K., Wirtz, P. H., ... & Herpertz, S. C. (2010). The neural correlates of sex differences in emotional reactivity and emotion regulation. Human brain mapping, 31(5), 758-769.

Jenkins, H. (1992). Sexual Poachers. New York and London: Routledge.

Killeen, P. R. (1981). Incentive theory. In Nebraska symposium on motivation. University of Nebraska Press.

Lang, P. J., Bradley, M.M. and Cuthbert, B.N. (1997) International Affective Picture System (IAPS): Technical Manual and Affective Ratings. NIMH Center for the Study of Emotion and Attention, 39-58.

Reeder, W. W. (1971). Partial theories from the 25 years research program on directive factors in believer and social action. New York: Mc Grow Hill.

Seo, M. (2012). Lessons from K-pop's Global Success. SERI Quarterly; Seoul, 5(3) 60-66.

Turner, J. C., Brown, R. J., & Tajfel, H. (1979). Social comparison and group interest in ingroup favouritism. European journal of social psychology, 9(2), 187-204.

Yamane, T. (1973). Statistics: An Introductory Analysis (3rd ed.). New York: Harper and Row.

ผลกระทบทางเศรษฐกิจของนักท่องเที่ยวชาวจีนในประเทศไทย: การวิเคราะห์เชิงประจักษ์ด้วยตารางปัจจัยการผลิตและผลผลิตด้านการท่องเที่ยว

Economic Impact of Chinese Tourists in Thailand: An Empirical Analysis Using Tourism Input-Output Table

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บทคัดย่อ

งานวิจัยเรื่องนี้มีวัตถุประสงค์เพื่อวิเคราะห์ผลกระทบทางเศรษฐกิจของนักท่องเที่ยวชาวจีนในประเทศไทยระหว่างปี พ.ศ. 2561 – 2566 ซึ่งมีตัวชี้วัด 3 ตัว ได้แก่ มูลค่าผลผลิต มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศและจำนวนการจ้างงาน โดยผลกระทบทางเศรษฐกิจในงานวิจัยนี้จะแบ่งออกเป็น 3 ส่วน ได้แก่ ผลกระทบทางตรง ผลกระทบทางอ้อม และผลกระทบเชิงชักนำ จากการวิเคราะห์ค่าใช้จ่ายของนักท่องเที่ยวชาวจีนด้วยค่าสัมประสิทธิ์ในตารางปัจจัยการผลิตและผลผลิตด้านการท่องเที่ยวของประเทศไทย พบว่า ผลกระทบทางเศรษฐกิจของนักท่องเที่ยวชาวจีน มีมูลค่าสูงสุดในปี พ.ศ. 2562 ซึ่งเป็นปีที่มีนักท่องเที่ยวชาวจีนมากกว่า 11 ล้านคน โดยสามารถสร้างมูลค่าผลผลิตและผลิตภัณฑ์มวลรวมภายในประเทศโดยรวมได้มากถึง 841,475.62 และ 462,831.87 ล้านบาท ตามลำดับ และก่อให้เกิดการจ้างงานมากถึง 787,627 คน อย่างไรก็ตามสถานการณ์โควิด 19 ที่เกิดขึ้นในปี พ.ศ. 2563 ทำให้จำนวนนักท่องเที่ยวชาวจีนลดลงอย่างรุนแรง ทำให้เหลือมูลค่าผลผลิต มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศและจำนวนการจ้างงานโดยรวมในปี พ.ศ. 2564 เพียง 15,291.05 ล้านบาท 7,437.76 ล้านบาท และ 12,222 คน ตามลำดับ ทั้งนี้สถานการณ์เริ่มดีขึ้นในปี พ.ศ. 2566 เมื่อมูลค่าผลผลิตและผลิตภัณฑ์มวลรวมภายในประเทศโดยรวมจากนักท่องเที่ยวชาวจีนเพิ่มเป็น 317,320.88 และ 163,031.51 ล้านบาท ตามลำดับ และจำนวนการจ้างงานเพิ่มเป็น 282,106 คน แต่ก็ถือว่ายังห่างไกลจากปี พ.ศ. 2562 เป็นอย่างมาก จึงจำเป็นต้องมีมาตรการกระตุ้นการท่องเที่ยวของนักท่องเที่ยวชาวจีนต่อไป

คำสำคัญ: ผลกระทบทางเศรษฐกิจ, นักท่องเที่ยวชาวจีน, ตารางปัจจัยการผลิตและผลผลิตด้านการท่องเที่ยว

Abstract

This study aims to examine the economic impact of Chinese tourists in Thailand during 2018-2023 which is measured by 3 indicators, including total output value, GDP value and total employment. The economic impact in this study is divided into 3 parts, including direct impact, indirect impact and induced impact. After analyzing expenditure of Chinese tourists by employing tourism input-output table of Thailand, the findings reveal that the economic impact of Chinese tourists peaked in 2019 when Thailand welcomed more than 11 million Chinese tourists, with the total output and GDP value reaching 841,475.62 and 462,831.87 million baht, respectively, leading to 787,627 jobs. Nevertheless, COVID-19, which began in 2020, caused the number of Chinese tourists to drop sharply, leading to a decline in total output and GDP value from the total impact to 15,291.05 and 7,437.76 million baht, respectively, and a reduction in employment to 12,222 jobs in 2021. Situation regarding tourism of Chinese tourists partially recovered in 2023, when total output and GDP value from the total impact increased to 317,320.88 and 163,031.51 million baht, respectively, while the employment rose to 282,106 jobs. However, these figures remain far lower than those of 2019, indicating that the measures to promote Chinese tourism are still highly necessary.

Keywords: Economic Impact, Chinese Tourists, Tourism Input-Output Table

บทนำ

นักท่องเที่ยวชาวจีนถือเป็นกลุ่มนักท่องเที่ยวที่สำคัญเป็นอย่างยิ่งสำหรับอุตสาหกรรมการท่องเที่ยวของประเทศไทย จากสถิติของกระทรวงการท่องเที่ยวและกีฬา (2567a) จำนวนนักท่องเที่ยวชาวจีนมีการเติบโตอย่างต่อเนื่องและมีสัดส่วนต่อนักท่องเที่ยวทั้งหมดสูงขึ้นอย่างต่อเนื่อง นั่นคือ นักท่องเที่ยวชาวจีนมีจำนวนเพิ่มขึ้นจาก 1.7 ล้านคน คิดเป็นร้อยละ 8.9 ของนักท่องเที่ยวต่างชาติทั้งหมดในปี พ.ศ. 2554 เป็น 11.1 ล้านคน คิดเป็นร้อยละ 27.9 ของนักท่องเที่ยวต่างชาติทั้งหมดในปี พ.ศ. 2562 ทำให้เกิดการใช้จ่ายในประเทศไทยมากกว่า 3 แสนล้านบาท อย่างไรก็ตามสถานการณ์โควิด 19 ทำให้จำนวนนักท่องเที่ยวชาวจีนลดลงอย่างรุนแรง และยังคงไม่ฟื้นตัวกลับมาเท่าเดิม แม้สถานการณ์จะกลับเข้าสู่ภาวะปกติ โดยจำนวนนักท่องเที่ยวชาวจีนในปี พ.ศ. 2566 มีเพียง 3.5 ล้านคน คิดเป็นร้อยละ 12.5 ของนักท่องเที่ยวต่างชาติทั้งหมด และเกิดเป็นค่าใช้จ่ายเพียง 193,996 ล้านบาท สะท้อนความจำเป็นที่ภาครัฐต้องมีมาตรการเพื่อกระตุ้นการท่องเที่ยวของนักท่องเที่ยวชาวจีนให้กลับมาเติบโตอีกครั้ง

อย่างไรก็ตามสถานการณ์โควิด 19 ได้ทำให้พฤติกรรมการท่องเที่ยวและการใช้จ่ายของนักท่องเที่ยวชาวจีนเปลี่ยนแปลงไปหลายประการ อันเป็นผลมาจากภาพลักษณ์ด้านความปลอดภัย ทางเลือกในการใช้จ่ายที่หลากหลายผ่านช่องทางออนไลน์ สงครามการค้าและความผันผวนของค่าเงินหยวน (ศูนย์วิจัยกสิกรไทย, 2568) ทำให้เกิดความท้าทายในการหามาตรการกระตุ้นการท่องเที่ยวและการใช้จ่ายของนักท่องเที่ยวชาวจีน ทั้งนี้ในการหามาตรการเพื่อดึงดูดนักท่องเที่ยวชาวจีนและกระตุ้นการใช้จ่ายของนักท่องเที่ยวชาวจีนจำเป็นต้องอาศัยข้อมูลการวิเคราะห์เชิงลึกเกี่ยวกับพฤติกรรมการท่องเที่ยวและการใช้จ่าย ตลอดจนผลกระทบทางเศรษฐกิจของนักท่องเที่ยวชาวจีน เพื่อประเมินความ

คุ้มค่าในการจัดสรรทรัพยากรของประเทศเพื่อดำเนินการดังกล่าว อย่างไรก็ตาม การมีข้อมูลเพียงการใช้จ่ายเบื้องต้นของนักท่องเที่ยวยังไม่เพียงพอที่จะสะท้อนผลกระทบทางเศรษฐกิจได้อย่างครอบคลุม เนื่องจากเป็นเพียงค่าใช้จ่ายที่เกิดขึ้นเฉพาะกับภาคธุรกิจที่เกี่ยวข้องกับภาคการท่องเที่ยวเท่านั้น แต่ได้ละเลยภาคธุรกิจที่เป็นห่วงโซ่อุปทานของการท่องเที่ยว ตลอดจนผลได้ทางเศรษฐกิจที่ได้อานิสงส์จากการที่ประชาชนมีงานทำและมีรายได้จากการท่องเที่ยวของนักท่องเที่ยวชาวจีน

ดังนั้นจึงเป็นที่มาของงานวิจัยเรื่องนี้ที่ต้องการวิเคราะห์ผลกระทบทางเศรษฐกิจของนักท่องเที่ยวชาวจีนเพื่อเติมเต็มช่องว่างดังกล่าว โดยอาศัยข้อมูลจากตารางปัจจัยการผลิตและผลผลิตด้านการท่องเที่ยวของประเทศไทยเพื่อคำนวณมูลค่าผลผลิต มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศ (GDP) และจำนวนการจ้างงานที่ประเทศไทยได้รับจากการมีนักท่องเที่ยวชาวจีนเข้ามาท่องเที่ยวในประเทศ

วัตถุประสงค์ของการวิจัย

งานวิจัยเรื่องนี้มีวัตถุประสงค์เพื่อวิเคราะห์ผลกระทบทางเศรษฐกิจจากนักท่องเที่ยวชาวจีนในประเทศไทยระหว่างปี พ.ศ. 2561 – 2566 ซึ่งครอบคลุมช่วงเวลาก่อน ระหว่าง และหลังสถานการณ์โควิด 19 โดยพิจารณาจากตัวชี้วัด 3 ตัว ได้แก่ มูลค่าผลผลิต มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศ และจำนวนการจ้างงาน โดยผลกระทบทางเศรษฐกิจแบ่งออกเป็น 3 ส่วน ได้แก่ ผลกระทบทางตรง ผลกระทบทางอ้อม และผลกระทบเชิงชักนำ

แนวคิด ทฤษฎี และกรอบแนวคิด

1. ผลกระทบทางเศรษฐกิจจากการท่องเที่ยว

ตามหลักการทางเศรษฐศาสตร์ กรอบแนวคิดในการวิเคราะห์ผลกระทบทางเศรษฐกิจจากการท่องเที่ยวแบ่งออกเป็น 3 ส่วน (World Travel and Tourism Council, 2023) ได้แก่

1. ผลกระทบทางตรง (Direct Impact) หมายถึง ผลได้ทางเศรษฐกิจอันเป็นผลมาจากกิจกรรมที่เกี่ยวข้องกับการท่องเที่ยวโดยตรง โดยผลได้ทางเศรษฐกิจในที่นี้สามารถวัดได้จากปัจจัยทางเศรษฐศาสตร์มหภาคต่างๆ เช่น มูลค่าผลผลิต มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศ และจำนวนการจ้างงาน ฯลฯ

2. ผลกระทบทางอ้อม (Indirect Impact) หมายถึง ผลได้ทางเศรษฐกิจอันเป็นผลมาจากกิจกรรมที่เป็นห่วงโซ่อุปทาน (Supply Chain) ของกิจกรรมที่เกี่ยวข้องกับการท่องเที่ยว

3. ผลกระทบเชิงชักนำ (Induced Impact) หมายถึง ผลได้ทางเศรษฐกิจอันเป็นผลมาจากการที่ประชาชนมีรายได้ทั้งทางตรงและทางอ้อมจากการที่มีนักท่องเที่ยวต่างชาติและมีการใช้จ่ายรายได้นั้นๆ เพื่อการอุปโภคบริโภคในรูปแบบต่างๆ

ดังนั้นสรุปได้ว่า ผลกระทบทางเศรษฐกิจทั้งหมด = ผลกระทบทางตรง + ผลกระทบทางอ้อม + ผลกระทบเชิงชักนำ

จากการทบทวนวรรณกรรมพบว่า การศึกษาผลกระทบทางเศรษฐกิจจากการท่องเที่ยวในระดับมหภาคได้รับความสนใจศึกษาอย่างกว้างขวาง ตัวอย่างเช่น งานวิจัยของ Pratt (2015) ที่ได้ทำการวิเคราะห์ผลกระทบทางเศรษฐกิจของอุตสาหกรรมการท่องเที่ยวของประเทศหมู่เกาะ จำนวน 7 ประเทศ ได้แก่ ซามัว อารูบา ฟิจิ จาไมก้า มัลดีฟส์ มอริเชียส และเซเชลส์ ระหว่างปี ค.ศ. 1999 – 2007 งานวิจัยของ Lemma (2014) ซึ่งทำการสังเคราะห์และนำเสนอผลกระทบทางเศรษฐกิจทั้งผลกระทบทางตรงและ

ผลกระทบในภาพรวมของอุตสาหกรรมการท่องเที่ยวในระดับโลกในปี ค.ศ. 2013 งานวิจัยของ Biburiev, David, Abdreyeva, Zhakupova and Artemyev (2018) ที่ได้ทำการวิเคราะห์ผลกระทบทางเศรษฐกิจจากกิจกรรมการท่องเที่ยวที่มีต่อมูลค่าผลผลิต การจ้างงาน และรายรับภาษีของภาครัฐของประเทศคาซักสถานในปี ค.ศ. 2017 และงานวิจัยของ World Travel and Tourism Council (2023) ซึ่งได้ทำการวิเคราะห์ผลกระทบทางตรงและผลกระทบในภาพรวมของอุตสาหกรรมการท่องเที่ยวในปี ค.ศ. 2023 ทั้งในระดับโลก ระดับภูมิภาค และระดับประเทศ รวมทั้งประเทศไทย

นอกจากนี้ยังพบงานวิจัยจำนวนมากที่เน้นศึกษาผลกระทบทางเศรษฐกิจจากการท่องเที่ยวในระดับพื้นที่ ตัวอย่างเช่น งานวิจัยของ Mayer, Muller, Woltering, Arnegger and Job (2010) ที่ทำการวิเคราะห์ผลกระทบทางเศรษฐกิจที่เกิดขึ้นจากการท่องเที่ยวในอุทยานแห่งชาติในประเทศเยอรมนีในปี ค.ศ. 2007 และงานวิจัยของ Tohmo (2018) ที่ได้ทำการวิเคราะห์ผลกระทบของการท่องเที่ยวในพื้นที่ตอนกลางของประเทศฟินแลนด์ในปี ค.ศ. 2014

สำหรับประเทศไทย พบว่างานวิจัยส่วนใหญ่เน้นศึกษาผลกระทบทางเศรษฐกิจของการท่องเที่ยวในระดับพื้นที่ ตัวอย่างเช่น อำนาจ รักษาพล, เบญจมาศ ณ ทองแก้ว และอุทัยวรรณ ศรีวิชัย (2563) ศึกษาผลกระทบทางเศรษฐกิจจากการท่องเที่ยวในพื้นที่เกาะพิทักษ์ จังหวัดชุมพร เพ็ญศิริ สมารักษ์, นันทภัค บุรขจรกุล และเปรมปรีดา ทองลา (2565) ศึกษาผลกระทบทางเศรษฐกิจจากการท่องเที่ยวโดยชุมชน ตำบลบางสระเก้า อำเภอแหลมสิงห์ จังหวัดจันทบุรี และธีระ สินเดชารักษ์ และวิชาญ กิตติรัตนพันธ์ (2565) ศึกษาผลกระทบทางเศรษฐกิจจากการท่องเที่ยวในพื้นที่พิเศษเพื่อการท่องเที่ยวอย่างยั่งยืนขององค์การบริหารการพัฒนาพื้นที่พิเศษเพื่อการท่องเที่ยวอย่างยั่งยืน (อพท.) ในขณะที่พบงานวิจัยจำนวนน้อยที่เน้นศึกษาผลกระทบทางเศรษฐกิจของการท่องเที่ยวในระดับมหภาค โดยที่พบได้แก่ งานของ Kariyapol and Agarwal (2020) ซึ่งได้ทบทวนวรรณกรรมที่เกี่ยวข้องกับการท่องเที่ยวของประเทศไทยและนำเสนอสถิติรายได้ รายรับภาษี และการจ้างงานที่เกิดจากการท่องเที่ยว

2. บัญชีประชาชาติและตารางปัจจัยการผลิตและผลผลิตด้านการท่องเที่ยว

บัญชีประชาชาติด้านการท่องเที่ยว หรือ Tourism Satellite Account (TSA) คือ ระบบบัญชีที่ใช้ในการวัดผลกระทบทางเศรษฐกิจของอุตสาหกรรมท่องเที่ยว โดยเชื่อมโยงข้อมูลด้านการท่องเที่ยวเข้ากับระบบบัญชีประชาชาติ (National Accounts) ทำให้สามารถประเมินมูลค่าทางเศรษฐกิจของการท่องเที่ยวได้อย่างถูกต้องและเป็นมาตรฐานสากล ครอบคลุมทั้งจำนวนนักท่องเที่ยว มูลค่าการใช้จ่ายและมูลค่าทางเศรษฐกิจของอุตสาหกรรมการท่องเที่ยว ตลอดจนปัจจัยทางเศรษฐกิจอื่นๆ เช่น การจ้างงาน การลงทุน เป็นต้น (Eurostat, 2022) ดังนั้น จึงกล่าวได้ว่า บัญชีประชาชาติด้านการท่องเที่ยว คือเครื่องมือสำคัญในการวิเคราะห์ผลกระทบทางเศรษฐกิจของอุตสาหกรรมการท่องเที่ยว

ในกรณีของประเทศไทย กระทรวงการท่องเที่ยวและกีฬา ได้จัดทำบัญชีประชาชาติด้านการท่องเที่ยว (TSA) มาตั้งแต่ปี พ.ศ. 2560 มาจนถึงปัจจุบัน (กระทรวงการท่องเที่ยวและกีฬา, 2567b) ภายใต้โครงการดังกล่าว ทางกระทรวงฯ ได้สร้างตารางปัจจัยการผลิตและผลผลิต (ตาราง I-O) ด้านการท่องเที่ยวประจำปี พ.ศ. 2560 ซึ่งแสดงโครงสร้างอุตสาหกรรมการท่องเที่ยวของประเทศไทย และการหมุนเวียนของสินค้าและบริการระหว่างสาขาการผลิตในระบบเศรษฐกิจ ทั้งอุตสาหกรรมที่เกี่ยวข้องกับการท่องเที่ยวโดยตรงและอุตสาหกรรมที่เป็นห่วงโซ่อุปทานของอุตสาหกรรมการท่องเที่ยว และได้ทำการวิเคราะห์จำนวนและรายจ่ายของนักท่องเที่ยว รวมทั้งได้อาศัยโครงสร้างการใช้ปัจจัยการผลิตและการกระจายผลผลิตตามตาราง I-O ด้านการท่องเที่ยวปี พ.ศ. 2560 ดังกล่าว เพื่อคำนวณมูลค่าผลผลิต

ผลิตภัณฑ์มวลรวมภายในประเทศ การบริโภค การสะสมทุน และการจ้างงานที่เกิดจากการท่องเที่ยว โดยผลการวิเคราะห์ล่าสุดครอบคลุมช่วงเวลาปี พ.ศ. 2553 – 2565 ถือเป็นฐานข้อมูลผลกระทบทางเศรษฐกิจของอุตสาหกรรมการท่องเที่ยวที่สำคัญที่สุดของประเทศ

ทั้งนี้ อุตสาหกรรมในตาราง I-O ด้านการท่องเที่ยวของประเทศไทยแบ่งออกเป็น 89 สาขา โดยพบว่า มีอุตสาหกรรม จำนวน 33 สาขาที่เกี่ยวข้องกับการท่องเที่ยวโดยตรง และมีอุตสาหกรรมอีก 56 สาขาที่เกี่ยวข้องกับการท่องเที่ยวทางอ้อม ในฐานะที่เป็นห่วงโซ่อุปทานของอุตสาหกรรมการท่องเที่ยว รายละเอียดของอุตสาหกรรมที่เกี่ยวข้องกับการท่องเที่ยวโดยตรงทั้ง 33 อุตสาหกรรมแสดงดังตารางที่ 1 ทั้งนี้ กิจกรรมที่เกิดขึ้นในอุตสาหกรรมทั้ง 33 สาขาตามตารางที่ 1 ถือเป็นกิจกรรมที่ทำให้เกิดผลกระทบทางตรง ในขณะที่กิจกรรมที่เกิดขึ้นในอุตสาหกรรมอื่นๆ ที่เหลืออีก 56 สาขา (เช่น สาขาเกษตรกรรม การผลิตผลิตภัณฑ์อาหาร ผลิตภัณฑ์ปิโตรเคมี การก่อสร้าง อสังหาริมทรัพย์ การบริการธุรกิจ ฯลฯ) ถือเป็นกิจกรรมที่ทำให้เกิดผลกระทบทางอ้อม

ตารางที่ 1 อุตสาหกรรมที่เกี่ยวข้องกับการท่องเที่ยวโดยตรง จำนวน 33 สาขาในตาราง I-O ด้านการท่องเที่ยว

I-O	สาขา	I-O	สาขา	I-O	สาขา
49	การขายสินค้าเพื่อการท่องเที่ยว	60	การขนส่งผู้โดยสารด้วยรถโดยสารไม่ประจำทาง	77	สปาและการนวด
50	การค้าปลีกค้าส่งอื่นๆ	61	การขนส่งผู้โดยสารด้วยรถยนต์	78	สนามกอล์ฟ
51	โรงแรมรีสอร์ต	62	การขนส่งผู้โดยสารทางรถไฟ	79	กิจกรรมผจญภัย
52	เกสต์เฮาส์	63	การขนส่งผู้โดยสารทางน้ำและชายฝั่ง	80	สวนสนุก
53	ที่พักสัมผัสวัฒนธรรมชนบท	64	การขนส่งทางอากาศ	81	กิจกรรมนันทนาการอื่นๆ
54	ภัตตาคารและร้านอาหาร	65	การให้เช่ารถยนต์และจักรยานยนต์โดยไม่มีคนควบคุม	82	กิจกรรมด้านกีฬา
55	การบริการอาหารบนแผงลอยในตลาดและแบบเคลื่อนที่	66	ตัวแทนบริษัทนำเที่ยว	83	การจัดประชุมและแสดงสินค้า
56	การบริการเครื่องดื่มเป็นหลักในร้าน	73	กิจกรรมการแสดงการละเล่นพื้นบ้านและการแสดงศิลปวัฒนธรรม	84	การเช่าอุปกรณ์ด้านการท่องเที่ยวอื่นๆ
57	การบริการเครื่องดื่มในรูปแบบอื่นๆ	74	พิพิธภัณฑ์สถานและสถานที่ทางประวัติศาสตร์	85	การให้บริการด้านสุขภาพ
58	การขนส่งผู้โดยสารด้วยรถโดยสารประจำทางระหว่างจังหวัด	75	อุทยานแห่งชาติและสวนพฤกษศาสตร์	86	การให้บริการฝึกอบรมและเรียนรู้วัฒนธรรม
59	การขนส่งผู้โดยสารด้วยรถโดยสารประจำทางระหว่างในเขตเมืองและชนบท	76	กิจกรรมออกกาลังกายเพื่อการผ่อนคลายทั้งร่างกายและจิตใจ	87	การให้บริการส่วนบุคคลอื่นๆ ที่เกี่ยวกับการท่องเที่ยว

จากการทบทวนวรรณกรรมพบว่า งานวิจัยในอดีตเกี่ยวกับผลกระทบทางเศรษฐกิจของอุตสาหกรรมการท่องเที่ยวของประเทศไทยยังคงมีช่องว่างหลายประการ กล่าวคือ พบงานวิจัยที่ศึกษาผลกระทบทางเศรษฐกิจของการท่องเที่ยวในระดับพื้นที่และระดับประเทศ แต่ยังไม่พบงานวิจัยที่เจาะลึกผลกระทบทางเศรษฐกิจของกลุ่มนักท่องเที่ยวที่มีบทบาทสำคัญต่อการท่องเที่ยวของประเทศไทย โดยเฉพาะอย่างยิ่งนักท่องเที่ยวต่างชาติ ซึ่งแต่ละชาติล้วนมีคุณลักษณะ พฤติกรรม และค่านิยมที่แตกต่างกัน

จำเป็นต้องมีมาตรการส่งเสริมการท่องเที่ยวที่เหมาะสมสำหรับนักท่องเที่ยวแต่ละชาติ ทั้งนี้งานวิจัยนี้มีเป้าหมายในการเติมเต็มช่องว่างดังกล่าว

วิธีดำเนินการวิจัย

1. **ข้อมูลและแหล่งข้อมูล**

งานวิจัยเรื่องนี้อาศัยข้อมูลนักท่องเที่ยวชาวจีนและนักท่องเที่ยวต่างชาติทั้งหมดในประเทศไทยระหว่างปี พ.ศ. 2561 – 2566 จากฐานข้อมูล “สถิตินักท่องเที่ยว” ของกระทรวงการท่องเที่ยวและกีฬา โดยข้อมูลประกอบด้วยจำนวนนักท่องเที่ยว จำนวนวันที่พำนักในประเทศไทย และค่าใช้จ่ายเฉลี่ยต่อคนต่อวัน จำแนกตามหมวดค่าใช้จ่าย นอกจากนี้ยังอาศัยค่าสัมประสิทธิ์ของปัจจัยการผลิต (Input Coefficient) ในตารางปัจจัยการผลิตและผลผลิต (ตาราง I-O) ด้านการท่องเที่ยวประจำปี พ.ศ. 2560 ภายใต้โครงการบัญชีประชาชาติด้านการท่องเที่ยวของกระทรวงการท่องเที่ยวและกีฬา

2. **เครื่องมือในการวิเคราะห์**

ในการคำนวณผลกระทบทางเศรษฐกิจของนักท่องเที่ยวชาวจีน งานวิจัยเรื่องนี้อาศัยโครงสร้างการใช้ปัจจัยการผลิตและโครงสร้างของมูลค่าเพิ่ม ที่แสดงโดยค่าสัมประสิทธิ์ของปัจจัยการผลิตในตาราง I-O ด้านการท่องเที่ยวปี พ.ศ. 2560 เพื่อคำนวณผลกระทบทางเศรษฐกิจที่เกิดขึ้นในปี พ.ศ. 2561 – 2566 ทั้งนี้ ในตาราง I-O ด้านการท่องเที่ยว มูลค่าผลผลิต (Total Output) ของแต่ละสาขาการผลิต คือ ผลรวมของมูลค่าปัจจัยการผลิตขั้นกลาง (Intermediate Goods) จากอุตสาหกรรมทั้ง 89 สาขา และมูลค่าเพิ่ม (Added Value) ที่เกิดขึ้น โดยมูลค่าผลผลิตจะมีค่าสัมประสิทธิ์เท่ากับ 1.0000

ในการวิเคราะห์ มูลค่าการใช้จ่ายของนักท่องเที่ยวชาวจีนจะถูกกระจายไปตามอุตสาหกรรมทางตรงทั้ง 33 สาขา และกำหนดให้ค่าใช้จ่ายที่เกิดขึ้นมีค่าเทียบเท่ามูลค่าผลผลิตในสาขานั้น ๆ (ซึ่งมีค่าสัมประสิทธิ์เท่ากับ 1.0000) จากนั้นจึงนำเอามูลค่าผลผลิตไปคำนวณเป็นมูลค่าปัจจัยการผลิตขั้นกลางและมูลค่าเพิ่มโดยการเทียบสัดส่วนกับสัมประสิทธิ์ของปัจจัยการผลิตในตาราง ทั้งนี้ มูลค่าเพิ่มที่ได้คือมูลค่าผลิตภัณฑ์มวลรวมภายในประเทศ หรือ GDP นั่นเอง

3. **กระบวนการคำนวณมูลค่าผลผลิต**

ขั้นตอนที่ 1: กระจายมูลค่าการใช้จ่ายของนักท่องเที่ยวทั้ง 7 หมวดค่าใช้จ่าย ได้แก่ ค่าโรงแรมที่พัก ค่าอาหารและเครื่องดื่ม ค่ากิจกรรมท่องเที่ยว ค่ากิจกรรมบันเทิง ค่าซื้อของ ค่าเดินทาง และค่าใช้จ่ายอื่น ๆ ตามหมวดอุตสาหกรรมที่เกี่ยวข้องกับการท่องเที่ยวโดยตรงทั้ง 33 สาขา โดยอาศัยสัดส่วนของมูลค่าผลผลิตในสาขาการผลิตกลุ่มอุตสาหกรรมเดียวกันในตาราง I-O ด้านการท่องเที่ยว ตัวอย่างเช่น ค่าใช้จ่ายที่พักของนักท่องเที่ยวจะกระจายไปยัง 3 สาขาที่เกี่ยวข้อง ได้แก่ โรงแรมรีสอร์ต เกสต์เฮาส์ และที่พักสัมผัสวัฒนธรรมชนบท ในสัดส่วนร้อยละ 97.84 1.51 และ 0.65 ตามลำดับ มูลค่าการใช้จ่ายของนักท่องเที่ยวในอุตสาหกรรมทั้ง 33 สาขาถือเป็นมูลค่าผลผลิตจากผลกระทบทางตรงจากนักท่องเที่ยว

ขั้นตอนที่ 2: คำนวณมูลค่าผลผลิตที่เกิดขึ้นในอุตสาหกรรมที่เป็นห่วงโซ่อุปทานทั้ง 56 สาขา โดยการคำนวณผลรวมของมูลค่าปัจจัยการผลิตขั้นกลางที่ใช้ในแต่ละอุตสาหกรรมทางตรงทั้ง 33 สาขาตามขั้นตอนที่ 1 มูลค่าปัจจัยการผลิตขั้นกลางของอุตสาหกรรมที่เป็นห่วงโซ่อุปทานทั้ง 56 สาขาดังกล่าว คือ มูลค่าของผลผลิตอันเกิดจากผลกระทบทางอ้อม

ขั้นตอนที่ 3: คำนวณมูลค่าการบริโภคของประชาชนในประเทศอันเป็นผลมาจากการที่มีรายได้จากกิจกรรมทางตรงและทางอ้อมเนื่องจากการใช้จ่ายของนักท่องเที่ยวต่างชาติ (หรืออีกนัยหนึ่งคือรายได้ที่ประชาชนได้รับจากการที่นักท่องเที่ยวต่างชาติมีการใช้จ่ายในประเทศไทยทั้งทางตรงและทางอ้อม) มูลค่าการบริโภคที่ได้ คือ มูลค่าของผลผลิตอันเกิดจากผลกระทบเชิงชักนำ (กระบวนการคำนวณอธิบายดังขั้นตอนที่ 3 ของการคำนวณผลิตภัณฑ์มวลรวมภายในประเทศในหัวข้อต่อไป)

4. กระบวนการคำนวณมูลค่าผลิตภัณฑ์มวลรวมภายในประเทศ

ขั้นตอนที่ 1: คำนวณมูลค่าผลิตภัณฑ์มวลรวมภายในประเทศจากผลกระทบทางตรงและผลกระทบทางอ้อมซึ่งเกิดจากค่าใช้จ่ายของนักท่องเที่ยวต่างชาติที่เกิดขึ้นในอุตสาหกรรมที่เกี่ยวข้องกับการท่องเที่ยวโดยตรงทั้ง 33 สาขา โดยอาศัยค่าสัมประสิทธิ์ของปัจจัยการผลิตในตาราง I-O ด้านการท่องเที่ยว

ขั้นตอนที่ 2: สร้างสมการมูลค่าการบริโภคของภาคเอกชน นั่นคือ C = f(GDP) โดยอาศัยการวิเคราะห์การถดถอยเชิงพหุ กำหนดให้ C = รายจ่ายเพื่อการบริโภคภาคเอกชน และ GDP = มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศ ทั้งนี้ จากการวิเคราะห์โดยอาศัยข้อมูลระหว่างปี พ.ศ. 2536 – 2566 พบว่า หากมูลค่าผลิตภัณฑ์มวลรวมภายในประเทศ (GDP) เพิ่มขึ้น 1 ล้านบาท จะทำให้รายจ่ายเพื่อการบริโภค (C) จะเพิ่มขึ้น 0.1892 ล้านบาท

ขั้นตอนที่ 3: คาดประมาณมูลค่าการบริโภคของภาคเอกชนที่เพิ่มขึ้นอันเกิดจากการเพิ่มขึ้นของ GDP จากผลกระทบทางตรงและทางอ้อมจากการคำนวณในขั้นตอนที่ 1 ค่าที่ได้ คือ มูลค่าของผลผลิตอันเกิดจากผลกระทบเชิงชักนำ

ขั้นตอนที่ 4: สร้างสมการมูลค่าผลิตภัณฑ์มวลรวมภายในประเทศ นั่นคือ GDP = f(C, I, G, X, M) กำหนดให้ GDP = มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศ C = มูลค่าการบริโภคของภาคเอกชน I = มูลค่ารายจ่ายเพื่อการลงทุน G = มูลค่ารายจ่ายภาครัฐ X = มูลค่าการส่งออก และ M = มูลค่าการนำเข้า ทั้งนี้ จากการวิเคราะห์โดยอาศัยข้อมูลระหว่างปี พ.ศ.2536 – 2566 พบว่า หากมูลค่าการบริโภคภาคเอกชน (C) เพิ่มขึ้น 1 ล้านบาท จะทำให้มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศ (GDP) เพิ่มขึ้น 1.2378 ล้านบาท

ขั้นตอนที่ 5: คาดประมาณมูลค่าผลิตภัณฑ์มวลรวมภายในประเทศที่เพิ่มขึ้นอันเกิดจากการเพิ่มขึ้นของมูลค่าการบริโภคของภาคเอกชนที่ได้จากขั้นตอนที่ 3 โดยค่าที่ได้ คือ มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศจากผลกระทบเชิงชักนำ

5. กระบวนการคำนวณจำนวนการจ้างงาน

ขั้นตอนที่ 1: คำนวณผลรวมของเงินเดือน ค่าจ้าง และค่าตอบแทนของของแต่ละอุตสาหกรรมในตาราง I-O ด้านการท่องเที่ยว โดยอาศัยค่าสัมประสิทธิ์ของปัจจัยการผลิตในตาราง I-O ดังกล่าว

ขั้นตอนที่ 2: คำนวณจำนวนการจ้างงานในแต่ละอุตสาหกรรมโดยอ้างอิงจากค่าจ้างเฉลี่ยของแรงงานในสาขาที่ใกล้เคียงกันจากการสำรวจภาวะการทำงานของประชากร โดยสำนักงานสถิติแห่งชาติ กำหนดให้

จำนวนการจ้างงานในสาขา i = มูลค่าเงินเดือน ค่าจ้าง และค่าตอบแทนในสาขา i/ค่าจ้างแรงงานเฉลี่ยในสาขา i

ขั้นตอนที่ 3: คำนวณจำนวนการจ้างงานจากผลกระทบทางตรงและผลกระทบทางอ้อม โดยผลรวมของจำนวนการจ้างงานในอุตสาหกรรมที่เกี่ยวกับการท่องเที่ยวโดยตรง 33 สาขา คือ การจ้างงานจากผลกระทบทางตรงและผลรวมการจ้างงานในอุตสาหกรรมที่เป็นห่วงโซ่อุปทาน 56 สาขา คือ การจ้างงานจากผลกระทบทางอ้อม

ขั้นตอนที่ 4: คำนวณผลรวมของเงินเดือน ค่าจ้าง และค่าตอบแทนจากผลกระทบเชิงชักนำ โดยนำเอามูลค่าผลิตภัณฑ์มวลรวมภายในประเทศจากผลกระทบเชิงชักนำไปคูณกับสัดส่วนระหว่างค่าสัมประสิทธิ์ของเงินเดือน ค่าจ้าง และค่าตอบแทนและค่าสัมประสิทธิ์ของมูลค่าเพิ่มรวม (ซึ่งเป็นตัวชี้วัดผลิตภัณฑ์มวลรวมภายในประเทศ) ของภาพรวมในตาราง I-O ด้านการท่องเที่ยว จากนั้นคำนวณจำนวนการจ้างงานจากผลกระทบเชิงชักนำโดยอ้างอิงจากค่าจ้างเฉลี่ยของแรงงานในภาพรวมของประเทศไทยจากการสำรวจภาวะการทำงานของประชากรโดยใช้สูตรคำนวณเดียวกันกับขั้นตอนที่ 2

ผลการวิจัย

ตารางที่ 2 แสดงสถิตินักท่องเที่ยวชาวจีนในประเทศไทยระหว่างปี พ.ศ. 2561 – 2566 เปรียบเทียบกับนักท่องเที่ยวทั้งหมด โดยพบว่านักท่องเที่ยวชาวจีนในปี พ.ศ. 2562 มีจำนวนมากกว่า 11 ล้านคน ก่อให้เกิดค่าใช้จ่ายรวมมากถึง 531,576.84 ล้านบาท ก่อนที่สถานการณ์โควิด 19 จะทำให้จำนวนนักท่องเที่ยวชาวจีนเหลือเพียง 26,558 คนในปี พ.ศ. 2564 โดยในปี พ.ศ. 2566 พบว่าจำนวนนักท่องเที่ยวชาวจีนเพิ่มขึ้นเป็น 3.5 ล้านคน เกิดเป็นค่าใช้จ่ายรวมเท่ากับ 193,996.09 ล้านบาท แต่ก็ยังน้อยกว่าช่วงก่อนโควิด 19 เป็นอย่างมาก เมื่อพิจารณาจำนวนวันที่ท่องเที่ยวในประเทศไทยพบว่า ช่วงหลังสถานการณ์โควิด 19 นักท่องเที่ยวชาวจีนท่องเที่ยวในประเทศไทยยาวนานขึ้น เพิ่มขึ้นจาก 7.76 วันในปี พ.ศ. 2561 เป็น 10.60 วันในปี พ.ศ. 2566 นอกจากนี้ยังพบว่า นักท่องเที่ยวชาวจีนมีค่าใช้จ่ายต่อคนต่อวันโดยเฉลี่ยสูงกว่านักท่องเที่ยวในภาพรวมอย่างชัดเจนในทุกปีที่ทำการศึกษา

ตารางที่ 2 สถิตินักท่องเที่ยวชาวจีนและนักท่องเที่ยวต่างชาติทั้งหมดในประเทศไทย

ปี	นักท่องเที่ยวชาวจีน				นักท่องเที่ยวต่างชาติทั้งหมด			
	จำนวนคน	จำนวนวัน	ค่าใช้จ่ายเฉลี่ยต่อวัน	ค่าใช้จ่ายรวม (ล้านบาท)	จำนวนคน	จำนวนวัน	ค่าใช้จ่ายเฉลี่ยต่อวัน	ค่าใช้จ่ายรวม (ล้านบาท)
2561	10,625,167	7.76	6,334.22	522,264.65	38,178,194	9.29	5,289.72	1,876,133.67
2562	11,138,658	7.80	6,118.41	531,576.84	39,916,251	9.26	5,172.29	1,911,805.02
2563	1,302,137	9.86	5,073.36	65,137.23	6,725,193	12.54	3,738.38	315,272.24
2564	26,558	47.94	7,196.74	9,162.82	510,767	43.32	4,433.00	98,086.35
2565	258,662	21.23	5,475.54	30,068.35	11,065,226	12.40	3,510.50	481,671.29
2566	3,521,095	10.60	5,197.68	193,996.09	28,150,016	10.75	4,127.72	1,249,099.44

หมายเหตุ: ค่าใช้จ่ายเฉลี่ยมีหน่วยเป็น บาทต่อคนต่อวัน และค่าใช้จ่ายรวมมีหน่วยเป็น ล้านบาท
ที่มา: กระทรวงการท่องเที่ยวและกีฬา (2567a)

จากผลการวิเคราะห์มูลค่าผลผลิตดังตารางที่ 3 พบว่านักท่องเที่ยวจีนสามารถสร้างผลผลิตจากผลกระทบทางตรงได้เท่ากับ 531,576.84 ล้านบาทในปี พ.ศ. 2562 เกิดเป็นผลผลิตรวมเท่ากับ 841,475.62 ล้านบาท คิดเป็นสัดส่วนมากกว่า 1 ใน 4 ของผลผลิตรวมจากนักท่องเที่ยวต่างชาติทั้งหมด อย่างไรก็ตามสถานการณ์โควิด 19 ทำให้จำนวนนักท่องเที่ยวจีนลดลงเป็นอย่างมาก โดยทำให้ผลผลิตจากผลกระทบทางตรงและผลกระทบโดยรวมลดลงเหลือเพียง 9,162.82 และ 15,291.05 ล้านบาท

ตามลำดับ ก่อนที่สถานการณ์จะดีขึ้นในปี พ.ศ. 2566 ซึ่งมูลค่าผลผลิตทางตรงและผลผลิตรวมจากนักท่องเที่ยวชาวจีนเพิ่มเป็น 193,996.09 และ 317,320.88 ล้านบาท ตามลำดับ แต่ก็ถือว่ายังไม่สามารถกลับไปสู่ก่อนเกิดสถานการณ์โควิด 19 ได้

ตารางที่ 3 มูลค่าผลผลิต (ล้านบาท) อันเกิดจากนักท่องเที่ยวชาวจีน

ปี	นักท่องเที่ยวชาวจีน				นักท่องเที่ยวต่างชาติทั้งหมด			
	ผลกระทบทางตรง	ผลกระทบทางอ้อม	ผลกระทบเชิงชักนำ	ผลกระทบทางเศรษฐกิจทั้งหมด	ผลกระทบทางตรง	ผลกระทบทางอ้อม	ผลกระทบเชิงชักนำ	ผลกระทบทางเศรษฐกิจทั้งหมด
2561	522,264.65	235,881.32	69,624.69	827,770.65	1,876,133.67	899,629.44	244,924.95	3,020,688.07
2562	531,576.84	238,935.10	70,963.68	841,475.62	1,911,805.02	916,520.34	249,615.07	3,077,940.43
2563	65,137.23	30,171.26	8,611.54	103,920.03	315,272.24	160,241.21	40,290.60	515,804.05
2564	9,162.82	4,987.83	1,140.39	15,291.05	98,086.35	53,186.43	12,243.71	163,516.49
2565	30,068.35	13,876.88	4,016.38	47,961.61	481,671.29	249,074.24	61,395.89	792,141.42
2566	193,996.09	98,327.99	24,996.80	317,320.88	1,249,099.44	640,045.06	159,578.85	2,048,723.34

ตารางที่ 4 แสดงมูลค่าผลิตภัณฑ์มวลรวมภายในประเทศที่เกิดจากนักท่องเที่ยวชาวจีนในประเทศไทย โดยพบว่า นักท่องเที่ยวชาวจีนสามารถสร้างผลิตภัณฑ์มวลรวมภายในประเทศจากผลกระทบทางตรงได้เท่ากับ 277,359.08 ล้านบาท ในปี พ.ศ. 2562 และสร้างผลิตภัณฑ์มวลรวมภายในประเทศได้ทั้งหมดเท่ากับ 462,831.87 ล้านบาท สถานการณ์โควิด 19 ทำให้จำนวนนักท่องเที่ยวชาวจีนลดลงอย่างรุนแรงในช่วงปี พ.ศ. 2563 – 2564 ทำให้มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศทางตรงและมูลค่าผลิตภัณฑ์มวลรวมภายในประเทศทั้งหมดที่เกิดจากนักท่องเที่ยวชาวจีนลดลงเหลือเพียง 3,962.90 และ 7,437.76 ล้านบาท ตามลำดับ ในปี พ.ศ. 2564 ทั้งนี้สถานการณ์โควิด 19 ดีขึ้นเป็นลำดับนับตั้งแต่ปี พ.ศ. 2565 โดยทำให้ในปี พ.ศ. 2566 มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศจากผลกระทบทางตรงที่เกิดจากนักท่องเที่ยวชาวจีนเพิ่มขึ้นเป็น 91,519.73 ล้านบาท และมูลค่าผลิตภัณฑ์มวลรวมภายในประเทศทั้งหมดเพิ่มเป็น 163,031.51 ล้านบาท ในขณะที่มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศจากนักท่องเที่ยวทั้งหมดต่างชาติทั้งหมดมีค่าเท่ากับ 1,040,788.37 ล้านบาท

ตารางที่ 4 มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศ (ล้านบาท) อันเกิดจากนักท่องเที่ยวชาวจีน

ปี	นักท่องเที่ยวชาวจีน				นักท่องเที่ยวทั้งหมด			
	ผลกระทบทางตรง	ผลกระทบทางอ้อม	ผลกระทบเชิงชักนำ	ผลกระทบทางเศรษฐกิจทั้งหมด	ผลกระทบทางตรง	ผลกระทบทางอ้อม	ผลกระทบเชิงชักนำ	ผลกระทบทางเศรษฐกิจทั้งหมด
2561	271,498.33	96,422.30	86,178.20	454,098.82	927,662.42	366,604.61	303,156.69	1,597,423.72
2562	277,359.08	97,637.25	87,835.54	462,831.87	945,510.82	373,540.40	308,961.90	1,628,013.12
2563	33,156.39	12,349.93	10,658.96	56,165.28	147,437.30	65,471.98	49,869.83	262,779.11
2564	3,962.90	2,063.33	1,411.53	7,437.76	42,722.99	21,976.95	15,154.69	79,854.63
2565	15,409.11	5,814.81	4,971.29	26,195.20	222,512.86	101,923.97	75,992.97	400,429.81
2566	91,519.73	40,571.90	30,939.88	163,031.51	580,686.23	262,582.88	197,519.26	1,040,788.37

เมื่อพิจารณาจำนวนการจ้างงานดังตารางที่ 5 พบว่า นักท่องเที่ยวทั้งหมดได้ก่อให้เกิดการจ้างงานมากถึง 2,758,869 คน ในปี พ.ศ. 2562 โดยเป็นการจ้างงานจากผลกระทบทางตรงและผลกระทบโดยรวมจากนักท่องเที่ยวชาวจีน จำนวน 473,208 และ 787,627 คน ตามลำดับ ก่อนที่การจ้างงานที่เกิดขึ้นจากนักท่องเที่ยวชาวจีนจะลดลงจากสถานการณ์โควิด 19 โดยการจ้างงานจากผลกระทบทางตรงลดลงเหลือเพียง 6,398 คน และการจ้างงานจากผลกระทบโดยรวมลดลงเหลือเพียง 12,222 คนในปี พ.ศ. 2564 ทั้งนี้การท่องเที่ยวของนักท่องเที่ยวชาวจีนเริ่มฟื้นตัวในปี พ.ศ. 2565 – 2566 โดยทำให้ในปี พ.ศ. 2565 จำนวนการจ้างงานจากผลกระทบทางตรงและจากผลกระทบโดยรวมเพิ่มเป็น 161,542 และ 282,106 คน ตามลำดับ

ตารางที่ 5 จำนวนการจ้างงาน (คน) อันเกิดจากนักท่องเที่ยวชาวจีน

ปี	นักท่องเที่ยวชาวจีน				นักท่องเที่ยวทั้งหมด			
	ผลกระทบทางตรง	ผลกระทบทางอ้อม	ผลกระทบเชิงชักนำ	ผลกระทบทางเศรษฐกิจทั้งหมด	ผลกระทบทางตรง	ผลกระทบทางอ้อม	ผลกระทบเชิงชักนำ	ผลกระทบทางเศรษฐกิจทั้งหมด
2561	464,118	145,470	164,004	773,592	1,571,719	556,822	576,932	2,705,474
2562	473,208	147,261	167,158	787,627	1,603,515	567,374	587,980	2,758,869
2563	57,707	18,583	20,285	96,575	254,272	99,405	94,906	448,583
2564	6,398	3,138	2,686	12,222	68,183	33,569	28,841	130,593
2565	25,379	8,664	9,461	43,504	370,955	156,301	144,621	671,877
2566	161,542	61,683	58,881	282,106	995,039	399,369	375,895	1,770,304

เมื่อพิจารณาอัตราการเปลี่ยนแปลงของผลกระทบทางเศรษฐกิจระหว่างช่วงปี พ.ศ. 2561 – 2566 พบว่ามีความผันผวนอย่างรุนแรงอันเป็นผลมาจากสถานการณ์โควิด 19 โดยพบว่าทั้งมูลค่าผลผลิต มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศ และจำนวนการจ้างงานลดลงในอัตรามากกว่าร้อยละ 87 ในปี พ.ศ. 2563 และลดลงต่อเนื่องในอัตรามากกว่าร้อยละ 85 ในปี พ.ศ. 2564 ก่อนที่จะกลับมาเติบโตในอัตรามากกว่าร้อยละ 200 ในปี พ.ศ. 2565 ซึ่งสถานการณ์โควิด 19 เริ่มคลี่คลายและมาตรการป้องกันต่างๆ ของภาครัฐถูกยกเลิกไป ทั้งนี้ ในปี พ.ศ. 2566 มูลค่าผลผลิต มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศ และจำนวนการจ้างงานมีอัตราการเติบโตมากกว่าร้อยละ 500 เมื่อสถานการณ์การท่องเที่ยวกลับสู่ภาวะปกติ อย่างไรก็ตาม เมื่อพิจารณาสัดส่วนของมูลค่าผลกระทบทางเศรษฐกิจของนักท่องเที่ยวชาวจีนต่อผลกระทบจากนักท่องเที่ยวทั้งหมด จะเห็นว่าในช่วงก่อนเกิดสถานการณ์โควิด 19 สัดส่วนของมูลค่าผลกระทบทางเศรษฐกิจของนักท่องเที่ยวชาวจีนต่อผลกระทบจากนักท่องเที่ยวทั้งหมดมีค่าสูงกว่าร้อยละ 27 ก่อนจะลดลงต่อเนื่องเหลือประมาณร้อยละ 6 ในปี พ.ศ. 2565 อันเป็นผลมาจากนโยบาย Zero COVID-19 ของรัฐบาลจีนที่ทำให้นักท่องเที่ยวชาวจีนมีจำนวนน้อยลงอย่างมาก ก่อนที่สัดส่วนจะเพิ่มขึ้นเป็นประมาณร้อยละ 15 ในปี พ.ศ. 2566 แต่ก็ยังถือว่าต่ำกว่าช่วงก่อนเกิดสถานการณ์โควิด 19

ตารางที่ 6 ผลกระทบทางเศรษฐกิจของนักท่องเที่ยวชาวจีนในประเทศไทย

ปี	อัตราการเปลี่ยนแปลง (%)			สัดส่วนของผลกระทบจากนักท่องเที่ยวชาวจีนต่อนักท่องเที่ยวต่างชาติทั้งหมด			สัดส่วนต่อทุกภาคเศรษฐกิจของประเทศไทย	
	ผลผลิต	ผลิตภัณฑ์มวลรวมภายในประเทศ	การจ้างงาน	ผลผลิต	ผลิตภัณฑ์มวลรวมภายในประเทศ	การจ้างงาน	ผลิตภัณฑ์มวลรวมภายในประเทศ	การจ้างงาน
2561	-	-	-	27.40	28.43	28.59	2.77	2.04
2562	1.66	1.92	1.81	27.34	28.43	28.55	2.74	2.09
2563	-87.65	-87.86	-87.74	20.15	21.37	21.53	0.36	0.26
2564	-85.29	-86.76	-87.34	9.35	9.31	9.36	0.05	0.03
2565	213.66	252.19	255.96	6.05	6.54	6.47	0.15	0.11
2566	561.61	522.37	548.46	15.49	15.66	15.94	0.91	0.71

เมื่อเปรียบเทียบกับเศรษฐกิจในภาพรวม จะเห็นได้ว่าในปี พ.ศ. 2561 – 2562 นักท่องเที่ยวชาวจีนมีส่วนสำคัญเป็นอย่างมากในการสร้างผลิตภัณฑ์มวลรวมภายในประเทศและการจ้างงานให้แก่ประเทศไทย โดยในปี พ.ศ. 2562 มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศและจำนวนการจ้างงานที่เกิดจากนักท่องเที่ยวชาวจีนมีสัดส่วนสูงถึงร้อยละ 2.74 และ 2.09 ของทั้งประเทศ ตามลำดับ อย่างไรก็ตาม สถานการณ์โควิด 19 ทำให้ประเทศไทยสูญเสียโอกาสทางเศรษฐกิจที่เคยได้รับจากนักเที่ยวชาวจีนไปมากกว่าร้อยละ 98 ในปี พ.ศ. 2564 และแม้สถานการณ์จะดีขึ้นหลังปี พ.ศ. 2565 แต่บทบาททางเศรษฐกิจของนักท่องเที่ยวจีนที่มีต่อเศรษฐกิจไทยก็ยังไม่ฟื้นตัว โดยในปี พ.ศ. 2566 มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศและจำนวนการจ้างงานที่เกิดจากนักท่องเที่ยวจีน คิดเป็นเพียงร้อยละ 0.91 และ 0.71 ของภาพรวมทั้งประเทศเท่านั้น

สรุปและอภิปรายผล

งานวิจัยเรื่องนี้ได้ทำการวิเคราะห์ผลกระทบทางเศรษฐกิจของนักท่องเที่ยวชาวจีนในประเทศไทยระหว่างปี พ.ศ. 2561 – 2566 และพบว่าผลกระทบทางเศรษฐกิจของนักท่องเที่ยวชาวจีนมีมูลค่าสูงสุดในปี พ.ศ. 2562 โดยสามารถสร้างมูลค่าผลผลิตและผลิตภัณฑ์มวลรวมภายในประเทศจากผลกระทบทางตรงได้เท่ากับ 531,576.84 และ 277,359.08 ล้านบาท ตามลำดับ และทำให้เกิดการจ้างงาน จำนวน 473,208 คน และเมื่อคำนวณผลกระทบโดยรวมพบว่า นักท่องเที่ยวชาวจีนก่อให้เกิดมูลค่าผลผลิตและผลิตภัณฑ์มวลรวมภายในประเทศมากถึง 841,475.62 และ 462,831.87 ล้านบาท ตามลำดับ และก่อให้เกิดการจ้างงานมากถึง 787,627 คน อย่างไรก็ตาม สถานการณ์โควิด 19 ที่เกิดขึ้นในปี พ.ศ. 2563 ทำให้จำนวนนักท่องเที่ยวชาวจีนลดลงอย่างรุนแรง ทำให้เหลือมูลค่าผลผลิต มูลค่าผลิตภัณฑ์มวลรวมภายในประเทศและจำนวนการจ้างงานโดยรวมในปี พ.ศ. 2564 เพียง 15,291.05 ล้านบาท 7,437.76 ล้านบาท และ 12,222 คน ตามลำดับ ทั้งนี้สถานการณ์เริ่มดีขึ้นในปี พ.ศ. 2566 เมื่อมูลค่าผลผลิตและผลิตภัณฑ์มวลรวมภายในประเทศโดยรวมจากนักท่องเที่ยวชาวจีนเพิ่มเป็น 317,320.88 และ 163,031.51 ล้านบาท ตามลำดับ และจำนวนการจ้างงานเพิ่มเป็น 282,106 คน แต่ก็ถือว่ายังห่างไกลจากปี พ.ศ. 2562 เป็นอย่างมาก

จากการศึกษาจะเห็นได้ว่า นักท่องเที่ยวชาวจีนคือกลไกสำคัญที่ช่วยขับเคลื่อนการเติบโตทางเศรษฐกิจของประเทศไทย โดยเฉพาะอย่างยิ่งในปี พ.ศ. 2562 ซึ่งประเทศไทยประสบปัญหาการส่งออกชะลอตัว แต่มีการเติบโตของจำนวนนักท่องเที่ยวชาวจีนและผลิตภัณฑ์มวลรวมภายในประเทศจากนักท่องเที่ยวชาวจีนกว่า 460,000 ล้านบาท อันเป็นผลมาจากมาตรการยกเว้นค่าธรรมเนียม Visa on Arrival ช่วยให้ประเทศไทยยังคงมีอัตราการขยายตัวทางเศรษฐกิจได้ในอัตราร้อยละ 2.4 ตามรายงานของธนาคารแห่งประเทศไทย (ธนาคารแห่งประเทศไทย, 2563) อย่างไรก็ตาม หลังเกิดการแพร่ระบาดของโรคโควิด 19 ประเทศจีนบังคับใช้มาตรการล็อกดาวน์อย่างเข้มงวดตลอดปี พ.ศ. 2563 – 2564 (ธนาคารแห่งประเทศไทย, 2566) ทำให้จำนวนนักท่องเที่ยวชาวจีนและผลกระทบทางเศรษฐกิจจากนักท่องเที่ยวชาวจีนลดลงอย่างรุนแรง

นอกจากนี้การประกาศใช้นโยบาย Zero COVID-19 ในช่วงต้นปี พ.ศ. 2565 ทำให้เกิดข้อจำกัดในการเดินทางมาท่องเที่ยวประเทศไทยของนักท่องเที่ยวชาวจีน ทำให้การท่องเที่ยวของชาวจีนยังไม่ฟื้นตัวสวนทางกับนักท่องเที่ยวจากประเทศอื่น ๆ โดยเฉพาะนักท่องเที่ยวจากประเทศอาเซียน ส่งผลทำให้มีจำนวนนักท่องเที่ยวชาวจีนไม่ถึง 1 ล้านคน และหลุดจาก 10 อันดับแรกของประเทศที่มีนักท่องเที่ยวมากที่สุดในประเทศไทย (การท่องเที่ยวแห่งประเทศไทย, 2566) อย่างไรก็ตาม แม้ประเทศจีนจะยกเลิกมาตรการ Zero COVID ในช่วงต้นปี พ.ศ. 2566 แต่จำนวนนักท่องเที่ยวชาวจีนในประเทศกลับฟื้นได้ค่อนข้างช้า ทำให้มีนักท่องเที่ยวชาวจีนเดินทางมาท่องเที่ยวในประเทศไทยไม่ถึง 1 ใน 3 ของจำนวนก่อนเกิดสถานการณ์โควิด 19 (ศูนย์วิจัยเศรษฐกิจและธุรกิจ ธนาคารไทยพาณิชย์, 2567) โดยสาเหตุสำคัญมาจากความกังวลเรื่องความปลอดภัยและปัญหาทางการเมืองในประเทศไทย ส่งผลทำให้การท่องเที่ยวของชาวจีนในประเทศไทยฟื้นตัวช้ากว่าประเทศอื่น ๆ ทั้งนี้ คาดการณ์ว่าสถานการณ์จะดีขึ้นในปี พ.ศ. 2567 และ 2568 ตามลำดับ

ข้อเสนอแนะ

เพื่อกระตุ้นให้นักท่องเที่ยวจีนกลับมาท่องเที่ยวในประเทศไทยให้มากขึ้น การยกเว้นค่าธรรมเนียม Visa on Arrival ในระยะยาวหรือเป็นการถาวรถือเป็นมาตรการที่มีความจำเป็น เพื่อดึงดูดให้นักท่องเที่ยวชาวจีนเลือกที่จะมาเดินทางในประเทศไทยแทนที่จะไปประเทศอื่น ๆ นอกจากนี้ ยังต้องเพิ่มมาตรการสนับสนุนการท่องเที่ยวด้านอื่น ๆ ให้ครอบคลุมและมีประสิทธิภาพมากยิ่งขึ้น ไม่ว่าจะเป็นด้านความปลอดภัย เช่น การจัดให้มีสายด่วนนักท่องเที่ยวที่นักท่องเที่ยวชาวจีนสามารถเข้าถึงได้ การกำหนดมาตรการป้องกันอาชญากรรมในพื้นที่ท่องเที่ยว การมีระบบความปลอดภัยสำหรับผู้เดินทาง ฯลฯ ด้านบริการสุขภาพ เช่น การส่งเสริมความสะอาดในพื้นที่ท่องเที่ยวและโรงแรม การจัดให้มีศูนย์การแพทย์ฉุกเฉินเพื่อให้บริการชาวต่างชาติ ฯลฯ ด้านการเดินทาง เช่น การควบคุมความปลอดภัยของการขนส่งสาธารณะ การมีแอปพลิเคชันให้ข้อมูลขนส่งสาธารณะ ฯลฯ และด้านเทคโนโลยี เช่น การจัดให้มีบริการอินเทอร์เน็ตฟรีในพื้นที่ท่องเที่ยว การมีแอปพลิเคชันสนับสนุนการท่องเที่ยวแบบครบวงจร ฯลฯ

ทั้งนี้ ณ ปี พ.ศ.2568 ประเทศจีน คือ หนึ่งใน 93 ประเทศที่ได้รับสิทธิยกเว้นการตรวจลงตรา (วีซ่า) และสามารถพำนักในราชอาณาจักรไทยเป็นการชั่วคราวได้ไม่เกิน 60 วัน เพื่อการท่องเที่ยว การติดต่อธุรกิจ และการทำงานระยะสั้น โดยบังคับใช้มาตั้งแต่วันที่ 15 ก.ค. 2567 (การท่องเที่ยวแห่งประเทศไทย, 2567) ซึ่งได้ก่อให้เกิดปัญหาต่าง ๆ ตามมามากมาย ไม่ว่าจะเป็นการอยู่ในประเทศไทยเกินเวลาที่กำหนด การก่อความวุ่นวาย การไม่ปฏิบัติตามกฎหมายต่าง ๆ และการประกอบธุรกิจที่ผิดกฎหมาย ปัญหาดังกล่าวถือเป็นประเด็นเร่งด่วนที่หน่วยงานภาครัฐที่เกี่ยวข้อง ต้องหามาตรการคัดกรอง

นักท่องเที่ยวชาวจีนและควบคุมมิให้นักท่องเที่ยวชาวจีนสามารถอาศัยช่องว่างของกฎหมายในการก่อปัญหาให้แก่ประเทศไทยได้ และช่วยให้การเติบโตของจำนวนนักท่องเที่ยวชาวจีนส่งผลดีต่อเศรษฐกิจและสังคมไทยอย่างแท้จริง

เอกสารอ้างอิง

การท่องเที่ยวแห่งประเทศไทย. (2566). สถานการณ์ท่องเที่ยวตลาดต่างประเทศปี 2565. สืบค้น 13 กุมภาพันธ์ 2568, จาก https://tatreviewmagazine.com/article/situation2022-inter/.

การท่องเที่ยวแห่งประเทศไทย. (2567). ประกาศแล้ว รายชื่อ 93 ประเทศ ฟรีวีซ่า เที่ยวไทยได้ 60 วัน. สืบค้น 13 กุมภาพันธ์ 2568, จาก https://thai.tourismthailand.org/Articles/visa-free-entry-to-thailand.

กระทรวงการท่องเที่ยวและกีฬา. (2567a). สถิตินักท่องเที่ยว. สืบค้น 13 กุมภาพันธ์ 2568, จาก https://www.mots.go.th/more_news_new.php?cid=411#.

กระทรวงการท่องเที่ยวและกีฬา. (2567b). บัญชีประชาชาติด้านการท่องเที่ยว (Tourism Satellite Account: TSA). สืบค้น 13 กุมภาพันธ์ 2568,จาก https://mots.go.th/news/category/427.

ธนาคารแห่งประเทศไทย. (2563). รายงานภาวะเศรษฐกิจไทย ปี 2562. สืบค้น 13 กุมภาพันธ์ 2568, จาก https://www.bot.or.th/content/dam/bot/documents/th/thai-economy/state-of-thai-economy/annual-report/annual-econ-report-th-2562.pdf.

ธนาคารแห่งประเทศไทย. (2566). จีนเปิดประเทศ : โอกาสและความเสี่ยง. สืบค้น 13 กุมภาพันธ์ 2568, จาก https://www.bot.or.th/th/research-and-publications/articles-and-publications/bot-magazine/Phrasiam-66-1/Global-Trend-66-1-2.html.

ธีระ สินเดชารักษ์ และวิชาญ กิตติรัตนพันธ์. (2565). การประเมินผลกระทบด้านเศรษฐกิจจากการท่องเที่ยวในพื้นที่พิเศษเพื่อการท่องเที่ยวอย่างยั่งยืน. วารสารการบริการและการท่องเที่ยวไทย, 17(1), 34-45.

เพ็ญศิริ สมารักษ์, นันทภัค บุรขจรกุล และเปรมปรีดา ทองลา. (2565). ผลกระทบทางเศรษฐกิจจากการท่องเที่ยวโดยชุมชน ตำบลบางสระเก้า อำเภอแหลมสิงห์ จังหวัดจันทบุรี. วารสารวิจัยรำไพพรรณี, 16(1), 46-57.

ศูนย์วิจัยกสิกรไทย. (2568). นักท่องเที่ยวจีนยังฮิตเที่ยวไทย แต่การเจาะตลาดท้าทายกว่าเดิม. สืบค้น 13 กุมภาพันธ์ 2568, จาก https://www.kasikornresearch.com/th/analysis/k-social-media/Pages/Ch-Tourism-CIS3553-FB-2025-01-24.aspx.

ศูนย์วิจัยเศรษฐกิจและธุรกิจ ธนาคารไทยพาณิชย์. (2567). China in focus: รู้เขา รู้เรา ชนะใจนักท่องเที่ยวจีน. สืบค้น 13 กุมภาพันธ์ 2568, จาก https://www.scbeic.com/th/detail/file/product/9537/gyd0uu6ols/In-focus-Chinese-tourist-20240725.pdf.

อำนาจ รักษาพล, เบญจมาศ ณ ทองแก้ว และอุทัยวรรณ ศรีวิชัย. (2563). ผลกระทบด้านเศรษฐกิจจากการท่องเที่ยวในแหล่งท่องเที่ยวโดยชุมชน เกาะพิทักษ์ จังหวัดชุมพร. วารสารการจัดการธุรกิจ มหาวิทยาลัยบูรพา, 9(1), 50-70.

Biburiev, R., David, L., Abdreyeva, S., Zhakupova, A., & Artemyev, A. (2018). Impact of tourism activities of economy of Kazakhstan. Geojournal of Tourism and Geosites, 22(2), 480-488. Retrieved from https://doi.org/10.30892/gtg.22217-304.

Eurostat. (2022). Tourism satellite accounts on Europe. Retrieved February 13, 2025, from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Tourism_satellite_accounts_on_Europe.

Kariyapol, T., & Agarwal, R. (2020). Economic benefits and consequences of tourism in developing countries: A case of Thailand. Sripatum Review of Humanities and Social Sciences, 20(1), 180-192.

Lemma, A. F. (2014). Tourism impacts: Evidence of impacts on employment, gender, income. Retrieved February 13, 2025, from https://assets.publishing.service.gov.uk/media/57a089f2ed915d622c000495/Tourism_Impacts_employment_gender_income_A_Lemma.pdf

Mayer, M., Muller, M., Woltering, M., Arnegger, J., & Job, H. (2010). The economic impact of tourism in six German national parks. Landscape and Urban Planning, 97(2), 73-82. Retrieved from https://doi.org/10.1016/j.landurbplan.2010.04.013.

Pratt, S. (2015). The economic Impact of tourism in SIDS. Annals of Tourism Research, 52, 148-160. Retrieved from https://doi.org/10.1016/j.annals.2015.03.005.

Tohmo, T. (2018). The economic impact of tourism in Central Finland: A regional input–output study. Tourism Review, 73(4), 521-547. Retrieved from https://doi.org/10.1108/TR-04-2017-0080.

World Travel and Tourism Council. (2023). Travel and tourism economic impact 2023. Retrieved February 13, 2025, from https://assets-global.website-files.com/6329bc97af73223b575983ac/648b1a25bc78c3018ad52edc_EIR2023-World.pdf.

การรีไซเคิลน้ำมันประกอบอาหารใช้แล้วจากครัวตลาดสู่การผลิตน้ำมันเชื้อเพลิงอากาศยานยั่งยืนภายใต้โมเดลเศรษฐกิจ BCG

Recycling used Cooking Oil from Market Kitchens to Produce Sustainable Aviation Fuel (SAF) under the BCG Economic Model

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บทคัดย่อ

บทความนี้มีวัตถุประสงค์เพื่อ 1) ศึกษาน้ำมันพืชที่ใช้ในการประกอบอาหาร แหล่งผลิตน้ำมันที่ใช้แล้ว 2) ศึกษาเส้นทางการเดินทางของน้ำมันที่ใช้แล้วนำไปสู่กระบวนการผลิตเป็นน้ำมันเชื้อเพลิงอากาศยานแบบยั่งยืน SAF 3) ศึกษาความเคลื่อนไหวการรณรงค์การใช้น้ำมัน SAF ในประเทศไทยและต่างประเทศ ผู้ให้ข้อมูลสำคัญที่ใช้ในการวิจัย คือ ผู้ขายอาหาร ผู้ที่รับซื้อน้ำมันใช้แล้ว ประชาชน หน่วยงานภาครัฐ จำนวน 17 คน ใช้วิธีการวิจัยเชิงคุณภาพ เครื่องมือเป็นแบบสัมภาษณ์แบบเจาะลึก การสังเกตแบบไม่มีส่วนร่วม วิเคราะห์ข้อมูลโดยการนำข้อมูลมาจำแนกหมวดหมู่ ตีความสร้างข้อสรุป และนำเสนอโดยวิธีพรรณนาเชิงวิเคราะห์ ผลการวิจัยพบว่า 1) น้ำมันพืชที่ใช้ในการประกอบอาหารเป็นน้ำมันพืชที่จำหน่ายตามท้องตลาด แหล่งผลิตน้ำมันที่ใช้แล้ว ส่วนใหญ่เป็นร้านอาหารที่ใช้น้ำมันพืชประกอบอาหาร ครัวเรือน และอุตสาหกรรม ผลกระทบก่อให้เกิดอันตรายต่อสุขภาพและระบบนิเวศ 2) เส้นทางการเดินทางของน้ำมันที่ใช้แล้วนำไปสู่กระบวนการผลิตเป็นน้ำมันเชื้อเพลิงอากาศยานแบบยั่งยืน SAF พบว่ามีขั้นตอนกระบวนการรวบรวม จัดเก็บขนส่ง การบำบัดและการประมวลผล รีไซเคิลในกระบวนการผลิต SAF และการกำจัด 3) ความเคลื่อนไหวการรณรงค์การใช้น้ำมัน SAF ในประเทศไทยและต่างประเทศ พบว่า ประเทศไทยภาคเอกชนมีความร่วมมือในโครงการทอดไม่ทิ้งและมีแนวโน้มผลิตน้ำมัน SAF จาก

น้ำมันใช้แล้วตอบโจทย์โมเดลเศรษฐกิจ BCG ประเทศจีนผลิตจากน้ำมันจากหม้อต้มหมาล่า สหภาพยุโรปสนใจและพัฒนา SAF มากขึ้น เพื่อลดการปล่อยก๊าซคาร์บอนไดออกไซด์สุทธิเป็นศูนย์ภายในปี 2050

คำสำคัญ: การรีไซเคิล, น้ำมันประกอบอาหาร, น้ำมันเชื้อเพลิงอากาศยานยั่งยืน, โมเดลเศรษฐกิจ BCG

Abstract

This article aims to 1) study the cooking oil, the sources of used oil, 2) study the route of used oil to the production process of sustainable aviation fuel (SAF)., and 3) study the movement of the SAF campaign in Thailand and abroad. The key informants used in the research were 17 food shops, used oil buyers, people, and government agencies. The research method was qualitative. The tools were in-depth interviews and non-participatory observation. The data were analyzed by categorizing the data, interpreting, conclusions, and presenting them using descriptive analysis. The research results found that 1) oil used for cooking is sold in the market. Most sources of used oil are restaurants that use oil for cooking, households, and industries. The impacts are hazardous to health and the ecosystem. 2) The route of used oil to be converted to aviation fuel found that there were steps in the process of collection, storage, transportation, treatment, and processing recycling in the SAF production process and disposal 3) The movement of the SAF oil campaign in Thailand and abroad found that the private sector in Thailand has cooperation in the "Don't Throw Away" project and tends to produce SAF oil from used oil to meet the BCG economic model. China produces from oil from Mala pots. The European Union is interested in and developing more SAF in order to reduce net carbon dioxide emissions to zero by 2050.

Keywords: Recycling, cooking oil, sustainable aviation fuel, BCG economic model

บทนำ

ในแวดวงศิลปะการทำอาหาร การถือกำเนิดของอุตสาหกรรมอาหารสมัยใหม่ได้ปฏิวัติประสบการณ์ในครัวและห้องอาหาร ตั้งแต่ความสะดวกสบายของอาหารสำเร็จรูปไปจนถึงความพร้อมของส่วนผสมที่หลากหลายจากทั่วโลก ขอบเขตการทำอาหารได้ขยายออกไปอย่างที่ไม่เคยปรากฏมาก่อน อย่างไรก็ตาม ความก้าวหน้านี้ไม่ได้ปราศจากความท้าทาย หนึ่งในปัญหาเร่งด่วนที่สุดที่ต้องเผชิญในปัจจุบัน คือ การกำจัดขยะอย่างถูกต้อง โดยเฉพาะน้ำมันปรุงอาหาร (Skip Shapiro Enterprises, 2568) น้ำมันพืชเป็นส่วนประกอบพื้นฐานในการปรุงอาหาร โดยเฉพาะเมนูผัดและทอด จึงอาจเรียกได้ว่าเป็นของคู่ครัวสำหรับทุกบ้าน แต่ยังมีการถกเถียงถึงประโยชน์และโทษของน้ำมันชนิดนี้อย่างต่อเนื่อง ซึ่งประโยชน์และโทษอาจขึ้นอยู่กับชนิดของน้ำมันและไขมันที่ร่างกายได้รับ ไขมันเป็นสารอาหารที่จำเป็นต่อร่างกาย เพราะเป็นแหล่งของพลังงานและช่วยในการดูดซึมวิตามินบางชนิด แต่หากได้รับมากเกินไปก็อาจเป็นสาเหตุที่ทำให้เกิดโรคเรื้อรังได้หลายชนิด (Pobpad, 2568) น้ำมันปรุงอาหารซึ่งเป็นส่วนประกอบสำคัญของอาหารหลายชนิดได้กลายมาเป็นส่วนหนึ่งของวัฒนธรรมการทำอาหาร ของเสียจากน้ำมันปรุงอาหารอาจมีได้หลายรูปแบบ เช่น น้ำมันไหม้ น้ำมันหมดอายุ น้ำมันปนเปื้อน และน้ำมันหืน แต่ละรูปแบบล้วนก่อให้เกิด

ความเสี่ยงที่แตกต่างกันต่อสุขภาพและสิ่งแวดล้อม การประกอบอาหารในครัวเรือน และการทำอาหารของผู้ประกอบการประเภทที่ต้องใช้น้ำมันทอด คงจะเคยประสบกับปัญหาการทิ้งน้ำมันใช้แล้วว่าควรทิ้งอย่างไรถึงจะถูกวิธี (ปิโยรส ทิพย์มงคล และ ณัฐพงศ์ ตันติวิวัฒนพันธ์, 2563)

การเทน้ำมันใช้แล้วลงท่อระบายน้ำ หรือไม่มีการติดตั้งบ่อดักไขมัน ท่อระบายน้ำส่วนใหญ่จะทำมาจากท่อพลาสติกพีวีซี (PVC Plastic) ซึ่งมีคุณสมบัติในการดูดซับน้ำมันใช้แล้วเป็นอย่างดี นอกจากจะทำให้ท่ออุดตันและเหม็นเน่าจากการหมักในสภาวะไร้อากาศภายในท่อน้ำแล้ว น้ำมันใช้แล้วยังส่งผลเสียต่อระบบการบำบัดน้ำเสีย โดยเฉพาะในระบบการบำบัดน้ำเสียด้วยระบบชีวภาพ (Biological Wastewater Treatment) ทำให้เกิดการลอยของตะกอน และจะไปเคลือบบนพื้นผิวของจุลินทรีย์ทำให้ไม่สามารถแลกเปลี่ยนสารอาหาร น้ำ และออกซิเจนได้ (กรมควบคุมมลพิษ, 2546) อาจส่งผลเสียต่อสิ่งแวดล้อมได้อย่างมาก (บางจากหลากมุมมอง, 2565ข) กระบวนการจัดการน้ำมันปรุงอาหารที่ใช้แล้วมีหลายขั้นตอน แต่ละขั้นตอนต้องได้รับการจัดการอย่างระมัดระวังและปฏิบัติตามกฎระเบียบเพื่อให้แน่ใจว่าปลอดภัยและปกป้องสิ่งแวดล้อม เพราะการเทน้ำมันใช้แล้วลงท่อน้ำระบายน้ำ นอกจากจะสร้างปัญหาไขมันอุดตันในท่อแล้ว อาจก่อให้เกิดน้ำท่วมเมื่อฝนตกหนักตามมา รวมถึงการส่งกลิ่นเหม็นของไขมันที่หมักหมมภายในท่อด้วย อีกทั้งการเทน้ำมันทิ้งลงท่อระบายน้ำ ยังผิด พ.ร.บ.รักษาความสะอาดและความเป็นระเบียบเรียบร้อยของบ้านเมือง พ.ศ. 2535 แก้ไขเพิ่มเติม (ฉบับที่ 2) พ.ศ.2560 มาตรา 33 ที่ห้ามมิให้ผู้ใดเทหรือทิ้งสิ่งปฏิกูล มูลฝอย น้ำโสโครกหรือสิ่งอื่นใดลงบนถนนหรือในทางน้ำ ประกอบกับมาตรา 57 บทกำหนดโทษ ผู้ใดฝ่าฝืนหรือไม่ปฏิบัติตามมาตรา 33 ต้องระวางโทษปรับไม่เกินหนึ่งหมื่นบาท (สำนักงานคณะกรรมการกฤษฎีกา, 2560 ; กรมควบคุมมลพิษ, 2546)

จากการศึกษาพบว่ามีหลายวิธีในการรีไซเคิลน้ำมันปรุงอาหารที่ใช้แล้ว เช่น การทำปุยหมัก ใช้เป็นปุ๋ยละลายช้า การทำสบู่ และนำมาผ่านกระบวนการผลิตเป็นน้ำมันเชื้อเพลิงอากาศยานแบบยั่งยืน (Sustainable Aviation Fuel: SAF) ซึ่งส่งผลดีทั้งในเชิงเศรษฐกิจ สังคม และสิ่งแวดล้อม สอดคล้องกับ BCG Economy Model อย่างครบวงจร ปรากฏการณ์ดังกล่าวกลุ่มบริษัทบางจาก ได้มีการก่อสร้างหน่วยผลิตน้ำมันอากาศยานยั่งยืน (SAF) โดยนำน้ำมันปรุงอาหารใช้แล้วจากครัวเรือนและภาคธุรกิจโครงการ “ทอดไม่ทิ้ง” มาผลิตเป็นน้ำมันเชื้อเพลิงอากาศยานยั่งยืน (กรุงเทพธุรกิจ, 2568) และมีการลงนามความร่วมมือแลกเปลี่ยนความรู้ความเชี่ยวชาญด้านความยั่งยืนและสิ่งแวดล้อมระหว่างกรมอนามัยและบริษัทบางจาก คอร์ปอเรชั่นจำกัด (มหาชน) ในการรณรงค์ไม่ใช้น้ำมันทอดซ้ำ และนำมาผลิตเป็นน้ำมันเชื้อเพลิงอากาศยานแบบยั่งยืน เพื่อเป็นการสร้างความเชื่อมั่นในเรื่องสุขภาพอนามัยให้กับผู้บริโภคและเป็นการรณรงค์การไม่ทิ้งน้ำมันปรุงอาหารใช้แล้วสู่สิ่งแวดล้อม (สปริงนิวส์, 2568)

จากปรากฏการณ์ดังกล่าวข้างต้นจึงทำให้ผู้วิจัยสนใจศึกษาถึงน้ำมันพืชที่ใช้ในการประกอบอาหาร แหล่งผลิตน้ำมันที่ใช้แล้ว ผลกระทบ เส้นทางการเดินทางของน้ำมันที่ใช้แล้ว การรีไซเคิลน้ำมันใช้แล้วเปลี่ยนเป็นเชื้อเพลิงอากาศยานแบบยั่งยืน ความเคลื่อนไหวการรณรงค์การใช้น้ำมัน SAF ในประเทศไทยและต่างประเทศ ทั้งนี้เพื่อให้ประชาชนหันมาสนใจตระหนักในความสำคัญและผลกระทบที่จะเกิดขึ้นจากการนำน้ำมันที่ใช้แล้วไปสู่กระบวนการผลิตและนำกลับมาใช้ใหม่ให้สอดคล้องกับโมเดลเศรษฐกิจ BCG

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาน้ำมันพืชที่ใช้ในการประกอบอาหาร แหล่งผลิตน้ำมันที่ใช้แล้ว และผลกระทบ
2. เพื่อศึกษาเส้นทางการเดินทางของน้ำมันที่ใช้แล้วนำไปสู่กระบวนการผลิตเป็นน้ำมันเชื้อเพลิงอากาศยานแบบยั่งยืน SAF
3. เพื่อศึกษาความเคลื่อนไหวการรณรงค์การใช้น้ำมัน SAF ในประเทศไทยและต่างประเทศ

แนวคิด ทฤษฎี กรอบแนวคิด

รีไซเคิล (Recycle)

การรีไซเคิลเป็นการปฏิบัติเพื่อนำวัสดุที่ใช้แล้วเหล่านั้นกลับมาใช้ใหม่ เป็นการส่งคืนวัสดุกลับสู่กระบวนการผลิตผ่านวงจรของการมีส่วนร่วมในชีวิตประจำวันของสังคม แทนที่จะทิ้งวัสดุเหล่านั้นไปยังถังขยะ และมีจุดจบที่หลุมฝังกลบ การรีไซเคิลเป็นการกู้คืนผลิตภัณฑ์ที่ใช้แล้ว และนำไปผ่านกระบวนการเพื่อทำให้เป็นผลิตภัณฑ์รุ่นเดียวกัน ระบบเศรษฐกิจหมุนเวียน (Circular Economy) เป็นระบบเศรษฐกิจที่มุ่งลดของเสียและใช้ทรัพยากรที่มีอยู่ให้เกิดประโยชน์มากที่สุด โดยมีหัวใจสำคัญ คือ ความพยายามที่จะลดการใช้ทรัพยากรที่มีอยู่อย่างจำกัด ซึ่งเป็นการสนับสนุนการดำเนินงานลดการปล่อยก๊าซคาร์บอนไดออกไซด์และพัฒนาเทคโนโลยีพลังงานหมุนเวียน/พลังงานทดแทน (Renewable Energy Technologies) แนวคิดนี้ประกอบด้วยกระบวนการหลายอย่างรวมกันเป็นวงจร เรียกว่า “แบบจำลองแนวคิดระบบเศรษฐกิจหมุนเวียน” ได้แก่ การออกแบบที่ยั่งยืน จนสุดท้ายคือ การรีไซเคิล (Hagelüken, 2016 อ้างถึงใน ณัฐภัทร รัตนวิชัย, 2565) ซึ่งมีประโยชน์มากมายทั้งทางด้านสังคม ด้านเศรษฐกิจ และด้านสิ่งแวดล้อม (Green Network, 2019; ณัฐภัทร รัตนวิชัย, 2565)

แนวคิด SAF

Sustainable Aviation Fuel (SAF) หรือเชื้อเพลิงอากาศยานแบบยั่งยืน เป็นอีกหนึ่งทางเลือกเพื่อโลกยั่งยืนที่จะช่วยลดปริมาณการปล่อยก๊าซคาร์บอนไดออกไซด์ในอุตสาหกรรมการบินลงได้ โดยเฉพาะเมื่ออุตสาหกรรมการบินวางแผนจะก้าวเข้าสู่เป้าหมาย Net Zero ในปี ค.ศ. 2050 สำหรับอุตสาหกรรมการบินนั้น SAF น้ำมันใช้แล้วจากการทำอาหารช่วยลดการปล่อยคาร์บอนไดออกไซด์ลงได้กว่า 80% เทียบเท่าการบินด้วยเชื้อเพลิงการบินในปัจจุบัน โดยหน่วยผลิต SAF ที่ BSGF กำลังจะตั้งขึ้นคาดว่าจะพร้อมให้บริการอุตสาหกรรมการบินทั้งในและต่างประเทศในไตรมาส 4 ของปี ค.ศ. 2024 โดยเริ่มจากกำลังการผลิตเริ่มต้น 1 ล้านลิตรต่อวัน ช่วยลดการปล่อยก๊าซเรือนกระจกจากการเดินทางและขนส่งทางอากาศลงได้ราว 80,000 ตันคาร์บอนไดออกไซด์เทียบเท่าต่อปี สอดคล้องกับมาตรการขององค์การการบินพลเรือนระหว่างประเทศ (International Civil Aviation Organization: ICAO)

กฤตย์ สีตะธนี (2567) ได้ศึกษาถึง Sustainable Aviation Fuel (SAF) ช่องว่างระหว่างอุปสงค์และอุปทานระดับโลก และบทบาทของประเทศไทย พบว่า SAF เป็นเชื้อเพลิงหมุนเวียนที่สามารถใช้ขับเคลื่อนอากาศยานโดยมีการปล่อยก๊าซคาร์บอนน้อยกว่าเมื่อเทียบกับน้ำมันเชื้อเพลิงอากาศยานทั่วไปที่ผลิตจากฟอสซิล โดยคาดว่าจะลดการปล่อยมลพิษได้ถึง 80 % เมื่อเทียบกับน้ำมันเชื้อเพลิงอากาศยานแบบดั้งเดิม จุดสำคัญของ SAF คือ การเป็น Drop-in- Fuel หมายความว่า สามารถใช้กับเครื่องบินที่มีอยู่ได้โดยไม่ต้องดัดแปลงเครื่องยนต์ เพราะเหตุนี้ทำให้ SAF สามารถผสมกับน้ำมันเชื้อเพลิงอากาศยานทั่วไปได้ในอัตราสูงสุดที่ 50 % อุปทานในปัจจุบันไม่เพียงพอต่อความต้องการ โดยสหภาพยุโรปจำเป็นต้องเพิ่มกำลังการผลิตมากกว่า 40 เท่าเพื่อให้บรรลุเป้าหมาย SAF (การบินทั่วโลกปัจจุบันใช้เชื้อเพลิงอยู่ที่ 316 ล้านตัน) กำลังการผลิตปัจจุบันต่ำกว่าประมาณการความต้องการ SAF อยู่ 24 ล้านตันต่อปี ที่จำเป็นต่อการ

บรรลุข้อกำหนด แม้จะมีการประกาศโครงการใหม่จำนวนมากทุกปีก็ตาม แต่อุปทานมีลักษณะกระจุกตัว โดย 76.8% ของการผลิตทั้งหมดที่คาดการณ์ไว้มาจาก 10 บริษัท ในประเทศไทย มีผู้ประกอบการเพียงรายเดียวและเป็นแห่งแรกของประเทศไทย ที่มุ่งเน้นด้าน SAF คือ บริษัทบางจากกำลังก่อสร้างโรงงานที่พระโขนงโดยมีเป้าหมายผลิต SAF 2.3 ล้านบาร์เรลต่อปีภายในปี 2568

ภาควิชาวิศวกรรมเครื่องกล มหาวิทยาลัยเกษตรศาสตร์ (2563) ได้ศึกษาแนวทางการส่งเสริมเชื้อเพลิงชีวภาพอากาศยานอย่างยั่งยืน พบว่า น้ำมันเชื้อเพลิงชีวภาพเป็นน้ำมันที่ผลิตจากวัตถุดิบที่มาจากธรรมชาติเป็นพลังงานหมุนเวียนทางเลือกประเภทหนึ่งที่สามารถจัดหาได้ในประเทศไทย เนื่องจากประเทศไทยเป็นประเทศเกษตรกรรมและเป็นหนึ่งในฐานการผลิตอาหารของโลก จึงมีวัตถุดิบจากชีวมวลเป็นจำนวนมากซึ่งสามารถนำมาใช้เป็นแหล่งพลังงานทางเลือก ที่สำคัญน้ำมันเชื้อเพลิงชีวภาพอากาศยาน (Bio-Jet) คือ เชื้อเพลิงอากาศยานที่ไม่ได้ผลิตจากน้ำมันดิบหรืออนุพันธ์ของน้ำมันดิบ และต้องมีคุณสมบัติที่ใกล้เคียงและสามารถใช้ทดแทนกันได้ เทคโนโลยีการผลิตเชื้อเพลิงชีวภาพอากาศยาน เมื่อแบ่งตามสารตั้งต้นแล้ว จะแบ่งได้ออกเป็น 4 กลุ่มเทคโนโลยี คือ ก๊าซ (Gas to Jet, GTJ) แอลกอฮอล์ (Alcohol to Jet, ATJ) น้ำมัน (Oil to Jet, OTJ) และน้ำตาล (Sugar to Jet, STJ) จากการศึกษาดังกล่าวข้างต้น พบว่า Oil to Jet จะเป็นเทคโนโลยีที่มีคะแนนสูงสุด แนวโน้มการผลิตเชื้อเพลิงชีวภาพอากาศยานเชิงพาณิชย์ในต่างประเทศกว่าร้อยละ 90 เป็นการผลิตด้วยเทคโนโลยี Oil to Jet จากการวิจัยพบแนวโน้มการผลิตเชื้อเพลิงชีวภาพอากาศยานเชิงพาณิชย์ในต่างประเทศกว่าร้อยละ 90 เป็นการผลิตด้วยเทคโนโลยี Oil to Jet

นอกจากนั้นยังพบว่าบริษัท บางจาก คอร์ปอเรชั่น จำกัด (มหาชน), บริษัท บีบีจีไอ จำกัด (มหาชน), สำนักงานการวิจัยแห่งชาติ (วช.) และมหาวิทยาลัยเทคโนโลยีราชมงคลอีสาน (มทร.อีสาน) ได้มีการร่วมลงนามในบันทึกข้อตกลงความร่วมมือโครงการนวัตกรรมสีเขียวเพื่อทดลองผลิต Sustainable Aviation Fuel (SAF) หรือเชื้อเพลิงอากาศยานชีวภาพแบบยั่งยืนจากเอทานอลสู่การพัฒนาน้ำมันเครื่องบินคาร์บอนต่ำจากฐานงานวิจัย เพื่อนำองค์ความรู้ที่ได้จากโครงการวิจัย “การผลิตเชื้อเพลิงชีวภาพจากฟูเซลแอลกอฮอล์ที่ได้จากโรงงานเอทานอล” เมื่อปี พ.ศ. 2563 ช่วยส่งเสริมการพัฒนาเครือข่าย Supply Chain ของเชื้อเพลิงชีวภาพ ตอบรับความต้องการใช้งาน SAF (กระทรวงการอุดมศึกษา วิทยาศาสตร์ วิจัยและนวัตกรรม, 2565)

BCG โมเดล

BCG โมเดลหรือระบบเศรษฐกิจสีเขียว ประกอบด้วย 3 เศรษฐกิจหลัก คือ B: Bio Economy ระบบเศรษฐกิจชีวภาพ มุ่งเน้นการใช้ทรัพยากรชีวภาพอย่างคุ้มค่าเชื่อมโยงกับ C: Circular Economy ระบบเศรษฐกิจหมุนเวียน ที่คำนึงถึงการนำวัสดุต่าง ๆ กลับมาใช้ประโยชน์ให้มากที่สุด และทั้ง 2 เศรษฐกิจนี้ อยู่ภายใต้ G: Green Economy ระบบเศรษฐกิจสีเขียว ซึ่งมุ่งแก้ไขปัญหามลพิษ เพื่อลดผลกระทบต่อโลกอย่างยั่งยืน (สวทช., 2563) BCG Economy Model เป็นกลไกสำคัญในการขับเคลื่อนเศรษฐกิจไทยให้เติบโตแบบก้าวกระโดด กระจายโอกาส กระจายรายได้ และนำความมั่งคั่งไปสู่ชุมชนในท้องถิ่นอย่างทั่วถึง และมีการพัฒนาทางเศรษฐกิจและสังคมที่ยั่งยืน และ BCG โมเดล

วิธีดำเนินการวิจัย

ผู้วิจัยใช้วิธีวิจัยโดยการเก็บข้อมูลเชิงคุณภาพ

1. ผู้ให้ข้อมูล ได้แก่ ผู้ที่เป็นแม่ค้าพ่อค้าที่ขายอาหารประเภทใช้น้ำมันในการทอด เช่น ไก่ทอด หมูทอด ลูกชิ้นทอด กล้วยทอด มันทอด และปาท่องโก๋ รวม 7 คน ผู้ประกอบการที่รับซื้อน้ำมันหลังใช้ 4 คน หน่วยงานภาครัฐ 4 คน และประชาชนทั่วไป 2 คน รวมทั้งหมด จำนวน 17 คน

2. เครื่องมือที่ใช้ในการวิจัย ได้แก่ แบบสัมภาษณ์แบบเจาะลึก และการสังเกตแบบไม่มีส่วนร่วม

3. การเก็บรวบรวมข้อมูล ผู้วิจัยใช้วิธีการสัมภาษณ์แบบเจาะลึกจากผู้ให้ข้อมูลที่เป็นผู้ประกอบอาหาร ผู้รับซื้อน้ำมันรายใหญ่ในอำเภอและจังหวัด เพื่อส่งน้ำมันไปยังบริษัทแหล่งรีไซเคิลน้ำมันใช้แล้ว สังเกตการประกอบอาหารของพ่อค้าแม่ค้าที่ใช้น้ำมันทอดอาหารต่าง ๆ เพื่อจำหน่าย สังเกตการซื้อขายน้ำมันของพ่อค้าคนกลางในพื้นที่จังหวัดสตูลและสงขลา

4. การวิเคราะห์ข้อมูลเชิงคุณภาพ ใช้วิธีการจำแนกหมวดหมู่ตามประเด็น ตีความ สร้างข้อสรุป นำเสนอข้อมูลเชิงพรรณนาวิเคราะห์

ผลการวิจัย

1. น้ำมันพืชที่ใช้ในการประกอบอาหาร แหล่งผลิตน้ำมันที่ใช้แล้ว และผลกระทบ

ปัจจุบัน น้ำมันพืชมีอยู่มากมายหลากหลายประเภท ไม่ว่าจะเป็นน้ำมันปาล์ม น้ำมันถั่วเหลือง หรือน้ำมันพืชทางเลือกสำหรับคนรักสุขภาพ ซึ่งสามารถแบ่งแยกตามประเภทการใช้งานได้ทั้งหมด 9 ประเภท ได้แก่ น้ำมันปาล์ม น้ำมันถั่วเหลือง น้ำมันงา น้ำมันดอกทานตะวัน น้ำมันคาโนลา น้ำมันมะพร้าว น้ำมันอะโวคาโด น้ำมันรำข้าว และน้ำมันมะกอก ซึ่งน้ำมันแต่ละประเภทเหมาะกับการนำไปใช้กับเมนูอาหาร หรือเป็นส่วนผสมในสูตรอาหารแตกต่างกันไป เช่น น้ำมันปาล์มเหมาะกับการนำไปประกอบเมนูอาหารประเภททอด น้ำมันคาโนลาเหมาะกับการนำไปใช้ทำขนม และน้ำมันมะกอก เหมาะกับการนำไปใช้ในการหมักอาหาร หรือเหมาะกับการนำไปใช้ในการทำสลัดน้ำมันพืชที่จำหน่ายตามร้านค้า ร้านสะดวกซื้อ ซุปเปอร์มาเก็ต (บางจากหลากมุมมอง, 2565ข)

น้ำมันใช้แล้ว หรือ Waste Cooking Oil เป็นน้ำมันพืชดังกล่าวข้างต้นหรือไขมันสัตว์ที่ผ่านกระบวนการให้ความร้อนจากกระบวนการทำอาหาร โดยเฉพาะอย่างยิ่งอาหารจานทอดทั้งหลาย (Deep Fry) แหล่งที่มาของน้ำมันใช้แล้วนอกจากน้ำมันที่ใช้ทอดแล้ว ยังพบได้จากน้ำมันจากการล้างภาชนะ ซึ่งสามารถแยกออกจากน้ำได้โดยบ่อหรือถังดักไขมัน (ปิโยรส ทิพย์มงคล และณัฐพงศ์ ตันติวิวัฒนพันธ์, 2563) สำหรับประเทศไทยแล้วน้ำมันใช้แล้วส่วนใหญ่จะเป็นน้ำมันปาล์ม (90%) เนื่องจากคุณสมบัติที่เหมาะสมในการทอดอาหาร และราคาถูก โดยประเทศไทยมีผลผลิตน้ำมันเป็นอันดับ 3 ของโลก มีผลผลิตส่งออก 15.4 ล้านตันต่อปี โดยคิดเป็น 3.9 % ของผลผลิตน้ำมันทั่วโลก จากข้อมูลสถิติการบริโภคและใช้น้ำมันพืชของประเทศไทย พบว่า คนไทยบริโภคน้ำมันพืช 800,000 ตันต่อปี (สำนักข่าว สสส., 2551)

1.1 ร้านอาหาร หรือร้านค้าในตลาดแหล่งผลิตน้ำมันที่ใช้แล้ว

ร้านอาหารหรือร้านค้าในตลาดผลิตน้ำมันที่ใช้แล้วจำนวนมาก โดยส่วนใหญ่มาจากการทอด น้ำมันเหล่านี้จะกลายเป็นของเสียแบบใช้แล้วทิ้ง ดังคำให้สัมภาษณ์ของผู้ให้ข้อมูลดังนี้

> “...ขายปาท่องโก๋ต้องใช้น้ำมันเยอะจนเต็มกระทะ ไม่งั้นทอดแป้งปาท่องโก๋ไม่ฟู...ก็ยอมรับว่าใช้ซ้ำ ไม่งั้นขาดทุน.. เปลี่ยนน้ำมันใหม่เมื่อเราเก็บไว้แล้วมันเริ่มหนืด สีเข้มขึ้น...” (เจ๊คิ้ม, สัมภาษณ์วันที่ 10 มกราคม 2568)

> “...ขายกล้วยทอด มันทอด ต้องใช้น้ำมันเยอะจนเต็มกระทะ แต่ละอย่างใช้เวลาไม่เท่ากัน...น้ำมันทอดทีหนึ่งก็เริ่มเหลืองและดำ ใช้ซ้ำ 2-3 ครั้ง...บางทีเอาไม่ทันก็ 3 วันจึงจะเปลี่ยนทีหนึ่ง น้ำมันงวดลงก็ต้องเติมน้ำมันเพิ่ม...” (เฟิร์น, สัมภาษณ์วันที่ 11 มกราคม 2568)

> “...ขายไก่ทอดทุกวันกับข้าวเหนียว ส่วนไหนลูกค้ามาซื้อเยอะก็ทอดส่วนนั้นเยอะหน่อย ต้องใช้น้ำมันเยอะจนเต็มกระทะ น้ำมันก็ใช้ซ้ำ หลายครั้ง หลายวัน พอน้ำมันงวดลงก็เติม ไม่งั้นขาดทุน จะเปลี่ยนเมื่อสีน้ำมันเข้ม..” (ฟิรฮานา, สัมภาษณ์วันที่ 2 มกราคม 2568)

"...ขายลูกชิ้นทอด ลูกค้าสั่งเราจึงจะทอด เติมน้ำมันใหม่เพิ่ม แต่น้ำมันเราจะเหลือไม่เยอะ บางครั้งทำขายสัก 2-3 วันก็ทิ้ง...แต่ตอนนี้เก็บใส่ปี๊บไว้ไปขายให้พ่อค้าคนกลางที่เขารับซื้อน้ำมันอีกทีหนึ่ง" (สมใจ, สัมภาษณ์วันที่ 3 มกราคม 2568)

จากคำสัมภาษณ์ดังกล่าวข้างต้นสะท้อนให้เห็นว่าแม่ค้า พ่อค้าที่ขายอาหารประเภทที่ต้องใช้น้ำมันทอดส่วนใหญ่จะใช้ซ้ำประมาณ 2-3 วันสังเกตจากสีของน้ำมัน และปริมาณของน้ำมันลดลงจึงเติมน้ำมันใหม่ และจะเปลี่ยนน้ำมันใหม่เมื่อไม่สามารถใช้ได้แล้ว



ภาพที่ 1 ไก่ทอดที่ใช้น้ำมันพืชจำหน่ายในตลาด



ภาพที่ 2 น้ำมันใช้ทอดกล้วยแขก (ซ้าย) และทอดปาท่องโก๋ในตลาด (ขวา)

1.2 ครัวเรือนแหล่งผลิตน้ำมันที่ใช้แล้ว

ครัวเรือนจะมีน้ำมันหลังจากทอดแล้วไม่มาก กำจัดน้ำมันปรุงอาหารที่ใช้แล้วหรือหมดอายุอย่างถูกต้อง ดังคำให้สัมภาษณ์ของผู้ให้ข้อมูลดังนี้

"...ทำกับข้าวนะประเภทที่ต้องใช้น้ำมันพอสมควร ไข่เจียว ผัดผัก แต่ละครั้งใช้น้ำมันไม่เยอะ เวลาทิ้งน้ำมันก็ล้างไปพร้อมกับล้างกระทะลงท่อ บางครั้งจะราดไปที่ต้นหญ้าที่เป็นวัชพืชลงดิน..." (สรรพสิทธิ์, สัมภาษณ์วันที่ 31 ธันวาคม 2567)

"...ทำกับข้าวมีพวกแกงขี้เหล็ก แกงส้ม ผัดผัก ทอดปลา ทอดหมู ใช้น้ำมันไม่มาก เหลือก็เก็บใส่ถ้วยเอาฝาปิดไว้..." (ผุสดี, สัมภาษณ์วันที่ 30 ธันวาคม 2567)

"...ทำกินเองบ้าง ซื้อข้างนอกกินบ้าง เราก็ไม่รู้ว่าหลังร้านเป็นยังไง แต่ที่บ้านไม่ค่อยมีน้ำมันเหลือใช้.." (อรัญญา, สัมภาษณ์วันที่ 2 มกราคม 2568)

จากคำสัมภาษณ์ดังกล่าวข้างต้นสะท้อนให้เห็นว่า น้ำมันเหลือใช้ในครัวเรือนมีไม่มากนัก ส่วนใหญ่การใช้น้ำมันประกอบอาหารจะใช้พอดีกับการทำอาหาร นอกจากว่าหากมีการทอดที่ต้องใช้น้ำมันจำนวนมากก็จะเก็บไว้ใช้ครั้งต่อไปเพียงไม่กี่ครั้ง

1.3 อุตสาหกรรม

น้ำมันปรุงอาหารอาจกลายเป็นของเสียได้เนื่องจากปัจจัยต่าง ๆ เช่น การจัดเก็บที่ไม่เหมาะสม ความผิดพลาดในการขนส่ง ข้อผิดพลาดในการจัดจำหน่าย หรือปัญหาการควบคุมคุณภาพการผลิตของเสียเหล่านี้อาจมีจำนวนมากและก่อให้เกิดความเสี่ยงต่อสิ่งแวดล้อม และสุขภาพหากไม่ได้รับการจัดการอย่างถูกต้อง น้ำมันเสียจากอุตสาหกรรมอาจปนเปื้อนแหล่งน้ำและดิน และหากนำไปใช้ในการผลิตอาหารอาจทำให้ได้ผลิตภัณฑ์ที่ไม่ได้มาตรฐานซึ่งอาจเป็นอันตรายต่อผู้บริโภค

1.4 ผลกระทบต่อสุขภาพและระบบนิเวศของน้ำมันปรุงอาหารใช้แล้ว

น้ำมันทอดซ้ำทางกายภาพจะมีลักษณะเหนียวข้น สีดำ มีกลิ่นเหม็นหืน มีฟอง และเกิดควันมากขณะทอด เมื่อน้ำมันถูกทอดซ้ำที่ความร้อนสูงเป็นระยะเวลานาน ทางเคมีพบว่าการเสื่อมคุณภาพของน้ำมันทอดอาหารทำให้เกิดสารประกอบโพลาร์ (Polar Compounds) และสารประกอบโพลีไซคลิก อะโรมาติก ไฮโดรคาร์บอน (Polycyclic Aromatic Hydrocarbon; PAHs) (ปิโยรส ทิพย์มงคล และณัฐพงศ์ ตันติวิวัฒนพันธ์, 2563) ในการทอดอาหารซ้ำแต่ละครั้ง สารโพลาร์จะมีประมาณร้อยละ 25 ซึ่งกฎหมายได้กำหนดให้น้ำมันที่ใช้ทอดอาหารหรือประกอบอาหารเพื่อจำหน่ายมีปริมาณสารโพลาร์ได้ไม่เกินร้อยละ 25 ของน้ำหนัก ผลกระทบมีดังนี้ (บางจากหลากมุมมอง, 2565ข; Skip Shapiro Enterprises, 2568)

1) น้ำมันปรุงอาหารไหม้ เมื่อน้ำมันปรุงอาหารถูกความร้อนสูง น้ำมันอาจไหม้และก่อให้เกิดสารอันตราย เช่น อะโครลีน อาจทำให้ระบบทางเดินหายใจระคายเคืองและเกิดปัญหากับดวงตา สารโพลาร์ในน้ำมันทอดซ้ำเกิดอาการแพ้ได้ เช่น ผื่นคัน แน่นหน้าอก และหายใจลำบาก เสี่ยงต่อการเกิดโรคหัวใจและหลอดเลือด สารโพลาร์สามารถเพิ่มระดับคอเลสเตอรอลในเลือดและทำให้เกิดการอักเสบในหลอดเลือด และอาจก่อให้เกิดโรคมะเร็ง

2) น้ำมันปรุงอาหารเก่าหมดอายุหรือมีกลิ่นเหม็นหืน เนื่องจากปฏิกิริยาออกซิเดชัน กระบวนการนี้ทำให้โครงสร้างทางเคมีของน้ำมันเปลี่ยนแปลงไป และก่อให้เกิดแบคทีเรียที่เป็นอันตราย การบริโภคน้ำมันดังกล่าวอาจทำให้เกิดอาหารเป็นพิษและปัญหาสุขภาพเช่นเดียวกับน้ำมันปรุงอาหารเหลือใช้ประเภทอื่น ควรกำจัดอย่างถูกต้องเพื่อป้องกันความเสี่ยงต่อสุขภาพและอันตรายต่อสิ่งแวดล้อม

2. เส้นทางการเดินทางของน้ำมันที่ใช้แล้วนำไปสู่กระบวนการผลิตเป็นน้ำมันเชื้อเพลิงอากาศยานแบบยั่งยืน SAF

การเดินทางของน้ำมันที่ใช้แล้วจากพ่อค้าแม่ค้าที่เป็นผู้ประกอบการในตลาดนำน้ำมันใช้แล้วมาจำหน่ายให้กับร้านที่รับซื้อน้ำมัน เพื่อขนส่งต่อไปยังโรงงานแปรรูปให้เป็น Bio Jet ผลิตภัณฑ์สบู่ และผลิตภัณฑ์อื่น ๆ ต่อไป จะมีกลุ่มที่รับซื้อรายใหญ่ในแต่ละจังหวัดเพื่อส่งต่อไปยังโรงงานรีไซเคิลในกรุงเทพฯ โดยมีขั้นตอนดังนี้

2.1 เครือข่ายการรวบรวมน้ำมันใช้แล้ว

ขั้นตอนเริ่มต้นของการจัดการน้ำมันจากการปรุงอาหาร คือ กระบวนการรวบรวมน้ำมันปรุงอาหารเหลือใช้จากแหล่งต่าง ๆ เช่น ร้านอาหาร อุตสาหกรรมแปรรูปอาหาร และครัวเรือน การรวบรวมน้ำมันใช้แล้วอาศัยเครือข่ายชุมชน สังคมในแต่ละจังหวัด ซึ่งเป็นกลุ่มผู้ประกอบการดังคำสัมภาษณ์ดังนี้

> “....น้ำมันพืชใช้แล้วจากการทอดอาหารขาย เราเก็บสะสมไว้นำไปขายสร้างรายได้เพิ่มดีกว่าทิ้ง ตอนนี้เป็นทางเลือกที่น่าสนใจ ต้องกรองตะกอน และเศษอาหารที่มันปนอยู่ในน้ำมันออกให้หมดเสียก่อน...” (อลิษา, สัมภาษณ์วันที่ 24 กุมภาพันธ์ 2568)

> “...วิธีการเก็บน้ำมันใช้แล้วเราต้องระวังไม่ให้น้ำผสม เพราะน้ำมันพืชเก่าที่มีน้ำลงไปผสม เจ้าที่รับซื้อจะบอกเราไว้ ก็ได้หลายบาทนะเดือนหนึ่ง...” (แนน, สัมภาษณ์วันที่ 24 กุมภาพันธ์ 2568)

"...เราเป็นแหล่งรับซื้อน้ำมันพืชเก่าทุกชนิด คนมาขายน้ำมันสามารถเทน้ำมันลงในถังน้ำมันของเราได้เรื่อย ๆ น้ำหนักในการชั่งจะเคลียร์เป็น 0 ได้ และเมื่อเทน้ำมัน เลขจำนวนกิโลมันจะขึ้น กลุ่มพ่อค้าแม่ค้าบางทีรวบรวมน้ำมันไว้หลายวันก็มาขายที่ร้านเรา..." (บังยูเด็น, สัมภาษณ์วันที่ 24 กุมภาพันธ์ 2568)

"...เครือข่ายน้ำมัน ส่วนใหญ่คนที่คิดเหมือนเราต้องการลดภาวะโลกร้อน...เศรษฐกิจสีเขียวที่ยั่งยืน ที่ดีต่อสุขภาพ และสิ่งแวดล้อม.." (บอนด์, สัมภาษณ์วันที่ 10 ธันวาคม 2568)

"...การรวบรวมน้ำมันจะมีการประชาสัมพันธ์ หลังจากนั้นก็จะมีพ่อค้าแม่ค้าจะนำน้ำมันใส่ปี๊บไว้ แล้วนำไปขายให้ที่ร้านรับซื้อตัวแทนน้ำมันใช้แล้วในแต่ละจังหวัด ราคาการซื้อขายขึ้นอยู่กับกลไกของตลาดแต่ละวัน ลดโลกร้อน..." (เบียร์, สัมภาษณ์ วันที่ 25 กุมภาพันธ์ 2568)

"...ถ้ามีการรับซื้อน้ำมันใช้แล้วเพื่อไปผ่านกระบวนการรีไซเคิล ก็จะช่วยให้หน่วยงานภาครัฐไม่ต้องใช้งบประมาณในการจัดการกับปัญหาท่อตัน น้ำท่วมมากนัก..." (บังอาร์, สัมภาษณ์วันที่ 25 กุมภาพันธ์ 2568)

"...โครงการทอดไม่ทิ้งจะช่วยปลูกจิตสำนึกให้กับประชาชนเกิดความตระหนักต่อระบบนิเวศ ประชาชนมีรายได้เสริม..." (กุ้ง, สัมภาษณ์วันที่ 27 กุมภาพันธ์ 2568)

จากคำสัมภาษณ์ดังกล่าวข้างต้นสะท้อนให้เห็นว่า การรวบรวมน้ำมันใช้แล้วมีการประชาสัมพันธ์จะทำให้ได้เครือข่ายน้ำมัน ซึ่งถือว่าเป็นกิจกรรมลดภาวะโลกร้อน และกิจกรรมเพื่อสังคม ทำให้คนในชุมชนมีรายได้เพิ่มขึ้น ลดการทิ้งน้ำมันที่มีผลกระทบต่อระบบนิเวศ และสร้างความตระหนักให้เกิดแก่ประชาชนในการอนุรักษ์สิ่งแวดล้อม

2.2 การจัดเก็บ

น้ำมันจะถูกเก็บไว้ในภาชนะที่ได้รับการออกแบบมาโดยเฉพาะเพื่อป้องกันการรั่วไหลและการปนเปื้อน เพื่อให้แน่ใจว่าน้ำมันจะถูกเก็บไว้ในสภาพแวดล้อมที่ควบคุมได้ การรักษาความสมบูรณ์ของน้ำมันในขั้นตอนนี้ถือเป็นสิ่งสำคัญ เพราะจะส่งผลโดยตรงต่อกระบวนการต่าง ๆ ในขั้นตอนต่อไป

"....เรามีเครือข่าย และคิดว่าธุรกิจนี้น่าจะเติบโตได้ดี จึงได้ตั้งร้านรับซื้อน้ำมันใช้แล้ว แต่ต้องออกแบบถังให้แข็งแรงและปลอดภัยต่อการจัดเก็บน้ำมันจำนวนมาก เพื่อนำส่งให้กับบริษัทในกรุงเทพฯ.." (อาดัม, สัมภาษณ์วันที่ 22 กุมภาพันธ์ 2568)

"...มาช่วยพี่เขาทำงานก็คอยดูเวลามีแม่ค้ามาส่งน้ำมัน เราก็ดูน้ำหนัก ให้เขาเทลงในที่จัดเก็บซึ่งออกแบบมาอย่างดีของเถ้าแก่ วันหนึ่งก็มาขายกันหลายรายนะ..." (นูรนีนา, สัมภาษณ์วันที่ 22 กุมภาพันธ์ 2568)

"...ธุรกิจนี้คาดว่าจะส่งผลดี ก่อนนำมาขายได้สร้างข้อตกลงกับแม่ค้าไว้แล้วว่าต้องกรองให้เศษอาหารออกหมด ถังจัดเก็บน้ำมันสั่งทำพิเศษ หนาแข็งแรงทนทาน..." (ซิลมีย์, สัมภาษณ์วันที่ 22 กุมภาพันธ์ 2568)



ภาพที่ 3 ป้ายประกาศรับซื้อน้ำมันพืชใช้แล้วและร้านรับซื้อ

2.3 การขนส่ง

การขนส่งน้ำมันที่เก็บไว้ไปยังโรงงานแปรรูป โดยใช้ยานพาหนะพิเศษที่มีภาชนะบรรจุน้ำมันปรุงอาหารที่ออกแบบมาเพื่อรองรับน้ำหนักและความหนืดของน้ำมัน กระบวนการขนส่งต้องปฏิบัติตามกฎระเบียบที่เคร่งครัดเพื่อป้องกันการรั่วไหลและเพื่อความปลอดภัย

2.4 การบำบัดและการประมวลผล

เมื่อมาถึงโรงงานแปรรูปแล้ว น้ำมันจะผ่านกระบวนการบำบัดที่มีหลายขั้นตอน รวมถึงการกรองเพื่อกำจัดสิ่งเจือปน และการให้ความร้อนเพื่อกำจัดปริมาณน้ำ เป้าหมายคือ การเตรียมน้ำมันสำหรับใช้งานครั้งต่อไป เช่น Bio Jet อาหารสัตว์ หรือการใช้งานอื่น ๆ

2.5 การรีไซเคิล

ในกระบวนการรีไซเคิล “เชื้อเพลิงชีวภาพ” ได้มาจากมวลชีวภาพ (Biomass) และขยะชีวภาพ (Biowaste) ซึ่งหนึ่งในนั้น คือ “น้ำมันพืชที่ใช้แล้ว” โดยผู้ผลิตเชื้อเพลิงชีวภาพสามารถนำมวลชีวภาพเหล่านี้มาผ่านกรรมวิธีทางเคมีก่อนที่จะส่งน้ำมันดังกล่าวไปให้โรงกลั่นในต่างประเทศ ซึ่งเมื่อผ่านกระบวนการดังกล่าวแล้ว ผลิตภัณฑ์นั้นจึงจะเรียกว่า Mixed Industrial Oil หรือน้ำมันอุตสาหกรรมผสม ซึ่งจะถูกนำไปผลิตเป็นเชื้อเพลิงชีวภาพ จากนั้นวัตถุดิบเหล่านี้ จะถูกนำเข้ากระบวนการปรับให้มีคุณสมบัติทางเคมีคล้ายคลึงกับน้ำมันเครื่องบินทั่วไปที่ผลิตจากเชื้อเพลิงฟอสซิลโดยน้ำมัน SAF จะเป็นเชื้อเพลิงแบบ Drop-in fuel ซึ่งหมายความว่า น้ำมันชนิดนี้สามารถนำไปผสมใช้กับน้ำมันเครื่องบินแบบเดิมได้ทันทีในสัดส่วนที่ปลอดภัยต่อเครื่องยนต์ โดยไม่ต้องดัดแปลงหรือปรับปรุงเครื่องยนต์เพิ่มเติม (คณะกรรมการพลังงานหอการค้าไทย, 2568)



ภาพที่ 4 กระบวนการผลิตน้ำมันเชื้อเพลิงอากาศยานแบบยั่งยืน (SAF) (คณะกรรมการพลังงานหอการค้าไทย, 2568)

2.6 การกำจัด

ขั้นตอนสุดท้ายในกระบวนการ คือ การกำจัด แม้ว่าน้ำมันที่ผ่านการบำบัดส่วนใหญ่จะถูกนำไปรีไซเคิล แต่ก็อาจมีของเสียเหลือทิ้งที่ต้องกำจัด ของเสียเหล่านี้ซึ่งอาจรวมถึงเศษของแข็งหรือน้ำเสีย จะถูกกำจัดตามข้อบังคับด้านสิ่งแวดล้อมเพื่อลดอันตรายที่อาจเกิดขึ้นต่อสิ่งแวดล้อมให้น้อยที่สุด (คณะกรรมการพลังงานหอการค้าไทย, 2568)

3. ความเคลื่อนไหวการรณรงค์การใช้น้ำมัน SAF ในประเทศไทยและต่างประเทศ

น้ำมัน SAF (Sustainable Aviation Fuel) ได้รับความสนใจมากขึ้นในประเทศไทย เนื่องจากความต้องการลดการปล่อยก๊าซเรือนกระจกในอุตสาหกรรมการบิน และการตอบสนองต่อแนวโน้มของการบินที่ยั่งยืนในระดับโลก ความเคลื่อนไหวในประเทศไทยและต่างประเทศมีดังนี้ (บางจากหลากมุมมอง, 2565ก)

3.1 โครงการ “ทอดไม่ทิ้ง” และความเคลื่อนไหวของประเทศไทย

กลุ่มบริษัทบางจากได้มีการก่อสร้างหน่วยผลิตน้ำมันอากาศยานยั่งยืน (SAF) โดย BSGF นำน้ำมันปรุงอาหารใช้แล้วจากครัวเรือนและภาคธุรกิจ โครงการ “ทอดไม่ทิ้ง” มาผลิตเป็นน้ำมันเชื้อเพลิงอากาศยานยั่งยืน โดยการรณรงค์ให้ประชาชน “ไม่ทิ้ง” น้ำมันปรุงอาหารใช้แล้วสู่พื้นที่สาธารณะ ป้องกันปัญหาจากการทิ้งของเสียอย่างไม่ถูกวิธีที่จะก่อให้เกิดผลกระทบต่อสิ่งแวดล้อม และ “ไม่ทอดซ้ำ” ซึ่งส่งผลเสียต่อสุขภาพ (กรุงเทพธุรกิจ, 2568) การนำเอาน้ำมันปรุงอาหารใช้แล้วมาขายที่สถานีบริการบางจากหรือจุดรับซื้อที่บริษัทกำหนด เพื่อนำไปผลิตเป็นน้ำมันเครื่องบินหรือเชื้อเพลิงอากาศยานยั่งยืน ที่ตอบโจทย์โมเดลเศรษฐกิจ BCG ได้อย่างครบวงจร โดยนำร่องที่ปั๊มน้ำมันบางจาก 44 แห่ง (บางจากหลากมุมมอง, 2565) ภาคเอกชนของไทยเริ่มทยอยลงทุนตั้งโรงกลั่นผลิต SAF แล้ว ในปี 2026 กลุ่ม บมจ.ปตท. หรือ PTT จะเริ่มทำการผลิต SAF ได้ (วงศ์พาณิชย์มีนบุรี, 2566)

3.2 สหภาพยุโรป

ปัจจุบันหลายประเทศในสหภาพยุโรป ได้ให้ความสนใจและพัฒนา SAF กันมากขึ้น เพื่อลดการปล่อยก๊าซคาร์บอนไดออกไซด์สุทธิเป็นศูนย์ภายในปี 2050 และยังประเมินว่าการใช้ SAF จะช่วยลดคาร์บอน ได้ถึง 34% เมื่อนำมาร่วมใช้กับมาตรการอื่น เช่น การปรับปรุงเทคโนโลยีอากาศยานและเครื่องยนต์ (วงศ์พาณิชย์มีนบุรี, 2566)

ตัวอย่างประเทศที่เริ่มมีมาตรการบังคับใช้อย่างเข้มงวด เช่น ประเทศฝรั่งเศส บังคับให้ทุกเที่ยวบินที่ออกจากประเทศ ต้องใช้ SAF อย่างต่ำ 1% ของการใช้เชื้อเพลิงอากาศยาน ในปี 2022 และจะปรับเพิ่มขึ้น มากถึง 50% ภายในปี 2050 (สปริงนิวส์, 2568) สมาคมขนส่งทางอากาศระหว่างประเทศ หรือ IATA ก็ได้ประกาศเป้าหมายลดการปล่อยมลพิษ ภายในปี 2050 ซึ่งเป้าหมายหลักของสมาคมคือการนำ SAF มาใช้แล้ว ในปี 2021 มีการผลิต SAF ได้เพียง 100 ล้านลิตรต่อปี แต่ IATA ตั้งเป้าหมายการใช้ SAF ในปี 2025 ให้ได้ 8,000 ล้านลิตรต่อปี

3.3 จีน รีไซเคิล 'น้ำมันเหลือทิ้งหม้อไฟหมาล่า' เป็นเชื้อเพลิงเครื่องบิน

จากข้อมูล Bloomberg ระบุว่า ชาวจีนบริโภคน้ำมันมากกว่า 41 ล้านตันต่อปี แต่มีเพียง 3 ล้านตันเท่านั้นที่ถูกนำไปรีไซเคิลเป็นเชื้อเพลิงชีวภาพที่กำลังเป็นที่ต้องการ เมืองเฉิงตูเมืองเดียวน้ำซุปหมาล่าผลิตน้ำมันเหลือใช้จากน้ำซุปแล้วถึง 12,000 ตันต่อเดือน ซึ่งถ้ามีตัวเลขจากทั่วประเทศ จีนอาจมีน้ำมันเหลือใช้จากน้ำซุปหมาล่าที่คนบริโภคกันเป็นหลายแสนตันต่อเดือน บริษัทจีนแห่งหนึ่งจึงเกิดไอเดียนำน้ำมันเหลือใช้จำนวนมากมารีไซเคิล ทำให้ธุรกิจการส่งออกน้ำมันเหลือทิ้ง หรือธุรกิจโรงกลั่นรีไซเคิลน้ำมันและชีวมวลต่าง ๆ เพื่อเปลี่ยนเป็นเชื้อเพลิงชีวภาพยังมีเติบโตอีกมาก (ธนาคารกรุงเทพ, 2568)

สรุป

การผลิต SAF ผ่าน BSGF จะช่วยสร้างระบบนิเวศรองรับความต้องการของผู้โดยสารทางอากาศอย่างเป็นมิตรต่อสิ่งแวดล้อมด้วยผลิตภัณฑ์ที่ไม่เพียงแค่ลดการปล่อยก๊าซคาร์บอนไดออกไซด์สู่ชั้นบรรยากาศ แต่ยังช่วยลดการจัดการน้ำมันพืชใช้แล้วอย่างเป็นระบบ ดีต่อสุขภาพและสิ่งแวดล้อม น้ำมันใช้แล้วได้พยุงการเจริญเติบโตสร้างโอกาสให้ SME สร้างรายได้ ขณะเดียวกันก็ช่วยลดโลกร้อน หัวใจสำคัญคือ ความพยายาม ที่จะลดการใช้ทรัพยากรที่มีอยู่อย่างจำกัด ซึ่งเป็นการสนับสนุนการดำเนินงานลดการปล่อยก๊าซคาร์บอนไดออกไซด์และพัฒนาเทคโนโลยีพลังงานหมุนเวียน พลังงานทดแทน (Renewable Energy Technologies) ซึ่งส่งผลดีต่อสิ่งแวดล้อม ลดปัญหามลภาวะด้านสิ่งแวดล้อม

สอดคล้องกับ BCG Economy Model อย่างครบวงจร เพื่อมุ่งสู่เป้าหมาย Net Zero รูปแบบการพัฒนาเศรษฐกิจใหม่ที่เร่งให้เศรษฐกิจเติบโตแบบก้าวกระโดดอย่างทั่วถึงบนฐานการพัฒนาที่ยั่งยืน

ข้อเสนอแนะ

ข้อเสนอแนะจากการวิจัย

การรับซื้อขายน้ำมันระหว่างร้านรับซื้อกับพ่อค้าแม่ค้าทำให้เกิดเครือข่ายชุมชนและเป็นผลดีกับสังคมและสิ่งแวดล้อม ควรมีการประชาสัมพันธ์สร้างการรับรู้ในแต่ละพื้นที่ให้กว้างขวางและทั่วถึง เนื่องจากเป็นธุรกิจใหม่ยังมีหลายคนยังไม่รู้จัก

ข้อเสนอแนะเชิงนโยบาย

หน่วยงานภาครัฐควรมีการรณรงค์ให้ประชาชนทุกคนตระหนักถึงสุขภาพและระบบนิเวศโดยให้มีมาตรการรองรับการซื้อขายน้ำมันที่ใช้แล้ว เพื่อที่จะได้มีน้ำมันใช้แล้วเป็นวัตถุดิบในการผลิต SAF ได้อย่างเพียงพอ

ข้อเสนอแนะในการวิจัยครั้งต่อไป

1. ควรศึกษาปัจจัยที่มีอิทธิพลต่อการสนับสนุนองค์กรในเชิงธุรกิจนวัตกรรมสีเขียวของน้ำมันใช้แล้วให้เกิดความยั่งยืน

2. ควรศึกษาการส่งเสริมภาพลักษณ์องค์กรและส่งเสริมสังคมคาร์บอนต่ำในประเด็นน้ำมันใช้แล้วชุมชน

เอกสารอ้างอิง

กรมควบคุมมลพิษ. (2546). คู่มือแนวทางการจัดการกากตะกอนจากระบบบำบัดน้ำเสีย. กรุงเทพฯ : โครงการจัดทำหลักเกณฑ์และแนวทางการจัดการกากตะกอนจากระบบบำบัดน้ำเสีย.

กระทรวงการอุดมศึกษา วิทยาศาสตร์ วิจัยและนวัตกรรม. (2565). วช. ร่วมกับ บางจาก บีบีจีไอ และ มทร.อีสาน ขับเคลื่อนการผลิต SAF สู่น้ำมันเครื่องบินคาร์บอนต่ำจากฐานการวิจัยฯ. สืบค้นเมื่อ 25 เมษายน 2568 จาก https://www. mhesi.go.th/ index.php/news/6802-saf.html

กรุงเทพธุรกิจ. (2568). รู้หรือไม่ ‘น้ำมันทอดอาหาร’ นำมาผลิตเชื้อเพลิงอากาศยานยั่งยืนได้. สืบค้นเมื่อ 20 กุมภาพันธ์ 2568 จาก https://www.bangkokbiznews.com/environment/1119052

กฤตย์ สีตะธนี. (2567). Sustainable Aviation Fuel (SAF) ช่องว่างระหว่างอุปสงค์และอุปทานระดับโลก และบทบาทของประเทศไทย. ศูนย์วิจัยกสิกรไทย, 30(3535), 1-6.

คณะกรรมการพลังงานหอการค้าไทย. (2568). รู้จักกับน้ำมัน SAF พลังงานสะอาดสำหรับเครื่องบิน. สืบค้นเมื่อ 22 กุมภาพันธ์ 2568 จาก https://energy-thaichamber.org/what-is-saf/

ณัฐภัทร รัตนวิชัย. (2565). บทบาทของ Recycle ใน Circular Economy. ศูนย์ความเป็นเลิศด้านเทคโนโลยีปิโตรเคมีและวัสดุ. สืบค้นเมื่อ 15 มกราคม 2568 จาก https://petromat.org/home/circular-economy-recycle/

ธนาคารกรุงเทพ. (2568). ทอดไม่ทิ้ง เปลี่ยนน้ำมันเหลือทิ้งเป็นน้ำมันเครื่องบินโอกาสใหม่ SME ไทยเติบโตอย่างยั่งยืน. สืบค้นเมื่อ 20 กุมภาพันธ์ 2568 จาก https://www.Bangkokbanksme.com/en/sustainable-fuel

บางจากหลากมุมมอง. (2565ก). ชวนกันมา “ทอดไม่ทิ้ง”โมเดลเศรษฐกิจ BCG ที่เริ่มได้ง่าย ๆ จากในครัว. สืบค้นเมื่อ 25 มกราคม 2568 จาก https://www.bangchak.co.th/th/ newsroom/reflection/1027/

บางจากหลากมุมมอง. (2565ข). Sustainable Aviation Fuel (SAF) อีกก้าวสำคัญในการลดโลกร้อน. สืบค้นเมื่อ 25 เมษายน 2568 จาก https://www.bangchak.co.th/th/newsroom/reflection/952/sustainable-aviation-fuel-saf/

ปิโยรส ทิพย์มงคล และ ณัฐพงศ์ ตันติวิวัฒนพันธ์. (2563). การจัดการและการแปรรูปน้ำมันใช้แล้วในภาคครัวเรือน. วารสารสิ่งแวดล้อม, 24 (4), 1-8.

ภาควิชาวิศวกรรมเครื่องกล มหาวิทยาลัยเกษตรศาสตร์ (2563) แนวทางการส่งเสริมเชื้อเพลิงชีวภาพอากาศยานอย่างยั่งยืน. กรุงเทพฯ : มหาวิทยาลัยเกษตรศาสตร์.

วงศ์พาณิชย์มีนบุรี (2566). การรีไซเคิลของที่ไม่ได้ใช้ช่วยให้สิ่งแวดล้อมดีขึ้นอย่างไร. สืบค้นเมื่อ 15 กุมภาพันธ์ 2568 จาก https://wongpanitminburi.com/blog/save-the-world-with-recycle

สปริงนิวส์. (2568) “น้ำมันพืชเก่า แลกน้ำมันพืชใหม่” นำกลับมาผลิตน้ำมันเครื่องบิน รักษ์โลก. สืบค้นเมื่อ 22 กุมภาพันธ์ 2568 จาก https://www.springnews.co.th/keep-the-world/sustainable /845635

สวทช. (2563). BCG Economy Model คืออะไร. สืบค้นเมื่อ 15 กุมภาพันธ์ 2568 จาก: https://www.nstda.or.th/home/knowledge_post/what-is-bcg-economy-model/

สำนักข่าว สสส. (2551). ตะลึงคนไทยบริโภคน้ำมันพืชปีละกว่า 8 แสนตัน. สืบค้นเมื่อ 20 มกราคม 2567 จาก https://www.thaihealth.or.th/Content/23190-ตะลึง!!%20คนไทยบริโภคน้ำมันพืชปีละกว่า%208%20แสนตัน.html

สำนักงานคณะกรรมการกฤษฎีกา. (2560). พระราชบัญญัติรักษาความสะอาดและความเป็นระเบียบเรียบร้อยของบ้านเมือง พ.ศ.2535 แก้ไขเพิ่มเติม (ฉบับ2) พ.ศ.2560. สืบค้นเมื่อ 25 กุมภาพันธ์ 2568 จาก https://www.dsk.go.th/index/load_data/?doc=10177

Green Network, (2019, 22 November) Upcycle และ Recycle วิถีแห่งความยั่งยืน. สืบค้นเมื่อ 25 เมษายน 2568 จาก https://www.greennetworkthailand.com/upcycle-upcycling-recycle/

Hagelüken, C., et al. (2016). “The EU Circular Economy and Its Relevance to Metal Recycling.” Recycling, 1(2), 242-253.

Pobpad. (2568). น้ำมันพืชวัตถุดิบคู่ครัวเลือกให้ดีมีประโยชน์. สืบค้นเมื่อ 11 กุมภาพันธ์ 2568 จาก https://www.pobpad.com/

Skip Shapiro Enterprises. (2568). จะกำจัดน้ำมันปรุงอาหารอย่างไร–คำแนะนำจากผู้เชี่ยวชาญ. สืบค้นเมื่อ 20 มกราคม 2568 จาก https://shapiroe.com/blog/how-to-dispose-of-cooking-oil/

บุคลานุกรม

กุ้ง (ผู้ให้สัมภาษณ์). เก็ตถวา (ผู้สัมภาษณ์). ที่เทศบาลเมืองคอหงส์ ตำบลคอหงส์ อำเภอหาดใหญ่ จังหวัดสงขลา. เมื่อวันที่ 27 กุมภาพันธ์ 2568.

เจ๊คิ้ม (ผู้ให้สัมภาษณ์). ไกรษร (ผู้สัมภาษณ์). ที่ตลาดศรีตรัง อำเภอหาดใหญ่ จังหวัดสงขลา. เมื่อวันที่ 10 มกราคม 2568.

ซิลมีย์ (ผู้ให้สัมภาษณ์). นันทิยารัตน์ (ผู้สัมภาษณ์). ที่ร้านรับซื้อน้ำมันในตลาด อำเภอละงู จังหวัดสตูล. วันที่ 22 กุมภาพันธ์ 2568.

นูรนีนา (ผู้ให้สัมภาษณ์). นันทรัฐ (ผู้สัมภาษณ์). ที่ร้านรับซื้อน้ำมันในตลาด อำเภอละงู จังหวัดสตูล. เมื่อวันที่ 22 กุมภาพันธ์ 2568.

แนน (ผู้ให้สัมภาษณ์). นันทรัฐ (ผู้สัมภาษณ์). ที่ตลาดนัดตำบลละงู อำเภอละงู จังหวัดสตูล. เมื่อวันที่ 24 กุมภาพันธ์ 2568.

บอนด์ (ผู้ให้สัมภาษณ์). เจตน์สฤษฎ์ (ผู้สัมภาษณ์). ที่เทศบาลเมืองคอหงส์ อำเภอหาดใหญ่ จังหวัดสงขลา. เมื่อวันที่ 10 ธันวาคม 2568.

บังยูเด็น (ผู้ให้สัมภาษณ์). นันทิยารัตน์ (ผู้สัมภาษณ์). ที่ร้านรับซื้อน้ำมัน อำเภอละงู จังหวัดสตูล. เมื่อวันที่ 24 กุมภาพันธ์ 2568 และวันที่ 25 กุมภาพันธ์ 2568.

บังอาร์ (ผู้ให้สัมภาษณ์). เจตน์สฤษฎ์ (ผู้สัมภาษณ์). ที่ อบต.ละงู อำเภอละงู จังหวัดสตูล. เมื่อวันที่ 25 กุมภาพันธ์ 2568.

เบียร์ (ผู้ให้สัมภาษณ์). ไกรษร (ผู้สัมภาษณ์). ที่เทศบาลนครหาดใหญ่ อำเภอหาดใหญ่ จังหวัดสงขลา. เมื่อวันที่ 25 กุมภาพันธ์ 2568.

ผุสดี (ผู้ให้สัมภาษณ์). เก็ตถวา (ผู้สัมภาษณ์). ที่โรงเรียนสตูลวิทยา อำเภอเมือง จังหวัดสตูล. เมื่อวันที่ 30 ธันวาคม 2567.

ฟิรฮานา (ผู้ให้สัมภาษณ์). นันทิยารัตน์ (ผู้สัมภาษณ์). ที่ตลาดนัดละงู อำเภอละงู จังหวัดสตูล. เมื่อวันที่ 2 มกราคม 2568.

เฟิร์น (ผู้ให้สัมภาษณ์). ไกรษร (ผู้สัมภาษณ์). ที่ร้านตรงข้ามวัดปลักกริมใน อำเภอหาดใหญ่ จังหวัดสงขลา. เมื่อวันที่ 11 มกราคม 2568.

สมใจ (ผู้ให้สัมภาษณ์). เก็ตถวา (ผู้สัมภาษณ์). ที่โรงอาหารโรงพยาบาล ม.อ. อำเภอหาดใหญ่ จังหวัดสงขลา. เมื่อวันที่ 3 มกราคม 2568.

สรรพสิทธิ์ (ผู้ให้สัมภาษณ์). เจตน์สฤษฎ์ (ผู้สัมภาษณ์). ที่ร้านน้ำชาหมื่นไม้ชาชัก อำเภอหาดใหญ่ จังหวัดสงขลา. เมื่อวันที่ 31 ธันวาคม 2567.

อรัญญา (ผู้ให้สัมภาษณ์). นันทิยารัตน์ (ผู้สัมภาษณ์). ที่บ้าน ตำบลละงู อำเภอละงู จังหวัดสตูล. เมื่อวันที่ 2 มกราคม 2568.

อลิษา (ผู้ให้สัมภาษณ์). นันทรัฐ (ผู้สัมภาษณ์). ที่ตลาดนัดตำบลละงู อำเภอละงู จังหวัดสตูล. เมื่อวันที่ 24 กุมภาพันธ์ 2568.

อาดัม (ผู้ให้สัมภาษณ์). นันทิยารัตน์ (ผู้สัมภาษณ์). ที่ร้านรับซื้อน้ำมัน อำเภอละงู จังหวัดสตูล. เมื่อวันที่ 22 กุมภาพันธ์ 2568.

การออกแบบปรับปรุงภูมิทัศน์แหล่งเรียนรู้ แหล่งท่องเที่ยว ทางธรรมชาติและวัฒนธรรม ชุมชนเกาะใหญ่ อำเภอกระแสสินธุ์ จังหวัดสงขลา เพื่อส่งเสริมการท่องเที่ยว

Landscape improvement design of learning and tourist attractions. Natural and Cultural Koh Yai Community, Krasaesin District, Songkhla Province to promote tourism.

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บทคัดย่อ

งานวิจัยฉบับนี้เป็นการออกแบบปรับปรุงภูมิทัศน์แหล่งเรียนรู้ แหล่งท่องเที่ยวทางธรรมชาติและวัฒนธรรม ชุมชนเกาะใหญ่ อำเภอกระแสสินธุ์ จังหวัดสงขลา เพื่อส่งเสริมการท่องเที่ยว โดยการเก็บข้อมูลภาคสนามด้านอัตลักษณ์และบริบทของของชุมชน รวมถึงบริบทของแหล่งท่องเที่ยว ด้วยการสังเกตถ่ายภาพและเขียนภาพประกอบ รังวัดพื้นที่ รวมถึงสัมภาษณ์ลักษณะการใช้งาน ตำแหน่งการจัดว่างพื้นที่ และความต้องการพื้นที่ใช้สอยทั้งภายในและภายนอกอาคารของแหล่งเรียนรู้ และแหล่งท่องเที่ยวจากเจ้าของพื้นที่ คนในชุมชนและผู้เกี่ยวข้อง รวมถึงแบบสอบถามความคิดเห็นนักท่องเที่ยวด้านความสะดวกในการใช้พื้นที่เดิม และความต้องการในการปรับปรุง เพื่อเป็นข้อมูลในการวิเคราะห์สำหรับการออกแบบปรับปรุงภูมิทัศน์แหล่งเรียนรู้ แหล่งท่องเที่ยว

จากการศึกษาพบว่า แหล่งเรียนรู้และแหล่งท่องเที่ยวของชุมชนเกาะใหญ่ ที่บริหารจัดการโดยภาครัฐและชุมชน มีจำนวนรวมทั้งสิ้น 7 แหล่ง แบ่งเป็นแหล่งเรียนรู้ทางธรรมชาติ จำนวน 1 แหล่ง ได้แก่ สถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ (รวมพื้นที่แหลมควายราบ) และแหล่งท่องเที่ยวทางวัฒนธรรม จำนวน 6 แห่ง ได้แก่ วัดสูงเกาะใหญ่ แหล่งเรียนรู้การแปรรูปผลิตภัณฑ์จากต้นสาคู บ่อน้ำศักดิ์สิทธิ์และวิถีประมงวัดแหลมบ่อท่อ แหล่งเรียนรู้บ้านตีมีด แหล่งเรียนรู้สวนเกษตรผสมผสาน บ้านแหลมยาง “โคก หนอง นา” วิถีประมง และจุดชมปลาโลมาบ้านแหลมหาด โดยมีแนวความคิดในการออกแบบปรับปรุงภูมิทัศน์ของแหล่งท่องเที่ยวชุมชน เช่น อาคาร จุดถ่ายรูป ซุ้มขายของ และป้ายต่าง ๆ ให้สอดคล้องกับองค์ประกอบหลัก 2 ด้าน คือ 1) ด้านอัตลักษณ์วัฒนธรรมของชุมชุน เช่น ใช้วิธีและรูปแบบการก่อสร้างจากภูมิปัญญาท้องถิ่นและใช้วัสดุที่มีภายในท้องถิ่น และ 2) ด้านบริบทของพื้นที่ของแหล่งท่องเที่ยวในแต่ละแหล่ง

คำสำคัญ: การท่องเที่ยวในแหล่งธรรมชาติ, การออกแบบภูมิทัศน์, เส้นทางท่องเที่ยว, การท่องเที่ยวในแหล่งวัฒนธรรม

Abstract

This research is the study of natural and cultural tourist attractions. To design tourist routes and landscape of tourist attractions of Koh Yai community Krasae-sin district, Songkhla province. In this study field survey, observation, deep interview, photographic and drawing were used as data collection. Furthermore, brainstorming and questionnaires were also used for promoting community participation.

The data collection results found that the local tourist attractions of Koh Yai community, which are responsible by the government, is the station of development and conservation of the lake wildlife. For cultural tourist attractions, there are consisting of Sung Koh Yai Temple, learning recourses for Metroxylon sagu palm processing, holy well and fishing methods of Wat Laem Bor Thor, learning recourses at Baan Tee Meed, learning recourses for mixed agricultural garden at Baan Laem Yang named “Khok Nong Na”, and fishing method and dolphin watching point at Baan Laem Haad. The concept of design for landscape decoration of community tourist attractions such as buildings, places for photography, places for souvenir, and various signs was based on two main aspects. There were 1) designing in accordance with the cultural identities of the community such as using methods and construction patterns from local wisdom, and using local materials, and 2) designing by the area context for each tourist attraction.

Keywords: Cultural tourist, Tourism, Landscape Design, Tourism Route

บทนำ

การยกระดับเศรษฐกิจด้วยการท่องเที่ยว เป็นแนวทางที่สำคัญแนวทางหนึ่งในการส่งเสริมและพัฒนาเศรษฐกิจของหลายประเทศ การท่องเที่ยวไม่เพียงแต่เป็นอุตสาหกรรมที่สร้างรายได้ให้กับประเทศเท่านั้น แต่ยังช่วยส่งเสริมการสร้างงาน, การพัฒนาโครงสร้างพื้นฐาน, การกระจายรายได้ไปยังชุมชนต่าง ๆ และการอนุรักษ์ทรัพยากรทางธรรมชาติและวัฒนธรรมอีกด้วย ซึ่งจากการศึกษาวิจัยหลายฉบับได้เน้นย้ำถึงบทบาทของการท่องเที่ยวในการส่งเสริมเศรษฐกิจ ทั้งในระดับท้องถิ่นและระดับประเทศ

การท่องเที่ยวเชิงมรดกวัฒนธรรมและการจัดการมรดกทางวัฒนธรรม เป็นสิ่งที่ต้องพิจารณาควบคู่กัน ซึ่งการรักษามรดกวัฒนธรรมเป็นประโยชน์ด้านองค์ความรู้และการให้คุณค่าแก่สังคม ในขณะที่การพัฒนาการท่องเที่ยวนำไปสู่การเติบโตทางเศรษฐกิจและรายได้ของชุมชน การจัดหาแนวทางการจัดการท่องเที่ยวเชิงมรดกวัฒนธรรมจึงเป็นเรื่องสำคัญ ทั้งนี้แนวคิดหลักเพื่อใช้ในการจัดการมรดกทางวัฒนธรรม ประกอบด้วย แนวคิดการพัฒนาการท่องเที่ยวอย่างยั่งยืนและแนวคิดเศรษฐกิจ และการท่องเที่ยวเชิงสร้างสรรค์ ซึ่งแต่ละแนวคิดจะประกอบด้วยกลยุทธ์และแนวทางสนับสนุนที่จะนำไปสู่การจัดการมรดกวัฒนธรรมและการท่องเที่ยวเชิงมรดกวัฒนธรรมเป็นไปอย่างเหมาะสม

ชุมชนเกาะใหญ่เป็นชุมชนหนึ่งในอำเภอกระแสสินธุ์ จังหวัดสงขลา ตั้งอยู่ระหว่างทะเลอ่าวไทยและทะเลสาบสงขลา มีลำคลองไหลผ่านระหว่างแผ่นดินใหญ่กับเกาะใหญ่ อันเป็นภูมิลักษณ์ที่มีความโดดเด่น ส่งผลให้ชุมชนนี้มีความอุดมสมบูรณ์ทางทรัพยากรธรรมชาติ มีทั้งป่า ภูเขา ทะเล นาข้าว ทุ่งตาลโตนด ผสมผสานกันจนกลายเป็นอัตลักษณ์เฉพาะถิ่นของชุมชนเกาะใหญ่ วิถีชีวิตของผู้คนในบริเวณนี้

จึงมีเสน่ห์ งดงาม เรียบง่ายแบบพื้นบ้าน เหมาะแก่การส่งเสริมและพัฒนาด้านการท่องเที่ยวในรูปแบบต่าง ๆ เช่น การท่องเที่ยวเชิงธรรมชาติ เนื่องจากเป็นพื้นที่มีธรรมชาติ สิ่งแวดล้อมที่งดงาม การท่องเที่ยวเชิงวัฒนธรรม เนื่องจากเป็นพื้นที่มีการดำรงวิถีพื้นบ้านที่โดดเด่นมีเอกลักษณ์ โดยเฉพาะวิถีชีวิตชุมชนแบบชายฝั่งทะเลสาบสงขลา อันเป็นผืนแผ่นดินอันน่ามหัศจรรย์

ปัจจุบันการวิจัยเกี่ยวกับการออกแบบภูมิทัศน์แหล่งท่องเที่ยว ในชุมชนไทยส่วนใหญ่ยังขาดการวิเคราะห์เชิงลึกเกี่ยวกับอัตลักษณ์ท้องถิ่นที่มีผลต่อการออกแบบและการพัฒนาแหล่งท่องเที่ยว เช่น การศึกษาของ พิมพกานต์ ปัจจันตวิวัฒน์ และ บุญอนันต์ นทกุล (2564) ที่เน้นการรับรู้ของมนุษย์ต่อสิ่งแวดล้อมทางวัฒนธรรมในชุมชนคลองแดน แต่ยังไม่ครอบคลุมถึงการนำข้อมูลเหล่านี้ มาประยุกต์ใช้ในการออกแบบภูมิทัศน์เพื่อส่งเสริมการท่องเที่ยวอย่างยั่งยืน ในพื้นที่เฉพาะรวมถึงการวิจัยเกี่ยวกับการพัฒนาภูมิทัศน์เพื่อการท่องเที่ยวในประเทศไทย ยังขาดการวิเคราะห์องค์ประกอบที่ส่งผลต่อความยั่งยืนของการท่องเที่ยวในชุมชน เช่น การศึกษาของอุษณีษ์ เสวกวัชรี และ รัญชน์ แจ่มจำรัส (2567) ที่เน้นการมีส่วนร่วมของชุมชนในการพัฒนาแหล่งท่องเที่ยวทางวัฒนธรรม แต่ยังไม่ครอบคลุมถึงการออกแบบภูมิทัศน์ที่สอดคล้องกับอัตลักษณ์ท้องถิ่นและความต้องการของชุมชนในพื้นที่เฉพาะ เช่น เกาะใหญ่

โครงการวิจัยการออกแบบปรับปรุงภูมิทัศน์แหล่งเรียนรู้ แหล่งท่องเที่ยว ทางธรรมชาติและวัฒนธรรม ชุมชนเกาะใหญ่ อำเภอกระแสสินธุ์ จังหวัดสงขลา เป็นการวิเคราะห์องค์ประกอบ และออกแบบภูมิทัศน์ของแหล่งท่องเที่ยว เพื่อส่งเสริมการท่องเที่ยว จึงเป็นส่วนหนึ่งในการพัฒนาชุมชนเกาะใหญ่ให้มีศักยภาพ ด้านการท่องเที่ยว อันสามารถส่งเสริมให้เศรษฐกิจของชุมชนดีขึ้นต่อไป

วัตถุประสงค์ของการวิจัย

1) ศึกษาอัตลักษณ์ของชุมชนเพื่อการออกแบบปรับปรุงภูมิทัศน์แหล่งท่องเที่ยวทางธรรมชาติและวัฒนธรรมของชุมชนเกาะใหญ่ อำเภอกระแสสินธุ์ จังหวัดสงขลา

2) ศึกษาการจัดภูมิทัศน์แหล่งท่องเที่ยวทางธรรมชาติและวัฒนธรรมของชุมชนเกาะใหญ่เดิม

3) ออกแบบปรับปรุงภูมิทัศน์แหล่งท่องเที่ยวทางธรรมชาติและวัฒนธรรมของชุมชนเกาะใหญ่ อำเภอกระแสสินธุ์ จังหวัดสงขลา

แนวคิด ทฤษฎี กรอบแนวคิด

1. เอกสารที่เกี่ยวข้องกับการออกแบบภูมิทัศน์

การวิเคราะห์เป็นสิ่งจำเป็นในกระบวนการคิด เพราะการวิเคราะห์ช่วยแยกแยะสิ่งที่สลับซับซ้อนให้เป็นสิ่งที่เราสามารถจัดการได้ช่วยให้เราเข้าใจปัญหาและหาทางแก้ไข ซึ่งปัญหาหลายอย่างต้องแก้ไขด้วยการออกแบบ เพราะการออกแบบช่วยสร้างสรรค์วิธีการแก้ปัญหาได้ การออกแบบเป็นกระบวนการคิดโดยการนำเอาปัจจัยหลายอย่าง มาทำให้เกิดผลตามที่เราต้องการ เป็นที่น่าเสียดายว่าการออกแบบ มักถูกมองว่าเป็นงานของสถาปนิก ภูมิสถาปนิก มัณฑนากร นักออกแบบแฟชั่น ฯลฯ เท่านั้น แท้ที่จริงแล้วการออกแบบเป็นพื้นฐานของการคิด (ชวาพร ศักดิ์ศรี, 2024).

1.1 หลักการออกแบบภูมิทัศน์ (Fundamental of Landscape Design) กิจกรรมและองค์ประกอบ การออกแบบภูมิทัศน์ นักออกแบบต้องพิจารณากำหนดตำแหน่งกิจกรรมการใช้พื้นที่ และรายละเอียดต่าง ๆ หรือองค์ประกอบที่ควรจัดให้มีขึ้นในพื้นที่นั้น ๆ สามารถสรุปได้ว่า การออกแบบภูมิทัศน์ประกอบด้วย 2 ส่วนใหญ่ ๆ คือ

1) กิจกรรม (Activity) หมายถึง กิจกรรมที่จะจัดให้มีขึ้นในพื้นที่ ซึ่งแบ่งกิจกรรมออกเป็น 2 แบบ คือ กิจกรรมที่ต้องออกแรงและเกิดเสียงดัง (Active Activity) เช่น กิจกรรมกีฬาต่าง ๆ สนามเด็กเล่น เวทีกลางแจ้ง เป็นต้น และกิจกรรมที่ไม่ต้องออกแรง ต้องการความสงบ (passive activity) เช่น เดินเล่น นั่งเล่น นอน อ่านหนังสือ เป็นต้น นักออกแบบจะเป็นผู้กำหนดตำแหน่งที่เหมาะสมในพื้นที่ออกแบบ โดยจัดกิจกรรมประเภทเดียวกันไว้ด้วยกันเพื่อไม่ให้เกิดการรบกวนกัน

2) องค์ประกอบ (Elements) หมายถึง สิ่งที่เหมาะสมจัดให้มีในกิจกรรมแต่ละประเภท ทั้งที่มีชีวิตหรือต้นไม้ (Softscape) และสิ่งไม่มีชีวิต (Hardscape) เช่น กิจกรรมนั่งเล่น ควรมีม้านั่ง ศาลา และสวน กิจกรรมว่ายน้ำควรมีสระว่ายน้ำ ฝักบัวชำระตัว ม้านั่งอาบแดด ร่ม กิจกรรมปิกนิก ควรมีโต๊ะและม้านั่งจัดวางบนพื้นแข็ง ถังขยะ เตาย่าง และร่มเงาจากต้นไม้ใหญ่ ส่วนกิจกรรมแคมป์ไฟ ควรมีลานพื้นแข็ง เตาปิ้งแบบล้อมวงได้ ม้านั่งอาจตั้งอยู่ที่โล่งแจ้งได้เลย เพราะทำกิจกรรมในตอนกลางคืน เป็นต้น ซึ่งนักออกแบบจะเป็นผู้กำหนดรูปแบบ ผิววัสดุ และตำแหน่งที่จะจัดวางองค์ประกอบเหล่านี้

1.2 หลักการออกแบบ ประกอบด้วย

1) แนวความคิด (Concept) พื้นที่แต่ละแห่งมีศักยภาพในการพัฒนาที่เหมาะสมในรูปแบบใดรูปแบบหนึ่ง ซึ่งนักออกแบบต้องกำหนดขึ้นเป็นแนวทางเริ่มแรกในการออกแบบ มักจะเป็นแนวความคิดแบบกว้าง ๆ ก่อน แล้วจึงพัฒนาแนวความคิดให้แคบและเจาะจงลงจนเกิดเป็นวัตถุประสงค์ในการออกแบบต่อไป

2) วัตถุประสงค์ (Goal, Objectives) วัตถุประสงค์เกิดจากแนวความคิดในการออกแบบ แต่มีความเจาะจงที่เด่นชัดเจนเป็นเป้าหมายในการออกแบบได้ รายการในการออกแบบ (criteria) คือ รายละเอียดต่าง ๆ ที่นักออกแบบต้องพิจารณาให้ครอบคลุมวัตถุประสงค์ที่กำหนดไว้ มักเกิดจากความต้องการของผู้ใช้สถานที่ และสภาพพื้นที่ที่จะออกแบบที่ต้องสัมพันธ์

1.3 ที่ว่างและต้นไม้ (Space and Plant Materials) (อรศิริ ปานินท์, 2538) อธิบายถึง ที่ว่างทางภูมิสถาปัตยกรรมไว้ว่า การออกแบบภูมิสถาปัตยกรรมเป็นการออกแบบที่ว่างภายนอกอาคาร เพื่อให้มนุษย์เข้าไปใช้งานได้สะดวกสบาย ปลอดภัย และมีความสวยงามควบคู่กันไป เนื่องจากงานด้านนี้มีมนุษย์และต้นไม้เข้ามาเกี่ยวข้องด้วย นักออกแบบจึงจำเป็นต้องคำนึงถึงสัดส่วนของมนุษย์ (human scale) กับขนาดที่ว่างที่มนุษย์เข้าไปใช้งาน และเข้าใจคุณสมบัติและการใช้งานของต้นไม้กับที่ว่างด้วย

1.4 ที่โล่ง (Open Space) คือ ที่ว่าง (Space) ผืนใหญ่ที่มีหน้าที่เฉพาะอย่าง มีลักษณะเป็น 3 มิติ ซึ่งสามารถแบ่งออกเป็นที่ว่าง ส่วนย่อย ๆ ที่มีหน้าที่เฉพาะต่าง ๆ กัน มีที่ว่างส่วนหนึ่งเป็นตัวสร้างการเชื่อมต่อกัน ทำให้มนุษย์สามารถเข้าไปในสถานที่นั้นได้ (Accessible) มีความเข้าใจในหน้าที่ของที่ว่างและสามารถใช้งานตามวัตถุประสงค์ของที่ว่างแต่ละอย่างได้ ตัวอย่างเช่น การเข้าไปในบริเวณหนึ่ง เดินผ่านแนวทางเดินแล้วแยกเข้าไปยังกิจกรรมต่าง ๆ อาจมีลานโล่งบริเวณ ทางเข้าซึ่งมีวัตถุประสงค์ให้เป็นส่วนเชื่อมต่อกับกิจกรรมย่อยต่าง ๆ ซึ่งพื้นที่ย่อยแต่ละส่วนจะแสดงคุณลักษณะของการใช้งานเฉพาะออกมาอย่างชัดเจน และคนทั่วไปสามารถเข้าใจวัตถุประสงค์ของการใช้งานได้เป็นอย่างดี เป็นต้น

1.5 การออกแบบจัดพรรณไม้ (Planting Design) คือ งานที่นักออกแบบต้องคิดวิเคราะห์ในขั้นตอนการออกแบบในส่วนที่เป็นพื้นผิวอ่อน (Softscape) ซึ่งต้องอาศัยกระบวนการคิดที่เป็นขั้นตอนเช่นกัน เพราะเป็นการคาดการณ์ล่วงหน้า จินตนาการภาพในอนาคต นักออกแบบจึงต้องมีความรู้และประสบการณ์ด้านพืชมากพอ จึงจะสามารถเลือกชนิดต้นไม้หรือปรับปรุงสภาพแวดล้อม เพื่อป้องกันและแก้ปัญหาที่จะเกิดในอนาคตได้ (Eckbo, 1964) การออกแบบจัดสวนเป็นการเลือกและจัดวางตำแหน่ง

พรรณไม้เพื่อปลูกตกแต่งบริเวณตามวัตถุประสงค์ที่กำหนด ขั้นแรก คือ การพิจารณาสภาพสถานที่ปลูกในท้องที่นั้น ทั้งลักษณะดิน การระบายน้ำ ทิศทางการโคจรของดวงอาทิตย์ ลม ปริมาณน้ำฝน อุณหภูมิ โรคแมลง ขั้นที่สอง พิจารณาการใช้งาน และภาพที่ต้องการ เช่น เพื่อให้ร่มเงา บดบัง แบ่งพื้นที่ว่าง สี ขนาด เป็นต้น ขั้นที่สาม พิจารณาคุณสมบัติของพืชที่ตอบสนองข้อจำกัดตามวัตถุประสงค์ เช่น ขนาด อัตราการเจริญเติบโต อายุการใช้งาน รูปทรง ผิวสัมผัส การจัดเรียง ตัวของใบ สีดอก ผล การเปลี่ยนสีของใบตามฤดูกาล ยอด ลำต้น กิ่งก้าน เปลือก กลิ่น เป็นต้น

1.6 การสื่อความหมายในงานออกแบบภูมิทัศน์ (Landscape Design Interpretation) งานด้านการออกแบบเป็นงาน ซึ่งนักออกแบบสรรค์สร้างรูปร่างหรือรูปทรงต่าง ๆ ที่สวยงามและใช้งาน ได้ขึ้นจากจินตนาการ นักออกแบบจึงจำเป็นต้องหาวิธีการสื่อความหมายสิ่งที่เกิดจากความคิดของเขาออกมา เพื่อให้ตัวเขาเองได้ศึกษาพิจารณาความถูกต้อง หาข้อผิดพลาดต่าง ๆ ล่วงหน้าและทำการแก้ไขเพื่อจะได้มาซึ่งผลลัพธ์ที่ดีที่สุด ภายใต้ข้อจำกัดตรงนั้น แล้วสื่อออกมาให้บุคคลอื่นสามารถเข้าใจความคิดของเขา วิธีการสื่อความหมายที่เป็นที่นิยมเป็นสากลนี้อาศัยภาษาภาพ หรือ สัญลักษณ์ (Graphic Drawings) (ศศิยา ศิริพานิช, 2558)

2. เอกสารเกี่ยวกับหลักการออกแบบสถาปัตยกรรม และภูมิทัศน์ในแหล่งท่องเที่ยวทางธรรมชาติและวัฒนธรรม

หลักการออกแบบสถาปัตยกรรมภูมิทัศน์ในแหล่งท่องเที่ยวทางธรรมชาติและวัฒนธรรม ต้องเริ่มต้นจากการเข้าใจถึงบทบาทของการออกแบบที่มีต่อการพัฒนาแหล่งท่องเที่ยว ทั้งในด้านการอนุรักษ์ธรรมชาติและการสะท้อนวัฒนธรรมในพื้นที่นั้น ๆ โดยหลักการออกแบบจะต้องมีการพิจารณาหลายด้าน เช่น การใช้วัสดุที่เหมาะสม การเข้ากับภูมิประเทศ การรักษาสมดุลระหว่างการพัฒนาและการอนุรักษ์ และการสร้างประสบการณ์ที่เป็นเอกลักษณ์ให้กับนักท่องเที่ยว

2.1 การอนุรักษ์และความยั่งยืน การออกแบบสถาปัตยกรรมภูมิทัศน์ในแหล่งท่องเที่ยวต้องมีการอนุรักษ์ทรัพยากรธรรมชาติและไม่กระทบต่อระบบนิเวศของพื้นที่ เช่น การเลือกใช้วัสดุจากธรรมชาติที่สามารถย่อยสลายได้ การใช้พลังงานหมุนเวียน และการจัดการน้ำฝนเพื่อป้องกันการกัดเซาะของดิน นอกจากนี้ การออกแบบต้องคำนึงถึงการป้องกันผลกระทบต่อสิ่งแวดล้อมจากการท่องเที่ยวที่อาจจะมีผลทำให้เกิดการทำลายได้ เช่น การใช้การวางแผนเส้นทางเดินท่องเที่ยวที่ไม่กระทบกับระบบนิเวศ

2.2 การสะท้อนวัฒนธรรมท้องถิ่น หลักการออกแบบสถาปัตยกรรมภูมิทัศน์ในแหล่งท่องเที่ยวทางวัฒนธรรมควรสะท้อนเอกลักษณ์ของพื้นที่และวัฒนธรรมท้องถิ่น เช่น การใช้สัญลักษณ์หรือการตกแต่งที่มีความเกี่ยวข้องกับประเพณีหรือประวัติศาสตร์ของพื้นที่นั้น ๆ รวมถึงการออกแบบที่เปิดโอกาสให้ผู้เข้าชมได้เรียนรู้เกี่ยวกับวัฒนธรรมท้องถิ่นผ่านการจัดแสดงหรือกิจกรรมต่าง ๆ ซึ่งจะช่วยสร้างความเชื่อมโยงระหว่างธรรมชาติและวัฒนธรรม

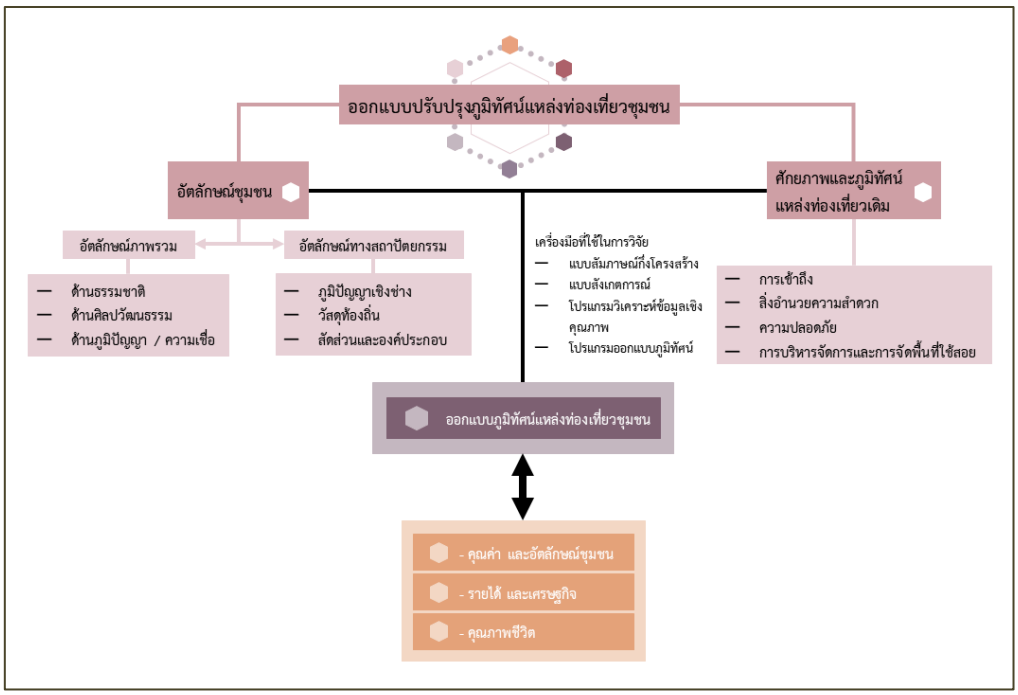
2.3 การปรับตัวเข้ากับภูมิประเทศ การออกแบบต้องพิจารณาถึงภูมิประเทศและภูมิอากาศของพื้นที่ เช่น การใช้วัสดุที่เหมาะสมกับสภาพอากาศ การวางแผนการจัดการพื้นที่อย่างมีประสิทธิภาพ และการสร้างความรู้สึกเป็นส่วนหนึ่งของธรรมชาติ รวมถึงการเลือกวิธีการออกแบบที่ไม่ทำให้พื้นที่ดูเบียดเบียนหรือขัดแย้งกับสิ่งแวดล้อม

2.4 การส่งเสริมประสบการณ์ของนักท่องเที่ยว การออกแบบสถาปัตยกรรมภูมิทัศน์ในแหล่งท่องเที่ยวต้องคำนึงถึงประสบการณ์ของนักท่องเที่ยว เช่น การสร้างจุดชมวิวที่สวยงาม, การจัดเตรียมพื้นที่สำหรับการพักผ่อนหรือกิจกรรมต่าง ๆ เพื่อให้การท่องเที่ยวเป็นประสบการณ์ที่น่าจดจำ นอกจากนี้ยังต้อง

จัดให้มีสาธารณูปโภคที่เหมาะสม เช่น ทางเดิน ที่จอดรถ ห้องน้ำ และการสร้างความสะดวกสบายในการเดินทาง

2.5 การมีส่วนร่วมของชุมชนท้องถิ่น การออกแบบสถาปัตยกรรมภูมิทัศน์ในแหล่งท่องเที่ยวควรมีการมีส่วนร่วมจากชุมชนท้องถิ่นในการออกแบบและการพัฒนา เช่น การใช้แรงงานท้องถิ่นในการสร้างและการฝึกอบรมทักษะที่จำเป็นสำหรับการบริการนักท่องเที่ยว ซึ่งจะช่วยเสริมสร้างเศรษฐกิจท้องถิ่นและทำให้การท่องเที่ยวมีความยั่งยืนมากยิ่งขึ้น

กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิด

การวิจัยครั้งนี้เป็นการวิจัยเชิงคุณภาพ (Qualitative Research) และการวิจัยเชิงออกแบบ (Design-based Research) โดยมีวัตถุประสงค์เพื่อศึกษาอัตลักษณ์ของชุมชนและนำมาสู่การออกแบบและปรับปรุงภูมิทัศน์แหล่งท่องเที่ยวทางธรรมชาติและวัฒนธรรมของชุมชนเกาะใหญ่ อำเภอกระแสสินธุ์ จังหวัดสงขลา โดยแบ่งขั้นตอนการดำเนินงานออกเป็น 3 ขั้นตอน ดังนี้

1. ขั้นศึกษาและเก็บข้อมูล ได้แก่ การเก็บรวมรวมข้อมูลด้านเอกสาร และการเก็บข้อมูลภาคสนามเพื่อใช้ในการออกแบบ

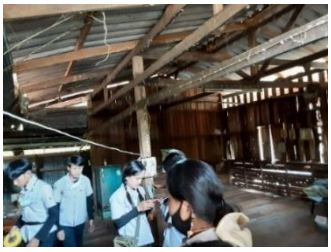
1.1 การศึกษาข้อมูลด้านเอกสาร เป็นการรวบรวมเอกสารต่าง ๆ ที่เกี่ยวข้องกับการวิจัย ซึ่งเป็นข้อมูลทุติยภูมิ ได้แก่ เอกสารงานวิจัย บทความ หนังสือ แอพพลิเคชั่น (Application) เช่น google maps / google Earth เพื่อนำมาสรุปเป็นความรู้ที่เกี่ยวกับการออกแบบปรับภูมิทัศน์เส้นทางท่องเที่ยวเชิงธรรมชาติและวัฒนธรรมชุมชนเกาะใหญ่ อำเภอกระแสสินธุ์ จังหวัดสงขลา

1.2 การเก็บข้อมูลด้วยการตั้งกระทู้ แบบ Online ผู้วิจัยเก็บข้อมูลอัตลักษณ์ของชุมชนในภาพรวมในแอพพลิเคชั่น Facebook โดยตั้งกระทู้ใน Facebook ของผู้วิจัยว่า “ถ้าพูดถึงอัตลักษณ์ของชุมชนเกาะใหญ่ท่านจะนึกถึงสิ่งใดเป็นอันดับแรก” โดยมิได้กำหนดกลุ่มผู้ตอบกระทู้ รวมถึงการสัมภาษณ์

คนในชุมชนประกอบด้วย เช่น แม่ค้าในตลาด ผู้บริหารและเจ้าหน้าที่ในองค์การบริหารส่วนตำบล เจ้าของเรือนพื้นที่ กลุ่มแม่บ้าน เป็นต้น

1.3 การเก็บข้อมูลภาคสนาม ผู้วิจัยแบ่งข้อมูลดังนี้

1) ด้านอัตลักษณ์ทางสถาปัตยกรรม ผู้วิจัยศึกษา เก็บข้อมูลลักษณะของเรือนพื้นถิ่นที่มีอายุตั้งแต่ 60 ปีขึ้นไป ด้านองค์ประกอบ สัดส่วน วัสดุ กรรมวิธีในการก่อสร้าง รวมถึงรูปแบบและองค์ประกอบด้านพื้นที่ใช้สอย เพื่อถอดอัตลักษณ์ทางสถาปัตยกรรมชุมชน และนำมาใช้เป็นแนวทางการออกแบบปรับปรุงภูมิทัศน์แหล่งท่องเที่ยวชุมชนฯ ด้วยวิธีการสัมภาษณ์แบบสัมภาษณ์กึ่งโครงสร้าง (Semi-structured Interview) เจ้าของเรือน ปราชญ์ชุมชน และผู้นำชุมชน จดบันทึก บันทึกภาพ สเก็ตช์ภาพรวมถึงรังวัดขนาดเรือนพื้นถิ่น



ภาพที่ 2 แสดงการลงพื้นที่เก็บข้อมูลด้านอัตลักษณ์ชุมชน จากมรดกทางวัฒนธรรมเรือนพื้นถิ่น

2) ศึกษาศักยภาพและภูมิทัศน์แหล่งท่องเที่ยว ผู้วิจัยเก็บข้อมูลด้วยวิธีการสัมภาษณ์นักท่องเที่ยว ผู้ดูแล หรือเจ้าของแหล่งท่องเที่ยว รวมถึงผู้ที่มีส่วนเกี่ยวข้อง โดยสัมภาษณ์ในประเด็นเกี่ยวกับความต้องการด้านพื้นที่ใช้สอยและสิ่งอำนวยความสะดวก ร่วมถึงปัญหาด้านการใช้พื้นที่เพื่อเป็นข้อมูลสำหรับการออกแบบ อัตลักษณ์ที่ต้องการให้สื่อสารผ่านการออกแบบและเสนอแนะในส่วนต่าง ๆ ต่อไป บันทึกภาพ สเก็ตช์ภาพ รังวัดแหล่งท่องเที่ยว โดยมีประเด็นคำถามสำหรับผู้รับบริการดังนี้ 1. ด้านการเข้าถึงแหล่งท่องเที่ยว 2. ด้านสิ่งอำนวยความสะดวก และการจัดพื้นที่ (Zoning) 3. ด้านการบริหารจัดการแหล่งท่องเที่ยว 4. ด้านการประชาสัมพันธ์ในการเป็นแหล่งท่องเที่ยว 5. ด้านคุณค่าของการเป็นแหล่งท่องเที่ยว

2. ขั้นการวิเคราะห์ข้อมูลเชิงลึก และออกแบบปรับปรุงภูมิทัศน์แหล่งท่องเที่ยว

2.1 วิเคราะห์ข้อมูลศักยภาพและภูมิทัศน์แหล่งท่องเที่ยวตามทฤษฎีการออกแบบเพื่อเสนอแนวทางในการออกแบบ

2.2 ออกแบบและนำเสนอแนวคิดแบบร่างภูมิทัศน์แหล่งท่องเที่ยวต่อชุมชนและผู้เกี่ยวข้องด้วยแบบ 2 มิติ และ 3 มิติ รวมถึงหุ่นจำลอง

2.3 ปรับปรุงและพัฒนาแบบตามข้อเสนอแนะ

3. ขั้นการดำเนินการผลิตแบบ 2 มิติ และ 3 มิติ และจัดทำแผนที่เส้นทางท่องเที่ยวที่เหมาะสมสำหรับนักท่องเที่ยว เพื่อสะดวกในการเที่ยวชมเส้นทางท่องเที่ยวชุมชนเกาะใหญ่

ผลการวิจัย

จากการศึกษาพบว่า แหล่งท่องเที่ยวที่อยู่ภายใต้การดูแลของหน่วยงานของรัฐและชุมชน ได้แก่ สถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ และแหล่งท่องเที่ยวทางวัฒนธรรมของชุมชน ประกอบด้วย วัดสูงเกาะใหญ่ แหล่งเรียนรู้การแปรรูปผลิตภัณฑ์จากต้นสาคู บ่อน้ำศักดิ์สิทธิ์ และวิถีประมงวัดแหลมบ่อท่อ แหล่งเรียนรู้บ้านตีมีด แหล่งเรียนรู้สวนเกษตรผสมผสาน บ้านแหลมยาง “โคกหนอง นา” วิถีประมง และจุดชมปลาโลมา บ้านแหลมหาด จากการสำรวจศักยภาพแหล่งท่องเที่ยวของชุมชนข้างต้น พบว่า บางแหล่งท่องเที่ยวมีการปรับปรุงภูมิทัศน์โดยชุมชน หรือหน่วยงานที่เกี่ยวข้องไปบ้างแล้ว แต่ยังไม่ครอบคลุมสำหรับการให้บริการนักท่องเที่ยว เช่น บริเวณบ่อน้ำศักดิ์สิทธิ์วัดแหลมบ่อท่อ แหล่งโบราณสถานวัดสูงเกาะใหญ่ เป็นต้น ส่วนพื้นที่แหล่งท่องเที่ยวอื่น ๆ ของชุมชนยังขาดสิ่งอำนวยความสะดวกสำหรับรองรับนักท่องเที่ยว หรือคณะที่จะเข้ามาศึกษาเรียนรู้ในแหล่งนั้น ๆ อาทิเช่น พื้นที่เรียนรู้ ห้องน้ำ จุดถ่ายรูป ซุ้มขายของ ป้ายต่าง ๆ จุดพักผ่อน รวมถึงการตกแต่งภูมิทัศน์ให้เหมาะสมและมีความเฉพาะในแต่ละแหล่ง รายละเอียดดังนี้

1. อัตลักษณ์ของชุมชน

การศึกษาอัตลักษณ์ชุมชนเกาะใหญ่ ผู้วิจัยแบ่งการศึกษาเป็น 2 ด้าน ได้แก่ ด้านอัตลักษณ์ในภาพรวมของชุมชน และอัตลักษณ์ทางสถาปัตยกรรม

1.1 อัตลักษณ์ในภาพรวมของชุมชน

ผู้วิจัย พบว่า อัตลักษณ์ด้านการท่องเที่ยวของชุมชนเกาะใหญ่ มีดังนี้ อันดับที่ 1 แกรนแคนยอนเกาะใหญ่ อันดับที่ 2 กุ้งและอาหารทะเล อันดับที่ 3 บ่อน้ำศักดิ์สิทธ์วัดแหลมบ่อท่อ อันดับที่ 4 วัดสูงเกาะใหญ่ และอันดับที่ 5 แหลมควายราบ กล่าวโดยสรุป อัตลักษณ์ด้านการท่องเที่ยวในภาพรวมของชุมชน แบ่งเป็น 2 ด้าน ได้แก่

1) ด้านสภาพบริบททางธรรมชาติ ได้แก่

(1) แกรนแคนยอน ซึ่งเป็นแหล่งท่องเที่ยวที่มีลักษณะเป็นหน้าผาหินที่ทับซ้อนกัน มีแอ่งน้ำที่เกิดจากการขุดบ่อดินเก่า โดยพื้นที่ดังกล่าวเป็นแหล่งท่องเที่ยวสำคัญของพื้นที่เกาะใหญ่ ซึ่งดูแลโดยภาคเอกชน

(2) กุ้งและอาหารทะเล ชุมชนเกาะใหญ่เป็นพื้นที่ที่มีทะเลสาบล้อมรอบจึงเป็นพื้นที่ที่มีความอุดมสมบูรณ์ด้านอาหารทะเลโดยเฉพาะกุ้ง เนื่องจากพื้นที่นี้เป็นแหล่งเพาะพันธ์กุ้งแม่น้ำตามธรรมชาติที่ยังคงความอุดมสมบูรณ์แหล่งหนึ่งในพื้นที่ลุ่มน้ำทะเลสาบสงขลา ซึ่งกุ้งแม่น้ำของพื้นที่เกาะใหญ่ได้ชื่อว่ามีคุณภาพ สดจากธรรมชาติ ตัวใหญ่ เนื้อแน่น และอร่อย จนกลายเป็นอัตลักษณ์อย่างหนึ่งของชุมชนเกาะใหญ่

(3) แหลมควายราบเป็นแหล่งท่องเที่ยวทางธรรมชาติแห่งหนึ่ง ซึ่งอยู่ในเขตพื้นที่ของสถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ หน่วยพิทักษ์สัตว์ป่าแหลมควายราบ ตั้งอยู่ที่ริมทะเลสาบสงขลาบริเวณรอบ ๆ ที่ทำการมีนกน้ำอาศัยอยู่จำนวนมากสามารถมองเห็นได้ง่าย โดยไม่ต้องนั่งเรือออกไปชม ซึ่งในช่วงเช้าและช่วงเย็นของทุกวันจะมีนกออกหากินมากเป็นพิเศษ

2) ด้านพื้นที่แห่งความศรัทธาและความเชื่อ ได้แก่

(1) บ่อน้ำศักดิ์สิทธ์วัดแหลมบ่อท่อ เป็นบ่อน้ำผุดขึ้นเหนือพื้นดินตามธรรมชาติ มีน้ำใสและปริมาณน้ำในบ่อมาก ที่ตั้งอยู่ในหมู่บ้านอยู่ทางทิศเหนือของวัดแหลมบ่อท่อ ติดกับทะเลสาบสงขลา พื้นที่บริเวณนี้เป็นจุดหนึ่งที่มีนักท่องเที่ยวเดินทางมาเยี่ยมชมเป็นจำนวนมาก การเข้าถึงมาได้ทั้งทางบก

และทางน้ำ เนื่องจากเป็นพื้นที่แห่งความศรัทธาและมีธรรมชาติความสวยงาม

(2) วัดสูงเกาะใหญ่ เป็นสถานที่ที่สำคัญที่บ่งบอกถึงความเจริญรุ่งเรืองของพุทธศาสนาในอดีตกาลที่สร้างในสมัยอยุธยา มีโบราณสถานที่แสดงถึงความเจริญรุ่งเรืองของชุมชนชาวพุทธในแถบนี้ที่หลงเหลืออยู่ ซึ่งพบได้ยากมากแล้วใน 5 จังหวัดชายแดนภาคใต้ วัดสูงเกาะใหญ่เป็นสถานที่สำคัญทางประวัติศาสตร์และโบราณคดีอีกแห่งหนึ่ง บริเวณที่ตั้งอยู่บนเนินเขาสูงเคยเป็นปราสาทหิน และเป็นศิลปกรรมที่เชื่อว่าที่นี้เป็นเทวสถาน และต่อมาได้ถูกดัดแปลงให้เป็นในพระพุทธศาสนา

1.2 ด้านอัตลักษณ์ด้านสถาปัตยกรรม

ด้านอัตลักษณ์ทางสถาปัตยกรรม ผู้วิจัยศึกษาเก็บข้อมูลจากลักษณะของเรือนพื้นถิ่นที่มีอายุตั้งแต่ 60 ปีขึ้นไป โดยเก็บแบ่งการเก็บข้อมูลดังนี้ ข้อมูลด้านวัสดุที่ใช้ในการก่อสร้างเรือน ข้อมูลด้านกรรมวิธีในการก่อสร้างเรือน ข้อมูลด้านสัดส่วนของเรือนและข้อมูลด้านองค์ประกอบของเรือน เพื่อนำมาถอดอัตลักษณ์ทางสถาปัตยกรรมพื้นถิ่นของชุมชน ผลการเก็บข้อมูลดังกล่าว สรุปได้ดังนี้

	
ด้านวัสดุที่ใช้ในการก่อสร้างเรือน วัสดุที่ใช้ในการก่อสร้างเรือนส่วนใหญ่เป็นไม้เนื้อแข็ง เช่น ไม้เคียม ไม้หลุมพอ ซึ่งหาได้ง่ายในพื้นที่ การจะมุงหลังคาจะมุงด้วยกระเบื้องดินเผาที่นำมาจากเกาะยอ หรือจากสาคูซึ่งมีอยู่มากมายในพื้นที่เกาะใหญ่	**ด้านกรรมวิธีในการก่อสร้างเรือน** ภูมิปัญญาเชิงช่างในการสร้างเรือนแบบสอดสลักเข้าเดือย และการยึดโยงโครงสร้างเรือนด้วยการผูกด้วยเชือกหรือเถาวัลย์
	
ด้านสัดส่วนของเรือน สัดส่วนและองค์ประกอบเรือนเป็นแบบยกพื้น ใต้ถุนสูง พื้นที่ส่วนใหญ่เป็นที่โล่ง	**ด้านองค์ประกอบของเรือน** เส้นสายของเรือนส่วนใหญ่เป็นแนวตั้ง ทำให้องค์ประกอบของอาคารดูโล่ง โปร่ง

ภาพที่ 3 แสดงอัตลักษณ์ชุมชน ด้านสถาปัตยกรรม

2. การศึกษาภูมิทัศน์แหล่งท่องเที่ยว

ผู้วิจัยลงพื้นที่สัมภาษณ์นักท่องเที่ยวและนักเรียนที่มาเรียนรู้ ณ แหล่งท่องเที่ยวและแหล่งเรียนรู้ในชุมชนเกาะใหญ่ ด้านความต้องการพื้นที่ใช้สอยและสิ่งอำนวยความสะดวกต่าง ๆ จำนวนไม่น้อยกว่า 15 คน สัมภาษณ์ผู้ดูแลเจ้าของสถานที่และผู้เกี่ยวข้องเกี่ยวกับความต้องการและปัญหาในการใช้พื้นที่ด้านต่าง ๆ ลงพื้นที่ รังวัด เก็บข้อมูล และวิเคราะห์การจัดพื้นที่ของแหล่งท่องเที่ยวและแหล่งเรียนรู้ตามทฤษฎีการออกแบบ โดยในบทความนี้จะนำเสนอผลการศึกษาเฉพาะแหล่งท่องเที่ยวธรรมชาติ กล่าวคือ สถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ เนื่องจากเป็นแหล่งท่องเที่ยวที่มีผู้เข้ามาท่องเที่ยวและเรียนรู้ด้านการอนุรักษ์สัตว์ป่าทะเลสาบและทรัพยากรธรรมชาติเป็นจำนวนมาก

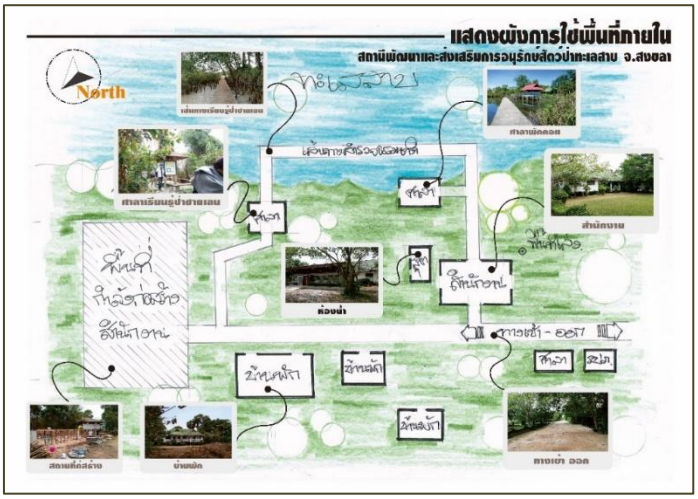
2.1 สถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ

สถานีพัฒนาฯ ทะเลสาบ ก่อตั้งขึ้นเมื่อวันที่ 18 ธันวาคม 2541 เกิดขึ้นจากดำริขององคมนตรีและรัฐบุรุษพลเอกเปรม ติณสูลานนท์ ที่ต้องการให้มีหน่วยงานของกรมป่าไม้มาทำหน้าที่ เป็นหน่วยงานกลางในการประชาสัมพันธ์เผยแพร่ความรู้ ด้านการอนุรักษ์ทรัพยากรธรรมชาติ ป่าไม้ สัตว์ป่า และสิ่งแวดล้อม ให้กับกลุ่มเป้าหมายที่เกี่ยวข้องเพื่อให้กลุ่มเป้าหมายมีจิตสำนึกให้ความร่วมมือ ในการปกป้องทรัพยากรธรรมชาติ ป่าไม้ สัตว์ป่าและสิ่งแวดล้อมเพื่อให้เกิดประโยชน์ทางเศรษฐกิจและสิ่งแวดล้อมสูงสุด โดยสถานีพัฒนาฯ ทะเลสาบ ได้ขอใช้พื้นที่บางส่วนของเขตห้ามล่าสัตว์ป่าทะเลสาบสงขลาบริเวณอ่าวบัว อ่าวบ้านไร่ หมู่ที่ 3 ตำบลเกาะใหญ่ อำเภอกระแสสินธุ์ จังหวัดสงขลา

พื้นที่ทั้งหมดของสถานีพัฒนาฯ ทะเลสาบ รวม 10,000 ไร่ ที่ใช้ทำกิจกรรมต่าง ๆ ประมาณ 80 ไร่ ซึ่งบริเวณนี้จะน้ำท่วมเกือบทั้งปี หน้าร้อนก็จะแห้งแล้งมาก สามารถทำกิจกรรมได้ในช่วงเดือนพฤษภาคม - สิงหาคม เท่านั้น

ทรัพยากรป่าไม้ แบ่งออกเป็นชนิดป่าต่าง ๆ ดังนี้ 1) ป่าบกมักเป็นป่าดิบชื้น มีพันธุ์ไม้ที่พบ ได้แก่ ต้นยางนา ต้นยางแดง ต้นอินทนิลน้ำ ต้นยาง ต้นขี้เสียน ฯลฯ 2) ป่าชายหาด พันธุ์ไม้ที่พบ ได้แก่ ต้นตะแบก ต้นอินทนิลน้ำ ต้นเมา ต้นหว้า ต้นชรี ต้นหูกวาง ฯลฯ 3) ป่าชายเลนน้ำกร่อย พันธุ์ไม้ที่พบ ได้แก่ ต้นโกงกางใบเล็ก ต้นประสักแดง ต้นตาตุ่ม ต้นลำพู ต้นฝาดดอกขาว ต้นปรงทะเล ต้นจาก ฯลฯ 4) ป่าพรุน้ำจืด พันธุ์ไม้ที่พบ ได้แก่ ต้นเสม็ด ต้นหว้า ฯลฯ 5) ป่าเขาหินปูน พันธุ์ไม้ที่พบ ได้แก่ ต้นไทรชนิดต่าง ๆ ต้นโพธิ์ ต้นสลัดได ต้นจันแดง ฯลฯ 6) ทุ่งหญ้าริมน้ำ ประกอบไปด้วย จูดหนู หญ้าข้อ หญ้าชนิดต่าง ๆ และไม้พุ่มขนาดเล็ก ฯลฯ 7) พืชน้ำ พบเป็นกลุ่ม ๆ กระจายอยู่ทั่วไปในทะเลสาบสงขลา ได้แก่ ต้นกระจูด ต้นจาด ต้นกระจูดหนู ต้นกก ต้นลาโพ สาหร่ายชนิดต่าง ๆ บัวสายชนิดต่าง ๆ ฯลฯ

สัตว์พื้นถิ่น ทรัพยากรสัตว์ป่า แบ่งออกเป็นประเภทต่าง ๆ ดังนี้ 1) สัตว์เลี้ยงลูกด้วยนม ได้แก่ นาก ลิงแสม ปลาโลมาหัวบาตร หนูชนิดต่าง ๆ ฯลฯ 2) สัตว์เลื้อยคลาน ได้แก่ เหี้ย ตะกวด งูชนิดต่าง ๆ เต่า ฯลฯ 3) สัตว์ปีก ได้แก่ นกชนิดต่าง ๆ เช่น อีโก้ง อีล้ำ เป็ดแดง นกยาง เป็ดคับแค เป็นต้น 4) สัตว์ครึ่งบกครึ่งน้ำ ได้แก่ กบ เขียด คางคก ฯลฯ



ภาพที่ 4 แสดงการผังการใช้พื้นที่ภายในสถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ


อาคารสำนักงาน


ป้ายเรียนรู้และจุดนั่งพัก



ป้ายเรียนรู้


ถนนภายในโครงการ


อาคารที่พักเดิม


อาคารที่พักใหม่


บริบททางธรรมชาติ


เส้นทางศึกษาธรรมชาติ


ทัศนียภาพภายในโครงการ

ภาพที่ 5 แสดงบริบท และองค์ประกอบภายในสถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ

ตารางที่ 1 แสดงการวิเคราะห์ศักยภาพด้านการท่องเที่ยวสถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ

ประเด็นในการวิเคราะห์	**แหล่งเรียนรู้และท่องเที่ยวทางธรรมชาติ**
	สถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ
1. การเข้าถึงแหล่งท่องเที่ยว	
1.1 ความสะดวกในการเดินทาง เช่น มีรถประจำทาง	การเดินทางไปแหล่งท่องเที่ยว “สถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ” ไม่มีรถประจำทางให้บริการ สามารถเดินทางด้วยรถส่วนตัวเท่านั้น แหล่งท่องเที่ยวอยู่ติดถนนเส้นรอง สามารถเดินทางได้สะดวก
1.2 ป้ายบอกทางเข้าชุมชน	มีป้ายบอกทางจากถนนเส้นหลักไปยังเส้นรอง เป็นระยะ ๆ
1.3 สภาพเส้นทาง	ถนนเส้นหลัก และถนนเส้นรองมีความกว้าง 2 ช่องทาง พื้นผิวถนนสะดวกต่อการเดินทาง กว้างประมาณ 5 เมตร
2. ด้านสิ่งอำนวยความสะดวก และการจัดพื้นที่ (Zoning)	
2.1 สถานที่จอดรถ	ขนาดของพื้นที่ในการจอดรถไม่เพียงพอต่อความต้องการของนักท่องเที่ยวที่เดินทางมายังพื้นที่ในช่วงวันหยุดหรือช่วงเข้าค่าย การจอดรถในพื้นที่จะเยอะและติดขัด อาจจะส่งผลกระทบการทำกิจกรรมเข้าค่ายของนักเรียนได้
2.2 จุดบริการข้อมูล และประชาสัมพันธ์	มีจุดบริการนักท่องเที่ยวที่อยู่บริเวณสำนักงานหน้าโครงการ

ตารางที่ 1 (ต่อ)

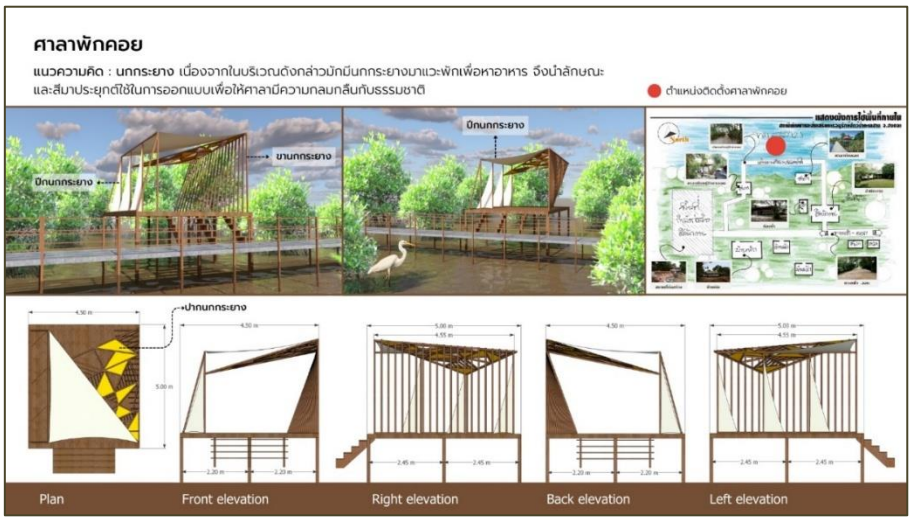
ประเด็นในการวิเคราะห์	แหล่งเรียนรู้และท่องเที่ยวทางธรรมชาติ สถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ
2.3 จุดพักผ่อน	มีจุดพักผ่อนที่สามารถให้นักท่องเที่ยวถ่ายรูปเช็คอินหลายจุดด้วยกัน
2.4 พื้นที่กิจกรรม	มีการแบ่งพื้นที่ออกจากพื้นที่ของส่วนอาคารอื่นๆออกไปอย่างชัดเจน กิจกรรมในโครงการส่วนใหญ่เป็นกิจกรรมการเข้าค่ายอาสาปลูกป่า เรียนรู้พืชพันธุ์ สัตว์ป่าต่าง ๆ ตามจุดต่าง ๆ
2.5 ห้องพัก	พื้นที่ห้องพักจะอยู่โซนในสุด ปัจจุบันกำลังก่อสร้างใหม่ จะได้รับบรรยากาศทะเลสาบอย่างใกล้ชิด และธรรมชาติที่สวยงาม
2.6 ห้องสุขา	ห้องสุขามีในสำนักงานและบ้านพัก บริเวณรอบ ๆ จะไม่มี ทำให้สุขาไม่เพียงพอต่อนักท่องเที่ยว
3. การบริหารจัดการแหล่งท่องเที่ยว	
3.1 การกำหนดประเภทความรู้	ความรู้ส่วนใหญ่เป็นความรู้เกี่ยวกับพืชพันธุ์นานาชนิดและสัตว์ป่ามากมาย
3.2 การกำจัดขยะ และน้ำเสีย	ถังขยะมีเพียงจุดเดียว (ไม่เพียงพอเนื่องจากเป็นพื้นที่ของสถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบมีขนาดใหญ่)
3.3 การกำหนดกิจกรรมที่สามารถดึงดูดนักท่องเที่ยว	กิจกรรมในโครงการส่วนใหญ่เป็นกิจกรรมเข้าค่าย อาสา ปลูกป่า นานาชนิด กิจกรรมที่โดดเด่น “กิจกรรมค่ายรักพงไพร” และเส้นทางศึกษาธรรมชาติ
3.4 ด้านความปลอดภัย	
- ความปลอดภัยในชีวิตและทรัพย์สินและการเยี่ยมชม	มีการกำหนดจุดเข้า-ออกของนักท่องเที่ยวเพียงจุดเดียว ซึ่งง่ายต่อความปลอดภัยของนักท่องเที่ยว
- ความปลอดภัยด้านสุขอนามัย	บรรยากาศ ณ แหล่งท่องเที่ยว สะอาด ไม่มีสิ่งสกปรกหรือขยะเกลื่อนกลาด และมีที่พักเป็นบ้านยกพื้นสูง ทำให้ปลอดภัยจากสัตว์มีพิษต่างๆ

3. การออกแบบปรับปรุงภูมิทัศน์ของแหล่งท่องเที่ยวชุมชน

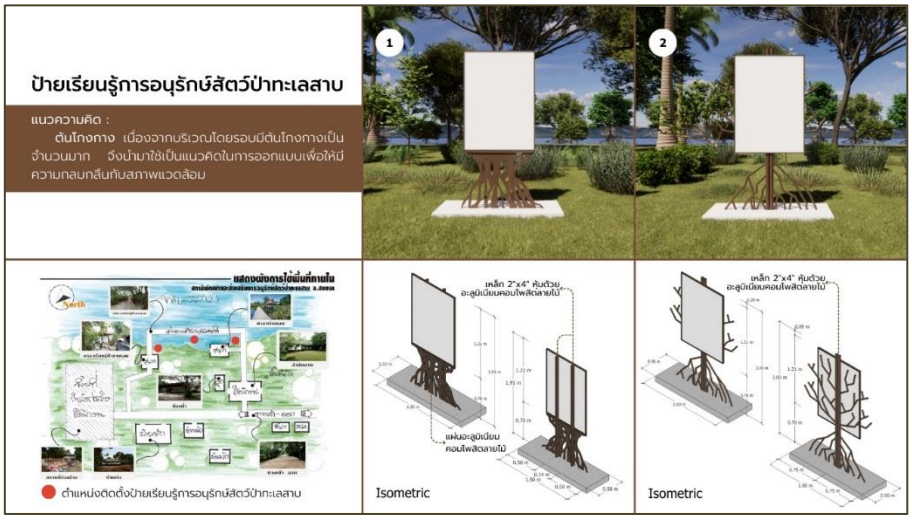
จากการศึกษาศักยภาพและการจัดภูมิทัศน์ของสถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ พบว่า แหล่งท่องเที่ยวดังกล่าว เป็นพื้นที่สำหรับเรียนรู้เพื่อการอนุรักษ์ทรัพยากรธรรมชาติ ปรับปรุงภูมิทัศน์แนวความคิดในการออกแบบให้สอดคล้องกับอัตลักษณ์เชิงพื้นที่ กล่าวคือ การนำภูมิปัญญาเชิงช่างและวัสดุท้องถิ่นมาเป็นส่วนหนึ่งในการออกแบบ เพื่อให้เกิดความกลมกลืนกับบริบททางธรรมชาติในพื้นที่ของแหล่งท่องเที่ยว เช่น การใช้ไม้ไผ่เป็นส่วนประดับตกแต่งสถานที่ ซึ่งเป็นภูมิปัญญาเชิงช่างในท้องถิ่นอย่างหนึ่ง



ภาพที่ 6 แสดงผลการออกแบบป้ายโครงการ



ภาพที่ 7 แสดงผลการออกแบบจุดพักคอย



ภาพที่ 8 แสดงผลการออกแบบป้ายเรียนรู้

สรุปและอภิปรายผล

สรุปผล

ผลการวิจัยออกแบบปรับปรุงภูมิทัศน์แหล่งเรียนรู้ แหล่งท่องเที่ยว ทางธรรมชาติและวัฒนธรรมชุมชนเกาะใหญ่ อำเภอกระแสสินธุ์ จังหวัดสงขลา เพื่อส่งเสริมการท่องเที่ยว สรุปได้ดังนี้

1. อัตลักษณ์ชุมชนเกาะใหญ่ ผู้วิจัยแบ่งการศึกษาเป็น 2 ด้าน ได้แก่

1.1 ด้านอัตลักษณ์ในภาพรวมของชุมชน เป็นเรื่องของความอุดมสมบูรณ์ของทรัพยากรธรรมชาติ อาหารทะเล โบราณสถานศูนย์ร่วมของความเชื่อและความศรัทธา รวมถึงวิถีประมงพื้นบ้าน

1.2 ด้านอัตลักษณ์ทางสถาปัตยกรรม ผู้วิจัยศึกษา เก็บข้อมูลลักษณะของเรือนพื้นถิ่นที่มีอายุตั้งแต่ 60 ปีขึ้นไป พบอัตลักษณ์ทางสถาปัตยกรรมของชุมชน ดังนี้ ด้านการใช้วัสดุส่วนใหญ่เป็นไม้ที่หาได้ง่ายในพื้นที่ ด้านภูมิปัญญาเชิงช่างมีการสร้างเรือนด้วยวิธีการสอดสลักเข้าเดือย สัดส่วนและองค์ประกอบเรือนเป็นแบบยกพื้น ใต้ถุนสูง การใช้พื้นที่ส่วนใหญ่เป็นที่โล่งและแบ่งพื้นที่ใช้สอยด้วยการยกระดับ การกำหนดเส้นสายที่ใช้ในการออกแบบของเรือนส่วนใหญ่เป็นแนวตั้งสลับกับแนวนอนทำให้องค์ประกอบดูลงตัว โล่ง โปร่ง ซึ่งสะท้อนให้เห็นถึงวิถีชีวิตแบบบริบทโดยของคนในชุมชนเกาะใหญ่

2. ศักยภาพและภูมิทัศน์แหล่งท่องเที่ยว จากการศึกษา วิเคราะห์สถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ สรุปได้ดังนี้

2.1 ด้านการเข้าถึงแหล่ง การเข้าถึงยังไม่สะดวกเท่าที่ควรเนื่องจากไม่มีรถประจำทางให้บริการรับส่งถึงแหล่ง ต้องเดินทางด้วยรถส่วนตัวเท่านั้น ส่วนสภาพถนนหน้าโครงการมีความกว้าง 5.00 เมตร ผิวทางอยู่ในสภาพดีและมีป้ายบอกทางเพียง 1จุด จากทางเข้าหลักซึ่งไม่เพียงพอ

2.2 ด้านสิ่งอำนวยความสะดวกและการจัดกลุ่มพื้นที่ใช้สอย (Zoning) จำนวนห้องสุขาไม่เพียงพอและพื้นที่จอดรถไม่มีตำแหน่งที่ชัดเจนปัจจุบัน ผู้ที่มาติดต่อหรือเรียนรู้จอดรถบริเวณใต้ต้นไม้ภายในโครงการการจัดกลุ่มพื้นที่ใช้สอย (Zoning) ส่วนห้องพักกระจายอยู่ 2 พื้นที่ ซึ่งอยู่ในตำแหน่งที่ห่างกัน ส่วนพื้นที่ทำกิจกรรมตั้งอยู่ด้านในสุดของโครงการและแยกจากส่วนอื่น ๆ อย่างชัดเจน เพื่อมิให้ส่งเสียงรบกวนห้องพัก

2.3 การบริหารจัดการแหล่งท่องเที่ยว ด้านการจัดการความรู้เป็นการให้ความรู้เกี่ยวกับสัตว์ป่าและพันธุ์พืช แต่ป้ายสื่อการเรียนรู้มีน้อยและอยู่ในสภาพที่ผุพังรวมถึงป้ายโครงการ และศาลาพักระหว่างเส้นทางศึกษาธรรมชาติมีความทรุดโทรม

2.4 ด้านความปลอดภัย มีพนักงานรักษาความปลอกภัยดูแลบริเวณทางเข้า-ออก โดยรอบโครงการ

3 ออกแบบปรับปรุงภูมิทัศน์ของแหล่งท่องเที่ยวชุมชน ให้สอดคล้องกับอัตลักษณ์วัฒนธรรมของชุมชน โดยใช้ภูมิปัญญาเชิงช่างท้องถิ่นและใช้วัสดุที่มีภายในท้องถิ่น โดยเน้นให้กลมกลืนกับด้านบริบททางธรรมชาติของพื้นที่ของแหล่งท่องเที่ยวในแต่ละแหล่งตามหลักการออกแบบ โดยการออกแบบปรับปรุงภูมิทัศน์สถานีพัฒนาและส่งเสริมการอนุรักษ์สัตว์ป่าทะเลสาบ ผู้วิจัยเสนอผลการออกแบบ 3 ชิ้นงาน ได้แก่ ป้ายโครงการศาลาพักคอยและป้ายเรียนรู้ 2 รูปแบบ

อภิปรายผล

จากการเก็บข้อมูลภาคสนาม พบว่า ชุมชนเกาะใหญ่มีอัตลักษณ์ที่โดดเด่น ทั้งด้านวัฒนธรรม วิถีชีวิตชาวประมงพื้นบ้าน การประกอบพิธีกรรมทางศาสนา และองค์ประกอบทางภูมิทัศน์ธรรมชาติ เช่น ป่าชายเลนและแหล่งน้ำกร่อย ซึ่งอัตลักษณ์เหล่านี้สามารถนำมาเป็นแนวคิดหลักในการออกแบบภูมิทัศน์ เช่น การออกแบบทางเดินศึกษาเส้นทางธรรมชาติ การจัดวางจุดชมวิวริมทะเลหรือศาลาพักแบบพื้นถิ่น ผลการวิเคราะห์นี้ สอดคล้องกับงานวิจัยของ พิมพกานต์ ปัจจันตวิวัฒน์ และ บุญอนันต์ นทกุล (2564) ซึ่งชี้ให้เห็นว่าอัตลักษณ์ชุมชนสามารถกลายเป็นองค์ประกอบสำคัญในการพัฒนาภูมิทัศน์ทางวัฒนธรรมและสร้างคุณค่าทางจิตใจให้กับผู้ใช้พื้นที่ โดยเฉพาะนักท่องเที่ยวที่ต้องการประสบการณ์แบบดั้งเดิมและแตกต่างจากแหล่งท่องเที่ยวทั่วไป

ข้อเสนอแนะ

1. ควรมีการศึกษาถึงปัจจัยที่มีอิทธิพลต่อพฤติกรรมการท่องเที่ยวของนักท่องเที่ยว ให้ครอบคุลมมากขึ้น ซึ่งจะทำให้ได้ข้อมูลเกี่ยวกับการท่องเที่ยวของแต่ละบุคคลที่ชัดเจนกว่านี้ จะทำให้ทราบว่าปัจจัยใดที่จะทำให้นักท่องเที่ยวตัดสินใจเดินทางมาท่องเที่ยวภายในชุมชน เพื่อปรับปรุงและวางแผนให้สอดคล้องกับความต้องการของนักท่องเที่ยวให้มากขึ้น และขยายผลไปปรับใช้กับชุมชนอื่น ๆ ได้

2. ควรจะมีการศึกษาถึงแนวทางการมีส่วนร่วมของชุมชนต่อแหล่งท่องเที่ยวต่าง ๆ ภายในชุมชน

3. พฤติกรรมและความคิดเห็นสามารถเปลี่ยนแปลงได้ตลอดเวลา เนื่องจากสิ่งกระตุ้น สภาพแวดล้อม และปัจจัยต่าง ๆ ที่มีผลกระทบต่อลักษณะส่วนบุคคล ดังนั้นควรทำการศึกษาอย่างต่อเนื่อง เพื่อใช้เป็นข้อมูลสำหรับภาครัฐและภาคเอกชนในการปรับปรุงคุณภาพในด้านต่าง ๆ ให้ตรงกับความต้องการและสร้างความพึงพอใจให้กลุ่มเป้าหมาย

เอกสารอ้างอิง

ชวาพร ศักดิ์ศรี (2024). การพัฒนาภูมิทัศน์และสิ่งอำนวยความสะดวกอย่างยั่งยืนเพื่อรองรับการท่องเที่ยวสัตว์ป่าในพื้นที่อนุรักษ์ธรรมชาติ. วารสารวิชาการภูมิสถาปัตยกรรมและการวางผัง, 6(1), 276603.

พิมพกานต์ ปัจจันตวิวัฒน์ และ บุญอนันต์ นทกุล (2564). แนวทางในการออกแบบและจัดการพื้นที่เพื่อส่งเสริมการรับรู้สิ่งแวดล้อมทางวัฒนธรรมที่เอื้อต่อการท่องเที่ยวโดยชุมชน กรณีศึกษา: ชุมชนคลองแดน จังหวัดสงขลา และจังหวัดนครศรีธรรมราช. Journal of Architectural/Planning Research and Studies, 19(2), 145-161.

ศศิยา ศิริพานิช (2558) ภูมิทัศน์พื้นฐาน (พิมพ์ครั้งที่ 2). นครปฐม: มหาวิทยาลัยเกษตรศาสตร์ วิทยาเขตกำแพงแสน.

สิทธา กองสาสนะ. (2552). การศึกษาเส้นทางท่องเที่ยวเชิงสุขภาพในจังหวัดขอนแก่น. วารสารวิทยาการจัดการ มหาวิทยาลัยราชภัฏเชียงราย, 4(2), 35-58.

อรศิริ ปานินท์. (2538). ที่ว่างทางสถาปัตยกรรม. พิมพ์ครั้งที่ 2. ปทุมธานี: Rangsit University Press.

อุษณีษ์ เสวกวัชรี และ รัญชน์ แจ่มจำรัส (2567). การเข้าถึงชุมชนเพื่อสร้างการมีส่วนร่วมในการพัฒนาการท่องเที่ยวเชิงวัฒนธรรม: กรณีศึกษา วัดถ้ำเขาพลู อำเภอปะทิว จังหวัดชุมพร. วารสารเทคโนโลยีภาคใต้, 17 (1), 27-35.

Eckbo, G. (1964). Urban Landscape Design. Mcgraw Hill Book Company.

กลยุทธ์ส่วนบุคคลและองค์กรในการเพิ่มพูนพลังกายและพลังใจเพื่อป้องกันภาวะหมดไฟในการทำงาน

Strategies at the Individual and Organizational Levels to Enhance Physical and Mental Well-being for the Prevention of Workplace Burnout

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บทคัดย่อ

บทความวิชาการนี้นำเสนอกลยุทธ์ส่วนบุคคลและระดับองค์กรในการเพิ่มพูนพลังกายและพลังใจเพื่อป้องกันภาวะหมดไฟในการทำงาน (Burnout) ซึ่งเป็นภาวะของความเครียดสะสมที่ส่งผลต่อสุขภาพกายและใจ การเพิ่มพูนพลังกายและพลังใจแบ่งออกเป็น 2 ระดับ ได้แก่ กลยุทธ์ระดับบุคคลและกลยุทธ์ระดับองค์กร โดยกลยุทธ์ระดับบุคคล ได้แก่ การออกกำลังกาย การรับประทานอาหารที่มีประโยชน์ การพักผ่อนให้เพียงพอ และการตั้งเป้าหมายที่สามารถทำได้จริง เพื่อเสริมสร้างสุขภาพกายและใจให้แข็งแรง พร้อมรับมือกับความเครียดในการทำงาน ส่วนกลยุทธ์ระดับองค์กรควรส่งเสริมสภาพแวดล้อมที่สนับสนุนสุขภาพจิต เช่น การจัดกิจกรรมผ่อนคลาย การสนับสนุนวันหยุดพักผ่อน และการปรับชั่วโมงการทำงานให้ยืดหยุ่น เพื่อช่วยให้พนักงานสามารถรักษาสมดุลระหว่างการทำงานและการใช้ชีวิตส่วนตัวได้อย่างเหมาะสม การประเมินภาวะหมดไฟสามารถทำได้ด้วยตนเองผ่านแบบประเมิน MBI-GS (Maslach Burnout Inventory - General Survey) ซึ่งประกอบด้วย 3 ด้าน ได้แก่ ความอ่อนล้าทางอารมณ์ ความรู้สึกเมินเฉยต่องาน และการรับรู้ถึงความสามารถในการทำงานของตนเอง ผลการประเมินจะช่วยให้สามารถวิเคราะห์ระดับของภาวะหมดไฟและกำหนดแนวทางในการแก้ไขได้อย่างตรงจุด การผสมผสานกลยุทธ์ทั้งในระดับบุคคลและระดับองค์กรจะช่วยลดความเครียด เพิ่มแรงจูงใจ และส่งเสริมประสิทธิภาพในการทำงานในระยะยาว ซึ่งเป็นแนวทางสำคัญในการป้องกันภาวะหมดไฟได้อย่างยั่งยืน

คำสำคัญ: ภาวะหมดไฟในการทำงาน, พลังกายและพลังใจ, กลยุทธ์ระดับบุคคล, กลยุทธ์ระดับองค์กร, MBI-GS

Abstract

This academic article is a conceptual paper that presents strategies to prevent burnout caused by accumulated stress, focusing on enhancing physical and mental well-being. The strategies are divided into individual and organizational levels. Individual strategies include exercise, healthy eating, rest, and setting achievable goals to manage stress. Organizational strategies promote a supportive environment through relaxation activities, vacation time, and flexible work hours. Burnout can be assessed using the Maslach Burnout Inventory – General Survey (MBI-GS). Integrating both individual and organizational strategies helps reduce stress, increase motivation, and improve long-term work performance.

Keywords: Burnout, Physical and Mental Empowerment, Individual Strategies, Organizational Strategies, MBI-GS

บทนำ

ภาวะหมดไฟในการทำงาน (Burnout) เกิดจากความเครียดสะสม แรงกดดันจากงาน และบรรยากาศการทำงานที่ไม่เอื้อต่อสุขภาพจิต ส่งผลให้พนักงานเหนื่อยล้า ขาดแรงจูงใจ และมีทัศนคติเชิงลบต่อหน้าที่ ผลสำรวจจาก Future Forum พบว่า 42% ของพนักงานใน 6 ประเทศหลักมีภาวะหมดไฟ โดยผู้หญิงมีแนวโน้มมากกว่าผู้ชาย (46% เทียบกับ 37%) ขณะที่ในประเทศไทย ปาลีรัตน์ รังรักษ์รัตนากร, ชัชวาล เกียรติวุฒิ, และณัฐวดี พฤกษากร (2566) พบว่า 71.2% ของบุคลากรในห้องปฏิบัติการเทคนิคการแพทย์มีภาวะหมดไฟ ส่วน Gallup ปี 2024 ระบุว่า 41% ของพนักงานทั่วโลกรู้สึกเครียดและ 20% รู้สึกโดดเดี่ยว โดยเฉพาะในกลุ่มทำงานทางไกล การสำรวจของ McKinsey Health Institute พบว่า 57% ของพนักงานทั่วโลกมีสุขภาพองค์รวมที่ไม่ดี แนวโน้มนี้ชัดเจนขึ้นหลัง COVID-19 ซึ่งเพิ่มความโดดเดี่ยว ความไม่แน่นอน และลดการสนับสนุนทางสังคม ในประเทศไทย งานวิจัยโดย กาญจนา สุดธนกิจ (2566) พบว่า ครูในภาคใต้มีภาวะหมดไฟสูงถึง 68.2% ส่วน พิมพ์ชนก ศิริพรหม (2565) พบว่า พยาบาลในโรงพยาบาลเอกชนในกรุงเทพฯ มีภาวะหมดไฟจากการทำงานล่วงเวลาและขาดสมดุลชีวิต ขณะที่ ธนกฤต จันทร์สุวรรณ (2566) พบว่า 74% ของพนักงานในบริษัท Tech Startup ไทยมีความเครียดสะสมและ Burnout หลังโควิด-19 ข้อมูลเหล่านี้สะท้อนปัญหาที่ขยายตัว หากไม่จัดการอาจนำไปสู่ภาวะซึมเศร้าและปัญหาสุขภาพจิตเรื้อรังในระยะยาว

จากการทบทวนวรรณกรรมพบว่า ภาวะหมดไฟในการทำงานหลังการแพร่ระบาดของ COVID-19 มีแนวโน้มเปลี่ยนแปลง โดยไม่เพียงแค่ภาระงานที่มากเกินไป แต่ยังรวมถึงปัจจัยใหม่ ๆ เช่น ความไม่แน่นอนทางเศรษฐกิจ การขาดปฏิสัมพันธ์จากการทำงานทางไกล และการขาดการสนับสนุนทางอารมณ์ รายงานจาก American Psychological Association (2023) พบว่า 31% ของพนักงานรู้สึกเหนื่อยล้าทางอารมณ์ 26% ขาดแรงจูงใจ และ 23% ต้องการลาออก ซึ่งสะท้อนถึงผลกระทบของภาวะหมดไฟหลังการระบาดใหญ่ ภาวะหมดไฟเกิดจากความเครียดเรื้อรัง ส่งผลให้บุคคลรู้สึกเหนื่อยล้า หมดแรงจูงใจ และ

ประสิทธิภาพการทำงานลดลง โดยมีอาการหลักคือ 1) ความเหนื่อยล้าทางอารมณ์ 2) การลดความเป็นบุคคล และ 3) การลดความสำเร็จส่วนบุคคล งานวิจัยจาก McKinsey Health Institute (2022) พบว่า 25% ของพนักงานมีอาการหมดไฟ โดยผู้หญิงมีอัตราสูงกว่าผู้ชาย ข้อมูลจาก WHO ระบุว่า หากไม่ได้รับการดูแล ภาวะหมดไฟอาจนำไปสู่โรคทางร่างกายและจิตใจที่ร้ายแรง เช่น ซึมเศร้า โรคหัวใจ และเบาหวาน ดังนั้นผู้นำและผู้บริหารควรสังเกตพฤติกรรมและสภาพจิตใจของพนักงาน เพื่อให้ความช่วยเหลือได้ทันท่วงที และส่งเสริมสุขภาพที่ดีในการทำงาน ซึ่งหากมีกลยุทธ์ที่ดีในการเพิ่มพลังกายและพลังใจจะช่วยให้พนักงานและองค์กรเติบโตได้อย่างยั่งยืน

บทความนี้มีวัตถุประสงค์เพื่อเสนอกลยุทธ์ส่วนบุคคลและองค์กรในการเพิ่มพูนพลังกายและพลังใจเพื่อป้องกันภาวะหมดไฟในการทำงาน ซึ่งถือว่าเป็นแนวทางสำคัญในการป้องกันปัญหาดังกล่าวอย่างเป็นระบบ โดยกลยุทธ์เหล่านี้สามารถดำเนินการได้ทั้งในระดับบุคคล ผ่านการดูแลสุขภาพกายและใจของพนักงานเอง และในระดับองค์กร ผ่านการออกแบบสภาพแวดล้อมและนโยบายที่ส่งเสริมสุขภาวะจิตของบุคลากร กลยุทธ์ทั้งสองจึงเป็นเครื่องมือสำคัญในการสร้างความเข้มแข็งทางจิตใจและร่างกายให้กับพนักงาน เพื่อให้สามารถเผชิญกับการทำงานในยุคที่เต็มไปด้วยความไม่แน่นอน การเปลี่ยนแปลงอย่างรวดเร็ว และการแข่งขันที่ทวีความเข้มข้นได้อย่างมีประสิทธิภาพ

ความหมายภาวะหมดไฟในการทำงาน

ภาวะหมดไฟในการทำงาน (Burnout) เป็นภาวะที่บุคคลเกิดความอ่อนล้าทางอารมณ์ จิตใจ และร่างกายจากความเครียดสะสมในการทำงานเป็นเวลานาน มักเกิดขึ้นเมื่อบุคคลรู้สึกว่าตนเองไม่สามารถจัดการภาระงานได้ทั้งหมด ทำให้เกิดความเครียดเรื้อรัง ขาดแรงจูงใจ และลดความสนใจในหน้าที่ ส่งผลให้เกิดอาการท้อแท้ หมดกำลังใจ และพฤติกรรมเชิงลบ เช่น การเมินเฉย แยกตัว และหลีกเลี่ยงปฏิสัมพันธ์กับผู้อื่น นอกจากนี้ ผู้ที่เผชิญกับภาวะหมดไฟมักประเมินตนเองในแง่ลบ รู้สึกไร้ความสามารถ ขาดความสำเร็จ และมองสภาพแวดล้อมการทำงานเป็นอุปสรรคจนไม่สามารถปรับตัวได้อย่างเหมาะสม (วรัญญา วชิโรดม, 2562) และ Freudenberger (1980) ให้คำจำกัดความของภาวะหมดไฟว่าเป็นภาวะที่บุคคลใช้พลังงานทางร่างกายและจิตใจอย่างหนักเพื่อบรรลุเป้าหมาย แต่กลับไม่ประสบความสำเร็จ ส่งผลให้หมดกำลังใจ อ่อนล้า และท้อถอย ขณะที่ Potter (1997) กล่าวว่าภาวะหมดไฟเกิดจากแรงจูงใจลดลง บุคคลรู้สึกว่าสิ่งที่ทำซับซ้อนขึ้นเรื่อย ๆ โดยมีสัญญาณเตือน ได้แก่ ความคับข้องใจ อารมณ์แปรปรวน การถอนตัวจากสังคม ประสิทธิภาพลดลง และปัญหาสุขภาพจากความเครียดเรื้อรัง Royal Thai Air Force Medical Gazette (2020) ระบุว่าภาวะหมดไฟเกิดจากความเครียดสะสม ทำให้พนักงานเหนื่อยล้าทางอารมณ์ ขาดความกระตือรือร้น และมีพฤติกรรมเชิงลบ เช่น แยกตัวจากเพื่อนร่วมงาน ขาดความคิดสร้างสรรค์ และมองตนเองในแง่ลบ รวมถึงปัญหาสุขภาพ เช่น นอนไม่หลับ ความดันโลหิตสูง และปัญหาทางเดินอาหาร องค์การอนามัยโลก (WHO) จัดให้ภาวะหมดไฟเป็นหนึ่งในปัญหาสุขภาพจิตที่ต้องได้รับการดูแล โดยระบุว่าเป็น “กลุ่มอาการจากความเครียดเรื้อรังในที่ทำงาน” ซึ่งหากไม่ได้รับการแก้ไข อาจนำไปสู่ภาวะซึมเศร้า ความวิตกกังวล และปัญหาสุขภาพ เช่น ภูมิคุ้มกันลดลง โรคหัวใจ และปัญหาทางเดินอาหาร

สรุปภาวะหมดไฟ (Burnout) เป็นภาวะที่เกิดจากความเครียดสะสมจากภาระงานที่หนักและซับซ้อน ขาดการยอมรับ และขาดอำนาจในการตัดสินใจ ส่งผลให้บุคคลรู้สึกหดหู่และขาดความสุขในการทำงาน ปัจจัยเหล่านี้ทำให้พนักงานหมดกำลังใจและขาดแรงจูงใจในการทำงาน

สาเหตุของภาวะหมดไฟในการทำงาน

ภาวะหมดไฟในการทำงาน (Burnout) เป็นภาวะที่เกิดจากการเผชิญกับแรงกดดันในการทำงานสะสมต่อเนื่องเป็นระยะเวลานาน ทั้งจากลักษณะงานที่มีความรับผิดชอบสูง บรรยากาศการทำงานที่ตึงเครียด รวมถึงการมีปฏิสัมพันธ์กับบุคคลอื่นในลักษณะที่ไม่ส่งเสริมความมั่นคงทางจิตใจ โดยเฉพาะในช่วงหลังการแพร่ระบาดของโควิด-19 ที่การทำงานแบบ Hybrid และ Remote กลายเป็นรูปแบบใหม่ ซึ่งแม้จะเพิ่มความยืดหยุ่นแต่กลับส่งผลให้พนักงานรู้สึกโดดเดี่ยวและขาดการมีส่วนร่วม (McKinsey Health Institute, 2023; Harvard Business Review, 2023) จากรายงานของ Gallup (2023) พบว่า 76% ของพนักงานทั่วโลกเคยประสบกับภาวะหมดไฟ และกว่า 28% เผชิญกับภาวะนี้เป็นประจำจากการศึกษาของลัญฉน์ศักดิ์ อรรฆยากร. (2566ข) ระบุว่า สาเหตุของภาวะหมดไฟสามารถจำแนกออกเป็น 3 กลุ่มอาการหลัก ได้แก่ หนึ่ง ความเหนื่อยล้าทางอารมณ์ (Emotional Exhaustion) พนักงานรู้สึกสูญเสียพลังงาน เหนื่อยล้า และหมดแรงเนื่องจากไม่ได้รับเวลาหรือโอกาสในการฟื้นฟูร่างกายและจิตใจอย่างเพียงพอ สอง ความรู้สึกแปลกแยก (Depersonalization) เกิดความห่างเหิน เฉยชา และไม่ผูกพันกับเพื่อนร่วมงาน หัวหน้า หรือบุคคลอื่นในที่ทำงานขาดการสนับสนุนและ สาม ความนับถือตนเองต่ำ (Low Self-Esteem) พนักงานรู้สึกไร้ค่า ไม่มีความสามารถในการรับมือกับปัญหาการทำงาน รู้สึกล้มเหลวและขาดแรงจูงใจในการทำงาน

สรุปภาวะหมดไฟในการทำงานไม่ได้เกิดจากความเหนื่อยล้าทางร่างกายเพียงอย่างเดียว แต่เป็นผลจากแรงกดดันทางจิตใจในสภาพแวดล้อมที่ไม่เอื้อต่อการเติบโตและการยอมรับ อาการแบ่งได้เป็น 3 กลุ่มหลัก ได้แก่ ความเหนื่อยล้าทางอารมณ์ การรู้สึกแปลกแยก และความนับถือตนเองต่ำ ผู้เขียนมองว่า “งานหนัก” ไม่ใช่ต้นเหตุหลัก แต่เกิดจากความไม่สมดุลระหว่างการให้และการได้รับในที่ทำงาน โดยเฉพาะเมื่อขาดการยอมรับ ความปลอดภัยทางใจ และโอกาสพัฒนา ในยุคดิจิทัลแม้เพิ่มความยืดหยุ่นแต่ก็ลดการมีส่วนร่วมทางสังคมของมนุษย์ ทำให้พนักงานรู้สึกโดดเดี่ยว ผู้เขียนเสนอว่าองค์กรควรให้ความสำคัญกับสุขภาวะทางจิตใจเท่ากับประสิทธิภาพการทำงาน และสร้างวัฒนธรรมที่เห็นคุณค่าของคนเพื่อป้องกันปัญหานี้ในระยะยาว

การประเมินภาวะหมดไฟในการทำงานด้วยตนเอง

วิธีตรวจสอบตนเองเบื้องต้นสามารถทำได้โดยใช้แบบประเมิน Maslach Burnout Inventory-General Survey (MBI-GS) ซึ่งพัฒนาโดย Maslach et al. (1981) และปรับปรุงโดย วัลลภ วิชาญเจริญสุข และ สุนทร ศุภพงษ์ (ม.ป.ป.) เพื่อเพิ่มความแม่นยำในการประเมิน โดยแบบประเมินนี้แบ่งออกเป็น 3 ส่วน ได้แก่ ความอ่อนล้าทางอารมณ์ (Emotional Exhaustion) การเมินเฉยต่องาน (Cynicism) และความสามารถในการทำงาน (Professional Efficacy) การให้คะแนนใช้ Likert Scale ซึ่งมี 7 ระดับ ตั้งแต่ไม่เคยรู้สึกเช่นนั้นเลย (1 คะแนน) จนถึง รู้สึกเช่นนี้ทุกวัน (7 คะแนน) ข้อคำถามในแต่ละด้านแบ่งออกดังนี้ ความอ่อนล้าทางอารมณ์ ข้อ 1-6 การเมินเฉยต่องาน ข้อ 7-13 และความสามารถในการทำงาน ข้อ 14-22 สำหรับด้านความสามารถในการทำงาน (Professional Efficacy) การให้คะแนนจะกลับด้านกล่าวคือ ไม่เคยรู้สึกเช่นนั้นเลย (7 คะแนน) และรู้สึกเช่นนี้ทุกวัน (1 คะแนน)

ตารางที่ 1 แสดงแบบประเมินภาวะหมดไฟในการทำงาน

ข้อ	รายการคำถาม	ไม่เคยรู้สึกเช่นนั้นเลย	ปีละ 1 ครั้ง	เดือนละ 1 ครั้ง	เดือนละ 2-3 ครั้ง	สัปดาห์ละ 1 ครั้ง	สัปดาห์ละ 2-3 ครั้ง	ทุก ๆ วัน
1	ฉันรู้สึกห่อเหี่ยวจิตใจกับงานที่ทำอยู่							
2	ฉันรู้สึกหมดหวังเมื่อถึงเวลาเลิกงาน							
3	ฉันรู้สึกอ่อนเพลียตอนตื่นนอนและตอนเข้าทำงาน							
4	ฉันสามารถเข้าใจความรู้สึกนึกคิดของผู้อื่นได้โดยง่าย							
5	ฉันปฏิบัติต่อผู้ร่วมงาน/ผู้รับบริการราวกับเขาไม่มีชีวิต							
6	การทำงานบริการผู้อื่นทั้งวันทำให้รู้สึกเครียด							
7	ฉันรู้สึกว่าตนเองสามารถแก้ไขปัญหาต่าง ๆ ให้ผู้อื่นได้อย่างมีประสิทธิภาพ							
8	ฉันรู้สึกเหนื่อยหน่ายกับงานทีทำอยู่							
9	ฉันรู้สึกว่าได้ทำให้เกิดการเปลี่ยนแปลงที่ดีขึ้นในชีวิตของผู้ร่วมงาน/ผู้รับบริการจากการทำงานของฉัน							
10	ฉันกลายเป็นคนแข็งกระด้างตั้งแต่เริ่มทำงานนี้							
11	ฉันกังวลใจว่างานที่ทำอยู่ทำให้ฉันกลายเป็นคนเจ้าอารมณ์							
12	ฉันรู้สึกเต็มเปี่ยมไปด้วยพละกำลัง							
13	ฉันรู้สึกคับข้องใจเวลาทำงาน							
14	ฉันรู้สึกว่าทำงานในหน้าที่ที่หนักเกินไป							
15	ฉันรู้สึกไม่อยากใส่ใจต่อพฤติกรรมของผู้ร่วมงานบางคน							
16	การทำงานเกี่ยวข้องกับคนอื่นโดยตรงทำให้ฉันรู้สึกเครียดมากเกินไป							
17	ฉันสามารถสร้างบรรยากาศที่เป็นกันเองกับผู้ร่วมงาน/ผู้รับบริการได้ไม่ยาก							
18	ฉันรู้สึกเป็นสุขภายหลังจากให้บริการแก่ผู้ร่วมงาน/ผู้รับบริการอย่างใกล้ชิด							
19	ฉันรู้สึกว่าได้สร้างสิ่งที่มีคุณค่ามากให้กับงานที่ฉันทำอยู่							
20	ฉันรู้สึกหมดความอดทนกับงานที่ทำอยู่							
21	ในการทำงานฉันสามารถเผชิญปัญหาทางอารมณ์ได้อย่างสงบนิ่ง							
22	ฉันรู้สึกว่าที่ผู้ร่วมงาน/ผู้รับบริการตำหนิฉันนั้นเป็นปัญหาของเขา							

ตารางที่ 2 แสดงการแปลค่าคะแนนแบบประเมินภาวะหมดไฟในการทำงาน

องค์ประกอบ	ระดับภาวะหมดไฟ		
	ต่ำ	ปานกลาง	สูง
ด้านความอ่อนล้าทางอารมณ์ (emotional exhaustion)	≤ 10	10.01-15.99	≥ 16
ด้านการเมินเฉยต่องาน (cynicism)	≤ 5	5.01-10.99	≥ 11
ด้านความสามารถในการทำงาน (professional efficacy)	≥ 30	24.01-29	≤ 24

ที่มา : Maslach et al. (1981) และปรับปรุงโดย วัลลภ วิชาญเจริญสุข และ สุนทร ศุภพงษ์

จากระยะต่าง ๆ จะเห็นว่าภาวะหมดไฟเริ่มก่อตัวตั้งแต่ระยะรู้สึกตัว (The Awakening) และชัดเจนขึ้นในระยะไฟตก (Brownout) และระยะหมดไฟเต็มที่ (Full Scale of Burnout) หากปล่อยให้ดำเนินต่อเนื่อง อาจนำไปสู่ความเครียดรุนแรงและเพิ่มความเสี่ยงต่อโรคซึมเศร้า โดยข้อมูลจาก World Health Organization (WHO, 2022) ระบุว่าประมาณ 60% ของพนักงานทั่วโลกมีแนวโน้มประสบกับภาวะหมดไฟในช่วงใดช่วงหนึ่งของชีวิตการทำงาน และรายงานของ American Psychological Association (APA, 2021) พบว่าความเครียดจากการทำงานเป็นหนึ่งในปัจจัยเสี่ยงสำคัญที่นำไปสู่โรคซึมเศร้าและปัญหาสุขภาพจิตในระยะยาว หากผลการประเมิน พบว่า บุคคลมีความอ่อนล้าทางอารมณ์และการเมินเฉยต่องานในระดับสูง ขณะเดียวกันคะแนนความสามารถในการทำงานต่ำ แสดงว่ากำลังอยู่ในภาวะหมดไฟอย่างเต็มที่ ซึ่งอาการนี้ไม่ได้เกิดขึ้นเฉียบพลัน แต่ค่อย ๆ ก่อตัวขึ้นเป็นระยะโดย (Miller, Smith, & Rothstein, 1993) แบ่งออกเป็น 5 ระยะดังนี้

1. ระยะฮันนีมูน (The Honeymoon) ช่วงเริ่มงานที่บุคคลยังมีแรงจูงใจสูง รู้สึกตื่นเต้น กระตือรือร้น เสียสละเพื่อองค์กร และพยายามปรับตัวให้เข้ากับสภาพแวดล้อมการทำงาน

2. ระยะรู้สึกตัว (The Awakening) เริ่มตระหนักว่างานไม่เป็นไปตามที่คาดหวัง ทั้งด้านค่าตอบแทนและการยอมรับ เกิดความขัดแย้งภายใน นำไปสู่ความขับข้องใจและความเหนื่อยล้า

3. ระยะไฟตก (Brownout) อาการเหนื่อยล้าเรื้อรังเด่นชัดขึ้น หงุดหงิดง่าย พฤติกรรมเปลี่ยนไปเพื่อหลีกหนีความเครียด เช่น ใช้จ่ายฟุ่มเฟือย ดื่มสุรา หรือมีกิจกรรมอื่นเพื่อเบี่ยงเบนความรู้สึก ความสามารถในการทำงานลดลง แยกตัวจากเพื่อนร่วมงาน และวิพากษ์วิจารณ์องค์กรมากขึ้น

4. ระยะหมดไฟเต็มที่ (Full Scale of Burnout) หากไม่ได้รับการแก้ไข บุคคลจะรู้สึกสิ้นหวัง สูญเสียความมั่นใจ มีความคิดด้านลบเกี่ยวกับงานและชีวิตส่วนตัว ส่งผลต่อสุขภาพจิตอย่างรุนแรง

5. ระยะฟื้นตัว (The Phoenix Phenomenon) หากได้รับโอกาสพักผ่อนและปรับตัว จะสามารถปรับความคาดหวังให้สอดคล้องกับความเป็นจริง ฟื้นฟูแรงบันดาลใจ และกลับมามีเป้าหมายในการทำงานได้

สรุป การประเมินภาวะหมดไฟในการทำงานสามารถใช้แบบประเมิน Maslach Burnout Inventory–General Survey (MBI-GS) ซึ่งวัดระดับความอ่อนล้าทางอารมณ์ การเมินเฉยต่องาน และความสามารถในการทำงาน โดยหากผลการประเมินพบว่าระดับความอ่อนล้าและการเมินเฉยต่องานอยู่ในระดับสูง ขณะที่ความสามารถในการทำงานอยู่ในระดับต่ำ แสดงถึงภาวะหมดไฟเต็มที่ ที่ค่อย ๆ ก่อตัวขึ้นตามแนวคิดของ Miller & Smith (1993) ผู้เขียนเห็นว่าการเฝ้าระวังสัญญาณตั้งแต่ต้นมีความสำคัญ การเริ่มเข้าระยะรู้สึกตัวควรเสริมพลังกายใจ เช่น การพักผ่อน สร้างสมดุลชีวิต และได้รับการสนับสนุนจากผู้อื่น ซึ่งเป็นวิธีป้องกันภาวะหมดไฟในระยะยาวได้อย่างมีประสิทธิภาพ โดยสามารถเริ่มจากเรื่องง่าย ๆ ที่สามารถเพิ่มได้ด้วยตนเอง เช่น พักและทบทวนตัวเอง จัดลำดับความสำคัญใหม่ พักผ่อนให้เพียงพอ

เชื่อมโยงกับคนรอบข้าง ดูแลร่างกาย และทำกิจกรรมที่เติมพลังใจ เพื่อช่วยให้กลับมามีแรงและสมดุลในการทำงานอีกครั้ง

กลยุทธ์เพิ่มพูนพลังกายและพลังใจ

พลังกายและพลัง

ปัจจัยสำคัญที่ส่งผลต่อประสิทธิภาพและความสุขในการทำงาน ได้แก่ พลังกายและพลังใจ ซึ่งช่วยป้องกันภาวะหมดไฟและเพิ่มความสามารถในการปรับตัวต่อแรงกดดัน (ลัญฉน์ศักดิ์ อรรฆยากร, 2566ก; MedPark Hospital, 2023a) พลังกาย หมายถึง ความแข็งแรงและความพร้อมของร่างกายเสริมได้ด้วยการออกกำลังกาย การรับประทานอาหารที่มีประโยชน์ และการพักผ่อนอย่างเพียงพอ รวมถึงการจัดสรรเวลาทำงานและพักผ่อนอย่างสมดุล (The Standard, 2023) โดยพบว่า ผู้ที่ออกกำลังกายอย่างน้อย 3 ครั้งต่อสัปดาห์ มีอัตราความเครียดต่ำกว่าและตอบสนองต่อแรงกดดันได้ดีขึ้น (Psychology Today, 2020) การนอนหลับเพียงพอ 7-9 ชั่วโมงต่อคืน ยังช่วยเพิ่มประสิทธิภาพการตัดสินใจ ลดความเครียดและภาวะซึมเศร้า (National Sleep Foundation, 2023) ส่วนพลังใจ หมายถึง ความมั่นคงทางอารมณ์ แรงจูงใจ และทัศนคติเชิงบวก การมีทัศนคติเชิงบวกเพิ่มโอกาสประสบความสำเร็จในอาชีพมากขึ้นถึง 30% (Gallup, 2022) การตั้งเป้าหมายที่ชัดเจนและติดตามความคืบหน้าช่วยเพิ่มโอกาสสำเร็จได้ 42% (Harvard Business Review, 2021) นอกจากนี้ เทคนิคการจัดการอารมณ์ เช่น การทำสมาธิหรือการหายใจลึก ๆ ยังช่วยลดความวิตกกังวลและเพิ่มความสามารถในการรับมือกับความเครียดได้ (American Psychological Association, 2019)

เพิ่มพูนพลังกาย/พลังใจ

การเสริมสร้างพลังกาย/พลังใจเป็นสิ่งสำคัญในการป้องกันภาวะหมดไฟในการทำงาน พลังกาย หมายถึง ความแข็งแรงของร่างกาย ส่วนพลังใจ หมายถึง ความมั่นคงทางอารมณ์และแรงจูงใจ (วิชชากร ตรีสุคนธ์, 2021) การเริ่มวันใหม่ด้วยการออกกำลังกายเบา ๆ หรือทำสมาธิสั้น ๆ ช่วยลดความเครียดและเพิ่มสมาธิ (IMPGROUP.NET, 2023) การออกกำลังกายสัปดาห์ละ 3 ครั้ง ลดความเสี่ยงหมดไฟได้ถึง 40% (โรงพยาบาลมนารมย์, 2021) การตั้งเป้าหมายที่ชัดเจนทำให้โอกาสสำเร็จสูงขึ้นถึง 42% (Harvard Business Review, 2021) ความสัมพันธ์ที่ดีในที่ทำงานช่วยลดความเครียดและเพิ่มความสุข (MedPark Hospital, 2023b) นอกจากนี้ การฝึกสมาธิช่วยลดความวิตกกังวลได้ถึง 60% (American Journal of Psychiatry, 2020) การดูแลสุขภาพกายและใจอย่างสมดุลจึงช่วยเพิ่มประสิทธิภาพการทำงานและลดความเสี่ยงหมดไฟได้อย่างมีประสิทธิภาพในระยะยาว (วิชชากร ตรีสุคนธ์, 2021)

สรุป การเพิ่มพูนพลังกาย/พลังใจ เป็นปัจจัยสำคัญที่ส่งผลต่อประสิทธิภาพและความสุขในการทำงาน พลังกาย คือ ความพร้อมของร่างกายจากการพักผ่อน ออกกำลังกาย และการกินอาหารที่ดี ส่วนพลังใจ คือ แรงจูงใจและความมั่นคงทางอารมณ์ที่พัฒนาได้ผ่านทัศนคติเชิงบวก การตั้งเป้าหมาย และการจัดการอารมณ์ ผู้เขียนเปรียบพลังกายเป็นเครื่องยนต์และพลังใจเป็นเชื้อเพลิงที่ต้องดูแลควบคู่กัน เพราะเมื่อทั้งสองทำงานร่วมกันอย่างสมดุล จะช่วยให้รับมือกับความเครียดได้ดี ทำงานอย่างยั่งยืน และมีคุณภาพชีวิตที่ดีทั้งในระยะสั้นและระยะยาว

กลยุทธ์เพิ่มพูนพลังกาย/พลังใจเพื่อรับมือกับภาวะหมดไฟในการทำงาน

การสร้างพลังกาย/พลังใจเพื่อป้องกันภาวะหมดไฟในการทำงาน ประกอบด้วย 2 ส่วน ได้แก่ (1) กลยุทธ์ที่พนักงานสามารถสร้างได้ด้วยตนเองในระดับบุคคล และ (2) กลยุทธ์ที่องค์กรสามารถพัฒนา

สภาพแวดล้อมที่เอื้อต่อการเสริมสร้างพลังกาย/พลังใจของพนักงานได้ ทั้งนี้ การดูแลพนักงานให้ห่างไกลจากภาวะหมดไฟในการทำงานเป็นเรื่องสำคัญ บทความนี้จึงขออธิบายเนื้อหาโดยแบ่งเป็นหัวข้อดังต่อไปนี้

1. กลยุทธ์ส่วนบุคคลที่พนักงานสามารถสร้างได้เอง

กลยุทธ์เพิ่มพูนพลังกาย

การพัฒนาสุขภาพร่างกายและความแข็งแรง เป็นสิ่งสำคัญในการสร้างพลังกายและความสามารถของคนทำงาน กลยุทธ์การสร้างพลังกายที่สามารถนำมาใช้เพื่อสร้างพลังและความสามารถในการทำงานมีดังนี้:

การออกกำลังกาย หนึ่งในกลยุทธ์สำคัญที่พนักงานสามารถสร้างได้ด้วยตนเองเพื่อเสริมสร้างพลังกาย คือ การพัฒนาสุขภาพร่างกายให้แข็งแรง ซึ่งเป็นพื้นฐานสำคัญที่เอื้อต่อการมีพลังงาน ความกระตือรือร้น และความสามารถในการปฏิบัติงานอย่างมีประสิทธิภาพ ทั้งยังช่วยลดความเสี่ยงของภาวะหมดไฟในการทำงานได้อย่างเป็นรูปธรรม โดยเฉพาะอย่างยิ่ง “การออกกำลังกาย” ถือเป็นกิจกรรมที่สามารถทำได้จริงในชีวิตประจำวันและมีผลต่อสุขภาพโดยตรง อย่างไรก็ตาม หลายคนมักพบอุปสรรคในการเริ่มต้นหรือรักษากิจวัตรการออกกำลังกายอย่างต่อเนื่อง ด้วยเหตุนี้จึงมีการเสนอแนวคิดในการตั้งเป้าหมายที่ชัดเจนเพื่อเสริมแรงจูงใจ โดย ชวภณ กิจหิรัญกุล และ อรกมล อินกองงาม (2566) แพทย์ผู้เชี่ยวชาญจาก DOCTORVIP ได้แนะนำการตั้งเป้าหมายโดยใช้หลัก SMART Goal Setting ซึ่งเป็นแนวทางที่ได้รับการยอมรับอย่างกว้างขวางในการส่งเสริมพฤติกรรมสุขภาพ (ชวภณ กิจหิรัญกุล และ อรกมล อินกองงาม, 2566) โดย SMART ประกอบด้วย องค์ประกอบสำคัญ 5 ประการ ได้แก่

S = Specific: ระบุวิธีการออกกำลังกาย เช่น วิ่ง ว่ายน้ำ หรือเล่นโยคะ

M = Measurable: กำหนดระยะเวลา เช่น วิ่ง 30 นาทีต่อวัน

A = Attainable: ตั้งเป้าหมายที่ทำได้จริง เช่น เริ่มเดิน 10 นาที

R = Relevant: เลือกกิจกรรมที่สอดคล้องกับเป้าหมาย เช่น คาร์ดิโอสำหรับลดน้ำหนัก

T = Timely: กำหนดระยะเวลา เช่น เดิน 30 นาที ทุกวันจันทร์ พุธ เสาร์ 3 เดือน

แนวทาง SMART ไม่เพียงใช้กับการออกกำลังกาย แต่ยังประยุกต์กับการวางแผนอาหารหรือการควบคุมน้ำหนัก การตั้งเป้าหมายระยะสั้น ที่สามารถบรรลุได้ช่วยสร้างแรงจูงใจ ลดความท้อถอย และเพิ่มความมั่นใจในการบรรลุเป้าหมายระยะยาว ซึ่งเป็นหัวใจสำคัญในการสร้างพลังกายและพลังใจเพื่อการทำงานอย่างยั่งยืน

รับประทานอาหารที่เหมาะสม เป็นปัจจัยสำคัญในการสร้างสุขภาพที่ดี กระทรวงสาธารณสุข (2563) ได้เน้นย้ำถึงแนวทางการบริโภคอาหารเพื่อสุขภาพที่ครบถ้วน โดยการบริโภคอาหารที่มีสารอาหารหลากหลายประเภท สามารถช่วยส่งเสริมสุขภาพทางกายอย่างมีประสิทธิภาพ การรับประทานอาหารที่เหมาะสมและมีความหลากหลาย จึงเป็นวิธีหนึ่งในการเสริมสร้างความแข็งแรงและป้องกันโรคต่างๆ ที่อาจเกิดขึ้นจากการขาดสารอาหารหรือการรับประทานอาหารที่ไม่เหมาะสม อาหารมีบทบาทสำคัญในการเสริมสร้างความแข็งแรงของร่างกาย โดยสามารถช่วยให้ร่างกายเจริญเติบโต ซ่อมแซมส่วนที่สึกหรอ และส่งเสริมการทำงานของอวัยวะต่างๆ ได้อย่างมีประสิทธิภาพ สารอาหารที่ได้จากอาหาร ได้แก่ โปรตีน คาร์โบไฮเดรต ลิพิด เกลือแร่ วิตามิน และน้ำ ซึ่งแต่ละสารอาหารมีความสำคัญในการทำงานต่างๆ ของร่างกาย

การพักผ่อนและฟื้นตัว มีความสำคัญในการรักษาสุขภาพและการฟื้นฟูร่างกายหลังการทำกิจกรรมต่าง ๆ โดยเฉพาะการออกกำลังกายและการเล่นกีฬา หากร่างกายไม่ได้รับการพักผ่อนอย่างเพียงพอ กระบวนการฟื้นฟูจะไม่สมบูรณ์ ส่งผลให้เกิดความอ่อนล้าและเพิ่มความเสี่ยงต่อการบาดเจ็บ (Roche, 2019) การพักผ่อนที่เพียงพอไม่เพียงแต่ช่วยให้จิตใจสดชื่น แต่ยังส่งผลดีต่อความจำและการฟื้นตัวจากอาการบาดเจ็บ การนอนหลับที่มีคุณภาพจะช่วยเสริมการฟื้นฟูและซ่อมแซมร่างกาย หากการนอนพักผ่อนไม่เพียงพอหรือมีคุณภาพไม่ดี อาจส่งผลกระทบต่อระบบประสาท ภูมิคุ้มกัน และทำให้หัวใจต้องทำงานหนักขึ้น (พีร ธรรมพีร, 2567)

สรุป กลยุทธ์เพิ่มพูนพลังกายที่พนักงานสามารถทำได้เอง ได้แก่ การออกกำลังกาย การรับประทานอาหารที่เหมาะสมและการพักผ่อนอย่างเพียงพอ ซึ่งล้วนเป็นพื้นฐานของสุขภาพที่ดี ผู้เขียนเสนอว่า การตั้งเป้าหมายแบบ SMART ช่วยให้การออกกำลังกายทำได้จริงและต่อเนื่อง เพิ่มแรงจูงใจในการดูแลสุขภาพ อาหารที่มีคุณภาพช่วยเสริมพลังงานและซ่อมแซมร่างกาย ส่วนการนอนหลับที่เพียงพอช่วยให้ร่างกายฟื้นตัวเต็มที่ ลดความเสี่ยงต่อการบาดเจ็บและภาวะเหนื่อยล้า จากกรณีศึกษาโครงการ “15 Minute Challenge” ในต่างประเทศ พบว่าการตั้งเป้าหมายแบบ SMART ในการออกกำลังกายวันละ 15 นาที ช่วยให้พนักงานกว่า 95% มีพลังงานเพิ่มขึ้น นอนหลับดีขึ้น และลดความเสี่ยงโรคเรื้อรัง ส่วนบริษัท L.L. Bean (2020) ในสหรัฐฯ ที่จัดกิจกรรมสุขภาพในเวลางาน ก็ช่วยให้พนักงานมีสุขภาพดีและมีแรงจูงใจในการดูแลตัวเองต่อเนื่อง ในมุมมองของผู้เขียน การดูแลทั้งสามด้านนี้อย่างสมดุล เป็นรากฐานของพลังกายที่นำไปสู่ความยั่งยืนในการทำงานและคุณภาพชีวิตที่ดี เพราะสุขภาพดีไม่ใช่แค่เป้าหมายปลายทาง แต่คือ เส้นทางที่ทำให้ทุกเป้าหมายในชีวิตเป็นจริงได้

กลยุทธ์เพิ่มพูนพลังใจ

พลังใจที่ดีสามารถสร้างได้ด้วยตนเอง โดยผู้ที่มีพลังใจเข้มแข็งจะมีความอดทน ควบคุมอารมณ์ได้ดี มีเป้าหมายในชีวิต และไม่ยอมแพ้ต่ออุปสรรค การสร้างพลังใจทำได้หลายวิธี เช่น การตั้งเป้าหมายชัดเจน การจัดการความเครียด การมองโลกในแง่ดี และการดูแลตนเองทั้งทางกายและจิตใจ การสร้างพลังใจทำได้หลายวิธีดังนี้

ควบคุมอารมณ์ การควบคุมอารมณ์เป็นทักษะสำคัญในการทำงานและชีวิตประจำวัน ช่วยให้เราจัดการสถานการณ์ต่าง ๆ ได้อย่างเหมาะสม โดยไม่กระทบต่อผู้อื่นหรือทั้งตัวเราเอง (The Coach, 2023) การควบคุมอารมณ์ ประกอบด้วย 4 ประเด็นหลักที่ควรพัฒนา หนึ่ง การตระหนักรู้ในตัวเอง (Self-Awareness) คือ การรู้จักและเข้าใจอารมณ์ของตนเอง เช่น เมื่อรู้สึกเครียดจากงาน เราสามารถระบุสาเหตุและปรับพฤติกรรม เช่น การขอเวลาพักหรือจัดลำดับงานใหม่ สอง การควบคุมตนเอง (Self-Regulation) คือ การระงับอารมณ์และปรับพฤติกรรมให้เหมาะสม เช่น การหายใจลึก ๆ เมื่อรู้สึกโกรธเพื่อไม่ให้การตอบสนองเกินขอบเขต สาม การเห็นอกเห็นใจผู้อื่น (Empathy) คือ การเข้าใจอารมณ์ของผู้อื่น เช่น การแสดงความห่วงใยเมื่อเห็นเพื่อนร่วมงานเครียด และสี่ การอยู่ร่วมกับผู้อื่น (Social Skills) คือ การสื่อสารและทำงานร่วมกับผู้อื่นอย่างมีประสิทธิภาพ เช่น การฟังความคิดเห็นและร่วมมือในการแก้ปัญหา การพัฒนาทักษะทั้ง 4 ช่วยให้เราควบคุมอารมณ์ได้ดีและสร้างความสัมพันธ์ที่ดีในชีวิตและการทำงาน

ความอดทนและความมุ่งมั่น ช่วยเพิ่มประสิทธิภาพในการทำงานได้จริง ความอดทนช่วยลดความเครียด ส่วนความมุ่งมั่นช่วยให้สามารถวางแผนและจัดสรรเวลาได้อย่างเหมาะสม ซากุระ พุทธหล่อง (2566) เสนอวิธีเสริมสร้างความมุ่งมั่นไว้ 4 วิธี ได้แก่ 1) การสร้างสภาพแวดล้อมที่เหมาะสมกับตนเอง

เช่น หากทำงานในที่เสียงดัง อาจใส่หูฟังเปิดเพลงเบา ๆ เพื่อเพิ่มสมาธิ หรือฝึกให้ชินกับสภาพแวดล้อมนั้น 2) ใช้พลังของความตั้งใจ มุ่งมั่นกับสิ่งที่ทำ ไม่วอกแวก เช่น ตั้งเวลาปิดมือถือขณะทำงาน 3) มีความอดทนไม่ตัดสินใจด้วยอารมณ์ เช่น หากเจองานยากไม่ควรเลิกทำกลางคัน แต่ให้พักแล้วกลับมาทำต่อ และ 4) แบ่งเป้าหมายเป็นขั้น ๆ เช่น หากต้องทำโปรเจกต์ใหญ่ ควรแบ่งเป็นงานย่อย ๆ เพื่อให้เห็นความคืบหน้าและเกิดกำลังใจในการทำงาน

กล้าหาญทำสิ่งใหม่ พลังธรรมดาที่สามารถสร้างสิ่งยิ่งใหญ่ได้ เพราะทุกการเปลี่ยนแปลงในชีวิตล้วนเริ่มจาก “ความกล้า” ไม่ว่าจะกล้าเปลี่ยนงาน กล้าเรียนต่อ หรือกล้าลงทุน แต่หลายครั้งความกลัวกลับทำให้เราพลาดโอกาสดี ๆ ไป Jack Krier (2021) เสนอ 6 วิธีในการเสริมสร้างความกล้าหาญ ได้แก่ หนึ่ง เปลี่ยนมุมมองเวลาตัดสินใจ เช่น หากลังเลเรื่องย้ายงาน ลองคิดว่าหากเป็นเพื่อนเราจะให้คำแนะนำอย่างไร วิธีนี้ช่วยให้เห็นภาพกว้างขึ้นและกล้าตัดสินใจมากขึ้น สอง ค่อย ๆ ก้าวออกจากพื้นที่ปลอดภัย เช่น หากไม่กล้าพูดในที่ประชุม อาจเริ่มจากการพูดในกลุ่มเล็กก่อนเพื่อฝึกความมั่นใจ สาม เรียนรู้จัดการความเสี่ยง เช่น หากจะเริ่มทำธุรกิจใหม่ ก็ควรมีแผนสำรองหรือเงินสำรองไว้รับมือกับสถานการณ์ไม่คาดคิด สี่ รู้จักความกลัวของตนเอง เช่น หากกลัวพูดผิดเพราะไม่มั่นใจ อาจเตรียมเนื้อหาให้ดีหรือฝึกซ้อมล่วงหน้า ห้า ยอมรับในความไม่สมบูรณ์แบบ โดยเปลี่ยนจากการคาดหวังความสมบูรณ์แบบมาเป็นการโฟกัสที่ความก้าวหน้า เช่น วันนี้ทำได้ดีกว่าเมื่อวานก็ถือว่าเป็นความสำเร็จ และหก เรียนรู้จากความล้มเหลว โดยมองว่าความล้มเหลว คือ บทเรียนที่ทำให้เราเข้าใจตัวเองมากขึ้นและปรับปรุงในครั้งต่อไปได้ดียิ่งขึ้น

สรุป การเพิ่มพูนพลังใจทำได้โดยผ่านการควบคุมอารมณ์ ความอดทน ความมุ่งมั่น และความกล้าหาญในการทำสิ่งใหม่ ซึ่งช่วยให้จัดการชีวิตได้อย่างมีประสิทธิภาพ โดยมีพื้นฐานจากการตั้งเป้าหมาย การมองโลกในแง่ดี และการดูแลตนเองทั้งกายและใจ ผู้เขียนเห็นว่าพลังใจเริ่มจากการรู้จักตนเอง ควบคุมอารมณ์ และกล้าออกจากพื้นที่ปลอดภัย เช่น กรณีศึกษาของซากุระ พุทธหล่อง (2566) ที่เสนอการเสริมความมุ่งมั่นด้วยการสร้างสภาพแวดล้อมที่เหมาะสมและการแบ่งเป้าหมายเป็นขั้น ๆ เพื่อเพิ่มแรงใจ สะท้อนว่าพลังใจสามารถฝึกได้จริง ผ่านการคิด ฝึกฝน และปรับตัวอย่างต่อเนื่องตามบริบทของแต่ละคน กล่าวโดยสรุป พลังใจไม่ใช่สิ่งที่ติดตัวมาตั้งแต่กำเนิดหรือถ่ายทอดทางพันธุกรรม หากแต่เป็นพลังที่มนุษย์สามารถบ่มเพาะได้ผ่านกระบวนการคิดอย่างมีสติ การฝึกฝนอย่างสม่ำเสมอ และการปรับตัวให้เหมาะสมกับสถานการณ์ของตนเองในแต่ละช่วงชีวิต

2. กลยุทธ์องค์กรป้องกันภาวะหมดไฟในการทำงาน

แนวทางที่ช่วยสร้างสภาพแวดล้อมที่สนับสนุนสุขภาพจิตของพนักงานและลดความเสี่ยงในการเกิดภาวะหมดไฟ องค์กรสามารถดำเนินการได้โดยการส่งเสริมวัฒนธรรมที่เป็นมิตรต่อสุขภาพจิต สนับสนุนให้พนักงานใช้วันหยุดพักร้อน จัดกิจกรรมเพื่อสุขภาพจิต เช่น การทำสมาธิหรือโยคะ รวมถึงปรับนโยบายการทำงานให้ยืดหยุ่นขึ้น กำหนดชั่วโมงการทำงานที่เหมาะสม ลดภาระงานที่มากเกินไป และฝึกอบรมผู้บริหารให้สามารถสังเกตอาการของพนักงานที่อาจต้องการความช่วยเหลือ (Maslach & Leiter, 2022) นอกจากนี้ การสร้างพื้นที่ปลอดภัยสำหรับพนักงานในการแสดงความรู้สึกเป็นสิ่งสำคัญ องค์กรควรเปิดโอกาสให้พนักงานแสดงความคิดเห็นและแสดงอารมณ์ได้อย่างเหมาะสม ซึ่งจะช่วยเพิ่มความคิดสร้างสรรค์และประสิทธิภาพการทำงาน รวมถึงส่งเสริมวัฒนธรรมที่ให้ความเข้าใจซึ่งกันและกัน (Gallup, 2021) อีกประเด็นที่องค์กรควรให้ความสำคัญ คือ การดูแลพนักงานอย่างครอบคลุม แม้ว่าสาเหตุหลักของภาวะหมดไฟมักเกิดจากงาน แต่ปัจจัยภายนอก เช่น ปัญหาทางการเงิน ความสัมพันธ์ หรือสุขภาพ ก็มี

ผลกระทบต่อสภาพจิตใจของพนักงาน องค์กรควรจัดหาทรัพยากรสนับสนุน เช่น บริการให้คำปรึกษาด้านสุขภาพจิต หรือสวัสดิการที่ช่วยลดภาระปัญหาส่วนตัวของพนักงาน (Harvard Business Review, 2023) นอกจากนี้ การดำเนินการตามความคิดเห็นของพนักงานเป็นปัจจัยสำคัญที่ช่วยเสริมสร้างความรู้สึกเป็นส่วนหนึ่งขององค์กร เช่น การให้พนักงานมีส่วนร่วมในการออกแบบสภาพแวดล้อมการทำงาน หรือเปิดโอกาสให้พนักงานเลือกวันทำงานที่ยืดหยุ่นมากขึ้น การมีส่วนร่วมของพนักงานจะช่วยเสริมสร้างความไว้วางใจระหว่างพนักงานและผู้บริหาร รวมถึงเพิ่มแรงจูงใจในการทำงาน (McKinsey & Company, 2024) การดำเนินกลยุทธ์เหล่านี้อย่างต่อเนื่องจะช่วยสร้างสภาพแวดล้อมที่ดี ส่งเสริมสุขภาพจิตของพนักงาน และลดโอกาสการเกิดภาวะหมดไฟในการทำงาน

สรุป การเครียดในการทำงานอาจหลีกเลี่ยงไม่ได้ แต่หากผู้นำในองค์กรมีความสามารถในการสร้างสภาพแวดล้อมที่สนับสนุนสุขภาพจิตของพนักงานและส่งเสริมให้พนักงานรู้สึกมีคุณค่าและมีส่วนร่วมในการทำงาน จะช่วยลดความเสี่ยงจากภาวะหมดไฟได้อย่างมีประสิทธิภาพ ตามความเห็นของผู้เขียน การสร้างสภาพแวดล้อมที่สนับสนุนสุขภาพจิต เช่น การให้พนักงานมีส่วนร่วมในการออกแบบโปรเจกต์ใหม่ ๆ หรือการจัดกิจกรรมที่กระตุ้นความคิดสร้างสรรค์ เช่น การแข่งขันออกแบบนวัตกรรมใหม่หรือการเดินทางและทำงานร่วมกันเป็นทีม ช่วยให้พนักงานรู้สึกมีคุณค่าและลดความเครียดได้อย่างมาก ผู้เขียนเสนอว่า องค์กรควรจัดกิจกรรมที่ท้าทายความคิดสร้างสรรค์ เช่น การจัดเวิร์กช็อปหรือกิจกรรมที่กระตุ้นความสามารถของพนักงาน พร้อมทั้งให้พวกเขามีสิทธิ์เลือกงานหรือโครงการที่สนใจ เพื่อเพิ่มความรู้สึกมีส่วนร่วมและแรงจูงใจในการทำงาน กรณีศึกษาของร้านอาหาร Kin ในเมือง Boise, รัฐ Idaho เป็นตัวอย่างที่ชัดเจนในการดูแลสุขภาพจิตของพนักงาน โดยการให้สวัสดิการที่ครบถ้วน ส่งเสริมการมีส่วนร่วมในการทำงาน และสร้างสภาพแวดล้อมที่ร่วมมือกัน ซึ่งช่วยลดความเสี่ยงจากภาวะหมดไฟและได้รับรางวัล James Beard Award (Komori, 2025)

สรุป

ภาวะหมดไฟในการทำงาน (Burnout) ส่งผลกระทบต่อสุขภาพกาย สุขภาพใจ การเข้าสังคม ความสัมพันธ์กับคนรอบข้าง ตลอดจนลดประสิทธิภาพในการทำงานอย่างเห็นได้ชัด การสร้างพลังกาย เช่น การออกกำลังกาย การพักผ่อนให้เพียงพอ และการรับประทานอาหารที่เหมาะสม เป็นปัจจัยสำคัญที่ช่วยเสริมสร้างความแข็งแรงให้กับร่างกาย ขณะเดียวกัน การเสริมสร้างพลังใจ อาทิ การตั้งเป้าหมาย การควบคุมอารมณ์ และการมองโลกในแง่ดี จะช่วยเพิ่มแรงจูงใจและเสริมสร้างความมั่นคงทางอารมณ์ให้กับบุคลากร องค์กรเองก็มีบทบาทสำคัญในการสนับสนุนสุขภาพจิตของพนักงาน โดยสามารถดำเนินการผ่านการจัดสรรเวลาการทำงานที่ยืดหยุ่น และการเปิดพื้นที่ปลอดภัยทางใจ เพื่อให้เกิดสมดุลระหว่างการทำงานและการใช้ชีวิตส่วนตัว เมื่อกลยุทธ์ในระดับบุคคลและระดับองค์กรสามารถดำเนินไปอย่างสอดประสานและสมดุล จะส่งผลให้พนักงานมีความพร้อมในการทำงานอย่างเต็มที่ มีความสามารถในการแก้ปัญหา และสามารถสร้างสรรค์สิ่งใหม่ ๆ ให้กับองค์กรได้อย่างมีประสิทธิภาพ ซึ่งนำไปสู่ผลผลิตที่สอดคล้องกับเป้าประสงค์ที่องค์กรคาดหวัง จากการวิเคราะห์ข้อมูลเชิงวิชาการ สามารถสรุปได้ว่าการผสานกลยุทธ์ทั้งในระดับบุคคลและองค์กรสามารถลดความเสี่ยงของภาวะหมดไฟได้อย่างมีประสิทธิภาพ ทั้งนี้ยังสอดคล้องกับแนวคิดของการพัฒนาทรัพยากรมนุษย์และการจัดการสุขภาวะของพนักงาน โดยการดูแลทั้งสุขภาพกายและจิตใจถือเป็นการลงทุนที่มีคุณค่าสำหรับการพัฒนาองค์กรให้เติบโตอย่างยั่งยืนและสามารถแข่งขันได้ในบริบทของโลกการทำงานที่เปลี่ยนแปลงอย่างรวดเร็ว ดังนั้น การป้องกันภาวะหมดไฟ

จึงไม่ใช่เพียงหน้าที่ขององค์กรเท่านั้น แต่ยังเป็นกลยุทธ์สำคัญในการส่งเสริมความสุข ความผูกพัน และความพึงพอใจในที่ทำงานอย่างยั่งยืนสำหรับทุกฝ่าย ตัวอย่างแนวทางที่สามารถนำไปประยุกต์ใช้ ได้แก่ การพัฒนาความรู้และทักษะผ่านการฝึกอบรมและส่งเสริมการจัดการความเครียดอย่างต่อเนื่อง การสร้างสภาพแวดล้อมการทำงานที่ยืดหยุ่น เปิดโอกาสให้พนักงานทำงานจากที่บ้านหรือปรับเวลาได้ตามความเหมาะสม การส่งเสริมความสัมพันธ์ในที่ทำงานผ่านกิจกรรมและการประชุมเพื่อสร้างความร่วมมือ รวมถึงการเปิดรับความคิดเห็นของพนักงานเพื่อนำไปสู่การปรับปรุงสภาพแวดล้อมการทำงาน นอกจากนี้ การประยุกต์ใช้เทคโนโลยี เช่น แอปพลิเคชันติดตามสุขภาพกายและจิตใจ ยังเป็นเครื่องมือที่มีประสิทธิภาพในการส่งเสริมสุขภาวะของพนักงานในยุคดิจิทัล ซึ่งแนวทางทั้งหมดนี้สะท้อนให้เห็นถึงคุณค่าทางวิชาการของการนำแนวคิดด้านจิตวิทยา องค์การ และการพัฒนาทรัพยากรมนุษย์มาใช้ในการจัดการปัญหาอย่างเป็นระบบและยั่งยืน

เอกสารอ้างอิง

กระทรวงสาธารณสุข. (2563). แนวทางการบริโภคอาหารเพื่อสุขภาพที่ครบถ้วน. สืบค้นเมื่อ 10 พฤษภาคม 2568 จาก https://www.moph.go.th

กาญจนา สุดธนกิจ. (2566). ปัจจัยที่มีความสัมพันธ์กับภาวะหมดไฟในการทำงานของครูระดับมัธยมศึกษาในภาคใต้ของประเทศไทย. วารสารวิชาการครุศาสตร์, 41(2), 45–60.

ซากุระ พุทธหล่อง. (2566). วิธีเสริมสร้างความมุ่งมั่นในการทำงาน: การจัดการสิ่งแวดล้อมและการตั้งเป้าหมาย. วารสารจิตวิทยาองค์กร, 9(2), 45–52.

ธนกฤต จันทร์สุวรรณ. (2566). ความเครียดสะสมและภาวะหมดไฟในกลุ่มพนักงาน Tech Startup หลังสถานการณ์โควิด-19. วารสารจิตวิทยาไทย, 30(1), 55–70.

พีร ธรรมพีร. (2567). การนอนหลับและการฟื้นตัวจากความอ่อนล้า. วารสารจิตวิทยาคลินิก, 12(1), 59–65.

ชวภณ กิจหิรัญกุล และ อรกมล อินกองงาม. (2566). SMART Goal Setting: การตั้งเป้าหมายเพื่อเสริมสร้างพฤติกรรมสุขภาพ. สืบค้นเมื่อ 12 พฤษภาคม 2568, จาก https://www.sanook .com

ปาลีรัตน์ รังรักษ์รัตนากร, ชัชวาล เกียรติวุฒิ และ ณัฐวดี พฤกษากร. (2566). ความชุกของภาวะหมดไฟในการทำงานของบุคลากรห้องปฏิบัติการเทคนิคการแพทย์. วารสารเทคนิคการแพทย์, 35(1), 12-23.

พิมพ์ชนก ศิริพรหม. (2565). ภาวะหมดไฟในการทำงานของพยาบาลในโรงพยาบาลเอกชน: ความสัมพันธ์กับการทำงานล่วงเวลาและความสมดุลระหว่างชีวิตกับการทำงาน. วารสารพยาบาลศาสตร์, 40(3), 78–91.

วัลลภ วิชาญเจริญสุข , & สุนทร ศุภพงษ์. (ม.ป.ป.). การปรับปรุงแบบประเมินภาวะหมดไฟในการทำงาน Maslach Burnout Inventory-General Survey. วารสารวิจัยด้านจิตวิทยา, 12(3), 45–58.

วิชชากร ตรีสุคนธ์. (2021). การเสริมสร้างพลังกายและพลังใจเพื่อป้องกันภาวะหมดไฟในการทำงาน. วารสารการพัฒนาทรัพยากรมนุษย์, 25(2), 45–59.

วรัญญา วชิโรดม. (2562). การศึกษาภาวะหมดไฟในการทำงานของบุคลากรในองค์กรสาธารณสุข. วารสารสุขภาพจิตแห่งประเทศไทย, 27(2), 142–150.

ลัญฉน์ศักดิ์ อรรฆยากร. (2566ก). กลยุทธ์เพิ่มพูนพลังกายและพลังใจ: การสร้างความสมดุลในการทำงาน. วารสารการบริหารทรัพยากรมนุษย์, 20(3), 88–102.

ลัญฉน์ศักดิ์ อรรฆยากร (2566ข). สาเหตุของภาวะหมดไฟในการทำงาน: การศึกษาภาคสนามในองค์กรต่าง ๆ. วารสารจิตวิทยาไทย, 33(2), 55–67.

โรงพยาบาลมนารมย์. (2021). การออกกำลังกายและการป้องกันภาวะหมดไฟในการทำงาน. สืบค้นเมื่อ 12 พฤษภาคม 2568 จาก https://www.mnaromhospital.com

American Psychological Association. (2019). Managing stress through mindfulness and deep breathing techniques. Retrieved from https://www.apa.org

American Psychological Association. (2021). Stress in America 2021: Stress and the pandemic. Retrieved from https://www.apa.org/news/stress/2021/report

American Psychological Association. (2023). Work in America survey: 2023 results. Retrieved from https://www.apa.org/news/press/releases/stress/2023/work-in-america

Smith, J. (2020). Mindfulness and its effect on anxiety reduction. American Journal of Psychiatry, 177(4), 310–315.

Freudenberger, H. J. (1980). Burn-out: The high cost of high achievement. New York: Anchor Press/Doubleday.

Future Forum. (n.d.). Future Forum Pulse. Retrieved from https://futureforum.com/pulse

Gallup. (2021). The power of workplace culture: How fostering trust can improve employee well-being. Gallup Business Journal, 13(1), 50–57.

Gallup. (2022). The impact of a positive mindset on career success. Retrieved from https://www.gallup.com

Harvard Business Review. (2021). The power of goal-setting: How setting clear goals increases success. Retrieved from https://hbr.org

Harvard Business Review. (2023a). Addressing mental health challenges at work: Key strategies for organizations. Harvard Business Review, 101(1), 24–32.

Harvard Business Review. (2023b). How hybrid and remote work is changing employee engagement. Retrieved from https://hbr.org

IMPGROUP.NET. (2023). การเริ่มวันใหม่ด้วยการออกกำลังกายและการทำสมาธิ. สืบค้นเมื่อ 12 พฤษภาคม 2568 จาก https://www.impgroup.net

Komori, T. (2025). Kin restaurant's approach to preventing burnout and promoting employee well-being. Restaurant Business Journal, 35(4), 12–18.

Krier, J. (2021). Building courage to embrace change: Six strategies for personal growth. Journal of Leadership and Development, 15(4), 102–110.

L.L. Bean. (2020). The benefits of workplace wellness programs: A case study of L.L. Bean. Corporate Wellness Journal, 10(2), 34–40.

Maslach, C., Jackson, S. E., & Leiter, M. P. (1981). Maslach Burnout Inventory [MBI]. Consulting Psychologists Press.

Maslach, C., & Leiter, M. P. (2022). The truth about burnout: How organizations can prevent burnout and enhance productivity. Harvard Business Review, 100(3), 68–76.

McKinsey & Company. (2024). Employee engagement and burnout: Strategies for sustainable well-being in the workplace. McKinsey Quarterly, 45(2), 73–82. https://www.mckinsey.com

McKinsey Health Institute. (2022). Addressing burnout: A critical resource strategy. Retrieved from https://www.mckinsey.com/mhi

McKinsey Health Institute. (2023). The impact of hybrid and remote work on employee engagement and burnout. Retrieved from https://www.mckinsey.com/mhi

McKinsey Health Institute. (2024). Addressing employee burnout: Are you solving the right problem? Retrieved from https://www.mckinsey.com

MedPark Hospital. (2023a). การสร้างพลังกายและพลังใจในที่ทำงาน. Retrieved from https://www.medparkhospital.com

MedPark Hospital. (2023b). ความสัมพันธ์ในที่ทำงานและผลกระทบต่อความเครียดและความสุข. Retrieved from https://www.medparkhospital.com

Miller, J. A., Smith, A., & Rothstein, H. R. (1993). The burnout phenomenon: A study of burnout across five phases of an employee's life cycle. Journal of Organizational Behavior, 14(6), 483–495. https://doi.org/10.1002/job.4030140604

National Sleep Foundation. (2023). The importance of sleep for stress reduction and decision-making. Retrieved from https://www.sleepfoundation.org

Potter, R. L. (1997). Burnout and motivation in the workplace: A review of the literature. Journal of Occupational Health Psychology, 2(4), 431–445.

Psychology Today. (2020). Exercise and stress: How regular exercise reduces stress and improves mental health. Retrieved from https://www.psychologytoday.com

Roche, F. (2019). The importance of rest and recovery in physical performance. Journal of Sports Medicine, 45(3), 214–221. https://doi.org/10.1016/j.jsm.2019.01.003

Royal Thai Air Force Medical Gazette. (2020). Burnout syndrome and its impact on mental health: A review. Royal Thai Air Force Medical Gazette, 72(3), 85–92.

The Coach. (2023). การควบคุมอารมณ์ในการทำงาน: ทักษะสำคัญในการสร้างความสัมพันธ์ที่ดี. สืบค้นเมื่อ12 พฤษภาคม 2568 จาก https://www.thecoach.com

The Standard. (2023). การสร้างสมดุลระหว่างการทำงานและการพักผ่อน: สู่การป้องกันภาวะหมดไฟ. สืบค้นเมื่อ 12 พฤษภาคม 2568 จาก https://www.thestandard.com.

World Health Organization. (2022). Burn-out an "occupational phenomenon": International Classification of Diseases. Retrieved from https://www.who.int/mental_health/evidence/burn-out/en/

นวัตกรรมการสื่อสารเพื่อการเปลี่ยนแปลง: การสร้างชุมชนที่ยั่งยืนในยุคดิจิทัล
Communication Innovation for Change: Building Sustainable Communities in the Digital Age

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บทคัดย่อ

บทความนี้เป็นบทความวิชาการมีวัตถุประสงค์เพื่อศึกษาบทบาทของนวัตกรรมการสื่อสารในการขับเคลื่อนการพัฒนาชุมชนและสร้างความยั่งยืนทางสังคมในยุคดิจิทัล โดยมีระเบียบวิธีการวิจัยเป็นแบบการวิจัยทบทวนวรรณกรรม (Literature Review) ศึกษาจากเอกสาร หนังสือ ตำรา และงานวิจัยต่าง ๆ ที่เกี่ยวข้อง โดยวิเคราะห์แนวคิดเกี่ยวกับนวัตกรรม การสื่อสาร และชุมชน ตลอดจนการประยุกต์ใช้เทคโนโลยีการสื่อสารสมัยใหม่เพื่อพัฒนาชุมชนในมิติต่าง ๆ นวัตกรรมการสื่อสารช่วยเพิ่มประสิทธิภาพในการเชื่อมโยงผู้คน ข้อมูล และบริการต่าง ๆ เข้าด้วยกันอย่างเป็นระบบและทั่วถึงช่วยลดความเหลื่อมล้ำทางสังคม สร้างเครือข่ายความร่วมมือระหว่างภาครัฐ เอกชน และประชาชน และส่งเสริมเศรษฐกิจชุมชนผ่านแพลตฟอร์มดิจิทัล ตัวอย่างเช่น การใช้แอปพลิเคชันเตือนภัยแผ่นดินไหว การเรียนรู้ออนไลน์ และการเข้าถึงบริการสุขภาพทางไกล บทความนี้เสนอว่าการบูรณาการนวัตกรรมการสื่อสารเข้ากับการพัฒนาชุมชนสามารถสร้างความยั่งยืนและความเข้มแข็งให้กับชุมชนในทุกมิติ

คำสำคัญ : นวัตกรรมการสื่อสาร, การสื่อสาร, ชุมชน, การพัฒนาชุมชน

Abstract

This academic article aims to study the role of communication innovation in driving community development and fostering social sustainability in the digital era. The research methodology employed is a literature review, involving the study of documents, books, textbooks, and related research papers. The study analyzes concepts of innovation,

communication, and community, as well as the application of modern communication technologies to enhance various aspects of community development. Communication innovation improves the efficiency of connecting people, information, and services systematically and comprehensively, reduces social inequality, builds networks of collaboration among the public, private, and civil sectors, and promotes local economies through digital platforms. Examples include the use of earthquake warning applications, online learning, and telehealth services. This article proposes that integrating communication innovation into community development can foster sustainability and strengthen communities across multiple dimensions.

Keywords : Communication Innovation, Communication, Community, Community Development

บทนำ

ในยุคดิจิทัลที่เทคโนโลยีมีการพัฒนาอย่างรวดเร็ว การสื่อสารไม่ได้เป็นเพียงเครื่องมือในการถ่ายทอดข้อมูล แต่ยังเป็นกลไกสำคัญที่ช่วยสร้างความเข้าใจและความร่วมมือในสังคม นวัตกรรมการสื่อสารจึงมีบทบาทสำคัญในการขับเคลื่อนการพัฒนาชุมชนและเสริมสร้างความยั่งยืน ด้วยการนำเทคโนโลยีและแนวคิดใหม่ ๆ มาใช้เพื่อเชื่อมโยงข้อมูล ผู้คน และบริการต่าง ๆ อย่างมีประสิทธิภาพ

ปัจจุบัน การสื่อสารเป็นมากกว่าการแลกเปลี่ยนข้อมูลระหว่างบุคคลหรือองค์กร แต่เป็นเครื่องมือสำคัญในการแก้ปัญหาสังคมและสร้างโอกาสใหม่ ๆ ให้กับชุมชน โดยเฉพาะเมื่อมีการนำเทคโนโลยีดิจิทัลควบคู่กับการสื่อสาร เช่น ระบบการสื่อสารผ่านแพลตฟอร์มออนไลน์ แอปพลิเคชันที่ช่วยส่งเสริมเศรษฐกิจชุมชน และเทคโนโลยีที่ช่วยลดความเหลื่อมล้ำทางการศึกษาและสาธารณสุข ทั้งหมดนี้ช่วยให้ชุมชนสามารถพึ่งพาตนเองได้มากขึ้น และลดข้อจำกัดทางภูมิศาสตร์ที่เคยเป็นอุปสรรคต่อการพัฒนา ดังนั้นนวัตกรรมการสื่อสารเป็นปัจจัยสำคัญที่ช่วยผลักดันให้ชุมชนก้าวไปสู่ความยั่งยืนในทุกมิติ ไม่ว่าจะเป็นด้านสังคม เศรษฐกิจ หรือวัฒนธรรม ด้วยการพัฒนาเครื่องมือสื่อสารที่เข้าถึงง่าย มีประสิทธิภาพ และสามารถตอบโจทย์ความต้องการของชุมชนได้ การผสานเทคโนโลยีและแนวคิดนวัตกรรมเข้ากับกระบวนการสื่อสาร จะช่วยให้เกิดการพัฒนาอย่างต่อเนื่อง ลดความเหลื่อมล้ำ และสร้างโอกาสที่เท่าเทียมให้กับทุกคนในสังคม บทความนี้จะศึกษาความสำคัญของนวัตกรรมการสื่อสาร และบทบาทของการสื่อสารในการพัฒนาชุมชนให้แข็งแกร่งและยั่งยืน

1. แนวคิดเกี่ยวกับนวัตกรรม

1.1 ความหมายของนวัตกรรม

นวัตกรรม (Innovation) หมายถึง กระบวนการสร้างสิ่งใหม่หรือปรับปรุงสิ่งที่มีอยู่เดิมเพื่อพัฒนาคุณภาพชีวิตของมนุษย์ให้ดีขึ้น นวัตกรรมไม่เพียงแต่เกี่ยวข้องกับเทคโนโลยีหรือสิ่งประดิษฐ์ใหม่ ๆ เท่านั้น แต่ยังครอบคลุมถึงการปรับปรุงวิธีการทำงาน การบริการ และการแก้ไขปัญหาต่าง ๆ ในสังคม (วิศิษฏ์ เกตรัตนกุล, ณัฐฐ์วัฒน์ สุทธิโยธิน และกานต์ บุญศิริ, 2563) เกิดจากการนำความคิดริเริ่มหรือสิ่งประดิษฐ์มาประยุกต์ใช้ในชีวิตประจำวันหรือวิธีการทำงาน ซึ่งอาจเกิดจากการปรับปรุง แก้ไข หรือพัฒนาขึ้นมาใหม่เพื่อตอบสนองต่อความต้องการและสภาพแวดล้อมที่เปลี่ยนแปลงไป และมีขอบเขตที่กว้างขวางและครอบคลุมหลายด้าน ทั้งด้านเทคโนโลยี วิทยาศาสตร์ การศึกษา สังคม วัฒนธรรม และสิ่งแวดล้อม โดยไม่จำเป็นต้องสร้างจากศูนย์ทั้งหมด แต่เป็นการพัฒนาให้มีคุณค่าและตอบสนองความต้องการได้อย่างมี

ประสิทธิภาพ (ศิวะนันท์ ศิวพิทักษ์, 2566) กล่าวว่า นวัตกรรมไม่เพียงแต่ส่งผลดีต่อหน่วยงานหรือองค์กรเท่านั้น แต่ยังส่งผลต่อสังคมและประเทศชาติโดยรวม มีเป้าหมายเพื่อเพิ่มประสิทธิภาพในการทำงานหรือบริการและสร้างความยั่งยืนทางเศรษฐกิจในระยะยาว

สิ่งสำคัญที่ต้องเข้าใจคือความแตกต่างระหว่างการประดิษฐ์คิดค้น ความคิดริเริ่ม และนวัตกรรม ณัฐวุฒิ เอี่ยมเนตร, สุวลังก์ วงศ์สุรวัฒน์, พระครูปลัดประวิทย์ ทรัพย์อุไรรัตน์, นภัทร์ แก้วนาค และจิดาภา เร่งมีศรีสุข. (2566) อธิบายไว้ว่า การประดิษฐ์คิดค้น คือ กระบวนการที่สร้างสิ่งใหม่จากสิ่งที่มีอยู่หรือจากแหล่งภายนอก ขณะที่ความคิดริเริ่มเป็นการคิดค้นแนวคิดใหม่ที่ไม่เคยมีมาก่อน และนวัตกรรมเกิดขึ้นเมื่อนำความคิดริเริ่มหรือสิ่งประดิษฐ์มาประยุกต์ใช้ในชีวิตประจำวันหรือวิธีการทำงาน ซึ่งกระบวนการนี้มักต้องอาศัยการบูรณาการองค์ความรู้จากหลากหลายศาสตร์เข้าด้วยกัน โดยในสังคมปัจจุบันที่มีการเปลี่ยนแปลงอย่างรวดเร็ว นวัตกรรมได้แสดงบทบาทสำคัญในการขับเคลื่อนการพัฒนาในทุกภาคส่วน สุมาลี วิจิตรศิลป์ (2562) เน้นย้ำว่านวัตกรรมสามารถเกิดขึ้นได้ในทุกมิติของสังคม รวมถึงนวัตกรรมทางสังคมที่มุ่งแก้ไขปัญหาสังคมและยกระดับคุณภาพชีวิตของคนในชุมชน นวัตกรรมด้านการศึกษาที่ปรับปรุงวิธีการเรียนการสอน และนวัตกรรมด้านสิ่งแวดล้อมที่ช่วยลดผลกระทบต่อสิ่งแวดล้อม ซึ่งล้วนมีส่วนสำคัญในการสร้างความเปลี่ยนแปลงเชิงบวกให้กับสังคม

กระบวนการสร้างนวัตกรรมมักเริ่มต้นจากการระบุปัญหาหรือความต้องการ ตามด้วยการสร้างสรรค์ความคิดและพัฒนาต้นแบบ การทดสอบและปรับปรุง จนถึงการนำไปใช้จริงและขยายผล (วิศิษฎ์ เกตรัตนกุล, ณัฐฐ์วัฒน์ สุทธิโยธิน และกานต์ บุญศิริ, 2563) ซึ่งในแต่ละขั้นตอนจำเป็นต้องอาศัยการคิดเชิงวิพากษ์ ความคิดสร้างสรรค์ และความกล้าที่จะล้มเหลวและเรียนรู้จากความผิดพลาด การสร้างวัฒนธรรมที่เปิดกว้างต่อการทดลองและการเรียนรู้ จึงเป็นปัจจัยสำคัญที่จะช่วยส่งเสริมให้เกิดนวัตกรรมอย่างต่อเนื่อง

โดยสรุป นวัตกรรมไม่ใช่เพียงผลลัพธ์ที่เป็นรูปธรรม แต่เป็นกระบวนการและแนวคิดที่ขับเคลื่อนการพัฒนาอย่างไม่หยุดนิ่ง มุ่งสู่การสร้างความเปลี่ยนแปลงเชิงบวกและการยกระดับคุณภาพชีวิตของมนุษย์ในทุกมิติ ซึ่งจะนำไปสู่การพัฒนาที่ยั่งยืนและสมดุลในระยะยาว

1.2 ความแตกต่างระหว่างการประดิษฐ์คิดค้น ความคิดริเริ่ม และนวัตกรรม

การประดิษฐ์คิดค้น (Invention) ความคิดริเริ่ม (Creativity) และนวัตกรรม (Innovation) เป็นแนวคิดที่เกี่ยวข้องกัน แต่มีความแตกต่างกันในด้านกระบวนการและผลลัพธ์ การเข้าใจความแตกต่างระหว่างแนวคิดเหล่านี้ มีความสำคัญในการนำไปประยุกต์ใช้เพื่อสร้างการเปลี่ยนแปลงและพัฒนาสังคมอย่างมีประสิทธิภาพ (ณัฐวุฒิ เอี่ยมเนตร, สุวลังก์ วงศ์สุรวัฒน์, พระครูปลัดประวิทย์ ทรัพย์อุไรรัตน์, นภัทร์ แก้วนาค และจิดาภา เร่งมีศรีสุข. 2566) นวัตกรรมจึงไม่ใช่เพียงผลลัพธ์ที่เป็นรูปธรรม แต่เป็นกระบวนการที่ต้องอาศัยการบูรณาการองค์ความรู้จากหลากหลายศาสตร์

การประดิษฐ์คิดค้น หมายถึง กระบวนการสร้างสิ่งใหม่จากสิ่งที่มีอยู่หรือจากแหล่งภายนอก โดยอาจเป็นการคิดค้นเครื่องมือ เทคโนโลยี หรือวิธีการใหม่ ๆ ที่ไม่เคยมีมาก่อน การประดิษฐ์คิดค้นมักเกิดขึ้นจากการวิจัยและพัฒนาที่มุ่งเน้นการสร้างสิ่งใหม่จากพื้นฐานทางวิทยาศาสตร์หรือเทคโนโลยี ตัวอย่างเช่น การประดิษฐ์หลอดไฟโดยโทมัส เอดิสัน หรือการคิดค้นเครื่องบินโดยพี่น้องตระกูลไรต์ การประดิษฐ์คิดค้นมักเป็นจุดเริ่มต้นของกระบวนการสร้างนวัตกรรม แต่การประดิษฐ์คิดค้นเพียงอย่างเดียวอาจไม่นำไปสู่การใช้งานจริงในชีวิตประจำวันหากไม่มีการประยุกต์ใช้อย่างเหมาะสม

ความคิดริเริ่ม หมายถึง การคิดค้นแนวคิดใหม่ที่ไม่เคยมีมาก่อน หรือการมองปัญหาจากมุมมองที่แตกต่างและสร้างสรรค์ ความคิดริเริ่มเป็นกระบวนการทางความคิดที่เน้นการสร้างสรรค์สิ่งใหม่หรือวิธีการใหม่ในการแก้ปัญหา โดยอาจไม่จำเป็นต้องนำไปสู่การสร้างสิ่งประดิษฐ์หรือนวัตกรรมเสมอไป ตัวอย่างเช่น การคิดค้นวิธีการสอนใหม่ที่ช่วยให้นักเรียนเข้าใจบทเรียนได้ดีขึ้น หรือการออกแบบแคมเปญโฆษณาที่สร้างสรรค์เพื่อดึงดูดความสนใจของลูกค้า ความคิดริเริ่มเป็นพื้นฐานสำคัญของการประดิษฐ์คิดค้นและนวัตกรรม เนื่องจากเป็นจุดเริ่มต้นของกระบวนการสร้างสิ่งใหม่

โดยสรุป การประดิษฐ์คิดค้น คือ การสร้างสิ่งใหม่จากสิ่งที่มีอยู่หรือจากแหล่งภายนอก ความคิดริเริ่ม คือ การคิดค้นแนวคิดใหม่ที่ไม่เคยมีมาก่อน และนวัตกรรม คือ การนำความคิดริเริ่มหรือสิ่งประดิษฐ์มาประยุกต์ใช้ในชีวิตประจำวันหรือวิธีการทำงาน เพื่อสร้างคุณค่าและตอบสนองความต้องการของสังคม การเข้าใจความแตกต่างระหว่างแนวคิดเหล่านี้ ช่วยให้สามารถนำไปประยุกต์ใช้ได้อย่างมีประสิทธิภาพในการสร้างการเปลี่ยนแปลงและพัฒนาสังคมในทุกมิติ

1.3 บทบาทของนวัตกรรมในการพัฒนาสังคม

นวัตกรรมมีบทบาทสำคัญในการขับเคลื่อนการพัฒนาในทุกภาคส่วนของสังคม โดยเฉพาะในยุคที่เทคโนโลยีมีการเปลี่ยนแปลงอย่างรวดเร็ว นวัตกรรมช่วยแก้ไขปัญหาสังคม ยกระดับคุณภาพชีวิตของคนในชุมชน และสร้างความเปลี่ยนแปลงเชิงบวกในด้านต่าง ๆ เช่น การศึกษา สุขภาพ และสิ่งแวดล้อม (สุมาลี วิจิตรศิลป์, 2562) นอกจากนี้เป็นเครื่องมือสำคัญที่ช่วยแก้ไขปัญหาต่าง ๆ และยกระดับคุณภาพชีวิตของคนในสังคม และเป็นหนึ่งในบทบาทหลักของนวัตกรรม คือ การแก้ไขปัญหาสังคม นวัตกรรมทางสังคม (Social Innovation) เป็นกระบวนการที่มุ่งแก้ไขปัญหาสังคมและยกระดับคุณภาพชีวิตของคนในชุมชน ตัวอย่างเช่น การพัฒนาระบบการจัดการขยะที่ช่วยลดมลพิษและส่งเสริมการรีไซเคิล หรือการสร้างแพลตฟอร์มดิจิทัลที่ช่วยให้ประชาชนในพื้นที่ห่างไกล สามารถเข้าถึงบริการสุขภาพและการศึกษาได้ง่ายขึ้น นวัตกรรมเหล่านี้ไม่เพียงแต่ช่วยแก้ไขปัญหาที่มีอยู่ แต่ยังสร้างความเปลี่ยนแปลงเชิงบวกให้กับสังคมในระยะยาว (สุมาลี วิจิตรศิลป์, 2562) ประกอบกับมีบทบาทสำคัญในการพัฒนาด้านการศึกษา นวัตกรรมด้านการศึกษา (Educational Innovation) ช่วยปรับปรุงวิธีการเรียนการสอนให้มีประสิทธิภาพมากขึ้น ตัวอย่างเช่น การใช้เทคโนโลยีดิจิทัลในการสร้างแพลตฟอร์มการเรียนรู้ออนไลน์ที่ช่วยให้ผู้เรียนสามารถเข้าถึงความรู้ได้ทุกที่ทุกเวลา หรือการพัฒนาหลักสูตรการสอนที่สอดคล้องกับความต้องการของตลาดแรงงานในยุคดิจิทัล นวัตกรรมเหล่านี้ช่วยลดช่องว่างทางการศึกษาและส่งเสริมการเรียนรู้ตลอดชีวิต (Lifelong Learning) ซึ่งเป็นปัจจัยสำคัญในการพัฒนาทรัพยากรมนุษย์และสร้างสังคมแห่งความรู้

ด้านสุขภาพ นวัตกรรมทางการแพทย์และสุขภาพ (Health Innovation) ช่วยยกระดับคุณภาพชีวิตของประชาชน ตัวอย่างเช่น การพัฒนาเทคโนโลยีการตรวจวินิจฉัยโรคที่แม่นยำและรวดเร็วขึ้น การใช้แอปพลิเคชันเพื่อติดตามสุขภาพและให้คำแนะนำทางการแพทย์แบบเรียลไทม์ หรือการวิจัยและพัฒนายาใหม่ ๆ ที่ช่วยรักษาโรคที่เคยรักษาได้ยาก นวัตกรรมเหล่านี้ไม่เพียงแต่ช่วยลดความเจ็บป่วยแต่ยังช่วยลดภาระค่าใช้จ่ายด้านสุขภาพของรัฐบาลและประชาชน มีบทบาทสำคัญในการพัฒนาด้านสิ่งแวดล้อม นวัตกรรมด้านสิ่งแวดล้อม (Environmental Innovation) ช่วยลดผลกระทบต่อสิ่งแวดล้อมและส่งเสริมการพัฒนาที่ยั่งยืน ตัวอย่างเช่น การพัฒนาเทคโนโลยีพลังงานสะอาดที่ช่วยลดการปล่อยก๊าซเรือนกระจก การสร้างระบบการจัดการน้ำที่ช่วยลดการสูญเสียน้ำและเพิ่มประสิทธิภาพในการใช้น้ำ หรือการพัฒนาวัสดุที่ย่อยสลายได้ทางชีวภาพเพื่อลดขยะพลาสติก นวัตกรรมเหล่านี้ช่วยสร้างสมดุลระหว่างการพัฒนาทางเศรษฐกิจและการรักษาสิ่งแวดล้อม ซึ่งเป็นปัจจัยสำคัญในการสร้างสังคมที่ยั่งยืน

นอกจากนี้ นวัตกรรมยังมีบทบาทในการส่งเสริมเศรษฐกิจและสร้างงานใหม่ ๆ การพัฒนานวัตกรรมในภาคธุรกิจและอุตสาหกรรมช่วยเพิ่มประสิทธิภาพในการผลิตและบริการ สร้างผลิตภัณฑ์และบริการใหม่ที่ตอบสนองความต้องการของผู้บริโภค และเปิดโอกาสให้เกิดธุรกิจสตาร์ทอัพและวิสาหกิจขนาดเล็กที่สามารถแข่งขันในตลาดโลกได้ ตัวอย่างเช่น การพัฒนาแพลตฟอร์มอีคอมเมิร์ซที่ช่วยให้ผู้ประกอบการรายย่อยสามารถเข้าถึงตลาดที่กว้างขึ้น หรือการสร้างระบบการเงินดิจิทัลที่ช่วยให้ประชาชนสามารถเข้าถึงบริการทางการเงินได้ง่ายขึ้น ซึ่งเห็นได้ว่านวัตกรรมมีบทบาทสำคัญในการพัฒนาสังคมในทุกมิติ โดยช่วยแก้ไขปัญหาสังคม ยกระดับคุณภาพชีวิต ส่งเสริมการเรียนรู้และสุขภาพลดผลกระทบต่อสิ่งแวดล้อม และสร้างเศรษฐกิจที่เข้มแข็ง การส่งเสริมและสนับสนุนการสร้างนวัตกรรม จึงเป็นปัจจัยสำคัญในการขับเคลื่อนการพัฒนาสังคมให้ก้าวหน้าอย่างยั่งยืนและสมดุล

โดยสรุป นวัตกรรมไม่เพียงแต่เป็นเครื่องมือในการสร้างสิ่งใหม่ แต่ยังเป็นกระบวนการที่ช่วยขับเคลื่อนการพัฒนาสังคมและเศรษฐกิจในระยะยาว การเข้าใจความหมายและบทบาทของนวัตกรรมจึงมีความสำคัญอย่างยิ่งในการนำไปประยุกต์ใช้เพื่อสร้างการเปลี่ยนแปลงเชิงบวกและยกระดับคุณภาพชีวิตของมนุษย์ในทุกมิติ

2. แนวคิดเกี่ยวกับการสื่อสาร

2.1 ความหมายและกระบวนการสื่อสาร

การสื่อสาร (Communication) หมายถึง กระบวนการถ่ายทอดข่าวสาร ความรู้ ความรู้สึก ความคิดเห็น และประสบการณ์จากผู้ส่งสารไปยังผู้รับสารผ่านสื่อต่าง ๆ โดยมีวัตถุประสงค์เพื่อให้เกิดการรับรู้ร่วมกันและมีการแสดงปฏิกิริยาตอบกลับ (วาสิกา อังกูร, 2560) เป็นกระบวนการที่ไม่มีจุดเริ่มต้นและจุดสิ้นสุดที่ชัดเจน แต่เป็นกระบวนการที่ต่อเนื่องและมีลักษณะเป็นวงกลม โดยผู้สื่อสารทำหน้าที่ทั้งเป็นผู้ส่งสารและผู้รับสารในเวลาเดียวกัน

กระบวนการสื่อสารประกอบด้วยองค์ประกอบหลัก ได้แก่ ผู้ส่งสาร (Sender) ผู้รับสาร (Receiver) ข้อมูลข่าวสาร (Message) ช่องทางการสื่อสาร (Channel) และการตอบกลับ (Feedback) ผู้ส่งสารเป็นผู้เริ่มต้นกระบวนการสื่อสารโดยการเข้ารหัส (Encode) ข้อมูลข่าวสารให้อยู่ในรูปแบบที่ผู้รับสารสามารถเข้าใจได้ จากนั้นข้อมูลข่าวสารจะถูกส่งผ่านช่องทางการสื่อสาร เช่น คำพูด ข้อความ หรือสื่อดิจิทัล ไปยังผู้รับสาร ผู้รับสารจะทำการถอดรหัส (Decode) ข้อมูลข่าวสารและแสดงปฏิกิริยาตอบกลับ ซึ่งอาจเป็นการตอบสนองทางวาจา การแสดงท่าทาง หรือการกระทำต่าง ๆ โดยกระบวนการสื่อสารที่มีประสิทธิภาพต้องอาศัยความเข้าใจและความสอดคล้องระหว่างผู้ส่งสารและผู้รับสาร รวมถึงการเลือกช่องทางการสื่อสารที่เหมาะสมกับบริบทและวัตถุประสงค์ของการสื่อสาร การสื่อสารที่ประสบความสำเร็จจะช่วยสร้างความเข้าใจและความร่วมมือระหว่างบุคคลและกลุ่มคนในสังคม

2.2 บทบาทของการสื่อสารในสังคม

การสื่อสารมีบทบาทสำคัญในสังคมในหลายด้าน ตั้งแต่การสร้างความสัมพันธ์ระหว่างบุคคลไปจนถึงการขับเคลื่อนการพัฒนาสังคมและเศรษฐกิจ **ประการแรก** เป็นเครื่องมือสำคัญที่ช่วยสร้างความสัมพันธ์ระหว่างบุคคลและส่งเสริมความเข้าใจในสังคม ผ่านการแลกเปลี่ยนข้อมูล ความคิดเห็น และประสบการณ์ การสื่อสารช่วยให้ผู้คนสามารถติดต่อและทำความเข้าใจกันได้ ซึ่งเป็นพื้นฐานสำคัญของการอยู่ร่วมกันในสังคม **ประการที่สอง** มีบทบาทในการสืบทอดวัฒนธรรม ประเพณี และภูมิปัญญาท้องถิ่น ผ่านการถ่ายทอดความรู้และประสบการณ์จากรุ่นหนึ่งไปยังอีกรุ่นหนึ่ง การสื่อสารช่วยรักษาและส่งเสริมวัฒนธรรมท้องถิ่นให้คงอยู่และพัฒนาต่อไป ซึ่งสะท้อนถึงความเจริญรุ่งเรืองและวิถีชีวิตของผู้คนในอดีตและปัจจุบัน (วาสิกา

อังกูร, 2560) และ**ประการที่สาม** มีบทบาทสำคัญในการขับเคลื่อนการพัฒนาและแก้ไขปัญหาต่าง ๆ ในสังคม ผ่านการแลกเปลี่ยนข้อมูลและสร้างความร่วมมือระหว่างบุคคล หน่วยงาน และองค์กรต่าง ๆ การสื่อสารช่วยให้การดำเนินกิจกรรมต่าง ๆ เป็นไปตามข้อตกลงที่ตั้งไว้ เพื่อบรรลุเป้าหมายที่มีผลประโยชน์ร่วมกัน ซึ่งส่งผลต่อความสำเร็จและการพัฒนาในทุกมิติ ทั้งทางเศรษฐกิจและสังคม (กิจอุดม เสือเจริญ, กานต์บุญศิริ และวิทยาธร ท่อแก้ว, 2566)

2.3 ทฤษฎีการสื่อสาร SMCR

ทฤษฎีการสื่อสาร SMCR ของ David K. Berlo (1960 อ้างถึงใน จรรยาลักษณ์ สิริกุล นฤมิตร และ ภิรดา เมธารมณ์, 2561) เป็นทฤษฎีที่อธิบายกระบวนการสื่อสารอย่างเป็นระบบ โดยเน้นที่องค์ประกอบหลัก 4 ประการ ได้แก่ ผู้ส่งสาร (Source) ข้อมูลข่าวสาร (Message) ช่องทางการส่งสาร (Channel) และผู้รับสาร (Receiver) โดยการสื่อสารที่มีประสิทธิภาพต้องอาศัยความเข้าใจและความสอดคล้องระหว่างองค์ประกอบเหล่านี้ (จรรยาลักษณ์ สิริกุลนฤมิตร และ ภิญรดา เมธารมณ์, 2561)

1) ผู้ส่งสาร (Source): ผู้ส่งสารต้องมีทักษะและความชำนาญในการสื่อสาร รวมถึงความสามารถในการเข้ารหัสข้อมูลข่าวสารให้เหมาะสมกับผู้รับสาร ผู้ส่งสารต้องมีความรู้ที่ดีเกี่ยวกับข้อมูลข่าวสารที่จะส่ง และสามารถปรับระดับของข้อมูลให้เหมาะสมและเข้าใจง่ายตามระดับความรู้ของผู้รับสาร รวมทั้งคำนึงถึงพื้นฐานทางสังคมและวัฒนธรรมที่สอดคล้องกับผู้รับสาร (สุนทรียา กุลภิรมย์, 2561)

2) ข้อมูลข่าวสาร (Message): ข้อมูลข่าวสารประกอบด้วยเนื้อหา สัญลักษณ์ และวิธีการส่งข่าวสารไปยังผู้รับสาร ข้อมูลข่าวสารที่มีประสิทธิภาพควรมีความชัดเจน ถูกต้อง และเข้าใจง่าย เหมาะสมกับผู้รับสารและบริบทของการสื่อสาร

3) ช่องทางการส่งสาร (Channel): ช่องทางการส่งข่าวสาร หมายถึง วิธีการที่ใช้ในการส่งสาร โดยผู้รับจะได้รับข่าวสารผ่านประสาทสัมผัสทั้ง 5 หรือเพียงบางส่วน เช่น การได้ยิน การเห็น การสัมผัส การลิ้มรส หรือการได้กลิ่น การเลือกช่องทางที่เหมาะสมมีความสำคัญอย่างยิ่งต่อประสิทธิภาพของการสื่อสาร

4) ผู้รับสาร (Receiver): ผู้รับสารต้องมีทักษะในการสื่อสารและสามารถถอดรหัสสาร (Decode) ได้อย่างมีประสิทธิภาพ โดยผู้รับต้องมีเจตคติ ระดับความรู้ และพื้นฐานทางสังคมและวัฒนธรรมที่ใกล้เคียงกับผู้ส่งสาร เพื่อให้การสื่อความหมายและการสื่อสารนั้นได้ผลสำเร็จ ความสามารถในการรับและ แปลความหมายของสารจะส่งผลโดยตรงต่อประสิทธิภาพของการสื่อสาร (วรรณา ศรีแก้ว, 2565)

ทฤษฎี SMCR ช่วยให้เข้าใจกระบวนการสื่อสารอย่างลึกซึ้งและเป็นระบบ โดยเน้นที่ความสำคัญขององค์ประกอบต่าง ๆ ที่เกี่ยวข้องกับการสื่อสาร การเข้าใจทฤษฎีนี้ช่วยให้สามารถออกแบบกระบวนการสื่อสารได้อย่างมีประสิทธิภาพ เพื่อสร้างความเข้าใจและความร่วมมือระหว่างบุคคลและกลุ่มคนในสังคม

โดยสรุป การสื่อสารเป็นกระบวนการที่สำคัญในการสร้างความสัมพันธ์และความเข้าใจระหว่างบุคคลและสังคม ทฤษฎี SMCR ช่วยให้เข้าใจกระบวนการสื่อสารอย่างลึกซึ้งและเป็นระบบ โดยเน้นที่ความสำคัญขององค์ประกอบต่าง ๆ ที่เกี่ยวข้องกับการสื่อสาร การเข้าใจกระบวนการสื่อสารและบทบาทของมันในสังคม จึงเป็นพื้นฐานสำคัญในการพัฒนาความสัมพันธ์และสร้างความร่วมมือในทุกมิติของชีวิต

3. แนวคิดเกี่ยวกับชุมชน

3.1 ความหมายและประเภทของชุมชน

ชุมชน (Community) หมายถึง กลุ่มคนที่อาศัยอยู่ในพื้นที่เดียวกันและมีความผูกพันกันทั้งในด้านกิจกรรมและการพึ่งพาอาศัย ชุมชนเป็นโครงสร้างพื้นฐานทางสังคมที่สำคัญ ซึ่งสามารถแบ่งออกเป็นสองประเภทหลัก ได้แก่ ชุมชนเมือง และ ชุมชนชนบท

1) ชุมชนเมือง มักมีลักษณะเด่น คือ การมีประชากรจำนวนมากและมีความหนาแน่นสูง ประชากรส่วนใหญ่ประกอบอาชีพที่เกี่ยวข้องกับอุตสาหกรรม บริการ และเทคโนโลยี มีการเจริญเติบโตในลักษณะของการกระจุกตัว มีศูนย์กลางทางธุรกิจและการค้าขายที่ชัดเจน มีโครงสร้างพื้นฐานและสาธารณูปโภคที่ครบครัน และมีความหลากหลายทางวัฒนธรรมและชาติพันธุ์ ความสัมพันธ์ของผู้คนในชุมชนเมืองมักมีลักษณะที่เป็นทางการมีความเป็นปัจเจกสูง และมีปฏิสัมพันธ์ที่มุ่งเน้นผลประโยชน์มากกว่าความผูกพันส่วนตัว (จำนง อดิวัฒนสิทธิ์, 2543)

2) ชุมชนชนบท มีลักษณะที่แตกต่างจากชุมชนเมือง โดยมีประชากรที่น้อยกว่าและมีความหนาแน่นต่ำ ประชากรส่วนใหญ่ประกอบอาชีพเกษตรกรรมและมีความสัมพันธ์ใกล้ชิดกับธรรมชาติ ระบบเศรษฐกิจพึ่งพาการเกษตรและทรัพยากรธรรมชาติเป็นหลัก มีการตั้งถิ่นฐานเป็นหมู่บ้านที่กระจายตัวและมักตั้งอยู่ใกล้แหล่งน้ำหรือพื้นที่ที่เหมาะสมต่อการเพาะปลูก ความสัมพันธ์ของผู้คนในชุมชนชนบทมีลักษณะแน่นแฟ้นแบบเครือญาติมีการช่วยเหลือเกื้อกูลกันมีความเป็นอันหนึ่งอันเดียวกันสูง และยึดมั่นในการปฏิบัติตามประเพณีท้องถิ่นและความเชื่อร่วมกัน (จำนง อดิวัฒนสิทธิ์, 2543)

นอกจากนี้ ยังมีชุมชนออนไลน์หรือชุมชนเสมือน (Virtual Communities) ที่เกิดจากการรวมตัวกันของผู้คนที่มีความสนใจร่วมกันผ่านเครือข่ายอินเทอร์เน็ต ชุมชนประเภทนี้ไม่จำเป็นต้องอาศัยอยู่ในพื้นที่เดียวกัน แต่สามารถติดต่อสื่อสารและแลกเปลี่ยนข้อมูลผ่านแพลตฟอร์มออนไลน์ต่าง ๆ ซึ่งช่วยลดข้อจำกัดด้านระยะทางและเวลา

3.2 องค์ประกอบของชุมชน

ชุมชนประกอบด้วยองค์ประกอบหลัก 4 ประการ ได้แก่ มนุษย์ (Human Component) ความสนใจร่วมกัน (Interest) การปฏิสัมพันธ์ (Interaction) และพื้นที่ (Area) องค์ประกอบเหล่านี้มีความสัมพันธ์และส่งผลต่อกันอย่างซับซ้อน ซึ่งนำไปสู่ลักษณะเฉพาะและพลวัตของแต่ละชุมชน (ไพรินทร์ เดชะรินทร์, 2524 อ้างถึงใน อัจฉรา ชลายนนาวิน, 2562)

1) มนุษย์ (Human Component) เป็นองค์ประกอบที่มีบทบาทสำคัญที่สุดในชุมชน เนื่องจากเป็นผู้สร้างและขับเคลื่อนชุมชนผ่านการมีปฏิสัมพันธ์ การสื่อสาร และการทำกิจกรรมร่วมกัน โครงสร้างทางสังคม ระบบความสัมพันธ์ และบทบาทของสมาชิกในชุมชนมีผลต่อพลวัตและการเปลี่ยนแปลงของชุมชนในด้านต่าง ๆ นอกจากนี้ คุณลักษณะของประชากรในชุมชน เช่น อายุ เพศ การศึกษา อาชีพ รายได้ และความเชื่อ ก็มีผลต่อรูปแบบความสัมพันธ์และการพัฒนาของชุมชนเช่นกัน

2) ความสนใจร่วมกัน (Interest) เป็นตัวขับเคลื่อนสำคัญที่ทำให้ชุมชนดำรงอยู่และพัฒนาไปข้างหน้า ความสนใจนี้อาจเกิดจากความต้องการพื้นฐานในการดำรงชีวิต การแก้ไขปัญหาที่เผชิญร่วมกัน หรือการมุ่งสู่เป้าหมายและอุดมการณ์ที่ตรงกัน ซึ่งทำให้สมาชิกในชุมชนเกิดแรงจูงใจและพลังในการร่วมมือกันทำกิจกรรมต่าง ๆ หากสมาชิกในชุมชนขาดความสนใจร่วมกัน ชุมชนอาจประสบปัญหาในการรวมพลังและขับเคลื่อนกิจกรรมต่าง ๆ ให้บรรลุผลสำเร็จ

3) การปฏิสัมพันธ์ (Interaction) เป็นการสร้างเหตุการณ์หรือความเคลื่อนไหวต่าง ๆ ในชุมชน อันเป็นผลมาจากการติดต่อปะทะสังสรรค์กันระหว่างคนในชุมชน การปฏิสัมพันธ์นี้เกิดขึ้นในหลายรูปแบบ ทั้งการปฏิสัมพันธ์ระหว่างบุคคล ระหว่างกลุ่ม และระหว่างชุมชนกับสิ่งแวดล้อมหรือองค์กรภายนอก การปฏิสัมพันธ์ที่เกิดขึ้นอย่างสม่ำเสมอและมีคุณภาพจะช่วยสร้างความไว้วางใจ ความเข้าใจ และความร่วมมือระหว่างสมาชิกในชุมชน ซึ่งเป็นพื้นฐานสำคัญของความเข้มแข็งและการพัฒนาอย่างยั่งยืนของชุมชน

4) พื้นที่ (Area): พื้นที่เป็นองค์ประกอบสำคัญที่ชุมชนจะเกิดขึ้นไม่ได้หากปราศจากพื้นที่ในการปะทะสังสรรค์ พื้นที่นี้อาจเป็นได้ทั้งพื้นที่ทางกายภาพ (Physical Space) ที่สมาชิกของชุมชนใช้ในการดำเนินชีวิตและทำกิจกรรมร่วมกัน และพื้นที่ทางสังคม (Social Space) ที่เป็นบริบทและสภาพแวดล้อมสำหรับการมีปฏิสัมพันธ์และสร้างความสัมพันธ์ระหว่างสมาชิก ในยุคดิจิทัล พื้นที่ยังรวมถึงพื้นที่เสมือน (Virtual Space) ที่สมาชิกใช้ในการติดต่อสื่อสารและทำกิจกรรมร่วมกันผ่านเครือข่ายอินเทอร์เน็ต

3.3 บทบาทของชุมชนในสังคม

ชุมชนมีบทบาทสำคัญในการสร้างความสัมพันธ์ และเครือข่ายทางสังคมที่ช่วยส่งเสริมการช่วยเหลือเกื้อกูลกัน การแลกเปลี่ยนทรัพยากรและข้อมูลรวมถึงการสร้างความร่วมมือ เพื่อแก้ไขปัญหาร่วมกัน นอกจากนี้ ชุมชนยังมีบทบาทในการถ่ายทอดบรรทัดฐานทางสังคมและสนับสนุนเศรษฐกิจฐานราก (กิจอุดม เสือเจริญ, กานต์บุญศิริ และวิทยาธร ท่อแก้ว, 2566) **ประการแรก** เป็นแหล่งสร้างความสัมพันธ์และเครือข่ายทางสังคมที่ช่วยส่งเสริมการช่วยเหลือเกื้อกูลกัน การแลกเปลี่ยนทรัพยากรและข้อมูล รวมถึงการสร้างความร่วมมือเพื่อแก้ไขปัญหาร่วมกัน ชุมชนช่วยให้สมาชิกสามารถพึ่งพาอาศัยกันและกันในยามจำเป็น ซึ่งเป็นพื้นฐานสำคัญของการอยู่ร่วมกันในสังคม **ประการที่สอง** มีบทบาทในการถ่ายทอดบรรทัดฐานทางสังคม เช่น มารยาทและจริยธรรม ซึ่งเป็นรากฐานของความมั่นคงของสังคม ผ่านการสื่อสารและการปฏิสัมพันธ์ระหว่างสมาชิก ชุมชนช่วยรักษาและส่งเสริมวัฒนธรรมท้องถิ่นให้คงอยู่และพัฒนาต่อไป และ**ประการที่สาม** มีบทบาทสำคัญในการสนับสนุนเศรษฐกิจฐานราก โดยเป็นพื้นที่หมุนเวียนทรัพยากรและเงินทุน สร้างงานและรายได้ ตลอดจนพัฒนาทักษะและความสามารถของสมาชิก ชุมชนช่วยสนับสนุนธุรกิจขนาดเล็กและเศรษฐกิจท้องถิ่น ซึ่งเป็นปัจจัยสำคัญในการสร้างความมั่นคงทางเศรษฐกิจของสังคม

โดยสรุป ชุมชนเป็นโครงสร้างทางสังคมที่สำคัญซึ่งมีบทบาทในการสร้างความสัมพันธ์ ความร่วมมือและการพัฒนาทั้งทางสังคมและเศรษฐกิจ การเข้าใจองค์ประกอบและบทบาทของชุมชนจึงมีความสำคัญอย่างยิ่ง ในการวางแผนและพัฒนาชุมชนให้สอดคล้องกับบริบทและความต้องการที่แท้จริงของสมาชิก ซึ่งจะนำไปสู่การพัฒนาที่มีประสิทธิภาพและยั่งยืน

4. นวัตกรรมการสื่อสารเพื่อการพัฒนาชุมชน

4.1 ความหมายและบทบาทของนวัตกรรมการสื่อสาร

นวัตกรรมการสื่อสาร (Communication Innovation) หมายถึง การพัฒนาและปรับปรุงวิธีการสื่อสารที่มีอยู่เดิมให้ทันสมัยและมีประสิทธิภาพยิ่งขึ้น โดยอาจประกอบด้วยความคิดใหม่ การใช้เทคโนโลยีใหม่ ๆ หรือการประยุกต์ใช้เครื่องมือสื่อสารที่ทันสมัย เพื่อให้สามารถตอบสนองต่อความต้องการในยุคที่มีการเปลี่ยนแปลงทางสังคมและเทคโนโลยีอย่างรวดเร็ว (วรวุฒิ ภักดีบุรุษ, 2560) และไม่เพียงแต่เกี่ยวข้องกับการใช้เทคโนโลยีสารสนเทศและการสื่อสาร (ICT) แต่ยังรวมถึงการพัฒนาวิธีการสื่อสารรูปแบบใหม่ที่ช่วยให้การถ่ายทอดข้อมูลข่าวสารมีประสิทธิภาพและประสิทธิผลในการดำเนินงานขององค์กรและชุมชนมากยิ่งขึ้น

บทบาทของนวัตกรรมการสื่อสารมีความสำคัญอย่างยิ่งในยุคดิจิทัล เนื่องจากช่วยเพิ่มประสิทธิภาพในการเชื่อมโยงผู้คน ข้อมูล และบริการต่าง ๆ เข้าด้วยกันอย่างเป็นระบบและทั่วถึง นวัตกรรมการสื่อสารมีบทบาทหลักในการสร้างความสามารถในการแข่งขันและเพิ่มประสิทธิผลในการดำเนินงานขององค์กรและชุมชน นอกจากนี้ยังช่วยให้การสื่อสารเป็นไปอย่างรวดเร็ว มีประสิทธิภาพ และสามารถตอบสนองต่อความต้องการที่เปลี่ยนแปลงไปในสภาพแวดล้อม ที่มีการแข่งขันสูงและความต้องการของผู้บริโภคที่มีความหลากหลาย (พิมพ์ปวีณ์ นิธิจิรชาติ, พระมหาอุตร อุดตโร และปฏิธรรม สำเนียง, 2566)

4.2 ประโยชน์ของนวัตกรรมการสื่อสารต่อชุมชน

นวัตกรรมการสื่อสารช่วยเพิ่มประสิทธิภาพในการเชื่อมโยงผู้คน ข้อมูล และบริการต่าง ๆ เข้าด้วยกันอย่างเป็นระบบและทั่วถึง ตัวอย่างเช่น แอปพลิเคชันเตือนภัยแผ่นดินไหวในจังหวัดเชียงรายที่ให้ข้อมูลแบบเรียลไทม์ ช่วยให้ประชาชนสามารถเตรียมพร้อมรับมือกับสถานการณ์ฉุกเฉินได้อย่างทันท่วงที (กฤษณะ แสงจันทร์ และสหัทยา สิทธิวิเศษ, 2565) นอกจากนี้ นวัตกรรมการสื่อสารยังช่วยลดความเหลื่อมล้ำทางสังคมด้วยการทำให้ประชาชนในพื้นที่ห่างไกลสามารถเข้าถึงข้อมูลบริการทางการแพทย์และโอกาสทางการศึกษาที่จำเป็นได้ง่ายขึ้นผ่านแพลตฟอร์มดิจิทัล (อาภัสสร อันวิเศษ และอุษา บุญกุญชร , 2564) โดย **ประการแรก** ช่วยเพิ่มประสิทธิภาพในการเชื่อมโยงผู้คน ข้อมูลและบริการต่าง ๆ เข้าด้วยกันอย่างเป็นระบบและทั่วถึง ตัวอย่างเช่น แอปพลิเคชันเตือนภัยแผ่นดินไหวในจังหวัดเชียงรายที่ให้ข้อมูลแบบเรียลไทม์ ช่วยให้ประชาชนสามารถเตรียมพร้อมรับมือกับสถานการณ์ฉุกเฉินได้อย่างทันท่วงที และลดความเสียหายที่อาจเกิดขึ้นทั้งต่อชีวิตและทรัพย์สิน (กฤษณะ แสงจันทร์ และสหัทยา สิทธิวิเศษ, 2565) **ประการที่สอง** ช่วยลดความเหลื่อมล้ำทางสังคมด้วยการทำให้ประชาชนในพื้นที่ห่างไกลสามารถเข้าถึงข้อมูลบริการทางการแพทย์และโอกาสทางการศึกษาที่จำเป็นได้ง่ายขึ้นผ่านแพลตฟอร์มดิจิทัล ตัวอย่างเช่น การใช้เทคโนโลยีออนไลน์เพื่อส่งเสริมการดูแลสุขภาพจิตและป้องกันโรคซึมเศร้าโดยไม่จำเป็นต้องเดินทางมายังสถานพยาบาล (อาภัสสร อันวิเศษ และอุษา บุญกุญชร, 2564) หรือการพัฒนาโปรแกรมการเรียนรู้ออนไลน์ที่ช่วยให้ผู้สูงอายุสามารถเพิ่มพูนความรู้และพัฒนาทักษะใหม่ ๆ ได้จากที่บ้าน ซึ่งช่วยส่งเสริมการเรียนรู้ตลอดชีวิตและพัฒนาคุณภาพชีวิตของคนในชุมชนได้อย่างยั่งยืน (วารุณี แก้วกิ่งจันทร์, 2563) และ**ประการที่สาม** มีบทบาทสำคัญในการสร้างเครือข่ายความร่วมมือระหว่างภาครัฐ ภาคเอกชน และประชาชนผ่านช่องทางออนไลน์ ทำให้สามารถแลกเปลี่ยนข้อมูลและประสานงานกันได้อย่างมีประสิทธิภาพ นำไปสู่การเสริมสร้างความเข้มแข็งของชุมชน และทำให้ประชาชนสามารถพึ่งพาตนเองได้มากขึ้น

4.3 การประยุกต์ใช้นวัตกรรมการสื่อสารในชุมชน

นวัตกรรมการสื่อสารสามารถนำมาใช้ในการพัฒนาชุมชนในหลายด้าน เช่น การสร้างเครือข่ายความร่วมมือระหว่างภาครัฐ เอกชน และประชาชนผ่านช่องทางออนไลน์ การส่งเสริมเศรษฐกิจชุมชนโดยเปิดโอกาสให้ผู้ประกอบการรายย่อยสามารถเข้าถึงตลาดที่กว้างขึ้นผ่านช่องทางออนไลน์ และการพัฒนาทักษะและคุณภาพชีวิตของคนในชุมชนผ่านโปรแกรมการเรียนรู้ออนไลน์ (วารุณี แก้วกิ่งจันทร์, 2563) ดังนี้

1) ช่วยสร้างเครือข่ายความร่วมมือระหว่างภาครัฐ ภาคเอกชน และประชาชนผ่านช่องทางออนไลน์ ทำให้สามารถแลกเปลี่ยนข้อมูลและประสานงานกันได้อย่างมีประสิทธิภาพ ตัวอย่างเช่น การใช้แพลตฟอร์มออนไลน์ เพื่อเชื่อมโยงระหว่างหน่วยงานภาครัฐและประชาชนในการแก้ไขปัญหาชุมชน หรือการสร้างเครือข่ายความร่วมมือระหว่างชุมชนต่าง ๆ เพื่อแลกเปลี่ยนความรู้และทรัพยากร

2) ช่วยส่งเสริมเศรษฐกิจชุมชน โดยเปิดโอกาสให้ผู้ประกอบการรายย่อยสามารถเข้าถึงตลาดที่กว้างขึ้นผ่านช่องทางออนไลน์ ตัวอย่างเช่น การพัฒนาแพลตฟอร์มอีคอมเมิร์ซที่ช่วยให้ผู้ผลิตในท้องถิ่นสามารถขายสินค้าได้โดยตรงถึงผู้บริโภค ซึ่งช่วยลดการพึ่งพาตลาดภายนอกและสร้างการหมุนเวียนทางเศรษฐกิจภายในชุมชน

3) ช่วยพัฒนาทักษะและคุณภาพชีวิตของคนในชุมชนผ่านโปรแกรมการเรียนรู้ออนไลน์ และการฝึกอบรมทางไกล ตัวอย่างเช่น การพัฒนาแพลตฟอร์มการเรียนรู้ที่ช่วยให้ผู้สูงอายุสามารถเพิ่มพูนความรู้

และพัฒนาทักษะใหม่ ๆ ได้จากที่บ้าน หรือการใช้เทคโนโลยีออนไลน์เพื่อส่งเสริมการดูแลสุขภาพและป้องกันโรค

4) มีบทบาทสำคัญในการจัดการภัยพิบัติและสถานการณ์ฉุกเฉิน ตัวอย่างเช่น การพัฒนาแอปพลิเคชันเตือนภัยแผ่นดินไหวที่ให้ข้อมูลแบบเรียลไทม์ ช่วยให้ประชาชนสามารถเตรียมพร้อมรับมือกับสถานการณ์ฉุกเฉินได้อย่างทันท่วงที และลดความเสียหายที่อาจเกิดขึ้นทั้งต่อชีวิตและทรัพย์สิน (กฤษณะ แสงจันทร์ และสหัทยา สิทธิวิเศษ, 2565)

โดยสรุป นวัตกรรมการสื่อสารมีบทบาทสำคัญในการพัฒนาชุมชน โดยช่วยเชื่อมโยงข้อมูลและบริการต่าง ๆ อย่างมีประสิทธิภาพ ทำให้ประชาชนเข้าถึงข่าวสารสำคัญได้รวดเร็วและแม่นยำ ช่วยลดความเหลื่อมล้ำทางสังคม สร้างเครือข่ายความร่วมมือระหว่างภาครัฐ เอกชน และประชาชน และส่งเสริมเศรษฐกิจชุมชนผ่านแพลตฟอร์มดิจิทัล การประยุกต์ใช้นวัตกรรมการสื่อสารในชุมชนจึงเป็นเครื่องมือสำคัญในการสร้างความยั่งยืนและความเข้มแข็งให้กับชุมชนในทุกมิติ

5. บทสรุปและข้อเสนอแนะ

นวัตกรรมการสื่อสารมีบทบาทสำคัญในการพัฒนาชุมชนในยุคดิจิทัล โดยช่วยเชื่อมโยงข้อมูลและบริการต่าง ๆ อย่างมีประสิทธิภาพ ทำให้ประชาชนเข้าถึงข่าวสารสำคัญได้รวดเร็วและแม่นยำ นอกจากนี้ นวัตกรรมการสื่อสารยังช่วยลดความเหลื่อมล้ำทางสังคม สร้างเครือข่ายความร่วมมือระหว่างภาครัฐ เอกชน และประชาชน และส่งเสริมเศรษฐกิจชุมชนผ่านแพลตฟอร์มดิจิทัล โดยผู้เขียนมีข้อเสนอแนะสำหรับการพัฒนาชุมชนในอนาคต คือ การส่งเสริมการใช้นวัตกรรมการสื่อสารในทุกมิติของชุมชน โดยเฉพาะในพื้นที่ห่างไกลและด้อยโอกาส เพื่อสร้างความเท่าเทียมและยกระดับคุณภาพชีวิตของคนในชุมชน นอกจากนี้ ควรมีการส่งเสริมการวิจัยและพัฒนานวัตกรรมการสื่อสารใหม่ ๆ ที่สอดคล้องกับความต้องการของชุมชนและบริบททางสังคมที่เปลี่ยนแปลงไป

เอกสารอ้างอิง

กฤษณะ แสงจันทร์ และ สหัทยา สิทธิวิเศษ. (2565). แนวทางการพัฒนานวัตกรรมการสื่อสารผ่านแอปพลิเคชันเตือนภัยแผ่นดินไหวจังหวัดเชียงราย. มนุษยศาสตร์สังคมศาสตร์ปริทัศน์, 10(2), 111-123.

กิจอุดม เสือเจริญ, กานต์บุญศิริ และวิทยาธร ท่อแก้ว. (2566). การจัดการสื่อสารเครือข่ายการท่องเที่ยวเชิงวัฒนธรรมโดยการมีส่วนร่วมของชุมชน. วารสารวิชาการ การจัดการภาครัฐและเอกชน, 6(1), 15.

จรรยาลักษณ์ สิริกูลนฤมิตร และ ภิญรดา เมธารมณ์. (2561). องค์ประกอบของการสื่อสารเพื่อการสร้างกระแสความนิยมเพลงเกาหลีในประเทศไทย. วารสารบริหารธุรกิจ, 41(157), 4.

จำนง อดิวัฒนสิทธิ์. (2543). ความรู้เกี่ยวกับชุมชน.สังคมวิทยา. กรุงเทพฯ: สำนักพิมพ์มหาวิทยาลัยเกษตรศาสตร์.

ณัฐวุฒิ เอี่ยมเนตร, สุวลังก์ วงศ์สุรวัฒน์, พระครูปลัดประวิทย์ ทรัพย์อุไรรัตน์, นภัทร์ แก้วนาค และจิดาภา เร่งมีศรีสุข. (2566). นวัตกรรมการสื่อสารเพื่อการส่งเสริมการบริหารจัดการองค์กรภาครัฐและภาคเอกชนในยุคดิจิทัล. วารสารนวัตกรรมการจัดการศึกษาและการวิจัย, 6(1), 291-301.

พิมพ์ปวีณ์ นิธิจิรชาติ พระมหาอุดร อุตตโร และปฏิธรรม สำเนียง (2566). การบูรณาการนวัตกรรมและเทคโนโลยีทางการศึกษากับการเรียนการสอน. วารสารวิจัยธรรมศึกษา, 6(2),), 45-59.

วรรณา ศรีแก้ว. (2565). การสื่อสารชุมชนและการใช้เทคโนโลยีในยุคดิจิทัล. วารสารการสื่อสารและนวัตกรรม, 12(3), 45-59.

วรวุฒิ ภักดีบุรุษ. (2560). นวัตกรรมการสื่อสารเพื่อการจัดการแบรนด์องค์กรของธนาคารพาณิชย์ไทย : กรณีศึกษาธนาคารไทยพาณิชย์จำกัด (มหาชน). วารสารนักบริหาร คณะวิทยาการจัดการ มหาวิทยาลัยราชภัฏจันทรเกษม, 37(1), 36-44.

วารุณี แก้วกิ่งจันทร์ (2563). โมเดลการใช้นวัตกรรมการสื่อสารของผู้สูงอายุ (วิทยานิพนธ์ปริญญาบริหารธุรกิจมหาบัณฑิต). มหาวิทยาลัยนเรศวร, พิษณุโลก.

วาสิกา อังกูร. (2560). การสื่อสารภูมิปัญญาด้วยการท่องเที่ยวโดยชุมชน (ดุษฎีนิพนธ์ปรัชญาดุษฎีบัณฑิต นิเทศศาสตร์). มหาวิทยาลัยสุโขทัยธรรมาธิราช, นนทบุรี.

วิศิษฎ์ เกตรัตนกุล, ณัฐธุ์วัฒน์ สุทธิโยธิน และกานต์ บุญศิริ. (2563). การใช้นวัตกรรมการสื่อสารเพื่อสร้างความร่วมมือในการพัฒนาเศรษฐกิจชุมชนอย่างยั่งยืน. วารสารสารสื่อศิลป์, 3(5), 4-7.

ศิวะนันท์ ศิวพิทักษ์. (2566). ทฤษฎีด้านนวัตกรรม. วารสารเซนต์จอห์น, 23(32), 251-263.

สุนทรียา กุลภิรมย์. (2561). ความหมายของชุมชนและบทบาทในสังคม. วารสารสังคมศาสตร์, 27(1), 15-28.

สุมาลี วิจิตรศิลป์. (2562). การพัฒนาชุมชนในยุคดิจิทัล: แนวคิดและการประยุกต์. วารสารการพัฒนาและสังคม, 18(2), 98-112.

อัจฉรา ชลายนนาวิน. (2562). แนวคิดองค์ประกอบชุมชนและการพัฒนาชุมชนอย่างยั่งยืนกรณีศึกษาหมู่บ้านวัฒนธรรมบ้านไทดำบ้านนาป่าหนาด จังหวัดเลย. รัฏฐาภิรักษ์วารสาร, 61(1), 46.

อาภัสสร อ้นวิเศษ และอุษา บิ้กกิ้นส์ (2564). นวัตกรรมการสื่อสารสุขภาพเพื่อการป้องกันและเฝ้าระวังโรคซึมเศร้า. วารสารอิเล็กทรอนิกส์การเรียนรู้ทางไกลเชิงนวัตกรรม, 13(1), 39-55.

ปัจจัยที่ส่งผลต่อความรู้ทางการเกษตรของเกษตรกรผู้นำ ศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา

Factors Affecting Agricultural Knowledge of Leaders Farmer the Agricultural Learning Center in Songkhla Province

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษา 1) ข้อมูลพื้นฐานส่วนบุคคล สภาพทางสังคม เศรษฐกิจและการส่งเสริมการเกษตรของเกษตรกรผู้นำ 2) ระดับความรู้ทางการเกษตรของเกษตรกรผู้นำ 3) ปัจจัยที่ส่งผลต่อความรู้ทางการเกษตรของเกษตรกรผู้นำศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา ประชากรในการศึกษาครั้งนี้ คือ ประธานศูนย์เครือข่ายศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา ที่เข้าร่วมกิจกรรมการจัดกระบวนการเรียนรู้ให้กับเกษตรกรผู้นำโครงการศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตร ปี 2566 ของกรมส่งเสริมการเกษตร จำนวน 262 คน สุ่มกลุ่มตัวอย่างด้วยวิธีเฉพาะเจาะจง เป็นประธานศูนย์เครือข่ายศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา ที่ผ่านการอบรมหลักสูตร ทั้งหมด 5 หลักสูตร คือ หลักสูตรระบบน้ำสำหรับการเกษตร เกษตรทฤษฎีใหม่ เศรษฐกิจพอเพียง การจัดทำบัญชีครัวเรือน และเกษตรผสมผสาน โครงการศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตร ปี 2566 ของกรมส่งเสริมการเกษตร จำนวน 160 คน เครื่องมือ คือ แบบสอบถามมีโครงสร้าง วิเคราะห์ข้อมูลด้วยสถิติพรรณนาและการวิเคราะห์ถดถอยพหุแบบขั้นตอน

ผลการศึกษาพบว่า 1) เกษตรกรส่วนใหญ่เป็นเพศชาย ร้อยละ 81.25 อายุเกษตรกรเฉลี่ย 57.43 ปี จบการศึกษาระดับปริญญาตรีมากที่สุด ร้อยละ 31.88 เกษตรกรทั้งหมดได้รับการสนับสนุนจากหน่วยงานภาครัฐ ภายใต้กระทรวงเกษตรกรและสหกรณ์ในเรื่องการฝึกอบรม การได้รับความรู้และคำแนะนำในการแก้ปัญหาด้านการเกษตร และการไปทัศนศึกษาดูงาน โดยได้รับการสนับสนุนงบประมาณเพื่อพัฒนางานด้านการเกษตร ร้อยละ 21.88 ได้รับข่าวสารความรู้ด้านการเกษตรจากเจ้าหน้าที่กรมส่งเสริมการเกษตรมากที่สุด ร้อยละ 91.25 2) ระดับความรู้ทางการเกษตรของเกษตรกรผู้นำอยู่ในระดับสูง ซึ่งมีคะแนนเฉลี่ย 14.43 คะแนน จากคะแนนเต็ม 20 คะแนน 3) ปัจจัยที่มีความสัมพันธ์ต่อความรู้ทางการเกษตรของ

เกษตรกรผู้นำ พบว่า ตัวแปรอิสระ 1 ตัวแปร คือ การได้รับการสนับสนุนงบประมาณ มีผลต่อความรู้ทางการเกษตรของเกษตรกรผู้นำ ที่ระดับนัยสำคัญ 0.01 และสามารถทำนายได้ ร้อยละ 44.40 (R^2 Adjusted = 0.444)

คำสำคัญ: เกษตรกรผู้นำ, ความรู้ของเกษตรกร, ศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตร (ศพก.)

Abstract

This research aimed to: 1) study the personal background, social and economic conditions, and agricultural extension support of lead farmers; 2) assess the agricultural knowledge level of lead farmers; and 3) identify factors affecting the agricultural knowledge of lead farmers at the Agricultural Productivity Enhancement Learning Center in Songkhla Province. The study population comprised 262 chairpersons of the network centers who participated in the 2023 Agricultural Productivity Enhancement Learning Center Project organized by the Department of Agricultural Extension. Purposive sampling was used to select 160 chairpersons who had completed all five training courses: agricultural water systems, new theory agriculture, sufficiency economy, household accounting, and integrated agriculture. Data were collected using a structured questionnaire and analyzed with descriptive statistics and stepwise multiple regression.

The results showed that: 1) Most farmers were male (81.25%), with an average age of 57.43 years. The largest group held a bachelor's degree (31.88%). All farmers received support from government agencies under the Ministry of Agriculture and Cooperatives in the form of training, knowledge, guidance for solving agricultural problems, and study visits, with 21.88% receiving budgetary support for agricultural development. The majority (91.25%) received agricultural information from Department of Agricultural Extension officers. 2) The agricultural knowledge level of lead farmers was high, with an average score of 14.43 out of 20. 3) The only independent variable significantly affecting the agricultural knowledge of lead farmers was budgetary support, with a significance level of 0.01 and an adjusted R-squared of 0.444, indicating that budgetary support could predict 44.40% of the variance in agricultural knowledge. (R^2 Adjusted =0.444).

Keywords: Leaders Farmer, Farmer’s knowledge, Agricultural Learning Center

บทนำ

ประเทศไทยมีความมุ่งมั่นในการพัฒนาเกษตรกรและชุมชนอย่างต่อเนื่อง โดยแผนยุทธศาสตร์การพัฒนาประเทศ และนโยบายคณะรักษาความสงบแห่งชาติ (คสช.) ที่ได้กำหนดให้มีการจัดตั้งศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตร (ศพก.) ขึ้น เพื่อให้เป็นจุดถ่ายทอดความรู้ด้านการเกษตรของชุมชนและเป็นที่ให้บริการข้อมูลข่าวสารและบริการด้านการเกษตร โดยเน้นการเรียนรู้จากเกษตรกรต้นแบบที่ประสบความสำเร็จ เพื่อให้เกษตรกรมีการแลกเปลี่ยนเรียนรู้กับเกษตรกรด้วยกันเอง (กรมส่งเสริมการเกษตร, 2566ก) กระทรวงเกษตรและสหกรณ์จึงได้นำนโยบายการจัดตั้ง ศพก.

มาดำเนินการภายใต้การดูแลของกรมส่งเสริมการเกษตรและได้จัดตั้งศูนย์เรียนรู้ด้านการเกษตรประจำอำเภอ จำนวน 882 ศูนย์ ตั้งแต่ปี พ.ศ. 2558 ซึ่งเรียกกันว่า ศพก. หลัก โดยจัดประเภทตามพืชเศรษฐกิจหลักของพื้นที่ เช่น คาบสมุทรสทิงพระ ศพก. หลัก เป็นศูนย์ข้าว เพื่อเป็นแหล่งเรียนรู้ทางการเกษตรที่สำคัญของชุมชนและถือเป็นกลไกหลักในการถ่ายทอดความรู้จากเกษตรกรต้นแบบ หลังจากนั้น ปี พ.ศ. 2560 ได้มีการรับขึ้นทะเบียนศูนย์เครือข่าย ศพก. เพื่อเป็นศูนย์เรียนรู้ด้านการเกษตรเฉพาะด้าน แบ่งเป็น 23 ประเภท คือ ศูนย์จัดการศัตรูพืชชุมชน (ศจช.) ศูนย์จัดการดินปุ๋ยชุมชน (ศดปช.) ศูนย์เรียนรู้ด้านการจัดการดิน ศูนย์เรียนรู้ด้านประมง ศูนย์เรียนรู้ด้านปศุสัตว์ ศูนย์เรียนรู้ด้านข้าว/ศูนย์ข้าวชุมชน ศูนย์เรียนรู้ด้านพืชไร่ ศูนย์เรียนรู้ด้านไม้ผล ศูนย์เรียนรู้ด้านแมลงเศรษฐกิจ ศูนย์ปราชญ์ชาวบ้าน ศูนย์เรียนรู้เศรษฐกิจพอเพียง/เกษตรทฤษฎีใหม่/เกษตรผสมผสาน ศูนย์เรียนรู้ด้านมาตรฐานการผลิตทางการเกษตร ศูนย์เรียนรู้ด้านเศรษฐกิจเกษตร ศูนย์เรียนรู้ด้านสหกรณ์ ศูนย์เรียนรู้ด้านบัญชี ศูนย์เรียนรู้ด้านชลประทาน/การใช้น้ำอย่างรู้คุณค่า ศูนย์ท่องเที่ยวเชิงเกษตร ศูนย์เรียนรู้พืชผักศูนย์เรียนรู้ด้านหม่อนไหม ศูนย์เรียนรู้ด้านการแปรรูปผลิตผลด้านการเกษตร ศูนย์เรียนรู้ด้านไม้ดอก ไม้ประดับ และศูนย์เรียนรู้อื่น ๆ โดยศูนย์เครือข่ายของ ศพก. มีทั้งหมด 10,533 ศูนย์ ทั่วประเทศ (กรมส่งเสริมการเกษตร, 2566ข) ประกอบกับปัจจุบันเกษตรกรต้องเผชิญต่อสภาพอากาศมีความแปรปรวนจากภาวะโลกร้อนส่งผลกระทบต่อผลผลิตทางการเกษตร พื้นที่ทำการเกษตรเสียหาย การปลูกพืชเชิงเดี่ยวจึงไม่สามารถทำให้เกษตรกรลดความเสี่ยงจากความไม่แน่นอนของรายได้ได้ เกษตรกรจึงหันมาทำเกษตรตามหลักเกษตรทฤษฎีใหม่และเกษตรผสมผสาน รวมถึงการนำหลักปรัชญาเศรษฐกิจพอเพียงมาใช้ดำเนินชีวิต เพื่อให้สามารถพึ่งพาตนเองได้อย่างยั่งยืนในอนาคต (กระทรวงเกษตรและสหกรณ์, 2566) จะเห็นได้ว่าจังหวัดสงขลามีการขึ้นทะเบียนศูนย์เครือข่ายของ ศพก. ประเภทศูนย์เศรษฐกิจพอเพียง/เกษตรผสมผสาน/เกษตรทฤษฎีใหม่มากที่สุดในประเทศเมื่อ ปี พ.ศ. 2560 จำนวน 83 ศูนย์ และยังคงเป็นจังหวัดที่มีการขึ้นทะเบียนประเภทนี้สูงที่สุดในภาคใต้ จำนวน 124 ศูนย์ ในปี พ.ศ. 2566 (กรมส่งเสริมการเกษตร, 2566ค)

ศูนย์เครือข่ายของ ศพก. ประเภทเศรษฐกิจพอเพียง/เกษตรผสมผสาน/เกษตรทฤษฎีใหม่เป็นศูนย์เรียนรู้ด้านการเกษตรที่ทำหน้าที่ถ่ายทอดความรู้เฉพาะทาง โดยมีเกษตรกรผู้นำในพื้นที่เป็นผู้มีบทบาทในการถ่ายทอดความรู้ไปสู่เกษตรกรรายอื่น ซึ่งเกษตรกรผู้นำหรือประธานศูนย์เครือข่ายเป็นแบบอย่างของเกษตรกรในพื้นที่ที่มีความเชี่ยวชาญในความรู้ทางการเกษตร และต้องมีการปฏิบัติตามบทบาทหน้าที่ของเกษตรกรผู้นำฯ ในการวางแผนโครงการ การปฏิบัติงานตามแผน การประเมินผลและรักษาโครงการและกิจกรรมต่าง ๆ ที่ได้รับการส่งเสริมให้คงไว้ตลอดไป นอกจากนี้ เกษตรกรผู้นำยังทำหน้าที่ช่วยเหลือเจ้าหน้าที่ส่งเสริมการเกษตรในการแพร่กระจายความรู้และเทคโนโลยีไปยังเกษตรกรที่อยู่ห่างไกลได้ด้วย เกษตรกรผู้นำจึงเป็นศูนย์กลางของการถ่ายทอดความรู้และเทคโนโลยีไปสู่เกษตรกรรายอื่นได้อย่างมีประสิทธิภาพ (คณะเกษตรศาสตร์ มหาวิทยาลัยเชียงใหม่, ม.ป.ป.) จากที่มาและความสำคัญของปัญหาทำให้ผู้วิจัยสนใจศึกษาปัจจัยที่ส่งผลต่อความรู้ทางการเกษตรของเกษตรกรผู้นำศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา เพื่อนำข้อมูลที่ได้ไปพัฒนาความรู้ของเกษตรกรผู้นำให้สามารถถ่ายทอดองค์ความรู้ที่มีสู่เกษตรกรรายอื่นและช่วยแก้ปัญหาให้แก่เกษตรกรได้อย่างมีประสิทธิภาพมากยิ่งขึ้น

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาข้อมูลพื้นฐานส่วนบุคคล สภาพทางสังคม เศรษฐกิจ และการส่งเสริมการเกษตรของเกษตรกรผู้นำศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา

2. เพื่อศึกษาระดับความรู้ทางการเกษตรของเกษตรกรผู้นำศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา

3. เพื่อวิเคราะห์ปัจจัยที่ส่งผลต่อความรู้ทางการเกษตรของเกษตรกรผู้นำศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา

แนวคิด ทฤษฎี กรอบแนวคิด

ณัฏฐชนก ธนัตพร (2555) กล่าวว่า ผู้นำ คือ ผู้ที่มีความสามารถในการปฏิสัมพันธ์กับผู้ร่วมงานเพื่อโน้มน้าวจิตใจให้ปฏิบัติงานร่วมกัน ด้วยความพึงพอใจ เต็มใจให้การดำเนินงานไปสู่เป้าหมายที่ได้วางร่วมกันอย่างมีระเบียบแบบแผน โดยเป็นผู้รับผิดชอบ เป็นผู้มีอิทธิพลและอำนาจเหนือผู้ร่วมงานในหน่วยงาน ผู้นำไม่จำเป็นว่าจะต้องเป็นผู้ร่วมงานหรือผู้บริหาร แต่หัวหน้างานหรือผู้บริหารต้องมีลักษณะการเป็นผู้นำ กล่าวคือ ต้องรู้จักประสานงาน ควบคุม กำกับ นิเทศ ประเมินผลและตัดสินใจต้องเป็นผู้ที่กลุ่มให้ความเชื่อถือ ศรัทธา ไว้วางใจ เป็นศูนย์รวมของพฤติกรรมของสมาชิกในกลุ่ม

ความสำคัญในงานส่งเสริมและพัฒนาการเกษตรของผู้นำ

พรชุลีย์ นิลวิเศษ (2545) กล่าวว่า ผู้นำ มีความสำคัญในงานส่งเสริมการเกษตร ดังนี้

1. ผู้นำเป็นศูนย์กลางในการรับความรู้และเทคโนโลยีที่เหมาะสมทางการเกษตรและที่เกี่ยวข้องจากเจ้าหน้าที่สู่เกษตรกรและชุมชนที่สนใจ

2. ผู้นำเป็นที่ปรึกษาและแนะนำให้ความช่วยเหลือในการประกอบการเกษตร แก่เกษตรกรและชุมชนเมื่อประสบปัญหา

3. เป็นวิทยากรในการถ่ายทอดความรู้และเทคโนโลยีที่เหมาะสมทางการเกษตรและที่เกี่ยวข้องให้แก่เกษตรกรทั่วไปในชุมชน

4. ผู้นำเป็นผู้ช่วยดำเนินกิจกรรมต่าง ๆ ในชุมชนของเจ้าหน้าที่ เช่น การนัดหมายเกษตรกร การร่วมจัดทำแผนชุมชน และการร่วมจัดทำแปลงสาธิต เป็นต้น

5. ผู้นำเป็นตัวแทนของเกษตรกรในท้องถิ่นและการสะท้อนปัญหาและความต้องการของชุมชนท้องถิ่นให้แก่เจ้าหน้าที่

6. ผู้นำเป็นผู้ช่วยกระตุ้นให้เกษตรกรทั่วไปเกิดความกระตือรือร้นและมีความคิดริเริ่ม

7. ผู้นำเป็นผู้รับผิดชอบสิ่งต่าง ๆ ที่หน่วยงานและเจ้าหน้าที่จะเข้ามาส่งเสริมและบริการแก่เกษตรกรและชุมชน

8. ผู้นำเป็นแบบอย่างหรือแม่แบบในการนำวิธีการใหม่และเทคโนโลยีทางการเกษตรมาให้เกษตรกรใช้ในท้องถิ่น ชุมชน

สรุป ผู้นำ หมายถึง ผู้ที่มีความสามารถในการประสานงาน ควบคุม กำกับ นิเทศ ประเมินผลและตัดสินใจ เป็นผู้ที่กลุ่มให้ความเชื่อถือ ศรัทธา ไว้วางใจ เป็นศูนย์รวมของพฤติกรรมของสมาชิกในกลุ่มทำให้การทำงานประสบความสำเร็จตามเป้าหมายที่กำหนดไว้

ความรู้ สำนักงานคณะกรรมการพัฒนาระบบราชการ (2560) ระบุว่าความรู้ (Knowledge) คือสิ่งที่ได้จากกระบวนการที่มนุษย์รับข้อมูลผ่านกระบวนการคิด เปรียบเทียบ เชื่อมโยง จนเกิดเป็นความเข้าใจและนำไปใช้ ส่วนความรู้ขั้นสูงสุด คือ ปัญญา (Wisdom) เป็นความรู้ที่สะสมหรือฝังอยู่ในตัวบุคคล

ระดับของความรู้ สำนักงานวิจัยและส่งเสริมวิชาการเกษตร (2562) ได้แบ่งระดับความรู้แบ่งออกได้เป็น 4 ระดับ คือ

1. ความรู้เชิงทฤษฎี (Know-What) เป็นความรู้เชิงข้อเท็จจริง รู้อะไรเป็นอะไร จะพบในผู้ที่สำเร็จการศึกษามาใหม่ ๆ ที่มีความรู้โดยเฉพาะความรู้ที่จำมา ได้จากความรู้ชัดแจ้งซึ่งได้จากการได้เรียนมากแต่เวลาทำงานก็จะไม่มั่นใจ มักจะปรึกษารุ่นพี่ก่อน

2. ความรู้เชิงทฤษฎีและเชิงบริบท (Know-How) เป็นความรู้เชื่อมโยงกับโลกของความเป็นจริง ภายใต้สภาพความเป็นจริงที่ซับซ้อนสามารถนำเอาความรู้ชัดแจ้งที่ได้มาประยุกต์ใช้ตามบริบทของตนเองได้ มักพบในคนที่ทำงานไปหลาย ๆ ปี จนเกิดความรู้ฝังลึกที่เป็นทักษะหรือประสบการณ์มากขึ้น

3. ความรู้ในระดับที่อธิบายเหตุผล (Know-Why) เป็นความรู้เชิงเหตุผลระหว่าง เรื่องราวหรือเหตุการณ์ต่าง ๆ ผลของประสบการณ์แก้ปัญหาที่ซับซ้อน และนำประสบการณ์มาแลกเปลี่ยนเรียนรู้กับผู้อื่น เป็นผู้ทำงานมาระยะหนึ่งแล้วเกิดความรู้ฝังลึก สามารถถอดความรู้ฝังลึกของตนเองมาแลกเปลี่ยนกับผู้อื่นหรือถ่ายทอดให้ผู้อื่นได้พร้อมทั้งรับเอาความรู้จากผู้อื่นไปปรับใช้ในบริบทของตนเองได้

4. ความรู้ในระดับคุณค่า ความเชื่อ (Care-Why) เป็นความรู้ในลักษณะของความคิดริเริ่มสร้างสรรค์ที่มาจากภายในตนเองจะเป็นผู้ที่สามารถสกัด ประมวล วิเคราะห์ความรู้ที่ตนเองมีอยู่กับความรู้ที่ตนเองได้รับมาสร้างเป็นองค์ความรู้ใหม่ขึ้นมาได้ เช่น สร้างตัวแบบหรือทฤษฎีใหม่หรือนวัตกรรมขึ้นมาใช้ในการทำงานได้

สำหรับการวิจัยครั้งนี้จะเน้นความรู้ระดับที่อธิบายเหตุผล (Know-Why) เป็นความรู้ที่เกิดจากการศึกษาเรียนรู้และประกอบกับประสบการณ์ของเกษตรกร ทำให้แก้ปัญหาที่พบได้ในระดับหนึ่ง สามารถถ่ายทอดความรู้ให้กับเกษตรกรรายอื่นได้ รวมถึงการนำความรู้ที่ได้จากเกษตรกรรายอื่นมาปรับใช้กับการทำการเกษตรของตนเองได้

ศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตร (ศพก.) คณะรักษาความสงบแห่งชาติ (คสช.) ได้ให้ความสำคัญในเรื่องการเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรของประเทศ จึงมีนโยบายจัดตั้งศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตร (ศพก.) โดยเน้นให้มีศูนย์เรียนรู้เพื่อให้เป็นสถานที่ถ่ายทอดความรู้ ด้านการเกษตรแก่ชุมชนและให้บริการด้านข้อมูลข่าวสาร และบริการด้านการเกษตร โดยเน้นการเรียนรู้จากเกษตรกรต้นแบบที่ประสบผลสำเร็จในการเพิ่มประสิทธิภาพการผลิตสินค้าเกษตร การเพิ่มผลผลิต การลดต้นทุนการผลิต การพัฒนาคุณภาพ ตลอดจนยึดหลักปรัชญาของเศรษฐกิจพอเพียง โดยใช้กระบวนการเรียนรู้ แบบมีส่วนร่วมอย่างต่อเนื่องตลอดฤดูกาลผลิต เกษตรกรมีการแลกเปลี่ยนเรียนรู้กับเกษตรกรต้นแบบในลักษณะเกษตรกรสอนเกษตรกร มีหลักสูตรและแผนการเรียนรู้ที่ชัดเจน มีการบริหารจัดการ ศพก. ในรูปแบบคณะกรรมการภาคเกษตรกร โดยรัฐบาลสนับสนุนวิชาการ ปัจจัยการผลิตด้านการเกษตร เพื่อการสาธิตและถ่ายทอดเทคโนโลยี (กรมส่งเสริมการเกษตร, 2565ก)

วัตถุประสงค์ในการจัดตั้งศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตร (ศพก.)

1. เป็นศูนย์กลางในการถ่ายทอดเทคโนโลยีการผลิต การบริหารจัดการและการตลาดแก่เกษตรกร รวมทั้งการให้บริการทางการเกษตร และเผยแพร่ข้อมูลข่าวสารในพื้นที่

2. เพื่อเป็นกลไกในการบูรณาการการทำงานของหน่วยงานต่าง ๆ ในการแก้ไขปัญหาและพัฒนาการเกษตรในพื้นที่

บทบาทหน้าที่ของศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตร (ศพก.)

1. ถ่ายทอดความรู้เทคโนโลยีการเกษตรที่เหมาะสมกับชุมชน
2. ให้บริการข้อมูลข่าวสารแก่เกษตรกรในชุมชน
3. ให้บริการด้านการเกษตรอื่นๆ
4. ให้บริการแก้ปัญหาและรับเรื่องร้องเรียนของเกษตรกร
5. เป็นจุดศูนย์กลางในการพบปะของอาสาสมัครเกษตรกับเจ้าหน้าที่ส่งเสริมการเกษตร และเจ้าหน้าที่หน่วยงานต่างๆ ที่เกี่ยวข้อง เพื่อตอบสนองความต้องการของชุมชนและเกษตรกรในพื้นที่ โดยได้รับความยินยอมจากเกษตรกรต้นแบบที่เป็นเจ้าของ ศพก. นั้นๆ
6. ดำเนินการร่วมกับศูนย์บริการและถ่ายทอดเทคโนโลยีการเกษตรประจำตำบล ภาคเอกชน ส่วนราชการ และองค์กรปกครองส่วนท้องถิ่นในพื้นที่

งานวิจัยปัจจัยที่ส่งผลต่อความรู้ทางการเกษตรของเกษตรกรผู้นำ ศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา มีกรอบแนวคิด ดังภาพที่ 1

ตัวแปรอิสระ (Dependent Variables)

สภาพพื้นฐานส่วนบุคคล สังคม และเศรษฐกิจของเกษตรกรผู้นำ

1. ข้อมูลพื้นฐานส่วนบุคคล
- เพศ
- อายุ
- สถานภาพสมรส
- จำนวนปีที่ศึกษา
- จำนวนสมาชิกในครัวเรือน
- จำนวนแรงงานภาคการเกษตรในครัวเรือน
- ประสบการณ์ในการทำการเกษตร
- จำนวนชนิดพืชที่ปลูก

2. สภาพทางสังคม
- จำนวนการเป็นสมาชิกกลุ่ม/องค์กร
- จำนวนการเป็นผู้นำชุมชน
- จำนวนการเป็นอาสาสมัครเกษตร
- จำนวนการเป็นอาสาสมัครอื่น ๆ
- ประสบการณ์การเป็นเกษตรกรผู้นำ
- จำนวนครั้งในการเป็นวิทยากร
- จำนวนครั้งการพบปะกับเกษตรกรผู้นำรายอื่น

3. สภาพทางเศรษฐกิจ
- รายได้จากการเกษตรต่อปี
- รายจ่ายทางการเกษตรต่อปี
- หนี้สินทางการเกษตร
- พื้นที่ถือครองที่ดินเพื่อการเกษตร
- จำนวนแหล่งเงินทุนในการทำการเกษตร

4. การส่งเสริมการเกษตร
- จำนวนครั้งการเข้ารับการฝึกอบรม

ตัวแปรตาม
(Independent Variables)

ความรู้ทางการเกษตรของเกษตรกรผู้นำ
1. เศรษฐกิจพอเพียง
2. เกษตรทฤษฎีใหม่
3. เกษตรผสมผสาน
4. การจัดทำบัญชีครัวเรือน
5. ระบบน้ำสำหรับการเกษตร

ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

1. ประชากรและกลุ่มตัวอย่างในการวิจัย

ประชากรในการศึกษาครั้งนี้ คือ ประธานศูนย์เครือข่ายศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา ที่เข้าร่วมกิจกรรมการจัดกระบวนการเรียนรู้ให้กับเกษตรกรผู้นำ โครงการศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตร ปี 2566 ของกรมส่งเสริมการเกษตร จำนวนทั้งสิ้น 262 ราย (กรมส่งเสริมการเกษตร, 2566ง) และใช้วิธีการสุ่มตัวอย่างด้วยวิธีเฉพาะเจาะจง ได้กลุ่มตัวอย่างในการศึกษาเป็นประธานศูนย์เครือข่ายศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา ที่ผ่านการอบรมหลักสูตร ทั้งหมด 5 หลักสูตร คือ หลักสูตรระบบน้ำสำหรับการเกษตร เกษตรทฤษฎีใหม่ เศรษฐกิจพอเพียง การจัดทำบัญชีครัวเรือน และเกษตรผสมผสาน โครงการศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตร ปี 2566 ของกรมส่งเสริมการเกษตร จำนวน 160 ราย

2. เครื่องมือในการวิจัย

การศึกษาครั้งนี้ใช้แบบสัมภาษณ์เชิงโครงสร้างเป็นเครื่องมือในการเก็บรวบรวมข้อมูล โดยประยุกต์ข้อมูลทุติยภูมิเกี่ยวกับแนวคิด ทฤษฎี และงานวิจัยที่เกี่ยวข้องกับผู้นำ ความรู้ และข้อมูลปฐมภูมิที่ได้จากการเก็บรวบรวมข้อมูลภาคสนามจากเกษตรกร

3. การตรวจสอบคุณภาพเครื่องมือ

การทดสอบความเที่ยงตรงของเครื่องมือ (Validity Test) โดยให้ผู้เชี่ยวชาญ จำนวน 3 ท่าน ตรวจสอบความตรงตามวัตถุประสงค์และเนื้อหา (IOC) กำหนดเกณฑ์การผ่านเท่ากับ 0.67 โดยข้อคำถามทุกข้อมีค่าระหว่าง 0.67 - 1.00 ซึ่งสามารถนำไปใช้ได้ ดำเนินการปรับปรุงแบบสอบถามตามข้อเสนอแนะของผู้เชี่ยวชาญ แล้วทดสอบความเชื่อมั่นของเครื่องมือ (Reliability Test) กับประชากรที่ไม่ใช่กลุ่มตัวอย่าง จำนวน 30 คน ในพื้นที่อำเภอทุ่งใหญ่ ปากพนัง และชะอวดของจังหวัดนครศรีธรรมราช ซึ่งกำหนดเกณฑ์ค่าสัมประสิทธิ์แอลฟ่าของครอนบัค (สุวิมล ติรกานันท์, 2551) เท่ากับ 0.70 ขึ้นไปถือว่ามีความเชื่อมั่นในระดับที่ยอมรับได้สำหรับข้อคำถามมาตราส่วนประมาณค่า โดยแบบสอบถามครั้งนี้ได้ค่าสัมประสิทธิ์แอลฟ่าของครอนบัคทั้งฉบับ เท่ากับ 0.813 ซึ่งได้ข้อคำถามที่เป็นความรู้ทางการเกษตร จำนวน 20 ข้อ

4. การวิเคราะห์ข้อมูล

การวิจัยครั้งนี้เป็นการวิจัยเชิงปริมาณ ประกอบด้วยสถิติ 2 ส่วน คือ

1) สถิติเชิงพรรณนา (Descriptive Statistics) ใช้สำหรับวิเคราะห์ข้อมูลพื้นฐานส่วนบุคคล สภาพทางสังคม เศรษฐกิจ และการส่งเสริมการเกษตร ได้แก่ ค่าความถี่ (Frequency) ค่าร้อยละ (Percentage) ค่าสูงสุด (Maximum) ค่าต่ำสุด (Minimum) ค่าเฉลี่ย (Arithmetic Mean) และค่าส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation)

2) สถิติเชิงอ้างอิง (Inferential Statistics) ใช้วิธีการวิเคราะห์ถดถอยพหุแบบขั้นตอน (Stepwise Multiple Regression Analysis) เพื่อหาความสัมพันธ์ระหว่างตัวแปรอิสระและตัวแปรตาม สำหรับทดสอบสมมติฐานการวิจัย ดังสมการ

$$Y_1 = a + b_1x_1 + b_2x_2 + ... + b_{28}x_{28}$$

เมื่อ Y คือ ความรู้ทางการเกษตรของเกษตรกรผู้นำ (คะแนน 0 – 20)

a คือ ค่าคงที่

$b_1, b_2,..., b_{28}$ คือ ค่าสัมประสิทธิ์ความสัมพันธ์ระหว่างตัวแปรอิสระกับตัวแปรตามเมื่อควบคุมค่าของตัวแปรอิสระอื่นที่มีอยู่ในสมการได้คงที่แล้ว

$x_1,x_2,...,x_{28}$ คือ คือ ปัจจัยส่วนบุคคล ปัจจัยทางสังคม ปัจจัยทางเศรษฐกิจ และการส่งเสริมการเกษตรของเกษตรกรผู้นำ ซึ่งมีรายละเอียด ดังนี้

X_1 คือ เพศของเกษตรกร (1=ชาย, 2=หญิง, 3=เพศทางเลือก)

X_2 คือ อายุของเกษตรกร (ปี)

X_3 คือ สถานภาพการสมรส (1=โสด, (2=สมรส, 3=หย่า, 4=อื่นๆ)

X_4 คือ จำนวนปีที่ศึกษา (ปี)

X_5 คือ จำนวนสมาชิกในครัวเรือน (คน)

X_6 คือ จำนวนแรงงานภาคการเกษตรในครัวเรือน (คน)

X_7 คือ ประสบการณ์ในการทำการเกษตร (ปี)

X_8 คือ จำนวนชนิดพืชหลักที่ปลูก (ชนิด)

X_9 คือ จำนวนการเป็นสมาชิกของกลุ่ม/องค์การการเกษตร (กลุ่ม)

X_{10} คือ จำนวนการเป็นผู้นำชุมชน (ตำแหน่ง)

X_{11} คือ จำนวนการเป็นอาสาสมัครเกษตร (ตำแหน่ง)

X_{12} คือ จำนวนการเป็นอาสาสมัครประเภทอื่น(ตำแหน่ง)

X_{13} คือ ประสบการณ์ในการเป็นเกษตรกรผู้นำ (ปี)

X_{14} คือ จำนวนครั้งการพบปะกับเกษตรกรผู้นำรายอื่น (ครั้ง/เดือน)

X_{15} คือ จำนวนครั้งในการเป็นวิทยากร (ครั้ง/ปี)

X_{16} คือ รายได้จากการเกษตร (บาท/ปี)

X_{17} คือ รายจ่ายทางการเกษตร (บาท/ปี)

X_{18} คือ หนี้สินทางการเกษตร (บาท)

X_{19} คือ จำนวนแหล่งเงินทุนในการทำการเกษตร (แหล่ง)

X_{20} คือ พื้นที่ถือครองที่ดินเพื่อการเกษตร (ไร่)

X_{21} คือ จำนวนการได้รับการฝึกอบรมคำแนะนำ(ครั้ง/ปี)

X_{22} คือ จำนวนการได้รับความรู้และ (ครั้ง/ปี)

X_{23} คือ จำนวนการได้รับสนับสนุนปัจจัยการผลิตเจ้าหน้าที่(ครั้ง/ปี)

X_{24} คือ จำนวนการเยี่ยมเยือนจากส่งเสริมการเกษตร (ครั้ง/เดือน)

X_{25} คือ จำนวนการไปทัศนศึกษาดูงาน (ครั้ง/ปี)

X_{26} คือ การได้รับการสนับสนุนงบประมาณ (บาท)

X_{27} คือ จำนวนครั้งในการติดต่อขอคำแนะนำจากข่าวสารเจ้าหน้าที่ (ครั้ง/เดือน)

X_{28} คือ จำนวนแหล่งที่มาในการรับรู้ (แหล่ง)

เงื่อนไขเบื้องต้นในการวิเคราะห์ถดถอยพหุแบบขั้นตอน (Stepwise Multiple Regression Analysis) ระบุว่าระหว่างตัวแปรอิสระจะต้องมีความสัมพันธ์กันน้อย ด้วยเงื่อนไขดังกล่าวผู้วิจัยได้ทำการวิเคราะห์ความสัมพันธ์ระหว่างตัวแปรอิสระแต่ละตัวโดยตัดตัวแปรที่มีค่าความสัมพันธ์สูง พบว่ามีเพียง 8 ตัวแปรอิสระที่มีค่าความสัมพันธ์ระหว่างตัวแปรน้อย คือ ตัวแปรอิสระ X_9 X_{12} X_{15} X_{17} X_{18} X_{20} X_{23} และ X_{26} จึงได้นำตัวแปรอิสระทั้ง 8 ตัวนี้เข้าไปสู่การวิเคราะห์ถดถอยพหุแบบขั้นตอน (Stepwise Multiple Regression Analysis)

ผลการวิจัย

1. สภาพพื้นฐานส่วนบุคคล สังคม เศรษฐกิจ และการส่งเสริมการเกษตรของเกษตรกรผู้นำศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา พบว่าเกษตรกรส่วนใหญ่เป็นเพศชาย (ร้อยละ 81.25) อายุเกษตรกรเฉลี่ย 57.43 ปี มีสถานภาพการสมรส (ร้อยละ 90.00) จบการศึกษาระดับปริญญาตรีมากที่สุด (ร้อยละ 31.88) สมาชิกในครัวเรือนเฉลี่ยประมาณ 4 คน แรงงานภาคการเกษตรในครัวเรือนเฉลี่ยประมาณ 3 คน ประสบการณ์ในการทำการเกษตรเฉลี่ย 21.57 ปี ทำการเกษตรโดยการปลูกพืชหลักเฉลี่ยประมาณ 3 ชนิด เช่น ข้าว ยางพารา ปาล์มน้ำมัน ไม้ผล เป็นต้น เกษตรกรส่วนใหญ่เป็นสมาชิกของกลุ่ม/องค์กรการเกษตร (ร้อยละ 85.63) และไม่เป็นผู้นำชุมชน ร้อยละ 55.63 เกษตรกรเป็นอาสาสมัครเกษตร ร้อยละ 50.00 แต่ส่วนใหญ่ไม่ได้เป็นอาสาสมัครประเภทอื่น (ร้อยละ 73.75) มีประสบการณ์ในการเป็นเกษตรกรผู้นำเฉลี่ย 8.00 ปี มีการแลกเปลี่ยนข้อมูลกับเกษตรกรผู้นำรายอื่นเฉลี่ย 2.59 ครั้งต่อเดือน ทำหน้าที่เป็นวิทยากรถ่ายทอดความรู้ทางการเกษตรเฉลี่ย 3.21 ครั้งต่อปี มีรายได้จากการเกษตรเฉลี่ย 166,028.75 บาทต่อปี รายจ่ายทางการเกษตรเฉลี่ย 66,526.25 บาทต่อปี เกษตรกรไม่มีหนี้สินทางการเกษตร ร้อยละ 68.13 แหล่งเงินทุนในการทำการเกษตรเฉลี่ยประมาณ 2 แหล่ง แหล่งเงินทุนครอบครัวมากที่สุด ร้อยละ 66.25 มีจำนวนที่ดินเพื่อทำการเกษตรเฉลี่ย 19.94 ไร่ โดยส่วนใหญ่เป็นที่ดินของตนเอง เกษตรกรทั้งหมดได้รับการสนับสนุนจากหน่วยงานภาครัฐ ภายใต้กระทรวงเกษตรกรและสหกรณ์ในเรื่องการฝึกอบรม การได้รับความรู้และคำแนะนำในการแก้ปัญหาด้านการเกษตร และการไปทัศนศึกษาดูงาน รวมทั้งได้รับการสนับสนุนงบประมาณเพื่อพัฒนางานด้านการเกษตร เกษตรกรไปหาเจ้าหน้าที่เพื่อรับคำแนะนำเฉลี่ย 1.78 ครั้งต่อเดือน (ร้อยละ 80.00) ได้รับข่าวสารความรู้ด้านการเกษตรจากเจ้าหน้าที่กรมส่งเสริมการเกษตรมากที่สุด ร้อยละ 91.25 รองลงมา คือ สื่อสังคมออนไลน์ โดยเกษตรกรได้รับความรู้จาก Facebook มากที่สุด

2. ระดับความรู้ทางการเกษตร เป็นข้อทดสอบจำนวน 20 ข้อ คะแนนเต็ม 20 คะแนน ผลการทดสอบความรู้ พบว่า ภาพรวมของเกษตรกรผู้นำศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา มีระดับความรู้ทางการเกษตร อยู่ในระดับสูง โดยมีช่วงคะแนน 14.01 - 20.00 คะแนน (ร้อยละ 68.75) คะแนนเฉลี่ยที่เกษตรกรผู้นำตอบถูกเท่ากับ 14.43 คะแนน (ดังตารางที่ 1) ซึ่งพบว่าเกษตรกรมีความรู้ในด้านเศรษฐกิจพอเพียงมากที่สุดเฉลี่ย 0.94 และมีความรู้ด้านระบบน้ำสำหรับการเกษตรน้อยที่สุดเฉลี่ย 0.55 (ดังตารางที่ 2)

ตารางที่ 1 ระดับความรู้ทางการเกษตรของเกษตรกรผู้นำ

ระดับความรู้ทางการเกษตร	จำนวน (คน)	ร้อยละ
0.00 – 6.00 (ความรู้ระดับต่ำ)	0	0.00
7.00 – 13.00 (ความรู้ระดับปานกลาง)	50	31.25
14.00 – 20.00 (ความรู้ระดับสูง)	110	68.75
$\overline{X}$ = 14.43, S.D. = 1.75, Minimum = 11, Maximum = 19		

ตารางที่ 2 ความรู้ทางการเกษตรของเกษตรกรผู้นำ

ข้อ	ความรู้ทางการเกษตรของเกษตรกรผู้นำ	ตอบถูกต้อง (ร้อยละ)	ตอบไม่ถูกต้อง (ร้อยละ)
ความรู้ด้านเศรษฐกิจพอเพียง			
1.	การวางแผนบริหารจัดการประเทศ เป็นการปฏิบัติตนตามหลักปรัชญาเศรษฐกิจพอเพียง	153 (95.62)	7 (4.38)
2.	การผลิตเพื่อการค้า เป็นการดำเนินการตามหลักแนวคิดเศรษฐกิจพอเพียง	147 (91.88)	13 (8.12)
ความรู้ด้านเกษตรทฤษฎีใหม่			
3.	ทฤษฎีใหม่เป็นหลักการที่เป็นแนวทางปฏิบัติสำหรับเกษตรกรที่มีพื้นที่ทำกินขนาดเล็กที่ดินประมาณ 3 ไร่	128 (80.00)	32 (20.00)
4.	ขั้นตอนของทฤษฎีใหม่ มี 3 ขั้น คือ ขั้นต้น การแบ่งพื้นที่ ขั้นที่สอง การรวมกลุ่มกันของเกษตรกร ขั้นที่สาม การติดต่อประสานงานเพื่อจัดหาทุนหรือแหล่งเงิน	144 (90.00)	16 (10.00)
5.	แนวคิดทฤษฎีใหม่ ลดความเสี่ยงจากราคาผลผลิตตกต่ำ	138 (86.25)	22 (13.75)
ความรู้ด้านเกษตรผสมผสาน			
6.	การกำจัดวัชพืชโดยทางชีวภาพ คือ การใช้วิธีการธรรมชาติโดยใช้สิ่งมีชีวิตด้วยกันเป็นตัวกำจัด	145 (90.63)	15 (9.37)
7.	การทำเกษตรผสมผสานมีประโยชน์ในด้านการลดต้นทุนการผลิตมากที่สุด	116 (72.50)	44 (27.50)
ความรู้ด้านการจัดทำบัญชีครัวเรือน			
8.	การทำบัญชีรายรับ - รายจ่าย อย่างง่าย เรียกว่า บัญชีชาวบ้าน	141 (88.13)	19 (11.87)
9.	การทำบัญชีรายรับ - รายจ่าย เพื่อให้ทราบถึงวิธีการใช้จ่ายเงินในแต่ละเดือน	142 (88.75)	18 (11.25)
10.	ถ้าเขียนตัวเลขบัญชีผิดควรขีดฆ่าทั้งจำนวนแล้วเซ็นชื่อกำกับและเขียนใหม่ให้ถูกต้อง	149 (93.13)	11 (6.87)
11.	การเขียนสมการบัญชีครัวเรือน คือ สินทรัพย์ = หนี้สิน + ทุน	114 (71.25)	46 (28.75)
ความรู้ด้านระบบน้ำสำหรับการเกษตร			
12.	การส่งน้ำบนพื้นที่เนินสูงควรเดินท่อเมนไปยังจุดที่ต้องการและวางท่อเมนย่อยและท่อย่อยตามแนวปลูกพืช	65 (40.63)	95 (59.38)
13.	การเลือกขนาดท่อน้ำ เป็นสิ่งที่ต้องทำอันดับแรก ในการออกแบบระบบการให้น้ำพืช	104 (65.00)	56 (35.00)
14.	ความต้องการน้ำของพืช คือ ปริมาณน้ำที่พืชต้องการใช้ในการคายน้ำ	78 (48.75)	82 (51.25)
15.	วิธีการคำนวณออกแบบระบบน้ำเริ่มคำนวณจากปั๊มไปยังหัวจ่ายน้ำ	66 (41.25)	94 (58.75)
16.	ระบบการให้น้ำพืชแบบน้ำหยด ต้องใช้แรงดันต่ำ	136 (85.00)	24 (15.00)
17.	ระบบการให้น้ำพืชแบบสปริงเกอร์ มีอัตราการไหลของน้ำน้อย	97 (60.63)	63 (39.37)
18.	แปลงปลูกพืชไร่ พืชผัก พื้นที่ขนาดใหญ่ ควรเลือกใช้ระบบน้ำแบบมินิสปริงเกอร์	85 (53.13)	75 (46.87)
19.	ระบบการให้น้ำพืชแบบน้ำหยด ใช้ระยะเวลาการให้น้ำน้อย	96 (60.00)	64 (40.00)

ตารางที่ 2 (ต่อ)

ข้อ	ความรู้ทางการเกษตรของเกษตรกรผู้นำ	ตอบถูกต้อง (ร้อยละ)	ตอบไม่ถูกต้อง (ร้อยละ)
ความรู้ด้านระบบน้ำสำหรับการเกษตร (ต่อ)			
20.	ขนาดท่อ PVC ที่มากขึ้น อัตราการไหลของน้ำจะน้อยลง	64 (40.00)	96 (60.00)

3. ผลการวิเคราะห์ สามารถนำมาเขียนสมการถดถอย ได้ดังนี้

$Y_1 = 13.925 + 0.00001742x_{26}$

สมการถดถอยมีค่าประมาณการค่าคงที่ เท่ากับ 13.925 หมายความว่า กลุ่มตัวอย่างที่ทำการศึกษามีคะแนนความรู้ทางการเกษตรจำนวน 13.925 คะแนน ซึ่งเป็นคะแนนที่เป็นอิสระจากตัวแปรอิสระอื่น ๆ โดยค่าสัมประสิทธิ์ความถดถอยของการได้รับการสนับสนุนงบประมาณเพื่อการพัฒนางานด้านการเกษตร (X_{26}) มีความสัมพันธ์ในเชิงบวกกับตัวแปรตาม ที่ระดับนัยสำคัญ 0.01 มีค่าเท่ากับ 0.00001742 สามารถอธิบายได้ว่า หากเกษตรกรผู้นำได้รับการสนับสนุนงบประมาณเพื่อการพัฒนางานด้านการเกษตรเพิ่มขึ้น 1 บาท เกษตรกรจะมีความรู้ทางการเกษตรเพิ่มขึ้น 0.00001742 คะแนน ค่าสัมประสิทธิ์การทำนายเชิงพหุ (Multiple Coefficient of Determination, R^2) ปรากฏว่า R^2 Adjusted มีค่าเท่ากับ 0.444 มีผลต่อตัวแปรตามมีนัยสำคัญทางสถิติ 0.01 หมายความว่า การได้รับการสนับสนุนงบประมาณ สามารถอธิบายการเปลี่ยนแปลง ความรู้ทางการเกษตรของเกษตรกรผู้นำ ได้ร้อยละ 44.40 โดยส่วนที่เหลืออีก ร้อยละ 55.60 เป็นผลมาจากการเปลี่ยนแปลงของปัจจัยอื่นที่ไม่ได้นำเข้ามาในสมการ ดังตารางที่ 3

ตารางที่ 3 การวิเคราะห์ถดถอยพหุ ข้อมูลพื้นฐานส่วนบุคคล สภาพทางสังคม สภาพทางเศรษฐกิจ การส่งเสริมการเกษตร กับความรู้ทางการเกษตรของเกษตรกรผู้นำ

ตัวแปร	ค่าสัมประสิทธิ์ถดถอย (b)	β	t	Sig.	Collinearity Statistics	
					Tolerance	VIF
(Constant)	13.925		23.792	0.000		
การได้รับการสนับสนุนงบประมาณ (x_{26})	0.00001742	0.711	2.859	0.021	1.000	1.000
F = 8.176***, P-Value.=0.000, SE_{est}=1.693, Durbin-Watson = 2.034						
R^2= 0.505, R^2Adjusted = 0.444						

สรุปและอภิปรายผล

การศึกษาสภาพพื้นฐานส่วนบุคคล สังคม เศรษฐกิจ การส่งเสริมการเกษตร และระดับความรู้ทางการเกษตรของเกษตรกรผู้นำ ศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา พบว่า เกษตรกรมีความรู้ทางการเกษตรในระดับสูง เนื่องจากเกษตรกรผู้นำต้องเข้าอบรมในหลักสูตรบังคับและหลักสูตรหลักของโครงการโดยเกษตรกรที่มีระดับการศึกษาสูงจะมีความเข้าใจในเนื้อหาหลักสูตรที่ทำการอบรมและสามารถนำไปประยุกต์ใช้กับตนเองรวมถึงถ่ายทอดองค์ความรู้ให้กับเกษตรกร

รายอื่นได้ สอดคล้องกับ ณัฏฐพณิชา สุภานันท์ (2560) ที่ศึกษาความรู้และการปฏิบัติของเกษตรกรในการควบคุมศัตรูพืชโดยใช้สารชีวภัณฑ์ในพื้นที่อำเภอแม่ลาน้อย จังหวัดแม่ฮ่องสอน พบว่า การศึกษามีความสัมพันธ์เชิงบวกกับความรู้เกี่ยวกับการใช้สารชีวภัณฑ์ในการควบคุมศัตรูพืชของเกษตรกร เนื่องจากระดับการศึกษาส่งผลต่อความสามารถในการอ่าน และเข้าใจเนื้อความต่าง ๆ ซึ่งมีผลต่อความรู้ของเกษตรกร นอกจากนี้เกษตรกรผู้นำสามารถนำความรู้ที่มีไปแก้ปัญหาทางการเกษตรที่เกิดขึ้นได้ในระดับหนึ่ง มีการนำผลของการแก้ปัญหาที่ประสบความสำเร็จมาแลกเปลี่ยน เรียนรู้ กับเกษตรกรรายอื่นและรายงานในที่ประชุมคณะกรรมการเครือข่ายศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในระดับอำเภอและจังหวัด ซึ่งสอดคล้องกับ สำนักงานคณะกรรมการพัฒนาระบบราชการ (2560) ที่ได้แบ่งระดับความรู้เป็น 4 ระดับ ความรู้เชิงทฤษฎี ความรู้เชิงทฤษฎีและเชิงบริบท ความรู้ในระดับที่อธิบายเหตุผลและความรู้ในระดับคุณค่า ความเชื่อ โดยเกษตรกรผู้นำที่ได้จากงานวิจัยมีความรู้ในระดับที่อธิบายเหตุผล (Know-Why) เป็นความรู้เชิงเหตุผลระหว่างเรื่องราวหรือเหตุการณ์ต่าง ๆ ผลของประสบการณ์แก้ปัญหาที่ซับซ้อน และนำประสบการณ์มาแลกเปลี่ยนเรียนรู้กับผู้อื่น เป็นผู้ทำงานมาระยะหนึ่งแล้วเกิดความรู้ฝังลึกสามารถถอดความรู้ฝังลึกของตนเองมาแลกเปลี่ยนกับผู้อื่นหรือถ่ายทอดให้ผู้อื่นได้พร้อมทั้งรับเอาความรู้จากผู้อื่นไปปรับใช้ในบริบทของตนเองได้ และส่วนใหญ่จบการศึกษาในระดับปริญญาตรี

การศึกษาปัจจัยที่ส่งผลต่อความรู้ทางการเกษตรของเกษตรกรผู้นำ ศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา ผลการศึกษา พบว่า การได้รับการสนับสนุนงบประมาณ เพื่อพัฒนางานด้านการเกษตรมีผลทางบวกต่อความรู้ทางการเกษตรของเกษตรกรผู้นำ ศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา สะท้อนให้เห็นว่า หากเกษตรกรได้รับการสนับสนุนงบประมาณ เพื่อพัฒนางานด้านการเกษตรมากขึ้น จะทำให้เกษตรกรมีความรู้ทางการเกษตรเพิ่มขึ้นด้วย เนื่องจากหากเกษตรกรได้รับการสนับสนุนงบประมาณเพื่อพัฒนางานด้านการเกษตรจะทำให้เกษตรกรมีโอกาสในการเรียนรู้ พัฒนาทักษะ และปรับตัวให้เข้ากับการเปลี่ยนแปลงของการทำเกษตรแบบสมัยใหม่อย่างมีประสิทธิภาพและสามารถยกระดับความรู้ทางการเกษตรได้อย่างยั่งยืน ซึ่งไม่สอดคล้องกับ อรพิณ พะเก่พอ (2566) ที่ได้ศึกษาปัจจัยที่มีผลต่อความรู้และทักษะการใช้เทคโนโลยีสารสนเทศของนักวิชาการส่งเสริมการเกษตรในจังหวัดแม่ฮ่องสอน พบว่า เพศ มีความสัมพันธ์ทางสถิติกับความรู้ การใช้เทคโนโลยีสารสนเทศของนักวิชาการส่งเสริมการเกษตรในจังหวัดแม่ฮ่องสอน ที่ระดับนัยสำคัญ 0.05 และพบว่าการสนับสนุนจากผู้บริหารไม่มีความสัมพันธ์ทางสถิติกับความรู้การใช้เทคโนโลยีสารสนเทศของนักวิชาการส่งเสริมการเกษตรในจังหวัดแม่ฮ่องสอน ที่ระดับนัยสำคัญ 0.05 จากผลการศึกษาที่มีความไม่สอดคล้องกันเนื่องจากจังหวัดสงขลาเป็นจังหวัดที่มีประชากรและพื้นที่ขนาดใหญ่ เป็นศูนย์กลางทางเศรษฐกิจของภาคใต้ เป็นพื้นที่ที่มีลักษณะพิเศษด้านเศรษฐกิจสังคมและวัฒนธรรม มีความเชื่อมโยงสัมพันธ์กับต่างประเทศ พื้นที่บางส่วนประสบปัญหาด้านความมั่นคง โดยรัฐบาลได้กำหนดนโยบายความมั่นคงแห่งชาติสำหรับพื้นที่ดังกล่าวไว้เป็นการเฉพาะ มีการสนับสนุนงบประมาณในการพัฒนาและแก้ปัญหาในพื้นที่อย่างต่อเนื่องทำให้จังหวัดสงขลาได้รับการจัดสรรงบประมาณมากกว่าจังหวัดแม่ฮ่องสอน ซึ่งสอดคล้องกับการจัดสรรงบประมาณรายจ่ายประจำปีงบประมาณ พ.ศ. 2566 (โครงการตามตัวชี้วัด) ครั้งที่ 1 ของกรมส่งเสริมการเกษตร ที่จัดสรรงบประมาณให้จังหวัดสงขลามากกว่าจังหวัดแม่ฮ่องสอน (กรมส่งเสริมการเกษตร, 2565ข) ซึ่งการที่เกษตรกรได้รับการสนับสนุนงบประมาณที่มากขึ้นทำให้เกษตรกรมีโอกาสเรียนรู้และเข้าถึงเทคโนโลยีใหม่ ๆ ได้มากขึ้น เช่น การอบรมและติดตั้งระบบน้ำ

สำหรับการเกษตร ซึ่งเป็นเทคโนโลยีสมัยใหม่ที่ใช้งบประมาณค่อนข้างสูงในการติดตั้ง ทำให้เกษตรกรสามารถพัฒนาความรู้และทักษะในการทำเกษตรได้อย่างมีประสิทธิภาพมากขึ้น

ข้อเสนอแนะ

การศึกษาปัจจัยที่ส่งผลต่อความรู้ทางการเกษตรของเกษตรกรผู้นำ ศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตรในจังหวัดสงขลา สามารถนำไปใช้เป็นแนวทางในการพัฒนาความรู้ทางการเกษตรให้กับเกษตรกรผู้นำ ได้ดังนี้

1. เกษตรกร เกษตรกรผู้นำควรเข้ารับการอบรมและพัฒนาความรู้ เรื่อง ระบบน้ำสำหรับการเกษตร ด้านการเลือกท่อและอุปกรณ์ให้เหมาะสม การคำนวนและการออกแบบระบบน้ำในพื้นที่ที่มีความแตกต่างกัน เนื่องจากเป็นประเด็นที่เกษตรกรตอบผิดมากที่สุดและมีความสำคัญในการเพิ่มประสิทธิภาพการผลิต เพิ่มผลผลิตทางการเกษตร รวมถึงลดต้นทุนในการผลิตได้ ที่ส่งผลให้เกษตรกรมีรายได้มากขึ้น

2. หน่วยงานราชการ

1) ด้านความรู้ หน่วยงานราชการภายใต้สังกัดกระทรวงเกษตรและสหกรณ์ เช่น กรมส่งเสริมการเกษตร กรมชลประทาน และกรมวิชาการเกษตร เป็นต้น ควรเพิ่มหลักสูตรการเรียนรู้ เรื่อง ระบบน้ำสำหรับการเกษตร การคำนวณและการออกแบบระบบน้ำในพื้นที่ที่มีความแตกต่างกัน ให้เป็นหลักสูตรภาคบังคับที่จะต้องให้มีการจัดอบรมความรู้ให้กับเกษตรกรในทุกปี เพื่อเพิ่มประสิทธิภาพในการผลิตสินค้าเกษตรและการใช้น้ำอย่างมีคุณค่า

2) ด้านงบประมาณ ควรมีการจัดสรรงบประมาณเพื่อสนับสนุนให้กับเกษตรกรได้เกิดการเรียนรู้จากตัวอย่างจริงเพิ่มเติมจากการอบรมแบบออนไลน์ เพื่อให้เกษตรกรได้ทดลองปฏิบัติ ควบคู่กับการศึกษาดูงาน ย่อมทำให้ให้เกษตรกรเกิดความรู้ ความเข้าใจและสามารถนำไปปฏิบัติได้มากที่สุด

3) การจัดทำสื่อการเรียนรู้และการประชาสัมพันธ์ให้กับเกษตรกร เนื่องจากเกษตรกรได้รับความรู้จากเจ้าหน้าที่ส่งเสริมการเกษตรมากที่สุด รองลงมา คือ ได้รับความรู้จากสื่อสังคมออนไลน์ ดังนั้นเจ้าหน้าที่ส่งเสริมการเกษตรควรจัดทำสื่อการเรียนรู้และเผยแพร่ประชาสัมพันธ์ผ่านสื่อสังคมออนไลน์ทุกช่องทาง เพื่อสร้างการรับรู้ให้กับเกษตรกรมากยิ่งขึ้น

เอกสารอ้างอิง

กรมส่งเสริมการเกษตร (2565ก). คู่มือโครงการศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตร (ศพก.) ประจำปีงบประมาณ พ.ศ. 2566. ค้นเมื่อวันที่ 15 มกราคม 2567 จาก https://alc.doae.go.th/wp-content/uploads/2023/01/OK2-คู่มือโครงการ.ศพก. 66_091265-USE.pdf

กรมส่งเสริมการเกษตร (2565ข). หนังสืออนุมัติงบประมาณรายจ่ายประจำปีงบประมาณ พ.ศ. 2566 (โครงการตามตัวชี้วัด) ครั้งที่ 1 จังหวัดสงขลาและแม่ฮ่องสอน, เลขที่ กษ 1004/ว1289 ลงวันที่ 5 ตุลาคม 2565.

กรมส่งเสริมการเกษตร (2566ก). ระเบียบกระทรวงเกษตรและสหกรณ์ ว่าด้วยการบริหารงานศูนย์เรียนรู้การเพิ่มประสิทธิภาพการผลิตสินค้าเกษตร (ศพก.) พ.ศ. 2560. สืบค้นเมื่อวันที่ 15 มีนาคม 2567 จาก https://alc.doae.go.th/?p=7824

กรมส่งเสริมการเกษตร (2566ข) รายงานการดำเนินงานของศูนย์เครือข่าย ศพก. ปี 2560. กรมส่งเสริมการเกษตร กระทรวงเกษตรและสหกรณ์. สืบค้นเมื่อ 1 กุมภาพันธ์ 2567 จาก https://learningpoint.doae.go.th/report/station.

กรมส่งเสริมการเกษตร (2566ค). รายงานการดำเนินงานของศูนย์เครือข่าย ศพก. ปี2566. กรมส่งเสริมการเกษตร กระทรวงเกษตรและสหกรณ์. สืบค้นเมื่อ 1 กุมภาพันธ์ 2567 จาก https://learningpoint.doae.go.th/report/station.

กรมส่งเสริมการเกษตร (2566ง) รายงานสรุปการจัดอบรมเกษตรกร แลกเปลี่ยนเรียนรู้ตลอดฤดูกาลผลิต. สืบค้นเมื่อวันที่ 15 กุมภาพันธ์ 2567 จากhttps://learningpoint.doae.go.th/train/report

กระทรวงเกษตรและสหกรณ์ (2566). 14 ปี แห่งการขับเคลื่อนปรัชญาเศรษฐกิจพอเพียงสู่สังคมไทย. ค้น เมื่อวันที่ 15 เมษายน 2567 จาก https://www.moac.go.th/news-preview-451991791514

คณะเกษตรศาสตร์ มหาวิทยาลัยเชียงใหม่. (ม.ป.ป.). บทบาทของเกษตรกรผู้นำและองค์กรเกษตรกรในงานส่งเสริมการเกษตร. สืบค้นเมื่อ 1 มีนาคม 2567 จาก https://agecon-extens.agri.cmu.ac.th

ณัฏฐชนก ธนัตพร (2555). พฤติกรรมผู้นำในการบริหารสถานศึกษาของผู้บริหารตามทัศนะของข้าราชการครู โรงเรียนมัธยมศึกษา สังกัดสำนักงานเขตพื้นที่การศึกษามัธยมศึกษา เขต 39. (วิทยานิพนธ์มหาบัณฑิต). กรุงเทพฯ: มหาวิทยาลัยนอร์ทกรุงเทพ.

ณัฏฐพณิชา สุภานันท์ (2560). ความรู้และการปฏิบัติของเกษตรกรในการควบคุมศัตรูพืชโดยใช้สารชีวภัณฑ์ในพื้นที่อำเภอแม่ลาน้อย จังหวัดแม่ฮ่องสอน (วิทยานิพนธ์มหาบัณฑิต). มหาวิทยาลัยเชียงใหม่, เชียงใหม่.

พรชุลีย์ นิลวิเศษ (2545). การพัฒนาผู้นำในองค์กรพัฒนาเพื่อการส่งเสริมการเกษตรในประมวลสาระชุดวิชาองค์กรพัฒนาเพื่อการส่งเสริมการเกษตร (หน่วยที่ 13). สำนักพิมพ์มหาวิทยาลัยสุโขทัยธรรมาธิราช

สำนักงานคณะกรรมการพัฒนาระบบราชการ (2560). การจัดการความรู้. กรุงเทพ: สำนักพิมพ์คณะรัฐมนตรีและราชกิจานุเบกษา.

สำนักวิจัยและส่งเสริมวิชาการเกษตร (2562). การจัดการความรู้. สืบค้นเมื่อ 25 เมษายน 2567 จาก https://researchex.mju.ac.th /km/index.php/blogkm/kmman/4-knowledgemanagement

สุวิมล ติรกานันท์ (2551). ระเบียบวิธีวิจัยทางสังคมศาสตร์ (พิมพ์ครั้งที่ 7). กรุงเทพมหานคร: โรงพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย

อรพิณ พะเก่พอ (2566). ปัจจัยที่มีผลต่อความรู้และทักษะการใช้เทคโนโลยีสารสนเทศของนักวิชาการส่งเสริมการเกษตรในจังหวัดแม่ฮ่องสอน (วิทยานิพนธ์เกษตรศาสตรมหาบัณฑิต). มหาวิทยาลัยสุโขทัยธรรมาธิราช, กรุงเทพ.

การจัดการระบบสารสนเทศทางภูมิศาสตร์ สำหรับการพัฒนาเส้นทางการท่องเที่ยวชุมชนเชิงอาหารอย่างยั่งยืน กรณีศึกษา ตำบลท่าข้าม จังหวัดสงขลา

Geographic Information System Management for the Development of Sustainable Food Tourism Community Routes : A Case Study of Thakham District, Songkhla

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บทคัดย่อ

งานวิจัยฉบับนี้เป็นการลงพื้นที่สำรวจและเก็บบันทึกตำแหน่งและข้อมูลของกลุ่มอาชีพ ผลิตภัณฑ์ด้านอาหาร รวมถึงลักษณะการตั้งถิ่นฐานของชุมชน อาคารบ้านเรือน อาหารการกิน ซึ่งเป็นอัตลักษณ์และรูปแบบวัฒนธรรมที่มีอิทธิพลต่อวิถีชีวิต และศักยภาพของพื้นที่ชุมชนตำบลท่าข้าม อำเภอหาดใหญ่ จังหวัดสงขลา โดยมีวัตถุประสงค์ คือ การนำข้อมูลที่ได้เข้าสู่ระบบสารสนเทศทางภูมิศาสตร์ (Geographic Information System: GIS) เพื่อใช้เป็นฐานข้อมูลแหล่งท่องเที่ยวชุมชนด้านอาหารในรูปแบบดิจิทัลออนไลน์ สามารถนำไปต่อยอดการใช้งานเพื่อการพัฒนาชุมชนในอนาคต

ผลการวิจัยพบว่า ตำบลท่าข้าม มีความอุดมสมบูรณ์ทั้งทางด้านทรัพยากรธรรมชาติและต้นทุนทางวัฒนธรรมที่เป็นเอกลักษณ์ มีแหล่งเรียนรู้ด้านวัฒนธรรมและภูมิปัญญาที่หลากหลายที่ควรอนุรักษ์และสืบสานอย่างต่อเนื่อง รวมถึงด้านเศรษฐกิจในพื้นที่ มีการตั้งกลุ่มผลิตภัณฑ์สินค้า OTOP จำนวน 5 กลุ่ม ได้แก่ กลุ่มผลิตมันทอดบ้านเขากลอย กลุ่มบ้านทำขนมปั้นสิบ กลุ่มขนมถั่วทอดกลุ่มเครื่องแกงสมุนไพร กลุ่มเพาะปลูกเห็ดแครง และกลุ่มเลี้ยงผึ้งญวน (ผึ้งโพรงไทย) สามารถสร้างรายได้ให้กับชาวบ้านในชุมชนได้อย่างต่อเนื่อง รวมทั้งการที่ตำแหน่งที่ตั้งของตำบลท่าข้ามอยู่ไม่ไกลจากตัวเมืองหาดใหญ่ และมีการคมนาคมเข้าถึงที่สะดวก ทำให้มีการพัฒนาแหล่งสถานที่ท่องเที่ยวเพื่อดึงดูดนักท่องเที่ยวให้เข้ามายังภายในชุมชน เช่น ร้านสถานีท่าข้าม ทำให้ได้ฐานข้อมูลแผนที่เส้นทางการท่องเที่ยวชุมชนเชิงอาหารอย่างยั่งยืนชุมชนท่าข้าม สำหรับ 1 วัน ในรูปแบบดิจิทัลออนไลน์ GOOGLE My Maps โดยมีการกำหนดจุดแวะท่องเที่ยว 12 สถานที่ มีระยะทางเดินทางไปยังจุดต่าง ๆ ประมาณ 17 กิโลเมตร ทำให้นักท่องเที่ยวสามารถชิมอาหาร ชมวิวทิวทัศน์ภูมิประเทศได้อย่างครบครัน โดยเส้นทางจะผ่านตัวชุมชน ทุ่งนา สวนยาง และขึ้นเขาลานโพธิ์หินงาม จึงเป็นแนวทางที่ควรส่งเสริมให้หน่วยงานปกครองส่วนท้องถิ่นและหน่วยงานต่าง ๆ ที่เกี่ยวข้องภายในพื้นที่ร่วมมือกันจัดทำข้อมูลเพิ่มเติม ให้สามารถเข้าถึงได้ง่าย มีความสะดวกในการใช้งานและไม่ซับซ้อนจนเกินไป ซึ่งเหมาะสมกับสถานการณ์การระบาดของเชื้อไวรัส Covid-19 และแนวทางการท่องเที่ยวรูปแบบใหม่ที่จะเกิดขึ้นในอนาคตต่อไป

คำสำคัญ : แหล่งอาหาร, ระบบสารสนเทศทางภูมิศาสตร์, เส้นทางการท่องเที่ยวชุมชนเชิงอาหาร

Abstract

This research undertakes a field-based survey to map and record the spatial and contextual data of local occupations, food-related products, settlement patterns, vernacular architecture, and culinary practices that reflect the cultural identity and way of life of communities in Tha Kham Subdistrict, Hat Yai District, Songkhla Province. The primary objective is to integrate these data into a Geographic Information System (GIS) to develop an online digital database that serves as a foundation for community-based food tourism. This digital platform can be further utilized to support sustainable community development initiatives.

The research findings indicate that Tha Kham Subdistrict is rich in both natural resources and unique cultural capital. It possesses diverse forms of local knowledge and cultural learning resources that warrant preservation and ongoing transmission. Economically, the community has established five key local product groups under the One Tambon One Product (OTOP) scheme: (1) the Khao Kloi fried taro group, (2) the Ban Khanom Pan Sib snack group, (3) the fried peanut snack group, (4) the herbal curry paste group, (5) the kraeng mushroom cultivation group, and (6) the Vietnamese honeybee (Thai stingless bee) farming group. These groups generate consistent income for local residents. Furthermore, Tha Kham's close proximity to downtown Hat Yai and its convenient transportation network have facilitated the development of tourism infrastructure, including attractions such as the Tha Kham Station Café. As a result, a one-day community-based food tourism route has been developed using Google My Maps, identifying 12 key stopover points along a route spanning approximately 17 kilometers. The route offers tourists the opportunity to enjoy local cuisine while experiencing diverse landscapes that include village centers, rice fields, rubber plantations, and the scenic Lan Pho Hin Ngam Hill. This initiative demonstrates a practical model for the creation of a digital, GIS-based tourism map that supports sustainable food tourism in rural communities. It highlights the importance of collaborative efforts among local administrative organizations and relevant stakeholders to enhance and expand the dataset. Emphasis should be placed on the use of accessible, user-friendly, and low-complexity digital tools, particularly in the context of the COVID-1 9 pandemic and the evolving paradigm of post-pandemic tourism. This approach not only promotes cultural preservation and economic resilience but also provides a replicable framework for similar community-based development projects elsewhere.

Keywords : food sources, geographic information system, food community tourism route

บทนำ

ชุมชนท่าข้าม ตำบลท่าข้าม อำเภอหาดใหญ่ จังหวัดสงขลา เป็นพื้นที่ชุมชนซึ่งมีกลุ่มอาชีพที่หลากหลาย เช่น กลุ่มผลิตมันทอด บ้านเขากลอย กลุ่มเครื่องแกงสมุนไพร กลุ่มขนมถั่วทอด กลุ่มขนมเปี๊ยะ กลุ่มน้ำสมุนไพร กลุ่มเพาะปลูกเห็ดแครง และกลุ่มน้ำผึ้งชันโรง ซึ่งในแต่ละกลุ่มอาชีพมีความต้องการในการพัฒนาวิถีอาชีพของกลุ่มตนเองให้มีความเข้มแข็ง เพื่อให้สามารถต่อยอดและถ่ายทอดเทคโนโลยีแก่ชาวบ้านในชุมชน โดยหวังให้เกิดผลกระทบที่จะเกิดขึ้นได้ในระยะเวลาอันใกล้นี้ โดยการพัฒนาความเข้มแข็งจะเน้นไปในด้านการสร้างเมืองนวัตกรรมด้านอาหาร (Food Innopolis) ในอนาคต จากความสำคัญดังกล่าว ผู้วิจัยจึงเล็งว่า ในปัจจุบันนักท่องเที่ยวเริ่มหันมาให้ความสนใจแหล่งท่องเที่ยวทางเลือกมากขึ้น อย่างเช่น การท่องเที่ยวเมืองรอง หรือการท่องเที่ยวโดยชุมชน (Community Based Tourism: CBT) มีความต้องการที่จะเข้าเยี่ยมชม เรียนรู้ และสัมผัสความเป็นเอกลักษณ์และโดดเด่น และความน่าสนใจของเมืองนั้น ๆ ซึ่งในแนวทางการพัฒนาเมือง การใช้งานระบบสารสนเทศทางภูมิศาสตร์ (Geographic Information System: GIS) ความสามารถในการบูรณาการข้อมูลหลายมิติ เช่น ตำแหน่งทางภูมิศาสตร์ ข้อมูลด้านสิ่งแวดล้อม วัฒนธรรม เศรษฐกิจ และการคมนาคม เพื่อให้สามารถวิเคราะห์ศักยภาพของพื้นที่ท่องเที่ยวได้อย่างเป็นระบบ และนำไปสู่การจัดสรรทรัพยากรเพื่อการพัฒนาที่เหมาะสมและยั่งยืน (Baud-Bovy & Lawson, 2002) ผู้วิจัยเห็นว่าการสำรวจและจัดทำฐานข้อมูลแหล่งท่องเที่ยวชุมชนด้านอาหาร ด้วยใช้วิธีการการบันทึกข้อมูลการศึกษา ลงพื้นที่สำรวจด้วยการทำแผนที่มรดกทางอาหาร (Cultural Mapping) รวมถึงการสื่อความหมายในเรื่องต่าง ๆ ล้วนแต่เป็นอัตลักษณ์ของชุมชนท่าข้าม เพื่อให้รู้คุณค่าของมรดกทางวัฒนธรรมทั้งวัฒนธรรมจับต้องได้และวัฒนธรรมที่จับต้องไม่ได้ นั้นเป็นสิ่งจำเป็น โดยเก็บบันทึกตำแหน่งและข้อมูลของกลุ่มอาชีพ ผลิตภัณฑ์ด้านอาหารด้วยระบบสารสนเทศทางภูมิศาสตร์ (Geographic Information System: GIS) และระบบดิจิทัลออนไลน์ ใน GOOGLE My Maps เพื่อนำมาใช้เป็นฐานข้อมูลในการพัฒนาเส้นทางการท่องเที่ยวชุมชนเชิงอาหารอย่างยั่งยืนต่อไป

วัตถุประสงค์ของการวิจัย

1. สำรวจและเก็บข้อมูลเชิงพื้นที่กลุ่มอาชีพ ผลิตภัณฑ์ด้านอาหารในชุมชนตำบลท่าข้าม อำเภอหาดใหญ่ จังหวัดสงขลา
2. จัดทำฐานข้อมูลที่ได้จากการเก็บข้อมูลภาคสนามในรูปแบบฐานข้อมูลเชิงพื้นที่ (Spatial Database) และจัดทำฐานข้อมูลเชิงคุณลักษณะ (Attribute Database)
3. พัฒนาเส้นทางท่องเที่ยวเชิงอาหารอย่างยั่งยืนชุมชนท่าข้ามใน GOOGLE My Maps

แนวคิด ทฤษฎี กรอบแนวคิด

กำธร กุลชล (2545) ได้ให้ความหมายว่า การออกแบบชุมชนเมือง คือ การสร้างสรรค์สภาพแวดล้อมทางกายภาพของการตั้งถิ่นฐานของมนุษย์ ซึ่งเน้นคุณภาพ 3 ประการ ได้แก่ คุณภาพทางด้านสุนทรียภาพ คุณภาพชีวิตของสังคมเมือง คุณภาพของสิ่งแวดล้อม โดยคุณภาพทางสุนทรียภาพ หมายถึง การมีรูปทรงที่มีความเป็นระเบียบ สวยงาม และจดจำได้ง่าย มีความกลมกลืนกับสถานที่ตั้งและสภาพแวดล้อม และรู้สึกได้ถึงความเป็นองค์รวม ส่วนคุณภาพชีวิตของสังคมเมือง หมายถึง การสร้างชุมชนเมืองและพื้นที่ที่เหมาะสมกับการใช้งานของมนุษย์ เข้าถึงสะดวก มีความหลายหลายในการตอบสนองคนที่แตกต่างกันและมีความปลอดภัย ส่วนคุณภาพของสิ่งแวดล้อม หมายถึง การให้ความสำคัญ

กับภาวะความสบายของสรีระและสุขอนามัยของชุมชน รวมทั้งมีการใช้ทรัพยากรอย่างชาญฉลาด คุ้มค่าและไม่สิ้นเปลือง

สำนักงานพัฒนาเทคโนโลยีอวกาศและภูมิสารสนเทศ (2552) ได้ให้ความหมายของระบบสารสนเทศภูมิศาสตร์ หรือ Geographic Information System : GIS ว่า คือกระบวนการทำงานเกี่ยวกับข้อมูลในเชิงพื้นที่ด้วยระบบคอมพิวเตอร์ ที่ใช้กำหนดข้อมูลและสารสนเทศที่มีความสัมพันธ์กับตำแหน่งในเชิงพื้นที่ เช่น ที่อยู่ บ้านเลขที่ สัมพันธ์กับตำแหน่งในแผนที่ ตำแหน่ง เส้นรุ้ง เส้นแวง ข้อมูลและแผนที่ใน GIS เป็นระบบข้อมูลสารสนเทศที่อยู่ในรูปของตารางข้อมูล และฐานข้อมูลที่มีส่วนสัมพันธ์กับข้อมูลเชิงพื้นที่ (Spatial Data) ซึ่งรูปแบบและความสัมพันธ์ของข้อมูลเชิงพื้นที่ทั้งหลาย จะสามารถนำมาวิเคราะห์ด้วย GIS และทำให้สื่อความหมายในเรื่องการเปลี่ยนแปลงที่สัมพันธ์กับเวลาได้ เช่น การแพร่ขยายของโรคระบาด การเคลื่อนย้ายถิ่นฐาน การบุกรุกทำลาย การเปลี่ยนแปลงของการใช้พื้นที่ ฯลฯ ข้อมูลเหล่านี้ เมื่อปรากฏบนแผนที่ทำให้สามารถแปลและสื่อความหมายใช้งานได้ง่าย

การวิจัยนี้มีการศึกษาทฤษฎี แนวความคิด เพื่อให้นิยามความหมายของ “การท่องเที่ยวชุมชนเชิงอาหารอย่างยั่งยืน” โดยเป็นการวิจัยประยุกต์ เพื่อนำเสนอฐานข้อมูลในการพัฒนาเส้นทางการท่องเที่ยวชุมชนเชิงอาหารอย่างยั่งยืนต่อไปในอนาคต โดยอาศัยการสำรวจเก็บข้อมูลเชิงปริมาณและคุณภาพ เพื่อให้สอดคล้องกับวัตถุประสงค์ของการวิจัยและเป็นลำดับขั้นตอน

นุจรินทร์ ปทุมพงษ์ และ โชคชัย ถมทอง (2561) ได้วิจัยเรื่อง การพัฒนาระบบสารสนเทศภูมิศาสตร์เพื่อจัดการสถานที่ท่องเที่ยวทางประวัติศาสตร์ จังหวัดกำแพงเพชร ระบบที่พัฒนาสามารถจัดการข้อมูลสถานที่ท่องเที่ยวทางประวัติศาสตร์ สามารถสืบค้นข้อมูลและเส้นทางของสถานที่ท่องเที่ยว โดยใช้เทคโนโลยีของ Google Maps API และ Leaflet นำแผนที่เข้ามาแสดงผลบนเว็บเพจ โดยทำงานร่วมกับระบบฐานข้อมูลเว็บไซต์

วิธีดำเนินการวิจัย

1. ศึกษาทฤษฎีและแนวความคิดที่เกี่ยวข้อง และแหล่งข้อมูลในท้องถิ่น ประเภทของข้อมูลและแหล่งข้อมูลที่รวบรวมเพื่อการศึกษาครั้งนี้ แบ่งออกเป็น 2 ประเภท คือ 1) แหล่งข้อมูลปฐมภูมิ (Primary Data) ได้แก่ ข้อมูลที่ได้จากการรวบรวม โดยใช้การลงพื้นที่สำรวจ เก็บข้อมูลในด้านต่าง ๆ เช่น อาคารบ้านเรือน อาหารการกิน ย่านต่าง ๆ 2) แหล่งข้อมูลข้อมูลทุติยภูมิ (Secondary Data) ข้อมูลแนวคิดและทฤษฎีที่เกี่ยวข้อง โดยการรวบรวมจากหนังสือ เอกสารงานวิจัย งานค้นคว้าอิสระ เอกสารเผยแพร่ของหน่วยงาน ตำราทางวิชาการ และในระบบฐานข้อมูลออนไลน์ เพื่อนำมาใช้เพื่อวิเคราะห์หาศักยภาพของพื้นที่ศึกษา

2. ประชากร โดยเก็บข้อมูลจากบุคลากรทางภาครัฐ ภาคเอกชน ผู้นำชุมชน ชาวบ้านชุมชนท่าข้าม และนักท่องเที่ยว เพื่อใช้เป็นกรณีศึกษา กลุ่มตัวอย่าง เนื่องจากผู้วิจัยทำงานอยู่ในพื้นที่ตำบลท่าข้าม อำเภอหาดใหญ่ จังหวัดสงขลา จึงได้กำหนดกลุ่มตัวอย่างดังนี้ 1) ภาครัฐ และภาคเอกชน โดยใช้การสุ่มตัวอย่างแบบเจาะจง 2) ผู้นำชุมชน กลุ่มผลิตภัณฑ์ชุมชน โดยใช้การสุ่มตัวอย่างแบบเจาะจง 3) นักท่องเที่ยว โดยใช้การสุ่มตัวอย่างแบบตามสะดวก

3. เครื่องมือที่ใช้ในการวิจัย คือ แบบสำรวจ เก็บข้อมูลพื้นฐานด้านกายภาพ เศรษฐกิจ และการท่องเที่ยวของตำบลท่าข้าม รวมทั้งกล้องถ่ายรูปที่สามารถเก็บพิกัดตำแหน่งได้ เพื่อใช้บันทึกภาพและตำแหน่งสถานที่ต่าง ๆ

4. นำข้อมูลจากการสำรวจพื้นที่ เช่น อาคาร บ้านเรือน อาหารการกิน ย่านต่าง ๆ ซึ่งเป็นอัตลักษณ์และรูปแบบวัฒนธรรมที่มีอิทธิพลต่อวิถีชีวิตมีทั้งวัฒนธรรมจับต้องได้ และวัฒนธรรมที่จับต้องไม่ได้ ในรูปแบบการเก็บบันทึกตำแหน่งและข้อมูลโดยใช้โปรแกรมระบบสารสนเทศทางภูมิศาสตร์ (Geographic Information System: GIS) ในรูปแบบการเก็บบันทึกตำแหน่ง และข้อมูลของกลุ่มอาชีพผลิตภัณฑ์ด้านอาหาร

5. จัดทำแผนที่และเส้นทางการท่องเที่ยวชุมชนเชิงอาหารอย่างยั่งยืนชุมชนท่าข้าม โดยใช้โปรแกรม GOOGLE My Maps



ภาพที่ 1 ขั้นตอนการดำเนินงานวิจัย

ผลการวิจัย

ผลงานวิจัยฉบับนี้เป็นการรวบรวมข้อมูลเชิงปริมาณและคุณภาพ สำรวจเก็บข้อมูลด้วยระบบสารสนเทศทางภูมิศาสตร์ (Geographic Information System: GIS) และระบบดิจิทัลออนไลน์ในโปรแกรม GOOGLE My Maps รวมถึงการจัดทำแผนที่และเอกสารข้อมูลเส้นทางการท่องเที่ยวชุมชนเชิงอาหารอย่างยั่งยืนชุมชนท่าข้าม มีรายละเอียดดังนี้

1. ผลการวิเคราะห์ศักยภาพของพื้นที่ศึกษา

1.1 ด้านกายภาพชุมชนเมือง

สภาพโดยทั่วไปของพื้นที่ ด้านทิศตะวันออก ทิศใต้ ได้แก่ พื้นที่หมู่ที่ 5 หมู่ที่ 6 หมู่ที่ 7 และหมู่ที่ 8 เป็นที่ลาดเชิงเขา และลาดเอียงไปที่ราบบริเวณหมู่ที่ 1 หมู่ที่ 2 หมู่ที่ 3 เหมาะแก่การตั้งถิ่นฐานและทำการเพาะปลูกสวนยางพารา มีคลองไหลผ่านทั้ง 3 สายภายในตำบลทำให้ดินมีความอุดมสมบูรณ์พื้นที่จึงเหมาะแก่การทำการเกษตร มีความอุดมสมบูรณ์ทางทรัพยากรธรรมชาติสูง มีพื้นที่สีเขียวค่อนข้างมาก มีถนนสายประธานตัดผ่าน คือ ถนนทางหลวงกาญจนวนิช หมายเลข 407 และถนนสายหลักที่เชื่อมต่อกับสายประธาน คือ ถนนทางหลวงชนบท สข 3005 ที่ประกอบธุรกิจเชิงพาณิชยกรรม

สำหรับการขยายตัวของชุมชนเมืองตำบลท่าข้าม ค่อย ๆ กระจายตัวในบริเวณรอบ ๆ บริเวณริมถนนสายประธานและสายหลัก ซึ่งเป็นทางสัญจรไปยังตำบลข้างเคียงในบริเวณหมู่ที่ 1 หมู่ที่ 2 และหมู่ที่ 3 ทำให้การขยายตัวอย่างรวดเร็วของชุมชน เนื่องด้วยมีการประกอบอาชีพเชิงพาณิชยกรรม การใช้ประโยชน์อาคารและการใช้ประโยชน์ที่ดินต่าง ๆ ทำให้มีผู้คนจากต่างพื้นที่และพื้นที่ใกล้เคียงเข้ามาสร้างบ้านเรือนเขามาทำงานและเขามาใช้ประโยชน์ในพื้นที่มากยิ่งขึ้น

1.2 ด้านเศรษฐกิจ

พื้นที่ตำบลท่าข้าม มีฐานเศรษฐกิจหลัก คือ ชุมชนบริการทางการเกษตร เป็นรายได้หลักและเศรษฐกิจฐานของพื้นที่ที่มีศักยภาพในการให้บริการรวบรวมสินค้าเกษตรขั้นต้น เพื่อนำเข้าสู่ตลาดกลางการเกษตรขนาดใหญ่ และมีพาณิชยกรรมและการบริการตั้งแต่ขนาดเล็กจนไปถึงขนาดใหญ่ให้บริการในพื้นที่ตำบลท่าข้าม ซึ่งสภาพโดยทั่วไปการตั้งถิ่นฐานแต่เดิมตำบลท่าข้าม มีการตั้งถิ่นฐานอยู่น้อยสร้างบ้านเรือนกันเป็นกลุ่ม แต่ภายหลังได้มีการจับจองที่ดินทำมาหากินก็เลยมีการแยกออกมาสร้างบ้านเรือน กระจายออกมาโดยเฉพาะบริเวณริมถนนสายต่าง ๆ เป็นบ้านเรือนที่พึ่งสร้าง คือ สร้างเมื่อมีถนนตัดผ่านแล้ว โดยเฉพาะหมู่ที่ 6 บ้านหินเกลี้ยง เมื่อก่อนชาวหินเกลี้ยงอยู่กันอย่างหนาแน่นมากในบริเวณเดียวกันทั้งหมด ลักษณะอาชีพ รายได้ต่อครัวเรือน ฯลฯ การจ้างงานการประกอบอาชีพของประชาชน ในพื้นที่ตำบลท่าข้าม

1.3 ด้านทรัพยากรและสิ่งแวดล้อม

พื้นที่ตำบลท่าข้ามมีทรัพยากรธรรมชาติและสิ่งแวดล้อมของตำบลท่าข้าม มีลักษณะดินที่อุดมสมบูรณ์เหมาะแก่การเพาะปลูกทั้งยางพารา นาข้าว ปาล์มน้ำมันพืช พืชพรรณต่าง ๆ และยังมีแหล่งน้ำมีความอุดมสมบูรณ์ คือ คลองวังนายสาม คลองแม่เตย และคลองเขากลอย ที่ใช้ในการทำเกษตรได้อีก ด้วยทรัพยากรธรรมชาติถูกทำลาย และแทนที่ด้วยที่พักอาศัยและการถมที่ทำให้เส้นทางการไหลของน้ำเปลี่ยนทิศทาง และถูกปิดจากการถมดินทำให้สายน้ำบางสายขาดช่วง



ภาพที่ 2 บรรยากาศแหล่งท่องเที่ยวในตำบลท่าข้าม

2. ผลการรวบรวมข้อมูลเชิงพื้นที่ กลุ่มอาชีพผลิตภัณฑ์ด้านอาหาร

การลงพื้นที่เก็บข้อมูลโดยการสัมภาษณ์สมาชิกกลุ่มอาชีพต่าง ๆ ในสถานที่จริง เพื่อให้เห็นกรรมวิธี กระบวนการทำงานเป็นทีมภายในกลุ่ม รูปแบบผลิตภัณฑ์ และลองชิมรสชาติด้วยตนเองของผู้วิจัยและทีมงาน โดยได้เข้าไปเก็บข้อมูลในกลุ่มอาชีพต่าง ๆ จำนวน 5 กลุ่ม ได้แก่ กลุ่มผลิตมันทอดบ้านเขากลอย กลุ่มเครื่องแกงสมุนไพร กลุ่มขนมถั่วทอด กลุ่มเพาะปลูกเห็ดแครง และกลุ่มน้ำผึ้งชันโรง โดยแต่ละกลุ่มอาชีพก็มีความต้องการในการพัฒนาวิถีอาชีพของกลุ่มตนเองให้มีความเข้มแข็ง เพื่อให้สามารถต่อยอดและถ่ายทอดเทคโนโลยีแก่ชาวบ้านในชุมชนต่อไป โดยมีตัวอย่างเนื้อหาข้อมูล ได้แก่

- กลุ่มเลี้ยงผึ้งญวน (ผึ้งโพรงไทย) หมู่ที่ 6

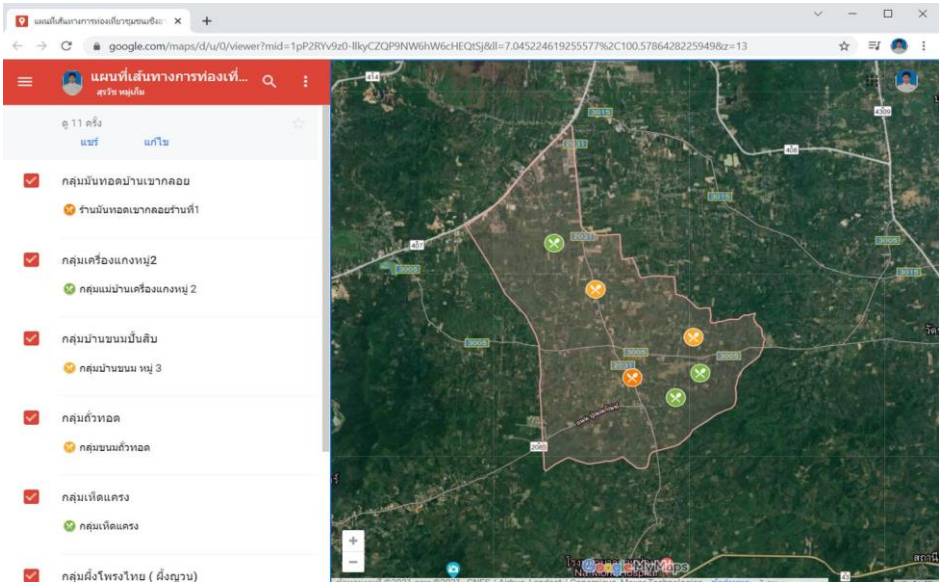
ประวัติความเป็นมาของกลุ่มเลี้ยงผึ้งญวน (ผึ้งโพรงไทย) เริ่มเกิดแนวคิดการเลี้ยงผึ้งญวน เมื่อปี พ.ศ. 2557 จึงได้ทดลองเลี้ยงและทดลองสร้างผลิตภัณฑ์ขึ้นมาเห็นผลประสบความสำเร็จในปี 2558 และกลุ่มเลี้ยงผึ้งญวน (ผึ้งโพรงไทย) ได้จดทะเบียนอย่างเป็นทางการในปี 2559 มีสมาชิกทั้งหมด 10 ครัวเรือน สามารถทำกำไรได้ ปีละ1 ครั้ง น้ำผึ้งจะออกดีที่สุด เดือน 5 ผลิตภัณฑ์จะได้แก่ น้ำผึ้งเดือน 5 และแซนวิชเห็ดแครง น้ำผึ้งรวง รายได้โดยประมาณ 15,000 บาท ต่อครัวเรือน กลุ่มลูกค้า 80 เปอร์เซ็นต์ จะเป็นกลุ่มลูกค้านอกพื้นที่ อีก 20 เปอร์เซ็นต์ จะเป็นกลุ่มลูกค้าภายในพื้นที่ การสั่งซื้อจะต้องสั่งจองล่วงหน้า เนื่องจากจำนวนสินค้ามีจำกัด ผลิตภัณฑ์น้ำผึ้งเดือน 5 ไม่มีวันหมดอายุ แต่แนะนำให้ทานให้หมด ภายใน 1 ปี เพื่อรสชาติที่ดี



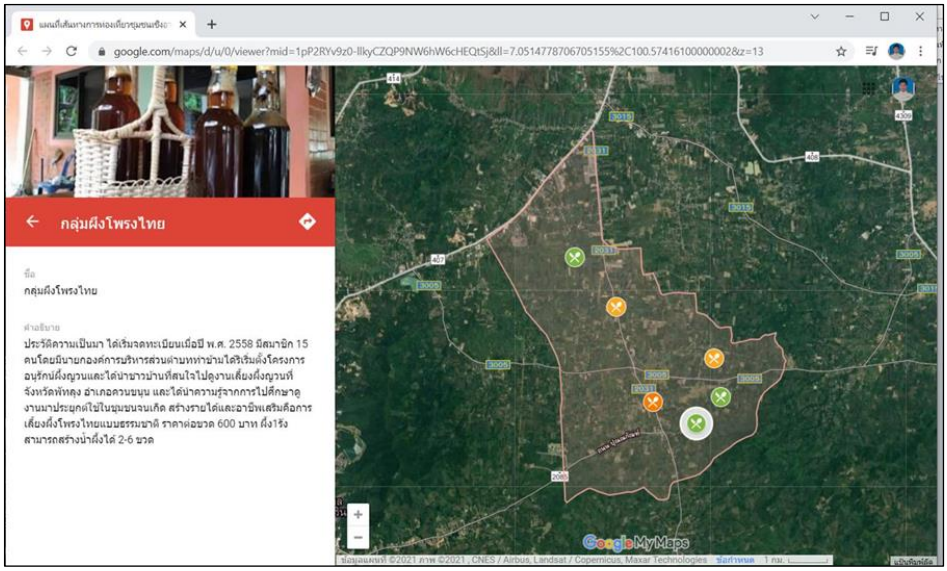
ภาพที่ 3 สมาชิกกลุ่มเลี้ยงผึ้งญวน (ผึ้งโพรงไทย) หมู่ที่ 6

3. ผลการจัดทำฐานข้อมูล (GIS) ของแหล่งท่องเที่ยวชุมชนด้านอาหารตำบลท่าข้าม

จากการรวบรวมข้อมูลโดยการลงพื้นที่เก็บข้อมูลภาคสนามในตำบลท่าข้าม เพื่อใช้สำหรับจัดทำฐานข้อมูลในรูปแบบฐานข้อมูลเชิงพื้นที่ (Spatial Database) และจัดทำฐานข้อมูลเชิงคุณลักษณะ (Attribute Database) ได้แก่ ประเภท ชื่อ ข้อมูลทั่วไป และรูปภาพของกลุ่มอาชีพ ผลิตภัณฑ์ด้านอาหาร ด้วยระบบสารสนเทศทางภูมิศาสตร์ (Geographic Information System: GIS) ด้วยโปรแกรม GOOGLE My Maps และนำมาใช้ในการจัดทำแผนที่ฐานข้อมูลในระบบออนไลน์



ภาพที่ 4 หน้าจอแผนที่ข้อมูลของกลุ่มอาชีพ ผลิตภัณฑ์ ด้านอาหารของตำบลท่าข้าม

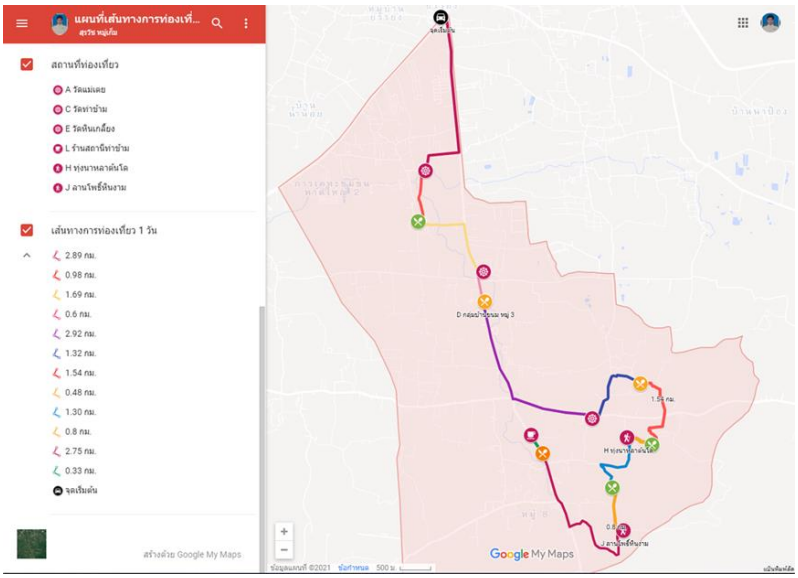


ภาพที่ 5 หน้าจอข้อมูลและตำแหน่งที่ตั้งของกลุ่มเลี้ยงผึ้งญวน (ผึ้งโพรงไทย) หมู่ที่ 6

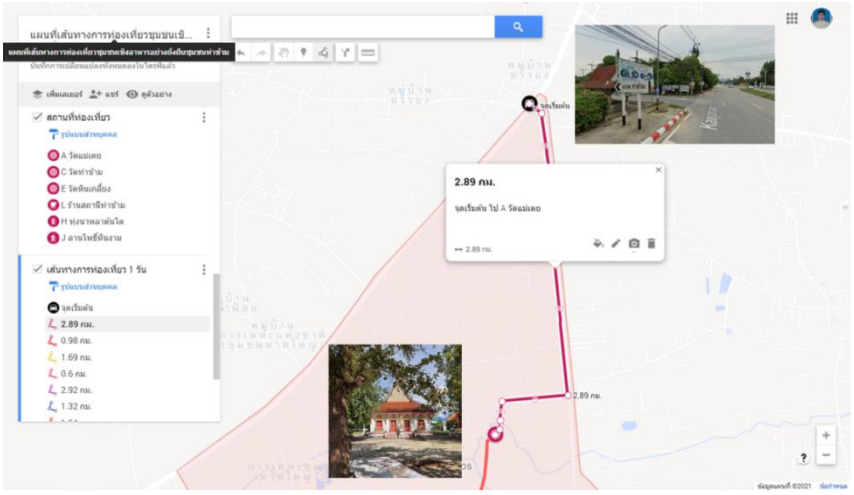
4. ผลการจัดทำแผนที่เส้นทางการท่องเที่ยวชุมชนเชิงอาหารอย่างยั่งยืนชุมชนท่าข้าม

การนำนวัตกรรมในด้านเทคโนโลยีทางผังเมือง มาพัฒนาช่องทางการเข้าถึงข้อมูลได้ง่ายขึ้น และได้จากทั่วทุกมุมโลก ทำให้เกิดการส่งเสริมการท่องเที่ยว และการซื้อขายผลิตภัณฑ์ต่าง ๆ ของพื้นที่ได้มากยิ่งขึ้น สามารถคุณภาพชีวิตที่ดีแก่ชาวบ้านชุมชนท่าข้าม และหน่วยงานต่าง ๆ ในพื้นที่ และสามารถเป็นแนวทางในการวางแผนการเดินทางเข้ามาท่องเที่ยวภายในพื้นที่ตำบล โดยใช้ระยะเวลา 1 วัน ก็สามารถเดินทางไปยังแหล่งความรู้ สถานที่ท่องเที่ยวที่น่าสนใจ และพักผ่อนชิมอาหาร ทานของว่าง ชิมของดีของตำบลท่าข้ามได้อย่างครบถ้วน โดยพิจารณาแหล่งท่องเที่ยวในแต่ละเส้นทางท่องเที่ยว ได้แก่ ความน่าสนใจ สิ่งอำนวยความสะดวก ความง่ายในการเข้าถึง และระยะเดินทางระหว่างสถานที่

โดยรูปแบบแผนที่เส้นทางการท่องเที่ยวชุมชนเชิงอาหารอย่างยั่งยืนชุมชนท่าข้าม สำหรับ 1 วัน โดยมีการกำหนดจุดแวะท่องเที่ยว 12 สถานที่ ซึ่งใช้ระยะทางเดินทางไปยังจุดต่าง ๆ โดยรวมประมาณ 17 กิโลเมตร ทำให้สามารถมีเวลาเดินชม และเรียนรู้ข้อมูลเรื่องราวความรู้ต่าง ๆ ได้พอสมควร โดยตัวอย่างการกำหนดเส้นทาง ที่ทำให้นักท่องเที่ยวสามารถชิมวิว ทิวทัศน์ ภูมิประเทศของพื้นที่ได้อย่างครบครัน ทั้งเส้นทางผ่านตัวชุมชน ทุ่งนา สวนยาง และขึ้นเขาลานโพธิ์หินงามที่มองเห็นทัศนียภาพที่ไกลสุดลูกหูลูกตาของตำบลท่าข้าม



ภาพที่ 6 หน้าจอแผนที่เส้นทางการท่องเที่ยวชุมชนเชิงอาหารอย่างยั่งยืนชุมชนท่าข้าม สำหรับ 1 วัน



ภาพที่ 7 ตัวอย่างหน้าจอเส้นทางจากจุดเริ่มต้นถนนกาญจนวนิช ไปยังวัดแม่เตย

สรุปและอภิปรายผล

สรุปผลการวิจัยจากเป้าหมายหลักของการวิจัย ผู้วิจัยได้ตระหนักถึงแนวโน้มที่เปลี่ยนแปลงไปของพฤติกรรมนักท่องเที่ยวในปัจจุบัน โดยเฉพาะอย่างยิ่งความสนใจที่เพิ่มขึ้นต่อแหล่งท่องเที่ยวทางเลือก เช่น เมืองรองและการท่องเที่ยวโดยชุมชนเป็นฐาน (Community-Based Tourism: CBT) ซึ่งเป็นรูปแบบการท่องเที่ยวที่เปิดโอกาสให้นักท่องเที่ยวทั้งชาวไทยและชาวต่างชาติได้เข้าเยี่ยมชม เรียนรู้ และสัมผัสกับอัตลักษณ์ วัฒนธรรม และวิถีชีวิตที่มีความโดดเด่นเฉพาะตัวของแต่ละท้องถิ่นอย่างลึกซึ้ง

อย่างไรก็ตาม สถานการณ์การแพร่ระบาดของเชื้อไวรัสโคโรนา 2019 (COVID-19) ซึ่งเริ่มต้นในประเทศไทยเมื่อเดือนมกราคม พ.ศ. 2563 ได้ส่งผลกระทบอย่างรุนแรงต่อสังคมและอุตสาหกรรมการท่องเที่ยว โดยเฉพาะมาตรการควบคุมการเดินทาง ทั้งในระดับประเทศและระหว่างประเทศ การล็อกดาวน์เมือง และข้อจำกัดด้านการเดินทาง ส่งผลให้กิจกรรมการท่องเที่ยวในทุกระดับต้องหยุดชะงัก รวมถึงพื้นที่ตำบลท่าข้าม อำเภอหาดใหญ่ จังหวัดสงขลา

ด้วยเหตุนี้ ผู้วิจัยจึงเล็งเห็นถึงความสำคัญของการจัดทำฐานข้อมูลแหล่งท่องเที่ยวชุมชน ด้านอาหารของตำบลท่าข้ามในรูปแบบดิจิทัลออนไลน์ GOOGLE My Maps เพื่อให้สามารถตอบสนองต่อวิถีชีวิตรูปแบบใหม่ (New Normal) ที่เน้นการเข้าถึงข้อมูลผ่านเทคโนโลยีและการวางแผนการเดินทางด้วยตนเอง ทั้งยังเป็นการเตรียมความพร้อมสำหรับการฟื้นฟูและพัฒนาเศรษฐกิจฐานรากของชุมชนหลังวิกฤตการณ์ โดยฐานข้อมูลดังกล่าวสามารถนำไปต่อยอดเพื่อการวางแผน การบริหารจัดการ และการส่งเสริมการท่องเที่ยวอย่างยั่งยืนในระดับตำบลได้อย่างมีประสิทธิภาพในอนาคต



ภาพที่ 8 บรรยากาศช่วงโควิดเมืองหาดใหญ่

สิ่งที่ได้จากการวิจัยในครั้งนี้ นั้นคือ ทำให้ทราบถึงประโยชน์จัดทำฐานข้อมูลที่สามารถนำไปใช้ต่อยอดในการวางแผนพัฒนาชุมชน เสริมสร้างความเข้มแข็งทางเศรษฐกิจด้วยการเชื่อมโยงข้อมูลกับระบบการค้าออนไลน์ ซึ่งเอื้อต่อการจัดจำหน่ายสินค้า OTOP และผลิตภัณฑ์ท้องถิ่นในวงกว้างทำให้เกิดประโยชน์อย่างเป็นรูปธรรม ทั้งต่อประชาชนในพื้นที่และหน่วยงานที่เกี่ยวข้อง อันเป็นแนวทางที่สอดคล้องกับนโยบายการพัฒนาที่ยั่งยืนในระดับพื้นที่ และเป็นต้นแบบในการประยุกต์ใช้ GIS เพื่อส่งเสริมการท่องเที่ยวเชิงพื้นที่ในบริบทอื่นต่อไปในอนาคต

ข้อเสนอแนะ

จากการศึกษาวิจัยในครั้งนี้ ผู้วิจัยได้เล็งเห็นถึงประโยชน์ และความประสงค์ในการส่งเสริมให้หน่วยงานปกครองส่วนท้องถิ่นและหน่วยงานต่าง ๆ ที่เกี่ยวข้องภายในพื้นที่ตนเอง ร่วมมือกันสร้างฐานข้อมูลแหล่งท่องเที่ยวชุมชนในรูปแบบดิจิทัล ที่สามารถใช้งานได้ในรูปแบบ Online ซึ่งเหมาะสมกับสถานการณ์การระบาดของเชื้อไวรัส Covid-19 และแนวทางการท่องเที่ยวรูปแบบใหม่ที่จะเกิดขึ้นในอนาคต เมื่อเมืองต่าง ๆ สามารถเปิดให้เดินทางเชื่อมต่อกันได้ แต่ยังคงมีมาตรการในการป้องกันตนเอง รวมทั้งการนำใช้โปรแกรม หรือแพล็ตฟอร์มที่สามารถเข้าถึงได้ง่าย ผู้คนส่วนใหญ่รู้จักคุ้นชิน มีความสะดวกในการใช้งาน และไม่ซับซ้อนจนเกินไปจนทำไม่ถูก เช่น GOOGLE My Maps เป็นต้น เพื่อให้เกิดเป็นฐานข้อมูลและแผนที่เส้นทางการท่องเที่ยวชุมชนเชิงอาหารอย่างยั่งยืนที่ยั่งยืนอย่างแท้จริงสืบต่อไป

เอกสารอ้างอิง

กำธร กุลชล. (2545). การออกแบบชุมชนเมืองคืออะไร : การติดตามหาคำตอบในรอบ 40 ปี. กรุงเทพฯ : มหาวิทยาลัยศิลปากร.

นภาลัย ชูศรี. (2563). โควิดทำเมืองหาดใหญ่ เงียบเหงา แทบร้าง ช่วงปีใหม่ไร้นักท่องเที่ยว. สืบค้นเมื่อ 13 มีนาคม 2564 จาก https://www.komchadluek.net/news/453463

นุจรินทร์ ปทุมพงษ์ และโชคชัย ถมทอง. (2561). การพัฒนาระบบสารสนเทศภูมิศาสตร์เพื่อจัดการสถานที่ท่องเที่ยวทางประวัติศาสตร์ จังหวัดกำแพงเพชร. วารสารวิทยาศาตร์และเทคโนโลยี (สทวท.), 5(1), 63-72.

สำนักงานพัฒนาเทคโนโลยีอวกาศและภูมิสารสนเทศ. (2552). ตำราเทคโนโลยีอวกาศและภูมิสารสนเทศศาสตร์. กรุงเทพฯ: อมรินทร์พริ้นติ้งแอนด์พับลิชชิ่ง

Baud-Bovy, M., & Lawson, F. (2002). Tourism and Recreation: A Handbook of Planning and Design. Routledge : Architectural Pr.

ปัจจัยที่มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงจังหวัดสงขลา

Factors Affecting Members' Opinions on the Management of Curry Paste Processing Community Enterprises in Songkhla Province

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บทคัดย่อ

การวิจัยมีวัตถุประสงค์เพื่อศึกษา 1) ปัจจัยพื้นฐานส่วนบุคคล เศรษฐกิจสังคม และข้อมูลทั่วไปของวิสาหกิจชุมชน 2) ความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชน 3) วิเคราะห์ปัจจัยที่มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงจังหวัดสงขลา ประชากร คือ สมาชิกวิสาหกิจชุมชนแปรรูปเครื่องแกง 1,228 คน กำหนดขนาดตัวอย่าง โดยใช้สูตรยามาเน่ ได้กลุ่มตัวอย่าง 302 คน เครื่องมือใช้แบบสัมภาษณ์ วิเคราะห์ข้อมูลด้วยค่าความถี่ ร้อยละ ค่าสูงสุด ค่าต่ำสุด ค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน t-test และการวิเคราะห์ความแปรปรวนทางเดียว

ผลการศึกษาพบว่า 1) ปัจจัยพื้นฐานส่วนบุคคล เศรษฐกิจสังคม และข้อมูลทั่วไปของวิสาหกิจชุมชน พบว่า สมาชิกเป็นเพศหญิง ร้อยละ 96.00 ทำเครื่องแกงเป็นอาชีพเสริม เข้าร่วมเป็นสมาชิกเพราะต้องการรายได้เสริม ได้รับข้อมูลจากประธาน ร้อยละ 64.24 ประเภทวิสาหกิจชุมชนพื้นฐาน ร้อยละ 73.18 ระดับการประกอบการอยู่ในระดับชุมชน ร้อยละ 82.78 เงินทุนเฉลี่ย 94,652.29 บาท หนี้สินเฉลี่ย 298,026.32 บาท 2) ความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง พบว่า ภาพรวมความคิดเห็นของสมาชิกอยู่ในระดับมาก 3) ปัจจัยที่มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง พบว่า เหตุผลเข้าร่วมเป็นสมาชิก คือ พอใจในกิจกรรมกลุ่ม ต้องการความรู้ และเหตุผลอื่นๆ มีผลต่อความคิดเห็นแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.001 0.01 และ 0.01 ตามลำดับ ได้รับข้อมูลจากประธาน คณะกรรมการ สมาชิก หน่วยงานภาครัฐอื่น ๆ หน่วยงานเอกชน และผู้นำชุมชน มีผลต่อความคิดเห็นแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.001 0.001 0.001 0.01 0.05 และ 0.05 ตามลำดับ ระดับการประกอบการ การจดทะเบียนภาษีมูลค่าเพิ่ม เงินทุน และหนี้สิน มีผลต่อความคิดเห็นแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.001 0.05 0.01 และ 0.05 ตามลำดับ

คำสำคัญ: ความคิดเห็น, การบริหารจัดการวิสาหกิจชุมชน, แปรรูปเครื่องแกง

Abstract

This study aimed to investigate: (1) the personal, socio-economic, and general background factors of community enterprises; (2) members' opinions on the management of community enterprises; and (3) the factors influencing members' opinions on the management of chili paste community enterprises in Songkhla Province. The population comprised 1,228 members of the chili paste processing community enterprises. A sample of 302 members was determined using Yamane's formula. Data were collected using structured interviews and analyzed using frequency, percentage, maximum, minimum, mean, standard deviation, t-test, and one-way ANOVA.

The findings revealed that: (1) most members were female (96.00%) and participated in chili paste production as a supplementary occupation. They joined the enterprise to earn additional income and mainly received information from the enterprise chairperson (64.24%). Of the enterprises, 73.18% were classified as basic community enterprises, and 82.78% operated at the community level. The average capital was 94,652.29 baht, while the average debt was 298,026.32 baht. (2) The overall opinions of members on enterprise management were at a high level. (3) Factors significantly influencing members' opinions on enterprise management included the reasons for joining—such as satisfaction with group activities, desire for knowledge, and other reasons—which differed significantly at the 0.001, 0.01, and 0.01 levels, respectively. Sources of information—namely the chairperson, committee members, other members, government agencies, private sector entities, and community leaders—also showed significant differences in opinions at the 0.001, 0.001, 0.001, 0.01, 0.05, and 0.05 levels, respectively. Additionally, level of operation, VAT registration status, capital, and debt significantly affected opinions at the 0.001, 0.05, 0.01, and 0.05 levels, respectively.

Keywords: Opinions, Community Enterprise Management, Curry Paste Processing

บทนำ

เครื่องแกงเป็นวัตถุดิบที่สำคัญในการปรุงอาหารไทยหลายชนิด และเป็นหนึ่งในอุตสาหกรรมหลักที่สร้างรายได้ให้แก่ประเทศ ในปี 2566 ประเทศไทยส่งออกเครื่องแกงสำเร็จรูป 15,977 ตัน มูลค่า 2,131.6 ล้านบาท โดยมีตลาดสำคัญ ได้แก่ สหรัฐอเมริกา สหราชอาณาจักร และออสเตรเลีย (กระทรวงพาณิชย์, 2566) ความนิยมในอาหารไทยยังสะท้อนผ่านการจัดอันดับระดับโลก เช่น รายงานจาก TasteAtlas ในปี 2566 จัดอันดับพริกแกงไทยให้เป็นซอสยอดนิยมอันดับ 2 ของโลก นอกจากนี้ CNN Travel ยังยกย่องให้แกงมัสมั่นเป็นอาหารที่อร่อยที่สุดในโลกในปี 2564 (เนชั่นทีวี, 2566) ซึ่งสะท้อนให้เห็นว่าเครื่องแกงเป็นเอกลักษณ์ของอาหารไทยที่สามารถสื่อสารวัฒนธรรมและสร้างมูลค่าเพิ่มทางเศรษฐกิจได้ รัฐบาลไทยจึงได้กำหนดนโยบายและยุทธศาสตร์ในการส่งเสริมการพัฒนาเศรษฐกิจชุมชนโดยใช้วิสาหกิจชุมชน ได้รับการสนับสนุนจากภาครัฐ เป็นกลไกสำคัญในการขับเคลื่อนเศรษฐกิจฐานรากกระจายรายได้ สร้างงาน และเพิ่มโอกาสทางเศรษฐกิจในระดับพื้นที่ ตามยุทธศาสตร์ชาติระยะ 20 ปี

(พ.ศ. 2561–2580) ที่มุ่งเน้นการสร้างโอกาสและความเสมอภาคทางสังคม (สำนักนายกรัฐมนตรี, 2561) และแผนพัฒนาเศรษฐกิจและสังคมแห่งชาติ ฉบับที่ 13 ซึ่งเน้นการพัฒนาเศรษฐกิจฐานรากให้เข้มแข็งและเติบโตอย่างครอบคลุม โดยการพัฒนาองค์ความรู้ ทักษะการบริหารจัดการและความสามารถในการแข่งขันในระดับท้องถิ่น (สำนักงานคณะกรรมการพัฒนาการเศรษฐกิจและสังคมแห่งชาติ, 2565) ในปัจจุบันการบริหารจัดการกลุ่มวิสาหกิจชุมชนจึงไม่เพียงแต่มุ่งเน้นผลผลิตทางเศรษฐกิจเท่านั้น แต่ต้องดำเนินการอย่างเป็นระบบ โปร่งใส มีการมีส่วนร่วม และสามารถพัฒนาไปสู่ความยั่งยืนในระยะยาวได้ ตามเป้าหมายหลักเพื่อให้ประเทศไทย “มั่นคง มั่งคั่ง และยั่งยืน” สำนักงานเลขานุการคณะกรรมการส่งเสริมวิสาหกิจชุมชน กรมส่งเสริมการเกษตร (2549) จึงได้นำการบริหารจัดการภาครัฐ (PMQA) มาประยุกต์ใช้ในวิสาหกิจชุมชน

จังหวัดสงขลา มีวิสาหกิจชุมชนแปรรูปเครื่องแกง จำนวน 82 แห่ง เป็นอันดับสองรองจากจังหวัดนครศรีธรรมราช ซึ่งในปี 2564-2566 จังหวัดสงขลามีการจดทะเบียนวิสาหกิจชุมชนเพิ่มขึ้นสูงที่สุดในประเทศ ร้อยละ 28.13 และมีสมาชิกจำนวน 1,228 คน แต่ในปี 2566 มีวิสาหกิจชุมชนแปรรูปเครื่องแกงที่ได้รับการประเมินศักยภาพและต่อทะเบียนเพียงจำนวน 70 แห่ง พบว่า อยู่ในระดับปานกลางและปรับปรุง ร้อยละ 47.18 และ 7.21 ตามลำดับ (กรมส่งเสริมการเกษตร, 2566) และจากการศึกษาของกมลชนก ญานุชิตร (2565) เกี่ยวกับการจัดการการตลาดผลิตภัณฑ์เครื่องแกงของวิสาหกิจชุมชนและกลุ่มแม่บ้านเกษตรกรในอำเภอเทพา จังหวัดสงขลา พบว่า การดำเนินงานของวิสาหกิจชุมชนยังประสบปัญหา 1) ด้านผลิตภัณฑ์ยังไม่ได้รับเครื่องหมายรับรองมาตรฐานของการดำเนินงาน ซึ่งอาจส่งผลต่อยอดจำหน่ายและการตัดสินใจเลือกซื้อของผู้บริโภค 2) ด้านราคาจำหน่ายต่ำเกินไปไม่คุ้มทุน วัตถุดิบมีราคาสูง ซึ่งส่งผลให้กำไรจากรายได้ลดน้อยลง 3) ด้านการตลาด สมาชิกวิสาหกิจชุมชนมีทักษะและความรู้ด้านการส่งเสริมการขายด้านออนไลน์น้อย จึงเป็นอุปสรรคในการขยายช่องทางการตลาด จากปัญหาดังกล่าว สะท้อนได้ว่า การบริหารจัดการกลุ่มวิสาหกิจชุมชนแปรรูปเครื่องแกงยังมีจุดที่ต้องปรับปรุง เพราะการขับเคลื่อนกลุ่มวิสาหกิจชุมชนให้ประสบความสำเร็จต้องอาศัยความร่วมมือจากสมาชิก หากสมาชิกมีความคิดเห็นสอดคล้องไปในทิศทางเดียวกัน ย่อมทำให้สามารถกำหนดทิศทางการบริหารจัดการกลุ่มให้เกิดประสิทธิภาพ จึงเกิดความสนใจในการศึกษาวิจัยเรื่องปัจจัยที่มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงจังหวัดสงขลา เพื่อเข้าใจมุมมองของสมาชิกในการบริหารจัดการกลุ่ม และเกิดองค์ความรู้ใหม่ในด้านปัจจัยที่ส่งผลต่อความคิดเห็นของสมาชิก อันจะนำไปสู่การพัฒนาองค์ความรู้ของสมาชิกเพื่อพัฒนากลุ่มวิสาหกิจชุมชนแปรรูปเครื่องแกงต่อไป

วัตถุประสงค์ของการวิจัย

1 เพื่อศึกษาปัจจัยพื้นฐานส่วนบุคคล เศรษฐกิจสังคมของสมาชิก และข้อมูลทั่วไปบางประการของวิสาหกิจชุมชนแปรรูปเครื่องแกง

2 เพื่อศึกษาความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง

3 เพื่อวิเคราะห์ปัจจัยที่มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง

แนวคิด ทฤษฎี กรอบแนวคิด

วิสาหกิจชุมชน หมายถึง การประกอบการของคนในชุมชน มีกระบวนการคิด การจัดการผลผลิตและทรัพยากรทุกขั้นตอนในรูปแบบของการแปรรูปของผลผลิต สร้างผลิตภัณฑ์ โดยครอบครัว องค์กร หรือเครือข่ายชุมชน เพื่อการบริโภคและสร้างรายได้ให้กับชุมชน โดยใช้กระบวนการที่ยุติธรรมระหว่างผู้ผลิตและผู้บริโภค การดำเนินการอาศัยความรู้หรือภูมิปัญญาในท้องถิ่นเพื่อพัฒนาเศรษฐกิจฐานรากและสร้างกระบวนการเรียนรู้ของชุมชน ซึ่งมีนัยของการสร้างความเข้มแข็งและความร่มเย็นเป็นสุขของชุมชน (สมเกียรติ สุทธินรากร, 2560)

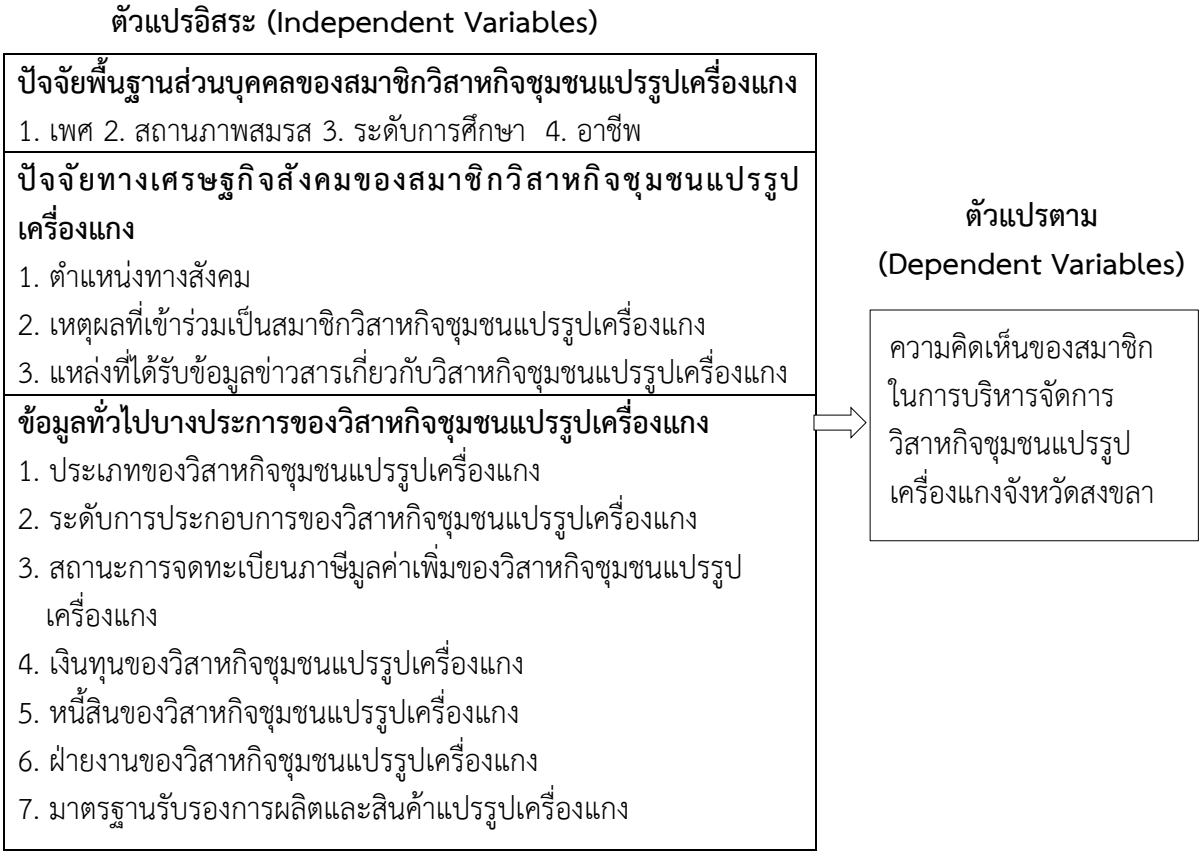
ประเภทของวิสาหกิจชุมชน แบ่งเป็น 2 ประเภทใหญ่ ๆ คือ 1) วิสาหกิจชุมชนพื้นฐาน คือ มุ่งผลิตสินค้าเพื่อบริโภคในชุมชนหรือขายในตลาดท้องถิ่น ใช้วิธีการผลิตที่ไม่ซับซ้อน แต่ต้องมีมาตรฐานด้านสุขอนามัย เป้าหมายหลัก คือ การลดรายจ่ายและเพิ่มรายได้ให้ชุมชน และ 2) วิสาหกิจชุมชนก้าวหน้า คือ พัฒนาต่อจากวิสาหกิจพื้นฐาน ใช้เทคโนโลยีและระบบที่ทันสมัย มีมาตรฐานคุณภาพระดับสากล และสามารถแข่งขันในตลาดใหญ่ รวมถึงตลาดส่งออก (กองส่งเสริมวิสาหกิจชุมชน, 2562)

ระดับการประกอบการของวิสาหกิจชุมชน แบ่งออกเป็น 5 ประเภท คือ 1) ระดับครอบครัว คือ วิสาหกิจชุมชนที่เน้นการพึ่งพาตนเอง ผลิตเพื่อใช้ในครัวเรือน ลดค่าใช้จ่าย และป้องกันเงินไหลออกจากชุมชน 2) ระดับชุมชน คือ มีการพึ่งพาอาศัยกันระหว่างครอบครัวในชุมชนเดียวกัน เช่น การซื้อขายสินค้าภายในชุมชนเพื่อลดรายจ่ายร่วมกัน 3) ระดับเครือข่าย คือ เป็นความร่วมมือระหว่างหลายชุมชน เพื่อแลกเปลี่ยนทรัพยากรและผลผลิตที่แต่ละชุมชน มีเพื่อให้สามารถพึ่งพากันได้อย่างยั่งยืน 4) ระดับการจัดการผลผลิตส่วนเกิน คือ มีการแปรรูปสินค้าเพื่อเพิ่มมูลค่าและนำสินค้าที่เหลือจากการใช้ในชุมชนออกสู่ตลาดภายนอก และ 5) ระดับธุรกิจ คือ วิสาหกิจชุมชนที่พัฒนาเป็นธุรกิจเต็มรูปแบบ มีมาตรฐานแข่งขันในตลาดขนาดใหญ่ได้ (วิชิต นันทสุวรรณ, 2544; จินตนา กาญจนวิสุทธิ์, 2558)

สำนักงานเลขานุการคณะกรรมการส่งเสริมวิสาหกิจชุมชน กรมส่งเสริมการเกษตร (2549) ได้นำทฤษฎีการบริหารจัดการภาครัฐ (PMQA) มาประยุกต์ใช้ในการบริหารจัดการวิสาหกิจชุมชน อย่างเป็นระบบและมุ่งเน้นความยั่งยืนผ่าน 7 ด้านหลัก ดังนี้ 1) การนำและการบริหาร คือ ผู้นำและสมาชิกต้องมีบทบาทร่วมกันในการกำหนดทิศทาง มีโครงสร้างบริหารที่เหมาะสมและกฎระเบียบที่ยอมรับได้ จัดสรรผลประโยชน์ โปร่งใสด้านการเงิน และมีการทบทวนผลการดำเนินงานเป็นระยะ คำนึงถึงความรับผิดชอบต่อสังคม จริยธรรม และการสนับสนุนชุมชน 2) การวางแผนการดำเนินงาน คือ จัดทำแผนโดยใช้ข้อมูลภายใน-ภายนอกชุมชน มีการกำหนดเป้าหมายเชิงปริมาณและคุณภาพ วางแผนการปฏิบัติงานชัดเจน ถ่ายทอดให้สมาชิกเข้าใจ มีการติดตามและปรับแผนตามสถานการณ์ 3) การบริหารตลาด คือ วิเคราะห์ความต้องการของลูกค้า ทรัพยากร และแนวโน้มตลาด ปรับปรุงแผนการตลาดอย่างต่อเนื่องเพื่อความยั่งยืน 4) การจัดการความรู้และข้อมูล คือ ข่าวสาร รวบรวม แลกเปลี่ยน ถ่ายทอดความรู้และภูมิปัญญาท้องถิ่น ใช้เทคโนโลยีและข้อมูลที่ทันสมัยเพื่อการพัฒนากิจการ 5) การบริหารสมาชิก คือ กำหนดเงื่อนไขการรับสมาชิกอย่างเป็นระบบ มีแผนพัฒนาสมาชิก การสร้างขวัญกำลังใจ และสวัสดิการที่เป็นธรรม มีระบบประเมินผลการทำงานของสมาชิก 6) การจัดการสินค้าและบริการ คือ บริหารกิจกรรมให้เชื่อมโยงและส่งเสริมกัน ควบคุมคุณภาพของสินค้าและบริการให้มีมาตรฐาน และ 7) ผลลัพธ์การดำเนินงาน คือ ประเมินผลเพื่อลดต้นทุน เพิ่มรายได้ และพัฒนาคุณภาพชีวิตของสมาชิก เสริมสร้างผลประโยชน์ต่อชุมชนและสร้างความพึงพอใจให้กับสมาชิก

ความคิดเห็น หมายถึง การแสดงออกทางด้านความรู้สึกของบุคคลที่มีต่อสิ่งหนึ่งสิ่งใด ซึ่งอาจถูกต้องหรือไม่ถูกต้องก็ได้ การแสดงความคิดเห็นอาจแสดงโดยการพูดหรือการเขียน เพื่อให้ผู้อื่นสามารถรับรู้ความคิดเห็นนี้ เป็นผลมาจากความเชื่อ ทัศนคติ ความคิด ซึ่งมีพื้นความรู้หรือประสบการณ์เป็นส่วนช่วยในการแสดงความคิดเห็น (สุวรรณรัตน์ จ้อยมี, 2555) โดยสงวน สุทธิเลิศอรุณ (2549) ได้กล่าวเกี่ยวกับประเภทความคิดเห็นว่า มิติด้านทิศทาง ได้แก่ 1) มิติด้านทิศทาง ได้แก่ ทางบวก คือ แสดงความรู้สึกเชิงบวก เช่น ความชอบหรือความพึงพอใจ และ ทางลบ คือ แสดงความรู้สึกเชิงลบ เช่น ไม่ชอบหรือไม่พึงพอใจ 2) มิติด้านความเข้มข้น ได้แก่ ความเข้มข้นมาก คือ มีความรู้สึกที่หนักแน่น ยากต่อการเปลี่ยนแปลงความคิดเห็น และความเข้มข้นน้อย คือ มีความรู้สึกที่ไม่แน่นแฟ้น สามารถเปลี่ยนแปลงความคิดเห็นได้ง่าย นอกจากนี้ Remmers (1996) ยังแบ่งความคิดเห็นออกเป็น 2 ประเภท ได้แก่ ความคิดเห็นเชิงบวกสุด-เชิงลบสุด (Extreme Opinion) คือ เกิดจากประสบการณ์และการเรียนรู้ทำให้สามารถกำหนดทิศทางความคิดเห็นได้ชัดเจน และความคิดเห็นที่เกิดจากความรู้ความเข้าใจ (Cognitive Contents) คือ หากมีความเข้าใจและยอมรับก็จะเห็นด้วย แต่หากไม่ยอมรับก็จะไม่เห็นด้วย

ปัจจัยที่มีอิทธิพลต่อความคิดเห็น เป็นกระบวนการเกิดความรู้ความเข้าใจมีความสัมพันธ์กับความรู้สึกนึกคิดหรือความคิดเห็นของแต่ละบุคคล แต่ผลของความคิดเห็นจะเหมือนหรือแตกต่างกันขึ้นอยู่กับปัจจัยพื้นฐานที่มีอิทธิพลต่อความคิดเห็นของบุคคล มาจาก 5 ปัจจัย ได้แก่ 1) พันธุกรรม หรือ สรีระ เช่น อายุ เพศ 2) ประสบการณ์โดยตรงของบุคคล เช่น การศึกษา ทักษะ 3) อิทธิพลจากครอบครัวหรือผู้ปกครอง 4) ความคิดเห็นของกลุ่ม และ 5) สื่อมวลชน เช่น โทรทัศน์ หนังสือพิมพ์ (นงณพร ทับทิมทวีโชค, 2556)



ภาพที่ 1 กรอบแนวคิดในการศึกษาวิจัย

วิธีดำเนินการวิจัย

1. ประชากรและกลุ่มตัวอย่างในการศึกษาครั้งนี้ คือ สมาชิกวิสาหกิจชุมชนแปรรูปเครื่องแกง จังหวัดสงขลา ที่จดทะเบียนวิสาหกิจชุมชนมาไม่น้อยกว่า 1 ปี (ตารางที่ 1)

ตารางที่ 1 ข้อมูลประชากรและกลุ่มตัวอย่างสมาชิกวิสาหกิจชุมชนแปรรูปเครื่องแกงจังหวัดสงขลา

อำเภอ	จำนวนวิสาหกิจชุมชน (แห่ง)	จำนวนสมาชิกวิสาหกิจชุมชน (ราย)	จำนวนตัวอย่างที่เก็บข้อมูล (ราย)
เมือง	1	12	3
สทิงพระ	3	46	11
จะนะ	5	136	33
นาทวี	8	118	29
เทพา	5	78	19
สะบ้าย้อย	6	117	29
ระโนด	3	56	14
กระแสสินธุ์	1	10	3
รัตภูมิ	7	83	20
สะเดา	12	118	29
หาดใหญ่	14	223	55
นาหม่อม	1	7	2
ควนเนียง	2	18	4
บางกล่ำ	5	73	18
สิงหนคร	3	55	14
คลองหอยโข่ง	6	78	19
รวม	**82**	**1,228**	**302**

ที่มา: กรมส่งเสริมการเกษตร (2566)

ขนาดที่กลุ่มตัวอย่างใช้สูตรของยามาเน่ ที่ระดับความเชื่อมั่น 0.05 (เจตนัยธ์ เพชรศรี, 2552) ได้จำนวนตัวอย่าง 302 ราย กระจายจำนวนตัวอย่างตามสัดส่วนของจำนวนสมาชิกแต่ละอำเภอ แต่ละแห่ง ให้ครบตามจำนวนที่กำหนดไว้ข้างต้น โดยตัวอย่างที่ได้แต่ละราย ผู้วิจัยใช้เทคนิคการสุ่มตัวอย่างแบบง่าย (Simple Random Sampling) โดยวิธีการสุ่มตัวอย่างแบบไม่ใส่คืน

2. เครื่องมือในการวิจัย ใช้แบบสอบถามเชิงโครงสร้างเป็นเครื่องมือในการเก็บรวบรวมข้อมูล โดยประยุกต์ข้อมูลทุติยภูมิเกี่ยวกับแนวคิด ทฤษฎี และงานวิจัยที่เกี่ยวข้องกับ วิสาหกิจชุมชน การบริหารจัดการ ความคิดเห็น มาสร้างเป็นข้อคำถาม

3. การตรวจสอบคุณภาพเครื่องมือ ทดสอบความเที่ยงตรง (Validity Test) (พิชิต ฤทธิ์จรูญ, 2556) โดยให้ผู้เชี่ยวชาญ จำนวน 3 ท่าน ตรวจสอบความตรงตามวัตถุประสงค์และเนื้อหา (IOC) กำหนดเกณฑ์การผ่านเท่ากับ 0.67 โดยข้อคำถามมีค่าระหว่าง 0.67 - 1.00 สามารถนำไปใช้ได้ดำเนินการปรับปรุงแบบสอบถามตามข้อเสนอแนะของผู้เชี่ยวชาญ แล้วทดสอบความเชื่อมั่น (Reliability Test) กับ

สมาชิกวิสาหกิจชุมชนแปรรูปเครื่องแกงในพื้นที่อำเภอควนขนุน เขาชัยสน และป่าบอน จังหวัดพัทลุง จำนวน 30 คน ซึ่งกำหนดเกณฑ์ค่าสัมประสิทธิ์แอลฟ่าของครอนบาค (สุวิมล ติรกานันท์, 2551) เท่ากับ 0.70 ขึ้นไป ถือว่ามีความเชื่อมั่นในระดับที่ยอมรับได้ซึ่งแบบสอบถามครั้งนี้ มีค่าความเชื่อมั่นทั้งฉบับเท่ากับ 0.964

4. การวิเคราะห์ข้อมูล การวิจัยครั้งนี้เป็นการวิจัยเชิงปริมาณ ประกอบด้วยสถิติ 2 ส่วน คือ

1) สถิติเชิงพรรณนา (Descriptive Statistics) ใช้สำหรับวิเคราะห์ปัจจัยพื้นฐานส่วนบุคคล เศรษฐกิจสังคมของสมาชิก ข้อมูลทั่วไปบางประการของวิสาหกิจชุมชน และระดับความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง ใช้การวิเคราะห์ด้วยสถิติ ค่าความถี่ (Frequency) ค่าร้อยละ (Percentage) ค่าสูงสุด (Maximum Value) ค่าต่ำสุด (Minimum Value) ค่าเฉลี่ย (Arithmetic Mean) และค่าส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation) โดยระดับความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง เป็นมาตรวัดอันตรภาค (Interval Scale) ใช้สูตรอันตรภาคชั้น เพื่อกำหนดเกณฑ์การแปลความหมายดังนี้ สูตรอันตรภาคชั้น = (ค่าสูงสุด-ค่าต่ำสุด)÷จำนวนชั้น = (5-1)÷5 = 0.80

ความกว้างของแต่ละชั้นเท่ากับ 0.80 และกำหนดเกณฑ์การแปลความหมายเป็น 5 ระดับ ได้ดังต่อไปนี้

ค่าเฉลี่ย 4.21 - 5.00 หมายถึง เห็นด้วยต่อประเด็นการบริหารจัดการวิสาหกิจชุมชนในระดับมากที่สุด
ค่าเฉลี่ย 3.41 - 4.20 หมายถึง เห็นด้วยต่อประเด็นการบริหารจัดการวิสาหกิจชุมชนในระดับมาก
ค่าเฉลี่ย 2.61 - 3.40 หมายถึง เห็นด้วยต่อประเด็นการบริหารจัดการวิสาหกิจชุมชนในระดับปานกลาง
ค่าเฉลี่ย 1.81 - 2.60 หมายถึง เห็นด้วยต่อประเด็นการบริหารจัดการวิสาหกิจชุมชนในระดับน้อย
ค่าเฉลี่ย 1.00 - 1.80 หมายถึง เห็นด้วยต่อประเด็นการบริหารจัดการวิสาหกิจชุมชนในระดับน้อยที่สุด

2) สถิติเชิงอ้างอิง (Inferential Statistics) ใช้อธิบายความสัมพันธ์ระหว่างตัวแปรอิสระและตัวแปรตาม คือ ความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงจังหวัดสงขลา โดยสถิติที่ใช้ในการวิเคราะห์มีดังนี้

2.1 สถิติค่า t-test เพื่อทดสอบความแตกต่างของค่าเฉลี่ยของกลุ่มตัวอย่าง 2 กลุ่ม ได้แก่ เพศ,อาชีพเสริม, ตำแหน่งทางสังคม, เหตุผลที่เข้าร่วม, แหล่งข้อมูลข่าวสาร ประเภทของวิสาหกิจชุมชน สถานะการจดทะเบียนภาษีมูลค่าเพิ่ม เงินทุน หนี้สิน ฝ่ายงาน และมาตรฐานรับรองการผลิตและสินค้า

2.2 การวิเคราะห์ความแปรปรวนทางเดียว (One-Way ANOVA) เพื่อทดสอบความแตกต่างของค่าเฉลี่ยของกลุ่มตัวอย่าง 3 กลุ่มขึ้นไป ได้แก่ สถานภาพสมรส ระดับการศึกษา อาชีพหลัก และระดับการประกอบการของวิสาหกิจชุมชน และเมื่อพบความแตกต่างจะใช้วิธีการทดสอบความแตกต่างเป็นรายคู่โดยวิธี LSD (Fisher’s Least – Significant Different) โดยกำหนดเกณฑ์การวิเคราะห์ความมีนัยสำคัญทางสถิติที่ระดับ 0.05

ผลการวิจัย

1. ปัจจัยพื้นฐานส่วนบุคคล เศรษฐกิจสังคมของสมาชิก และข้อมูลทั่วไปบางประการของวิสาหกิจชุมชนแปรรูปเครื่องแกงจังหวัดสงขลา พบว่า สมาชิกเป็นเพศหญิง จำนวน 290 คน (ร้อยละ 96.00) สถานภาพสมรส ร้อยละ 78.50 จบประถมศึกษา ร้อยละ 54.30 อาชีพหลัก คือ เกษตรกรรม ร้อยละ 77.15 อาชีพเสริม ร้อยละ 64.24 คือ ทำเครื่องแกง ร้อยละ 59.60 มีการดำรงตำแหน่งทางสังคม ร้อยละ 32.45 เหตุผลที่เข้าร่วมเป็นสมาชิก คือ ต้องการมีรายได้เพิ่ม/รายได้เสริม ร้อยละ 82.78 การรับรู้ข้อมูลข่าวสารได้จากประธานกลุ่ม ร้อยละ 64.24 เป็นประเภทวิสาหกิจชุมชนพื้นฐาน ร้อยละ 73.18 การ

ประกอบการอยู่ในระดับชุมชน ร้อยละ 82.78 มีการจดทะเบียนภาษีมูลค่าเพิ่ม ร้อยละ 31.79 มีเงินทุนเฉลี่ย 94,652.29 บาท มีหนี้สินเฉลี่ย 298,026.32 บาท วิสาหกิจชุมชนมีการแบ่งฝ่ายงาน ร้อยละ 73.18 มีมาตรฐานรับรองการผลิตและสินค้า ร้อยละ 33.11 คือ OTOP ที่ได้รับจากสำนักงานพัฒนาชุมชนอำเภอ และ อย. ที่ได้รับรองจากสำนักงานสาธารณสุขจังหวัด ร้อยละ 27.48 และ 12.58 ตามลำดับ

2. ระดับความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงจังหวัดสงขลา พบว่า โดยรวมอยู่ในระดับมาก มีค่าเฉลี่ยโดยรวม 4.05 โดยด้านผู้นำและการบริหารวิสาหกิจชุมชน มีค่าเฉลี่ยสูงสุด 4.16 ส่วนด้านการจัดการความรู้และข้อมูล มีค่าเฉลี่ยต่ำสุด 3.99 (ตารางที่ 2)

ตารางที่ 2 ค่าเฉลี่ย ($\bar{X}$) และค่าเบี่ยงเบนมาตรฐาน (S.D.) ความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงจังหวัดสงขลา

ด้านที่	ความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง	ระดับความคิดเห็น		
		$\bar{X}$	S.D.	แปลผล
1.	ด้านผู้นำและการบริหารวิสาหกิจชุมชน	4.16	0.55	มาก
2.	ด้านการวางแผนการดำเนินงาน	4.04	0.62	มาก
3.	ด้านการบริหารตลาด	4.06	0.65	มาก
4.	ด้านการจัดการความรู้และข้อมูล	3.99	0.62	มาก
5.	ด้านการบริหารสมาชิกวิสาหกิจชุมชน	4.02	0.66	มาก
6.	ด้านการจัดการสินค้าหรือบริการ	4.05	0.66	มาก
7.	ด้านผลลัพธ์การดำเนินงานวิสาหกิจชุมชน	4.03	0.59	มาก
	รวม	**4.05**	**0.55**	**มาก**

3. ผลการวิเคราะห์ปัจจัยที่มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงจังหวัดสงขลา ได้แก่

1) ปัจจัยพื้นฐานส่วนบุคคล พบว่า เพศ สถานภาพสมรส ระดับการศึกษา อาชีพหลัก อาชีพเสริม ไม่มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง (ตารางที่ 3-4)

ตารางที่ 3 การเปรียบเทียบความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง จำแนกตามปัจจัยพื้นฐานส่วนบุคคล (เพศ และอาชีพเสริม)

ปัจจัยพื้นฐานส่วนบุคคล		Mean	S.D.	t-test	P-value
1. เพศ	ชาย	3.95	0.30	-1.186^{ns}	0.255
	หญิง	4.05	0.56		
2. อาชีพเสริม	มี	4.08	0.53	1.383^{ns}	0.168
	ไม่มี	3.99	0.58		

ตารางที่ 4 การเปรียบเทียบความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง จำแนกตามปัจจัยพื้นฐานส่วนบุคคล (สถานภาพสมรส ระดับการศึกษา และอาชีพหลัก)

ปัจจัยพื้นฐานส่วนบุคคล	ความแปรปรวน	Sum of Squares	df	Mean Square	F	P-value
1. สถานภาพสมรส	ระหว่างกลุ่ม	0.88	2	0.44	1.446^{ns}	0.237
	ภายในกลุ่ม	90.56	299	0.30		
	รวม	91.44	301			
2. ระดับการศึกษา	ระหว่างกลุ่ม	1.66	6	0.28	0.908^{ns}	0.490
	ภายในกลุ่ม	89.78	295	0.30		
	รวม	91.44	301			
3. อาชีพหลัก	ระหว่างกลุ่ม	1.62	5	0.32	1.070^{ns}	0.377
	ภายในกลุ่ม	89.82	296	0.30		
	รวม	91.44	301			

2) ปัจจัยทางเศรษฐกิจสังคมของสมาชิกวิสาหกิจชุมชนแปรรูปเครื่องแกง พบว่า ตำแหน่งทางสังคม ไม่มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง ส่วนเหตุผลที่เข้าร่วมเป็นสมาชิกวิสาหกิจชุมชนแปรรูปเครื่องแกง ได้แก่ พอใจในกิจกรรมกลุ่ม ต้องการความรู้ และเหตุผลอื่น ๆ ในการเข้าร่วมเป็นสมาชิก เช่น เพื่อพัฒนาชุมชน สร้างอาชีพ นำวัตถุดิบในชุมชนมาแปรรูปสร้างมูลค่าเพิ่ม เพื่อสร้างกลุ่มให้แข็งแรง และต้องการสร้างให้เป็นแหล่งเรียนรู้ชุมชน มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.001 0.01 และ 0.01 ตามลำดับ โดยสมาชิกที่เลือกพอใจในกิจกรรมกลุ่ม (ค่าเฉลี่ย 4.20) ต้องการความรู้ (ค่าเฉลี่ย 4.16) และเหตุผลอื่นๆ (ค่าเฉลี่ย 4.69) มีความคิดเห็นในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงสูงกว่าที่ไม่ได้เลือก (ค่าเฉลี่ย 3.89 3.98 และ 4.04 ตามลำดับ) ส่วนแหล่งที่ได้รับข้อมูลข่าวสารเกี่ยวกับวิสาหกิจชุมชนแปรรูปเครื่องแกง ได้แก่ ประธานกลุ่ม คณะกรรมการกลุ่ม สมาชิกกลุ่ม หน่วยงานภาครัฐอื่น ๆ หน่วยงานเอกชน และผู้นำ มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.001 0.001 0.001 0.01 0.05 และ 0.05 ตามลำดับ โดยสมาชิกที่เลือกประธานกลุ่ม (ค่าเฉลี่ย 4.17) คณะกรรมการกลุ่ม (ค่าเฉลี่ย 4.29) สมาชิกกลุ่ม (ค่าเฉลี่ย 4.16) หน่วยงานภาครัฐอื่น ๆ (ค่าเฉลี่ย 4.18) หน่วยงานเอกชน (ค่าเฉลี่ย 4.36) มีความคิดเห็นในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงสูงกว่าที่ไม่ได้เลือก (ค่าเฉลี่ย 3.83 3.95 3.92 3.97 และ 4.03 ตามลำดับ) แต่สมาชิกที่เลือกผู้นำชุมชน (ค่าเฉลี่ย 3.96) มีความคิดเห็นในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงต่ำกว่าไม่ได้เลือก (ค่าเฉลี่ย 4.10) (ตารางที่ 5)

ตารางที่ 5 การเปรียบเทียบความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง จำแนกตามปัจจัยทางเศรษฐกิจสังคมของสมาชิก (ตำแหน่งทางสังคม เหตุผลที่เข้าร่วมเป็นสมาชิก และแหล่งที่ได้รับข้อมูลข่าวสาร)

ปัจจัยทางเศรษฐกิจสังคม		Mean	S.D.	t-test	P-value
1. ตำแหน่งทางสังคม	มี	4.09	0.53	0.808^{ns}	0.420
	ไม่มี	4.03	0.56		
เหตุผลที่เข้าร่วมเป็นสมาชิกวิสาหกิจชุมชนแปรรูปเครื่องแกง					
1. พอใจในกิจกรรมกลุ่ม	เลือก	4.20	0.48	5.107***	0.000
	ไม่เลือก	3.89	0.58		
2. ต้องการความรู้	เลือก	4.16	0.47	2.912**	0.004
	ไม่เลือก	3.98	0.58		
3. ต้องการใช้เวลาให้เป็นประโยชน์	เลือก	4.07	0.55	1.561^{ns}	0.120
	ไม่เลือก	3.95	0.54		
4. ต้องการมีรายได้เพิ่ม/รายได้เสริม	เลือก	4.06	0.56	0.857^{ns}	0.392
	ไม่เลือก	3.99	0.53		
5. เพื่อพัฒนาอาชีพของตนเอง	เลือก	4.02	0.56	-0.938^{ns}	0.349
	ไม่เลือก	4.08	0.54		
6. เพื่อพบปะแลกเปลี่ยนความคิดเห็น	เลือก	4.12	0.56	1.833^{ns}	0.068
	ไม่เลือก	4.00	0.54		
7. ได้รับการชักชวนจากสมาชิกในกลุ่ม	เลือก	4.07	0.53	0.369^{ns}	0.713
	ไม่เลือก	4.04	0.56		
8. เหตุผลอื่นๆ ที่เข้าร่วมเป็นสมาชิกวิสาหกิจชุมชน	เลือก	4.69	0.42	2.636**	0.009
	ไม่เลือก	4.04	0.55		
แหล่งที่ได้รับข้อมูลข่าวสารเกี่ยวกับวิสาหกิจชุมชนแปรรูปเครื่องแกง					
1. ประธานกลุ่ม	เลือก	4.17	0.48	5.138***	0.000
	ไม่เลือก	3.83	0.60		
2. คณะกรรมการกลุ่ม	เลือก	4.29	0.40	5.864***	0.000
	ไม่เลือก	3.95	0.58		
3. สมาชิกกลุ่ม	เลือก	4.16	0.46	3.801***	0.000
	ไม่เลือก	3.92	0.62		
4. นักวิชาการส่งเสริมการเกษตร	เลือก	4.06	0.52	0.352^{ns}	0.725
	ไม่เลือก	4.04	0.59		
5. หน่วยงานภาครัฐอื่น ๆ	เลือก	4.18	0.45	3.462**	0.001
	ไม่เลือก	3.97	0.59		
6. หน่วยงานเอกชน	เลือก	4.36	0.48	2.582*	0.010
	ไม่เลือก	4.03	0.55		

ตารางที่ 5 (ต่อ)

ปัจจัยทางเศรษฐกิจสังคม		Mean	S.D.	t-test	P-value
7. หอกระจายข่าวหมู่บ้าน	เลือก	3.84	0.46	-1.645^{ns}	0.101
	ไม่เลือก	4.06	0.55		
8. ผู้นำชุมชน (กำนัน, ผู้ใหญ่บ้าน, ผู้ช่วยผู้ใหญ่บ้าน, อาสาสมัครเกษตร)	เลือก	3.96	0.59	-2.241*	0.026
	ไม่เลือก	4.10	0.52		
9. สื่อออนไลน์ (โทรทัศน์ออนไลน์, วิทยุออนไลน์, Facebook, Line)	เลือก	4.07	0.52	0.441^{ns}	0.659
	ไม่เลือก	4.04	0.57		
10. สื่อสิ่งพิมพ์ (หนังสือพิมพ์, โปสเตอร์, แผ่นพับ, ไวนิล)	เลือก	4.16	0.37	0.392^{ns}	0.695
	ไม่เลือก	4.05	0.55		

3) ข้อมูลทั่วไปบางประการของวิสาหกิจชุมชนแปรรูปเครื่องแกง พบว่า ระดับการประกอบการของวิสาหกิจชุมชน มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.001 โดยสมาชิกที่เลือกการประกอบการของวิสาหกิจชุมชนในระดับครอบครัว (ค่าเฉลี่ย 3.71) มีความคิดเห็นในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงต่ำกว่าระดับชุมชน (ค่าเฉลี่ย 4.03) ระดับเครือข่าย (ค่าเฉลี่ย 4.42) ระดับวิสาหกิจชุมชนเพื่อการจัดการผลผลิตส่วนเกิน (ค่าเฉลี่ย 4.92) และระดับธุรกิจ (ค่าเฉลี่ย 4.42) อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.01 0.001 0.001 และ 0.001 ตามลำดับ สมาชิกที่เลือกการประกอบการของวิสาหกิจชุมชนในระดับชุมชน (ค่าเฉลี่ย 4.03) มีความคิดเห็นในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงต่ำกว่าระดับเครือข่าย (ค่าเฉลี่ย 4.42) ระดับวิสาหกิจชุมชนเพื่อการจัดการผลผลิตส่วนเกิน (ค่าเฉลี่ย 4.92) และระดับธุรกิจ (ค่าเฉลี่ย 4.42) อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.01 0.01 และ 0.01 ตามลำดับ ส่วนสถานะการจดทะเบียนภาษีมูลค่าเพิ่ม เงินทุน หนี้สินของวิสาหกิจชุมชน มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 0.01 และ 0.05 ตามลำดับ โดยสมาชิกที่เลือกจดทะเบียนภาษีมูลค่าเพิ่ม (ค่าเฉลี่ย 4.15) มีเงินทุน (ค่าเฉลี่ย 4.10) มีหนี้สิน (ค่าเฉลี่ย 4.24)) มีความคิดเห็นในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงสูงกว่าที่ไม่ได้เลือก (ค่าเฉลี่ย 4.00 3.90 และ 4.02 ตามลำดับ) (ตารางที่ 6-8)

ตารางที่ 6 การเปรียบเทียบความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง จำแนกตามข้อมูลทั่วไปบางประการของวิสาหกิจชุมชน (ประเภทวิสาหกิจชุมชน สถานะการจดทะเบียนภาษีมูลค่าเพิ่ม เงินทุน หนี้สิน การแบ่งฝ่ายงาน และมาตรฐานรับรองการผลิตและสินค้า)

ข้อมูลทั่วไปบางประการ		Mean	S.D.	t-test	P-value
1. ประเภทวิสาหกิจชุมชนแปรรูปเครื่องแกง	วิสาหกิจชุมชนพื้นฐาน	4.03	0.55	-1.215^{ns}	0.225
	วิสาหกิจชุมชนก้าวหน้า	4.11	0.54		
2. สถานะการจดทะเบียนภาษีมูลค่าเพิ่มของวิสาหกิจชุมชนแปรรูปเครื่องแกง	จดทะเบียน	4.15	0.51	-2.176*	0.030
	ไม่จดจดทะเบียน	4.00	0.56		
3. เงินทุนของวิสาหกิจชุมชนแปรรูปเครื่องแกง	มีเงินทุน	4.10	0.53	-2.694**	0.007
	ไม่มีเงินทุน	3.90	0.58		
4. หนี้สินของวิสาหกิจชุมชนแปรรูปเครื่องแกง	มีหนี้สิน	4.24	0.55	-2.462*	0.140
	ไม่มีหนี้สิน	4.02	0.55		
5. การแบ่งฝ่ายงานของวิสาหกิจชุมชน	มีการแบ่งฝ่ายงาน	4.05	0.62	0.036^{ns}	0.971
	ไม่มีการแบ่งฝ่ายงาน	4.05	0.53		
6. มาตรฐานรับรองการผลิตและสินค้า	มีมาตรฐานรับรอง	4.01	0.54	-1.699^{ns}	0.090
	ไม่มีมาตรฐานรับรอง	4.13	0.56		

ตารางที่ 7 การเปรียบเทียบความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกง จำแนกตามข้อมูลทั่วไปบางประการของวิสาหกิจชุมชน (ระดับการประกอบการ)

ข้อมูลทั่วไปบางประการ	ความแปรปรวน	Sum of Squares	df	Mean Square	F	P-value
1. ระดับการประกอบการของวิสาหกิจชุมชน	ระหว่างกลุ่ม	8.67	4	2.17	7.782***	0.000
	ภายในกลุ่ม	82.77	297	0.28		
	รวม	91.44	301			

ตารางที่ 8 การเปรียบเทียบค่าเฉลี่ยรายคู่ความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงต่อระดับการประกอบการของวิสาหกิจชุมชนโดยวิธี LSD

	1. ($\overline{X}$=3.71)	2. ($\overline{X}$=4.03)	3. ($\overline{X}$=4.42)	4. ($\overline{X}$=4.92)	5. ($\overline{X}$=4.42)
1. ($\overline{X}$=3.71)	-	-0.317**	-0.713***	-1.209***	-0.711***
2. ($\overline{X}$=4.03)	-	-	0.396**	-0.892**	-0.394**
3. ($\overline{X}$=4.42)	-	-	-	-0.496^{ns}	0.002^{ns}
4. ($\overline{X}$=4.92)	-	-	-	-	0.498^{ns}
5. ($\overline{X}$=4.42)	-	-	-	-	-

หมายเหตุ 1. คือ ระดับครอบครัว, 2. คือ ระดับชุมชน, 3. คือ ระดับเครือข่าย 4. คือระดับวิสาหกิจชุมชนเพื่อการจัดการผลผลิตส่วนเกิน และ 5. คือ ระดับธุรกิจ

สรุปและอภิปรายผล

การศึกษาปัจจัยที่มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงจังหวัดสงขลา สามารถสรุปและอภิปรายผลได้ดังนี้

1) ปัจจัยทางเศรษฐกิจสังคมของสมาชิกวิสาหกิจชุมชนแปรรูปเครื่องแกง พบว่า สมาชิกที่มีเหตุผลในการเข้าร่วมวิสาหกิจชุมชน เพราะพอใจในกิจกรรมกลุ่ม ต้องการความรู้ และเหตุผลอื่นๆ มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงแตกต่างกัน ทั้งนี้เนื่องจากสมาชิกที่พอใจในกิจกรรมกลุ่ม มีส่วนร่วมช่วยกันแปรรูปเครื่องแกงตลอดกระบวนการผลิต อีกทั้งมีความถนัดในการทำอาหาร จึงสามารถใช้ความถนัดนี้ สร้างรายได้ให้กับครอบครัวเพิ่มขึ้น จากการจำหน่ายสินค้าเครื่องแกง ส่งผลให้เกิดความพอใจในกิจกรรมกลุ่มได้ สำหรับสมาชิกที่ต้องการความรู้และมีเหตุผลอื่นๆ มีความคิดเห็นสูงกว่าสมาชิกที่ไม่เลือก ทั้งนี้อาจเป็นเพราะการรวมกลุ่ม ส่วนใหญ่สมาชิกได้รับความรู้จากการสนับสนุนของหน่วยงานภาครัฐหรือเอกชน ทำให้สมาชิกกลุ่มสามารถเติบโตไปพร้อม ๆ กับกลุ่ม นอกจากนี้การใช้วัตถุดิบส่วนหนึ่งจากแปลงเกษตรของสมาชิก เช่น พริก ตะไคร้ ขมิ้น เป็นการเพิ่มมูลค่าของสินค้าเกษตรในชุมชน ตลอดจนกระบวนการผลิตอยู่ในรูปแบบใช้แรงงานสมาชิกในการล้าง คัดแยก ปอก ตำให้เกิดความสามัคคีภายในกลุ่ม และส่งผลให้การดำเนินงานของกลุ่มประสบความสำเร็จ ซึ่งสอดคล้องกับงานวิจัยของธนัญญาณ์ โสภณพุทธพร, นารีรัตน์ สีระสาร และ เบญจมาศ อยู่ประเสริฐ (2566) ที่ศึกษาปัจจัยที่มีผลต่อการดำเนินงานของวิสาหกิจชุมชนในอำเภอบ้านค่าย จังหวัดระยอง พบว่า ปัจจัยด้านการมีส่วนร่วมความรู้และทัศนคติของสมาชิก เป็นปัจจัยหลักที่ส่งผลต่อการดำเนินงานของวิสาหกิจชุมชนในจังหวัดระยอง ซึ่งสะท้อนว่า หากสมาชิกมีความรู้หรือความพึงพอใจต่อกิจกรรมที่ทำก็จะส่งผลให้เกิดความสามัคคีและมีทัศนคติเชิงบวกต่อการบริหารกลุ่มเช่นเดียวกัน ซึ่งสอดคล้องกับงานวิจัยของธนัท ตาปัญญา (2566) ที่ศึกษาแนวทางการส่งเสริมการมีส่วนร่วมในการดำเนินงานของสมาชิกวิสาหกิจชุมชนในอำเภอท่าสองยาง จังหวัดตาก พบว่า การมีส่วนร่วมในการดำเนินงานของสมาชิกมีความสำคัญต่อความสำเร็จของวิสาหกิจชุมชน โดยเฉพาะอย่างยิ่งเมื่อสมาชิกได้รับความรู้และการสนับสนุนจากหน่วยงานภาครัฐหรือเอกชน และสอดคล้องกับงานวิจัยของอาทิตย์ อินทรภักดี และประสิทธิ์ รักนุ้ย (2565) ที่ศึกษาการบูรณาการความร่วมมือของท้องถิ่นและวิสาหกิจชุมชนเพื่อพัฒนาการส่งออก กรณีศึกษาวิสาหกิจชุมชนกลุ่มเครื่องแกงบ้านคลองจิก จังหวัดสงขลา พบว่า การบูรณาการความร่วมมือระหว่างท้องถิ่นและวิสาหกิจชุมชน รวมถึงการมีส่วนร่วมของสมาชิกในกระบวนการผลิต ส่งผลให้เกิดความสามัคคีภายในกลุ่มและส่งผลให้การดำเนินงานของกลุ่มประสบความสำเร็จ

สมาชิกที่ได้รับข้อมูลข่าวสารเกี่ยวกับวิสาหกิจชุมชนจากประธานวิสาหกิจชุมชน คณะกรรมการวิสาหกิจชุมชน สมาชิกวิสาหกิจชุมชน หน่วยงานภาครัฐอื่น ๆ หน่วยงานเอกชน และผู้นำชุมชน มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงแตกต่างกัน ทั้งนี้เนื่องจากวิสาหกิจชุมชนมีลักษณะเป็นกลุ่ม การประสานงานหรือแจ้งข้อมูลข่าวสาร การรับรู้ข้อมูลข่าวสารจากภายนอก ตลอดจนการเข้าร่วมอบรม ดำเนินจัดกิจกรรมในโครงการต่าง ๆ ส่วนใหญ่มีการประสานงานผ่านผู้นำ คือ ประธานวิสาหกิจชุมชน หากประธานไม่สะดวกหรือไม่ว่าง จะมอบหมายให้คณะกรรมการหรือตัวแทนสมาชิกดำเนินการแทน เพื่อแจ้งข้อมูลข่าวสารกับสมาชิกรับทราบต่อไป หรือรับทราบโดยตรงจากหน่วยงานภาครัฐ หน่วยงานเอกชน หรือผู้นำชุมชน ในการจัดกิจกรรมโครงการต่าง ๆ ซึ่งมีความใกล้เคียงกับงานวิจัยของจรีภรณ์ มีศรี (2563) ที่ศึกษาปัจจัยที่ส่งผลต่อความสำเร็จของวิสาหกิจชุมชนชาลี-วรรณ ชุมชนพัฒนา ตำบลบางปลา อำเภอบางพลี จังหวัดสมุทรปราการ พบว่า สมาชิกมีความเห็นว่า

การที่สมาชิกรับทราบข้อมูลการดำเนินงานของกลุ่มอย่างต่อเนื่องและเป็นปัจจุบัน มีความสำคัญมากเป็นอันดับแรก และการมีผู้นำกลุ่มที่เข้มแข็ง ทุกคนมีความรู้ความเข้าใจในหลักการดำเนินงานของกลุ่ม มีการบริหารจัดการกลุ่มที่ดี สมาชิกทุกคนได้มีส่วนร่วมในการดำเนินงานกิจกรรมต่าง ๆ ของกลุ่ม เป็นปัจจัยหลักในการพัฒนาและขับเคลื่อนกลุ่มสู่ความสำเร็จ

2) ข้อมูลทั่วไปบางประการของสมาชิกวิสาหกิจชุมชนแปรรูปเครื่องแกง พบว่า ระดับการประกอบการของวิสาหกิจชุมชน มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงแตกต่างกัน ซึ่งมีระดับการประกอบการของวิสาหกิจชุมชน อยู่ในระดับชุมชน ทั้งนี้เนื่องจากการจดทะเบียนสมาชิกวิสาหกิจชุมชน เป็นการรวมตัวกันของสมาชิกตั้งแต่ 7 คนขึ้นไปที่อยู่ในชุมชนหรือหมู่บ้านเดียวกัน หรือต่างหมู่บ้านที่ใกล้กัน เพื่อให้สะดวกในการจัดการด้านการบริหารกลุ่มและการนำวัตถุดิบในท้องถิ่นมาแปรรูป ตลอดจนการรวมตัวกันทำกิจกรรมแปรรูปเครื่องแกงร่วมกันของสมาชิก ซึ่งสอดคล้องกับงานวิจัยของสุกัญญา เอกนิล (2547) ที่ศึกษาเรื่องวิสาหกิจชุมชนกับการส่งเสริมเศรษฐกิจชุมชนพึ่งตนเอง ศึกษากรณีกลุ่มเกษตรกรทำสวน ตำบลแพรกศรีราชา อำเภอสรรคบุรี จังหวัดชัยนาท พบว่า การรวมกลุ่มของกลุ่มเกษตรกรทำสวนเป็นการรวมกลุ่มของสมาชิกที่อาศัยอยู่ในหมู่บ้านเดียวกัน

การจดทะเบียนภาษีมูลค่าเพิ่ม การมีเงินทุน และการมีหนี้สินของวิสาหกิจชุมชน มีผลต่อความคิดเห็นของสมาชิกในการบริหารจัดการวิสาหกิจชุมชนแปรรูปเครื่องแกงสูงกว่าสถานะที่ไม่จดทะเบียนภาษีมูลค่าเพิ่ม ไม่มีเงินทุน และไม่มีหนี้สิน ทั้งนี้เนื่องจากกลุ่มวิสาหกิจชุมชนแปรรูปเครื่องแกงที่มีการจดทะเบียนภาษีมูลค่าเพิ่มต้องมีรายได้ 1,800,000 บาทต่อปี การบริหารรวมถึงการดำเนินงานจึงมีความเข้มแข็งกว่ากลุ่มที่ไม่จดทะเบียนภาษีมูลค่าเพิ่ม เพราะต้องจัดทำบัญชีสำหรับยื่นภาษีมูลค่าเพิ่ม แต่ในขณะเดียวกันย่อมสามารถเข้าถึงแหล่งเงินกู้จากสถาบันทางการเงินได้ง่าย ซึ่งอาจทำให้มีหนี้สินที่ต้องชำระสูงกว่าวิสาหกิจชุมชนที่ไม่จดทะเบียนภาษีมูลค่าเพิ่ม และเน้นการระดมเงินทุนจากสมาชิกเป็นหลักจึงไม่มีหนี้สิน สอดคล้องกับงานวิจัยของนุชสรา คำมัน (2559) ที่ศึกษาเรื่องปัจจัยที่ส่งผลต่อความสำเร็จของวิสาหกิจชุมชนในอำเภอลานสัก จังหวัดอุทัยธานี พบว่า ปัจจัยด้านการเงินมีความสัมพันธ์กับความสำเร็จของวิสาหกิจชุมชนโดยรวม อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.001 ซึ่งสอดคล้องกับงานวิจัยของวราภรณ์ สุวรรณพงษ์ (2562) ที่ศึกษาเรื่องการระดมทุนและแหล่งเงินทุนภายนอกในการพัฒนาวิสาหกิจชุมชน พบว่า การระดมทุนจากสมาชิกมีบทบาทสำคัญในการเสริมสร้างเสถียรภาพทางการเงินในระยะสั้น แต่การมีแหล่งเงินทุนจากสถาบันการเงินและการจดทะเบียนภาษีมูลค่าเพิ่มจะทำให้วิสาหกิจชุมชนสามารถขยายกิจการและเพิ่มประสิทธิภาพในการดำเนินงานได้ดีกว่า และสอดคล้องกับงานวิจัยของศุภวรรณ พรหมประสิทธิ์ (2560) ที่ศึกษาเรื่องปัจจัยที่ส่งผลต่อการจัดการทางการเงินในวิสาหกิจชุมชน การศึกษาวิสาหกิจชุมชนที่จดทะเบียนภาษีมูลค่าเพิ่ม พบว่า วิสาหกิจชุมชนที่จดทะเบียนภาษีมูลค่าเพิ่มมีความสามารถในการจัดการทางการเงินที่ดีกว่า เนื่องจากการมีระบบการบัญชีที่โปร่งใสและสามารถจัดการหนี้สินได้ดีกว่า

ข้อเสนอแนะ

1. ปัจจัยด้านเหตุผลการเข้าร่วมเป็นสมาชิกวิสาหกิจชุมชนแปรรูปเครื่องแกง เพราะพอใจในกิจกรรมกลุ่ม ต้องการความรู้ และเหตุผลอื่นๆ เช่น เพื่อพัฒนาชุมชน ประธานวิสาหกิจชุมชนมีการแบ่งฝ่ายงานและกระจายงานให้ทั่วถึง เพื่อให้สมาชิกทุกคนมีส่วนร่วมและเห็นว่าตัวเองมีความสำคัญกับกลุ่ม อีกทั้งกรมส่งเสริมการเกษตร ควรให้ความรู้แก่สมาชิกที่ปลูกพืชวัตถุดิบ เช่น พริก ตะไคร้ ขมิ้น ให้ขอ

รับรองมาตรฐาน GAP จากกรมวิชาการเกษตร ทำให้สมาชิกสามารถเติบโตไปพร้อม ๆ กับกิจการของกลุ่มและกรมการพัฒนาชุมชน ควรให้ความรู้เรื่องการสร้างมูลค่าเพิ่มจากพืชวัตถุดิบ แปรรูปเพิ่มความหลากหลายของสินค้านอกจากการทำเครื่องแกง

2. ปัจจัยด้านแหล่งข้อมูลข่าวสารที่ได้รับเกี่ยวกับวิสาหกิจชุมชนแปรรูปเครื่องแกง โดยประธานวิสาหกิจชุมชนควรใช้ช่องทางที่หลากหลาย นอกจากการรับรู้ข้อมูลข่าวสารจากประธานในการประชุมกลุ่ม ที่ในบางครั้งสมาชิกไม่สามารถเข้าร่วมได้ครบทุกคน ทำให้กระจายข้อมูลไม่ทั่วถึงแก่สมาชิก จึงควรใช้สื่อสิ่งพิมพ์ เช่น ในการประชุมทุกครั้ง มีผลการประชุม ข้อมูลข่าวสารต่าง ๆ ที่จะแจ้ง ติดไว้ที่ทำการกลุ่มเพื่อให้สมาชิกทุกคนสามารถเข้ามาดูย้อนหลังได้

3. ปัจจัยด้านระดับการประกอบการของวิสาหกิจชุมชน จากระดับพื้นฐาน ให้เป็นระดับเครือข่าย โดยกรมส่งเสริมการเกษตร ควรส่งเสริมให้เกษตรกรในพื้นที่และพื้นที่ใกล้เคียงรวมกลุ่มปลูกพืชวัตถุดิบ เช่น พริก ตะไคร้ ขมิ้น และแนะนำการจดทะเบียนวิสาหกิจชุมชนเพื่อเป็นเครือข่ายให้แก่วิสาหกิจชุมชนแปรรูปเครื่องแกง ทำให้วิสาหกิจชุมชนเครือข่ายมีรายได้ วิสาหกิจชุมชนแปรรูปเครื่องแกงก็มีวัตถุดิบในชุมชน สามารถลดต้นทุนวัตถุดิบ รายได้เพิ่มขึ้น เกิดเป็นกลุ่มย่อยที่ดำเนินกิจการโดยพึ่งพาอาศัยกัน ทำให้กลุ่มมีความแข็งแกร่งที่จะพัฒนาระดับการประกอบการไปสู่ระดับที่สูงขึ้น ในระดับธุรกิจต่อไป

4. ปัจจัยด้านเงินทุนและหนี้สิน เนื่องจากกลุ่มมีการระดมหุ้นจากสมาชิกเพื่อเป็นทุนในการดำเนินกิจการวิสาหกิจชุมชนแปรรูปเครื่องแกง ซึ่งส่วนใหญ่กลุ่มมีรายได้น้อย ส่งผลให้ความสามารถในการชำระหนี้น้อย จึงเข้าถึงแหล่งเงินทุนได้ยาก โดยกรมส่งเสริมการเกษตรร่วมกับธนาคารเพื่อการเกษตร (ธ.ก.ส.) ควรจัดให้มีโครงการสนับสนุนเงินทุนดอกเบี้ยต่ำหรือกองทุนหมุนเวียนสำหรับสมาชิกวิสาหกิจชุมชน เพื่อลดภาระหนี้สิน ทำให้กลุ่มได้มีเงินทุนหมุนเวียนเพิ่มขึ้น

เอกสารอ้างอิง

กมลชนก ญานุชิตร. (2565). การจัดการการตลาดผลิตภัณฑ์เครื่องแกงของวิสาหกิจชุมชนและกลุ่มแม่บ้านเกษตรกรในอำเภอเทพา จังหวัดสงขลา [สารนิพนธ์ปริญญาบริหารธุรกิจมหาบัณฑิต]. มหาวิทยาลัยสงขลานครินทร์.

กรมส่งเสริมการเกษตร. (2566). รายงานจำนวนและสมาชิกของวิสาหกิจชุมชนและเครือข่ายวิสาหกิจชุมชนที่อนุมัติการจดทะเบียนแล้วจำแนกตามพื้นที่ทั้งประเทศ รายงานประจำปี 2566. ค้นเมื่อวันที่ 6 ธันวาคม 2566 จาก https://smce.doae.go.th/ smce1/report/index_tree.php?section=1

กระทรวงพาณิชย์. (2566). สถิติการค้าระหว่างประเทศ. ค้นเมื่อวันที่ 19 เมษายน 2567 จาก http://tradereport.moc.go.th/TradeThai.aspx

กองส่งเสริมวิสาหกิจชุมชน. (2562). คู่มือนักส่งเสริมวิสาหกิจชุมชน. กรุงเทพฯ: โรงพิมพ์ นิวธรรมดาการพิมพ์ (ประเทศไทย) จำกัด.

จรีภรณ์ มีศรี. (2563). ปัจจัยที่ส่งผลต่อความสำเร็จของวิสาหกิจชุมชนชาลี-วรรณ ชุมชนพัฒนาตำบลบางปลา อำเภอบางพลี จังหวัดสมุทรปราการ (เอกสารวิชาการฉบับที่ 1/2563). กลุ่มพัฒนาและส่งเสริมอาชีพการประมง สำนักงานประมงจังหวัดฉะเชิงเทรา กรมประมง กระทรวงเกษตรและสหกรณ์.

จินตนา กาญจนวิสุทธิ์. (2558). เส้นทางวิสาหกิจชุมชน เพื่อการพัฒนาอาชีพและการพึ่งพาตนเอง. กรุงเทพฯ: สำนักพิมพ์มหาวิทยาลัยเกษตรศาสตร์.

เจตนัยธ์ เพชรศรี. (2552). การเปิดรับสื่อและความต้องการเนื้อหาข่าวสารของนักการเมืองท้องถิ่นจากสื่อขององค์การบริหารส่วนจังหวัดอุบลราชธานี. มหาวิทยาลัยสุโขทัยธรรมาธิราช.

นงณพร ทับทิมทวีโชค. (2556). ความรู้ความเข้าใจและความคิดเห็นของเกษตรกรผู้ปลูกข้าวกลุ่มจังหวัดอีสานตอนใต้ที่มีต่อโครงการประกันรายได้เกษตรกร [วิทยานิพนธ์วิทยาศาสตร์มหาบัณฑิต]. สถาบันบัณฑิตพัฒนาบริหารศาสตร์.

นุชสรา คำมัน. (2559). ปัจจัยที่ส่งผลต่อความสำเร็จของวิสาหกิจชุมชนในอำเภอลานสัก จังหวัดอุทัยธานี [วิทยานิพนธ์วิทยาศาสตรมหาบัณฑิต (ส่งเสริมการเกษตร)]. มหาวิทยาลัยเกษตรศาสตร์.

เนชั่นทีวี. (2566). ไทยคว้าอันดับ 17 โลก อาหารดีที่สุดปี 66 ส่องเลย เมนูไหนติดลิสต์. ค้นเมื่อวันที่ 19 เมษายน 2567 จาก https://www.nationtv.tv/lifestyle/food/378937435

พิชิต ฤทธิ์จรูญ. (2556). หลักการวัดและประเมินผลการศึกษา (พิมพ์ครั้งที่ 6). กรุงเทพฯ: บริษัท เฮ้าออฟเคอร์มิสท์ จำกัด.

วิชิต นันทสุวรรณ. (2544). แผนแม่บทการพัฒนาวิสาหกิจชุมชน. กรุงเทพฯ: เจริญวิทย์การพิมพ์.

วราภรณ์ สุวรรณพงษ์. (2562). การระดมทุนและแหล่งเงินทุนภายนอกในการพัฒนาวิสาหกิจชุมชน. วารสารการพัฒนาองค์กร, 9(2), 75-88.

ศุภวรรณ พรหมประสิทธิ์. (2560). ปัจจัยที่ส่งผลต่อการจัดการทางการเงินในวิสาหกิจชุมชน: การศึกษาวิสาหกิจชุมชนที่จดทะเบียนภาษีมูลค่าเพิ่ม. วารสารธุรกิจและการบริหาร, 10(1), 22-34.

สงวน สุทธิเลิศอรุณ. (2549). จิตวิทยาการเรียนการสอน (พิมพ์ครั้งที่ 2). กรุงเทพฯ: โอเดียนสโตร์.

สมเกียรติ สุทธินรากร. (2560). การพัฒนาโมเดลนวัตกรรมการบริหารจัดการที่ส่งผลต่อการสร้างสรรค์มูลค่าของผลิตภัณฑ์วิสาหกิจชุมชน [ปรัชญาดุษฎีบัณฑิต]. มหาวิทยาลัยศิลปากร.

สุกัญญา เอกนิล. (2547). วิสาหกิจชุมชนกับการส่งเสริมเศรษฐกิจชุมชนพึ่งตนเอง ศึกษากรณีกลุ่มเกษตรกรทำสวน ตำบลแพรกศรีราชา อำเภอสรรคบุรี จังหวัดชัยนาท [วิทยานิพนธ์ศิลปศาสตรมหาบัณฑิต]. มหาวิทยาลัยรามคำแหง.

สุวรรณรัตน์ จ้อยมี. (2555). ความคิดเห็นของประชาชนต่อการให้บริการของสถานีตำรวจภูธรเมืองนครราชสีมา จังหวัดนครราชสีมา [วิทยานิพนธ์รัฐประศาสนศาสตรมหาบัณฑิต]. มหาวิทยาลัยราชภัฏบุรีรัมย์.

สุวิมล ติรกานันท์. (2551). ระเบียบวิธีวิจัยทางสังคมศาสตร์ (พิมพ์ครั้งที่ 7). กรุงเทพมหานคร: โรงพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

สำนักนายกรัฐมนตรี. (2561). ยุทธศาสตร์ชาติ (พ.ศ. 2561–2580). สำนักงานคณะกรรมการยุทธศาสตร์ชาติ.

สำนักงานคณะกรรมการพัฒนาการเศรษฐกิจและสังคมแห่งชาติ. (2565). แผนพัฒนาเศรษฐกิจและสังคมแห่งชาติ ฉบับที่ 13 (พ.ศ. 2566–2570). สำนักงานฯ.

สำนักงานเลขานุการคณะกรรมการส่งเสริมวิสาหกิจชุมชน กรมส่งเสริมการเกษตร. (2549). คู่มือประเมินศักยภาพวิสาหกิจชุมชน.

ธนัญญาณ์ โสภณพุทธพร, นารีรัตน์ สีระสาร และ เบญจมาศ อยู่ประเสริฐ. (2566). ปัจจัยที่มีผลต่อการดำเนินงานของวิสาหกิจชุมชนในอำเภอบ้านค่าย จังหวัดระยอง. วารสารวิชาการราชภัฏร้อยแก่นสารสนเทศ, 8(3), 262–281.

ธนัท ตาปัญญา. (2566). แนวทางการส่งเสริมการมีส่วนร่วมในการดำเนินงานของสมาชิกวิสาหกิจชุมชนในอำเภอท่าสองยาง จังหวัดตาก [วิทยานิพนธ์ปริญญาเกษตรศาสตรมหาบัณฑิต]. มหาวิทยาลัยสุโขทัยธรรมาธิราช.

อาทิตย์ อินทรภักดี และ ประสิทธิ์ รักนุ้ย. (2565). การบูรณาการความร่วมมือของท้องถิ่นและวิสาหกิจชุมชนเพื่อพัฒนาการส่งออก: กรณีศึกษาวิสาหกิจชุมชนกลุ่มเครื่องแกงบ้านคลองจิก จังหวัดสงขลา. วารสารสังคมศาสตร์บูรณาการ, 8(2), 45–60.

Remmer, H. H. (1996). Introduction to opinion and attitude. New York: Harper and Brothers Publisher Measurement.







(ระดับชาติ)

กลุ่มการศึกษา

การสังเคราะห์งานวิจัยเกี่ยวกับการปรับพฤติกรรมของเด็กที่มีภาวะออทิซึมสเปคตรัม ระหว่างปี พ.ศ. 2557–2567

Synthesis of Research on Behavioral Modification for Children with Autism Spectrum Disorder Between 2014 and 2024

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาคุณลักษณะของงานวิจัยที่ได้จากการสังเคราะห์งานวิจัยเกี่ยวกับการปรับพฤติกรรมของเด็กที่มีภาวะออทิซึมสเปคตรัม และเพื่อให้ได้องค์ความรู้เกี่ยวกับการปรับพฤติกรรม ศึกษาจากฐานข้อมูล TDC (Thai Digital Collection) ย้อนหลัง ตั้งแต่ปี 2557–2567 โดยใช้วิธีการสังเคราะห์เชิงคุณภาพ พบว่า มีงานวิจัยที่ผ่านเกณฑ์ทั้งหมด 12 ชิ้น จาก 7 มหาวิทยาลัยทั่วประเทศ โดยใช้แบบบันทึกข้อมูล และวิเคราะห์ข้อมูลด้วย ค่าเฉลี่ย ร้อยละ ความถี่ และข้อมูลเชิงคุณภาพ ผลการศึกษาพบว่า คุณลักษณะของงานวิจัยประกอบด้วย กลุ่มตัวอย่างส่วนใหญ่ร้อยละ 91.67 เป็นการวินิจฉัยโดยแพทย์ ผ่านการเลือกแบบเจาะจง ตัวแปรต้นที่พบมากที่สุด ร้อยละ 16.67 คือ การใช้อาชาบำบัด และตัวแปรตามที่พบมากที่สุด ร้อยละ 11.76 คือ ทักษะการสื่อสาร ทักษะทางสังคม เวลาปฏิกริยาตอบสนองมือ ตา และการทรงตัว การออกแบบงานวิจัยที่พบมากที่สุด ร้อยละ 83.33 คือ One Group Pretest – Posttest Design ร้อยละ 41.67 ใช้ขนาดกลุ่มตัวอย่างตั้งแต่ 6–10 คน รองลงมา ร้อยละ 25.00 เป็นงานศึกษารายกรณี มีระยะเวลาที่ใช้ในการเก็บข้อมูลมากที่สุด ร้อยละ 33.33 น้อยกว่า 10 ชั่วโมง ในส่วนขององค์ความรู้ที่ได้เกี่ยวกับการปรับพฤติกรรมเด็กที่มีภาวะออทิซึมเปคตรัม พบว่า มากที่สุดมีปัญหาด้านการสื่อสารและสังคมมากที่สุด ซึ่งวิธีการปรับที่นิยมใช้ คือ การใช้อาชาบำบัด รูปแบบสื่อการสอนทักษะการสื่อสาร และสื่อประสมเพื่อฝึกการพูด อย่างไรก็ตามควรใช้แนวทางการฝึกที่หลากหลายเพื่อส่งเสริมทักษะต่าง ๆ ที่สำคัญในชีวิตประจำวัน โดยเฉพาะทักษะการสื่อสาร การเข้าสังคม การปรับตัว การพัฒนาทางร่างกายและประสาทสัมผัส

คำสำคัญ: การสังเคราะห์งานวิจัย, การปรับพฤติกรรม, ออทิซึมสเปคตรัม

Abstract

This research aimed to examine the characteristics of studies synthesized from research on behavior modification for children with Autism Spectrum Disorder (ASD) and to acquire knowledge on behavior modification. The study analyzed data from the Thai Digital Collection (TDC) from 2014 to 2024, using a qualitative synthesis approach. A total of 12 qualifying studies from seven universities across the country were identified. Data collection involved using record forms, and data analysis was conducted using averages, percentages, frequencies, and qualitative data. The findings revealed that the characteristics of the research included: nearly 91.67% of the sample had been medically diagnosed with ASD through purposive sampling. The most common independent variable, representing 16.67%, was equine therapy, while the most frequent dependent variable, at 11.76%, was related to communication skills, social skills, hand-eye reaction time, and balance. The most common research design, accounting for 83.33%, was the One Group Pretest-Posttest Design, with 41.67% of studies utilizing sample sizes between 6–10 participants. In addition, 25% of the studies were case studies, and the most frequent data collection duration, representing 33.33%, was less than 10 hours. In terms of acquired knowledge on behavior modification for children with ASD, the study found that the most common issues were in communication and social skills. Equine therapy, communication skill teaching materials, and multimedia tools for speech training were frequently used methods for behavior modification. However, it is recommended to use a variety of training approaches to support essential daily life skills, especially communication skills, social adaptation, physical development, and sensory-motor skills.

Keywords: Research synthesis, behavioral modification, Autism Spectrum Disorder

บทนำ

โรงเรียนเป็นส่วนสำคัญในการช่วยเหลือพัฒนาเด็กให้มีคุณภาพที่ดีเพื่อเป็นรากฐานอันสำคัญ โดยเฉพาะการให้การศึกษาที่ดีและเหมาะสมกับความแตกต่างระหว่างบุคคล เพื่อเตรียมเด็กให้เติบโตเป็นผู้ใหญ่ที่มีคุณภาพสามารถพึ่งพาตนเองได้ ปรับตัวได้อย่างเหมาะสมกับการเปลี่ยนแปลง เพื่อการอยู่ร่วมกันในสังคมไทยบนพื้นฐานสิทธิขั้นพื้นฐานของความเป็นไทย สอดคล้องกับรัฐธรรมนูญฉบับปี 60 ที่ได้ระบุด้านการศึกษาได้กำหนดให้รัฐต้องดำเนินการให้เด็กทุกคนได้รับการศึกษาอย่างทั่วถึง และจะต้องจัดให้กับผู้มีความต้องการพิเศษด้วยรูปแบบอันเหมาะสมกับความสามารถของบุคคล (สำนักงานเลขาธิการวุฒิสภา, 2560) เด็กที่มีภาวะออทิซึมสเปคตรัมเป็น 1 ใน 9 ของเด็กที่มีความต้องการจำเป็นพิเศษ ปัจจุบันในด้านการศึกษาได้จำแนกเด็กพิเศษออกเป็น 9 ประเภท (สถาบันราชานุกูล กรมสุขภาพจิต, 2567) ซึ่งเด็กเหล่านี้มีสิทธิ์ที่จะได้รับการศึกษาอย่างเท่าเทียม และเพื่อให้ครูเกิดความตระหนัก ในการจัดการศึกษาแก่เด็กพิเศษ อีกทั้งยังเพื่อให้พวกเขาสามารถพึ่งพาตนเองได้ มีคุณภาพชีวิตที่ดี และสามารถดำรงชีวิตในสังคมได้อย่างมีความสุขและมีศักดิ์ศรีเช่นเดียวกับเด็กปกติทั่วไป โดยเฉพาะนักเรียนที่มีภาวะออทิซึมสเปคตรัมมีความผิดปกติทางพัฒนาการ โดยสมองทำงานผิดปกติจะแสดงออกมา 2 ด้านใหญ่ (American

Psychiatric Association, 2013) ดังนี้ 1) ความบกพร่องด้านการสื่อสารและการปฏิสัมพันธ์ทางสังคม และ 2) พฤติกรรมและความสนใจที่จำกัดและซ้ำซ้อน

โรงเรียนจึงเป็นส่วนสำคัญในการพัฒนาศักยภาพเด็กออทิซึมสเปคตรัม เช่นเดียวกับนักเรียนทั่วไป ให้มีคุณภาพที่ดีเป็นรากฐานอันสำคัญที่จะทำให้การพัฒนาประเทศมีความก้าวหน้ายิ่งขึ้น ในปัจจุบันได้มีการพูดถึงการศึกษาเพื่อทุกคน (Education For All: EFA) เพราะเป็นเครื่องมือสำคัญในการบรรลุเป้าหมายสังคมสำหรับทุกคนและสังคมอย่างเสมอภาค โดยจำเป็นจะต้องนำความหลากหลายของผู้เรียนมาพิจารณาเหนือจากความพิการ (ดารณี อุทัยรัตนกิจ, 2562) เด็กที่มีภาวะออทิซึมสเปคตรัม ต้องเผชิญกับปัญหาในระบบการศึกษาขั้นพื้นฐานที่เรียนร่วมกับเด็กทั่วไป พวกเขามีความยากในการเข้าใจความคิด ความรู้สึก อารมณ์ของผู้อื่น ยากที่จะเข้าใจการกระทำของตนเองว่ามีผลกระทบกับบุคคลอื่นอย่างไร ยากที่จะเข้าใจกฎเกณฑ์ทางสังคม และยากที่จะสามารถควบคุมตนเองได้ พฤติกรรมเหล่านี้จึงส่งผลให้นักเรียนที่มีภาวะออทิซึมสเปคตรัมมีปัญหาในการสร้างปฏิสัมพันธ์กับบุคคลอื่น และไม่รู้แบบแผนของการมีปฏิสัมพันธ์กับผู้อื่น และไม่สามารถแสดงอารมณ์และความรู้สึกที่เหมาะสมต่อสถานการณ์ได้ (กุลยา ก่อสุวรรณ และ ยุวดี วิริยางกูร, 2562)

เด็กที่มีภาวะออทิซึมสเปกตรัมมีแนวโน้มที่จะแสดงพฤติกรรมที่เป็นปัญหาบ่อยครั้งและอย่างต่อเนื่อง เช่น วิตกกังวล ซึมเศร้า การเข้าสังคม พฤติกรรมไม่ปฏิบัติตามกฎ ก้าวร้าว ทำร้ายตนเอง หรือทำลายข้าวของ (Lindor & et al., 2019) ส่วนซึ่งปัจจัยหนึ่งอาจเนื่องมาจากข้อจำกัดทางการสื่อสารของนักเรียนที่มีภาวะออทิซึมสเปกตรัมที่ทำให้มีแนวโน้มแสดงพฤติกรรมที่เป็นปัญหาค่อนข้างสูง (Muharib, Correa, Wood and Haughney, 2019) ด้วยปัญหาทั้งการสื่อสาร อารมณ์ และสังคมที่กล่าวมาแสดงให้เห็นถึงความจำเป็นในการให้ความช่วยเหลือเด็กที่มีภาวะออทิซึมสเปคตรัม ซึ่งมีงานวิจัยหลายชิ้นที่นำเสนอรูปแบบการปรับพฤติกรรมที่ไม่พึงประสงค์ต่าง ๆ ดังที่กล่าวมา ยกตัวอย่างเช่น งานวิจัยของสินีนาฏ บุญมี. (2558) ที่มุ่งพัฒนาโปรแกรมการใช้ม้าช่วยบำบัดสำหรับเยาวชนที่มีภาวะออทิสติกสเปคตรัม โดยการบำบัดนี้มุ่งเน้นที่การเสริมสร้างพฤติกรรมทางสังคมและลดพฤติกรรมที่ไม่พึงประสงค์ของเยาวชนกลุ่มนี้ โปรแกรมการบำบัดรวม 4 กิจกรรมหลัก ได้แก่ การแนะนำม้า การเตรียมอาหารและให้อาหารม้า การทำความสะอาดม้า และการจูงม้าเยี่ยมชม การวัดผลทั้งก่อนและหลังการบำบัดใช้แบบประเมินพฤติกรรมทางสังคมและพฤติกรรมไม่พึงประสงค์ พบว่า สามารถช่วยส่งเสริมพฤติกรรมทางสังคมบางประการและลดความรุนแรงของพฤติกรรมที่ไม่พึงประสงค์ในเยาวชนกลุ่มออทิสติกได้อย่างมีประสิทธิภาพ หรือ งานวิจัยของ วิยะดา คำลาพิศ (2557) ที่มีวัตถุประสงค์เพื่อศึกษาผลของกิจกรรมศิลปะสร้างสรรค์ที่มีผลต่อการพัฒนาทักษะทางสังคมของเด็กออทิสติก โดยมีกลุ่มตัวอย่างเป็นนักเรียนชั้นประถมศึกษาปีที่ 6 จำนวน 6 คน ผลการศึกษา พบว่า เด็กออทิสติกที่เข้าร่วมกิจกรรมศิลปะสร้างสรรค์มีการพัฒนาทักษะทางสังคมใน 3 ด้าน ได้แก่ การควบคุมตนเอง การสื่อสารความหมายกับผู้อื่น และการทำงานร่วมกับผู้อื่น โดยผลการวิจัยแสดงให้เห็นว่าเด็กออทิสติกมีทักษะทางสังคมที่ดีขึ้น อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 นอกจากนั้นยังมีงานอื่น ๆ อีกมากมาย

อย่างไรก็ตามมีงานวิจัยที่มุ่งเน้นการสังเคราะห์เพื่อหาแนวทางในการพัฒนาหรือปรับพฤติกรรมน้อย ผู้วิจัยจึงคิดว่าหากมีการสังเคราะห์งานวิจัยเกี่ยวกับการปรับพฤติกรรมของเด็กที่มีภาวะออทิซึมสเปคตรัมจะเกิดประโยชน์ต่อผู้เกี่ยวข้องอย่างมาก ผู้วิจัยเลือกใช้วิธีการสังเคราะห์งานวิจัย ซึ่งเป็นการรวบรวมผลงานวิจัยตั้งแต่สองชิ้นขึ้นไปเพื่อแสวงหาคำตอบสำหรับคำถามวิจัยผ่านระเบียบวิธีทางวิทยาศาสตร์และพัฒนาต่อยอดจากผลงานวิจัยเดิม เพื่อนำมาบูรณาการและหาข้อสรุปร่วมกันในประเด็น

ที่ศึกษา ทั้งนี้กระบวนการดังกล่าวมีเป้าหมายในการสรุปรวมสาระอย่างเป็นระบบ เพื่อนำเสนอคำตอบที่ชัดเจนและเป็นประโยชน์ตามปัญหาวิจัยที่กำหนดไว้

วัตถุประสงค์

1. เพื่อศึกษาคุณลักษณะของงานวิจัยที่ได้จากการสังเคราะห์งานวิจัยเกี่ยวกับการปรับพฤติกรรมของเด็กที่มีภาวะออทิซึมสเปคตรัม ระหว่างปี พ.ศ. 2557-2567
2. เพื่อให้ได้องค์ความรู้ เกี่ยวกับการปรับพฤติกรรมเด็กที่มีภาวะออทิซึมเปคตรัม

วิธีการดำเนินวิจัย

ในงานวิจัยนี้มีตัวแปรที่ศึกษาประกอบด้วย ตัวแปรต้น คือ ตัวแปรที่กำกับคุณลักษณะงานวิจัย ประกอบด้วย 1) ตัวแปรด้านเนื้อหาสาระของงานวิจัย และ 2) ตัวแปรด้านวิธีการวิจัย และตัวแปรตาม คือ องค์ความรู้เกี่ยวกับเทคนิคปรับพฤติกรรมสำหรับเด็กออทิซึมสเปคตรัม ใช้วิธีการสังเคราะห์เชิงคุณภาพ (Qualitative Synthesis) โดยดำเนินวิจัยดังนี้ต่อไปนี้

ประชากรและกลุ่มตัวอย่าง

1. งานวิจัยครั้งนี้ศึกษาเกี่ยวกับการปรับพฤติกรรมของเด็กที่มีภาวะออทิซึมสเปคตรัม ในประเทศ ตั้งแต่ปี พ.ศ. 2557-2567 จากฐานข้อมูลอิเล็กทรอนิกส์ ได้แก่ ฐานข้อมูล TDC (Thai Digital Collection) จากประชากรทั้งหมด 30 เรื่อง
2. นำมาเข้าเกณฑ์ในการคัดเลือกงานวิจัยจนได้งานวิจัยเกี่ยวกับการปรับพฤติกรรมของเด็กที่มีภาวะออทิซึมสเปคตรัม จำนวนทั้งหมด 12 เรื่อง ซึ่งงานวิจัยที่ผ่านเกณฑ์นั้นจะต้อง 1) เป็นงานวิจัยที่มีกลุ่มประชากรเป็นเป็นเด็กที่มีออทิซึมสเปคตรัมในรูปแบบ Full-text 2) เป็นงานวิจัยที่มีองค์ประกอบต่าง ๆ ตามระเบียบวิธีวิจัยที่เหมาะสมและสามารถนำไปใช้สังเคราะห์งานวิจัยได้ และ 3) จะต้องเป็นงานวิจัยกึ่งทดลองที่มีวัตถุประสงค์เพื่อการปรับหรือพัฒนาพฤติกรรมของเด็กที่มีภาวะออทิซึมสเปคตรัม

เครื่องมือที่ใช้ในงานวิจัย

1. ผู้วิจัยศึกษาเกี่ยวกับการปรับพฤติกรรมของเด็กที่มีภาวะออทิซึมสเปคตรัม และวิธีการสังเคราะห์งานวิจัย จากหนังสือ บทความ และเอกสารงานวิจัยต่าง ๆ เพื่อเป็นแนวทางในการกำหนดรูปแบบของการบันทึกและตัวแปรคุณลักษณะงานวิจัยเกี่ยวกับการปรับพฤติกรรมของเด็กที่มีภาวะออทิซึมสเปคตรัม ประกอบด้วย 1) ตัวแปรด้านเนื้อหาสาระของงานวิจัย และ 2) ตัวแปรด้านวิธีการวิจัย
2. ผู้วิจัยทำได้ตรวจสอบคุณภาพงานวิจัย โดยตรวจสอบความครบถ้วนของ บทคัดย่อ ชื่อเรื่อง บทนำ เอกสารและงานวิจัยที่เกี่ยวข้อง วิธีการดำเนินวิจัย การวิเคราะห์ข้อมูลและการแปลผลและสรุปผลการวิจัย อภิปรายผล และข้อเสนอแนะ

วิธีการเก็บรวบรวมข้อมูล

เมื่อได้พัฒนาเครื่องมือที่เหมาะสมสำหรับการสังเคราะห์งานวิจัยแล้ว ผู้วิจัยได้นำแบบบันทึกข้อมูลไปทดลองใช้กับงานวิจัย จำนวน 3 เรื่องที่เกี่ยวกับกับการปรับหรือพัฒนาพฤติกรรมของเด็กที่มีภาวะออทิซึมสเปคตรัม เพื่อประเมินความชัดเจนของภาษาและความครอบคลุมของการเก็บข้อมูล จากนั้นทำการปรับปรุงแบบบันทึกเพื่อให้มีความชัดเจนและครอบคลุมประเด็นที่ต้องการศึกษาได้อย่างเหมาะสมและสมบูรณ์ยิ่งขึ้น

การวิเคราะห์ข้อมูล

ข้อมูลที่รวบรวมได้จะถูกนำมาวิเคราะห์โดยใช้สถิติเพื่อวิเคราะห์ข้อมูลพื้นฐาน ได้แก่ ค่าเฉลี่ย (Mean) ร้อยละ (Percentage) และการแจกแจงความถี่ (Frequency Distribution) รวมถึงการวิเคราะห์เชิงคุณภาพโดยใช้การวิเคราะห์เชิงเนื้อหา (Content Analysis)

ผลการวิจัย

จากผลการศึกษาสังเคราะห์งานวิจัย ที่ศึกษาเกี่ยวกับการปรับพฤติกรรมของเด็กที่มีภาวะออทิซึมสเปคตรัม โดยมีขอบเขตการวิจัยครอบคลุมการวิจัยที่ทำเสร็จเรียบร้อยในปี พ.ศ. 2557-2567 ที่ผ่านเกณฑ์คุณภาพงานวิจัยอยู่ทั้งหมด 12 ชิ้น จากมหาวิทยาลัยต่าง ๆ ทั่วประเทศไทย โดยสถาบันที่ผลิตงานวิจัยที่นำมาใช้ในการสังเคราะห์ มีจำนวนมากที่สุด ร้อยละ 25.10 คือ มหาวิทยาลัยเชียงใหม่ รองลงมา ร้อยละ 16.67 คือ มหาวิทยาลัยเกษตรศาสตร์ มหาวิทยาลัยรามคำแหง และมหาวิทยาลัยศิลปากร และร้อยละ 8.33 คือ จุฬาลงกรณ์มหาวิทยาลัย มหาวิทยาลัยเทคโนโลยีพระจอมเกล้าพระนครเหนือ และมหาวิทยาลัยราชภัฏนครราชสีมา

ส่วนที่ 1 ตัวแปรคุณลักษณะด้านเนื้อหาของงานวิจัย

ในการสังเคราะห์งานวิจัยครั้งนี้ผู้วิจัยได้นำอายุของกลุ่มตัวอย่างมาจัดกลุ่มแบ่งออกเป็น กลุ่มเด็กเล็ก (อายุ 2-8 ปี) กลุ่มเด็กโต (อายุ 9-12 ปี) กลุ่มวัยรุ่น (อายุ 13-18 ปี) และกลุ่มวัยหนุ่มสาว (อายุ 19-25 ปี) โดยมีจำนวนความถี่และร้อยละดังนี้

1) ช่วงอายุของกลุ่มตัวอย่าง พบว่า มากที่สุดร้อยละ 58.33 คือเด็กที่มีภาวะออทิซึมสเปคตรัมในกลุ่มเด็กเล็ก (อายุ 2-8 ปี) รองลงมา ร้อยละ 33.33 คือ กลุ่มวัยรุ่น (อายุ 13-18 ปี) ร้อยละ 25.00 คือ กลุ่มวัยหนุ่มสาว (อายุ 19-25 ปี) และร้อยละ 16.67 คือ กลุ่มเด็กโต (อายุ 9-12 ปี)

2) วิธีการคัดกรองภาวะออทิซึมสเปคตรัมของกลุ่มตัวอย่างที่ใช้ในการวิจัยทั้งหมด พบว่ามากที่สุดร้อยละ 91.67 เป็นการวินิจฉัยโดยแพทย์ และร้อยละ 8.33 ไม่ระบุวิธีวินิจฉัย

ตารางที่ 1 ความถี่ และร้อยละของตัวแปรต้น

	ตัวแปรต้น	ความถี่	ร้อยละ
1	การใช้อาชาบำบัด	2	16.70
2	รูปแบบสื่อการสอนทักษะการสื่อสาร	1	8.33
3	สื่อประสมเพื่อฝึกการพูด	1	8.33
4	กิจกรรมศิลปะสร้างสรรค์	1	8.33
5	แผนการเปลี่ยนผ่านเฉพาะบุคคล	1	8.33
6	การสอนตรงร่วมกับสื่อวีดิทัศน์	1	8.33
7	แอปพลิเคชันเกม	1	8.33
8	บทเรียนการ์ตูนเอนิเมชัน	1	8.33
9	ชุดภาพร่วมกับบทบาทสมมุติ	1	8.33
10	การออกกำลังกายด้วยโปรแกรมการฝึกมินิเทนนิส	1	8.33
11	การออกกำลังกายโดยใช้โบซูบอล	1	8.33
	รวม	**12**	**100.00**

3) ตัวแปรต้นจากงานวิจัยทั้งหมดส่วนใหญ่มีความหลากหลายแตกต่างกัน พบว่า มากที่สุดร้อยละ 16.70 คือการใช้ม้าช่วยบำบัด และที่เหลือร้อยละ 8.33 รูปแบบสื่อการสอนทักษะการสื่อสาร สื่อประสมเพื่อฝึกการพูด กิจกรรมศิลปะสร้างสรรค์ แผนการเปลี่ยนผ่านเฉพาะบุคคล การสอนตรงร่วมกับสื่อวีดิทัศน์ แอปพลิเคชันเกม บทเรียนการ์ตูนเอนิเมชัน ชุดภาพร่วมกับบทบาทสมมุติ การออกกำลังกายด้วยโปรแกรมการฝึกมินิเทนนิส และการออกกำลังกายโดยใช้โบซูบอล

ตารางที่ 2 ความถี่ และร้อยละของตัวแปรตาม

	ตัวแปรตาม	ความถี่	ร้อยละ
1	ทักษะการสื่อสาร	2	11.77
2	ทักษะทางสังคม	2	11.77
3	เวลาปฏิกริยาตอบสนองมือ ตา	2	11.77
4	การทรงตัว	2	11.77
5	ความสามารถในการปรับตัวสู่สภาพแวดล้อมใหม่	1	5.88
6	ความสามารถในการรับรู้อารมณ์ของผู้อื่น	1	5.88
7	ประสาทสัมผัส	1	5.88
8	ความสามารถในการประกอบอาหาร	1	5.88
9	พฤติกรรมทางสังคม	1	5.88
10	พฤติกรรมไม่พึงประสงค์	1	5.88
11	ช่วงความสนใจ	1	5.88
12	ความแข็งแรงของกล้ามเนื้อ	1	5.88
13	ระบบไหลเวียนโลหิต	1	5.88
	รวม	**17**	**100.00**

4) ตัวแปรตามจากงานวิจัยทั้งหมด พบว่า มากที่สุดร้อยละ 11.77 คือ ทักษะการสื่อสาร ทักษะทางสังคม เวลาปฏิกริยาตอบสนองมือ ตา และการทรงตัว และร้อยละ 5.88 คือความสามารถในการปรับตัวสู่สภาพแวดล้อมใหม่ ความสามารถในการรับรู้อารมณ์ของผู้อื่น ประสาทสัมผัส ความสามารถในการประกอบอาหาร พฤติกรรมทางสังคม พฤติกรรมไม่พึงประสงค์ ช่วงความสนใจ ความแข็งแรงของกล้ามเนื้อ และระบบไหลเวียนโลหิต

ส่วนที่ 2 ตัวแปรคุณลักษณะงานวิจัยด้านวิธีการวิจัย

1) วัตถุประสงค์ของงานวิจัยทั้งหมด พบว่ามากที่สุดร้อยละ 44.44 เป็นวัตถุประสงค์เพื่อศึกษา เช่น กิจกรรมศิลปะสร้างสรรค์ที่มีผลต่อการพัฒนาทักษะทางสังคม ความสามารถในการปรับตัวสู่สภาพแวดล้อมใหม่ หรือผลของการออกกำลังกายด้วยโปรแกรมการฝึกมินิเทนนิส รองลงมา ร้อยละ 33.33 เพื่อพัฒนา/สร้าง เช่น สื่อการสอน สื่อประสมเพื่อพัฒนาทักษะสื่อสาร แอปพลิเคชั่นเพื่อพัฒนาประสาทสัมผัส หรือบทเรียนการ์ตูนเอนิเมชันเพื่อฝึกความสามารถการประกอบอาหาร และร้อยละ 22.22 เพื่อเปรียบเทียบกับกระบวนการปกติ กับกระบวนการต่าง ๆ เช่น บทเรียนการ์ตูนเอนิเมชัน สื่อวีดีทัศน์เพื่อเพิ่มความสามารถรับรู้อารมณ์ผู้อื่น หรือผลการใช้อาชาบำบัดเพื่อปรับพฤติกรรมทางสังคมและพฤติกรรมไม่พึงประสงค์

2) การออกแบบการวิจัย พบว่า มากที่สุดร้อยละ 83.33 เป็นการออกแบบการวิจัยแบบ One Group Pretest – Posttest Design และร้อยละ 16.67 เป็น One-Shot Case Study Design โดยงานวิจัยทั้งหมดเป็นการทดลองที่มีกลุ่มตัวอย่างกลุ่มเดียว ใช้วิธีเลือกแบบเจาะจง

3) ขนาดของกลุ่มตัวอย่าง พบว่า มากที่สุดร้อยละ 41.67 ใช้กลุ่มตัวอย่างตั้งแต่ 6–10 คน รองลงมา ร้อยละ 25.00 เป็นงานศึกษารายกรณีและใช้กลุ่มตัวอย่างตั้งแต่ 2–5 คน และร้อยละ 8.33 เป็นใช้กลุ่มตัวอย่างระหว่าง 11–15 คน

4) ระยะเวลาในการเก็บข้อมูลของกลุ่มตัวอย่าง พบว่า มากที่สุดร้อยละ 33.33 ใช้เวลาในการทดลองน้อยกว่า 10 ชั่วโมง รองลงมา ร้อยละ 25.00 ตั้งแต่ 11–15 ชั่วโมง และไม่ระบุ และร้อยละ 8.33 ใช้เวลาตั้งแต่ 16–20 ชั่วโมง และ 20 ชั่วโมงขึ้นไป

5) ประเภทของเครื่องมือที่ใช้ในการวิจัย พบว่า มากที่สุดร้อยละ 31.58 ใช้แบบประเมิน เช่น การพูด หรือแบบประเมินสื่อประสมเพื่อฝึกการพูด รองลงมาร้อยละ 21.05 ใช้แบบบันทึก เช่น พฤติกรรมการออกกำลังกาย หรือสมรรถภาพทางกาย ร้อยละ 15.79 ใช้แบบสังเกตพฤติกรรม และแบบทดสอบหรือแบบวัด เช่น ทักษะทางสังคม สมรรถภาพทางกาย ระบบไหลเวียนโลหิต หรือการทรงตัว ร้อยละ 10.53 ใช้แบบสัมภาษณ์ เช่น ผู้เชี่ยวชาญ หรือผู้มีส่วนได้เสีย และร้อยละ 5.26 ใช้แบบสอบถามสื่อประสมเพื่อฝึกการพูดสำหรับเด็กออทิสติก โดยมีค่าความเที่ยงของเครื่องมือที่ใช้ในงานวิจัย พบว่า มากที่สุด ร้อยละ 83.33 ไม่ระบุค่าความเที่ยง และร้อยละ 8.33 มีค่าความเที่ยงระหว่าง 0.85–1.00 และ ระหว่าง 0.50–0.74

6) สถิติที่ใช้ในงานวิจัย พบว่า งานวิจัยที่นำมาสังเคราะห์โดยมากที่สุดร้อยละ 83.33 ใช้สถิติค่าเฉลี่ย รองลงมาร้อยละ 66.67 ใช้สถิติร้อยละ และร้อยละ 50.0 ใช้ส่วนเบี่ยงเบนมาตรฐาน ถัดมาเป็นส่วนของสถิติอนุมาน พบว่า งานวิจัยต่าง ๆ ใช้สถิติเชิงอนุมานที่มากที่สุด ร้อยละ 66.67 ไม่ใช้สถิติเชิงอนุมาน รองลงมา ร้อยละ 25.00 ใช้สถิติ Wilcoxon signed rank test และร้อยละ 8.33 ใช้สถิติ F-Test นอกจากนั้นยังมีค่านัยสำคัญทางสถิติ ซึ่งพบว่างานวิจัยที่ใช้สถิติเชิงอนุมานทั้งหมดมี 4 ชิ้น โดยมีระดับนัยสำคัญทางสถิติที่ระดับ 0.05 ทั้งหมด

ส่วนที่ 3 องค์ความรู้เกี่ยวกับเทคนิคปรับพฤติกรรมสำหรับเด็กออทิซึมสเปคตรัม

จากการสังเคราะห์งานงานวิจัยทั้ง 12 ชิ้น จาก 7 สถาบันมีการใช้วิธีวิจัยที่ถูกต้อง และเหมาะสมที่จะองค์ความรู้เกี่ยวกับเทคนิคปรับพฤติกรรมสำหรับเด็กออทิซึมสเปคตรัม ซึ่งเป็นข้อมูลที่มีความสำคัญอย่างยิ่งในระบบการศึกษาและการพัฒนาเด็ก เนื่องจากเด็กกลุ่มนี้มักประสบปัญหาทางด้านการสื่อสาร การมีปฏิสัมพันธ์ทางสังคม และการปรับตัวต่อสิ่งแวดล้อมใหม่ ๆ ส่งผลกระทบต่อการเรียนรู้และคุณภาพชีวิต การเข้าใจถึงลักษณะเฉพาะของภาวะออทิซึมฯ รวมถึงการเสริมสร้างทักษะที่จำเป็นเพื่อให้เด็กสามารถปรับตัวและพัฒนาตนเองได้อย่างเหมาะสม

จากการสังเคราะห์งานวิจัยในส่วนของตัวแปรตามพบว่า ปัญหาที่พบมากที่สุดคือทักษะการสื่อสาร (ร้อยละ 11.76) และทักษะทางสังคม (ร้อยละ 11.76) และร้อยละ 5.88 มีพฤติกรรมทางสังคมที่มีปัญหา เด็กที่มีภาวะออทิซึมสเปคตรัมมักประสบปัญหาในการสื่อสารและการมีปฏิสัมพันธ์กับผู้อื่น ซึ่งส่งผลต่อการแสดงออกทางภาษาและการเข้าใจการสื่อสารทั้งทางวาจาและอวัจนภาษา ทำให้ยากต่อการสนทนาหรือใช้ภาษาในบริบททางสังคม นอกจากนี้ พวกเขายังมีปัญหาในการสร้างและรักษาความสัมพันธ์ทางสังคม ส่งผลให้เข้าร่วมกิจกรรมหรือการเข้ากลุ่มได้ยาก การพัฒนาทักษะการสื่อสารและทักษะทาง

สังคมจึงเป็นสิ่งจำเป็นเพื่อช่วยให้เด็กกลุ่มนี้สามารถปรับตัวและใช้ชีวิตในสังคมได้ดียิ่งขึ้น ซึ่งองค์ความรู้เกี่ยวกับเทคนิคปรับพฤติกรรมสำหรับเด็กออทิซึมเปคตรัม พบว่า มีหลากหลายวิธีการเหล่านี้ช่วยเสริมสร้างทักษะที่จำเป็นให้กับเด็กที่มีภาวะออทิซึมสเปคตรัมได้เป็นอย่างดี การใช้อาชาบำบัด (ร้อยละ 16.67) เป็นวิธีที่ได้รับความนิยมในการช่วยพัฒนาเด็กให้สามารถพัฒนาทักษะการสื่อสารและการเข้าสังคมได้ โดยการมีปฏิสัมพันธ์กับม้าช่วยให้เด็กมีการตอบสนองทางอารมณ์และสังคมที่ดีขึ้น สำหรับรูปแบบสื่อการสอนทักษะการสื่อสาร (ร้อยละ 8.33) และสื่อประสมเพื่อฝึกการพูด (ร้อยละ 8.33) ทั้งสองวิธีนี้ช่วยให้เด็กมีการเรียนรู้การสื่อสารอย่างมีประสิทธิภาพมากขึ้น โดยเฉพาะในแง่ของการเรียนรู้ผ่านการเห็นและการฟัง ซึ่งเป็นประโยชน์ในการพัฒนาความสามารถในการพูดและการเข้าใจภาษาของเด็ก นอกจากนั้นวิธีการพัฒนาทักษะปรับพฤติกรรมที่ไม่พึงประสงค์ทางสังคมที่สำคัญ ได้แก่ การใช้กิจกรรมที่เน้นการมีปฏิสัมพันธ์กับผู้อื่น เช่น กิจกรรมศิลปะสร้างสรรค์ ชุดภาพบทบาทสมมุติ กิจกรรมการเล่นในกลุ่ม หรือการใช้เทคนิคบทบาทสมมุติ ซึ่งจะช่วยให้เด็กมีโอกาสฝึกฝนทักษะทางสังคมในสภาพแวดล้อมที่สนับสนุนและปลอดภัย กิจกรรมเหล่านี้ยังช่วยให้เด็กเข้าใจถึงความสำคัญของการร่วมมือ การแบ่งปัน และการควบคุมอารมณ์ในสถานการณ์ต่าง ๆ ได้อีกด้วย

นอกเหนือจากทักษะการสื่อสารและทักษะทางสังคมจะเป็นปัญหาหลักแล้ว ผลการศึกษายังพบว่ามีปัญหาที่เกี่ยวข้องกับร่างกายและประสาทสัมผัสด้วย การปรับพฤติกรรมในด้านนี้สามารถทำได้โดยการฝึกทักษะการเคลื่อนไหวและการออกกำลังกาย ซึ่งช่วยพัฒนาทักษะทางร่างกายของเด็กและเสริมสร้างการตอบสนองของมือ-ตาและการทรงตัว การออกกำลังกายที่เหมาะสม เช่น การฝึกมินิเทนนิสหรือการใช้โบซูบอล สามารถช่วยส่งเสริมพัฒนาการทางร่างกายและปรับสมดุลของร่างกายได้ การฝึกเช่นนี้ไม่เพียงแต่ช่วยในด้านการพัฒนากล้ามเนื้อและความยืดหยุ่น แต่ยังสนับสนุนการพัฒนาความมั่นใจและการมีปฏิสัมพันธ์ที่ดีขึ้นในสังคม

อภิปรายผล

ผู้วิจัยได้แบ่งประเด็นการอภิปรายผลจากวัตถุประสงค์ออกเป็น 2 ตอนตามกรอบการวิจัยประกอบไปด้วย 1) ประเด็นการวิจัย และ 2) องค์ความรู้เกี่ยวกับเทคนิคปรับพฤติกรรมสำหรับเด็กออทิซึมสเปคตรัม

1. ผลการวิจัยในด้านเนื้อหาของงานวิจัย และตัวแปรคุณลักษณะด้านวิธีการวิจัย จากงานวิจัยทั้งหมด 12 ชิ้นที่มีคุณภาพเหมาะสมแก่การสังเคราะห์ จากมหาวิทยาลัยทั้งหมด 7 แห่ง โดยผู้วิจัยได้แบ่งช่วงอายุออกเป็น กลุ่มเด็กเล็ก (อายุ 2-8 ปี) กลุ่มเด็กโต (อายุ 9-12 ปี) กลุ่มวัยรุ่น (อายุ 13-18 ปี) และกลุ่มวัยหนุ่มสาว (อายุ 19-25 ปี) พบว่า มากที่สุดคือเด็กที่มีภาวะออทิซึมสเปคตรัมในกลุ่มเด็กเล็ก รองลงมาคือกลุ่มวัยรุ่นถัดมาคือกลุ่มวัยหนุ่มสาว และกลุ่มเด็กโต กลุ่มตัวอย่างส่วนใหญ่เป็นการวินิจฉัยโดยแพทย์ที่น่าพิจารณาก็คือของเครื่องมือที่ใช้ในการวิจัย พบว่า มีการใช้เครื่องมือที่หลากหลายทั้งแบบประเมินแบบบันทึก แบบสังเกต แบบทดสอบหรือแบบวัด แบบสัมภาษณ์ และแบบสอบถาม แสดงให้เห็นว่างานแต่ละชิ้นใช้เครื่องมือที่หลากหลายในการวัดผลทดสอบ โดยใช้ทั้งเครื่องมือเชิงคุณภาพและเครื่องมือเชิงปริมาณ ในส่วนของตัวแปรต้น พบว่า มีการใช้ที่หลากหลาย มากที่สุดคือ การใช้ม้าช่วยบำบัด และตัวแปรตามมากที่สุด คือ ทักษะการสื่อสาร ทักษะทางสังคม เวลาปฏิกริยาตอบสนองมือ ตา และการทรงตัว

จะเห็นว่าตัวแปรต้นและตัวแปรตามที่หลากหลายในงานวิจัยที่เกี่ยวข้องกับเด็กที่มีภาวะ ออทิซึมสเปคตรัม เกิดจากลักษณะเฉพาะบุคคลและบริบทที่แตกต่างกันของเด็กแต่ละคน ซึ่งเป็นเหตุผลสำคัญที่ต้องใช้เครื่องมือในการวัดผลที่หลากหลาย เช่น แบบประเมิน แบบสังเกต แบบบันทึก และแบบทดสอบ

ทั้งในเชิงคุณภาพและเชิงปริมาณ การใช้เครื่องมือเหล่านี้ช่วยให้การวิจัยได้ข้อมูลเชิงลึกที่ครบถ้วนและมีความแม่นยำในการวัดพฤติกรรมที่เฉพาะเจาะจง เช่น การเข้าสังคมและการปรับตัวในสภาพแวดล้อมใหม่ ซึ่งเป็นสิ่งที่เหมาะสมกับความต้องการเฉพาะของเด็กในแต่ละกรณี นอกจากนี้ การใช้เครื่องมือหลากหลายยังสอดคล้องกับหลักการที่นำไปสู่การพัฒนามาตรฐานในการประเมินพฤติกรรม ซึ่งเป็นพื้นฐานสำคัญในการออกแบบการรักษาและการบำบัดที่เหมาะสมสำหรับเด็กที่มีภาวะออทิซึมสเปคตรัมของแต่ละคน โดยเฉพาะอย่างยิ่งการประเมินที่แม่นยำนี้ช่วยปรับแผนการเรียนรู้และการรักษาให้เหมาะสมกับความต้องการเฉพาะตัวของเด็กได้ดียิ่งขึ้น (Edelson, 2021; Abdulrazak and Hussaini, 2021)

2. องค์ความรู้เกี่ยวกับเทคนิคปรับพฤติกรรมสำหรับเด็กออทิซึมสเปคตรัม จากการวิเคราะห์ผลการวิจัย พบว่าปัญหาสำคัญที่เด็กที่มีภาวะออทิซึมสเปคตรัมเผชิญ คือ ข้อจำกัดด้านการสื่อสารและทักษะทางสังคม ซึ่งส่งผลกระทบต่อการใช้ชีวิตประจำวันและการเรียนรู้ วิธีการที่พบว่ามีประสิทธิภาพในการแก้ไขปัญหาดังกล่าว ได้แก่ การใช้อาชาบำบัด การพัฒนาสื่อการสอนทักษะการสื่อสาร และกิจกรรมศิลปะสร้างสรรค์ โดยวิธีการเหล่านี้ช่วยพัฒนาทักษะการสื่อสารและการเข้าสังคมผ่านกระบวนการเรียนรู้ที่มีส่วนร่วม เช่น การโต้ตอบกับสัตว์ การใช้เทคโนโลยีสร้างเสียงพูด และการสร้างสถานการณ์สมมุติในกลุ่มเพื่อน โดยผู้วิจัยขอนำเสนอการอภิปรายเพิ่มเติมเป็นรายประเด็นดังนี้

1) การพัฒนาทักษะการสื่อสาร จากผลการวิจัยพบว่า การใช้สื่อการสอนทักษะการสื่อสาร เช่น สื่อประสมและแอปพลิเคชันเฉพาะด้าน ช่วยให้เด็กที่มีภาวะออทิซึมสเปคตรัมสามารถพัฒนาทักษะการสื่อสารได้มากขึ้น การนำเทคโนโลยีมาใช้ในกระบวนการฝึกสอนทำให้เด็กสามารถเรียนรู้ได้ในรูปแบบที่เหมาะสมกับความสามารถเฉพาะตัว และช่วยให้พวกเขาสามารถสื่อสารกับผู้อื่นได้ดีขึ้น การใช้สื่อประสมที่มีเนื้อหาตรงตามความต้องการของเด็กยังช่วยสร้างความสนใจและกระตุ้นให้เด็กฝึกฝนอย่างต่อเนื่อง ซึ่งส่งผลให้การพัฒนาทักษะการสื่อสารเป็นไปอย่างมีประสิทธิภาพ สอดคล้องกับงานวิจัยของ Lorah, Parnell, Whitby and Hantula (2015) ที่ศึกษาเกี่ยวกับการใช้แท็บเล็ตและเครื่องเล่นสื่อพกพาเป็นอุปกรณ์สร้างเสียงพูด (Speech Generating Devices: SGDs) สำหรับเด็กที่มีภาวะออทิซึมสเปคตรัม งานวิจัยนี้ได้รวบรวมและวิเคราะห์ข้อมูลจากงานวิจัยที่เกี่ยวข้อง เพื่อประเมินประสิทธิภาพของเทคโนโลยีดังกล่าว ในการพัฒนาทักษะการสื่อสารของเด็กมีภาวะออทิซึมสเปคตรัม ผลการศึกษาแสดงให้เห็นว่าอุปกรณ์สร้างเสียงพูดจากแท็บเล็ตและเครื่องเล่นสื่อพกพามีประสิทธิภาพในการช่วยให้เด็กที่มีภาวะออทิซึมสเปคตรัมสามารถพัฒนาการสื่อสารได้ดีขึ้น นอกจากนี้ ยังช่วยเสริมความเข้าใจและการใช้ภาษาในชีวิตประจำวันได้อย่างดี

2) การพัฒนาทักษะทางสังคม การพัฒนาทักษะทางสังคมเป็นสิ่งที่จำเป็นสำหรับเด็กที่มีภาวะออทิซึมสเปคตรัม เนื่องจากพวกเขามีปัญหาในการเข้าใจกฎเกณฑ์ทางสังคมและการสร้างความสัมพันธ์กับผู้อื่น งานวิจัยนี้แสดงให้เห็นว่ากิจกรรมที่เน้นการมีปฏิสัมพันธ์ เช่น กิจกรรมศิลปะสร้างสรรค์และการใช้ชุดภาพและบทบาทสมมุติ ช่วยส่งเสริมให้เด็กสามารถฝึกฝนทักษะทางสังคมได้อย่างดี ผลการวิจัยของวิยะดา คำลาพิศ (2557) ก็สอดคล้องกับผลการวิจัยนี้ โดยพบว่าเด็กที่เข้าร่วมกิจกรรมศิลปะสร้างสรรค์สามารถพัฒนาทักษะทางสังคมได้ดีขึ้นในด้านการควบคุมตนเอง การสื่อสารกับผู้อื่น และการทำงานร่วมกับผู้อื่นอย่างมีประสิทธิภาพ การที่เด็กได้ฝึกปฏิบัติกิจกรรมในลักษณะที่สนับสนุนให้เกิดการสื่อสารและการโต้ตอบ ช่วยให้พวกเขาสามารถปรับตัวและสร้างปฏิสัมพันธ์ที่ดีขึ้นในสังคมได้ นอกจากนั้นงานวิจัยของ สินีนาฏ บุญมี (2558) ที่ใช้โปรแกรมการบำบัดผ่านการใช้ม้า พบว่ากิจกรรมบำบัดสามารถช่วยพัฒนาทักษะการสื่อสารและการโต้ตอบได้อย่างมีประสิทธิภาพมากขึ้นอีกด้วย อีกทั้งยังสอดคล้องกับงานวิจัย

"The Importance of Social Skills for Autism" โดย Lutfi (2017) ที่พบว่าเด็กที่มีภาวะออทิซึมสเปคตรัมมีความยากลำบากในการพัฒนาทักษะทางสังคม แต่การใช้กลยุทธ์เช่น การเรียนรู้ร่วมกับเพื่อนและการเล่าเรื่องสังคม (Social Stories) ช่วยเสริมสร้างทักษะการสื่อสารและการโต้ตอบในสังคมได้อย่างมีประสิทธิภาพ ผลงานนี้เน้นความสำคัญของการใช้วิธีการฝึกที่เหมาะสมเพื่อให้เด็กออทิซึมสเปคตรัมสามารถปรับตัวเข้าสู่สังคมและพัฒนาความสัมพันธ์ที่ดีขึ้น

ทักษะทางสังคมยังสอดคล้องกับการสื่อสารเพราะการสื่อสารเป็นองค์ประกอบสำคัญในการสร้างและรักษาความสัมพันธ์กับผู้อื่น ทักษะทางสังคมไม่เพียงแต่เกี่ยวข้องกับการเข้าใจกฎเกณฑ์ทางสังคมและการมีปฏิสัมพันธ์ในสถานการณ์ต่าง ๆ แต่ยังครอบคลุมถึงความสามารถในการแสดงออกทางคำพูดและภาษากายอย่างเหมาะสม การสื่อสารที่มีประสิทธิภาพช่วยให้เด็กที่มีภาวะออทิซึมสเปคตรัมสามารถสร้างความสัมพันธ์และโต้ตอบกับผู้อื่นได้ดีขึ้น การสอนทักษะทางสังคมจึงมักรวมการฝึกทักษะการสื่อสาร เช่น การใช้คำพูดในการแสดงความคิด การถาม-ตอบ และการทำความเข้าใจภาษากายหรือสัญญาณทางสังคม ซึ่งทั้งหมดนี้มีความสัมพันธ์ใกล้ชิดกับทักษะทางสังคม สอดคล้องกับการศึกษาของ Soares และคณะ (2021) ที่ได้วิเคราะห์เชิงสถิติเกี่ยวกับการฝึกทักษะทางสังคมสำหรับเด็กที่มีภาวะออทิซึมสเปคตรัม พบว่าทั้งการฝึกแบบตัวต่อตัวและการใช้เทคโนโลยีช่วยพัฒนาทักษะทางสังคมในเด็กที่มีภาวะออทิซึมได้ดี อย่างไรก็ตาม เทคโนโลยีมีข้อได้เปรียบในด้านความสามารถในการเข้าถึงและความยืดหยุ่น เนื่องจากสามารถปรับใช้ได้ในหลายบริบทและสภาพแวดล้อม นอกจากนี้ยังช่วยให้ผู้ปกครองหรือผู้ดูแลสามารถมีส่วนร่วมในการฝึกได้มากขึ้น ผลลัพธ์แสดงให้เห็นว่าเทคโนโลยีสามารถเป็นเครื่องมือสำคัญในการพัฒนาทักษะทางสังคม

3) การพัฒนาร่างกายและประสาทสัมผัส การฝึกทักษะการเคลื่อนไหวและการออกกำลังกาย ช่วยพัฒนาทักษะทางร่างกายของเด็ก รวมถึงการตอบสนองของมือ-ตาและการทรงตัว เช่น การฝึกมินิเทนนิส หรือการออกกำลังกายด้วยอุปกรณ์ที่เหมาะสม (เช่น โบซูบอล) ช่วยส่งเสริมพัฒนาการทางร่างกาย และช่วยในการปรับสมดุลของร่างกาย ซึ่งมีผลต่อการพัฒนาทักษะทางสังคมและการจัดการพฤติกรรม สอดคล้องกับงานวิจัยโดย Fu, Wang, Geng, Lv, Shen และ Bu (2022) ที่ศึกษาประสิทธิภาพของการฝึกที่เน้นพัฒนาการเคลื่อนไหวในเด็กสุขภาพดีอายุ 5-6 ปีในประเทศจีน ผลการศึกษาพบว่าโปรแกรมฝึกการเคลื่อนไหวที่เน้นพัฒนาทางด้านกล้ามเนื้อ (Gross Motor) สมรรถภาพทางกาย และการบูรณาการทางประสาทสัมผัส มีผลดีอย่างมากในการพัฒนาทักษะทางกายภาพในเด็ก นอกจากนี้ ยังส่งผลให้เด็กมีสมรรถภาพทางการเรียนรู้ที่ดีขึ้น โดยโปรแกรมฝึกดังกล่าวช่วยพัฒนาความสามารถในการทรงตัว การรับรู้ตำแหน่งของร่างกาย และการทำงานร่วมกันของระบบประสาทและกล้ามเนื้อ

นอกจากนั้นยังพบว่าเด็กที่มีภาวะออทิซึมสเปคตรัมมีปัญหาในด้านการปรับตัว พวกเขามักประสบปัญหาในการปรับตัวเมื่อมีการเปลี่ยนแปลงในสิ่งแวดล้อมและมักแสดงพฤติกรรมที่ไม่เหมาะสม การพัฒนาโปรแกรมที่มุ่งเน้นการฝึกทักษะการปรับตัว เช่น การฝึกผ่านกิจกรรมทางสังคม การใช้เกมหรือบทเรียนอนิเมชัน เพื่อให้เข้าใจและสามารถปรับตัวในสถานการณ์ต่าง ๆ ได้ดีขึ้น สอดคล้องกับการศึกษาของ สาวิตรี วงศ์กิตติรุ่งเรือง และทวี เชื้อสุวรรณทวี (2565) ที่มีความเห็นว่าเด็กออทิสติกมักมีปัญหาในการปรับตัวเมื่อเผชิญกับสภาพแวดล้อมใหม่ การเปลี่ยนผ่านที่ดีและการเตรียมความพร้อมตั้งแต่เนิ่น ๆ จึงเป็นสิ่งสำคัญ ไม่ว่าจะเป็นจากระดับอนุบาลไปยังประถมศึกษา หรือจากประถมศึกษาสู่มัธยมศึกษา อีกทั้งยังสอดคล้องกับการศึกษาของ สุนิสา ปันตรวงศ์ และดารณี อุทัยรัตนกิจ (2562) ที่พบว่าการช่วยเหลือเด็กที่มีภาวะออทิซึมสเปคตรัม ชั้นประถมศึกษาปีที่ 2 ในการเปลี่ยนผ่านไปสู่โรงเรียนใหม่ ผลการศึกษาพบว่า

การให้ความช่วยเหลือผ่านการจัดทำแผนเปลี่ยนผ่านและการใช้เทคนิคเรื่องราวทางสังคม (Social Stories) ช่วยให้นักเรียนสามารถพัฒนาทักษะการเล่นกับเพื่อน มีความสัมพันธ์ที่ดีกับครูและเพื่อนใหม่ และสามารถปรับตัวเข้าสู่สภาพแวดล้อมใหม่ได้อย่างราบรื่น ดังนั้นความสามารถในการปรับตัวจึงสอดคล้องกับการพัฒนาทักษะทางสังคม

แนวทางการปรับพฤติกรรมสำหรับเด็กที่มีภาวะออทิซึมสเปคตรัม เน้นการเสริมสร้างทักษะที่สำคัญในด้านต่าง ๆ ได้แก่ ทักษะการสื่อสาร การเข้าสังคม การปรับตัว และการพัฒนาทางร่างกายและระบบประสาทสัมผัส ซึ่งล้วนมีความเชื่อมโยงและสนับสนุนกันอย่างสำคัญ ทักษะการสื่อสารที่พัฒนาขึ้นช่วยให้เด็กสามารถถ่ายทอดความต้องการ ความรู้สึก และความคิดของตนเองได้อย่างมีประสิทธิภาพ ซึ่งเป็นรากฐานสำคัญในการสร้างความสัมพันธ์ทางสังคมอย่างยั่งยืน ในขณะเดียวกัน การพัฒนาทักษะการเข้าสังคมช่วยให้เด็กสามารถโต้ตอบกับผู้อื่นและทำงานร่วมกับกลุ่มได้ดีขึ้น การปรับตัวในสถานการณ์ใหม่ ๆ สนับสนุนการฝึกฝนการควบคุมตนเอง การจัดการพฤติกรรม และการตอบสนองต่อสิ่งแวดล้อมอย่างเหมาะสม

นอกจากนี้ การพัฒนาระบบประสาทสัมผัสและการเคลื่อนไหว เช่น การฝึกการทรงตัว การออกกำลังกายเฉพาะทาง หรือกิจกรรมที่ต้องใช้การประสานงานระหว่างร่างกายและประสาทสัมผัส ยังช่วยส่งเสริมความสามารถในการควบคุมอารมณ์และพฤติกรรม พร้อมกับสนับสนุนการทำงานร่วมกับผู้อื่น การบูรณาการทักษะเหล่านี้ อย่างต่อเนื่องช่วยให้เด็กมีความพร้อมทั้งด้านร่างกาย จิตใจ และสังคม ทำให้สามารถปรับตัวและเติบโตได้อย่างสมดุล พร้อมทั้งลดพฤติกรรมที่ไม่พึงประสงค์และเพิ่มพฤติกรรมเชิงบวกในชีวิตประจำวัน ซึ่งเป็นปัจจัยสำคัญในการเรียนรู้และการดำรงชีวิตในอนาคตอย่างยั่งยืน

ข้อเสนอแนะ

ข้อเสนอแนะในการนำผลวิจัยไปใช้

1. การบูรณาการทักษะการสื่อสารและทักษะทางสังคม โดยใช้สื่อการสอนและเทคโนโลยีที่เหมาะสม เช่น แอปพลิเคชันหรืออุปกรณ์ที่ช่วยพัฒนาทักษะการสื่อสารของเด็ก โดยควรออกแบบเนื้อหาให้ตรงกับความสามารถเฉพาะตัว เพื่อส่งเสริมให้เด็กฝึกฝนการสื่อสารและพัฒนาทักษะทางสังคมไปพร้อมกันในสภาพแวดล้อมที่เหมาะสม

2. การพัฒนาทักษะการปรับตัว โดยการเตรียมความพร้อมให้กับเด็กออทิซึมในการเผชิญกับการเปลี่ยนแปลงในสภาพแวดล้อมหรือสถานการณ์ใหม่ ควรใช้การเล่าเรื่องสังคมและการสนับสนุนทางสังคมอื่น ๆ เพื่อให้เด็กสามารถปรับตัวได้ดีขึ้นและลดความกังวลเมื่อต้องเผชิญกับสถานการณ์ใหม่

3. การส่งเสริมการพัฒนาทางกายภาพและประสาทสัมผัส โดยการออกกำลังกายหรือกิจกรรมที่เน้นการพัฒนาการทำงานของกล้ามเนื้อและประสาทสัมผัส เช่น การฝึกการทรงตัวและการเคลื่อนไหว จะช่วยพัฒนาทักษะทางกายภาพ การเรียนรู้ และการโต้ตอบกับผู้อื่นได้ดียิ่งขึ้น จึงควรใช้โปรแกรมฝึกที่เน้นการพัฒนาการเคลื่อนไหวในกิจวัตรประจำวันของเด็ก

ข้อเสนอแนะการทำวิจัยครั้งต่อไป

1. จากผลการวิจัยพบว่าเด็กที่มีภาวะออทิซึมสเปคตรัมมีปัญหาทางด้านการสื่อสารและสังคมมากที่สุด หากมีการศึกษาที่มุ่งเน้นตัวแปรนี้จะเป็นประโยชน์อย่างมากในการปรับพฤติกรรม หรือพัฒนาทักษะให้เด็กที่มีภาวะออทิซึมปรับตัวในชีวิตประจำวันได้ดียิ่งขึ้น

2. งานวิจัยทั้งหมดที่ผ่านเกณฑ์เป็นงานวิจัยกึ่งทดลอง หากมีการสังเคราะห์งานวิจัยเชิงปริมาณเพิ่มเติม จะทำให้ได้องค์ความรู้เกี่ยวกับการปรับพฤติกรรมเด็กที่มีภาวะออทิซึมสเปคตรัมมากยิ่งขึ้น

เอกสารอ้างอิง

กุลยา ก่อสุวรรณ และยุวดี วิริยางกูร. (2562). ออทิสติก สอนไม่ยาก หากเข้าใจ. พิมพ์ครั้งที่ 1. กรุงเทพฯ: เนชั่นบุ๊คส์.

ดารณี อุทัยรัตนกิจ. (2562). การศึกษาแบบเรียนรวมเพื่อเพิ่มความเป็นธรรมในสังคม. https://www.orst.go.th/FILEROOM/CABROYINWEB/DRAWER002/GENERAL/DATA0001/00001477.PDF เข้าถึงเมื่อ 25 กันยายน 2567.

วิยะดา คำลาพิศ. (2557). การศึกษากิจกรรมศิลปะสร้างสรรค์ที่มีผลต่อการพัฒนาทักษะทางสังคมของเด็กออทิสติก. วิทยานิพนธ์ปริญญาศึกษาศาสตรมหาบัณฑิต, มหาวิทยาลัยรามคำแหง

สถาบันราชานุกูล กรมสุขภาพจิต. (2567). เด็กพิเศษ. Retrieved September 18, 2024, from https://th.rajanukul.go.th/academic/academics-data/other/318

สาวิตรี วงศ์กิติรุ่งเรือง, และทวี เชื้อสุวรรณทวี. (2565). การเปลี่ยนผ่านสำหรับนักเรียนออทิสติกมีความสำคัญเพียงใด. วารสารการจัดการทางการศึกษาปฐมวัย, 4(1), 35-52.

สำนักงานเลขาธิการวุฒิสภา. (2560). รัฐธรรมนูญแห่งราชอาณาจักรไทย พุทธศักราช 2560. กรุงเทพฯ: สำนักงานเลขาธิการวุฒิสภา.

สินีนาฏ บุญมี. (2558). ผลของการใช้ม้าช่วยบำบัดต่อพฤติกรรมทางสังคมและพฤติกรรมไม่พึงประสงค์ของเยาวชนกลุ่มออทิสติกสเปคตรัม. วิทยานิพนธ์มหาบัณฑิต, มหาวิทยาลัยเชียงใหม่

สุนิสา ปันตรวงศ์ และดารณี อุทัยรัตนกิจ. (2562). การให้ความช่วยเหลือนักเรียนในการเปลี่ยนผ่านสู่โรงเรียนใหม่: กรณีศึกษานักเรียนที่มีภาวะออทิซึมชั้นประถมศึกษาปีที่ 2. วารสารวิจัยและพัฒนาการศึกษาพิเศษ, 8(1), 73-86.

Abdulrazak, U. I., and Hussaini, A. (2021). A systematic literature review on the application of machine-learning models in behavioral assessment of autism spectrum disorder. Journal of Personalized Medicine, 11(4), 299. https://doi.org/10.3390/jpm11040299

American Psychiatric Association. (2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Retrieved Sep 23, 2024, from https://repository.poltekkes-kaltim.ac.id/657/1/Diagnostic%20and%20statistical%20manual%20of%20mental%20disorders%20_%20DSM-5%20(%20PDFDrive.com%20).pdf

Edelson, S. M. (2021). Applied Behavior Analysis in Children and Youth with Autism Spectrum Disorders: A Scoping Review. Perspectives on Behavior Science. https://link.springer.com/article/10.1007/s40614-021-00279-5

Fu, T., Zhang, D., Wang, W., Geng, H., Lv, Y., Shen, R., and Bu, T. (2022). Functional training focused on motor development enhances gross motor, physical fitness, and sensory integration in 5–6-year-old healthy Chinese children. Frontiers in Pediatrics, 10. https://doi.org/10.3389/fped.2022.936799

Lutfi I. B. (2017). The Importance of Social Skills for Autism. In Proceedings of the 2nd INDOEDUC4ALL - Indonesian Education for All (INDOEDUC 2018). https://doi.org/10.2991/indoeduc-18.2018.7

Lindor, E., Sivaratnam, C., May, T., Stefanac, N., Howells, K., and Rinehart, N. (2019). Problem behavior in autism spectrum disorder: Considering core symptom severity and accompanying sleep disturbance. Frontiers in Psychiatry. 10: 487. https://doi.org/10.3389/fpsyt.2019.00487

Lorah, E. R., Parnell, A., Whitby, P., and Hantula, D. (2015). A systematic review of tablet computers and portable media players as speech generating devices for individuals with autism spectrum disorder. Journal of Autism and Developmental Disorders, 45(12), 3792-3804. https://doi.org/10.1007/s10803-014-2314-4

Muharib, R., Correa, V. I., Wood, C. L., and Haughney, K. L. (2019). Effects of functional communication training using GoTalk NowTM iPad® application on challenging behavior of children with autism spectrum disorder. Journal of Special Education Technology. 34(2): 71–79.

Soares, E. E., Bausback, K., Beard, C. L., Higinbotham, M., Bunge, E. L., and Gengoux, G. W. (2021). Social skills training for autism spectrum disorder: A meta-analysis of in-person and technological interventions. Journal of Technology in Behavioral Science, 6(1), 166–180. https://doi.org/10.1007/s41347-020-00177-0

ผลของโปรแกรมการเสริมสร้างสติต่อความสามารถทางปัญญาในการจัดการพฤติกรรมในเด็กวัยอนุบาล

Effect of a Mindfulness-Based Program on Executive Function in Preschool Children

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาผลของ โปรแกรมการเสริมสร้างสติ (Mindfulness-Based Interventions) ต่อ ความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function: EF) และความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility) ในเด็กวัยอนุบาล ผู้เข้าร่วมวิจัยเป็นนักเรียนชั้นอนุบาลปีที่ 2 (อายุ 4 - 5 ปี) จำนวน 48 คน จากโรงเรียนอนุบาลแห่งหนึ่งในประเทศไทย เด็กกลุ่มตัวอย่างได้เข้าร่วมกิจกรรมโปรแกรมการเสริมสร้างสติทั้งหมด 12 ครั้ง สัปดาห์ละ 2 ครั้งต่อเนื่องเป็นเวลา 6 สัปดาห์ ผู้วิจัยประเมินความสามารถทางปัญญาในการจัดการพฤติกรรมโดยใช้แบบประเมิน หัว-เท้า-เข่า-ไหล่ (Head-Toes-Knees-Shoulders: HTKS) และเน้นไปที่ความสามารถในการใส่ใจแบบยืดหยุ่น ซึ่งเป็นหนึ่งในองค์ประกอบสำคัญของความสามารถทางปัญญาในการจัดการพฤติกรรม

ผลการศึกษาพบว่า กลุ่มทดลองมีพัฒนาการด้านความสามารถทางปัญญาในการจัดการพฤติกรรมและความสามารถในการใส่ใจแบบยืดหยุ่นเพิ่มขึ้นอย่างมีนัยสำคัญ เมื่อเทียบกับกลุ่มควบคุมในระยะก่อน-หลังการทดลอง แสดงให้เห็นว่า แนวทางนี้ช่วยพัฒนาความสามารถทางปัญญาในการจัดการพฤติกรรมและความสามารถในการใส่ใจแบบยืดหยุ่นอย่างมีนัยสำคัญ

คำสำคัญ: โปรแกรมการเสริมสร้างสติ, ความสามารถทางปัญญาในการจัดการพฤติกรรม, ความสามารถในการใส่ใจแบบยืดหยุ่น,เด็กวัยอนุบาล

Abstract

This study aimed to evaluate the effect of a mindfulness-based intervention (MBI) on executive function (EF) and attention flexibility in preschool children. Forty-eight Kindergarten Year 2 children (aged 4–5) from a Thai kindergarten participated in a 12-session mindfulness intervention conducted twice a week over six weeks. The

experimental group engaged in mindfulness activities, while the control group participated in regular classroom activities. Executive function was assessed using the Head-Toes-Knees-Shoulders (HTKS) task, with attention flexibility also assessed as a key component of EF.

Results revealed significant improvements in executive function and attention flexibility in the experimental group compared to the control group when comparing pre-test and post-test scores. These findings suggest that this intervention effectively enhances executive function and attention flexibility in preschool children.

Keywords: Mindfulness-Based Interventions (MBIs), Executive Function, Attention Flexibility, Preschool Children

บทนำ

ศตวรรษที่ 21 มาพร้อมกับความท้าทายที่ไม่เหมือนเดิมสำหรับเด็กเล็ก โดยเฉพาะอย่างยิ่งในสภาพแวดล้อมที่เด็กต้องเผชิญกับการกระตุ้นจากสิ่งต่าง ๆ และสิ่งรบกวนทางดิจิทัลอย่างต่อเนื่อง สภาวะเหล่านี้มักเป็นอุปสรรคต่อความสามารถของเด็กในการจดจ่อและควบคุมพฤติกรรม ซึ่งถือเป็นทักษะสำคัญสำหรับการเรียนรู้และการพัฒนา นอกจากนี้แนวโน้มการพัฒนาการที่ล่าช้าหรือไม่สมวัยในเด็กวัยอนุบาลในประเทศไทย โดยเฉพาะด้านสติปัญญาและการกำกับพฤติกรรม เป็นประเด็นที่ต้องให้ความสำคัญ เนื่องจากพบว่าเด็กจำนวนมากประสบปัญหาด้านพัฒนาการทางภาษา การคำนวณ และความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) ซึ่งเป็นทักษะที่สำคัญต่อการเรียนรู้และการพัฒนาในระยะยาว (กองทุนเพื่อความเสมอภาคทางการศึกษา, 2565) หนึ่งในปัจจัยสำคัญที่ส่งผลต่อพัฒนาการด้านสติปัญญาและพฤติกรรมของเด็กวัยอนุบาล คือความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function)

ความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) เป็นกระบวนการทางปัญญาที่รวมถึงทักษะต่าง ๆ เช่น การจดจ่อ การวางแผน การยับยั้งสิ่งรบกวน มีบทบาทสำคัญในการช่วยให้เด็กจัดการกับความท้าทายเหล่านี้ได้ ความสามารถทางปัญญาในการจัดการพฤติกรรมมักถูกเปรียบเทียบกับ "ระบบควบคุมการจราจรทางอากาศ" ของสมอง เนื่องจากช่วยให้เด็กสามารถจดจ่อ วางแผน และควบคุมการกระทำได้อย่างมีประสิทธิภาพ (Center on the Developing Child at Harvard University, 2011)

ช่วงปฐมวัย (อายุ 3 - 6 ปี) เป็นช่วงที่สำคัญต่อการพัฒนาความสามารถทางปัญญาในการจัดการพฤติกรรม ซึ่งเป็นกระบวนการทางปัญญาที่มีความสำคัญต่อการกำกับตนเอง ในช่วงนี้เด็กจะพัฒนาทักษะต่าง ๆ เช่น ความจำใช้งาน (Working Memory) การยับยั้งพฤติกรรม (Inhibitory Control) และความยืดหยุ่นทางความคิด (Cognitive Flexibility) ซึ่งมีความสำคัญต่อความสำเร็จทางการศึกษา ความสามารถทางสังคม และสุขภาพจิตที่ดี (Diamond, 2013; Zelazo & Lyons, 2012) แม้ว่าความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) จะสามารถแบ่งออกเป็นองค์ประกอบย่อย เช่น ความจำใช้งาน การยับยั้งพฤติกรรม และความยืดหยุ่นทางความคิด แต่กระบวนการเหล่านี้ไม่ได้ทำงานแยกจากกันโดยสิ้นเชิง หากแต่มีความเชื่อมโยงผ่านกระบวนการพื้นฐานอย่างความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility) ซึ่งมีบทบาทสำคัญในการพัฒนาและทำงานของความสามารถทางปัญญาในการจัดการพฤติกรรมโดยทำหน้าที่เป็นกลไกกำกับการทำงานขององค์ประกอบต่าง ๆ (Garon et

al., 2008) และมีบทบาทสำคัญในการปรับตัวต่อความต้องการที่เปลี่ยนแปลงและการจัดการพฤติกรรมได้อย่างมีประสิทธิภาพ (McClelland, John Geldhof, Cameron, & Wanless, 2015) อย่างไรก็ตาม ประมาณ 35% ของเด็กประสบปัญหาในการพัฒนาทักษะการกำกับตนเอง ซึ่งอาจนำไปสู่ความท้าทายที่ต่อเนื่องเกินกว่าช่วงปฐมวัย (Montroy, Bowles, Skibbe, McClelland, & Morrison, 2016) การตระหนักถึงบทบาทสำคัญของความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) และความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility) ในช่วงวัยเด็กตอนต้นจึงเป็นความสำคัญของการพัฒนาโปรแกรมที่มุ่งเน้นไปยังการสนับสนุนพัฒนาการที่สำคัญเหล่านี้ ทั้งนี้ งานวิจัยในไทยเกี่ยวกับการพัฒนาความสามารถทางปัญญาในการจัดการพฤติกรรมของเด็กอนุบาลเริ่มปรากฏบ้างแล้ว เช่นโปรแกรมการเต้น ซี แอนด์ ซี (อริสรา แก้วม่วง, พรรณระพี สุทธิวรรณ, และสมโภชน์ เอี่ยมสุภาษิต, 2566) และ โปรแกรมการเล่นประกอบดนตรี (ณภัสสร อมรวงศ์วณิช, 2566) ซึ่งต่างก็พบว่าเด็กที่เข้าร่วมมีคะแนน ความสามารถทางปัญญาในการจัดการพฤติกรรมสูงขึ้นอย่างมีนัยสำคัญ สะท้อนว่า

การจัดกิจกรรมที่มีเป้าหมายชัดเจนสามารถเสริมสร้าง ความสามารถทางปัญญาในการจัดการพฤติกรรมในเด็กอนุบาลได้

หนึ่งในแนวทางที่สามารถช่วยพัฒนาความสามารถทางปัญญาในการจัดการพฤติกรรมในเด็กเล็กคือโปรแกรมการเสริมสร้างสติ (Mindfulness-Based Interventions: MBIs) ที่มีรากฐานจากคำสอนในพระพุทธศาสนาและปรับให้เข้ากับบริบทการศึกษาในยุคปัจจุบัน โปรแกรมการเสริมสร้างสติมุ่งเน้นการฝึกจิตให้อยู่กับปัจจุบันและการพัฒนาความสามารถในการควบคุมความสนใจ โปรแกรมการเสริมสร้างสติต่าง ๆ เช่น โปรแกรมลดความเครียดด้วยสติ (Mindfulness-Based Stress Reduction: MBSR) และโปรแกรมการบำบัดทางปัญญาด้วยสติ (Mindfulness-Based Cognitive Therapy: MBCT) ได้รับการพิสูจน์ว่าให้ผลลัพธ์ที่ดีในการพัฒนาการกำกับตนเองและการควบคุมอารมณ์ในทุกช่วงวัย รวมถึงเด็กอายุ 9 - 12 ปี (Roeser, Skinner, Beers, & Jennings, 2012; Segal, Williams, & Teasdale, 2013; Semple, Lee, Rosa, & Miller, 2010; Meiklejohn et al., 2012) ในช่วงไม่กี่ปีที่ผ่านมาโปรแกรมการเสริมสร้างสติได้ขยายไปสู่เด็กวัยอนุบาล และแสดงให้เห็นถึงศักยภาพในการส่งเสริมการพัฒนาความสามารถทางปัญญาในการจัดการพฤติกรรม เช่น การศึกษาของ Poehlmann-Tynan et al. (2016) และ Razza et al. (2020) ที่รายงานว่าการฝึกสติสามารถพัฒนา ความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) และ ความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility) ได้อย่างมีนัยสำคัญ นอกจากนี้ Flook et al. (2015) และ Viglas and Perlman (2018) ยังชี้ให้เห็นว่าโปรแกรมการเสริมสร้างสติส่งผลเชิงบวกต่อการพัฒนาการกำกับตนเองและความสามารถทางปัญญาในการจัดการพฤติกรรม ในเด็กวัยอนุบาล

อย่างไรก็ตาม การศึกษาการนำโปรแกรมการเสริมสร้างสติไปใช้ในบริบทของประเทศไทยยังคงมีอยู่อย่างจำกัด การศึกษานี้มุ่งที่จะตอบโจทย์นี้โดยการพัฒนาโปรแกรมการเสริมสร้างสติที่ปรับให้เหมาะสมกับพัฒนาการของเด็กวัยอนุบาลในประเทศไทย โดยเน้นที่การพัฒนาความสามารถทางปัญญาในการจัดการพฤติกรรมและความสามารถในการใส่ใจแบบยืดหยุ่น เพื่อสนับสนุนความเข้าใจในบทบาทของโปรแกรมการเสริมสร้างสติและการสนับสนุนพัฒนาการในวัยเด็กตอนต้น ซึ่งจะช่วยให้เด็กสามารถ จดจ่อกับสิ่งที่กำลังทำตรงหน้า ลดการถูกรบกวนจากสิ่งเร้า และควบคุมพฤติกรรมของตนเองได้ดีขึ้น สิ่งเหล่านี้เป็นปัจจัยที่ช่วยให้เด็กมี พฤติกรรมที่เหมาะสมในชั้นเรียน ปรับตัวต่อสถานการณ์ที่เปลี่ยนแปลง และพัฒนาทักษะทางสังคมและการเรียนรู้

วัตถุประสงค์ของการวิจัย

เพื่อศึกษาผลของโปรแกรมการเสริมสร้างสติ (Mindfulness-Based Intervention) ในการพัฒนาความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) และความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility) ในเด็กวัยอนุบาล (ชั้นอนุบาลปีที่ 2)

แนวคิด ทฤษฎี กรอบแนวคิด

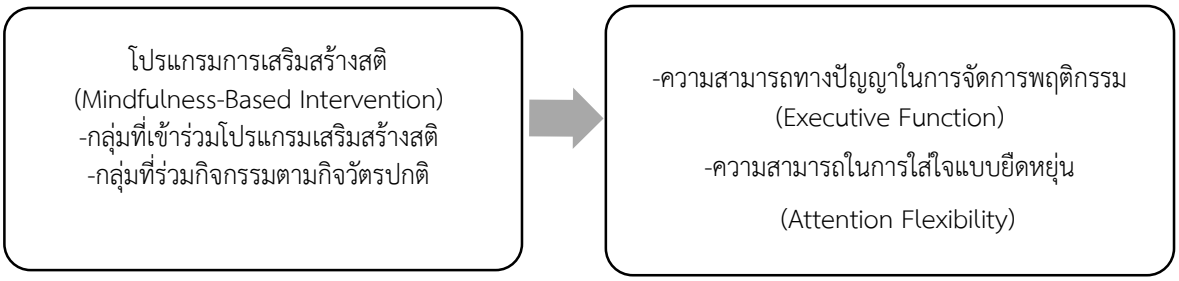
ความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) เป็นชุดกระบวนการทางปัญญาที่สำคัญต่อพฤติกรรมที่มุ่งไปที่เป้าหมาย รวมถึงความจำใช้งาน (Working Memory) การยับยั้งพฤติกรรม (Inhibitory Control) และความยืดหยุ่นทางความคิด (Cognitive Flexibility) ซึ่งทั้งหมดนี้ถูกควบคุมโดยสมองส่วนหน้าสุด (Prefrontal Cortex) (Best & Miller, 2010) ความสามารถทางปัญญาในการจัดการพฤติกรรมมักถูกเปรียบเทียบกับ “ระบบควบคุมการจราจรทางอากาศ” ของสมอง เพราะช่วยในการควบคุมความสนใจ การวางแผน และการตัดสินใจ ทำให้บุคคลสามารถจัดการงานที่ซับซ้อนได้อย่างมีประสิทธิภาพ (Center on the Developing Child at Harvard University, 2011) ทักษะเหล่านี้พัฒนาอย่างเด่นชัดที่สุดในช่วงปฐมวัย (อายุ 3 - 6 ปี) และเป็นรากฐานสำคัญสำหรับความสำเร็จทางการศึกษา ความสามารถทางสังคม และการควบคุมอารมณ์ในระยะยาว (Garon, Bryson, & Smith, 2008; Diamond, 2013) ในบรรดาองค์ประกอบของความสามารถทางปัญญาในการจัดการพฤติกรรม ความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility) มีบทบาทสำคัญในการช่วยให้เด็กสามารถจดจ่อ เปลี่ยนจุดสนใจ และปรับตัวต่อความต้องการที่เปลี่ยนแปลงได้อย่างมีประสิทธิภาพ (Rueda, Posner, & Rothbart, 2005; Garon et al., 2008)

สติ (Mindfulness) ซึ่งมีรากฐานมาจากคำสอนของพระพุทธเจ้าเมื่อกว่า 2,500 ปีที่แล้ว มีต้นกำเนิดจากคำว่า “สติ” ในภาษาบาลี ซึ่งหมายถึงการระลึกและตระหนักรู้ในปัจจุบันขณะ (Bodhi, 2011) ในบริบทของพระพุทธศาสนา สติครอบคลุมฐานทั้งสี่ คือ กาย เวทนา จิต และธรรม (Huxter, 2015) โดยได้แรงบันดาลใจในนำการมีสติอยู่กับร่างกายมาเป็นแก่นหลักในการดำเนินการศึกษา ซึ่งมีองค์ประกอบย่อยของการมีสติที่เน้นกาย เช่น การหายใจ การรับรู้การเคลื่อนไหวของร่างกาย (Huxter, 2015) ซึ่งเหมาะสมกับเด็กวัยอนุบาล

โปรแกรมการเสริมสร้างสติ (Mindfulness-Based Interventions) เป็นแนวทางในการเสริมสร้างพัฒนาการของความสามารถทางปัญญาในการจัดการพฤติกรรมในเด็กวัยอนุบาล ที่เน้นพัฒนาความสามารถในการใส่ใจแบบยืดหยุ่น ซึ่งเป็นองค์ประกอบสำคัญของความสามารถทางปัญญาในการจัดการพฤติกรรม ที่ช่วยให้เด็กสามารถจดจ่อกับสิ่งที่ทำตรงหน้า รักษาความสนใจ และปรับจุดสนใจเมื่อจำเป็น สนับสนุนความสามารถในการปรับตัวและการกำกับตนเอง (Rueda, Posner, & Rothbart, 2005) โปรแกรมการเสริมสร้างสติมีการฝึกที่ส่งเสริมทักษะเหล่านี้ผ่านการระลึกรู้ในปัจจุบันขณะและการควบคุมความสนใจ (Kabat-Zinn, 2003) กิจกรรมเช่น การมีสติรู้ลมหายใจและรู้ร่างกาย ช่วยให้เด็กสามารถสังเกตเมื่อความสนใจหลุดออกไปและนำความสนใจกลับมา (Flook, Goldberg, Pinger, & Davidson, 2015) โปรแกรมการเสริมสร้างสติที่ปรับให้เหมาะสมกับเด็กวัยอนุบาลประกอบด้วยกิจกรรมที่เหมาะสมตามวัยที่สอดคล้องกับพัฒนาการของเด็กเล็ก (Bockmann & Yu, 2023)

โปรแกรมการเสริมสร้างสติได้แสดงผลลัพธ์ที่ดีในการส่งเสริมความสามารถทางปัญญาในการจัดการพฤติกรรมในเด็กวัยอนุบาล โดยเฉพาะในด้านการควบคุมความสนใจ ความยืดหยุ่นทางความคิดและการยับยั้งพฤติกรรม Bockmann และ Yu (2023) พบว่าความสามารถทางปัญญาในการจัดการพฤติกรรมมีผู้ศึกษา 17 จาก 18 การศึกษา โดย 15 การศึกษาพบผลลัพธ์ในเชิงบวก โปรแกรมการเสริมสร้างสติที่ส่งเสริมความสามารถทางปัญญาในการจัดการพฤติกรรม เช่น การพัฒนาความสามารถในการควบคุมตนเอง ความสนใจ และผลสัมฤทธิ์ทางการศึกษา การศึกษาของ Flook et al. (2015) แสดงให้เห็นถึงการพัฒนาความยืดหยุ่นทางความคิดและพฤติกรรมทางสังคมที่ดีขึ้นจากการเข้าร่วมหลักสูตร Kindness Curriculum เป็นเวลา 12 สัปดาห์ ในขณะที่ Poehlmann-Tynan et al. (2016) รายงานว่ามีการพัฒนาความสามารถในการควบคุมความสนใจและการกำกับตนเองในเด็กวัยอนุบาลที่เข้าร่วมโปรแกรมการเสริมสร้างสติเป็นเวลา 12 สัปดาห์ ในทำนองเดียวกัน Razza, Uveges Linsner, Bergen-Cico, Carlson, and (2020) พบว่าการฝึกโยคะด้วยสติช่วยให้เกิดการพัฒนาความสามารถในการควบคุมความสนใจและความสามารถทางปัญญาในการจัดการพฤติกรรมโปรแกรมเหล่านี้มักเน้นการมีสติอยู่กับร่างกาย โดยใช้กิจกรรมที่เหมาะสมตามวัยเพื่อพัฒนาความสามารถในการใส่ใจแบบยืดหยุ่นและความสามารถทางปัญญาในการจัดการพฤติกรรมในเด็กเล็ก

กรอบแนวคิด



วิธีดำเนินการวิจัย

การวิจัยในครั้งนี้เป็นการวิจัยกึ่งทดลองแบบ Quasi-experimental pretest-posttest control group design เพื่อศึกษาผลของโปรแกรมการเสริมสร้างสติ (Mindfulness-Based Intervention) ต่อความสามารถทางปัญญาในการจัดการพฤติกรรมและความสามารถในการใส่ใจแบบยืดหยุ่นในเด็กวัยอนุบาล โดยศึกษาเปรียบเทียบคะแนนความสามารถทางปัญญาในการจัดการพฤติกรรมและคะแนนความสามารถในการใส่ใจแบบยืดหยุ่น ระหว่างกลุ่มทดลองกับกลุ่มควบคุม ในช่วงก่อนการทดลอง และหลังการทดลอง

ผู้เข้าร่วมการวิจัย

การคำนวณขนาดกลุ่มตัวอย่าง จากการคำนวณงานวิจัยนี้มีผู้เข้าร่วมจำนวน 50 คน ซึ่งเป็นเด็กนักเรียนชั้นอนุบาลปีที่ 2 (อายุ 4 - 5 ปี) ขนาดกลุ่มตัวอย่างคำนวณโดยใช้โปรแกรม G*Power 3.1 โดยตั้งค่าระดับนัยสำคัญทางสถิติที่ 0.05 และขนาดอิทธิพล (Effect Size) เท่ากับ 0.26 เพื่อให้ได้ค่าพลังทางสถิติ (Statistical Power) ที่ 0.9 โดยมีเกณฑ์การคัดเลือก ได้แก่ การเข้าร่วมกิจกรรมตลอดระยะเวลาการวิจัย การได้รับความยินยอมจากผู้ปกครอง และมีคะแนนการประเมินล่วงหน้า (Pretest) จากแบบประเมิน หัว-เท้า-เข่า-ไหล่ (HTKS) อยู่ในช่วง 0 - 25 คะแนน

ประชากรและการคัดเลือกกลุ่มตัวอย่าง ประชากรในการศึกษานี้คือ นักเรียนอนุบาลปีที่ 2 ทั้งหมดจากโรงเรียนแห่งหนึ่ง จำนวน 92 คน ก่อนเริ่มการทดลอง นักเรียนทั้งหมดได้รับการประเมินความสามารถทางปัญญาในการจัดการพฤติกรรม ด้วยแบบวัด Head-Toes-Knees-Shoulders (HTKS) กลุ่มตัวอย่าง 50 คนถูกสุ่มเลือกโดยโปรแกรมคอมพิวเตอร์จากนักเรียน 92 คนที่ผ่านเกณฑ์ จากนั้นทำการจับคู่เด็กที่มีคะแนน HTKS ใกล้เคียงกัน แล้วจับฉลากแยกเด็กหนึ่งคนเข้ากลุ่มทดลอง และอีกหนึ่งคนเข้ากลุ่มควบคุม ทำแบบนี้ทีละคู่ จนครบกลุ่มทดลอง 25 คน และกลุ่มควบคุม 25 คน โดยกลุ่มทดลองเข้าร่วมโปรแกรมการเสริมสร้างสติ ขณะที่กลุ่มควบคุมทำกิจกรรมปกติในชั้นเรียน โดยภายหลังมีผู้เข้าร่วมสองคนที่ถูกคัดออกจากการวิจัยเนื่องจากการขาดกิจกรรมมากกว่า 2 ครั้ง ส่งผลให้มีผู้เข้าร่วมทั้งหมด 48 คน

เครื่องมือที่ใช้ในการวิจัย

1. โปรแกรมการเสริมสร้างสติ (Mindfulness-Based Intervention) ที่ใช้ในการศึกษาครั้งนี้ได้รับการออกแบบมาโดยเฉพาะเพื่อพัฒนาความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) และความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility) ในเด็กวัยอนุบาล โปรแกรมประกอบด้วยกิจกรรม 8 ครั้งที่ปรับมาจากหลักสูตร Kindness Curriculum (Flook et al., 2015) และกิจกรรมเพิ่มเติมอีก 4 ครั้ง ซึ่งได้รับแรงบันดาลใจจากการฝึกสติตามแนวศาสนาพุทธ กิจกรรมเหล่านี้มุ่งเน้นการฝึกสติผ่านการส่งเสริมความตระหนักรู้ในร่างกาย เช่นลมหายใจ การรู้สึกถึงอริยาบถใหญ่ของร่างกาย และการเคลื่อนไหวเล็ก ๆ ซึ่งสอดคล้องกับพัฒนาการของเด็กวัยอนุบาล โปรแกรมนี้จัดขึ้นในระยะเวลา 6 สัปดาห์ จำนวน 12 ครั้ง โดยดำเนินการสัปดาห์ละ 2 ครั้ง ครั้งละ 20 - 30 นาที กิจกรรมจัดขึ้นกลุ่มละ 5 คน เพื่อการมีประสิทธิภาพ ในแต่ละกิจกรรมเด็กได้รับการแนะนำให้กลับมารู้สึกกับจุดโฟกัสที่กำหนดไว้ เช่น การนำความสนใจกลับมาที่ลมหายใจหรือการเคลื่อนไหวของร่างกาย เพื่อพัฒนาความสามารถในการใส่ใจแบบยืดหยุ่น

เพื่อให้มั่นใจว่าเนื้อหาและกิจกรรมของโปรแกรมมีความเหมาะสมกับพัฒนาการของเด็ก โปรแกรมนี้ได้ผ่านการตรวจสอบโดยผู้เชี่ยวชาญ 4 ท่าน ได้แก่ นักจิตวิทยาเด็ก ผู้อำนวยการโรงเรียน ครูอนุบาล และอาสาสมัครที่มีประสบการณ์ในการส่งเสริมพัฒนาคุณธรรมในเด็กตามแนวทางพุทธศาสนา การประเมินค่าดัชนีความตรงเชิงเนื้อหา (Index of Item Objective Congruence: IOC) ที่ 1.00 ซึ่งแสดงถึงความเห็นพ้องต้องกันอย่างสมบูรณ์ของผู้เชี่ยวชาญ ก่อนการนำไปใช้จริง โปรแกรมนี้ได้ถูกทดลองกับกลุ่มเด็กที่มีลักษณะใกล้เคียงกับกลุ่มตัวอย่างของการศึกษา และผลจากการทดลองได้ถูกนำไปปรับปรุงกิจกรรมเพื่อให้มีความน่าสนใจ และเหมาะสมกับเด็กวัยอนุบาลมากขึ้น

2. การประเมิน หัว-เท้า-เข่า-ไหล่ (HTKS) (Ponitz et al., 2008) เพื่อประเมินความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) ในเด็กวัยอนุบาล HTKS เป็นเครื่องมือที่ได้รับการยอมรับอย่างกว้างขวางสำหรับเด็กอายุ 3 - 7 ปี โดยประเมินความสามารถทางปัญญาในการจัดการพฤติกรรมผ่านกิจกรรมที่ใช้เกม ซึ่งให้เด็กตอบสนองในทางตรงกันข้ามกับคำสั่ง เช่น เมื่อได้รับคำสั่งให้ “แตะศีรษะ” เด็กต้องแตะที่เท้า แบบประเมิน HTKS มี 20 ข้อ คะแนนรวมสูงสุด 40 คะแนน โดยให้ 2 คะแนนสำหรับคำตอบที่ถูกต้อง 1 คะแนนสำหรับคำตอบที่แก้ไขได้ และ 0 คะแนนสำหรับคำตอบที่ผิด การประเมินแต่ละครั้งใช้เวลา 5 - 7 นาที โดยประเมินแบบตัวต่อตัว

HTKS มีความน่าเชื่อถือ ซึ่งแบบประเมิน HTKS มีค่าความเที่ยงจากการทดสอบซ้ำสูง ($r = .74$, $p < .001$) เมื่อประเมินในเด็กวัยอนุบาลในช่วงเวลาเฉลี่ย 5.84 เดือน (McClelland et al., 2014) และฉบับ

ภาษาไทย (พิมพ์จุฑา นิมมาภิรัตน์ และ พรรณระพี สุทธิวรรณ, 2560) แสดงค่าความตรงเชิงความสอดคล้องสูง โดยการวิเคราะห์สหสัมพันธ์จากครูและนักจิตวิทยา การประเมินมีความสัมพันธ์ในระดับสูง ($r = .94$-$.96$, $p < .05$) ในการศึกษานี้ นักวิจัยและผู้ช่วยผ่านการอบรมออนไลน์และได้รับการรับรองจาก Oregon State University เพื่อให้การใช้งาน HTKS มีความถูกต้องและสม่ำเสมอ และได้รับอนุญาตให้ใช้แบบ ประเมิน หัว-เท้า-เข่า-ไหล่ ฉบับภาษาไทย (พิมพ์จุฑา นิมมาภิรัตน์ และพรรณระพี สุทธิวรรณ, 2560) ในงานวิจัยครั้งนี้

3. การประเมิน "Go/No-Go" Task จากชุดเครื่องมือ Early Years Toolbox (EYT) เพื่อวัดความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility) การประเมินนี้ถูกพัฒนามาจาก Fish-Shark Go/No-Go Task ของ Wiebe, Sheffield, and Espy (2012) โดยมีต้นกำเนิดจากมาตร Go/No-Go Task ของ Donders ซึ่งได้รับการตีพิมพ์ในปี ค.ศ. 1868 (Brown & Perreault, 2017)

การประเมิน "Go/No-Go" Task จากชุดเครื่องมือ Early Years Toolbox (EYT) วัดทักษะความสนใจผ่านการตอบสนองต่อสถานการณ์ "Go" (เช่น การจับปลา) และการระงับการตอบสนองในสถานการณ์ "No-Go" (เช่น การหลีกเลี่ยงฉลาม) คะแนนอยู่ในช่วง 0 ถึง 1.00 โดยคำนวณจากความแม่นยำใน 75 การทดลองแบบสุ่ม ใช้เวลา 5 - 6 นาที การประเมินนี้มีความน่าเชื่อถือสูง (Cronbach's α = 0.95 สำหรับสถานการณ์ "Go"; α = 0.84 สำหรับสถานการณ์ "No-Go") และมีความตรงเชิงโครงสร้าง ($r = 0.40$, $p < .001$) (Howard & Melhuish, 2017) ฉบับภาษาไทยที่ได้รับการตรวจสอบโดย อริสรา แก้วม่วง, พรรณระพี สุทธิวรรณ, และสมโภชน์ เอี่ยมสุภาษิต (2566) มีค่าความน่าเชื่อถือในการทดสอบซ้ำสูง ($r = .83$, $p < .001$) เครื่องมือนี้ดำเนินการผ่าน iPad และมีเหมาะสมสำหรับการประเมินความสามารถในการใส่ใจแบบยืดหยุ่นตามวัตถุประสงค์ของการศึกษา

การรวบรวมข้อมูล

งานวิจัยนี้ได้ผ่านการพิจารณาจากคณะกรรมการพิจารณาจริยธรรมการวิจัยในคนของ จุฬาลงกรณ์มหาวิทยาลัย เลขที่เอกสารรับรอง (COA NO. 121/67) และดำเนินการตามขั้นตอนที่มีโครงสร้างชัดเจน 4 ขั้นตอน ดังนี้

1. การประสานงานกับโรงเรียน

ได้รับอนุญาตจากโรงเรียนในการดำเนินการวิจัย พร้อมจัดประชุมเพื่อวางแผนการดำเนินการวิจัยร่วมกันและให้แน่ใจว่ากิจกรรมวิจัยจะไม่รบกวนกิจวัตรประจำวันของนักเรียน

2. การประเมินก่อนการทดลอง (Pre-Test)

ประเมินความสามารถทางปัญญาในการจัดการพฤติกรรมโดยทำแบบประเมิน HTKS กับเด็กชั้นอนุบาล 2 และคัดเด็กเข้าร่วมงานวิจัยตามเกณฑ์คัดเข้า พร้อมทั้งแบ่งกลุ่มทดลองและกลุ่มควบคุม

3. การจัดกิจกรรม (Intervention Implementation)

- กลุ่มทดลองเข้าร่วมโปรแกรมการเสริมสร้างสติ เป็นเวลา 6 สัปดาห์
- กลุ่มควบคุมดำเนินกิจกรรมในชั้นเรียนตามปกติ เป็นเวลา 6 สัปดาห์

4. การประเมินหลังการทดลอง (Post-Test)

ทั้งสองกลุ่มได้รับการประเมินซ้ำ (Post-test) โดยใช้แบบประเมิน HTKS และ "Go/No-Go" Task

การวิเคราะห์ข้อมูลทางสถิติ

ข้อมูลถูกวิเคราะห์โดยใช้โปรแกรม SPSS สถิติเชิงพรรณนา (ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน) และการวิเคราะห์ความแปรปรวนแบบสองทางผสม (Two-Way Mixed ANOVA) ถูกนำมาใช้เพื่อเปรียบเทียบค่าเฉลี่ยความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) และความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility) ของกลุ่มทดลองและกลุ่มควบคุม ทั้งก่อนและหลังการเข้าร่วมโปรแกรมกิจกรรม

ผลการวิจัย

กลุ่มตัวอย่างในการวิจัยครั้งนี้ประกอบด้วยเด็กอนุบาลจำนวน 48 คน โดยแบ่งเป็นกลุ่มทดลอง 23 คน และกลุ่มควบคุม 25 คน อายุระหว่าง 56 - 76 เดือน (M = 56.79, SD = 2.95) โดยมีสัดส่วนเพศหญิง 56.25% และเพศชาย 43.75% ทั้งสองกลุ่มมีการกระจายอายุที่ใกล้เคียงกัน (กลุ่มทดลอง M = 56.83, SD = 3.14; กลุ่มควบคุม M = 56.76, SD = 2.83)

การวิเคราะห์ความแปรปรวนสองทางแบบผสม (Two-Way Mixed ANOVA) พบว่ามีผลปฏิสัมพันธ์ที่มีนัยสำคัญระหว่างกลุ่ม (กลุ่มทดลองและกลุ่มควบคุม) และช่วงเวลา (ก่อนและหลังการทดลอง) ในความสามารถทางปัญญาในการจัดการพฤติกรรม และความสามารถในการใส่ใจแบบยืดหยุ่น

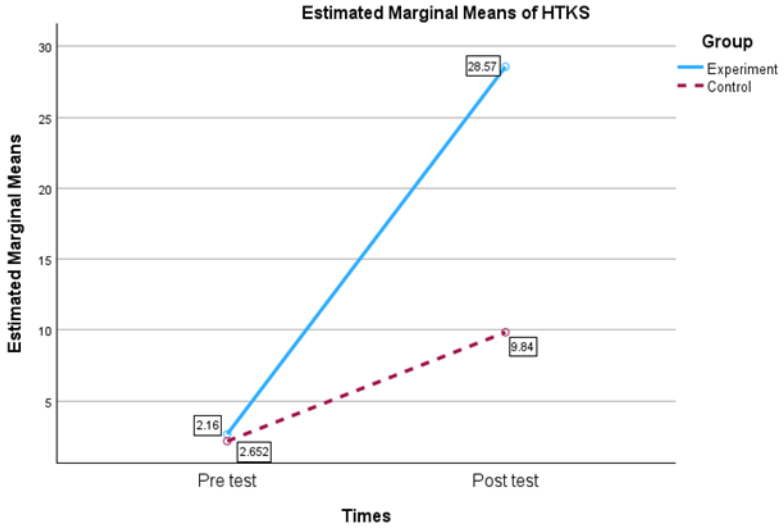
1. ความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function)

ตารางที่ 1 ผลการวิเคราะห์ความแปรปรวนสองทางแบบผสมของค่าเฉลี่ยคะแนนความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) ของกลุ่มทดลองและกลุ่มควบคุม กับระยะก่อน-หลังการทดลอง

Source of Variance		*SS*	*df*	*MS*	*F*	*p*	ηp^2
Between groups	Group	2212.00	1	2212.00	17.87	<0.001***	0.28
	Error	5693.96	46	123.78			
Within Groups	Time	6759.20	1	6759.20	112.59	<0.001***	0.71
	Group x Time Interaction	1991.20	1	1991.20	33.17	<0.001***	0.42
	Error	2761.63	46	60.04			

***p < .001

จากตารางที่ 1 พบว่า คะแนนความสามารถทางปัญญาในการจัดการพฤติกรรม มีผลปฏิสัมพันธ์ (interaction effect) ระหว่างกลุ่ม และระยะก่อน-หลังการทดลอง อย่างมีนัยสำคัญทาง สถิติ ($F(1,46) = 33.17$, $p < 0.001$, $\eta p^2 = 0.42$) ซึ่งแสดงผลปฏิสัมพันธ์ดังภาพที่ 1



ภาพที่ 1 กราฟแสดงผลปฏิสัมพันธ์ค่าเฉลี่ยของคะแนนความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) ระหว่างกลุ่มทดลองและกลุ่มควบคุม กับระยะก่อน-หลังการทดลอง

ตารางที่ 2 การเปรียบเทียบความแตกต่างรายคู่ของคะแนนความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) โดยรวม ระหว่างกลุ่มและระยะก่อน-หลังการทดลอง ด้วยวิธี Bonferroni

Comparison	*Mean Differences*	*SE*	*df*	*t*	*p*
Pre-test—Experimental vs. Pre-Test—Control	0.49	1.66	(1,46)	0.30	0.768
Post-test—Experimental vs. Post-Test—Control	18.73	3.55	(1,46)	5.28	<0.001***
Pre-test—Experimental vs. Post-Test—Experimental	-25.913	2.28	(1,46)	-12.65	<0.001***
Pre-test—Control vs. Post-Test—Control	-7.68	2.19	(1,46)	-3.23	0.001**

**p < .01, ***p < .001

จากตารางที่ 2 หลังจากสิ้นสุดการเข้าร่วมโปรแกรมกลุ่มทดลองมีคะแนนความสามารถทางปัญญาในการจัดการพฤติกรรม โดยรวมเพิ่มขึ้นสูงกว่าก่อนทำกิจกรรม และมากกว่ากลุ่มควบคุม ในขณะที่คะแนนของกลุ่มควบคุมก็เพิ่มขึ้นแต่เพิ่มขึ้นในปริมาณน้อยกว่าเมื่อเทียบกับกลุ่มทดลอง

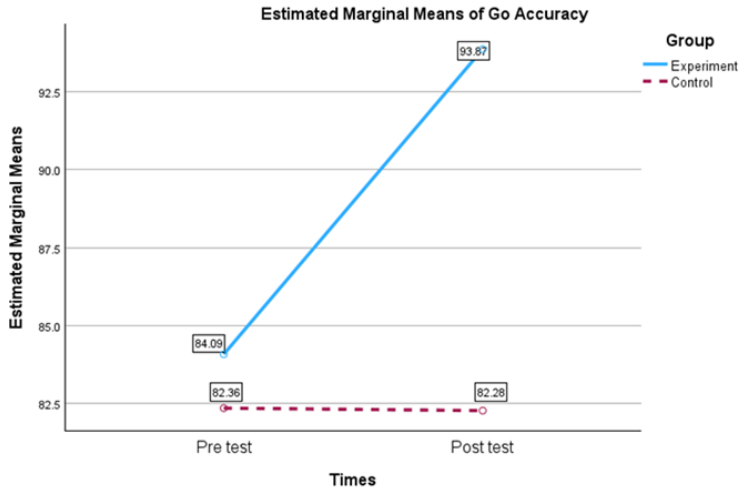
2. ความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility)

ตารางที่ 3 ผลการวิเคราะห์ความแปรปรวนสองทางแบบผสมของค่าเฉลี่ยความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility) กลุ่มทดลองและกลุ่มควบคุม กับระยะก่อน–หลังการทดลอง

Source of Variance		*SS*	*df*	*MS*	*F*	*p*	ηp^2
Between groups	Group	1062.13	1	1062.13	3.14	0.083	0.06
	Error	15584.36	46	338.79			
Within Groups	Time	563.86	1	563.86	8.20	0.006**	0.15
	Group x Time Interaction	582.61	1	582.61	8.47	0.006**	0.16
	Error	3164.88	46	68.80			

**p < .01

จากตารางที่ 3 พบว่าคะแนนความสามารถในการใส่ใจแบบยืดหยุ่น ที่ประเมินโดยแบบประเมิน EYT "Go/No-Go" Task มีผลปฏิสัมพันธ์ (interaction effect) ระหว่างกลุ่ม และระยะก่อน–หลังการทดลอง อย่างมีนัยสำคัญทางสถิติ ($F(1,46) = 8.47$, $p = 0.006$, $\eta p^2 = 0.16$) ซึ่งแสดงผลปฏิสัมพันธ์ดังภาพที่ 2



ภาพที่ 2 กราฟแสดงผลปฏิสัมพันธ์ค่าเฉลี่ยของคะแนนความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility) ระหว่างกลุ่มทดลองและกลุ่มควบคุม กับระยะก่อน-หลังการทดลอง

ตารางที่ 4 การเปรียบเทียบความแตกต่างรายคู่ของความสามารถในการใส่ใจแบบยืดหยุ่น (Attention flexibility) โดยรวม ระหว่างกลุ่มและระยะก่อน-หลังการทดลอง ด้วยวิธี Bonferroni

Comparison	*Mean Differences*	*SE*	*df*	*t*	*p*
Pre-test—Experimental vs. Pre-Test—Control	1.73	4.48	(1,46)	0.39	0.702
Post-test—Experimental vs. Post-Test—Control	11.59	3.74	(1,46)	3.10	0.003**
Pre-test—Experimental vs. Post-Test—Experimental	-9.783	2.45	(1,46)	-3.25	<0.001***
Pre-test—Control vs. Post-Test—Control	0.08	2.35	(1,46)	0.05	0.973

**p < .01, ***p < .001

จากตารางที่ 4 หลังจากสิ้นสุดการเข้าร่วมโปรแกรมกลุ่มทดลองมีความสามารถในการใส่ใจแบบยืดหยุ่น โดยรวมเพิ่มขึ้นสูงกว่าก่อนทำกิจกรรม และมากกว่ากลุ่มควบคุม ในขณะที่คะแนนของกลุ่มควบคุมไม่แตกต่างกัน

สรุปและอภิปรายผล

งานวิจัยนี้มุ่งเน้นการศึกษาผลของโปรแกรมการเสริมสร้างสติ (Mindfulness-Based Intervention) ในการพัฒนาความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) และความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility) ในเด็กวัยอนุบาล ผลการศึกษาแสดงให้เห็นว่ากลุ่มทดลองมีการพัฒนาทั้งความสามารถทางปัญญาในการจัดการพฤติกรรมและความสามารถในการใส่ใจแบบยืดหยุ่นที่ดีกว่ากลุ่มควบคุมอย่างมีนัยสำคัญ

หนึ่งในความสำเร็จของโปรแกรมนี้เกิดจากการมุ่งเน้นการสร้างรากฐานของการพัฒนาความสามารถในการใส่ใจแบบยืดหยุ่น ซึ่งเป็นองค์ประกอบสำคัญของความสามารถทางปัญญาในการจัดการพฤติกรรม ตลอดการทำกิจกรรมผู้วิจัยจะคอยเตือนเด็ก ๆ ให้กลับมาใส่ใจกลับสิ่งตรงหน้าเมื่อเผลอไปหรือให้กลับมารู้สึกกับร่างกาย ซึ่งช่วยฝึกฝนความสามารถในการใส่ใจแบบยืดหยุ่นอย่างต่อเนื่อง การฝึกทักษะนี้ซ้ำ ๆ และต่อเนื่องตลอดการทำกิจกรรมสอดคล้องกับมุมมองในพระพุทธศาสนาที่การพัฒนาสติเกิดขึ้นได้จากการฝึกฝนอย่างต่อเนื่อง (Koffman, 2012) อีกหนึ่งปัจจัยคือการเน้นการมีสติอยู่กับร่างกาย ซึ่งเป็นหนึ่งในรากฐานของการฝึกสติแบบดั้งเดิม (Huxter, 2015) การมุ่งเน้นกิจกรรมที่เกี่ยวกับการหายใจและการเคลื่อนไหว ทำให้โปรแกรมนี้สามารถดึงองค์ประกอบจากคำสอนในพระพุทธศาสนาและแนวทางการเสริมสร้างสติสมัยใหม่มาประยุกต์ใช้ได้อย่างลงตัว และเหมาะกับพัฒนาของเด็กวัยนี้ การฝึกที่เน้นการใช้ร่างกายช่วยส่งเสริมการพัฒนาความสามารถในการใส่ใจแบบยืดหยุ่น ซึ่งเป็นสิ่งสำคัญในช่วงวัยเด็กตอนต้น (Garon et al., 2008; Rueda, Posner, & Rothbart, 2005)

สุดท้ายนี้ อีกหนึ่งปัจจัยความสำเร็จของโปรแกรมมาจากบทบาทของผู้สอนและการทำกิจกรรมกลุ่มเล็ก ผู้สอนสามารถให้คำแนะนำเฉพาะบุคคลในแต่ละขณะที่เด็ก ๆ เผลอไปจากสิ่งที่ต้องใส่ใจ เช่น ร่างกายหรือกิจกรรมตรงหน้า ช่วยให้เด็กพัฒนาความสามารถในการใส่ใจแบบยืดหยุ่นผ่านการเตือนอย่างนุ่มนวลให้นำความสนใจกลับมาที่จุดโฟกัส นอกจากนี้ รูปแบบกลุ่มเล็กยังช่วยเสริมสร้างปฏิสัมพันธ์และความเอาใจใส่เฉพาะบุคคล ทำให้โปรแกรมนี้มีประสิทธิภาพสูงสุด

ผลการศึกษานี้สอดคล้องกับงานวิจัยก่อนหน้านี้ เช่น Poehlmann-Tynan et al. (2016) และ Razza et al. (2020) ที่รายงานถึงการพัฒนาความสามารถทางปัญญาในการจัดการพฤติกรรมและความสามารถในการใส่ใจแบบยืดหยุ่นที่มีนัยสำคัญผ่านโปรแกรมการเสริมสร้างสติ นอกจากนี้ Flook et al. (2015) และ Viglas and Perlman (2018) ยังชี้ให้เห็นถึงผลลัพธ์เชิงบวกของโปรแกรมการเสริมสร้างสติในการพัฒนาการกำกับตนเองและความสามารถทางปัญญาในการจัดการพฤติกรรมในเด็กวัยอนุบาล การศึกษาครั้งนี้สร้างขึ้นบนฐานของหลักฐานดังกล่าว โดยแสดงให้เห็นถึงศักยภาพของโปรแกรมการเสริมสร้างสติที่ปรับให้เหมาะสมกับบริบทของเด็กไทย เช่นการใช้สื่อที่เหมาะสม (นิทานและเพลง)

สรุปได้ว่า การมุ่งเน้นความสามารถในการใส่ใจแบบยืดหยุ่น การมีสติอยู่กับร่างกาย และการฝึกฝนเฉพาะบุคคลแบบใกล้ชิด เป็นสามปัจจัยสำคัญที่ทำให้โปรแกรมนี้ประสบความสำเร็จในการพัฒนาความสามารถทางปัญญาในการจัดการพฤติกรรมและความสามารถในการใส่ใจแบบยืดหยุ่น การนำเสนอแนวทางที่มีโครงสร้างและเหมาะสมกับบริบทของเด็กไทยช่วยให้โปรแกรมนี้เป็นเครื่องมือที่มีคุณประโยชน์ต่อการศึกษาที่ช่วยให้เด็กได้เรียนรู้ทักษะสำคัญนี้

ข้อเสนอแนะ

1. ผลการศึกษานี้แสดงให้เห็นว่า โปรแกรมการเสริมสร้างสติช่วยพัฒนาความสามารถทางปัญญาในการจัดการพฤติกรรมและความสามารถในการใส่ใจแบบยืดหยุ่นอย่างมีนัยสำคัญ อย่างไรก็ตาม การศึกษานี้ดำเนินการกับกลุ่มตัวอย่างจากโรงเรียนเดียว จึงควรมีการศึกษาต่อในกลุ่มประชากรที่หลากหลายมากขึ้น เช่น เด็กจากบริบททางวัฒนธรรมและเศรษฐกิจที่แตกต่างกัน เพื่อให้เข้าใจผลของโปรแกรมในกลุ่มที่มีปัจจัยแวดล้อมแตกต่างกัน

2. งานวิจัยนี้เป็นการศึกษาในระยะสั้น (6 สัปดาห์) และพบว่าโปรแกรมเสริมสร้างสติช่วยพัฒนาความสามารถทางปัญญาในการจัดการพฤติกรรม และความสามารถในการใส่ใจแบบยืดหยุ่น ได้ในช่วงเวลาดังกล่าว อย่างไรก็ตาม เนื่องจากทักษะเหล่านี้ต้องการการพัฒนาอย่างต่อเนื่อง การวิจัยในอนาคตควรดำเนินการศึกษาระยะยาว (Longitudinal Study) เพื่อให้เห็นการเปลี่ยนแปลงอย่างต่อเนื่องและชัดเจน

3. การอบรมคุณครูเพื่อนำโปรแกรมไปใช้ในห้องเรียนเป็นแนวทางที่ควรพัฒนาในอนาคต เนื่องจาก ผลการศึกษาพบว่าการฝึกสติช่วยพัฒนา ความสามารถทางปัญญาในการจัดการพฤติกรรม (Executive Function) และความสามารถในการใส่ใจแบบยืดหยุ่น (Attention Flexibility) ได้ การฝึกอบรมคุณครูให้สามารถนำกิจกรรม โปรแกรมการเสริมสร้างสติ ไปใช้ในชั้นเรียนด้วยตนเอง อาจช่วยให้เด็กได้รับการฝึกฝนอย่างต่อเนื่องและเพิ่มความยั่งยืนของโปรแกรม ลดความจำเป็นในการใช้บุคลากรภายนอก

การศึกษานี้เน้นถึงความสำคัญของการพัฒนาทักษะนี้ในช่วงวัยเด็กตอนต้น ทั้งนักการศึกษาและผู้ปกครองสามารถใช้ข้อมูลนี้เพื่อพัฒนากลยุทธ์ในการเตรียมเด็กให้พร้อมสำหรับศตวรรษที่ 21 นอกจากนี้ สำหรับผู้กำหนดนโยบาย ผลการวิจัยนี้สามารถเป็นหลักฐานสำคัญที่สนับสนุนการนำโปรแกรมการเสริมสร้างสติไปใช้ในนโยบายการศึกษา ซึ่งช่วยส่งเสริมแนวทางการพัฒนาเด็กแบบองค์รวม เมื่อเวลาผ่านไป สิ่งนี้อาจนำไปสู่การเปลี่ยนแปลง ทำให้การฝึกสติเป็นส่วนหนึ่งของการศึกษา

เอกสารอ้างอิง

กองทุนเพื่อความเสมอภาคทางการศึกษากสศ. (2565). ผลสำรวจล่าสุดกรมอนามัย สอดคล้องผลวิจัย กสศ.พบ 1 ใน 4 เด็กปฐมวัยพัฒนาล่าช้า ชี้โจทย์สำคัญเปิดเทอมใหม่ 2/2565. สืบค้นเมื่อ 1 มีนาคม 2568, จาก https://www.eef.or.th/news-tsqp-011122/

ณภัสสร อมรวงศ์วณิช (2566). ผลของโปรแกรมการเล่นประกอบดนตรีต่อการเสริมสร้างความสามารถทางปัญญา ในการจัดการพฤติกรรมของเด็กวัยอนุบาล (วิทยานิพนธ์ปริญญาศิลปศาสตรมหาบัณฑิต). จุฬาลงกรณ์มหาวิทยาลัย, กรุงเทพ.

พิมพ์จุฑา นิมมาภิรัตน์, และ พรรณระพี สุทธิวรรณ. (2560). การทดสอบคุณภาพการวัดทางจิตวิทยาของแบบประเมินหัว–เท้า–เข่า–ไหล่ ฉบับภาษาไทย. ใน การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติทางจิตวิทยา “ชีวิตดี เปลี่ยนได้ ด้วยศาสตร์แห่งใจ” (หน้า 67-76). กรุงเทพฯ: โรงพิมพ์ไอบุ๊คเล็ท.

อริสรา แก้วม่วง, พรรณระพี สุทธิวรรณ, และ สมโภชน์ เอี่ยมสุภาษิต. (2566). ผลของโปรแกรมการเต้นซีแอนด์ซีต่อการเสริมสร้างความสามารถทางปัญญาในการจัดการพฤติกรรมของเด็กวัยอนุบาล. ในการประชุมวิชาการ มิติใหม่แห่งนวัตกรรมการเรียนรู้และเทคโนโลยีดิจิทัล ภาควิชาเทคโนโลยีการศึกษา คณะศึกษาศาสตร์ มหาวิทยาลัยรามคำแหง, กรุงเทพมหานคร.

Best, J. R., & Miller, P. H. (2010). A developmental perspective on executive function. Child Development, 81(6), 1641-1660.

Bockmann, J. O., & Yu, S. Y. (2023). Using mindfulness-based interventions to support self-regulation in young children: A review of the literature. Early Childhood Education Journal, 51(3), 693–703. https://doi.org/10.1007/s10643-022-01333-2

Bodhi, B. (2011). What does mindfulness really mean? A canonical perspective. Contemporary Buddhism, 12(1), 19–39.

Brown, S. W., & Perreault, S. T. (2017). Relation between temporal perception and inhibitory control in the Go/No-Go task. Acta Psychologica, 173, 87-93. https://doi.org/10.1016/j.actpsy.2016.12.004

Center on the Developing Child at Harvard University (2011). Building the brain’s “air traffic control” system: How early experiences shape the development of executive function. Working Paper No. 11. Retrieved from https://www.developingchild.harvard.edu

Diamond, A. (2013). Executive functions. Annual Review of Psychology, 64, 135–168. https://doi.org/10.1146/annurev-psych-113011-143750

Flook, L., Goldberg, S. B., Pinger, L., & Davidson, R. J. (2015). Promoting prosocial behavior and self-regulatory skills in preschool children through a mindfulness-based Kindness Curriculum. Developmental psychology, 51(1), 44.

Garon, N., Bryson, S. E., & Smith, I. M. (2008). Executive function in preschoolers: A review using an integrative framework. Psychological Bulletin, 134(1), 31.

Howard, S. J., & Melhuish, E. (2017). An early years toolbox for assessing early executive function, language, self-regulation, and social development: Validity, reliability, and preliminary norms. Journal of Psychoeducational Assessment, 35(3), 255-275.

Huxter, M. (2015). Mindfulness and the Buddha's Noble Eightfold Path. In E. Shonin, W. Van Gordon, & N. N. Singh (Eds.), Buddhist foundations of mindfulness (pp. 29 - 53). Springer.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. Clinical Psychology: Science and Practice, 10(2), 144–156.

Koffman, J. (2012). To see the truth: Teachings of Venerable Pramote Pamojjo. Chonburi: Suan Santidham.

McClelland, M. M., Cameron, C. E., Duncan, R., Bowles, R. P., Acock, A. C., Miao, A., & Pratt, M. E. (2014). Predictors of early growth in academic achievement: The head-toes-knees-shoulders task. Frontiers in Psychology, 5, 599.

McClelland, M. M., Geldhof, G. J., Cameron, C. E., & Wanless, S. B. (2015). Development and self-regulation. In W. F. Overton, P. C. M. Molenaar, & R. M. Lerner (Eds.), Handbook of child psychology and developmental science: Theory and method (7th ed., pp. 523–565). Hoboken, NJ: John Wiley & Sons, Inc.

Montroy, J. J., Bowles, R. P., Skibbe, L. E., McClelland, M. M., & Morrison, F. J. (2016). The development of self-regulation across early childhood. Developmental Psychology, 52(11), 1744–1762. http://dx.doi.org/10.1037/dev0000159

Meiklejohn, J., Phillips, C., Freedman, M. L., Griffin, M. L., Biegel, G., Roach, A., Frank, J., Burke, C., Pinger, L., & Soloway, G. (2012). Integrating mindfulness training into K-12 education: Fostering the resilience of teachers and students. Mindfulness, 3(4), 291-307. https://doi.org/10.1007/s12671-012-0094-5

Ponitz, C. E. C., McClelland, M. M., Jewkes, A. M., Connor, C. M., Farris, C. L., & Morrison, F. J. (2008). Touch your toes! Developing a direct measure of behavioral regulation in early childhood. Early Childhood Research Quarterly, 23(2), 141-158. https://doi.org/10.1016/j.ecresq.2007.01.004

Poehlmann-Tynan, J., Vigna, A. B., Weymouth, L. A., Gerstein, E. D., Burnson, C., Zabranksky, M., Lee, P., & Zahn-Waxler, C. (2016). A pilot study of contemplative practices with economically disadvantaged preschoolers: Children's empathic and self-regulatory behaviors. Mindfulness, 7, 46–58.

https://doi.org/10.1007/s12671-015-0426-3

Razza, R.A., Uveges Linsner, R., Bergen-Cico, D., Carlson, E., & Reid, S. (2020). The Feasibility and Effectiveness of Mindful Yoga for Preschoolers Exposed to High Levels of Trauma. Journal of Child and Family Studies, 28(5), 1262-1273.

Roeser, R. W., Skinner, E., Beers, J., & Jennings, P. A. (2012). Mindfulness training and teachers' professional development: An emerging area of research and practice. Child Development Perspectives, 6(2), 167-173.

Rueda, M. R., Posner, M. I., & Rothbart, M. K. (2005). The development of executive attention: Contributions to the emergence of self-regulation. Developmental Neuropsychology, 28(2), 573–594. https://doi.org/10.1207/s15326942dn2802_2

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2013). Mindfulness-based cognitive therapy for depression (2nd ed.). The Guilford Press.

Semple, R. J., Lee, J., Rosa, D., & Miller, L. F. (2010). A randomized trial of mindfulness-based cognitive therapy for children: Promoting mindful attention to enhance social-emotional resiliency in children. Journal of Child and Family Studies, 19(2), 218-229.

Viglas, M., & Perlman, M. (2018). Effects of a mindfulness-based program on young children's self-regulation, prosocial behavior, and hyperactivity. Journal of Child and Family Studies, 27(4), 1150–1161.

Wiebe, S. A., Sheffield, T. D., & Espy, K. A. (2012). Separating the fish from the sharks: A longitudinal study of preschool response inhibition. Child Development, 83(4), 1245–1261. https://doi.org/10.1111/j.1467-8624.2012.01765.x

Zelazo, P. D., & Lyons, K. E. (2012). The potential benefits of mindfulness training in early childhood: A developmental social cognitive neuroscience perspective. Child Development Perspectives, 6(2), 154–160. https://doi.org/10.1111/j.1750-8606.2012.00241.

การพัฒนาแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ.2562 ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู

The Development of a Standardized Knowledge Test Based on the 2019 Professional Teaching Standards in the Area of Assessment for Pre-Service Teachers Preparing for the Teaching License Examination

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บทคัดย่อ

การวิจัยเรื่องการพัฒนาแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ. 2562 ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู มีวัตถุประสงค์เพื่อพัฒนาแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู ด้านการประเมินค่าสำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู กลุ่มเป้าหมายที่ใช้ในการวิจัย คือ นักศึกษาคณะศึกษาศาสตร์ ครุศาสตร์ ที่เตรียมเข้ารับการทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู ด้านการประเมินค่า ตามมาตรฐานวิชาชีพครุสภา จำนวน 100 คน เครื่องมือที่ใช้ในการวิจัยครั้งนี้เป็นแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู ด้านการประเมินค่า มีลักษณะเป็นแบบทดสอบปรนัย เลือกตอบ 5 ตัวเลือก จำนวน 1 ฉบับ แบบทดสอบด้านการประเมินค่า จำนวน 46 ข้อและสถิติที่ใช้ในวิเคราะห์ข้อมูล ได้แก่ ดัชนีความสอดคล้อง ค่าความยาก ค่าอำนาจจำแนก และค่าความเชื่อมั่นของแบบทดสอบทั้งฉบับ แบบคูเดอร์-ชาร์ดสัน (KR-20) วิเคราะห์โดยใช้โปรแกรม Microsoft Excel

ผลการวิจัย พบว่า แบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู มีค่าดัชนีความสอดคล้อง อยู่ระหว่าง 0.67–1.00 ค่าความยาก อยู่ระหว่าง 0.22 – 0.80 ค่าอำนาจจำแนกอยู่ระหว่าง 0.22-0.59 และค่าความเชื่อมั่นของแบบทดสอบทั้งฉบับ เท่ากับ 0.85

คำสำคัญ: แบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครูด้านการประเมินค่า, เกณฑ์มาตรฐานวิชาชีพของคุรุสภา

Abstract

This research aims to develop a standardized knowledge test based on the 2019 professional teaching standards in the area of assessment for pre-service teachers preparing for the teaching license examination. The study involved 100 education and teacher training students preparing for the standardized knowledge test on assessment, as required by the Teachers' Council of Thailand. The test consists of 46 multiple-choice questions with five answer choices, and data analysis was conducted using Microsoft Excel. The statistical analysis included the index of item-objective congruence (IOC), item difficulty (P), item discrimination (D), and test reliability using Kuder-Richardson Formula 20 (KR-20). The results indicate that the test has an IOC range of 0.67–1.00, item difficulty ranging from 0.22 to 0.80, item discrimination between 0.22 and 0.59, and an overall reliability of 0.85, demonstrating its validity and reliability for assessing pre-service teachers' knowledge in assessment according to the professional teaching standards.

Keywords: a standardized test of knowledge based on teaching professional standards in assessments, Teachers' Council of Thailand Professional Standards Criteria

บทนำ

ด้วยบทบัญญัติด้านการศึกษาตามรัฐธรรมนูญแห่งราชอาณาจักรไทย พุทธศักราช 2560 ที่เกี่ยวข้องกับการพัฒนาสมรรถนะและองค์ความรู้ตามมาตรฐานวิชาชีพครู สำหรับผู้ประกอบวิชาชีพครู มี 3 มาตรา ได้แก่ มาตรา 50 (4) ที่กำหนดให้ บุคคลมีหน้าที่เข้ารับการศึกษาอบรมในการศึกษาภาคบังคับ มาตรา 54 ที่กำหนดให้รัฐต้องดำเนินการให้เด็กทุกคนได้รับการศึกษาเป็นเวลา 12 ปี พระราชบัญญัติการศึกษาแห่งชาติ พ.ศ. 2542 เป็นกฎหมายที่เกี่ยวกับการศึกษาของชาติ หมวดที่ 4 ว่าด้วยแนวการจัดการศึกษา มาตรา 22 การจัดการศึกษาต้องยึดหลักว่าผู้เรียนทุกคนมีความสามารถในการเรียนรู้และพัฒนาตนเองได้และถือว่าผู้เรียนมีความสำคัญที่สุดกระบวนการจัดการศึกษาต้องส่งเสริมให้ผู้เรียนสามารถพัฒนาตามธรรมชาติและเต็มตามศักยภาพ หมวดที่ 9 ว่าด้วยเทคโนโลยีเพื่อการศึกษา มาตรา 66 ผู้เรียนมีสิทธิได้รับการพัฒนาขีดความสามารถในการใช้เทคโนโลยี เพื่อการศึกษาในการแสวงหาความรู้ด้วยตนเองได้อย่างต่อเนื่องตลอดชีวิต เป็นการเปลี่ยนแปลงการจัดกระบวนการเรียนรู้ (สำนักงานคณะกรรมการการศึกษาแห่งชาติ, 2545) ครูผู้สอนต้องพัฒนาตนเองเพื่อให้เป็นครูในยุคปฏิรูปการเรียนรู้ได้อย่างมีประสิทธิภาพ ซึ่งคุณลักษณะของพลเมืองไทยในยุคศตวรรษที่ 21 จำเป็นต้องมีความพร้อม ทั้งกาย ใจ สติปัญญา มีพัฒนาการที่ดีรอบด้านรวมถึงการมีทักษะที่จำเป็นในศตวรรษที่ 21 กำหนดสมรรถนะและองค์ความรู้ของสมรรถนะผู้ประกอบวิชาชีพครูในยุคศตวรรษที่ 21 ตามมาตรฐานวิชาชีพด้านความรู้และประสบการณ์วิชาชีพ ด้านการปฏิบัติงาน และด้านการปฏิบัติตน

เป้าหมายของการจัดการศึกษาตามเจตนารมณ์ของรัฐธรรมนูญ คือ การทำให้ผู้เรียนใฝ่หาความรู้อยู่เสมอ มีความรับผิดชอบ มีวินัย เพื่อทำงานได้อย่างมีประสิทธิภาพและดำรงชีวิตในสังคมปัจจุบันได้ 2 อย่างมีความสุข และเป็นหลักในการพัฒนาประเทศ เป้าหมายดังกล่าวเป็นความท้าทายที่จะสำเร็จได้ต้องอาศัยผู้ประกอบวิชาชีพครูที่มีคุณภาพ การผลิตผู้ประกอบวิชาชีพครูที่มีคุณภาพ จำเป็นที่จะต้องอาศัยความร่วมมือกันระหว่างสถาบันอุดมศึกษาที่ผลิตครูและคุรุสภา เพื่อทำให้ผู้ประกอบวิชาชีพครูมีคุณลักษณะอันพึงประสงค์ตรงตามมาตรฐานวิชาชีพ (สำนักงานเลขาธิการสภาผู้แทนราษฎร, 2561) สอดคล้องกับกฎหมายและนโยบายที่เกี่ยวข้องกับวิชาชีพครูเป็นเครื่องมือสำคัญสำหรับใช้สร้างมาตรฐานให้กับวิชาชีพครูและทำให้วิชาชีพครูน่าเชื่อถือ เป็นที่ยอมรับของทุกภาคส่วนในสังคม กฎหมายและนโยบายที่เกี่ยวข้องที่สอดคล้องและเชื่อมโยงโดยตรงกับบทบัญญัติด้านการศึกษาตามรัฐธรรมนูญแห่งราชอาณาจักรไทย พุทธศักราช 2560 และยุทธศาสตร์ชาติ (พ.ศ. 2561 – 2580)

เพื่อให้การเปลี่ยนแปลงบทบาทของผู้ประกอบวิชาชีพครู ให้สามารถสร้างคนไทยให้มีทักษะที่จำเป็นในยุคศตวรรษที่ 21 ประสบความสำเร็จ จึงได้มีการกำหนดมาตรฐานวิชาชีพครู ได้แก่ 3 ด้าน มาตรฐานความรู้และประสบการณ์วิชาชีพ มาตรฐานการปฏิบัติงาน และมาตรฐานการปฏิบัติตนตามพระราชบัญญัติสภาครูและบุคลากรทางการศึกษา พ.ศ. 2546 สำนักงานเลขาธิการคุรุสภาทำหน้าที่กำหนดมาตรฐานวิชาชีพครูที่ควรจะมีในยุคศตวรรษที่ 21 เพื่อใช้พัฒนาและส่งเสริมผู้ประกอบวิชาชีพครูให้สามารถเรียนรู้ได้

สำนักงานเลขาธิการคุรุสภาเป็นหน่วยงานที่ดูแล กำกับ ผู้ประกอบวิชาชีพครู ได้กำหนดข้อบังคับคุรุสภา ว่าด้วยมาตรฐานวิชาชีพ พ.ศ. 2556 และที่แก้ไขเพิ่มเติม ฯลฯ ตามประกาศคณะกรรมการคุรุสภา ว่าด้วยมาตรฐานวิชาชีพ (ฉบับที่ 4) พ.ศ. 2562 มาตรฐานวิชาชีพครูเป็นหลักสำคัญสำหรับผู้ประกอบอาชีพครู ทุกคนพึงเข้าใจอย่างกระจ่างชัด เพื่อจะเป็นแนวทางการปฏิบัติตนให้เหมาะสมกับความเป็นครูและย่อมส่งผลต่อการปลูกฝังและพัฒนาศิษย์ซึ่งเป็นเยาวชนของชาติให้มีความรู้ ทักษะ และคุณลักษณะอันพึงประสงค์ มาตรฐานวิชาชีพครู มี 3 ด้าน ด้านความรู้และประสบการณ์วิชาชีพครู ด้านการปฏิบัติงาน ด้านการปฏิบัติตน (จรรยาบรรณของวิชาชีพ) โดยผู้ที่เป็นครูทุกคนพึงมีความรู้และประสบการณ์วิชาชีพ มาตรฐานความรู้ต้องมีความรอบรู้และเข้าใจในเรื่องต่อไปนี้ (1) การเปลี่ยนแปลงบริบทของโลกสังคม และแนวคิดของปรัชญาเศรษฐกิจพอเพียง (2) จิตวิทยาพัฒนาการจิตวิทยาการศึกษาและจิตวิทยาให้คำปรึกษาเพื่อวิเคราะห์และพัฒนาผู้เรียนตามสมรรถนะ (3) เนื้อหาวิชาที่สอน หลักสูตรศาสตร์การสอน และเทคโนโลยีดิจิทัลในการจัดการเรียนรู้ (4) การวัดประเมินผลการเรียนรู้และการวิจัยเพื่อแก้ปัญหาและพัฒนาผู้เรียน (5) การใช้ภาษาไทย ภาษาอังกฤษเพื่อการสื่อสารและการใช้เทคโนโลยีดิจิทัลเพื่อการศึกษา และ (6) การออกแบบ และการดำเนินการเกี่ยวกับงานประกันคุณภาพการศึกษาซึ่งสำนักงานเลขาธิการคุรุสภา ทำหน้าที่พัฒนาสมรรถนะและองค์ความรู้ตามมาตรฐานวิชาชีพครู สำหรับผู้ประกอบวิชาชีพครูในยุคศตวรรษที่ 21 เพื่อให้คุรุสภานำ องค์ความรู้ที่ได้ไปใช้พัฒนาผู้ประกอบวิชาชีพครูให้มีสมรรถนะการจัดการเรียนรู้ที่สามารถสร้างคนไทยให้มี ทักษะที่จำเป็นในยุคศตวรรษที่ 21 มีการกำหนดแนวทางให้ผู้ประกอบวิชาชีพครูต้องสามารถปฏิบัติการสอนในสถานศึกษา และมีการกำหนดสมรรถนะด้านประเมินค่าไว้เป็น มาตรฐานขั้นต่ำความรู้และประสบการณ์วิชาชีพ มาตรฐานการปฏิบัติงาน และมาตรฐานการปฏิบัติตน เพื่อความก้าวหน้าในวิชาชีพเป็นครูในศตวรรษที่ 21 ด้วยคุณสมบัติในการประกอบวิชาชีพครูต้องมีส่วนร่วมในการจัดการเรียนรู้ มีความสามารถในการสื่อสารกับผู้เรียน เข้าใจวัฒนธรรมของผู้เรียนที่มีความแตกต่างกัน สามารถวัดและประเมินผลการเรียนรู้เพื่อติดตามความก้าวหน้า ให้คำแนะนำกับผู้เรียนเพื่อให้สามารถพัฒนา ตนเองได้อย่างต่อเนื่อง มีจิตวิทยาความเป็นครูในการจัดการปัญหาของ

ผู้เรียน สามารถทำวิจัยเพื่อพัฒนา กระบวนการจัดการเรียนรู้ได้ นวัตกรรม และเทคโนโลยีสารสนเทศทางการศึกษา มีความเป็นครู เป็นผู้มีความรู้ตามมาตรฐานความรู้ มีประสบการณ์วิชาชีพครู ประกาศคณะกรรมการคุรุสภา พ.ศ. 2562 (2562)

ปัจจุบันคุรุสภาได้ปรับปรุงมาตรฐานการสอบใบประกอบวิชาชีพครูให้มีความเข้มข้นมากขึ้น เพื่อให้ได้ครูที่มีคุณภาพอย่างแท้จริง เพื่อให้ผู้เข้าสอบต้องมีความรู้ความสามารถในหลายด้าน ทั้งด้านวิชาชีพครู เนื้อหาที่สอน และทักษะการจัดการเรียนรู้และนำแนวคิดการประเมินค่าด้านที่ 4 ของ SOLO Taxonomy (Structure of Observed Learning Outcome) ระดับ Relational หมายถึง การที่ผู้เรียนสามารถเชื่อมโยงความรู้และแนวคิดต่าง ๆ เข้าด้วยกันได้อย่างมีความหมายและเป็นระบบ โดยไปใช้งานในชั้นเรียนนั้นต้องการกระบวนการที่สามารถประเมินความสามารถของผู้เรียนในการเชื่อมโยงและอธิบายความสัมพันธ์ระหว่างแนวคิดต่าง ๆ มีการกำหนดเป้าหมายการเรียนรู้ที่ชัดเจน ออกแบบกิจกรรมการเรียนรู้ ใช้คำถามที่เชื่อมโยงแนวคิดประเมินผลการเรียนรู้ ให้ข้อมูลป้อนกลับที่สร้างสรรค์ ปรับปรุงการสอนตามผลการประเมิน (พอล เมน, 2564) มาใช้ในการสอบใบประกอบวิชาชีพครู เพื่อวัดระดับความเข้าใจของผู้เข้าสอบในด้านต่าง ๆ เช่น ความรู้ในเนื้อหาวิชาที่สอน ความรู้ในหลักสูตรและการจัดการเรียนรู้ ความรู้ในกฎหมายและระเบียบที่เกี่ยวข้องกับการศึกษา ความสามารถในการวิเคราะห์ สังเคราะห์ และประเมินสถานการณ์ทางการศึกษา ในการสอบใบประกอบวิชาชีพครู ช่วยให้คุรุสภาสามารถประเมินความสามารถของผู้เข้าสอบได้อย่างครอบคลุมและเป็นระบบ ทำให้ได้ครูที่มีคุณภาพและมีความพร้อมในการปฏิบัติหน้าที่ จึงปรับปรุงมาตรฐานการสอบใบประกอบวิชาชีพครูให้มีความเข้มข้นมากขึ้น เพื่อให้ได้ครูที่มีคุณภาพอย่างแท้จริง ผู้เข้าสอบต้องมีความรู้ความสามารถในหลายด้าน ทั้งด้านวิชาชีพครู เนื้อหาที่สอน และทักษะการจัดการเรียนรู้

ดังนั้น ครูมืออาชีพต้องมีความรู้ ทักษะ ตลอดจนสมรรถนะ สามารถศึกษาและแยกแยะประเมินค่าผู้เรียนได้ตามความแตกต่างของผู้เรียน ด้านการจัดทำแผนการเรียนรู้ ปฏิบัติการสอน การจัดทำโครงงานทางวิชาการ การจัดการเรียนรู้ในสาขาวิชาเฉพาะ การวัดและประเมินผล ปรับปรุง พัฒนาการจัดการเรียนรู้ให้เหมาะสมกับศักยภาพของผู้เรียน การจัดทำวิจัยในชั้นเรียนเพื่อพัฒนาผู้เรียน และการจัดทำรายงานผลการจัดการเรียนรู้และพัฒนาผู้เรียน ผู้ที่มีอาชีพครูทุกคนมีความภูมิใจในอาชีพตน และดำเนินชีวิตให้เป็นไปตามบรรทัดฐานความคาดหวังของสมาชิกในสังคม โดยยึดแนวทางการปฏิบัติตามตามมาตรฐานวิชาชีพครูเป็นกิจวัตร ซึ่งถ้าปฏิบัติได้อย่างปกติในวิถีชีวิตแล้ว ย่อมควรแก่การยกย่องสรรเสริญสมกับคำกล่าว “ครูคือปูชนียบุคคล”

ด้วยเหตุปัจจัยหลาย ๆ อย่างดังกล่าว และปัจจุบันยังขาดเครื่องมือที่ใช้ในการวัดและทดสอบคุณภาพ ด้านประเมินค่าความรู้ตามมาตรฐานวิชาชีพครู จึงทำให้ผู้วิจัยมีความสนใจในการสร้างและพัฒนาแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ. 2562 ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู และเพื่อใช้เป็นแนวทางในการสอบขอรับใบประกอบวิชาชีพครูต่อไป

วัตถุประสงค์ของการวิจัย

เพื่อพัฒนาแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ. 2562 ด้านการประเมินค่าสำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู

แนวคิด ทฤษฎี กรอบแนวคิด

ผู้วิจัยได้ศึกษาเอกสาร แนวคิด ทฤษฎีและงานวิจัยที่เกี่ยวข้อง ดังนี้

มาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ.2562

มาตรฐานวิชาชีพ หมายถึง จุดมุ่งหมายหลักที่จะสร้างแนวทางปฏิบัติรวมทั้งส่งเสริมให้มีการปฏิบัติตามมาตรฐานวิชาชีพ และจรรยาบรรณของวิชาชีพ เพื่อให้เกิดความมั่นใจในวิชาชีพของผู้ปฏิบัติส่งผลให้การปฏิบัติงานอาชีพมีคุณภาพสูง โดยแต่ละวิชาชีพ ย่อมให้บริการแก่สาธารณชน หรือองค์กรต่าง ๆ โดยต้องอาศัยความรู้ ความชำนาญเฉพาะ โดยมีมาตรฐาน ในการประกอบอาชีพที่ผู้ประกอบวิชาชีพจะต้องได้รับการฝึกอบรมทั้งภาคทฤษฎีและภาคปฏิบัติอย่างเพียงพอก่อนที่จะประกอบอาชีพ (สำนักงานเลขาธิการคุรุสภา, 2550)

วิชาชีพที่มีมาตรฐานจึงได้รับการยกย่องให้เป็นวิชาชีพชั้นสูงเพราะผู้ประกอบวิชาชีพ นอกจากต้องมีความรู้ และทักษะในวิชาชีพแล้ว ยังต้องมีความรับผิดชอบสูง เพราะเกี่ยวข้องกับผู้รับบริการและสาธารณชน จึงต้องมีการควบคุม การประกอบวิชาชีพเป็นพิเศษ เพื่อให้เกิดความมั่นใจต่อผู้รับบริการ โดยผู้ประกอบวิชาชีพต้องประกอบวิชาชีพด้วยวิธีการแห่งปัญญาได้รับการศึกษาอบรมมายาวนานเพียงพอ มีอิสระในการใช้วิชาชีพตามมาตรฐานวิชาชีพ และมีจรรยาบรรณของวิชาชีพ รวมทั้งต้องมีสถาบันวิชาชีพหรือองค์กรวิชาชีพที่เป็นแหล่งกลางในการสร้างสรรค์และจรรโลงวิชาชีพด้วย

วิชาชีพครูเป็นวิชาชีพชั้นสูงที่ต้องใช้ระยะเวลาในการศึกษาวิทยาการ การฝึกฝน การอบรมให้มีความชำนาญ มีจรรยาบรรณแห่งวิชาชีพและมีองค์กรควบคุมมาตรฐานวิชาชีพ ดังนั้นผู้ที่ประกอบวิชาชีพครูจะต้องมีคุณลักษณะและคุณสมบัติที่แตกต่างจากวิชาชีพอื่น ๆ เพราะเป็นวิชาชีพที่ต้องรับภาระสำคัญในการพัฒนาทรัพยากรมนุษย์ สังคม และประเทศ (สุกัญญา ทองนาค, 2555)

มาตรฐานวิชาชีพทางการศึกษา หมายความว่า ข้อกำหนดเกี่ยวกับคุณลักษณะ และคุณภาพที่พึงประสงค์ในการประกอบวิชาชีพทางการศึกษา ซึ่งผู้ประกอบวิชาชีพทางการศึกษาต้องประพฤติปฏิบัติตาม โดยคุณลักษณะของวิชาชีพตามเกณฑ์มาตรฐานวิชาชีพ (คุรุสภา) ประกาศคณะกรรมการคุรุสภา พ.ศ. 2562 (2562) ข้อบังคับคุรุสภา ว่าด้วยมาตรฐานวิชาชีพ (ฉบับที่ 4) พ.ศ. 2562 ประกอบด้วย 3 มาตรฐาน คือ มาตรฐานความรู้และประสบการณ์วิชาชีพ, มาตรฐานการปฏิบัติงาน และมาตรฐานการปฏิบัติตน

1. มาตรฐานความรู้และประสบการณ์วิชาชีพ หมายความว่า ข้อกำหนดเกี่ยวกับความรู้และประสบการณ์ในการจัดการ เรียนรู้ หรือการจัดการศึกษา ซึ่งผู้ประกอบวิชาชีพทางการศึกษา รวมทั้งผู้ต้องการประกอบวิชาชีพทางการศึกษา ต้องมีเพียงพอ ที่สามารถนำไปใช้ในการประกอบวิชาชีพได้

2. มาตรฐานการปฏิบัติงาน หมายความว่า ข้อกำหนดเกี่ยวกับคุณลักษณะหรือการแสดงพฤติกรรมการปฏิบัติงาน และการพัฒนางาน ซึ่งผู้ประกอบวิชาชีพทางการศึกษา รวมทั้งผู้ต้องการประกอบวิชาชีพทางการศึกษาต้องปฏิบัติตามเพื่อให้เกิดผล ตามวัตถุประสงค์และเป้าหมายการเรียนรู้หรือการจัดการศึกษา รวมทั้งต้องฝึกฝนพัฒนาตนเองให้มีทักษะหรือความชำนาญสูงขึ้นอย่างต่อเนื่อง

3. มาตรฐานการปฏิบัติตน หมายความว่า จรรยาบรรณของวิชาชีพที่กำหนดขึ้นเป็นแบบแผนในการประพฤติปฏิบัติตน ซึ่งผู้ประกอบวิชาชีพทางการศึกษา รวมทั้งผู้ต้องการประกอบวิชาชีพทางการศึกษา ต้องยึดถือปฏิบัติตาม เพื่อรักษาและส่งเสริม เกียรติคุณชื่อเสียง และฐานะของผู้ประกอบวิชาชีพทางการศึกษา ให้เป็นที่เชื่อถือศรัทธาแก่ผู้รับบริการและสังคม อันจะนำมาซึ่ง เกียรติ และศักดิ์ศรีแห่งวิชาชีพ

สำนักงานเลขาธิการคุรุสภา ออกประกาศคณะกรรมการคุรุสภากำหนดรายละเอียดสาระความรู้และสมรรถนะตามมาตรฐานความรู้และประสบการณ์วิชาชีพครู มาตรฐานวิชาชีพ (ฉบับที่ 4) พ.ศ. 2562 ดังนี้

1. มาตรฐานความรู้ ประกอบด้วย

1.1 การเปลี่ยนแปลงบริบทของโลก สังคม และแนวคิดของปรัชญาเศรษฐกิจพอเพียง

1.2 จิตวิทยาพัฒนาการ จิตวิทยาการศึกษา และจิตวิทยาให้คำปรึกษาในการ วิเคราะห์ และพัฒนาผู้เรียนตาม ศักยภาพ

1.3 เนื้อหาวิชาที่สอน หลักสูตร ศาสตร์การสอน และเทคโนโลยีดิจิทัล ในการจัดการเรียนรู้

1.4 การวัดประเมินผลการเรียนรู้ และการวิจัยเพื่อแก้ปัญหา และพัฒนาผู้เรียน

1.5 การใช้ภาษาไทย ภาษาอังกฤษเพื่อการสื่อสาร และการใช้เทคโนโลยีดิจิทัลเพื่อการศึกษา

1.6 การออกแบบ และการดำเนินการเกี่ยวกับงานประกันคุณภาพการศึกษา

2. มาตรฐานประสบการณ์วิชาชีพ ประกอบด้วย

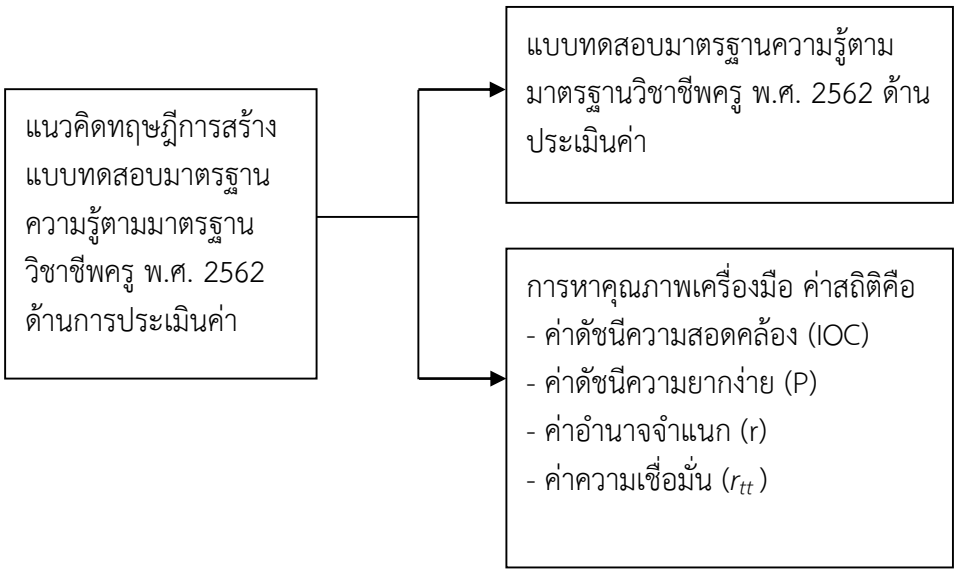
2.1 การปฏิบัติตามมาตรฐานการปฏิบัติงานของผู้ประกอบวิชาชีพครู

2.2 การปฏิบัติตนตามจรรยาบรรณของวิชาชีพครู

ผู้ประกอบวิชาชีพทางการศึกษา ต้องมีมาตรฐานการปฏิบัติตนตามข้อบังคับคุรุสภาว่าด้วยจรรยาบรรณของวิชาชีพ การสอบใบประกอบวิชาชีพครู เพื่อวัดระดับความเข้าใจของผู้เข้าสอบในด้านความรู้ในเนื้อหาวิชาที่สอน ด้านความรู้ในหลักสูตรและการจัดการเรียนรู้ ด้านความรู้ในกฎหมายและระเบียบที่เกี่ยวข้องกับการศึกษา และความสามารถในการวิเคราะห์ สังเคราะห์ และประเมินสถานการณ์ทางการศึกษา โดยการใช้แนวคิด SOLO Taxonomy ในการสอบใบประกอบวิชาชีพครู ช่วยให้คุรุสภาสามารถประเมินความสามารถของผู้เข้าสอบได้อย่างครอบคลุมและเป็นระบบ ทำให้ได้ครูที่มีคุณภาพและมีความพร้อมในการปฏิบัติหน้าที่

กรอบแนวคิดการวิจัย

จากการทบทวนแนวคิด ทฤษฎี ผู้วิจัยจึงนำมาเป็นกรอบแนวคิดการวิจัยครั้งนี้ ดังภาพที่ 1



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

ประชากร

ประชากรที่ใช้ในการวิจัยครั้งนี้ คือ นักศึกษาสาขาวิชาชีพครูที่กำลังศึกษาอยู่ในหลักสูตรครุศาสตร์/ศึกษาศาสตร์ ทั้งในระดับปริญญาตรี ที่เตรียมเข้ารับการทดสอบตามมาตรฐานวิชาชีพครูด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู

กลุ่มตัวอย่าง นักศึกษาสาขาวิชาชีพครูที่กำลังศึกษาอยู่ในหลักสูตรครุศาสตร์/ศึกษาศาสตร์ ทั้งในระดับปริญญาตรี ที่เตรียมเข้ารับการทดสอบตามมาตรฐานวิชาชีพครูด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู จังหวัดเชียงใหม่ โดยวิธีการสุ่มตัวอย่างเจาะจง (Purposive Sampling) จำนวน 100 คน เป็นนักศึกษาที่กำลังศึกษาอยู่ในหลักสูตรครุศาสตร์/ศึกษาศาสตร์ ระดับปริญญาตรี ในจังหวัดเชียงใหม่

การหาคุณภาพของเครื่องมือ

การพัฒนาแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ. 2562 ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู ในครั้งนี้ ผู้วิจัยให้ความสำคัญกับการหาคุณภาพของเครื่องมือวัดที่มีคุณลักษณะหลายประการ เช่น ความตรงเชิงเนื้อหา ความยากง่ายของแบบทดสอบ อำนาจจำแนกเป็นรายข้อ เป็นต้น จากนั้นได้พิจารณาว่า เครื่องมือใดที่มีความเหมาะสมที่จะนำมาใช้งานได้หรือไม่โดยพิจารณาจากตัวบ่งชี้คุณภาพที่สำคัญของเครื่องมือนั้น ๆ ซึ่งมีรายละเอียดดังนี้

1. อำนาจจำแนก (Discrimination) หมายถึง ประสิทธิภาพของข้อคำถามในการจำแนกผู้ตอบที่มีความสามารถแตกต่างกัน การหาค่าอำนาจจำแนกของข้อคำถามรายข้อ เป็นวิธีการที่ใช้ทดสอบว่าข้อคำถามสามารถจำแนกหรือแยกกลุ่มที่เก่ง กับกลุ่มที่อ่อนออกจากกันได้ ในกรณีเครื่องมือวัดเป็นแบบทดสอบ

2. ความตรงเชิงเนื้อหา (Content Validity) หมายถึง คุณสมบัติของข้อคำถามที่สามารถวัดได้ตรงตามเนื้อหาและพฤติกรรมที่ต้องการวัด และเมื่อรวบรวมข้อคำถามทุกข้อเป็นเครื่องมือทั้งฉบับจะต้องวัดได้ครอบคลุมเนื้อหาและพฤติกรรมทั้งหมด ที่ต้องการวัดด้วย

3. ค่าความยากง่ายของแบบทดสอบ หมายถึง จำนวนร้อยละหรือสัดส่วนของคนที่ตอบถูกในข้อนั้นเมื่อเทียบกับจำนวนคนทั้งหมด

4. ความเชื่อมั่น หมายถึง เครื่องมือที่แสดงให้ทราบว่าเครื่องมือนั้นให้ผลการวัดที่คงที่ ไม่ว่าจะใช้วัดกี่ครั้งก็ตามกับกลุ่มเดิม

เครื่องมือที่ใช้ในการวิจัย

เครื่องมือที่ใช้ในการวิจัยครั้งนี้ เป็นแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ. 2562 ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู มีลักษณะปรนัย เลือกตอบ 5 ตัวเลือก จำนวน 46 ข้อ

ขั้นตอนการสร้างเครื่องมือ

1) กำหนดวัตถุประสงค์ของการสร้างแบบทดสอบ

2) ศึกษานิยาม ทฤษฎี ของการสร้างแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ. 2562 ด้านการประเมินค่าสำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู

3) สร้างแบบทดสอบเป็นปรนัยแบบเลือกตอบ 5 ตัวเลือก จำนวน 60 ข้อ ในลักษณะอิเล็กทรอนิคโดยสร้างแบบทดสอบโดยใช้โปรแกรม Google Form เพื่อใช้สอบออนไลน์ (Online) ทางอินเทอร์เน็ต

4) นำแบบทดสอบฯ เสนอผู้เชี่ยวชาญ 3 คน เพื่อพิจารณาความตรงเชิงเนื้อหา วิเคราะห์ค่าดัชนีความสอดคล้องได้ตั้งแต่ 0.67 – 1.00 จำนวน 50 ข้อ

5) นำแบบทดสอบฯ ไปทดลอง ครั้งที่ 1 นักศึกษาสาขาวิชาชีพครู หลักสูตรครุศาสตร์/ศึกษาศาสตร์ ที่สอบผ่านการทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ. 2562 ด้านการประเมินค่า แล้ววิเคราะห์ข้อสอบหาค่าความยากง่าย อำนาจจำแนก คัดเลือกข้อสอบที่อยู่ในเกณฑ์ จำนวน 46 ข้อ

6) นำแบบทดสอบฯ ไปทดลองครั้งที่ 2 กับนักศึกษาคณะศึกษาศาสตร์และคณะครุศาสตร์ที่เตรียมเข้ารับการทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ. 2562 ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครูวิเคราะห์ข้อสอบหาค่าความเชื่อมั่น คัดเลือกข้อสอบที่อยู่ในเกณฑ์ จำนวน 46 ข้อ

7) นำแบบทดสอบฯ ไปใช้ทดสอบกับนักศึกษาคณะศึกษาศาสตร์และคณะครุศาสตร์ ที่เตรียมเข้ารับการทดสอบด้านการทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ. 2562 ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู

การเก็บรวบรวมข้อมูล

ในการรวบรวมข้อมูลผู้วิจัยได้ดำเนินการเก็บรวบรวมข้อมูลตามขั้นตอน ดังนี้

1) สร้างแบบทดสอบเบื้องต้น: ผู้วิจัยได้สร้างแบบทดสอบจำนวน 60 ข้อ ครอบคลุมเนื้อหาด้านการประเมินค่าตามมาตรฐานวิชาชีพคุรุสภา

2) ผู้วิจัยนำแบบทดสอบ จำนวน 60 ข้อ เสนอผู้เชี่ยวชาญ จำนวน 3 คน ตรวจสอบความตรงเชิงเนื้อหาเพื่อประเมินความตรงเชิงเนื้อหา โดยพิจารณาค่าดัชนีความสอดคล้อง (Index of item objective congruence : IOC) ผลการตรวจสอบ พบว่าข้อสอบข้อที่มีค่า IOC อยู่ในเกณฑ์ที่ยอมรับได้จำนวน 50 ข้อ ซึ่งแสดงว่ามีความตรงเชิงเนื้อหา และได้ดำเนินการแก้ไขตามข้อเสนอแนะของผู้เชี่ยวชาญ ผู้วิจัยนำแบบทดสอบ จำนวน 50 ข้อ ไปทดลองใช้กับนักศึกษาคณะศึกษาศาสตร์และคณะครุศาสตร์ที่สอบผ่านการทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ. 2562 รอบที่ 2 เดือน พฤศจิกายน 2567 จำนวน 100 คน วัตถุประสงค์เพื่อหาค่าความยากง่ายและค่าอำนาจจำแนกของแบบทดสอบแต่ละข้อ โดยผลการวิเคราะห์ ค่าความยากง่าย ของข้อสอบส่วนใหญ่มีค่าความยากง่ายอยู่ในช่วง (... เช่น 0.30 - 0.70) ซึ่งถือว่าอยู่ในเกณฑ์ดี มีเพียงบางข้อที่มีค่าความยากง่ายต่ำกว่า (... เช่น 0.20) หรือสูงกว่า (... เช่น 0.80) แสดงว่าข้อสอบเหล่านั้นอาจยากหรือง่ายเกินไป ค่าอำนาจจำแนก: ข้อสอบส่วนใหญ่มีค่าอำนาจจำแนกตั้งแต่ (... เช่น 0.20) ขึ้นไป ซึ่งถือว่าอยู่ในเกณฑ์ดี มีเพียงบางข้อที่มีค่าอำนาจจำแนกต่ำ แสดงว่าข้อสอบเหล่านั้นอาจไม่สามารถแยกแยะผู้สอบที่มีความรู้ต่างกันได้

3) เพื่อหาค่าความยากง่าย และค่าอำนาจจำแนกเป็นรายข้อ

4) ผู้วิจัยคัดเลือกแบบทดสอบที่มีค่าความยากง่ายระหว่าง 0.22 – 0.80 และค่าอำนาจจำแนกตั้งแต่ 0.22 ขึ้นไป ได้จำนวน 46 ข้อ

5) ผู้วิจัยนำแบบทดสอบ จำนวน 46 ข้อ ไปใช้กับกลุ่มตัวอย่างคือผู้ที่เตรียมสอบด้านการประเมินค่าตามมาตรฐานวิชาชีพคุรุสภา รอบที่ 3 เดือนธันวาคม 2567 จำนวน 100 คน ซึ่งเป็นคนละกลุ่มกับการทดสอบในข้อที่ 3 เพื่อหาความเชื่อมั่น

6) การหาความเชื่อมั่น: ผู้วิจัยได้นำแบบทดสอบจำนวน 46 ข้อ ไปใช้กับกลุ่มตัวอย่างคือผู้ที่เตรียมสอบด้านการประเมินค่าตามมาตรฐานวิชาชีพคุรุสภารอบที่ 3 เดือนธันวาคม 2567 จำนวน 100 คน ซึ่งเป็นคนละกลุ่มกับการทดสอบในข้อที่ 3 ผลการวิเคราะห์ พบว่าแบบทดสอบมีความเชื่อมั่น ผลการพัฒนา

แบบวัดแบบทดสอบด้านการประเมินค่าตามมาตรฐานวิชาชีพคุรุสภาที่พัฒนาขึ้นนี้ มีจำนวน 46 ข้อ ผ่านการตรวจสอบความตรงเชิงเนื้อหาจากผู้เชี่ยวชาญ มีค่าความยากง่ายและอำนาจจำแนกอยู่ในเกณฑ์ดี และมีความเชื่อมั่นสูง จึงสามารถนำไปใช้ประเมินความรู้ของผู้เตรียมสอบใบประกอบวิชาชีพครูได้

การวิเคราะห์ข้อมูล

1) ข้อมูลความตรงเชิงเนื้อหา วิเคราะห์ค่าดัชนีความสอดคล้อง (IOC)

2) ข้อมูลความยากง่ายของแบบทดสอบเป็นรายข้อ วิเคราะห์ด้วยค่าดัชนีความยากง่าย (P) (พิชญ์สินี ชมภูคำ, 2553)

3) ข้อมูลค่าอำนาจจำแนกเป็นรายข้อ (r) วิเคราะห์ด้วยดัชนีค่าอำนาจจำแนก (r) (ล้วน สายยศ และอังคณา สายยศ, 2543) ข้อมูลความเชื่อมั่นของแบบทดสอบทั้งฉบับ วิเคราะห์ด้วยค่าความเชื่อมั่น (r_{tt}) ใช้สูตร KR-20 ของ Kuder Richardson

ผลการวิจัย

ตารางที่ 1 แสดงผลการวิเคราะห์ค่าความยากง่ายและค่าอำนาจจำแนก ของแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ.2562 ด้านการประเมินค่าสำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู

ข้อที่	ค่าความยากง่าย	ค่าอำนาจจำแนก	ข้อที่	ค่าความยากง่าย	ค่าอำนาจจำแนก
1	0.45	0.57	24	0.45	0.57
2	0.40	0.47	25	0.52	0.57
3	0.63	0.40	26	0.55	0.50
4	0.73	0.27	27	0.47	0.40
5	0.62	0.43	28	0.48	0.57
6	0.72	0.37	29	0.50	0.33
7	0.60	0.53	30	0.43	0.40
8	0.75	0.23	31	0.58	0.43
9	0.48	0.37	32	0.57	0.47
10	0.62	0.57	33	0.60	0.27
11	0.50	0.47	34	0.62	0.37
12	0.70	0.27	35	0.47	0.47
13	0.70	0.27	36	0.53	0.40
14	0.48	0.57	37	0.35	0.57
15	0.25	0.50	38	0.70	0.33
16	0.55	0.57	39	0.62	0.30
17	0.48	0.57	40	0.58	0.37
18	0.80	0.40	41	0.52	0.37
19	0.72	0.37	42	0.68	0.30

ตารางที่ 1 (ต่อ)

ข้อที่	ค่าความยากง่าย	ค่าอำนาจจำแนก	ข้อที่	ค่าความยากง่าย	ค่าอำนาจจำแนก
20	0.48	0.57	**43**	0.75	0.23
21	0.52	0.57	**44**	0.58	0.37
22	0.48	0.37	**45**	0.67	0.27
23	0.58	0.30	**46**	0.57	0.33

จากตารางที่ 1 แสดงผลการวิเคราะห์ ค่าความยากง่ายและค่าอำนาจจำแนกของแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ.2562 ด้านการประเมินค่าสำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู จำนวนแบบทดสอบทั้งหมด 46 ข้อ พบว่า ข้อที่สามารถใช้ได้ คือ ข้อ4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 20, 24, 25, 28, 30, 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 43, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 57, 56, 58, 59, 60 เป็นข้อสอบที่สามารถนำมาใช้กับกลุ่มประชากรได้

ตารางที่ 2 ตารางวิเคราะห์ค่าความเชื่อมั่น ของแบบทดสอบทั้งฉบับ วิเคราะห์ด้วยค่าความเชื่อมั่น (r_{tt}) ใช้สูตร KR-20 ของ Kuder Richardson

K (จำนวนแบบทดสอบที่นำมาคำนวณ) 46
S^2 (ความแปรปรวนของคะแนนรวมของแบบทดสอบ) 59.53
P (สัดส่วนของผู้ทำแบบทดสอบถูกในแต่ละข้อ) 0.57
Q (สัดส่วนของผู้ทำแบบทดสอบผิดในแต่ละข้อ) 0.43
KR-20 0.85

จากตารางที่ 2 วิเคราะห์ค่าความเชื่อมั่นของแบบทดสอบทั้งฉบับ จำนวน 46 ข้อ ผลรวมของผู้ที่ทำแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ.2562 ด้านการประเมินค่าสำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู วิเคราะห์ด้วยค่าความเชื่อมั่น (r_{tt}) ใช้สูตร KR-20 ของ Kuder Richardson เท่ากับ 0.85

สรุปผลการวิจัย

การวิจัย เรื่อง การพัฒนาการพัฒนาแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ. 2562 ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู สรุปผลได้ดังนี้

1. ได้แบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ.2562 ด้านการประเมินค่าสำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู มีลักษณะเป็นแบบทดสอบปรนัย เลือกตอบ 5 ตัวเลือก

2. ผลการพิจารณาคุณภาพแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ.2562 ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู ของผู้เชี่ยวชาญในแต่ละข้อ คำนวณความสอดคล้องกับมาตรฐานวิชาชีพคุรุสภา จำนวน 46 ข้อ วิเคราะห์หาค่าความยากอยู่ระหว่าง 0.22 – 0.80 ค่าอำนาจจำแนกอยู่ระหว่าง 0.22-0.59 และค่าดัชนีความตรงเชิงเนื้อหา อยู่ระหว่าง 0.67 – 1.00 จากนั้น

หาค่าความเชื่อมั่น ของแบบทดสอบ โดยใช้ KR-20 ซึ่งผลการประเมินความเชื่อมั่น ของแบบทดสอบเท่ากับ 0.85

อภิปรายผล

การวิจัยเรื่องการพัฒนาการพัฒนาแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ. 2562 ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู ผู้วิจัยมีประเด็นอภิปรายผลตามผลการศึกษา

1. ได้แบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ.2562 ด้านการประเมินค่าสำหรับผู้เตรียมสอบใบประกอบวิชาชีพครูมีลักษณะเป็นแบบทดสอบปรนัย เลือกตอบ 5 ตัวเลือก สอดคล้องกับ ฉัตรศิริ ปิยะพิมลสิทธิ์, ต้องตา สมใจเพ็ง และชนิศวรา เลิศอมรพงษ์ (2559) การพัฒนาแบบทดสอบตามมาตรฐานวิชาชีพครูของคุรุสภา สร้างแบบทดสอบตามมาตรฐานวิชาชีพครูของคุรุสภา จำนวน 11 ฉบับ ประกอบด้วยข้อสอบที่วัดสาระความเป็นแบบทดสอบแบบเลือกตอบ 4 ตัวเลือก จำนวน 25 ข้อ และวัดสมรรถนะเป็นข้อสอบความเรียง จำนวน 3 ข้อ สอดคล้องกับ ชลกาญจน์ ยิ้มสุข (2556) พบว่า แบบทดสอบความเที่ยงตรงเชิงเนื้อหาโดยใช้ดัชนีความสอดคล้องระหว่างข้อสอบ กับสาระการเรียนรู้ มาตราฐานและตัวชี้วัดของแบบทดสอบที่นำมาใช้จริงของแบบทดสอบ ฉบับที่ 2 ทั้งนี้เพราะจากการนำแบบทดสอบ ให้ผู้เชี่ยวชาญ 3 ท่านประเมินความสอดคล้องด้านเนื้อหาในครั้งที่ 1 มีข้อสอบผ่านเกณฑ์ จำนวน 37 ข้อ ผู้วิจัยได้ปรับปรุงแก้ไขข้อสอบตามข้อเสนอแนะของผู้เชี่ยวชาญ และนำไปให้ผู้เชี่ยวชาญประเมินครั้งที่ 2 ทำให้ได้ข้อสอบที่มีความเที่ยงตรงเป็นไปตามเกณฑ์ จำนวน 50 ข้อ จึงนำไปใช้ทดสอบกับนักศึกษากลุ่มตัวอย่าง

2. ผลการพิจารณาคุณภาพแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ.2562 ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครูของผู้เชี่ยวชาญในแต่ละข้อ คำนวณความสอดคล้องกับมาตรฐานวิชาชีพคุรุสภา พ.ศ.2562 จำนวน 46 ข้อ มีค่าดัชนีความตรงเชิงเนื้อหา อยู่ระหว่าง 0.67 – 1.00 ค่าดัชนีความยากง่ายอยู่ระหว่าง 0.22 – 0.80 ค่าอำนาจจำแนกอยู่ระหว่าง 0.22 – 0.59 และค่าความเที่ยง ของแบบทดสอบทั้งฉบับ เท่ากับ 0.85 ทั้งนี้อาจเป็นเพราะแบบทดสอบผ่านการวิเคราะห์จากมาตรฐานวิชาชีพของคุรุสภา พ.ศ.2562 และดำเนินการจัดทำแบบทดสอบโดยคณะผู้วิจัย ซึ่งมีประสบการณ์ในการจัดการเรียนรู้และพัฒนาแบบทดสอบ สอดคล้องกับผลการศึกษาของ สอดคล้องกับ พิมพ์ทอง สังสุทธิพงศ์, อังษณีภรณ์ ศรีคำสุข, ประสิทธิ์ กะตะศิลา และวัลลภา พรมท้าว (2567) ศึกษาเรื่องการพัฒนาแบบทดสอบความรู้และประสบการณ์วิชาชีพตามมาตรฐานวิชาชีพครู ด้านการวัดประเมินผลการเรียนรู้ และการวิจัยเพื่อแก้ปัญหาและพัฒนาผู้เรียน พบว่า แบบทดสอบความรู้และประสบการณ์วิชาชีพด้านการวัดประเมินผลการเรียนรู้และการวิจัยเพื่อแก้ปัญหาและพัฒนาผู้เรียน มีค่าดัชนีความตรงเชิงเนื้อ อยู่ระหว่าง 0.67 – 1.00 ค่าความยากง่ายอยู่ระหว่าง 0.2 – 0.80 ค่าอำนาจจำแนกอยู่ระหว่าง 0.2 – 1.00 และค่าความเที่ยงของแบบทดสอบทั้งฉบับ เท่ากับ 0.75 โดยผู้วิจัยสร้างแบบทดสอบที่มีลักษณะเป็นแบบทดสอบปรนัย เลือกตอบ 4 ตัวเลือก ซัมซูดิน มามะ, มัฮดี แวดราแม และจิระวัฒน์ ตันสกุล (2562) ศึกษา_เรื่องการพัฒนาแบบวัดสมรรถนะครูด้านการจัดการเรียนรู้ตามมาตรฐานวิชาชีพครู ของนักศึกษาวิชาชีพครู พบว่า แบบวัดสมรรถนะครูด้านการจัดการเรียนรู้ตามมาตรฐานวิชาชีพครูของนักศึกษาวิชาชีพครู มีข้อคำถาม จำนวน 60 ข้อ จากทั้งสิ้น 62 ข้อ จำแนกเป็น 3 สมรรถนะ คือ 1) หลักสูตร 2) ศาสตร์การสอน และ3) เทคโนโลยีในการจัดการเรียนรู้ ตรวจสอบความตรง

เชิงเนื้อหา ทุกข้อมีค่าเท่ากับ 0.60 – 1.00 วิเคราะห์ค่าอำนาจจำแนกด้วยวิธีการทดสอบค่าที t-test ได้ข้อคำถามที่ผ่านเกณฑ์การคัดเลือกจำนวน 50 ข้อ ค่าความเที่ยงเท่ากับ 0.927 สอดคล้องกับ ฉัตรศิริ ปิยะพิมลสิทธิ์, ต้องตา สมใจเพ็ง และชนิศวรา เลิศอมรพงษ์ (2559) ผลการวิเคราะห์คุณภาพของแบบทดสอบ เรื่อง การพัฒนาแบบทดสอบตามมาตรฐานวิชาชีพครูของคุรุสภา วิเคราะห์ความตรงตามเนื้อหา (Content Validity) ของแบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภาทั้ง 11 ฉบับ โดยผู้เชี่ยวชาญในเนื้อหามาตรฐานวิชาชีพครู ฉบับละ 3 คน พบว่ามีค่า IOC อยู่ระหว่าง -0.33 ถึง 1.00 โดยฉบับที่มีค่า IOC เท่ากับ 1.00 คือ ฉบับที่ 9 การวัดและประเมินผลการเรียนรู้ และฉบับที่ 10 ข้อคำถามที่มีความยากและอำนาจจำแนกอยู่ในเกณฑ์ โดยแบบทดสอบทั้ง 11 ฉบับนี้มีค่าความยากอยู่ระหว่าง 0.205 ถึง 0.798 และค่าอำนาจจำแนกอยู่ระหว่าง 0.20 ถึง 0.94 สำหรับข้อสอบที่ดีและมีคุณภาพนั้นความยากควรมีค่าอยู่ระหว่าง 0.20-0.80 และอำนาจจำแนกควรมีค่าอยู่ระหว่าง 0.20 ถึง 1.00

ข้อเสนอแนะ

1. ข้อเสนอแนะสำหรับการนำผลการวิจัยไปใช้

1.1 ควรศึกษาและสร้างแบบทดสอบในลักษณะข้อสอบอัตนัยมีสถานการณ์จำลอง ด้านการประเมินค่า เน้นเนื้อหาความรู้ตามมาตรฐานวิชาชีพครู

1.2 ควรกำหนดเวลาในการทำแบบทดสอบให้เหมาะสมกับจำนวนแบบทดสอบ

1.3 ควรสร้างแบบทดสอบโดยใช้ภาษาที่เข้าใจง่าย ปรับข้อคำถามให้สั้นและกระชับ

2. ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

2.1 ควรศึกษาวิเคราะห์ปัจจัยของการพัฒนาแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ.2562 ด้านการประเมินค่าตามมาตรฐานวิชาชีพครู

2.2 ควรมีการพัฒนาแบบวิเคราะห์ สังเคราะห์ วัดสมรรถนะวิชาชีพครูด้านประเมินค่าตามมาตรฐานวิชาชีพครูโดยแยกเป็นวิชาเอก เนื่องจากคุรุสภาอาจมีการเปลี่ยนแปลงวิชาที่สอบ

กิตติกรรมประกาศ

งานวิจัย เรื่อง การพัฒนาแบบทดสอบมาตรฐานความรู้ตามมาตรฐานวิชาชีพครู พ.ศ.2562 ด้านการประเมินค่า สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู ได้รับการสนับสนุนทุนวิจัยจากคณะศึกษาศาสตร์และศิลปศาสตร์ มหาวิทยาลัยฟาร์อีสเทอร์น คณะผู้วิจัยขอกราบขอบพระคุณมา ณ โอกาสนี้

เอกสารอ้างอิง

ฉัตรศิริ ปิยะพิมลสิทธิ์, ต้องตา สมใจเพ็ง และชนิศวรา เลิศอมรพงษ์. (2559). การพัฒนาแบบทดสอบตามมาตรฐานวิชาชีพครูของคุรุสภา. วารสารวิชาการและวิจัยสังคมศาสตร์ มหาวิทยาลัยราชภัฏนครสวรรค์, 11(33), 73-86.

ชลกาญจน์ ยิ้มสุข. (2556). การพัฒนาแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐานพุทธศักราช 2551 กลุ่มสาระการเรียนรู้ภาษาไทย ชั้นประถมศึกษาปีที่ 5 (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยศิลปกร, นครปฐม.

ซัมซูดิน มามะ, มัฮดี แวดราแม และจิระวัฒน์ ตันสกุล. (2566) การพัฒนาแบบวัดสมรรถนะครูด้านการจัดการเรียนรู้ตามมาตรฐานวิชาชีพครูของนักศึกษาครูที่มีการตรวจให้คะแนนแบบพหุวิภาค. วารสารศึกษาศาสตร์ มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตปัตตานี, 1(34), 211-222.

ประกาศคณะกรรมการคุรุสภา เรื่อง รายละเอียดของมาตรฐาน ความรู้และประสบการณ์วิชาชีพครูตามข้อบังคับคุรุสภาว่าด้วยมาตรฐานวิชาชีพ (ฉบับที่ 4) พ.ศ. 2562. (2562, 7 พฤษภาคม). ราชกิจจานุเบกษา. เล่ม 137 ตอนพิเศษ 109 ง หน้า 10.

พิชญ์สินี ชมภูคำ. (2553). สถิติเพื่อการวิจัย. คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยราชภัฏเชียงใหม่: ส.การพิมพ์.

พิมพ์ทอง สังสุทธิพงศ์, อังษณีภรณ์ ศรีคำสุข, ประสิทธิ์ กะตะศิลา และวัลลภา พรมท้าว. (2567). การพัฒนาแบบทดสอบความรู้และประสบการณ์วิชาชีพตามมาตรฐานวิชาชีพครูด้านการวัดประเมินผลการเรียนรู้และการวิจัยเพื่อแก้ปัญหาและพัฒนาผู้เรียน. ใน สัญชัย จตุรสิทธา (ประธาน), การประชุมวิชาการเสนอผลงานวิจัยระดับชาติมหาวิทยาลัยพายัพร่วมกับเครือข่ายบริหารการวิจัยภาคเหนือตอนบน สำนักงานปลัดกระทรวงการอุดมศึกษา วิทยาศาสตร์ วิจัยและนวัตกรรม พ.ศ. 2567 ครั้งที่ 14. มหาวิทยาลัยพายัพ, เชียงใหม่.

พอล เมน (2564). คู่มือสำหรับครูเกี่ยวกับ SOLO Taxonomy. สืบค้นเมื่อ 23 กุมภาพันธ์ 2568 จาก https://www.structural-learning.com/post/what-is-solo-taxonomy

ล้วน สายยศ และ อังคณา สายยศ. (2543). เทคนิคการวิจัยทางการศึกษา (พิมพ์ครั้งที่ 3). กรุงเทพฯ: สุวิริยาสาส์น.

สุกัญญา ทองนาค. (2555). การพัฒนาแบบทดสอบสมรรถนะนักศึกษาตามมาตรฐานวิชาชีพ ครูแบบพหุมิติที่มีการตรวจให้คะแนนแบบพหุวิภาค (วิทยานิพนธ์ปริญญาดุษฎีบัณฑิต). จุฬาลงกรณ์มหาวิทยาลัย, กรุงเทพฯ.

สำนักงานคณะกรรมการการศึกษาแห่งชาติ. (2545). พระราชบัญญัติการศึกษาแห่งชาติ พ.ศ. 2542 และที่แก้ไขเพิ่มเติม (ฉบับที่ 2) พ.ศ. 2545. กรุงเทพฯ: พริกหวานกราฟิค.

สำนักงานเลขาธิการสภาผู้แทนราษฎร. (2561). รัฐธรรมนูญแห่งราชอาณาจักรไทย พุทธศักราช 2560. กรุงเทพฯ: สำนักการพิมพ์ สำนักงานเลขาธิการสภาผู้แทนราษฎร.

สำนักงานเลขาธิการคุรุสภา. (2550). สารานุกรมวิชาชีพครู เฉลิมพระเกียรติพระบาทสมเด็จพระเจ้าอยู่หัว เนื่องในโอกาสฉลองสิริราชสมบัติครบ 60 พรรษา. กรุงเทพฯ: โรงพิมพ์ สกสค.

การพัฒนาแบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู

Development of the Teachers' Council of Thailand's Teaching Professional Standards Test Analytical Aspects for those Preparing to take the Teaching Professional License Exam.

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บทคัดย่อ

บทความวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาผลการพัฒนาแบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู การวิจัยครั้งนี้ใช้กลุ่มตัวอย่างในการเก็บข้อมูล 3 กลุ่ม ได้แก่ 1) กลุ่มตัวอย่างสำหรับการตรวจสอบความตรงเชิงเนื้อหา กลุ่มตัวอย่าง คือ ผู้เชี่ยวชาญ จำนวน 3 คน ได้จากการเลือกแบบเจาะจง (Purposive Sampling) 2) กลุ่มตัวอย่างสำหรับการวิเคราะห์ค่าความยากง่ายและค่าอำนาจจำแนก คือ นักศึกษาที่เตรียมเข้ารับการทดสอบมาตรฐานวิชาชีพครูของคุรุสภา จำนวน 66 คน ได้มาโดยการสุ่มอย่างง่าย (Simple Random Sampling) จากนักศึกษาในหลักสูตรประกาศนียบัตรบัณฑิตวิชาชีพครู คณะศึกษาศาสตร์ มหาวิทยาลัยฟาร์อีสเทอร์น และ 3) กลุ่มตัวอย่างสำหรับการวิเคราะห์ความเที่ยงของแบบทดสอบ กลุ่มตัวอย่างในขั้นตอนนี้ คือ นักศึกษาที่เตรียมเข้ารับการทดสอบมาตรฐานวิชาชีพครูของคุรุสภา จำนวน 30 คน ซึ่งเป็นคนละกลุ่มกับกลุ่มที่ 2 เครื่องมือที่ใช้ในการวิจัยครั้งนี้ เป็นแบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู มีลักษณะเป็นแบบทดสอบปรนัย เลือกตอบ 4 ตัวเลือก จำนวน 1 ฉบับ สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ดัชนีความสอดคล้อง ค่าความยากง่าย ค่าอำนาจจำแนก และค่าความเที่ยงของแบบทดสอบทั้งฉบับ แบบคูเดอร์-ริชาร์ดสัน (KR-20) ผลการวิจัย พบว่า แบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู มีค่าดัชนีความสอดคล้องอยู่ระหว่าง 0.67 – 1.00 ค่าความยากง่ายอยู่ระหว่าง 0.22 – 0.80 ค่าอำนาจจำแนกอยู่ระหว่าง 0.22 – 0.59 และค่าความเที่ยงของแบบทดสอบทั้งฉบับ เท่ากับ 0.84

คำสำคัญ : แบบทดสอบมาตรฐานวิชาชีพครู, มาตรฐานวิชาชีพครูของคุรุสภา, ใบประกอบวิชาชีพครู

Abstract

This research aimed to study the results of developing a standardized test for the Teachers' Council of Thailand's professional standards in the analytical domain for those preparing for the teaching professional license examination. This study employed three sample groups for data collection: 1) The content validity assessment sample group consisted of three experts selected through purposive sampling; 2) The difficulty and discrimination index analysis sample group included 66 students preparing for the Teachers' Council of Thailand professional standards test, selected through simple random sampling from students in the Graduate Diploma in Teaching Profession program at the Faculty of Education, The Far Eastern University; and 3) The test reliability analysis sample group comprised 30 students preparing for the Teachers' Council professional standards test, who were different from the second group. The research instrument was a multiple-choice test with four options in one set for measuring analytical abilities in professional teaching standards. The statistics used for data analysis included the Index of Item-Objective Congruence (IOC), difficulty index, discrimination index, and the reliability of the whole test using the Kuder-Richardson method (KR-20). The research results revealed that the Teachers' Council of Thailand's Professional Standards Test on Analysis for Teacher Licensure Examination Preparation had an IOC between 0.67 and 1.00, difficulty indices ranging from 0.22 to 0.80, discrimination indices between 0.22 and 0.59, and an overall test reliability of 0.84.

Keywords: Teacher Professional Standards Test, Teachers' Council Professional Standards, Teacher's professional license

บทนำ

การศึกษาเป็นรากฐานสำคัญในการพัฒนาประเทศ โดยเฉพาะในยุคที่มีการเปลี่ยนแปลงอย่างรวดเร็วทั้งด้านเศรษฐกิจ สังคม และเทคโนโลยี การศึกษาจึงเป็นเครื่องมือสำคัญในการพัฒนาทรัพยากรมนุษย์ให้มีศักยภาพและความพร้อมในการเป็นกำลังสำคัญของประเทศ เป็นเครื่องมือสำคัญในการสร้างคน สร้างสังคม และสร้างชาติ เป็นกลไกหลักในการพัฒนาความรู้ ความคิด คุณธรรมของเยาวชนให้เป็นพลเมืองที่ดีมีคุณภาพ การศึกษาในศตวรรษที่ 21 จำเป็นต้องเปลี่ยนแปลงทัศนะจากกระบวนการสอนไปสู่กระบวนการเรียนรู้ เพื่อให้เท่าทันต่อการเปลี่ยนแปลงของโลกและสามารถดำรงชีวิตได้อย่างมีคุณภาพ (สำนักงานเลขาธิการสภาการศึกษา, 2560; สมเกียรติ ตั้งกิจวานิชย์ และคณะ,2565; วิจารณ์ พานิช, 2561) ซึ่ง ครู ถือเป็นบุคลากรที่มีความสำคัญอย่างยิ่งในระบบการศึกษา เนื่องจากเป็นผู้ที่มีบทบาทโดยตรงในการพัฒนาผู้เรียนให้มีความรู้ ทักษะ และคุณลักษณะที่พึงประสงค์ตามที่หลักสูตรกำหนด การพัฒนาคุณภาพครูจึงเป็นปัจจัยสำคัญที่ส่งผลต่อคุณภาพการศึกษาโดยรวม ครูเป็นผู้ที่มีบทบาทสำคัญในการปฏิรูปการเรียนรู้ เป็นผู้อำนวยความสะดวกในการเรียนรู้ และเป็นผู้ชี้แนะแนวทางให้ผู้เรียนสามารถแสวงหาความรู้ด้วยตนเอง เป็นผู้ที่มีบทบาทสำคัญในการพัฒนาคุณภาพการศึกษาและการสร้างนวัตกรรม

ทางการศึกษาเพื่อพัฒนาผู้เรียนให้มีคุณภาพตามมาตรฐานการศึกษา (รุ่ง แก้วแดง, 2562; พิมพันธ์ เดชะคุปต์ , 2563; ทิศนา แขมมณี ,2562)

จากความสำคัญของครูที่มีบทบาทสำคัญในการพัฒนาคุณภาพการศึกษา จึงจำเป็นต้องมีการกำหนดมาตรฐานวิชาชีพครูเพื่อเป็นกรอบในการควบคุมและพัฒนาวิชาชีพครูให้มีคุณภาพ (พิมพันธ์ เดชะคุปต์ และพเยาว์ ยินดีสุข, 2562) โดยมาตรฐานวิชาชีพครู หมายถึง ข้อกำหนดเกี่ยวกับคุณลักษณะและคุณภาพที่พึงประสงค์ในการประกอบวิชาชีพทางการศึกษา ซึ่งผู้ประกอบวิชาชีพทางการศึกษาต้องปฏิบัติตามเพื่อให้เกิดคุณภาพในการประกอบวิชาชีพ สามารถสร้างความเชื่อมั่นศรัทธาให้แก่ผู้รับบริการจากวิชาชีพได้ว่าเป็นบริการที่มีคุณภาพ มาตรฐานวิชาชีพครูประกอบด้วย 3 ด้าน ได้แก่ 1) มาตรฐานความรู้และประสบการณ์วิชาชีพ 2) มาตรฐานการปฏิบัติงาน และ 3) มาตรฐานการปฏิบัติตน รายละเอียดของมาตรฐานวิชาชีพครูนั้น ประกอบด้วยสาระความรู้และสมรรถนะที่สำคัญ ได้แก่ การมีความรู้และประสบการณ์วิชาชีพ การปฏิบัติการสอน การจัดการเรียนรู้ การวิจัยพัฒนาการเรียนการสอน การพัฒนาตนเองและวิชาชีพ การเป็นผู้นำทางวิชาการ และการมีคุณธรรม จริยธรรม และจรรยาบรรณวิชาชีพ ซึ่งมาตรฐานวิชาชีพครูเป็นกลไกสำคัญในการควบคุมและพัฒนาคุณภาพการจัดการศึกษา คุรุสภาในฐานะสภาวิชาชีพครู ได้กำหนดมาตรฐานวิชาชีพครูเพื่อเป็นแนวทางในการพัฒนาวิชาชีพครูให้มีคุณภาพและมาตรฐานเป็นที่ยอมรับ โดยมาตรฐานดังกล่าวครอบคลุมทั้งด้านความรู้ ทักษะ และจรรยาบรรณวิชาชีพ ซึ่งผู้ประกอบวิชาชีพครูจำเป็นต้องยึดถือและปฏิบัติตาม การคัดเลือกครูที่มีคุณภาพและมาตรฐานจึงเป็นกระบวนการสำคัญในการพัฒนาการศึกษา โดยการทดสอบและประเมินสมรรถนะผู้ที่จะประกอบวิชาชีพครูผ่านแบบทดสอบมาตรฐานวิชาชีพครู ซึ่งเป็นเครื่องมือในการคัดกรองและรับรองความสามารถของผู้ที่จะเข้าสู่วิชาชีพครู แบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ประกอบด้วย การทดสอบหลายด้าน โดยเฉพาะด้านการวิเคราะห์ ซึ่งเป็นทักษะสำคัญที่ครูจำเป็นต้องมีในการจัดการเรียนการสอนและพัฒนาผู้เรียน ผู้เตรียมสอบจึงต้องมีความรู้ความเข้าใจในโครงสร้างและเนื้อหาของการทดสอบ รวมถึงการเตรียมความพร้อมในด้านต่าง ๆ เพื่อให้สามารถผ่านการทดสอบและได้รับใบอนุญาตประกอบวิชาชีพครู (สำนักงานเลขาธิการคุรุสภา, 2563)

จากมาตรฐานวิชาชีพครูที่กำหนดขึ้น สถาบันผลิตครูจึงมีบทบาทสำคัญในการเตรียมความพร้อมให้กับนิสิต นักศึกษาครู ให้มีความรู้ ทักษะ และคุณลักษณะที่สอดคล้องกับมาตรฐานวิชาชีพ โดยการจัดการเรียนการสอนที่บูรณาการทั้งภาคทฤษฎีและปฏิบัติ มีการฝึกประสบการณ์วิชาชีพในสถานศึกษา และการเตรียมความพร้อมสำหรับการทดสอบเพื่อขอรับใบอนุญาตประกอบวิชาชีพครู ซึ่งการเตรียมความพร้อมด้านการทดสอบนี้ ถือเป็นส่วนหนึ่งของการพัฒนาสมรรถนะครูก่อนประจำการ ที่จะช่วยให้ผู้เรียนได้ทบทวนความรู้ เข้าใจโครงสร้างข้อสอบ และมีความมั่นใจในการทดสอบมากขึ้น ปัจจุบันยังขาดเครื่องมือที่ใช้ในการวัดและทดสอบคุณภาพผู้เรียนในระดับบัณฑิตศึกษา (สุเทพ ธรรมะตระกูล, 2561; มณี เหมทานนท์, 2563; จารุชา สมศรี, อัจฉรา วัฒนาณรงค์, โกศล มีคุณ, และวิภาภรณ์ ภู่วัฒนกุล, 2566)

ผู้วิจัยมีความสนใจศึกษาด้านการวิเคราะห์โดยเฉพาะ เนื่องจากจากสถิติผลการทดสอบความรู้ตามมาตรฐานวิชาชีพครูของสำนักงานเลขาธิการคุรุสภาในช่วงปี พ.ศ. 2561-2564 พบว่า ผู้เข้าสอบ มีคะแนนด้านการวิเคราะห์ต่ำกว่าด้านอื่น ๆ อย่างมีนัยสำคัญ โดยมีผู้สอบผ่านเกณฑ์ด้านการวิเคราะห์เพียงร้อยละ 47.8 เทียบกับด้านความรู้และประสบการณ์วิชาชีพ (ร้อยละ 68.2) และด้านการปฏิบัติงาน (ร้อยละ 63.5) (สำนักงานเลขาธิการคุรุสภา, 2564) นอกจากนี้ รายงานการสังเคราะห์ผลการสอบของสถาบันทดสอบทางการศึกษาแห่งชาติ (2563) ยังระบุว่าข้อสอบด้านการวิเคราะห์มีค่าความยากสูงกว่า

ด้านอื่น ๆ โดยมีค่าเฉลี่ยความยากอยู่ที่ 0.73 และพบว่านักศึกษาวิชาชีพครูส่วนใหญ่มีแนวโน้มที่จะมีทักษะการวิเคราะห์อยู่ในระดับที่ต้องได้รับการพัฒนาอย่างเร่งด่วน โดยเฉพาะการวิเคราะห์หลักสูตรและการจัดการเรียนรู้ การวิเคราะห์ผู้เรียน และการวิเคราะห์แนวทางการประเมินผล (วรรณดี นาคสุขปาน, 2563)

ทักษะการวิเคราะห์ถือเป็นทักษะที่สำคัญอย่างยิ่งต่อการประกอบวิชาชีพครู เนื่องจากครูต้องสามารถวิเคราะห์หลักสูตร วิเคราะห์ผู้เรียน และวิเคราะห์บริบทการเรียนรู้เพื่อออกแบบการจัดการเรียนรู้ที่มีประสิทธิภาพ (อัจฉรา วงศ์โสธร, 2562) และจากการศึกษาของพิมพันธ์ เดชะคุปต์ และ พเยาว์ ยินดีสุข (2562) พบว่า ทักษะการวิเคราะห์มีความสัมพันธ์ทางบวกกับความสามารถในการจัดการเรียนรู้เชิงรุกและการแก้ปัญหาในชั้นเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 ซึ่งสะท้อนให้เห็นว่าการพัฒนาทักษะการวิเคราะห์ให้แก่ครูมีความจำเป็นอย่างยิ่ง ดังนั้น การพัฒนาแบบทดสอบด้านการวิเคราะห์ที่มีคุณภาพจึงเป็นเครื่องมือสำคัญที่จะช่วยในการประเมินและพัฒนาทักษะการวิเคราะห์ของผู้เตรียมสอบใบประกอบวิชาชีพครู จึงทำให้ผู้วิจัยมีความสนใจในการสร้างและพัฒนาแบบทดสอบกลุ่มวิชาชีพครูตามเกณฑ์มาตรฐานวิชาชีพคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู และเพื่อใช้เป็นแนวทางในการพยากรณ์ในการสอบขอรับใบประกอบวิชาชีพครูต่อไป

วัตถุประสงค์ของการวิจัย

เพื่อศึกษาผลการพัฒนาแบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู

แนวคิด ทฤษฎี กรอบแนวคิด

การพัฒนาแบบทดสอบมาตรฐานวิชาชีพครูมีความสำคัญอย่างยิ่งต่อการยกระดับคุณภาพวิชาชีพครู โดยเฉพาะด้านการวิเคราะห์ซึ่งเป็นทักษะสำคัญในการจัดการเรียนการสอน ตามแนวคิดของ Bloom (1956) ซึ่งเป็นทักษะการคิดขั้นสูงที่จำเป็นสำหรับครูในการวิเคราะห์ผู้เรียน หลักสูตร และบริบทการเรียนรู้ (สำนักงานเลขาธิการคุรุสภา, 2563) นอกจากนี้การพัฒนาแบบทดสอบต้องอาศัยทฤษฎีการทดสอบแบบดั้งเดิม (Classical Test Theory) ของ Gulliksen (1950) และทฤษฎีการตอบสนองข้อสอบ (Item Response Theory) ของ Lord (1980) เพื่อสร้างและตรวจสอบคุณภาพของแบบทดสอบ ร่วมกับการประยุกต์ใช้แนวคิดการวัดผลการศึกษาของ Gronlund (1976) ที่เน้นความตรง ความเที่ยง และความเป็นปรนัย ซึ่งสอดคล้องกับมาตรฐานการทดสอบทางการศึกษาและจิตวิทยา (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 2014) อีกทั้ง การพัฒนาแบบทดสอบยังต้องคำนึงถึงหลักการสร้างข้อสอบวัดความสามารถด้านการวิเคราะห์ตามแนวคิดของ Anderson & Krathwohl (2001) ที่ได้ปรับปรุงจากทฤษฎีของ Bloom โดยแบ่งการวิเคราะห์เป็น 3 ด้าน ได้แก่ การวิเคราะห์องค์ประกอบ การวิเคราะห์ความสัมพันธ์ และการวิเคราะห์หลักการ

การพัฒนาแบบทดสอบมาตรฐานวิชาชีพครูด้านการวิเคราะห์ จำเป็นต้องพิจารณาองค์ประกอบสำคัญหลายด้าน ตามแนวคิดของ Nitko & Brookhart (2014) ที่เสนอว่าการวัดความสามารถด้านการวิเคราะห์ต้องครอบคลุมทักษะการแยกแยะองค์ประกอบ การเชื่อมโยงความสัมพันธ์ และการระบุหลักการสำคัญ โดยข้อสอบควรมีลักษณะเป็นสถานการณ์ที่สะท้อนบริบทการทำงานจริงของครู และยึดหลักการ

ของ Marzano & Kendall (2007) ที่เสนอว่าการวิเคราะห์เป็นกระบวนการทางปัญญาที่ซับซ้อน ซึ่งสอดคล้องกับมาตรฐานความรู้ของวิชาชีพครูที่กำหนดโดยคุรุสภา ที่ครูต้องสามารถวิเคราะห์หลักสูตร ผู้เรียน และการจัดการเรียนรู้ได้อย่างมีประสิทธิภาพ โดยมีการตรวจสอบคุณภาพของแบบทดสอบดำเนินการตามแนวคิดของ Haladyna & Rodriguez (2013) ที่เสนอการวิเคราะห์คุณภาพรายข้อ ทั้งด้านความยาก อำนาจจำแนก และประสิทธิภาพของตัวลวง

แบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์เป็นเครื่องมือสำคัญในการประเมินความสามารถด้านการคิดขั้นสูงของผู้ประกอบวิชาชีพครู โดยมุ่งวัดทักษะการวิเคราะห์ซึ่งเป็นทักษะที่จำเป็นต่อการปฏิบัติงานของครูในศตวรรษที่ 21 (พิมพันธ์ เดชะคุปต์ และ พเยาว์ ยินดีสุข, 2562) สำนักงานเลขาธิการคุรุสภา (2563) ได้กำหนดขอบเขตเนื้อหาของการทดสอบด้านการวิเคราะห์ตามมาตรฐานวิชาชีพที่ครอบคลุมหลายมิติของการปฏิบัติงานครู ซึ่งสอดคล้องกับข้อบังคับคุรุสภาว่าด้วยมาตรฐานวิชาชีพ (ฉบับที่ 4) พ.ศ. 2562 และหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พ.ศ. 2551 (ฉบับปรับปรุง พ.ศ. 2560) ประการแรก แบบทดสอบมุ่งประเมินความสามารถในการวิเคราะห์หลักสูตร ซึ่งเป็นทักษะสำคัญที่ครูต้องมีเพื่อเข้าใจโครงสร้าง เป้าหมาย และองค์ประกอบของหลักสูตร อันจะนำไปสู่การออกแบบการจัดการเรียนรู้ที่มีประสิทธิภาพ (ไพฑูรย์ สินลารัตน์, 2564) มาเรียม นิลพันธุ์ (2563) อธิบายว่าครูต้องสามารถวิเคราะห์มาตรฐานการเรียนรู้และตัวชี้วัด เพื่อทำความเข้าใจสิ่งที่ต้องการให้ผู้เรียนรู้และปฏิบัติได้ รวมถึงการวิเคราะห์สาระการเรียนรู้และเนื้อหาสำคัญของหลักสูตร เพื่อจัดลำดับความสำคัญและความสัมพันธ์ของเนื้อหา (วิชัย วงษ์ใหญ่ และมารุต พัฒผล, 2562) นอกจากนี้ ครูยังต้องสามารถวิเคราะห์ความสอดคล้องระหว่างหลักสูตรแกนกลางกับหลักสูตรสถานศึกษา และการบูรณาการหลักสูตรกับสภาพแวดล้อมและบริบทของผู้เรียน (สมหวัง พิธิยานุวัฒน์, 2563;พิมพันธ์ เดชะคุปต์ และ พเยาว์ ยินดีสุข, 2562) ประการที่สอง แบบทดสอบประเมินความสามารถในการวิเคราะห์ผู้เรียน ทิศนา แขมมณี (2564) ชี้ว่าความสามารถนี้เป็นทักษะสำคัญที่ช่วยให้ครูเข้าใจความแตกต่างระหว่างบุคคลและสามารถจัดการเรียนรู้ที่ตอบสนองความต้องการของผู้เรียนได้อย่างเหมาะสม ซึ่งรวมถึงการวิเคราะห์พัฒนาการด้านร่างกาย อารมณ์ สังคม และสติปัญญาของผู้เรียน รูปแบบการเรียนรู้ (Learning Styles) ของผู้เรียน ความสนใจ ความถนัด และความต้องการพิเศษของผู้เรียน อีกทั้งยังต้องวิเคราะห์ปัญหาและอุปสรรคในการเรียนรู้ รวมถึงบริบททางสังคมและวัฒนธรรมที่ส่งผลต่อการเรียนรู้ของผู้เรียน (สุรางค์ โค้วตระกูล, 2562; นวลจิตต์ เชาวกีรติพงศ์, 2563; ธีรศักดิ์ อุ่นอารมย์เลิศ, 2564;ราชันย์ บุญธิมา และคณะ, 2563; อรรถพล อนันตวรสกุล, 2565) ประการที่สาม แบบทดสอบมุ่งประเมินความสามารถในการวิเคราะห์การจัดการเรียนรู้ จินตนา สุจจานันท์ (2563) อธิบายว่า เป็นความสามารถในการประเมินและคัดเลือกวิธีการกิจกรรม และสื่อการเรียนรู้ที่เหมาะสมกับเนื้อหาและผู้เรียน การใช้สื่อและเทคโนโลยีในการจัดการเรียนรู้ การจัดสภาพแวดล้อมและบรรยากาศที่เอื้อต่อการเรียนรู้ (เกรียงศักดิ์ เจริญวงศ์ศักดิ์, 2563; ถนอมพร เลาหจรัสแสง, 2563;วิจารณ์ พานิช, 2564;ปริยทิพย์ บุญคง, 2564;ไพศาล สุวรรณน้อย, 2565) ประการที่สี่ แบบทดสอบประเมินความสามารถในการวิเคราะห์การวัดและประเมินผล ศิริชัย กาญจนวาสี (2562) อธิบายว่านี่เป็นความสามารถในการเลือกใช้เครื่องมือและวิธีการประเมินที่เหมาะสมกับเป้าหมายการเรียนรู้ ซึ่งรวมถึงการวิเคราะห์ความสอดคล้องระหว่างการวัดและประเมินผลกับมาตรฐานการเรียนรู้และตัวชี้วัด การวิเคราะห์เครื่องมือวัดและประเมินผลที่หลากหลายและเหมาะสมกับธรรมชาติวิชา การประเมินตามสภาพจริง (Authentic Assessment) การประเมินเพื่อพัฒนาการเรียนรู้ (Assessment for Learning) และการให้ข้อมูลย้อนกลับที่มีประสิทธิภาพ (ชัยวัฒน์ สุทธิรัตน์, 2563;สุวิมล ว่องวาณิช, 2563

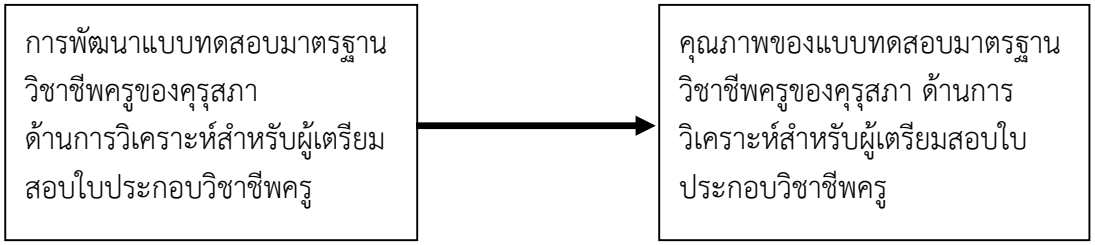
;กมลวรรณ ตังธนกานนท์, 2565) ประการที่ห้า แบบทดสอบประเมินความสามารถในการวิเคราะห์การวิจัยเพื่อพัฒนาการเรียนรู้ รัตนะ บัวสนธ์ (2564) ระบุว่านี่เป็นความสามารถในการนำกระบวนการวิจัยมาใช้แก้ปัญหาและพัฒนาคุณภาพการเรียนการสอน ซึ่งครอบคลุมการวิเคราะห์ปัญหาการเรียนรู้เพื่อกำหนดประเด็นวิจัย การวิเคราะห์นวัตกรรมและวิธีการแก้ปัญหาการเรียนรู้ การออกแบบการวิจัยในชั้นเรียน การเก็บรวบรวมข้อมูลและการแปลผลการวิจัย และการนำผลการวิจัยไปใช้พัฒนาการเรียนการสอน (สมหวัง พิธิยานุวัฒน์, 2563 ;มนต์ชัย เทียนทอง, 2564 ;พิมพันธ์ เดชะคุปต์ และ พเยาว์ ยินดีสุข, 2562) ประการสุดท้าย แบบทดสอบประเมินความสามารถในการวิเคราะห์สภาพปัญหาและความต้องการในการพัฒนาวิชาชีพครู พิมพันธ์ เดชะคุปต์ (2563) อธิบายว่านี่เป็นความสามารถในการประเมินและพัฒนาตนเองอย่างต่อเนื่อง ซึ่งรวมถึงการวิเคราะห์สมรรถนะวิชาชีพครูตามมาตรฐานวิชาชีพ (วิลาวัลย์ มาคุ้ม, 2563) การวิเคราะห์แนวทางการพัฒนาตนเองตามแผนพัฒนาตนเองรายบุคคล (Individual Development Plan: ID Plan) (สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน, 2564) การวิเคราะห์ชุมชนการเรียนรู้ทางวิชาชีพ (Professional Learning Community: PLC) (มารุต พัฒผล, 2564) การใช้เทคโนโลยีในการพัฒนาวิชาชีพครู (จารุวรรณ ศิลปรัตน์, 2565) และจรรยาบรรณวิชาชีพครู (สำนักงานเลขาธิการคุรุสภา, 2563)

จากการทบทวนวรรณกรรมข้างต้น สรุปว่าแบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภาด้านการวิเคราะห์มีความครอบคลุมเนื้อหาที่เกี่ยวข้องกับการปฏิบัติงานของครูในหลากหลายมิติ ซึ่งสะท้อนถึงความสำคัญของทักษะการวิเคราะห์ที่เป็นทักษะการคิดขั้นสูงที่จำเป็นต่อการประกอบวิชาชีพครูในศตวรรษที่ 21 การประเมินความสามารถด้านการวิเคราะห์ของครูผ่านแบบทดสอบมาตรฐานวิชาชีพจึงมีความสำคัญในการคัดกรองและรับรองคุณภาพของผู้ที่จะเข้าสู่วิชาชีพครู อันจะนำไปสู่การพัฒนาคุณภาพการศึกษาโดยรวม (ไพฑูรย์ สินลารัตน์, 2564)

การสร้างแบบทดสอบต้องดำเนินการตามขั้นตอนของ Ebel & Frisbie (1991) ที่ประกอบด้วย การวางแผนการทดสอบ การเขียนข้อสอบ การทดลองใช้ และการวิเคราะห์ข้อสอบ โดยใช้เทคนิคการเขียนข้อสอบแบบอิงเกณฑ์ของ Popham (1990) ที่เน้นการวัดความสามารถตามจุดประสงค์ที่กำหนดร่วมกับการตรวจสอบคุณภาพตามทฤษฎีการทดสอบแบบดั้งเดิมและทฤษฎีการตอบสนองข้อสอบ เพื่อให้ได้แบบทดสอบที่มีคุณภาพสูงตามมาตรฐานสากล โดยเริ่มจากการวางแผนการทดสอบที่ต้องกำหนดจุดมุ่งหมาย วิเคราะห์เนื้อหาและพฤติกรรมที่ต้องการวัด สร้างตารางวิเคราะห์หลักสูตร และกำหนดรูปแบบของข้อสอบให้สอดคล้องกับแนวคิดของ Anderson & Krathwohl (2001) ที่จำแนกการวิเคราะห์เป็นการแยกแยะองค์ประกอบ การหาความสัมพันธ์ และการค้นหาหลักการ

ขั้นตอนการเขียนข้อสอบต้องยึดหลักการเขียนข้อสอบเน้นการวัดความสามารถตามจุดประสงค์ที่กำหนด (Popham,1990) ซึ่งสอดคล้องกับแนวคิดของ Nitko & Brookhart (2014) ที่เสนอว่าข้อสอบต้องสะท้อนสมรรถนะที่ต้องการวัดอย่างชัดเจน โดยใช้ภาษาที่เข้าใจง่าย มีตัวลวงที่มีประสิทธิภาพ และมีการเรียงลำดับความยากง่ายอย่างเหมาะสม เน้นความชัดเจนและความเที่ยงตรงในการวัด (Haladyna & Rodriguez .2013) การทดลองใช้แบบทดสอบเป็นขั้นตอนสำคัญที่ต้องดำเนินการกับกลุ่มตัวอย่างที่มีลักษณะใกล้เคียงกับกลุ่มเป้าหมาย ที่เน้นความสำคัญของการตรวจสอบความเหมาะสมของเวลา ความชัดเจนของคำสั่ง และการรวบรวมข้อเสนอแนะจากผู้เชี่ยวชาญ (McMillan, 2018) สอดคล้องกับแนวคิดของ Gronlund (1976) ที่เน้นการปรับปรุงคุณภาพแบบทดสอบจากข้อมูลเชิงประจักษ์

การวิเคราะห์ข้อสอบต้องดำเนินการทั้งตามทฤษฎีการทดสอบแบบดั้งเดิมและทฤษฎีการตอบสนองข้อสอบ ซึ่ง Hambleton & Jones (1993) ได้เสนอการผสมผสานจุดเด่นของทั้งสองทฤษฎี โดยวิเคราะห์ทั้งค่าความยาก อำนาจจำแนก ประสิทธิภาพตัวลวง และความเชื่อมั่น เน้นการวิเคราะห์คุณภาพข้อสอบอย่างละเอียด เพื่อให้ได้แบบทดสอบที่มีความเที่ยงตรงและความเชื่อมั่นสูง ผลจากการวิเคราะห์จะนำไปสู่การปรับปรุงแบบทดสอบ และคัดเลือกข้อสอบที่มีคุณภาพตามเกณฑ์ ปรับปรุงข้อสอบที่จำเป็น และจัดทำคู่มือการใช้แบบทดสอบ (Lord,1 980; Mehrens & Lehmann, 1991) ซึ่งสอดคล้องกับมาตรฐานการทดสอบทางการศึกษาและจิตวิทยา (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 2014) และ Marzano & Kendall (2007) ที่เน้นการพัฒนาแบบทดสอบอย่างเป็นระบบและมีคุณภาพตามมาตรฐานสากล การวัดกระบวนการทางปัญญาที่ซับซ้อน เน้นการประเมินตามสภาพจริง ทำให้ได้แบบทดสอบที่มีคุณภาพสูง สามารถวัดความสามารถด้านการวิเคราะห์ของผู้เข้าสอบได้อย่างมีประสิทธิภาพ



ภาพที่ 1 กรอบการวิจัย

วิธีดำเนินการวิจัย

กลุ่มเป้าหมาย

กลุ่มเป้าหมายที่ใช้วิจัย ดังนี้

1. ผู้เชี่ยวชาญ สำหรับการประเมินความตรงเชิงเนื้อหาของแบบทดสอบ จำนวน 3 คน ได้มาโดยการเลือกแบบเจาะจง (Purposive Sampling) ได้แก่ อาจารย์ประจำหลักสูตรศึกษาศาสตร์ มหาวิทยาลัยฟาร์อีสเทอร์น ผู้อำนวยการสำนักงานเขตพื้นที่การศึกษาประถมศึกษา ราชบุรี เขต 1 และอาจารย์ประจำคณะครุศาสตร์ มหาวิทยาลัยราชภัฏลำปาง

2. นักศึกษาที่เตรียมเข้ารับการทดสอบมาตรฐานวิชาชีพครูของคุรุสภา สำหรับการหาค่าความยากง่ายและค่าอำนาจจำแนกของแบบทดสอบ จำนวน 66 คน ได้มาโดยการสุ่มอย่างง่าย (Simple Random Sampling) จากนักศึกษาในหลักสูตรประกาศนียบัตรบัณฑิตวิชาชีพครู คณะศึกษาศาสตร์ มหาวิทยาลัยฟาร์อีสเทอร์น

3. นักศึกษาที่เตรียมเข้ารับการทดสอบมาตรฐานวิชาชีพครูของคุรุสภา สำหรับการหาค่าความเที่ยงของแบบทดสอบทั้งฉบับ จำนวน 30 คน ได้มาโดยการสุ่มอย่างง่าย (Simple Random Sampling) จากนักศึกษาในหลักสูตรเดียวกันแต่เป็นคนละกลุ่มกับการทดสอบในขั้นตอนที่ 2 โดยใช้เกณฑ์จำนวนขั้นต่ำสำหรับการวิเคราะห์ความเที่ยงของแบบทดสอบตามแนวคิดของ Ebel & Frisbie (1991) ที่ระบุว่าการวิเคราะห์ความเที่ยงของแบบทดสอบปรนัยควรใช้กลุ่มตัวอย่างขั้นต่ำ 30 คน

เครื่องมือที่ใช้ในการวิจัย

เครื่องมือที่ใช้ในการวิจัยครั้งนี้ เป็นแบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู มีลักษณะเป็นแบบทดสอบปรนัย เลือกตอบ 4 ตัวเลือก จำนวน 42 ข้อ

ขั้นตอนการสร้างเครื่องมือ

1) กำหนดจุดมุ่งหมายของการสร้างแบบทดสอบ

2) ศึกษานิยาม ทฤษฎี ของการสร้างแบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู

3) สร้างแบบทดสอบเป็นปรนัยแบบเลือกตอบ 4 ตัวเลือก จำนวน 71 ข้อ โดยใช้ Google Form

4) นำแบบทดสอบฯ เสนอผู้เชี่ยวชาญ 3 ท่าน เพื่อพิจารณาความตรงเชิงเนื้อหา วิเคราะห์ค่าดัชนีความสอดคล้อง อยู่ระหว่าง 0.67 – 1.00

5) นำไปทดลองใช้กับนักศึกษานักศึกษาคณะศึกษาศาสตร์ที่เตรียมเข้ารับการทดสอบและประเมินมาตรฐานวิชาชีพครูของคุรุสภา สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู จำนวน 66 คน เพื่อวิเคราะห์คุณภาพรายข้อ

6) วิเคราะห์ข้อสอบหาค่าความยากง่ายและค่าอำนาจจำแนก พบว่า มีค่าความยากง่ายอยู่ระหว่าง 0.11 - 1.00 และค่าอำนาจจำแนกอยู่ระหว่าง -0.09 - 0.59 จากนั้น คัดเลือกข้อสอบที่มีค่าความยากง่ายระหว่าง 0.22 - 0.80 และค่าอำนาจจำแนกตั้งแต่ 0.22 ขึ้นไป ได้ข้อสอบที่ผ่านเกณฑ์ จำนวน 42 ข้อ คือ ข้อที่ 2, 3, 5, 6, 16, 18, 19, 22, 23, 24, 26, 27, 29, 33, 34, 35, 37, 38, 39, 40, 42, 43, 44, 45, 47, 48, 51, 52, 55, 57, 58, 59, 61, 62, 63, 64, 65, 66, 67, 68, 69, 71

7) นำแบบทดสอบที่ผ่านการคัดเลือก จำนวน 42 ข้อ ไปทดสอบกับนักศึกษาคณะศึกษาศาสตร์ที่เตรียมเข้ารับการทดสอบและประเมินมาตรฐานวิชาชีพครูของคุรุสภา จำนวน 30 คน ซึ่งเป็นกลุ่มตัวอย่างคนละกลุ่มกับขั้นตอนที่ 5 เพื่อหาค่าความเที่ยงของแบบทดสอบทั้งฉบับ โดยใช้สูตร KR-20 ของ Kuder Richardson (1937) ได้ค่าความเที่ยงเท่ากับ 0.84

การเก็บรวบรวมข้อมูล

ในการเก็บรวบรวมข้อมูลวิจัยได้ดำเนินการเก็บรวบรวมข้อมูลตามขั้นตอนดังนี้

1) ผู้วิจัยนำแบบทดสอบ จำนวน 71 ข้อ เสนอผู้เชี่ยวชาญ จำนวน 3 คน เพื่อประเมินความตรงเชิงเนื้อหา ด้วยการวิเคราะห์ดัชนีความสอดคล้อง (Index of item objective congruence: IOC) โดยส่งแบบประเมินความตรงเชิงเนื้อหาที่ประกอบด้วยแบบทดสอบ จำนวน 71 ข้อ พร้อมแบบประเมินค่าดัชนีความสอดคล้อง (IOC) ให้ผู้เชี่ยวชาญตรวจสอบทางไปรษณีย์อิเล็กทรอนิกส์ (Email) รวบรวมผลการประเมินจากผู้เชี่ยวชาญทั้ง 3 ท่าน และวิเคราะห์ค่าดัชนีความสอดคล้อง และดำเนินการแก้ไขตามข้อเสนอแนะของผู้เชี่ยวชาญ

2) ผู้วิจัยนำแบบทดสอบ จำนวน 71 ข้อ ไปทดลองใช้กับผู้ที่เตรียมเข้ารับการทดสอบและประเมินมาตรฐานวิชาชีพครูของคุรุสภา สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู จำนวน 66 คน เพื่อหาค่าความยากง่าย และค่าอำนาจจำแนกเป็นรายข้อ โดยดำเนินการทดสอบด้วยแบบทดสอบ จำนวน 71 ข้อ ในรูปแบบออนไลน์ผ่าน Google Form ตรวจให้คะแนนแบบทดสอบและวิเคราะห์ค่าความยากง่ายและค่าอำนาจจำแนกเป็นรายข้อ แล้วคัดเลือกแบบทดสอบที่มีค่าความยากง่ายอยู่ระหว่าง 0.22 – 0.80 ค่าอำนาจจำแนกอยู่ระหว่าง 0.22 – 0.59 ขึ้นไป จำนวน 42 ข้อ

3) ผู้วิจัยนำแบบทดสอบ จำนวน 42 ข้อ ไปทดลองใช้กับผู้ที่เตรียมเข้ารับการทดสอบและประเมินมาตรฐานวิชาชีพครูของคุรุสภา สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู โดยสุ่มนักศึกษาจากหลักสูตรเดียวกัน แต่เป็นคนละกลุ่มกับการทดสอบในขั้นตอนที่ 2 จำนวน 30 คน โดยการสุ่มอย่างง่าย ดำเนินการทดสอบด้วยแบบทดสอบที่ผ่านการคัดเลือกแล้วจำนวน 42 ข้อ ในรูปแบบออนไลน์ผ่าน Google Form ตรวจให้คะแนนแบบทดสอบและวิเคราะห์ค่าความเที่ยงของแบบทดสอบทั้งฉบับด้วยวิธี KR-20 ของ Kuder Richardson

การวิเคราะห์ข้อมูล

1) ข้อมูลตรงเชิงเนื้อหา วิเคราะห์ด้วยค่าดัชนีความสอดคล้อง (IOC)

2) ข้อมูลความยากง่ายของแบบทดสอบเป็นรายข้อ วิเคราะห์ด้วยค่าดัชนีความยากง่าย (P) พิชญ์สินี ชมภูคำ (2553)

3) ข้อมูลค่าอำนาจจำแนกเป็นรายข้อ (r) วิเคราะห์ด้วยดัชนีค่าอำนาจจำแนก (r) ล้วน สายยศ และอังคณา สายยศ (2543)

4) ข้อมูลความเที่ยงของแบบทดสอบทั้งฉบับ วิเคราะห์ด้วยค่าความเที่ยง ใช้สูตร KR-20 ของ Kuder Richardson

ผลการวิจัย

ตารางที่ 1 แสดงผลการวิเคราะห์ค่าความยากง่ายและค่าอำนาจจำแนกของแบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู

ข้อที่	ค่าความยากง่าย	ค่าอำนาจจำแนก	ข้อที่	ค่าความยากง่าย	ค่าอำนาจจำแนก
1	1.00	0.00	37	0.72	0.25
2	0.55	0.22	38	0.42	0.34
3	0.80	0.22	39	0.31	0.38
4	0.97	0.00	40	0.70	0.22
5	0.75	0.25	41	0.19	-0.06
6	0.61	0.28	42	0.69	0.31
7	0.83	0.16	43	0.77	0.47
8	0.89	0.16	44	0.63	0.25
9	0.98	0.03	45	0.59	0.44
10	0.83	0.16	46	0.36	0.16
11	0.14	0.03	47	0.78	0.44
12	0.52	0.09	48	0.42	0.28
13	0.72	0.06	49	0.39	0.09
14	0.55	0.16	50	0.84	0.25
15	0.72	0.19	51	0.80	0.41
16	0.53	0.44	52	0.72	0.38
17	0.14	0.22	53	0.11	0.22
18	0.80	0.34	54	0.69	0.19
19	0.63	0.25	55	0.47	0.31

ข้อที่	ค่าความยากง่าย	ค่าอำนาจจำแนก	ข้อที่	ค่าความยากง่าย	ค่าอำนาจจำแนก
20	0.41	0.19	56	0.11	-0.09
21	0.47	0.13	57	0.42	0.34
22	0.75	0.31	58	0.70	0.28
23	0.56	0.44	59	0.31	0.31
24	0.48	0.34	60	0.39	-0.09
25	0.86	0.28	61	0.45	0.47
26	0.66	0.38	62	0.73	0.34
27	0.41	0.31	63	0.84	0.31
28	0.23	0.09	64	0.30	0.34
29	0.66	0.38	65	0.64	0.41
30	0.13	0.19	66	0.42	0.34
31	0.27	0.09	67	0.28	0.25
32	0.33	0.16	68	0.73	0.47
33	0.70	0.53	69	0.77	0.28
34	0.72	0.25	70	0.16	0.06
35	0.25	0.31	71	0.72	0.44
36	0.27	0.16			

จากตารางที่ 1 หลังจากการวิเคราะห์คุณภาพรายข้อ มีข้อสอบที่ผ่านเกณฑ์การคัดเลือกทั้งสิ้น 42 ข้อ จากข้อสอบเดิม 71 ข้อ โดยแต่ละด้านมีข้อสอบที่ผ่านเกณฑ์ดังนี้: ด้านการวิเคราะห์หลักสูตร 9 ข้อ ด้านการวิเคราะห์ผู้เรียน 8 ข้อ ด้านการวิเคราะห์การจัดการเรียนรู้ 8 ข้อ ด้านการวิเคราะห์การวัดและประเมินผล 7 ข้อ ด้านการวิเคราะห์การวิจัยเพื่อพัฒนาการเรียนรู้ 6 ข้อ และด้านการวิเคราะห์สภาพปัญหาและความต้องการในการพัฒนาวิชาชีพครู 4 ข้อ

ตารางที่ 2 ตารางวิเคราะห์ค่าความเที่ยง ของแบบทดสอบทั้ง 42 ข้อ วิเคราะห์ด้วยค่าความเที่ยง ใช้สูตร KR-20 ของ Kuder Richardson

จำนวนข้อสอบ	42
จำนวนผู้ตอบแบบทดสอบ	30
ส่วนเบี่ยงเบนมาตรฐาน (S.D.)	0.49
ผลรวม pq	8.58
ค่าความแปรปรวน (S^2)	51.91
ค่าความเชื่อมั่น KR-20	0.84

จากตารางที่ 2 พบว่า วิเคราะห์ค่าความเที่ยง ของแบบทดสอบทั้งฉบับ จำนวน 42 ข้อ ผลรวมของผู้ที่ทำแบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครูวิเคราะห์ด้วยค่าความเที่ยง ใช้สูตร KR-20 ของ Kuder Richardson เท่ากับ 0.84 (S.D.= 0.49, pq = 8.58 และ S^2 = 51.91)

สรุปและอภิปรายผล

สรุปผลการวิจัย

แบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู มีลักษณะเป็นแบบทดสอบปรนัย เลือกตอบ 4 ตัวเลือก จำนวน 42 ข้อ พบว่า มีค่าดัชนีความสอดคล้อง อยู่ระหว่าง 0.67 – 1.00 ความยากง่ายอยู่ระหว่าง 0.22 – 0.80 ค่าอำนาจจำแนกอยู่ระหว่าง 0.22 – 0.59 และค่าความเที่ยงของแบบทดสอบทั้งฉบับ เท่ากับ 0.84

อภิปรายผล

การวิจัย เรื่อง การพัฒนาแบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู ผู้วิจัยมีประเด็นอภิปรายผลตามผลการศึกษา คือ แบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู มีลักษณะเป็นแบบทดสอบปรนัย เลือกตอบ 4 ตัวเลือก จำนวน 42 ข้อ พบว่า มีค่าดัชนีความสอดคล้อง อยู่ระหว่าง 0.67 – 1.00 ความยากง่ายอยู่ระหว่าง 0.22 – 0.80 ค่าอำนาจจำแนกอยู่ระหว่าง 0.22 – 0.59 และค่าความเที่ยงของแบบทดสอบทั้งฉบับ เท่ากับ 0.84 สอดคล้องกับ รัตนะ บรรณสาร (2562) และ สุวิมล ว่องวาณิช (2561) กล่าวว่า สนับสนุนการใช้แบบทดสอบปรนัยในการวัดความรู้เชิงทฤษฎีเน้นความเป็นปรนัยและลดอคติในการตรวจให้คะแนน และสอดคล้องกับ เยาวดี วิบูลย์ศรี (2560) รัตนะ บรรณสาร (2562) สมหวัง พิธิยานุวัฒน์ (2560) กล่าวว่า การวิเคราะห์ค่าความยากมีความสำคัญเชิงทฤษฎีการวัดผล ช่วยคัดเลือกข้อสอบที่มีคุณภาพสะท้อนระดับความยากของเนื้อหาในแต่ละข้อเป็นเครื่องมือในการปรับปรุงคุณภาพข้อสอบอย่างต่อเนื่อง ช่วยให้แบบทดสอบครอบคลุมผู้สอบทุกระดับความสามารถ สามารถจำแนกความแตกต่างระหว่างผู้สอบได้อย่างชัดเจน โดยค่าความยากง่ายเป็นสัดส่วนของผู้สอบที่สามารถทำข้อสอบข้อนั้นได้ถูกต้อง โดยมีหลักเกณฑ์สำคัญ คือ ค่าความยากควรกระจายระหว่าง 0.20 - 0.80 ข้อสอบที่ดีควรมีความยากง่ายหลากหลาย และการกระจายของค่าความยากช่วยให้แบบทดสอบสามารถวัดความสามารถของผู้สอบได้อย่างครอบคลุม เช่นเดียวกับ ล้วน สายยศ และ อังคณา สายยศ (2543) กล่าวว่า อธิบายอำนาจจำแนก เป็นความสามารถของข้อสอบในการแยกแยะความแตกต่างระหว่างผู้สอบที่มีความรู้สูงและต่ำ ค่าอำนาจจำแนกที่ดีควรมากกว่า 0.20 และ กมล สุดประเสริฐ (2563) ขยายความเพิ่มเติมว่า อำนาจจำแนกช่วยในการคัดกรองคุณภาพผู้สอบ และ สะท้อนประสิทธิภาพของข้อคำถามในการวัดความสามารถ การจำแนกช่วยให้ได้ข้อสอบที่มีคุณภาพและสามารถวัดระดับความรู้ของผู้สอบได้อย่างแม่นยำ

ข้อเสนอแนะ

ข้อเสนอที่ได้จากการวิจัย

1. ควรสร้างแบบทดสอบ ให้มีจำนวนข้อที่เท่ากันในแต่ละเรื่องเพื่อให้น้ำหนักในการประเมินแต่ละเรื่องมีสัดส่วนที่เหมาะสม แล้ววิเคราะห์ข้อสอบทีละเรื่อง เพื่อประเมินว่าผู้ตอบสามารถทำเรื่องใดได้มากหรือเรื่องใดได้น้อย แล้วจึงนำไปสร้างข้อสอบให้สอดคล้องกับเรื่อง

2. ควรกำหนดเวลาในการทำแบบทดสอบให้เหมาะสมกับจำนวนแบบทดสอบโดยคำนึงถึงความซับซ้อนของข้อคำถามในแต่ละด้านของการวิเคราะห์

3. ควรมีการติดตามนักศึกษาที่ใช้แบบทดสอบนี้ในการเตรียมตัว เพื่อเปรียบเทียบผลคะแนนจากแบบทดสอบกับผลการสอบจริงของผู้เข้ารับการทดสอบมาตรฐานวิชาชีพครูของคุรุสภา เพื่อนำข้อมูลมาพัฒนาและปรับปรุงแบบทดสอบให้มีความเที่ยงตรงเชิงพยากรณ์มากยิ่งขึ้น

ข้อเสนอแนะในการวิจัยครั้งต่อไป

1. ควรศึกษาวิเคราะห์ปัจจัยของการพัฒนาแบบทดสอบมาตรฐานวิชาชีพครูของคุรุสภา ด้านการวิเคราะห์สำหรับผู้เตรียมสอบใบประกอบวิชาชีพครู

2. ควรมีการพัฒนาแบบวัดสมรรถนะวิชาชีพครู ควบคู่ไปกับแบบวัดทักษะ เพื่อประเมินการนำองค์ความรู้ ทักษะไปใช้ได้จริงในสถานการณ์

3. ควรศึกษาความเที่ยงตรงเชิงพยากรณ์ของแบบทดสอบ โดยการหาความสัมพันธ์ระหว่างคะแนนจากแบบทดสอบที่พัฒนาขึ้นกับผลการสอบมาตรฐานวิชาชีพครูของคุรุสภาจริง เพื่อประเมินประสิทธิภาพของแบบทดสอบในการทำนายผลการสอบจริง ซึ่งจะเป็นประโยชน์ในการพัฒนาเครื่องมือเตรียมความพร้อมสำหรับผู้เข้าสอบในอนาคต

4. ควรมีการวิจัยเชิงติดตามผล (Follow-up study) เพื่อศึกษาความสัมพันธ์ระหว่างผลการทดสอบด้านการวิเคราะห์กับความสามารถในการปฏิบัติงานจริงของครูหลังจากได้รับใบอนุญาตประกอบวิชาชีพครู เพื่อยืนยันความเที่ยงตรงเชิงทำนายในระยะยาว

เอกสารอ้างอิง

กมล สุดประเสริฐ. (2563). การประเมินสมรรถนะครูในศตวรรษที่ 21. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

กมลวรรณ ตังธนกานนท์. (2565). การประเมินเพื่อพัฒนาการเรียนรู้. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

เกรียงศักดิ์ เจริญวงศ์ศักดิ์. (2563). การคิดเชิงวิเคราะห์สำหรับครูมืออาชีพ. กรุงเทพฯ: ซัคเซสมีเดีย.

จารุชา สมศรี, อัจฉรา วัฒนาณรงค์, โกศล มีคุณ, และวิภาภรณ์ ภู่วัฒนกุล. (2566). การพัฒนาสมรรถนะครูในศตวรรษที่ 21 ของสถานศึกษาขั้นพื้นฐาน. วารสารวิชาการคณะมนุษยศาสตร์และสังคมศาสตร์ มหาวิทยาลัยราชภัฏเทพสตรี, 14(3), 181-196.

จารุวรรณ ศิลปรัตน์. (2565). เทคโนโลยีดิจิทัลกับการพัฒนาวิชาชีพครู. วารสารศึกษาศาสตร์ มหาวิทยาลัยนเรศวร, 24(2), 134-147.

จินตนา สุจจานันท์. (2563). การพัฒนารูปแบบการจัดการเรียนรู้ในศตวรรษที่ 21. กรุงเทพฯ: สำนักพิมพ์วัฒนาพานิช.

ชัยวัฒน์ สุทธิรัตน์. (2563). การพัฒนาหลักสูตรและการจัดการเรียนรู้. นนทบุรี: พี บาลานซ์ดีไซด์แอนด์ปริ้นติ้ง.

ถนอมพร เลาหจรัสแสง. (2563). เทคโนโลยีดิจิทัลเพื่อการศึกษา. เชียงใหม่: ศูนย์นวัตกรรมการสอนและการเรียนรู้ มหาวิทยาลัยเชียงใหม่.

ทิศนา แขมมณี. (2562). ศาสตร์การสอน: องค์ความรู้เพื่อการจัดกระบวนการเรียนรู้ที่มีประสิทธิภาพ. (พิมพ์ครั้งที่ 24). กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

ทิศนา แขมมณี. (2564). ศาสตร์การสอน: องค์ความรู้เพื่อการจัดกระบวนการเรียนรู้ที่มีประสิทธิภาพ. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

ธีรศักดิ์ อุ่นอารมย์เลิศ. (2564). จิตวิทยาการศึกษาสำหรับครู. นครปฐม: โรงพิมพ์มหาวิทยาลัยศิลปากร.
นวลจิตต์ เชาวกีรติพงศ์. (2563). จิตวิทยาการศึกษา. กรุงเทพฯ: มหาวิทยาลัยสุโขทัยธรรมาธิราช.
ปริยทิพย์ บุญคง. (2564). การจัดสภาพแวดล้อมที่เอื้อต่อการเรียนรู้ในยุคดิจิทัล. วารสารศึกษาศาสตร์ปริทัศน์, 36(1), 79-86.
พิชญ์สินี ชมภู.(2553).สถิติเพื่อการวิจัย.คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยราชภัฏเชียงใหม่.
พิมพันธ์ เดชะคุปต์. (2563). การจัดการเรียนรู้ในศตวรรษที่ 21. กรุงเทพฯ: โรงพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.
พิมพันธ์ เดชะคุปต์ และ พเยาว์ ยินดีสุข. (2562). การพัฒนาหลักสูตรวิชาชีพครู. กรุงเทพฯ: โรงพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.
ไพฑูรย์ สินลารัตน์. (2564). การศึกษาไทย 4.0: ปรัชญาการศึกษาเชิงสร้างสรรค์และผลิตภาพ. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.
ไพศาล สุวรรณน้อย. (2565). การเรียนรู้เชิงรุกและแนวทางการจัดกิจกรรมการเรียนรู้ในศตวรรษที่ 21. ขอนแก่น: คณะศึกษาศาสตร์ มหาวิทยาลัยขอนแก่น.
มนต์ชัย เทียนทอง. (2564). การวิจัยและพัฒนานวัตกรรมการเรียนรู้. กรุงเทพฯ: มหาวิทยาลัยเทคโนโลยีพระจอมเกล้าพระนครเหนือ.
มณี เหมทานนท์. (2563). การผลิตครูในยุคปฏิรูปการศึกษา. กรุงเทพฯ: พริกหวานกราฟฟิค.
มาเรียม นิลพันธุ์. (2563). วิธีวิจัยทางพฤติกรรมศาสตร์และสังคมศาสตร์. นครปฐม: คณะศึกษาศาสตร์ มหาวิทยาลัยศิลปากร.
มารุต พัฒผล. (2564). แนวทางการพัฒนาชุมชนการเรียนรู้ทางวิชาชีพเพื่อพัฒนาการจัดการเรียนรู้ของครู. กรุงเทพฯ: ศูนย์ผู้นำนวัตกรรมหลักสูตรและการเรียนรู้.
เยาวดี วิบูลย์ศรี. (2560). การวัดผลและการสร้างแบบทดสอบ. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.
ราชันย์ บุญธิมา และคณะ. (2563). การวิจัยปฏิบัติการในชั้นเรียน. กรุงเทพฯ: สำนักพิมพ์แห่งมหาวิทยาลัยศรีนครินทรวิโรฒ.
รัตนะ บรรณสาร. (2562). ระเบียบวิธีวิจัยทางการศึกษา. กรุงเทพฯ: สำนักพิมพ์แห่งมหาวิทยาลัยศิลปากร
รัตนะ บัวสนธ์. (2564). วิจัยเชิงคุณภาพทางการศึกษา. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย
รุ่ง แก้วแดง. (2562). ปฏิรูปการศึกษาไทย. กรุงเทพฯ: มติชน.
ล้วน สายยศ และ อังคณา สายยศ. (2543).เทคนิคการวิจัยทางการศึกษา. พิมพ์ครั้งที่ 3. กรุงเทพมหานคร : สุวิริยาสาส์น.
วรรณดี นาคสุขปาน. (2563). การวิเคราะห์ทักษะการคิดเชิงวิเคราะห์ของนักศึกษาวิชาชีพครู: กรณีศึกษามหาวิทยาลัยในกรุงเทพมหานคร. วารสารศึกษาศาสตร์ปริทัศน์, 35(2), 123-137.
วิจารณ์ พานิช. (2561). การเรียนรู้เพื่อศตวรรษที่ 21. (พิมพ์ครั้งที่ 3). กรุงเทพฯ: มูลนิธิสดศรี-สฤษดิ์วงศ์.
วิจารณ์ พานิช. (2564). การเรียนรู้เพื่อศตวรรษที่ 21. กรุงเทพฯ: มูลนิธิสดศรี-สฤษดิ์วงศ์.
วิชัย วงษ์ใหญ่ และมารุต พัฒผล. (2562). การพัฒนาหลักสูตรร่วมสมัย: จากทฤษฎีสู่ปฏิบัติ. กรุงเทพฯ: ศูนย์ผู้นำนวัตกรรมหลักสูตรและการเรียนรู้.
วิลาวัลย์ มาคุ้ม. (2563). การพัฒนาสมรรถนะครูตามมาตรฐานวิชาชีพ. วารสารศึกษาศาสตร์ มหาวิทยาลัยศิลปากร, 18(1), 1-14.

ศิริชัย กาญจนวาสี. (2562). ทฤษฎีการทดสอบแบบดั้งเดิม. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

สถาบันทดสอบทางการศึกษาแห่งชาติ. (2563). รายงานผลการวิเคราะห์การทดสอบความรู้ตามมาตรฐานวิชาชีพครู ปีการศึกษา 2562. กรุงเทพฯ: สถาบันทดสอบทางการศึกษาแห่งชาติ (องค์การมหาชน).

สมเกียรติ ตั้งกิจวานิชย์ และ คณะ. (2565). ยกระดับคุณภาพการศึกษาไทย: ความท้าทายและโอกาส. กรุงเทพฯ: สถาบันวิจัยเพื่อการพัฒนาประเทศไทย (TDRI).

สมหวัง พิธิยานุวัฒน์. (2560). รวมบทความทางวิชาการ: การวัดผลและประเมินผลการศึกษา. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

สมหวัง พิธิยานุวัฒน์. (2563). รวมบทความทางวิชาการ: การวัดผลและประเมินผลการศึกษา. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน. (2564). คู่มือการจัดทำแผนพัฒนาตนเองรายบุคคล (ID Plan) สำหรับข้าราชการครูและบุคลากรทางการศึกษา. กรุงเทพฯ: สำนักพัฒนาครูและบุคลากรการศึกษาขั้นพื้นฐาน.

สำนักงานเลขาธิการสภาการศึกษา. (2560). แผนการศึกษาแห่งชาติ พ.ศ. 2560-2579. กรุงเทพฯ: พริกหวานกราฟฟิค.

สำนักงานเลขาธิการคุรุสภา. (2563). มาตรฐานวิชาชีพครู. กรุงเทพฯ: สำนักงานเลขาธิการคุรุสภา.

สำนักงานเลขาธิการคุรุสภา. (2564). รายงานผลการทดสอบและประเมินความรู้ตามมาตรฐานวิชาชีพทางการศึกษา ปีการศึกษา 2561-2564. กรุงเทพฯ: สำนักงานเลขาธิการคุรุสภา.

สุเทพ ธรรมะตระกูล. (2561). การพัฒนาหลักสูตรผลิตครูในศตวรรษที่ 21. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

สุรางค์ โค้วตระกูล. (2562). จิตวิทยาการศึกษา. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

สุวิมล ว่องวาณิช. (2561). การวิจัยปฏิบัติการในชั้นเรียน. กรุงเทพฯ: สำนักพิมพ์แห่งมหาวิทยาลัยธรรมศาสตร์.

อรรถพล อนันตวรสกุล. (2565). การพัฒนาการศึกษาในบริบทพหุวัฒนธรรม. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

อัจฉรา วงศ์โสธร. (2562). การพัฒนาทักษะการวิเคราะห์ของครูเพื่อการจัดการเรียนรู้ในศตวรรษที่ 21. วารสารวิชาการศึกษาศาสตร์, 20(2), 1-15.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (2014). Standards for educational and psychological testing. American Educational Research Association.

Anderson, L. W., & Krathwohl, D. R. (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives. Longman.

Bloom, B. S. (1956). Taxonomy of educational objectives: The classification of educational goals. Longmans, Green.

Ebel, R. L., & Frisbie, D. A. (1991). Essentials of educational measurement (5th ed.). Prentice-Hall.

Gronlund, N. E. (1976). Measurement and evaluation in teaching (3rd ed.). Macmillan.

Gulliksen, H. (1950). Theory of mental tests. John Wiley & Sons.

Hambleton, R. K., & Jones, R. W. (1993). Comparison of classical test theory and item response theory and their applications to test development. Educational Measurement: Issues and Practice, 12(3), 38-47.

Haladyna, T. M., & Rodriguez, M. C. (2013). Developing and validating test items. Routledge.

Lord, F. M. (1980). Applications of item response theory to practical testing problems. Lawrence Erlbaum Associates.

Marzano, R. J., & Kendall, J. S. (2007). The new taxonomy of educational objectives (2nd ed.). Corwin Press.

Mehrens, W. A., & Lehmann, I. J. (1991). Measurement and evaluation in education and psychology (4th ed.). Holt, Rinehart and Winston.

Nitko, A. J., & Brookhart, S. M. (2014). Educational assessment of students (6th ed.). Pearson.

Popham, W. J. (1990). Modern educational measurement: A practitioner's perspective (2nd ed.). Prentice-Hall.

การพัฒนาผลสัมฤทธิ์ทางการเรียนรายวิชาภาษาอังกฤษ เรื่องสภาพอากาศ โดยใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H นักเรียนระดับชั้นประถมศึกษาปีที่ 3

The Development of Academic Achievement in English Courses about Weather by Using English Learning Exercise with the 5W1H Technique for Grade 3 Students

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อ 1) ศึกษาประสิทธิภาพของการพัฒนาแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H ของนักเรียนชั้นประถมศึกษาปีที่ 3 ตามเกณฑ์ 80/80 2) เปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างก่อนและหลังเรียนโดยใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H 3) ศึกษาความพึงพอใจของนักเรียนที่มีต่อการใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H กลุ่มตัวอย่างคือ นักเรียนชั้นประถมศึกษาปีที่ 3/3 ห้องโครงการพิเศษ (IEC) โรงเรียนสหศาสตร์วิทยาคาร ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 23 คน โดยการสุ่มอย่างง่ายแบบจับฉลาก เครื่องมือการวิจัยได้แก่ แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H แผนการจัดการเรียนรู้ จำนวน 4 แผน เวลา 8 ชั่วโมง แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนก่อนและหลังเรียน เรื่องสภาพอากาศ และแบบสอบถามความพึงพอใจ สถิติที่ใช้ ได้แก่ ค่าร้อยละ ค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน และ Wilcoxon Signed Ranks Test

ผลการวิจัย พบว่า 1) แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H มีประสิทธิภาพ 83.91/86.52 2) นักเรียนชั้นประถมศึกษาปีที่ 3 มีผลสัมฤทธิ์หลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 และ 3) นักเรียนมีความพึงพอใจต่อการใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H ในระดับมาก

คำสำคัญ: สภาพอากาศ, แบบฝึกการเรียนรู้, เทคนิค 5W1H

Abstract

The purposes of this research 1) to study the effectiveness of developing English learning exercise using the 5W1H technique for grade 3 students to attain the criteria of 80/80; 2) to compare the academic achievement before and after learning using the 5W1H technique, and 3) investigate students' satisfaction with using the 5W1H technique-based learning exercise. The sample consisted of 23 Grade 3/3 students at Sahasartwittayakarn School, semester 2 of the 2024 academic year, selected by simple random sampling. The research instruments were: 1) 5W1H-based learning exercise 2) 8 hours lesson plans 3) pre-test and post-test used to examine the students' learning achievement 4) satisfaction test. The statistics used for analyzing the collected data were: percentage, mean, standard deviation, and Wilcoxon Signed Ranks Test.

The results of the study were as follows: 1) The efficiency of exercises of development English learning exercise was obtained at 83.91/86.52, 2) The post-test achievement was significantly higher than pre-test achievement at the .01 level, and 3) The satisfaction of grade 3 students using English exercises with 5W1H technique was at a high level.

Keywords: Weather, Learning Exercise, 5W1H Technique.

บทนำ

ปัจจุบันภายใต้การเปลี่ยนแปลงที่เกิดขึ้นในศตวรรษที่ 21 ส่งผลให้ผู้เรียนต้องปรับตัวและเตรียมพร้อมอยู่เสมอ การจัดกระบวนการพัฒนาผู้เรียนจะช่วยให้มีความพร้อมสามารถคิดวิเคราะห์และแก้ปัญหา รวมทั้งมีความคิดสร้างสรรค์และทักษะการติดต่อสื่อสาร ซึ่งอาจนำไปสู่การแสวงหาความรู้ด้วยตนเองจากแหล่งเรียนรู้ที่มีอยู่ทุกหนทุกแห่ง ได้แก่ สิ่งแวดล้อม การพูดคุยกับผู้รู้ และสื่อต่าง ๆ ที่มีอยู่มากมาย โดยใช้เทคโนโลยีที่ทันสมัยในศตวรรษที่ 21 เป็นสิ่งสนับสนุน โดยสนับสนุนการรวมทักษะต่าง ๆ เช่น การคิดเชิงวิพากษ์ การแก้ปัญหา และการสื่อสาร ซึ่งประกอบด้วย โครงสร้างพื้นฐานหรือวิชาแกนเป็นความรู้หลักที่ผู้เรียนทุกคนพึงได้รับจากสถานศึกษา ทักษะด้านข้อมูลสื่อสารและเทคโนโลยี ทักษะการเรียนรู้และนวัตกรรม และทักษะชีวิตและการทำงาน โครงสร้างพื้นฐานหรือที่เรียกว่าวิชาแกน ซึ่งเป็นวิชาที่อยู่ในหลักสูตรการเรียนการสอนของแต่ละสถานศึกษา เช่น วิชาภาษาอังกฤษ วิชาวิทยาศาสตร์ วิชาคณิตศาสตร์ วิชาภูมิศาสตร์ วิชาประวัติศาสตร์ วิชาศิลปะ วิชาการปกครองและวิชาหน้าที่พลเมือง วิชาเหล่านี้จัดเป็นแกนความรู้หลักที่ผู้เรียนทุกคนพึงได้รับจากสถานศึกษา นอกจากนี้ สิ่งที่ควรมีควบคู่กับวิชาแกน คือ แนวคิดสำคัญของการเรียนรู้สำหรับผู้เรียนในศตวรรษที่ 21 ซึ่งประกอบไปด้วยการมีจิตสำนึกต่อโลกด้วยการเรียนรู้เข้าใจและเคารพความแตกต่างระหว่างผู้คนในสังคม,การมีความรู้พื้นฐานด้านการเงิน เศรษฐกิจ ธุรกิจ การเงิน และการเป็นผู้ประกอบการ, การมีความรู้พื้นฐานด้านการเป็นพลเมืองที่ดี,การมีความรู้พื้นฐานด้านสุขภาพและการมีความรู้พื้นฐานด้านสิ่งแวดล้อม (สามารถ สว่างแจ้ง, 2565)

ปัญหาการเรียนภาษาอังกฤษเกิดจากปัญหาของการเรียนภาษาอังกฤษคนไทยในด้านทักษะทั้ง 4 คือ การฟัง การพูด การอ่านและการเขียน จากการศึกษาพบว่าคนไทยมีปัญหาในการเรียนภาษาอังกฤษมากกว่าประเทศเพื่อนบ้าน เช่น พม่า ลาว กัมพูชา ฟิลิปปินส์เป็นต้น ในด้านทักษะทั้ง 4 ด้าน คนไทยมีปัญหาด้านทักษะการฟัง เช่น การฟังและเข้าใจบทสนทนาภาษาอังกฤษชีวิตประจำวัน ต่อมาทักษะการพูด เช่น การพูดทักทายแนะนำตนเอง รองลงมาทักษะการเขียน ปัญหาที่พบคือ การเขียนรายงานเป็นภาษาอังกฤษ และทักษะการอ่านมีปัญหาน้อยที่สุด (ปัณฑ์นพ ผจญทรพรรค, ณัฐวุฒิ โพธิ์ทักษิณ และนรินทร์ มุกมณี, 2564) นอกจากนี้ผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐานในปีการศึกษา 2566 (Ordinary National Educational Test : O - NET) พบว่าผู้เรียนมีคะแนนเฉลี่ยเท่ากับ 37.32 คะแนนจากคะแนนเต็ม 100 ซึ่งต่ำกว่าเกณฑ์ร้อยละ 50 ของคะแนนเต็ม (สถาบันการทดสอบระดับชาติ, 2566)

จากปัญหาและจากการที่ผู้วิจัยได้ลงพื้นที่สอนนักเรียนระดับชั้นประถมศึกษาปีที่ 3 ห้องโครงการพิเศษ (IEC) โรงเรียนสหศาสตร์วิทยาคาร อำเภอหาดใหญ่ จังหวัดสงขลา พบว่า นักเรียนไม่สามารถตอบคำถาม จับใจความสำคัญของเนื้อเรื่องสภาพอากาศ ในรายวิชาภาษาอังกฤษ เมื่ออ่านเนื้อเรื่องจบนักเรียนไม่สามารถตอบคำถามได้ว่า ใคร ทำอะไร ที่ไหน เมื่อไร ทำไม อย่างไร ส่งผลต่อผลสัมฤทธิ์ทางการเรียนรายวิชาภาษาอังกฤษ จากการศึกษาเอกสารและงานวิจัยที่เกี่ยวข้องกับการพัฒนาผลสัมฤทธิ์ทางการเรียนการทำซ้ำ ๆ ในเรื่องที่ผู้เรียนพบปัญหาจะก่อให้เกิดทักษะด้านความรู้เพิ่มมากขึ้น ทำให้เกิดการจดจำ เกิดทักษะการแก้ปัญหาจากการทำซ้ำ และการตั้งประเด็นคำถามตอบเพื่อให้นักเรียนบรรลุตามเป้าหมายที่กำหนดไว้ โดยใช้คำถามเทคนิค 5W1H ตามแนวคิดทฤษฎีของ (Bloom) โดยใช้คำถาม ใคร (Who) ทำอะไร (What) ที่ไหน (Where) เมื่อไหร่ (When) ทำไม (Why) อย่างไร (How) (วิทวัฒน์ ขัตติยะมาน และ อมลวรรณ วีระธรรมโม, 2549) ในแบบฝึกการเรียนรู้ภาษาอังกฤษทำให้ผู้เรียนเกิดทักษะการอ่านจับใจความ ทักษะการตอบคำถาม ทักษะด้านความรู้เพิ่มขึ้น สามารถลดปัญหาการเรียนรู้ภาษาอังกฤษได้ ดังนั้นผู้วิจัยจึงพบเครื่องมือที่ใช้ในการพัฒนาผลสัมฤทธิ์ทางการเรียนรายวิชาภาษาอังกฤษที่เหมาะสมและสามารถนำมาแก้ไขปัญหาข้างต้นได้ คือ แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H เรื่องสภาพอากาศ

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาประสิทธิภาพของแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H ของนักเรียนชั้นประถมศึกษาปีที่ 3 ตามเกณฑ์ 80/80
2. เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างก่อนและหลังเรียนโดยใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H
3. เพื่อศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 3 ต่อการใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H

สมมติฐานการวิจัย

นักเรียนชั้นประถมศึกษาปีที่ 3 ที่เรียนด้วยแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H มีผลสัมฤทธิ์หลังเรียนสูงกว่าก่อนเรียน

แนวคิด ทฤษฎี กรอบแนวคิด

1. แบบฝึกทักษะการเรียนรู้

สมศักดิ์ สินธุระเวชญ์ (2540) ได้ให้ความหมายของแบบฝึกทักษะไว้ว่า แบบฝึกทักษะหมายถึง การจัดประสบการณ์ฝึกหัดเพื่อให้นักเรียนนักศึกษาเรียนรู้ด้วยตนเองและสามารถแก้ปัญหาได้ถูกต้องอย่างหลากหลายและแปลกใหม่

สุพรรณี ไชยเทพ (2544) ได้ให้ความหมายของแบบฝึกทักษะไว้ว่า แบบฝึกเสริมทักษะ หมายถึง เอกสารหรือแบบฝึกหัดที่ใช้เป็นสื่อประกอบการเรียนการสอนเพื่อให้ผู้เรียนได้ฝึกปฏิบัติ เป็นการช่วยเสริมให้นักเรียนมีทักษะสูงยิ่งขึ้น

พินิจ จันทร์ซ้าย (2546) ได้ให้ความหมายของแบบฝึกทักษะไว้ว่า แบบฝึกทักษะหมายถึงงานกิจกรรมหรือประสบการณ์ที่ผู้สอนจัดให้ผู้เรียนได้ฝึกปฏิบัติเพื่อทบทวนความรู้ที่เรียนมาแล้วให้สามารถนำความรู้ที่ได้ไปประยุกต์ใช้ในชีวิตประจำวัน

จากข้อความดังกล่าวสรุปได้ว่า แบบฝึกทักษะ หมายถึง เอกสาร หรืองานที่จัดทำขึ้นเพื่อเสริมทักษะ จัดประสบการณ์ฝึกหัด และทบทวนความรู้ให้ผู้เรียนได้ฝึกปฏิบัติ เพื่อพัฒนา เสริมทักษะ และแก้ไขปัญหาให้ผู้เรียน

2. เทคนิค 5W1H

วิทวัฒน์ ขัตติยะมาน และ อมลวรรณ วีระธรรมโม (2549) กล่าวถึง ทฤษฎีความคิดของบลูม (Bloom) ในการใช้คำถาม 5W1H ว่าประกอบด้วยคำถาม 6 ประเภท ดังนี้ 1. Who ใคร คือ สิ่งที่เราต้องรู้ว่าใครรับผิดชอบ ใครเกี่ยวข้อง ใครได้รับผลกระทบในเรื่องนั้นบ้าง 2. What ทำอะไร คือ สิ่งที่เราต้องรู้ว่าเราจะทำอะไร แต่ละคนทำอะไรบ้าง 3. Where ที่ไหน คือ สิ่งที่เราต้องรู้ว่า สถานที่ที่เราจะทำว่าจะทำที่ไหน เหตุการณ์นั้นอยู่ที่ไหน 4. When เมื่อไร คือ สิ่งที่เราต้องรู้ว่า ระยะเวลาที่จะทำจนถึงสิ้นสุดเหตุการณ์หรือสิ่งที่ทำนั้น ทำเมื่อ วัน เดือน ปี ใด 5. Why ทำไม คือ สิ่งที่เราต้องรู้ว่า สิ่งที่เราจะทำนั้นทำด้วยเหตุผลใด เหตุใดจึงได้ทำสิ่งนั้น หรือ เกิดเหตุการณ์นั้น ๆ 6. How อย่างไร คือ สิ่งที่เราต้องรู้ว่า เราจะสามารถทำทุกอย่างให้บรรลุผลได้อย่างไร เหตุการณ์ หรือ สิ่งที่ทำนั้นทำอย่างไรบ้าง

ศศิมา สุขสว่าง (2563) ได้ให้ความหมายเทคนิค 5W1H เป็นเครื่องมือที่ช่วยวิเคราะห์ปัญหาและพัฒนาความคิดเชิงสร้างสรรค์ โดยตั้งคำถามหลัก 6 ข้อ ได้แก่ Who, What, Where, When, Why, และ How เพื่อรวบรวมข้อมูลให้ครบถ้วนและเข้าใจปัญหาอย่างเป็นระบบ กระบวนการแก้ปัญหาแบ่งเป็น 4 ขั้นตอนสำคัญ ได้แก่ Clarify (วิเคราะห์ข้อมูลและสาเหตุของปัญหา), Ideate (หาแนวทางแก้ไขใหม่ ๆ), Develop (คัดเลือกและพัฒนาแนวทางที่ดีที่สุด), และ Implement (นำไปปฏิบัติจริง) ดังนั้นการใช้ 5W1H จะช่วยให้สามารถระบุสาเหตุของปัญหาได้ชัดเจน และหาแนวทางแก้ไขที่มีประสิทธิภาพ โดยต้องตอบคำถามให้ละเอียดและเป็นข้อมูลที่สามารถนำไปใช้วิเคราะห์ต่อได้ เช่น ระบุช่วงเวลา ตัวเลข หรือรายละเอียดเชิงปริมาณให้ชัดเจน เพื่อนำไปสู่การตัดสินใจที่แม่นยำยิ่งขึ้น

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี (2565) ได้ให้ความหมายว่า การระบุปัญหาที่ชัดเจนเป็นพื้นฐานในการกำหนดวัตถุประสงค์เพื่อแก้ไขปัญหาให้สอดคล้องกับสภาพปัญหาที่แท้จริง ซึ่งจะช่วยให้แก้ปัญหาได้ตรงจุด สามารถรวบรวมรายละเอียดของปัญหาได้ตรงประเด็น โดยเทคนิคหนึ่งที่สามารถนำมาใช้ในการวิเคราะห์สถานการณ์ปัญหาและช่วยให้ได้ข้อมูลที่นำ ไปสู่การกำหนดกรอบของปัญหา คือการใช้คำถาม 5W1H

จากข้อความดังกล่าวสรุปได้ว่า เทคนิค 5W1H หมายถึง เครื่องมือที่ช่วยวิเคราะห์ปัญหาอย่างเป็นระบบ โดยใช้คำถามหลัก 6 ข้อ ได้แก่ Who (ใครเกี่ยวข้อง), What (เกิดอะไรขึ้น), Where (ที่ไหน), When (เมื่อไร), Why (ทำไมถึงเกิด) และ How (ทำอย่างไร) เพื่อรวบรวมข้อมูลให้ครบถ้วน กระบวนการแก้ปัญหาประกอบด้วยการวิเคราะห์ข้อมูล คิดแนวทางแก้ไข คัดเลือกแนวทางที่เหมาะสม และนำไปปฏิบัติจริง การใช้ 5W1H ช่วยให้เข้าใจปัญหาชัดเจนและแก้ไขได้ตรงจุด

3. ความพึงพอใจ

วิรุฬ พรรณเทวี (2542) ได้ให้ความหมายความพึงพอใจ หมายถึง ความรู้สึก ภายในจิตใจของมนุษย์ที่ไม่เหมือนกันขึ้นอยู่กับแต่ละบุคคลว่าจะคาดหวังกับสิ่งหนึ่งอย่างไร ถ้าคาดหวังหรือมีความตั้งใจมากและ ได้รับการตอบสนองด้วยดีจะมีความพึงพอใจมาก แต่ในทาง ตรงกันข้ามอาจผิดหวังหรือไม่พึงพอใจเป็นอย่างยิ่งเมื่อไม่ได้รับการตอบสนองตามที่คาดหวังไว้ ทั้งนี้ ขึ้นอยู่กับสิ่งที่ตนตั้งใจไว้ว่ามีมากหรือน้อย

วฤทธิ์ สารฤทธิคาม (2548) กล่าวว่า ความพึงพอใจ หมายถึง ความรู้สึกหรือทัศนคติของบุคคลที่มีต่อสิ่งใดสิ่งหนึ่งหรือปัจจัย ต่าง ๆ ที่เกี่ยวข้องความรู้สึกพึงพอใจจะเกิดเมื่อความต้องการของบุคคลที่มีต่อสิ่งใดสิ่งหนึ่งหรือปัจจัยต่าง ๆ ที่เกี่ยวข้องความรู้สึกพึงพอใจจะเกิดขึ้นเมื่อความต้องการของบุคคลได้รับการตอบสนองหรือ บรรลุตามจุดมุ่งหมายในระดับหนึ่ง ความรู้สึกดังกล่าวจะลดลงหรือไม่เกิดขึ้น หากความต้องการหรือจุดมุ่งหมายนั้นไม่ได้รับการตอบสนอง ความพึงพอใจต่อการใช้บริการจึงเป็นความรู้สึกของผู้ที่มารับ บริการมีต่อสถานบริการตามประสบการณ์ที่ได้รับจากการเข้าไปติดต่อขอรับบริการในสถานบริการนั้น ๆ

อรรถพร คำคม (2546) ได้สรุปว่า ความพึงพอใจ หมายถึง ทัศนคติหรือระดับ ความพึงพอใจของบุคคลต่อกิจการรมต่าง ๆ ซึ่งสะท้อนให้เห็นถึงประสิทธิภาพของกิจกรรมนั้น โดยเกิดจากพื้นฐานของการรับรู้ ค่านิยมและประสบการณ์ที่แต่ละบุคคลจะได้รับ ระดับของ ความพึงพอใจจะเกิดขึ้นเมื่อกิจกรรมนั้น ๆ สามารถตอบสนองความต้องการแก่บุคคลนั้นได้

จากข้อความดังกล่าวสรุปได้ว่า ความพึงพอใจ หมายถึง ทัศนคติ ความรู้สึกในเชิงบวกที่เกิดจากภายในจิตใจต่อปัจจัยต่าง ๆ เมื่อบุคคลได้รับการตอบสนอง หรือบรรลุจุดมุ่งหมายตามที่ความคาดหวัง

4.งานวิจัยที่เกี่ยวข้อง

ดวงพร เฟื่องฟู (2560) ศึกษาการพัฒนาชุดกิจกรรมการอ่านจับใจความ โดยใช้เทคนิค 5W1H เพื่อส่งเสริมการอ่าน กลุ่มสาระการเรียนรู้วิชาภาษาไทย ของนักเรียนชั้นประถมศึกษาปีที่ 6 ผลการวิจัยพบว่า 1) นักเรียน มีคะแนน ไม่ต่ำกว่าร้อยละ 80% จำนวน 26 คน คิดเป็นร้อยละ 81.25 และมีนักเรียนไม่ผ่านเกณฑ์จำนวน 6 คน คิดเป็นร้อยละ 18.75 2) ประสิทธิภาพของชุดกิจกรรมการอ่านจับใจความโดยใช้เทคนิค 5W1H พบว่าประสิทธิภาพของชุดกิจกรรม E_1/ E_2 เท่ากับ 84/87.50 3) ความพึงพอใจของนักเรียนที่มีต่อชุดกิจกรรม การอ่านจับใจความ โดยใช้เทคนิค 5W1H ภาพรวมอยู่ในระดับมาก เมื่อพิจารณาเป็นรายด้าน จากมากไปน้อย พบว่า ด้านชุดกิจกรรมการอ่านจับใจความ และด้านประโยชน์ที่ได้รับตามลำดับ

ภัทรสุดา นาคสุข (2564) ศึกษาการพัฒนาความสามารถทางการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 6 โดยใช้เทคนิคการสอน 5W1H ร่วมกับวรรณกรรมท้องถิ่นภาคกลาง ผลการวิจัยพบว่า 1) ความสามารถทางการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 6 หลังเรียนสูงขึ้นกว่าก่อนเรียน โดยผลการทดสอบหลังเรียนมีค่าเฉลี่ย เท่ากับ 16.89 มากกว่าก่อนเรียนซึ่งมีค่าเฉลี่ยเท่ากับ 8.78

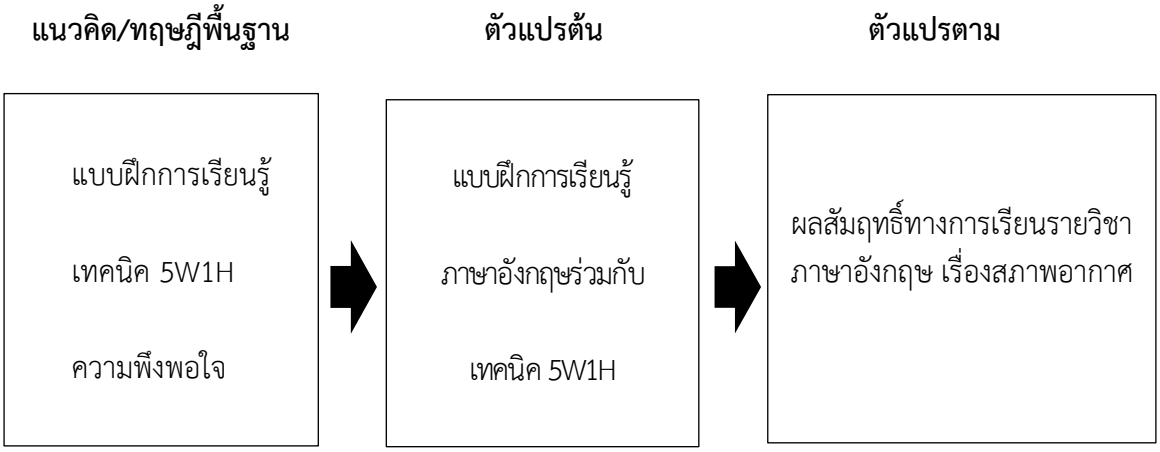
2) ผลการศึกษาความคิดเห็นของนักเรียนชั้น ประถมศึกษาปีที่ 6 ที่มีต่อการจัดการเรียนรู้โดยใช้เทคนิคการสอน 5W1H ร่วมกับวรรณกรรมท้องถิ่นภาคกลาง มีความคิดเห็นภาพรวมอยู่ในระดับเห็นด้วยมากที่สุด โดยความคิดเห็นด้านประโยชน์ที่ได้รับจากการเรียนรู้อยู่ในระดับความคิดเห็นมากที่สุด

ธุวานันท์ ณัฐเมธาธนาศิริ และมนตรี วงษ์สะพาน (2567) ศึกษาการพัฒนาการจัดกิจกรรมการเรียนรู้ด้วยเทคนิค 5W1Hร่วมกับชุดฝึกการอ่านจับใจความ เพื่อส่งเสริมความสามารถการอ่านจับใจความและการคิดวิเคราะห์ วิชาภาษาไทย ชั้นประถมศึกษาปีที่ 6 ผลการวิจัยพบว่า 1) ประสิทธิภาพของการจัดการเรียนรู้เทคนิค 5W1H ร่วมกับชุดฝึกการอ่านจับใจความ ของนักเรียนชั้นประถมศึกษาปีที่ 6 ตามเกณฑ์ 75/75 2) ค่าดัชนีประสิทธิผลของความสามารถในการอ่านจับใจความที่ได้รับการจัดการเรียนรู้เทคนิค 5W1H ร่วมกับชุดฝึกการอ่านจับใจความมีความสามารถในการอ่านจับใจความเท่ากับ 0.7616 หรือคิดเป็นร้อยละ 76.16 3) ผลการเปรียบเทียบความสามารถในการคิดวิเคราะห์ของนักเรียนชั้นประถมศึกษาปีที่ 6 หลังได้รับการพัฒนาการจัดกิจกรรมการเรียนรู้ด้วยเทคนิค 5W1H ร่วมกับชุดฝึกการอ่านจับใจความมีค่าสูงกว่าก่อนได้รับการพัฒนาการจัดกิจกรรมการเรียนรู้ด้วยเทคนิค 5W1H ร่วมกับชุดฝึกการอ่านจับใจความ 4) นักเรียนมีความพึงพอใจที่มีต่อชุดฝึกการอ่านจับใจความ โดยใช้การจัดการเรียนรู้เทคนิค 5W1H โดยภาพรวมอยู่ในระดับมาก

จากการศึกษางานวิจัยที่เกี่ยวข้อง พบว่า การใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H เป็นสิ่งที่สามารถส่งผลให้ผู้เรียนมีผลสัมฤทธิ์ทางการเรียนที่สูงขึ้น มีเจตคติที่ดีต่อการเรียน ดังนั้น ผู้วิจัยจึงได้สร้างแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H เรื่องสภาพอากาศ เพื่อพัฒนาผลสัมฤทธิ์ทางการเรียนของนักเรียน และศึกษาความพึงพอใจต่อการเรียนภาษาอังกฤษ

กรอบแนวคิดที่ใช้ในการวิจัย

การวิจัยในครั้งนี้เป็นการพัฒนาผลสัมฤทธิ์ทางการเรียนรายวิชาภาษาอังกฤษ เรื่องสภาพอากาศ โดยใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H ของนักเรียนชั้นประถมศึกษาปีที่ 3 โดยมีกรอบแนวคิดดังภาพที่ 1



ภาพที่ 1 กรอบแนวคิดงานวิจัย

วิธีดำเนินการวิจัย

1. รูปแบบการวิจัยการวิจัยครั้งนี้

การวิจัยครั้งนี้เป็นการวิจัยเชิงทดลองแบบมีกลุ่มตัวอย่าง 1 กลุ่ม ทดสอบก่อนและหลังการทดลอง (One group pretest -posttest design)

2. ประชากรและกลุ่มตัวอย่าง

ประชากรที่ใช้ในการศึกษา คือ นักเรียนชั้นประถมศึกษาปีที่ 3 ห้องโครงการพิเศษ (IEC) โรงเรียนสหศาสตร์วิทยาคาร อำเภอหาดใหญ่ จังหวัดสงขลา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวนห้องเรียน 2 ห้อง จำนวนนักเรียน 47 คน

กลุ่มตัวอย่าง คือ นักเรียนชั้นประถมศึกษาปีที่ 3/3 ห้องโครงการพิเศษ (IEC) โรงเรียนสหศาสตร์วิทยาคาร อำเภอหาดใหญ่ จังหวัดสงขลา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 23 คน โดยการสุ่มอย่างง่ายแบบจับฉลาก (Simple random sampling) ผู้วิจัยทำฉลาก 2 ห้อง โดยกำหนดกลุ่มทดลองและกลุ่มควบคุม

3. เครื่องมือที่ใช้ในการวิจัย

3.1 แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H เรื่องสภาพอากาศ ประกอบด้วย 4 ชุด ได้แก่ แบบฝึกการเรียนรู้บทสนทนา แบบฝึกการเรียนรู้จากเรื่องสั้น แบบฝึกการเรียนรู้จากนิทาน แบบฝึกการเรียนรู้จากข่าว โดยมีองค์ประกอบของชุดฝึก ได้แก่ คำแนะนำการใช้ เนื้อหาสาระ แบบทดสอบระหว่างเรียนโดยการใช้คำถาม Who (ใครเกี่ยวข้อง), What (เกิดอะไรขึ้น), Where (ที่ไหน), When (เมื่อไหร่), Why (ทำไมถึงเกิด) และ How (ทำอย่างไร) ผ่านการตรวจสอบจากผู้เชี่ยวชาญ จำนวน 3 คน มีค่า IOC อยู่ระหว่าง 0.67 - 1.00

3.2 แผนการจัดการเรียนรู้ จำนวน 4 แผน แผนละ 2 ชั่วโมง รวม 8 ชั่วโมง ประกอบด้วย 4 ชุด ได้แก่ แผนการจัดการเรียนรู้บทสนทนาสภาพอากาศ แผนการจัดการเรียนรู้จากเรื่องสั้นสภาพอากาศ แผนการจัดการเรียนรู้จากนิทานสภาพอากาศ แผนการจัดการเรียนรู้จากข่าวสภาพอากาศ และนำแผนการจัดการเรียนรู้ที่สร้างขึ้นเสนอต่อผู้เชี่ยวชาญ 3 ท่าน เพื่อตรวจสอบความถูกต้อง และความเหมาะสมของแผนการจัดการเรียนรู้

3.3 แบบทดสอบวัดผลสัมฤทธิ์ระหว่างก่อนและหลังเรียน (ข้อสอบชุดเดียวกันสลับข้อ) เรื่องสภาพอากาศ เป็นแบบปรนัยชนิดเลือกตอบ 4 ตัวเลือก จำนวน 40 ข้อ 20 คะแนน ผ่านการตรวจสอบจากผู้เชี่ยวชาญชุดเดิม จำนวน 3 คน มีค่า IOC ของแบบทดสอบทั้งฉบับ อยู่ระหว่าง 0.67 - 1.00 ความยากง่ายตั้งแต่ 0.20 - 0.80 และค่าอำนาจจำแนกตั้งแต่ 0.20 ขึ้นไป

3.4 แบบสอบถามความพึงพอใจที่มีต่อแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H เรื่อง สภาพอากาศ ผ่านการตรวจสอบจากผู้เชี่ยวชาญชุดเดิม จำนวน 3 คน มีค่า IOC ของแบบสอบถามอยู่ระหว่าง 0.67 - 1.00

4. เก็บรวบรวมข้อมูล

4.1 ผู้วิจัยให้นักเรียนทำแบบทดสอบก่อนเรียนแบบปรนัยชนิดเลือกตอบ 4 ตัวเลือก จำนวน 40 ข้อ 20 คะแนน

4.2 อธิบายและชี้แจงกิจกรรมการเรียนการสอน โดยใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H ให้นักเรียนเข้าใจ

4.3 เริ่มจัดกิจกรรมการเรียนการสอน โดยใช้แผนการจัดการเรียนรู้ ร่วมกับแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H เรื่อง สภาพอากาศ จำนวน 4 แผน แผนละ 2 ชั่วโมง รวมเวลา 8 ชั่วโมง แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H 4 ชุด ได้แก่ แบบฝึกการเรียนรู้บทสนทนา แบบฝึกการเรียนรู้จากเรื่องสั้น แบบฝึกการเรียนรู้จากนิทาน และแบบฝึกการเรียนรู้จากข่าว โดยมีองค์ประกอบของแบบฝึกแต่ละแบบฝึก ได้แก่ คำแนะนำการใช้ เนื้อหาสาระ แบบทดสอบระหว่างเรียน จำนวน 10 ข้อ 10 คะแนน โดยการใช้คำถาม Who (ใครเกี่ยวข้อง), What (เกิดอะไรขึ้น), Where (ที่ไหน), When (เมื่อไร), Why (ทำไมถึงเกิด) และ How (ทำอย่างไร)

4.4 เมื่อเสร็จสิ้นการสอนในแต่ละแผนการจัดการเรียนรู้ นักเรียนทำแบบทดสอบระหว่างเรียน จำนวน 10 ข้อ 10 คะแนน รวมทั้งหมด 40 ข้อ 40 คะแนน

4.5 หลังจากดำเนินการสอบครบทั้ง 4 แผน ผู้วิจัยให้นักเรียนทำแบบทดสอบวัดผลสัมฤทธิ์หลังเรียน แบบปรนัยชนิดเลือกตอบ 4 ตัวเลือก รวมทั้งหมด 40 ข้อ 20 คะแนน (ข้อสอบชุดเดียวกับก่อนเรียนสลับข้อ)

4.6 นักเรียนทำแบบสอบถามความพึงพอใจที่มีต่อแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H เรื่องสภาพอากาศ

4.7 เก็บรวบรวมข้อมูลทั้งหมดนำไปประมวลผลและวิเคราะห์

5. การวิเคราะห์ข้อมูล

5.1 วิเคราะห์หาประสิทธิภาพของแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H นักเรียนชั้นประถมศึกษาปีที่ 3 ตามเกณฑ์ 80/80 โดยใช้ค่าร้อยละ

5.2 วิเคราะห์เปรียบเทียบผลสัมฤทธิ์ของนักเรียนชั้นประถมศึกษาปีที่ 3 ระหว่างก่อนและหลังเรียน โดยใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H โดยใช้สถิติ Wilcoxon Signed Ranks Test

5.3 วิเคราะห์แบบสอบถามความพึงพอใจที่มีต่อแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H โดยใช้ค่าร้อยละ ค่าเฉลี่ย และค่าส่วนเบี่ยงเบนมาตรฐาน โดยกำหนดคะแนนความพึงพอใจ ดังนี้

ระดับน้อยที่สุด	กำหนดให้ 1 คะแนน
ระดับน้อย	กำหนดให้ 2 คะแนน
ระดับปานกลาง	กำหนดให้ 3 คะแนน
ระดับมาก	กำหนดให้ 4 คะแนน
ระดับมากที่สุด	กำหนดให้ 5 คะแนน

นำข้อมูลจากแบบสอบถามไปวิเคราะห์ผ่านโปรแกรมสำเร็จรูป เพื่อคำนวณหา ค่าร้อยละ ค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน และนำข้อมูลมาแปลความหมายของค่าเฉลี่ยความพึงพอใจโดยใช้เกณฑ์ ดังนี้

ค่าเฉลี่ย 4.51 – 5.00	แปลความได้ว่า	มีความพึงพอใจระดับมากที่สุด
ค่าเฉลี่ย 3.51 – 4.50	แปลความได้ว่า	มีความพึงพอใจระดับมาก
ค่าเฉลี่ย 2.51 – 3.50	แปลความได้ว่า	มีความพึงพอใจระดับปานกลาง
ค่าเฉลี่ย 1.51 – 2.50	แปลความได้ว่า	มีความพึงพอใจระดับน้อย
ค่าเฉลี่ย 1.00 – 1.50	แปลความได้ว่า	มีความพึงพอใจระดับน้อยที่สุด

ผลการวิจัย

การวิจัยเรื่องการพัฒนาผลสัมฤทธิ์ทางการเรียนรายวิชาภาษาอังกฤษ เรื่องสภาพอากาศ โดยใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H นักเรียนระดับชั้นประถมศึกษาปีที่ 3 ผู้วิจัยได้นำเสนอผลการวิจัยออกเป็น 3 ตอน ตามวัตถุประสงค์ของการวิจัย ดังนี้

ตอนที่ 1 วิเคราะห์หาประสิทธิภาพของแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H นักเรียนระดับชั้นประถมศึกษาปีที่ 3

ตารางที่ 1 การหาประสิทธิภาพของแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H นักเรียนระดับชั้นประถมศึกษาปีที่ 3

แบบทดสอบระหว่างเรียน (E_1)		**แบบทดสอบหลังเรียน (E_2)**		**ประสิทธิภาพ**
คะแนนเต็ม	ร้อยละ	คะแนนเต็ม	ร้อยละ	E_1/ E_2
40	83.91	20	86.52	83.91/86.52

จากตารางที่ 1 พบว่า ผลการวิเคราะห์ค่าประสิทธิภาพของแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H นักเรียนระดับชั้นประถมศึกษาปีที่ 3 มีประสิทธิภาพด้านกระบวนการ (E_1) เท่ากับ 83.91 และประสิทธิภาพของผลลัพธ์ (E_2) เท่ากับ 86.52 แสดงให้เห็นว่าแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H นักเรียนระดับชั้นประถมศึกษาปีที่ 3 มีประสิทธิภาพของกระบวนการและประสิทธิภาพของผลลัพธ์ (E_1/E_2) สูงกว่าเกณฑ์ 80/80 ที่กำหนดไว้

ตอนที่ 2 วิเคราะห์เปรียบเทียบผลสัมฤทธิ์ทางการเรียน เรื่องสภาพอากาศ โดยใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H นักเรียนระดับชั้นประถมศึกษาปีที่ 3

ตารางที่ 2 แสดงการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างก่อนและหลังเรียนวิชาภาษาอังกฤษ เรื่อง สภาพอากาศ โดยใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมเทคนิค 5W1H นักเรียนระดับชั้นประถมศึกษาปีที่ 3

ผลสัมฤทธิ์ทางการเรียนภาษาอังกฤษ	$\bar{X}$	**S.D.**	**Z**	**Sig.**
ก่อนเรียน	7.87	2.80	4.23**	.000
หลังเรียน	17.30	1.82		

จากตารางที่ 2 พบว่า ผลสัมฤทธิ์ก่อนเรียนได้คะแนนเฉลี่ย 7.87 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 2.80 ผลสัมฤทธิ์หลังเรียนได้คะแนนเฉลี่ย 17.30 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 1.82 ค่า **Z** เท่ากับ 4.23 แสดงว่านักเรียนชั้นประถมศึกษาปีที่ 3 ที่เรียนด้วยแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ 0.1

ตอนที่ 3 วิเคราะห์ผลการประเมินความพึงพอใจต่อการใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H นักเรียนระดับชั้นประถมศึกษาปีที่ 3

ตารางที่ 3 แสดงค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานความพึงพอใจต่อการใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H

ข้อที่	รายการ	$\bar{X}$	S.D.	แปลผล
ด้านเนื้อหา		**4.08**	**0.36**	**มาก**
1.	คำแนะนำ คำชี้แจง คำถามในการเรียนรู้ชัดเจน เหมาะสมต่อนักเรียน เข้าใจง่ายต่อการปฏิบัติตามคำสั่ง	4.26	0.54	มาก
2.	เนื้อหาแบบฝึก มีรูปแบบน่าสนใจตรงกับความต้องการสนใจต่อนักเรียน	4.09	0.73	มาก
3.	เนื้อหาแบบฝึกเหมาะสมกับเวลา	3.96	0.56	มาก
4.	เนื้อหาแบบฝึกมีความเหมาะสม และมีการเรียงลำดับต่อนักเรียน	4.04	0.71	มาก
5.	นักเรียนสามารถทบทวนเนื้อหาได้ด้วยตนเอง	4.04	0.56	มาก
ด้านกิจกรรม		**3.97**	**0.31**	**มาก**
1.	กิจกรรมมีความเหมาะสมต่อนักเรียน	4.04	0.56	มาก
2.	กิจกรรมเสริมสร้างความรู้	3.96	0.56	มาก
3.	กิจกรรมสามารถเรียนรู้ได้ตลอดเวลา	3.91	0.60	มาก
4.	นักเรียนมีส่วนร่วมในการทำกิจกรรม	3.87	0.55	มาก
5.	กิจกรรมการเรียนรู้เน้นการสื่อสารให้นักเรียนเข้าใจ	4.04	0.56	มาก
	ภาพรวม	**4.02**	**0.28**	**มาก**

จากตารางที่ 3 พบว่า นักเรียนมีความพึงพอใจต่อการใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H ในระดับมาก ($\bar{x}$ = 4.02 S.D. = 0.28) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อย พบว่า ด้านเนื้อหา ($\bar{x}$ = 4.08 S.D. = 0.36) และด้านกิจกรรม ($\bar{x}$ = 3.97 S.D. = 0.31) ซึ่งมีรายละเอียดแต่ละด้านดังนี้

ด้านเนื้อหามีความพึงพอใจอยู่ในระดับมาก เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อย คือ คำแนะนำ คำชี้แจง คำถามในการเรียนรู้ชัดเจน เหมาะสมต่อนักเรียน เข้าใจง่ายต่อการปฏิบัติตามคำสั่ง ($\bar{x}$ = 4.26 S.D. = 0.54) เนื้อหาแบบฝึก มีรูปแบบน่าสนใจตรงกับความต้องการสนใจต่อนักเรียน ($\bar{x}$ = 4.09 S.D. = 0.73) เนื้อหาแบบฝึกมีความเหมาะสม และมีการเรียงลำดับต่อนักเรียน ($\bar{x}$ = 4.04 S.D. = 0.71) นักเรียนสามารถทบทวนเนื้อหาได้ด้วยตนเอง ($\bar{x}$ = 4.04 S.D. = 0.56) และเนื้อหาแบบฝึกเหมาะสมกับเวลา ($\bar{x}$ = 3.96 S.D. = 0.56)

ด้านกิจกรรมมีความพึงพอใจอยู่ในระดับมาก เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อยคือ กิจกรรมมีความเหมาะสมต่อนักเรียน ($\overline{x}$ = 4.04 S.D. = 0.56) กิจกรรมการเรียนรู้เน้นการสื่อสารให้นักเรียนเข้าใจ ($\overline{x}$ = 4.04 S.D. = 0.56) กิจกรรมเสริมสร้างความรู้ ($\overline{x}$ = 3.96 S.D. = 0.56) กิจกรรมสามารถเรียนรู้ได้ตลอดเวลา ($\overline{x}$ = 3.91 S.D. = 0.60) และนักเรียนมีส่วนร่วมในการทำกิจกรรม ($\overline{x}$ = 3.87 S.D. = 0.55)

สรุปและอภิปรายผล

1. ผลการศึกษาประสิทธิภาพของแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H เรื่องสภาพอากาศ นักเรียนระดับชั้นประถมศึกษาปีที่ 3 พบว่า มีประสิทธิภาพด้านกระบวนการ (E_1) และประสิทธิภาพด้านผลลัพธ์ (E_2) เท่ากับ 83.91/86.52 สูงกว่าเกณฑ์การพิจารณา 80/80 ทั้งนี้ เป็นเพราะว่าเนื้อหาของแบบทดสอบมีความสอดคล้องกับสาระการเรียนรู้ นอกจากนี้นักเรียนได้ทำแบบฝึกการเรียนรู้อย่างสม่ำเสมอจนเกิดความรู้ ความเข้าใจ สามารถนำไปประยุกต์ใช้ในการเรียนรายวิชาอื่นได้ รวมถึงทำแบบทดสอบได้คะแนนที่สูงขึ้น ดังนั้นการพัฒนาผลสัมฤทธิ์ทางการเรียนรายวิชาภาษาอังกฤษ เรื่องสภาพอากาศ โดยใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H มีประสิทธิภาพที่จะช่วยให้นักเรียนมีผลสัมฤทธิ์ทางการเรียนสูงกว่าก่อนเรียน ซึ่งผลการศึกษาสอดคล้องกับงานวิจัยของดวงพร เฟื่องฟู (2560) ศึกษาการพัฒนาชุดกิจกรรมการอ่านจับใจความ โดยใช้เทคนิค 5W1H เพื่อส่งเสริมการอ่าน กลุ่มสาระการเรียนรู้วิชาภาษาไทย ของนักเรียนชั้นประถมศึกษาปีที่ 6 ผลการวิจัย พบว่า 1) นักเรียนมีคะแนนไม่ต่ำกว่าร้อยละ 80 จำนวน 26 คน คิดเป็นร้อยละ 81.25 และมีนักเรียนไม่ผ่านเกณฑ์จำนวน 6 คน คิดเป็นร้อยละ 18.75 2) ประสิทธิภาพของชุดกิจกรรมการอ่านจับใจความโดยใช้เทคนิค 5W1H พบว่า ประสิทธิภาพของชุดกิจกรรม E_1/ E_2 เท่ากับ 84/87.50 และยังสอดคล้องกับงานวิจัยของธุวานันท์ ณัฐเมธาธนาศิริ และมนตรี วงษ์สะพาน (2567) การพัฒนาการจัดกิจกรรมการเรียนรู้ด้วยเทคนิค 5W1H ร่วมกับชุดฝึกการอ่านจับใจความ เพื่อส่งเสริมความสามารถการอ่านจับใจความและการคิดวิเคราะห์ วิชาภาษาไทย ชั้นประถมศึกษาปีที่ 6 ผลการวิจัย พบว่า 1) นักเรียนมีคะแนนไม่ต่ำกว่าร้อยละ 80 จำนวน 26 คน คิดเป็นร้อยละ 81.25 และมีนักเรียนไม่ผ่านเกณฑ์จำนวน 6 คน คิดเป็นร้อยละ 18.75 2) ประสิทธิภาพของชุดกิจกรรมการอ่านจับใจความโดยใช้เทคนิค 5W1H พบว่า ประสิทธิภาพของชุดกิจกรรม E_1/ E_2 เท่ากับ 84/87.50 และยังสอดคล้องกับแนวคิดทฤษฎีของสุพรรณี ไชยเทพ (2544) ไว้ว่าแบบฝึกเสริมทักษะ หมายถึง เอกสารหรือแบบฝึกหัดที่ใช้เป็นสื่อประกอบการเรียนการสอนเพื่อให้ผู้เรียนได้ฝึกปฏิบัติเป็นการช่วยเสริมให้นักเรียนมีทักษะสูงยิ่งขึ้น

2. ผลการเปรียบเทียบเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างก่อนและหลังเรียนโดยใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H หลังใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H นักเรียนระดับชั้นประถมศึกษาปีที่ 3 มีผลสัมฤทธิ์หลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 ซึ่งสอดคล้องกับสมมติฐานการวิจัยที่ตั้งไว้ ซึ่งผลการศึกษาสอดคล้องกับงานวิจัยธุวานันท์ ณัฐเมธาธนาศิริ และมนตรี วงษ์สะพาน (2567) ศึกษาการพัฒนาการจัดกิจกรรมการเรียนรู้ด้วยเทคนิค 5W1H ร่วมกับชุดฝึกการอ่านจับใจความ เพื่อส่งเสริมความสามารถการอ่านจับใจความและการคิดวิเคราะห์ วิชาภาษาไทย ชั้นประถมศึกษาปีที่ 6 ผลการวิจัย พบว่า ผลการเปรียบเทียบความสามารถในการคิดวิเคราะห์ของนักเรียนชั้นประถมศึกษาปีที่ 6 หลังได้รับการพัฒนาการจัดกิจกรรมการเรียนรู้ด้วยเทคนิค 5W1H ร่วมกับชุดฝึกการอ่านจับใจความมีค่าสูงกว่าก่อนได้รับการพัฒนาการจัดกิจกรรมการ

เรียนรู้ด้วยเทคนิค 5W1H ร่วมกับชุดฝึกการอ่านจับใจความ และยังสอดคล้องกับงานวิจัยภัทรสุดา นาคสุข (2564) ศึกษาการพัฒนาความสามารถทางการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 6 โดยใช้เทคนิคการสอน 5W1H ร่วมกับวรรณกรรมท้องถิ่นภาคกลาง ผลการวิจัยพบว่า ความสามารถทางการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่6 หลังเรียนสูงขึ้นกว่าก่อนเรียน โดยผลการทดสอบหลังเรียนมีค่าเฉลี่ย เท่ากับ 16.89 มากกว่าก่อนเรียนซึ่งมีค่าเฉลี่ยเท่ากับ 8.78

3. ผลการศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 3 ที่มีต่อการใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H โดยรวมอยู่ในระดับมาก เมื่อพิจารณาเป็นรายด้าน พบว่าด้านเนื้อหามีความพึงพอใจอยู่ในระดับมาก รองลงมา ด้านกิจกรรมมีความพึงพอใจอยู่ในระดับมาก ตามลำดับ ทั้งนี้เพราะว่าความพึงพอใจต่อการใช้แบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H ส่งเสริมทักษะการคิด จากการตั้งคำถาม ช่วยให้นักเรียนคิดอย่างเป็นระบบ ซึ่งผลการศึกษาสอดคล้องกับงานวิจัยของดวงพร เฟื่องฟู (2560) ศึกษาการพัฒนาชุดกิจกรรมการอ่านจับใจความ โดยใช้เทคนิค 5W1H เพื่อส่งเสริมการอ่านกลุ่มสาระการเรียนรู้วิชาภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 6 ความพึงพอใจของนักเรียนที่มีต่อชุดกิจกรรม การอ่านจับใจความ โดยใช้เทคนิค 5W1H ภาพรวมอยู่ในระดับมาก และยังสอดคล้องกับแนวคิดทฤษฎีของอรรถพร คำคม (2546) ไว้ว่า ความพึงพอใจ หมายถึง ทัศนคติหรือระดับ ความพึงพอใจของบุคคลต่อกิจการรมต่าง ๆ ซึ่งสะท้อนให้เห็นถึงประสิทธิภาพของกิจกรรมนั้น โดยเกิดจากพื้นฐานของการรับรู้ค่านิยมและประสบการณ์ที่แต่ละบุคคลจะได้รับ ระดับของความพึงพอใจจะเกิดขึ้นเมื่อกิจกรรมนั้น ๆ สามารถตอบสนองความต้องการแก่บุคคลนั้นได้

ข้อเสนอแนะ

1. ข้อเสนอแนะในการนำผลการวิจัยไปใช้

1.1 ครูผู้สอนสามารถนำแบบฝึกการเรียนรู้ภาษาอังกฤษร่วมกับเทคนิค 5W1H ไปใช้พัฒนาผลสัมฤทธิ์ทางการเรียนวิชาภาษาอังกฤษ ชั้นประถมศึกษาปีที่ 3 ห้องอื่นที่โรงเรียนได้เช่นเดียวกัน

1.2 ครูผู้สอนควรมีความเข้าใจพื้นฐานต่อนักเรียนรายบุคคล เพราะแต่ละคนมีพื้นฐานแตกต่างกัน ดังนั้นครูผู้สอนจึงควรเลือกคำศัพท์ เนื้อหาหรือบทความ ที่มีความยากง่ายเหมาะสมกับระดับชั้นเรียนและศักยภาพของนักเรียน

2. ข้อเสนอแนะในการวิจัยครั้งต่อไป

2.1 ควรศึกษากับกลุ่มตัวอย่างที่มีขนาด 30 คน ขึ้นไป โดยใช้สถิติการเปรียบเทียบเช่น ค่า (t-Test) และ One Way ANOVA

2.2 ควรศึกษาเปรียบเทียบสมรรถนะการพัฒนาผลสัมฤทธิ์ของนักเรียนระหว่างการใช้เทคนิค 5W1H กับวิธีสอนตามรูปแบบอื่น เพื่อนำมาวิเคราะห์ว่าผลหลังการใช้ของทั้งสองวิธีมีความแตกต่างกันอย่างไร

2.3 ควรมีการนำแบบฝึกการเรียนรู้ร่วมกับเทคนิค 5W1H ไปใช้ศึกษาในรายวิชาอื่น

เอกสารอ้างอิง

ดวงพร เฟื่องฟู. (2560). การพัฒนาชุดกิจกรรมการอ่านจับใจความ โดยใช้เทคนิค 5W1H เพื่อส่งเสริมการอ่าน กลุ่มสาระการเรียนรู้วิชาภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 6. (วิทยานิพนธ์ปริญญามหาบัณฑิต สาขาวิชาหลักสูตรและการสอน). มหาวิทยาลัยธุรกิจบัณฑิตย์, กรุงเทพฯ.

ธุวานันท์ ณัฐเมธาธนาศิริ และมนตรี วงษ์สะพาน. (2567). การพัฒนาการจัดกิจกรรมการเรียนรู้ด้วยเทคนิค 5W1Hร่วมกับชุดฝึกการอ่านจับใจความ เพื่อส่งเสริมความสามารถการอ่านจับใจความและการคิดวิเคราะห์ วิชาภาษาไทย ชั้นประถมศึกษาปีที่ 6. วารสารศึกษาศาสตร์ มหาวิทยาลัยมหาสารคาม, 18(2), 87-101.

ปัณฑ์นพ ผจญทรพรรค ณัฐวุฒิ โพธิ์ทักษิณ และนรินทร์ มุกมณี. (2564). ปัญหาการเรียนภาษาอังกฤษของคนไทย. วารสาร มจร อุบลปริทรรศน์, 6(3), 911-920.

พินิจ จันทร์ซ้าย. (2546). การสร้างหนังสือและแบบฝึกทักษะประกอบการเรียนภาษาไทย ชั้นประถมศึกษาปีที่ 2 เรื่อง บุญผะเหวดร้อยเอ็ด แบบมุ่งประสบการณ์ภาษา. (วิทยานิพนธ์ปริญญาการศึกษามหาบัณฑิต สาขาวิชาหลักสูตรและการสอน). มหาวิทยาลัยมหาสารคาม, มหาสารคาม.

ภัทรสุดา นาคสุข. (2564). การพัฒนาความสามารถทางการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่6 โดยใช้เทคนิคการสอน 5W1H ร่วมกับวรรณกรรมท้องถิ่นภาคกลาง (วิทยานิพนธ์ปริญญามหาบัณฑิต สาขาวิชาหลักสูตรและวิธีสอน). มหาวิทยาลัยศิลปากร, นครปฐม.

วฤทธิ์ สารฤทธิคาม. (2548). ความพึงพอใจของประชาชนต่อการให้บริการขององค์การบริหาร ส่วนตำบล: กรณีศึกษาองค์การบริหารส่วนตำบลดอนงัว อำเภอบรบือ จังหวัดมหาสารคาม (วิทยานิพนธ์ปริญญามหาบัณฑิตสาขาวิชาการจัดการทั่วไป). มหาวิทยาลัยสุโขทัยธรรมาธิราช, กรุงเทพ.

วิรุฬ พรรณเทวี. (2542). ความพึงพอใจของประชาชนต่อการให้บริการของหน่วยงานกระทรวงมหาดไทยในอำเภอเมืองจังหวัดแม่ฮ่องสอน (วิทยานิพนธ์ปริญญาศึกษาศาสตรมหาบัณฑิตสาขาบริหารการศึกษา). มหาวิทยาลัยเชียงใหม่, เชียงใหม่.

วิทวัฒน์ ขัตติยะมาน และอมลวรรณ วีระธรรมโม. (2549). การสอนเพื่อพัฒนาการคิด. (พิมพ์ครั้งที่ 2). สงขลา : เทมการพิมพ์.

ศศิมา สุขสว่าง. (2563). การวิเคราะห์ข้อมูล ด้วย 5W1H Analytical thinking with 5W1H. สืบค้นเมื่อ 23 มีนาคม 2568, จาก https://www.sasimasuk.com/17106171/%E0%B8%81%E0%B8%B2%E0%B8%A3%E0%B8%A7%E0%B8%B4%E0%B9%80%E0%B8%84%E0%B8%A3%E0%B8%B2%E0%B8%B0%E0%B8%AB%E0%B9%8C%E0%B8%82%E0%B9%89%E0%B8%AD%E0%B8%A1%E0%B8%B9%E0%B8%A5-%E0%B8%94%E0%B9%89%E0%B8%A7%E0%B8%A2-5w1h-analytical-thinking-with-5w1h

สถาบันการทดสอบระดับชาติ. (2566). สรุปผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐานชั้นประถมศึกษาปีที่6 ปีการศึกษา 2566. สืบค้น 15 มกราคม 2568, จาก file:///C:/Users/KruNa/Downloads/pdf_1713426205.pdf

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี. (2565). การใช้คำถาม 5W1H. สืบค้น 1 มกราคม 2568, จาก https://www.ipst.ac.th/wp-content/uploads/2022/05/5W1H.pdf

สามารถ สว่างแจ้ง. (2565). กิจกรรมที่ส่งเสริมทักษะในศตวรรษที่ 21. วารสารรัชต์ภาคย์ (มนุษย์ศาสตร์และสังคมศาสตร์), 16(44), 14-22.

สุพรรณี ไชยเทพ. (2544). การใช้แบบฝึกเสริมทักษะเพื่อพัฒนาความสามารถด้านการอ่านและเขียนคำในวิชาภาษาไทย ของนักเรียนชั้นประถมศึกษาปีที่ 4.การค้นคว้าอิสระศึกษาศาสตรมหาบัณฑิต

บัณฑิตวิทยาลัย มหาวิทยาลัยเชียงใหม่.

สมศักดิ์ สินธุระเวชญ์. (2540). เอกสารทางวิชาการการพัฒนากระบวนการเรียนการสอน เอกสารลำดับที่ 33. กรุงเทพฯ : ไทยวัฒนาพาณิชย์.

อรรถพร คำคม. (2546). การให้บริการสินเชื่อของธนาคารอาคารสงเคราะห์ (ปริญญานิพนธ์ศิลปศาสตรมหาบัณฑิต สาขารัฐศาสตร์). มหาวิทยาลัยเกษตรศาสตร์, กรุงเทพ.

รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2

A Blended Learning Model Incorporating Process-based Writing Instruction and a Flipped Classroom Approach to Enhance the French Writing Skills for A2-level Students

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บทคัดย่อ

การวิจัยครั้งนี้ มีจุดมุ่งหมายเพื่อ 1) ศึกษาแนวคิดทฤษฎีในการสร้างรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 2) สร้างและหาประสิทธิภาพรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศสสำหรับนักเรียนระดับ A2 3) ศึกษาผลการจัดกิจกรรมการเรียนรู้โดยการใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 ของนักเรียนชั้นมัธยมศึกษาปีที่ 5 แผนการเรียนภาษาฝรั่งเศส โรงเรียนอำมาตย์พานิชนุกูล จังหวัดกระบี่ และ 4) ศึกษาค่าดัชนีประสิทธิผลของการสอนโดยรูปแบบการจัดการเรียนรู้แบบผสมผสานด้วยการสอนเขียนแบบเน้นกระบวนการ และห้องเรียนกลับด้านเพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 กลุ่มตัวอย่าง ได้แก่ นักเรียนระดับชั้นมัธยมศึกษาปีที่ 5 แผนการเรียนภาษาฝรั่งเศส ภาคเรียนที่ 2 ปีการศึกษา 2567 โรงเรียนอำมาตย์พานิชนุกูล จังหวัดกระบี่ จำนวน 17 คน เครื่องมือที่ใช้ในการวิจัย ได้แก่ แผนการจัดการเรียนรู้โดยใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 2 เรื่อง จำนวน 4 แผน ใช้เวลาสอน รวม 12 คาบ และแบบทดสอบอัตนัยวัดทักษะการเขียนภาษาฝรั่งเศส จำนวน 1 เรื่อง วิเคราะห์ข้อมูลด้วย ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และค่าดัชนีประสิทธิผล ผลการวิจัยพบว่า 1) แนวคิดทฤษฎีที่สำคัญในการสร้างรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศสสำหรับนักเรียนระดับ A2 ได้แก่ การสอนแบบผสมผสานการสอนเขียนแบบเน้นกระบวนการ การจัดการเรียนรู้แบบห้องเรียนกลับด้านและแนวทางการสอนภาษาฝรั่งเศสระดับ A2 ตามกรอบ CECRL 2) รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียน

ระดับ A2 ประกอบด้วย 6 ขั้นตอน ได้แก่ ขั้นที่ 1 prepare by flipped ขั้นที่ 2 pre-write and write in class ขั้นที่ 3 revise by flipped ขั้นที่ 4 revise again and edit in class ขั้นที่ 5 pre-publish by flipped และ ขั้นที่ 6 publish in class ซึ่งผลการตรวจสอบคุณภาพแผนการจัดการเรียนรู้ มีค่าเฉลี่ยโดยภาพรวม อยู่ในระดับ มากที่สุด ($\bar{x}$ = 4.84, S.D. = 0.16) ซึ่งเป็นไปตามเกฑฑ์ที่กำหนดไว้ และมีค่าประสิทธิภาพเท่ากับ 85.30/82.90 ซึ่งสูงกว่าเกณฑ์ที่วางไว้ 3) นักเรียนมีทักษะการเขียนภาษาฝรั่งเศสในภาพรวมอยู่ในระดับดีมาก คิดเป็นร้อยละ 80.80 4) ค่าดัชนีประสิทธิผลของการสอน โดยใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนภาษาฝรั่งเศสแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาความสามารถในการเขียนภาษาฝรั่งเศส มีค่าเท่ากับ 0.53 แสดงว่านักเรียนมีความรู้เพิ่มขึ้น 0.53 หรือคิดเป็นร้อยละ 53.13

คำสำคัญ: การเขียนภาษาฝรั่งเศส, การจัดการเรียนรู้แบบผสมผสาน, การเขียนแบบเน้นกระบวนการ, ห้องเรียนกลับด้าน

Abstract

This research study aimed to: 1) study theoretical concepts in creating a blended learning model incorporating process-based writing instruction and a flipped classroom approach to enhance French writing skills for A2-level students; 2) create and measure the effectiveness of the blended learning model incorporating process-based writing instruction and a flipped classroom approach to enhance French writing skills for A2-level students; and 3) examine the results of learning activity organization using a blended learning model incorporating process-based writing instruction and a flipped classroom approach to enhance French writing skills for A2-level students, French Program, Ammartpanichnukul School, Krabi Province, and 4) investigate the Teaching Effectiveness Index of the blended learning model incorporating process-based writing instruction and a flipped classroom approach to enhance French writing skills for A2-level students. The research samples were seventeen Grade 11, French Program students in the second semester 2 the academic year 2024 at Ammartpanichnukul School, Krabi Province. The research instruments were four teaching plans on the blended learning model incorporating process-based writing instruction and a flipped classroom approach to enhance French writing skills for A2-level students on two topics in the time duration of 12 periods and one subjective test for assessing French writing skills. The data were analyzed by percentage, mean, standard deviation, and effectiveness index.

This research study revealed that: 1) the vital theoretical concepts in the blended learning model incorporating process-based writing instruction and a flipped classroom approach to enhance French writing skills for A2-level students were blended learning, process-based writing instruction, flipped classroom, and French teaching approach at A2 CECRL level; 2) the blended learning model incorporating process-based writing instruction and a flipped classroom approach to enhance French writing skills for A2-level students

consists of six steps: (1) prepare by flipped, (2) pre-write and write in class, (3) revise by flipped, (4) revise again and edit in class, (5) pre-publish by flipped, (6) publish in class. The result of the quality learning management plan measurement was holistically at the highest level ($\bar{x}$ = 4.84, S.D. = 0.16) in accordance with the specified criteria, and the effective index was at 85.30/82.90, which was higher than the specified criteria. 3) the students' French writing skills were holistically at a good level, 80.80 percent, and 4) the effective index of the blended learning model incorporating process-based writing instruction and a flipped classroom approach to enhance French writing skills was 0.53, which indicated that the students had more knowledge at the percentage of 53.13.

Keywords: French writing ability, Blended learning, Writing instruction process-based, Flipped classroom

บทนำ

การเรียนรู้ภาษาต่างประเทศมีความสำคัญและจำเป็นอย่างยิ่งในชีวิตประจำวัน เนื่องจากภาษาเป็นเครื่องมือสำคัญในการติดต่อสื่อสาร การศึกษา การประกอบอาชีพ นำมาซึ่งความร่วมมือกับประเทศต่าง ๆ จึงสามารถกล่าวได้ว่า ภาษาฝรั่งเศสเป็นภาษาสากลอีกภาษาหนึ่งที่มีความสำคัญอย่างยิ่ง ในโลกปัจจุบัน ดังนั้น การจัดการเรียนการสอนภาษาฝรั่งเศสที่มีคุณภาพให้แก่ผู้เรียน จึงมีความจำเป็นอย่างยิ่งที่จะส่งเสริมให้ผู้เรียนใช้องค์ความรู้ทักษะทางภาษา นำไปประยุกต์ใช้ในการศึกษาต่อระดับที่สูงขึ้นและประกอบวิชาชีพต่อไปในอนาคตได้อย่างถูกต้อง และเหมาะสม (อุบล ละมั่งทอง, 2553)

ในการจัดการเรียนการสอนภาษาฝรั่งเศสทักษะที่ยากที่สุดในการเรียนภาษาก็คือ ทักษะการเขียน กล่าวคือในการเขียนสื่อสารได้ดีนั้น ต้องเริ่มจากการสะกดคำให้ถูกต้องเพราะการเขียนเป็นระบบสัญลักษณ์ ได้แก่ ตัวอักษร ซึ่งจะควบคู่ไปกับระบบเสียง ซึ่งมีความสลับซับซ้อน ต้องใช้การคิดวิเคราะห์ เรียบเรียงให้ถูกต้อง จึงจะทำให้การติดสื่อสารประสบผลสำเร็จ ดังคำกล่าวของ ชุดาภรณ์ แท่นอ่อน (2553) ว่าทักษะการเขียนเป็นทักษะที่ต้องฝึกฝน การที่ผู้เขียนจะเขียนสื่อความหมายได้ดีนั้น จะต้องเขียนได้ถูกต้องตามหลักการใช้กฎเกณฑ์ทางภาษาในการเชื่อมโยง เรียบเรียงและถ่ายทอดความคิดออกมา สอดคล้องกับ Bowen and Marks (1994) ที่กล่าวว่า ในการเรียนการสอนภาษานั้น ทักษะที่ก่อปัญหาให้กับครูและผู้เรียนมากที่สุด คือทักษะการเขียน เพราะทักษะการเขียนนั้นเป็นทักษะสุดท้ายและมีการฝึกฝนน้อย ซึ่งทำให้ผู้เรียนประสบความสำเร็จน้อย

ตามที่กล่าวมานั้น ทำให้ครูผู้สอนต้องพยายามหาวิธีการสอนเขียนที่ดี และเหมาะสมมาพัฒนาความสามารถในการเขียนให้กับนักเรียน ครูผู้สอนต้องมีเทคนิคในการดึงดูดความสนใจของผู้เรียน จัดการเรียนการสอนให้น่าสนใจไม่น่าเบื่อ เพื่อเป็นการส่งเสริมให้นักเรียนมีความสามารถและทักษะในการใช้ภาษาฝรั่งเศสดีขึ้น เกิดความชำนาญในการใช้ภาษามากขึ้น

ผู้วิจัยจึงได้ศึกษาวิธีการเขียนหลาย ๆ วิธีการ และพบว่า การเขียนแบบเน้นกระบวนการ เป็นวิธีการหนึ่งที่สามารถนำมาใช้ เพื่อพัฒนาความสามารถในการเขียนของนักเรียนได้ เพราะขั้นตอนในการเขียนประกอบด้วย กระบวนการคิดวิเคราะห์เนื้อหาที่จะนำมาใช้ในการเขียนการประเมิน เพื่อพิจารณาความสมเหตุสมผลและการตรวจทานข้อผิด นำไปสู่การปรับปรุงให้ได้ข้อความที่สื่อความหมายได้ชัดเจน (Richard & Kris, 1981) ตรงกับแนวคิดของ (Daniel, 2002) ที่ได้กล่าวว่า การเขียนแบบเน้นกระบวนการมีความ

เหมาะสมอย่างยิ่งสำหรับนักเรียน เนื่องจากจะช่วยให้นักเรียนสามารถสื่อสารผ่านงานเขียนของตนเองไปพร้อมกับการพัฒนาด้านภาษาและทักษะต่าง ๆ ไม่ว่าจะเป็นทักษะการพูดที่ใช้ในการแลกเปลี่ยนข้อมูลและการอ่านผลงานเพื่อตรวจทาน อีกทั้งนักเรียนยังมีโอกาสที่จะพัฒนาตนเองในด้านการใช้ไวยากรณ์และการสะกดคำอีกด้วย ซึ่งจากการวิเคราะห์ขั้นตอนการเขียนแบบเน้นกระบวนการของนักวิชาการ 4 ท่าน ผู้วิจัยเลือกใช้ขั้นตอนการเขียนแบบเน้นกระบวนการของคาสเวลล์และมาห์เลอร์มาใช้ในการวิจัยในครั้งนี้ ประกอบด้วย 5 ขั้นตอนคือ ขั้นก่อนการเขียน ขั้นการเขียน ขั้นการอ่านทบทวน ขั้นการอ่านพิสูจน์และขั้นการนำเสนอผลงาน

แต่เนื่องจากในการจัดการเรียนการสอนในห้องเรียนนั้นมีเวลาจำกัด โดยเฉพาะอย่างยิ่ง สำหรับการจัดการเรียนการสอนเพื่อพัฒนาทักษะการเขียน ซึ่งเป็นทักษะที่ต้องใช้เวลาในการฝึกฝนให้มีประสิทธิภาพมากยิ่งขึ้นนั้น ผู้วิจัยจึงนำแนวคิดการจัดการเรียนรู้แบบผสมผสานมาใช้ โดยออกแบบการจัดการเรียนรู้โดยใช้การเขียนแบบเน้นกระบวนการผสมผสาน กับการจัดการเรียนการสอนแบบห้องเรียนกลับด้าน เพื่อให้การออกแบบการจัดการเรียนรู้ดียิ่งขึ้น

การจัดการเรียนรู้แบบผสมผสาน คือ การเรียนการสอนที่มีกระบวนการเรียนการสอนแบบเผชิญหน้าที่ใช้วิธีการสอนที่หลากหลายผสมผสานกับการเรียนการสอนระบบออนไลน์ โดยมีจุดมุ่งหมายให้ผู้เรียนบรรลุเป้าหมายการเรียนรู้เป็นสำคัญ สอดคล้องกับการพัฒนาทักษะผู้เรียนในศตวรรษที่ 21 (วิจารณ์ พานิช, 2555) ทั้งนี้การจัดการเรียนรู้แบบผสมผสานการเรียนในห้องเรียนที่เป็นแบบเผชิญหน้าระหว่างผู้เรียนและผู้สอนกับการเรียนนอกห้องเรียน โดยผ่านกิจกรรมและเว็บไซด์ต่าง ๆ เป็นรูปแบบการเรียนรู้ที่ยืดหยุ่น ตอบสนองต่อความแตกต่างของผู้เรียนแต่ละคน (Curtis & Charles, 2004)

การจัดการเรียนการสอนแบบห้องเรียนกลับด้าน เป็นแนวทางจัดการเรียนการสอนแบบพลิกกลับโดยเปลี่ยนจากการสอนหน้าชั้นเรียนที่ครูถ่ายทอดความรู้ให้แก่นักเรียนหน้าชั้นเรียนและมอบหมายการบ้านให้นักเรียนกลับไปทำที่บ้าน เป็นการสอนโดยให้นักเรียนกลับไปเรียนเนื้อหาผ่านสื่อการเรียนรู้ต่าง ๆ ที่ครูจัดหาให้หรือที่นักเรียนสามารถเรียนรู้ได้เองที่บ้านหรือที่อื่น ๆ แต่ในชั่วโมงเรียนนักเรียนจะได้ทำกิจกรรมต่าง ๆ โดยมีครูเป็นผู้คอยดูแลให้คำแนะนำ

จากความเป็นมาและความสำคัญของปัญหาดังกล่าวข้างต้น ผู้วิจัยจึงสนใจที่จะนำรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน มาใช้จัดการเรียนรู้ เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 โดยศึกษากับนักเรียนชั้นมัธยมศึกษาปีที่ 5 แผนการเรียนภาษาฝรั่งเศส โรงเรียนอำมาตย์พานิชนุกูล ซึ่งประโยชน์ของการวิจัย คือ นักเรียนได้รับการพัฒนาทักษะการเขียนภาษาฝรั่งเศส และผลการวิจัยที่ได้จะเป็นแนวทางสำหรับครูผู้สอนภาษาฝรั่งเศส ในการนำรูปแบบการจัดการเรียนรู้ไปใช้ในการจัดการเรียนการสอน ตลอดจนเป็นแนวทางสำหรับครูผู้สอนภาษาต่างประเทศอื่น ๆ ในการนำวิธีการเขียนแบบเน้นกระบวนการไปใช้พัฒนาความสามารถของนักเรียนต่อไป

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาแนวคิดทฤษฎีในการสร้างรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2

2. เพื่อสร้างและหาประสิทธิภาพรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศสสำหรับนักเรียนระดับ A2

3. เพื่อศึกษาผลการจัดกิจกรรมการเรียนรู้ โดยการใช้รูปแบบการจัดการเรียนรู้แบบผสมผสานด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศสสำหรับนักเรียนระดับ A2 ของนักเรียนชั้นมัธยมศึกษาปีที่ 5 แผนการเรียนภาษาฝรั่งเศส โรงเรียนอำมาตย์พานิชนุกูล จังหวัดกระบี่

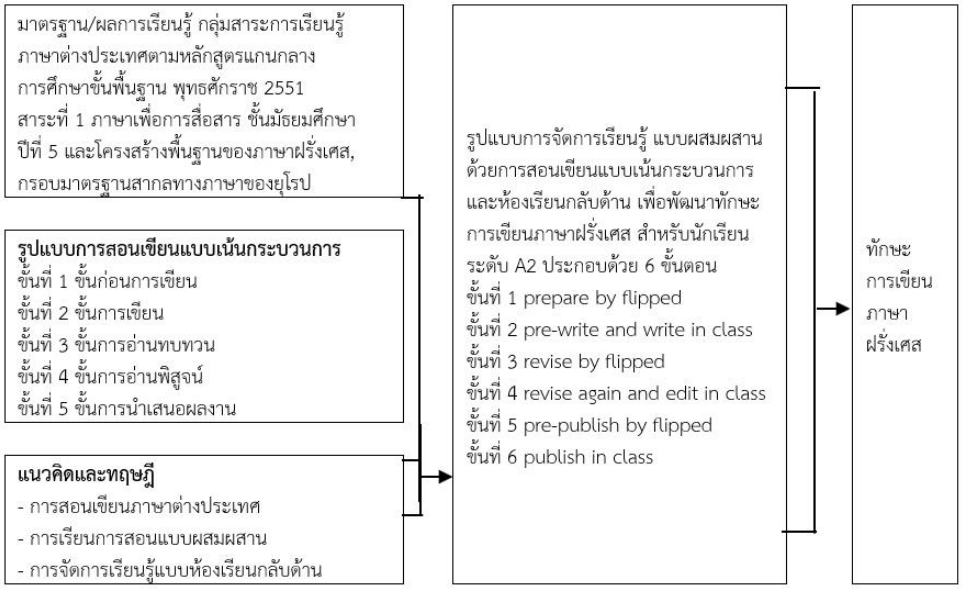
4. เพื่อศึกษาค่าดัชนีประสิทธิผลของการสอนโดยรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 ของนักเรียนชั้นมัธยมศึกษาปีที่ 5 แผนการเรียนภาษาฝรั่งเศส โรงเรียนอำมาตย์พานิชนุกูล จังหวัดกระบี่

แนวคิด ทฤษฎี กรอบแนวคิด

การวิจัย เรื่อง รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 การวิจัยครั้งนี้ผู้วิจัยได้ศึกษาเอกสารและงานวิจัยที่เกี่ยวข้อง เพื่อเป็นแนวทางในการวิจัยครั้งนี้ โดยมีรายละเอียดดังนี้

1. หลักสูตรแกนกลางการศึกษาขั้นพื้นฐานพุทธศักราช 2551 กลุ่มสาระการเรียนรู้ภาษาต่างประเทศ
2. ลักษณะสำคัญและโครงสร้างพื้นฐานของภาษาฝรั่งเศส
3. กรอบมาตรฐานความสามารถทางภาษาของสหภาพยุโรป
4. แนวคิดเกี่ยวกับการสอนเขียนภาษาต่างประเทศ
5. แนวคิดเกี่ยวกับการเรียนรู้แบบผสมผสาน
6. แนวคิดเกี่ยวกับการสอนเขียนแบบเน้นกระบวนการ
7. แนวคิดเกี่ยวกับการจัดการเรียนรู้แบบห้องเรียนกลับด้าน
8. แนวคิดเกี่ยวกับดัชนีประสิทธิผล
9. งานวิจัยที่เกี่ยวข้อง
10. กรอบแนวคิดในการวิจัย

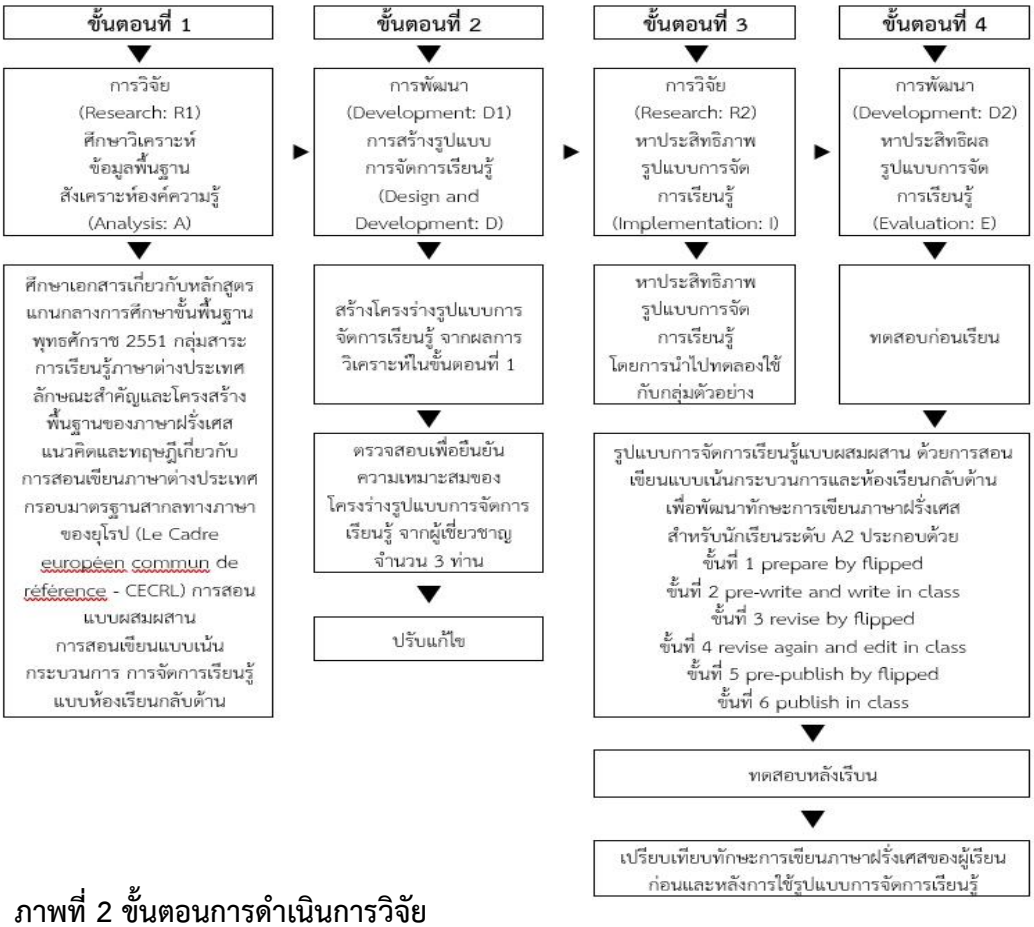
การวิจัยเรื่อง “รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศสสำหรับนักเรียนระดับ A2” มีกรอบแนวคิดในการวิจัย ดังนี้



ภาพที่ 1 กรอบแนวคิดในการวิจัย

วิธีดำเนินการวิจัย

การวิจัย เรื่อง “รูปแบบการจัดการเรียนรู้ แบบผสมผสานด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2” ผู้วิจัยดำเนินการโดยใช้กระบวนการวิจัยและพัฒนา โดยมีรายละเอียดและวิธีดำเนินการวิจัย ดังภาพที่ 2



ภาพที่ 2 ขั้นตอนการดำเนินการวิจัย

จากภาพที่ 2 วิธีดำเนินการวิจัย ผู้วิจัยดำเนินการตามขั้นตอนดำเนินการวิจัย ดังนี้

ขั้นตอนที่ 1 การสังเคราะห์แนวคิดทฤษฎีในการสร้างรูปแบบการจัดการเรียนรู้ แบบผสมผสานด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศสสำหรับนักเรียนระดับ A2

วิธีการศึกษา

ศึกษาเอกสารเกี่ยวกับหลักสูตรแกนกลางฯ ลักษณะสำคัญและโครงสร้างของภาษาฝรั่งเศส กรอบมาตรฐานสากลทางภาษาของยุโรป แนวคิดและทฤษฎีเกี่ยวกับการสอนเขียนภาษาต่างประเทศ การสอนแบบผสมผสานการสอนเขียนแบบเน้นกระบวนการ การจัดการเรียนรู้แบบห้องเรียนกลับด้าน

แหล่งข้อมูล

หลักสูตรแกนกลางฯ ลักษณะสำคัญและโครงสร้างของภาษาฝรั่งเศส กรอบมาตรฐานสากลทางภาษาของยุโรป แนวคิดและทฤษฎีเกี่ยวกับการสอนเขียนภาษาต่างประเทศ การสอนแบบผสมผสานการสอนเขียนแบบเน้นกระบวนการ การจัดการเรียนรู้แบบห้องเรียนกลับด้าน รวมทั้งงานวิจัยที่เกี่ยวข้อง

ขั้นตอนที่ 2 การสร้างรูปแบบการจัดการเรียนรู้แบบผสมผสานด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2

เครื่องมือ

1. แบบประเมินความสอดคล้อง (IOC) ตรวจสอบความถูกต้องและความเที่ยงตรงเชิงเนื้อหา (content validity) ของรูปแบบการจัดการเรียนรู้
2. แผนการจัดการเรียนรู้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2
3. แบบประเมินความความเหมาะสมของแผนการจัดการเรียนรู้ รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2
4. แบบทดสอบวัดความสามารถด้านการเขียนภาษาฝรั่งเศส (แบบทดสอบก่อนเรียนและแบบทดสอบหลังเรียน) และเกณฑ์การประเมินงานเขียน

การวิเคราะห์ข้อมูล

การหาค่าความเที่ยงตรงเชิงเนื้อหาของแบบทดสอบของแต่ละข้อ โดยใช้สูตร IOC หาค่าดัชนีความสอดคล้องของผู้เชี่ยวชาญทั้งหมด (ศิริชัย กาญจนวาสี 2559)

จากสูตร $IOC = \frac{\sum R}{N}$

เมื่อ IOC แทน ดัชนีความสอดคล้องระหว่างข้อสอบกับจุดประสงค์

$\sum R$ แทน ผลรวมของคะแนนความคิดเห็นของผู้เชี่ยวชาญทั้งหมด

N แทน จำนวนผู้เชี่ยวชาญทั้งหมด

ขั้นตอนที่ 3 การหาประสิทธิภาพรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศสสำหรับนักเรียนระดับ A2

เครื่องมือ

1. แผนการจัดการเรียนรู้ รูปแบบการจัดการเรียนรู้แบบผสมผสานด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศสสำหรับนักเรียนระดับ A2
2. แบบทดสอบวัดทักษะการเขียนภาษาฝรั่งเศส และเกณฑ์การประเมินงานเขียน

สถิติที่ใช้ในการวิเคราะห์ข้อมูล

1. ค่าเฉลี่ย (Arithmetic Mean) โดยคำนวณจากสูตรต่อไปนี้ (ภัทราพร เกษสังข์ 2559)

$$\bar{x} = \frac{\sum x}{N}$$

เมื่อ $\bar{x}$ แทน ค่าเฉลี่ย
$\sum x$ แทน ผลรวมทั้งหมดของคะแนน
N แทน จำนวนคนทั้งหมด

2. ส่วนเบี่ยงเบนมาตรฐาน (S.D.) โดยคำนวณจากสูตรต่อไปนี้ (ภัทราพร เกษสังข์ 2559)

$$\text{S.D.} = \sqrt{\frac{n\sum x^2}{n(n-1)}}$$

เมื่อ S.D. แทน ส่วนเบี่ยงเบนมาตรฐาน
x แทน คะแนนของกลุ่มนักเรียนแต่ละคน
N แทน จำนวนกลุ่มตัวอย่าง
Σ แทน ผลรวมคะแนน

3. ร้อยละ (Percentage) โดยใช้สูตร P (สมนึก ภัททิยธนี 2546)

$$P = \frac{f}{n} \times 100$$

เมื่อ P แทน ร้อยละ
x แทน ความถี่ที่ต้องการแปลงให้เป็นร้อยละ
n แทน จำนวนความถี่ทั้งหมด

4. การหาค่าประสิทธิภาพ ตามเกณฑ์ 80/80 (ชัยยงค์ พรหมวงศ 2556)

$$E = E_1 / E_2$$

เมื่อ E แทน ประสิทธิภาพของแผนการเรียนรู้เพื่อการเรียนการสอน
E_1 แทน การประเมินความรู้ที่เกิดขึ้นระหว่างการใช้แผนการเรียนรู้
E_2 แทน การประเมินขั้นสุดท้าย จากคะแนนสอบหลังการใช้แผนการเรียนรู้

<u>สูตรที่ 1</u>

$$E_1 = \frac{\frac{\sum X}{N}}{A} \times 100 \text{ หรือ } \frac{\bar{X}}{A} \times 100$$

เมื่อ E_1 คือ ประสิทธิภาพของกระบวนการ
$\sum X$ คือ คะแนนรวมของกิจกรรมที่ทำระหว่างเรียน
A คือ คะแนนเต็มของแบบฝึกปฏิบัติ ทุกชิ้นรวมกัน
N คือ จำนวนผู้เรียน

<u>สูตรที่ 2</u>

$$E_2 = \frac{\frac{\sum F}{N}}{B} \times 100 \text{ หรือ } \frac{\bar{F}}{B} \times 100$$

เมื่อ E_2 คือ ประสิทธิภาพของผลลัพธ์

$\sum F$ คือ คะแนนรวมของผลลัพธ์ของการประเมินหลังเรียน

B คือ คะแนนเต็มของการประเมินสุดท้ายของแต่ละหน่วย (ผลการสอบหลังเรียนและคะแนนจากการประเมินงานสุดท้าย)

N คือ จำนวนผู้เรียน

ขั้นตอนที่ 4 การหาประสิทธิผลรูปแบบการจัดการเรียนรู้แบบผสมผสานด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศสสำหรับนักเรียนระดับ A2

การทำวิจัยในครั้งนี้ ใช้แบบแผนการทดลองแบบกลุ่มทดลองกลุ่มเดียว วัดผลก่อนและหลังการทดลอง (One Group Pretest – Posttest Design)

O_1	X	O_2

X : การทดลองโดยใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน

O_1 : การทดสอบวัดความสามารถก่อนเรียน

O_2 : การทดสอบวัดความสามารถหลังเรียนกลุ่มตัวอย่างที่ใช้ในการวิจัย

ภาพที่ 3 แบบแผนการดำเนินการทดลอง

สถิติที่ใช้ในการวิเคราะห์ข้อมูล

1. สถิติพื้นฐาน ได้แก่ ร้อยละ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน
2. สถิติที่ใช้ในการหาคุณภาพเครื่องมือ

การหาค่าความเที่ยงตรงเชิงเนื้อหาของแบบทดสอบของแต่ละข้อ โดยใช้สูตร IOC หาค่าดัชนีความสอดคล้องของผู้เชี่ยวชาญทั้งหมด (ศิริชัย กาญจนวาสี 2559)

จากสูตร $IOC = \frac{\sum R}{N}$

เมื่อ IOC แทน ดัชนีความสอดคล้องระหว่างข้อสอบกับจุดประสงค์

$\sum R$ แทน ผลรวมของคะแนนความคิดเห็นของผู้เชี่ยวชาญทั้งหมด

N แทน จำนวนผู้เชี่ยวชาญทั้งหมด

3. สถิติที่ใช้ในการหาค่าดัชนีประสิทธิผล

ค่าดัชนีประสิทธิผล (E.I.) ใช้คำนวณหาพัฒนาการที่เพิ่มขึ้นของผู้เรียน

จากสูตร $E.I. = \frac{P_2 - P_1}{Total - P_1}$

เมื่อ E.I. แทน ค่าดัชนีประสิทธิผลของการสอนโดยรูปแบบการจัดการเรียนรู้

P_1 แทน ผลรวมของคะแนนก่อนเรียนทุกคน

P_2 แทน ผลรวมของคะแนนหลังเรียนทุกคน

Total แทน ผลคูณของจำนวนนักเรียนกับคะแนนเต็ม

เกณฑ์การแปลผลคะแนน

คะแนนเฉลี่ยร้อยละ 80-100 หมายถึง ความสามารถในการเขียนอยู่ในระดับดีมาก
คะแนนเฉลี่ยร้อยละ 60-79 หมายถึง ความสามารถในการเขียนอยู่ในระดับดี
คะแนนเฉลี่ยร้อยละ 40-59 หมายถึง ความสามารถในการเขียนอยู่ในระดับพอใช้
คะแนนเฉลี่ยร้อยละ 20-39 หมายถึง ความสามารถในการเขียนอยู่ในระดับควรปรับปรุง
คะแนนเฉลี่ยต่ำกว่าร้อยละ 20 หมายถึง ความสามารถในการเขียนอยู่ในระดับควรปรับปรุงอย่างยิ่ง

เกณฑ์การแปลผลค่าดัชนีประสิทธิผล (E.I.)

เผชิญ กิจระการ (2546) ได้กำหนดเกณฑ์การวัดผลและประเมินผลความสามารถเป็นระบบตัวเลขและระบบคำสำคัญสะท้อนมาตรฐาน ดังนี้

ค่าดัชนีประสิทธิผล มีค่าต่ำกว่า 0.50 หมายถึงไม่ผ่านเกณฑ์
ค่าดัชนีประสิทธิผล มีค่าอยู่ระหว่าง 0.50 – 1.00 หมายถึงผ่านเกณฑ์

ผลการวิจัย

ผลการวิเคราะห์ข้อมูล

ขั้นตอนที่ 1 การสังเคราะห์แนวคิดทฤษฎีในการสร้างรูปแบบการจัดการเรียนรู้ แบบผสมผสานด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศสสำหรับนักเรียนระดับ A2

จากการศึกษาทฤษฎีและงานวิจัยที่เกี่ยวข้อง พบว่าแนวคิดหลักที่นำมาใช้ในการสร้างรูปแบบการจัดการเรียนรู้ ได้แก่

1. แนวคิดการสอนเขียนแบบเน้นกระบวนการ ประกอบด้วย 5 ขั้นตอนหลัก ได้แก่ ขั้นที่ 1 ขั้นก่อนการเขียน ขั้นที่ 2 ขั้นการเขียน ขั้นที่ 3 ขั้นการอ่านทบทวน ขั้นที่ 4 ขั้นการอ่านพิสูจน์ ขั้นที่ 5 ขั้นการนำเสนอผลงาน มีการให้ฟีดแบ็กระหว่างกระบวนการเขียนช่วยให้ผู้เรียนพัฒนาการเขียนได้อย่างมีประสิทธิภาพ

2. แนวคิดห้องเรียนกลับด้าน เป็นการสลับบทบาทของห้องเรียน โดยให้ผู้เรียนศึกษาความรู้ด้วยตนเองก่อนเรียนผ่านวิดีโอหรือเอกสารเวลาที่ใช้ในชั้นเรียนมุ่งเน้นการฝึกปฏิบัติ การทำงานกลุ่มและแก้ไขข้อบกพร่องในการเขียน ส่งเสริมการเรียนรู้แบบ Active Learning ช่วยให้ผู้เรียนมีส่วนร่วมมากขึ้น

3. ทฤษฎีการเรียนรู้ที่เกี่ยวข้อง

3.1 ทฤษฎีการเรียนรู้ตามแนวคิดของ Vygotsky (Sociocultural Theory) สนับสนุนให้มีการเรียนรู้แบบร่วมมือ ซึ่งสอดคล้องกับการใช้การให้ข้อเสนอแนะและการเรียนรู้ผ่านกระบวนการเขียน

3.2 ทฤษฎี Cognitive Load Theory ชี้ให้เห็นว่าการเรียนรู้แบบห้องเรียนกลับด้านสามารถช่วยลดภาระทางปัญญา ทำให้ผู้เรียนสามารถทำความเข้าใจกระบวนการเขียนได้ง่ายขึ้น

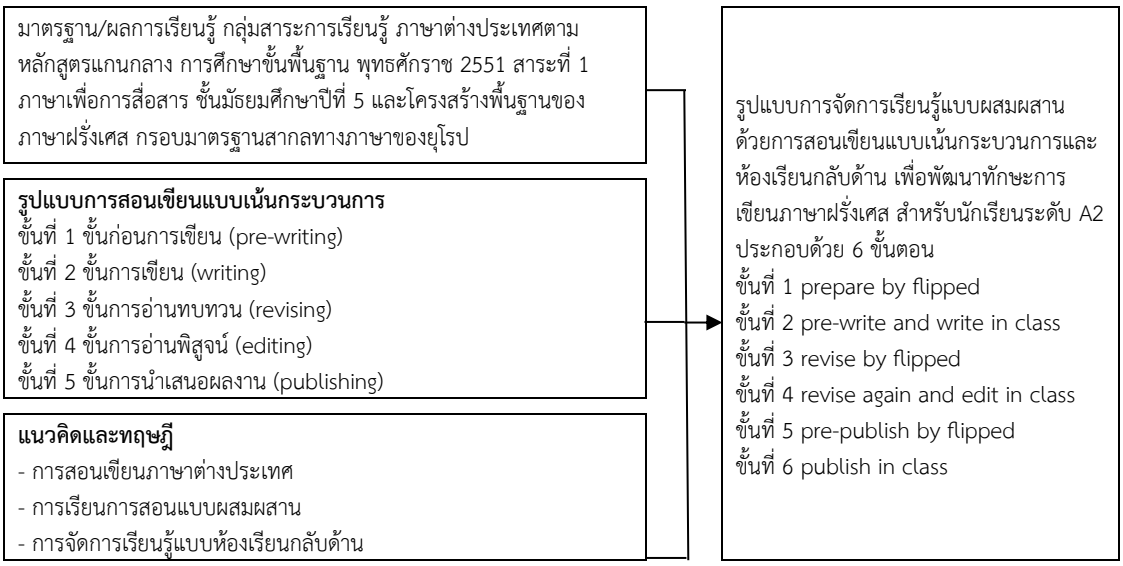
3.3 ทฤษฎี Constructivism สนับสนุนการเรียนรู้แบบลงมือปฏิบัติ ซึ่งสอดคล้องกับแนวทางการสอนเขียนแบบเน้นกระบวนการ ที่ให้ผู้เรียนฝึกเขียนเป็นลำดับขั้นตอน

4. แนวทางการสอนภาษาฝรั่งเศสระดับ A2 ตามกรอบ CECRL

4.1 ผู้เรียนระดับ A2 ควรได้รับการฝึกฝนให้สามารถ เขียนข้อความสั้น ๆ อธิบายเรื่องราวที่คุ้นเคยและใช้โครงสร้างไวยากรณ์พื้นฐานได้ถูกต้อง

ขั้นตอนที่ 2 การสร้างรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2

ผู้วิจัยได้สร้างรูปแบบการจัดการเรียนรู้ ซึ่งได้มาจากการศึกษาวิเคราะห์แนวคิด หลักการ และทฤษฎีที่เกี่ยวข้องกับการสอนเขียนภาษาต่างประเทศ กรอบมาตรฐานสากลทางภาษาของยุโรป การสอนแบบผสมผสาน การสอนเขียนแบบเน้นกระบวนการ การจัดการเรียนรู้แบบห้องเรียนกลับด้าน ดังภาพที่ 4



ภาพที่ 4 รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2

จึงได้จากการสังเคราะห์องค์ความรู้ จึงได้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 เป็นรูปแบบการจัดการเรียนสอน เพื่อพัฒนาความสามารถในการเขียนภาษาฝรั่งเศสภายใต้เนื้อหาเรื่องการบรรยายเรื่องราวในอดีต (Raconter l'histoire au passé) โดยใช้ temps du passé ต่าง ๆ เช่น Le passé composé, L'imparfait เป็นต้น โดยอ้างอิงเนื้อหาส่วนหนึ่งจากบทเรียนในหนังสือ Adosphère 2 : Module 5 Hugo

ขั้นตอนการจัดกระบวนการเรียนรู้: จากการสังเคราะห์องค์ความรู้ จึงได้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 ประกอบด้วย 6 ขั้นตอน ดังนี้ ขั้นที่ 1 prepare by flipped ขั้นที่ 2 pre-write and write in class ขั้นที่ 3 revise by flipped ขั้นที่ 4 revise again and edit in class ขั้นที่ 5 pre-publish by flipped และ ขั้นที่ 6 publish in class

การวัดและประเมินผล

การวัดและประเมินผลการจัดการเรียนรู้เป็นขั้นตอนที่สะท้อนให้เห็นผลที่เกิดจากการใช้รูปแบบการจัดการเรียนรู้ จะมีการประเมินผลก่อนเรียน ระหว่างเรียนและหลังเรียน เป็นการแสดงให้เห็นว่าการใช้รูปแบบการจัดการเรียนรู้ทำให้ผู้เรียนเปลี่ยนพฤติกรรมตามหลักการ และจุดมุ่งหมายของรูปแบบการจัดการเรียนรู้ ซึ่งผู้วิจัยได้ใช้วิธีการวัดและประเมินผลของศูนย์นานาชาติด้านการจัดการเรียนการสอน (Centre International d'Études Pédagogiques: CIEP) มาปรับใช้ดังนี้

เกณฑ์การให้คะแนนงานเขียนของศูนย์นานาชาติด้านการจัดการเรียนการสอน (CIEP) ที่ผู้วิจัยนำมาปรับใช้

การปฏิบัติตามคำสั่ง (respect de la consigne)	2 คะแนน
การใช้ภาษาและไวยากรณ์ (morphosyntaxe/ orthographe grammaticale)	4 คะแนน
การใช้ศัพท์และสำนวน /การสะกดคำ (lexique/ orthographe lexicale)	3 คะแนน
การให้ข้อมูลและ/หรือการเขียนบรรยาย (capacité à informer et/ou à décrire)	4 คะแนน
การเชื่อมโยงและความสัมพันธ์ของเนื้อหา (cohérence et cohésion)	2 คะแนน
รวม	**15 คะแนน**

ขั้นตอนที่ 3 การหาประสิทธิภาพรูปแบบการจัดการเรียนรู้แบบผสมผสานด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศสสำหรับนักเรียนระดับ A2 ตามเกณฑ์การตัดสินประสิทธิภาพของรูปแบบการจัดการเรียนรู้ คิดเป็นค่าเฉลี่ยตามเกณฑ์ 80/80 โดยที่

80 ตัวแรก หมายถึง ร้อยละ 80 ของคะแนนเฉลี่ยจากผลการประเมินของผู้เรียน เช่น ใบกิจกรรมการนำเสนอ เป็นต้น ระหว่างการใช้นวัตกรรมการจัดการเรียนรู้

80 ตัวหลัง หมายถึง ร้อยละ 80 ของคะแนนเฉลี่ยจากผลการทำแบบทดสอบการเขียนภาษาฝรั่งเศสหลังการใช้รูปแบบการจัดการเรียนรู้

พบว่า ค่าประสิทธิภาพแบบภาคสนาม (1:100) ประสิทธิภาพรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 ได้ค่าประสิทธิภาพ 85.30/82.90 ซึ่งตรงตามเกณฑ์ 80/80 สามารถนำไปใช้ในการทดลองหาประสิทธิผลในขั้นตอนต่อไปได้

ขั้นตอนที่ 4 การหาประสิทธิผลรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 มีผลการวิเคราะห์ข้อมูล ดังนี้

1. การศึกษาความสามารถในการเขียนภาษาฝรั่งเศสของนักเรียน โดยใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 พบว่า นักเรียนมีทักษะการเขียนภาษาฝรั่งเศส ก่อนการใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 อยู่ในระดับพอใช้ โดยมีคะแนนเฉลี่ยคิดเป็นร้อยละ 41.20 ส่วนทักษะการเขียนภาษาฝรั่งเศสของนักเรียน หลังการใช้รูปแบบการจัดการเรียนรู้ พบว่า อยู่ในระดับดีมาก โดยมีคะแนนเฉลี่ยคิดเป็นร้อยละ 80.80

2. การศึกษาค่าดัชนีประสิทธิผล (E.I.) ของการสอนโดยใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 พบว่า ในภาพรวม ค่าดัชนีประสิทธิผลมีค่าเท่ากับ 0.5313 แสดงว่านักเรียนมีความรู้ความสามารถในการเขียนภาษาฝรั่งเศสเพิ่มขึ้น 0.5313 หรือคิดเป็นร้อยละ 53.13 แสดงว่าการสอนโดยใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศสสำหรับนักเรียนระดับ A2 สามารถพัฒนาทักษะการเขียนของนักเรียนได้

สรุปและอภิปรายผล

ผลการวิจัยสรุปตามจุดมุ่งหมายของการวิจัย ดังนี้

1. ผลการสังเคราะห์แนวคิดทฤษฎีในการสร้างรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 ได้ผลการวิเคราะห์ ดังนี้

1.1 หลักการสำคัญของรูปแบบการจัดการเรียนรู้

จากการศึกษาทฤษฎีและแนวปฏิบัติด้านการสอนภาษา พบว่าการผสมผสานระหว่างการสอนแบบผสมผสานการสอนเขียนแบบเน้นกระบวนการ การจัดการเรียนรู้แบบห้องเรียนกลับด้าน สามารถส่งเสริมการพัฒนาทักษะการเขียนได้อย่างมีประสิทธิภาพ เนื่องจากแต่ละองค์ประกอบมีจุดแข็งเฉพาะตัว ดังนี้

1) การสอนแบบผสมผสาน ช่วยเพิ่มโอกาสในการเรียนรู้อย่างยืดหยุ่น ทั้งสภาพ แวดล้อมการเรียนรู้แบบออนไลน์และออฟไลน์ ซึ่งช่วยให้ผู้เรียนสามารถฝึกฝนทักษะการเขียนได้ต่อเนื่อง ผ่านกิจกรรมที่หลากหลาย

2) การสอนเขียนแบบเน้นกระบวนการ เน้นให้ผู้เรียนเรียนรู้ กระบวนการเขียนเป็นลำดับขั้นตอน ตั้งแต่การวางแผน การร่าง การแก้ไข และการตรวจทาน ซึ่งช่วยพัฒนาทักษะการคิดเชิงวิพากษ์และทักษะการเขียนอย่างเป็นระบบ

3) การจัดการเรียนรู้แบบห้องเรียนกลับด้าน ช่วยให้ผู้เรียนมีโอกาสเรียนรู้เนื้อหาพื้นฐานก่อนเข้าชั้นเรียน ผ่านสื่อออนไลน์ ทำให้เวลาในห้องเรียนถูกใช้ไปกับกิจกรรมการปฏิบัติจริง

1.2 ความสัมพันธ์ของแนวคิดและทฤษฎีที่เกี่ยวข้อง

จากการสังเคราะห์แนวคิดที่เกี่ยวข้องพบว่าหลักการของการสอนแบบผสมผสาน การสอนเขียนแบบเน้นกระบวนการ การจัดการเรียนรู้แบบห้องเรียนกลับด้านสอดคล้องกับแนวคิดทางภาษาศาสตร์ ประสบการณ์การเรียนรู้ และจิตวิทยาการเรียนรู้ ได้แก่

1) ทฤษฎีการเรียนรู้ตามแนวคิดของ Vygotsky (Sociocultural Theory) สนับสนุนให้มีการเรียนรู้แบบร่วมมือ ซึ่งสอดคล้องกับการใช้ การให้ข้อเสนอแนะ และการเรียนรู้ผ่านกระบวนการเขียน

2) ทฤษฎี Cognitive Load Theory ชี้ให้เห็นว่าการเรียนรู้แบบห้องเรียนกลับด้านสามารถช่วยลดภาระทางปัญญา ทำให้ผู้เรียนสามารถทำความเข้าใจกระบวนการเขียนได้ง่ายขึ้น

3) ทฤษฎี Constructivism สนับสนุนการเรียนรู้แบบลงมือปฏิบัติ ซึ่งสอดคล้องกับแนวทางการสอนเขียนแบบเน้นกระบวนการที่ให้ผู้เรียนฝึกเขียนเป็นลำดับขั้นตอน

1.3 แนวทางการสอนภาษาฝรั่งเศสระดับ A2 ตามกรอบ CECRL

จากการสังเคราะห์แนวคิด พบว่า การออกแบบรูปแบบการเรียนรู้แบบผสมผสานที่รวมกระบวนการสอนเขียนและห้องเรียนกลับด้าน สามารถตอบสนองความต้องการของผู้เรียนระดับ A2 ได้ในหลายประเด็น ดังนี้

1) ช่วยให้ผู้เรียนมีโอกาสฝึกฝนอย่างเป็นระบบ ผู้เรียนระดับ A2 ยังต้องการการสนับสนุนเชิงกระบวนการ และแบบฝึกหัดที่มีโครงสร้างชัดเจน ซึ่งห้องเรียนกลับด้านและการสอนเขียนแบบเน้นกระบวนการสามารถช่วยส่งเสริมได้

2) เพิ่มความมั่นใจและลดความวิตกกังวลในการเขียน การได้รับข้อเสนอแนะอย่างต่อเนื่องจากทั้งผู้สอนและเพื่อน สามารถช่วยลดความกังวลของผู้เรียนเกี่ยวกับการใช้ไวยากรณ์และโครงสร้างประโยค

3) พัฒนาทักษะการใช้คำศัพท์และโครงสร้างประโยคที่ซับซ้อนขึ้น ห้องเรียนกลับด้านช่วยให้ผู้เรียนมีเวลาศึกษาโครงสร้างภาษาและแบบอย่างการเขียนก่อนเข้าชั้นเรียน ทำให้สามารถนำไปใช้ในกิจกรรมการเขียนจริงได้อย่างมีประสิทธิภาพ

4) กระตุ้นแรงจูงใจในการเรียนรู้ การใช้เทคโนโลยีและกิจกรรมแบบโต้ตอบใน Blended Learning ช่วยให้ผู้เรียนมีความสนใจมากขึ้น และทำให้การฝึกเขียนเป็นกิจกรรมที่สนุกและมีเป้าหมายชัดเจน

2. ผลการสร้างและหาประสิทธิภาพรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 องค์ความรู้ที่ใช้ในการพัฒนารูปแบบการจัดการเรียนรู้ ประกอบด้วย 1) มาตรฐาน/ ผลการเรียนรู้ กลุ่มสาระการเรียนรู้ภาษาต่างประเทศตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 สาระที่ 1 ภาษาเพื่อการสื่อสาร ชั้นมัธยมศึกษาปีที่ 5 และโครงสร้างพื้นฐานของภาษาฝรั่งเศส 2) กรอบมาตรฐานสากลทางภาษาของยุโรป 3) แนวคิดและทฤษฎี เกี่ยวกับการสอนเขียนภาษาต่างประเทศ การเรียนการสอนแบบผสมผสาน การจัดการเรียนรู้แบบห้องเรียนกลับด้าน และ 4) ขั้นตอนการสอนเขียนแบบเน้นกระบวนการ สังเคราะห์ออกมาเป็นรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 ซึ่งประกอบด้วยกิจกรรมนอกห้องเรียน และกิจกรรมในชั้นเรียน ผ่านกระบวนการสอนเขียนแบบเน้นกระบวนการ ประกอบด้วย 6 ขั้นตอน ดังนี้ ขั้นที่ 1 prepare by flipped ขั้นที่ 2 pre-write and write in class ขั้นที่ 3 revise by flipped ขั้นที่ 4 revise again and edit in class ขั้นที่ 5 pre-publish by flipped และ ขั้นที่ 6 publish in class ซึ่งผลการตรวจสอบคุณภาพแผนการจัดการเรียนรู้ มีค่าเฉลี่ยโดยภาพรวม อยู่ในระดับ มากที่สุด ($\bar{X}$= 4.84, S.D. = 0.16) ซึ่งเป็นไปตามเกฑณ์ที่กำหนดไว้

รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 มีการทดลองใช้แบบภาคสนาม (Field Tryout) จำนวน 14 คน ผลคะแนนเฉลี่ยรวมระหว่างเรียน คิดเป็นร้อยละ 85.30 และมีคะแนนเฉลี่ยรวมหลังเรียน คิดเป็นร้อยละ 82.90 มีประสิทธิภาพเท่ากับ 85.30/82.90 ซึ่งสูงกว่าเกณฑ์ที่วางไว้ จึงสรุปได้ว่า รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 มีประสิทธิภาพ

3. ผลการหาประสิทธิผลรูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 พบว่า

1) นักเรียนมีทักษะเขียนภาษาฝรั่งเศส ก่อนการใช้รูปแบบการจัดการเรียนรู้แบบผสมผสานด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศสสำหรับนักเรียนระดับ A2 อยู่ในระดับพอใช้ โดยมีคะแนนเฉลี่ยคิดเป็นร้อยละ 41.20 เมื่อพิจารณาเป็นรายบุคคล พบว่า นักเรียนส่วนใหญ่มีความสามารถอยู่ในระดับพอใช้ จำนวน 8 คน ระดับควรปรับปรุง จำนวน 7 คน และระดับดี จำนวน 2 คน ส่วนทักษะการเขียนภาษาฝรั่งเศสของนักเรียน หลังการใช้

รูปแบบการจัดการเรียนรู้ พบว่า อยู่ในระดับดีมาก โดยมีคะแนนเฉลี่ยคิดเป็นร้อยละ 80.80 เมื่อพิจารณาเป็นรายบุคคล พบว่า นักเรียนส่วนใหญ่มีความสามารถอยู่ในระดับดีมาก จำนวน 12 คน และระดับดี จำนวน 5 คน

2) เมื่อพิจารณาเป็นรายด้าน พบว่า ก่อนการใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 นักเรียนมีความสามารถด้านการปฏิบัติตามคำสั่งสูงที่สุด อยู่ในระดับดี ส่วนด้านที่มีคะแนนความสามารถต่ำที่สุดคือ ด้านการใช้ภาษาและไวยากรณ์ สำหรับความสามารถในการเขียนภาษาฝรั่งเศสแต่ละด้าน หลังการใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 พบว่า อยู่ในระดับดีมากเกือบทุกด้าน ด้านที่มีคะแนนความสามารถสูงที่สุดคือ ด้านการปฏิบัติตามคำสั่ง ส่วนด้านที่มีคะแนนความสามารถต่ำที่สุดคือ ด้านการใช้ภาษาและไวยากรณ์

3) เมื่อพิจารณาคะแนนผลต่างของทักษะการเขียนภาษาฝรั่งเศสในแต่ละด้าน ระหว่างก่อนและหลังการใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 พบว่า นักเรียนมีการพัฒนาในด้านการให้ข้อมูลและ/หรือการเขียนบรรยายมากที่สุด คิดเป็นร้อยละ 50.00 รองลงมา คือ ด้านการเชื่อมโยงและความสัมพันธ์ของเนื้อหา คิดเป็นร้อยละ 41.00 ด้านการใช้ศัพท์และสำนวน/การสะกดคำ คิดเป็นร้อยละ 33.34 ด้านการปฏิบัติตามคำสั่ง คิดเป็นร้อยละ 32.50 ส่วนด้านที่นักเรียนมีการพัฒนาความสามารถเพิ่มขึ้นน้อยที่สุดคือ ด้านการใช้ภาษาและไวยากรณ์ คิดเป็นร้อยละ 32.2

4. ผลการศึกษาการศึกษาค่าดัชนีประสิทธิผล (E.I.) ของการสอนโดยใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 พบว่า ในภาพรวม ค่าดัชนีประสิทธิผลมีค่าเท่ากับ 0.5313 แสดงว่านักเรียนมีทักษะการเขียนภาษาฝรั่งเศสเพิ่มขึ้น 0.5313 หรือคิดเป็นร้อยละ 53.13 เมื่อพิจารณาค่าดัชนีประสิทธิผลของการสอน เป็นรายแผน พบว่า มีค่าอยู่ระหว่าง 0.5 - 0.5726 ซึ่งเกณฑ์ที่กำหนดต้องมีค่ามากกว่า 0.50 ขึ้นไป แสดงว่า การสอนโดยใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนแบบเน้นกระบวนการและห้องเรียนกลับด้าน เพื่อพัฒนาทักษะการเขียนภาษาฝรั่งเศส สำหรับนักเรียนระดับ A2 สามารถพัฒนาความสามารถในการเขียนของนักเรียนได้

ข้อเสนอแนะ

ข้อเสนอแนะในการนำผลการวิจัยไปใช้ประโยชน์

1. การจัดกิจกรรมการเรียนรู้นอกห้องเรียน โดยการมอบหมายให้นักเรียนไปศึกษาบทเรียนก่อนล่วงหน้าด้วยตนเองนั้น ควรเริ่มจากการทำแบบบันทึกสำหรับบันทึกสิ่งที่ได้เรียนรู้ เพื่อให้นักเรียนได้เรียนรู้และทำความเข้าใจได้อย่างมีประสิทธิภาพครอบคลุมเนื้อหาที่ควรรู้จากนั้น เมื่อนักเรียนคุ้นชินกับการเรียนรู้ด้วยตนเองแล้ว นักเรียนจะสามารถจดบันทึกด้วยตนเองได้อย่างมีประสิทธิภาพ

2. การที่ครูมอบหมายให้นักเรียนใช้สื่ออิเล็กทรอนิกส์ในการเข้าถึงบทเรียนด้วยตนเองนั้น ครูต้องมั่นใจว่า นักเรียนมีศักยภาพในการเข้าถึงสื่ออิเล็กทรอนิกส์ได้อย่างแท้จริงและสะดวกสบาย ต้องไม่ทำให้การเข้าถึงการศึกษาของนักเรียนเป็นเรื่องที่ยากต่อนักเรียนมากกว่าเดิม

3. ด้านภาษาและไวยากรณ์เป็นด้านที่นักเรียนมีคะแนนความสามารถน้อยที่สุด อาจเนื่องจากด้าน

นี้เป็นด้านที่ยากเพราะมีกฎเกณฑ์การใช้ภาษา ครูจึงควรทบทวนเนื้อหาด้านนี้บ่อย ๆ โดยอาจให้นักเรียนทำแบบฝึกหัดเพิ่มเติม เพื่อเสริมความเข้าใจและเพิ่มความแม่นยำให้มากขึ้น

4. ครูควรใช้การเสริมแรงทางบวก ให้กำลังใจและสร้างแรงจูงใจให้นักเรียนเห็นถึงประโยชน์ของการเรียนวิชาภาษาฝรั่งเศส

ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

1. ควรศึกษาการจัดทำสื่อนวัตกรรมอิเล็กทรอนิกส์ ทั้งในแง่ของการออกแบบและการสร้างสรรค์เพื่อสร้างสื่อการเรียนรู้ประเภทอื่น ๆ เพื่อนำมาใช้ประกอบในการจัดการเรียนรู้เป็นการเพิ่มประสิทธิภาพในการเรียนรู้ของนักเรียนให้มีผลการเรียนรู้ที่สูงขึ้น

2. ควรมีการศึกษาพัฒนาความสามารถในการเขียนภาษาต่างประเทศที่สองอื่น ๆ โดยใช้รูปแบบการจัดการเรียนรู้แบบผสมผสาน ด้วยการสอนเขียนภาษาฝรั่งเศสแบบเน้นกระบวนการและห้องเรียนกลับด้าน

เอกสารอ้างอิง

ชัยยงค์ พรหมวงศ์. (2556). ระบบสื่อการสอน. กรุงเทพฯ: สำนักพิมพ์จุฬาลงกรณ์มหาวิทยาลัย.

ชุดาภรณ์ แท่นอ่อน. (2553). ผลสัมฤทธิ์ทางการเขียนภาษาอังกฤษโดยใช้การฝึกเขียนแบบเน้นกระบวนการของนักเรียนชั้นมัธยมศึกษาปีที่ 6 โรงเรียนดงเจนวิทยาคม สำนักเขตพื้นที่การศึกษาพะเยา เขต 1. (วิทยานิพนธ์ครุศาสตรมหาบัณฑิต). มหาวิทยาลัยราชภัฏเชียงราย, เชียงราย.

ภัทราพร เกษสังข์. (2559). การวิจัยปฏิบัติการ. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

วิจารณ์ พานิช. (2555). วิถีสร้างการเรียนรู้เพื่อศิษย์ในศตวรรษที่ 21. กรุงเทพฯ: มูลนิธิสดศรี-สฤษดิ์วงศ์.

ศิริชัย กาญจนวาสี. (2559). การเลือกใช้สถิติที่เหมาะสมสำหรับการวิจัย. กรุงเทพฯ: โรงพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

สมนึก ภัททิยธนี. (2546). การวัดผลการศึกษา. พิมพ์ครั้งที่ 4. กาฬสินธุ์: ประสานการพิมพ์.

อุบล ละมั่งทอง. (2553). การออกแบบการเรียนรู้วิชาภาษาฝรั่งเศส: เอกสารประกอบการอบรมเชิงปฏิบัติการจัดทำหลักสูตรสถานศึกษา กลุ่มสาระการเรียนรู้ภาษาต่างประเทศ (ภาษาฝรั่งเศส) ตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. สำนักงานเขตพื้นที่การศึกษาปทุมธานี เขต 2.

Bowen, T., & Marks, J. (1994). Inside Teaching. Oxford: Heinemann.

Curtis J. B. & Charles R. G. (2004). Handbook of Blended Learning: Global Perspectives, Local Designs. San Francisco: Pfeiffer Publishing.

Daniel J. (2002). The Process Writing Method. California: Palmquist Elementary School.

Richard M. C. & Kris G. (1981). Using Problem-Solving Procedures and Process Analysis to Help Students with Writing Problems. National Council of Teachers of English, 32(3), https://www.jstor.org/stable/356189

Vernon L., (2001). The Writing Process: A Scaffolding Approach Considerations Packet. Williamsburg: William & Mary School of Education.

การส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษาสถาบันการอาชีวศึกษาภาคกลาง 3

Promoting Morality, Ethics and Desirable Characteristics Institutions of Vocational Education Central Regian 3 students.

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บทคัดย่อ

การวิจัยครั้งนี้ มีวัตถุประสงค์เพื่อ 1) ศึกษาระดับการปฏิบัติที่มีต่อการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา สถาบันการอาชีวศึกษาภาคกลาง 3 2) เปรียบเทียบการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ ของนักศึกษา สถาบันการอาชีวศึกษาภาคกลาง 3 จำแนกตามเพศ ระดับการศึกษา สถานภาพทางครอบครัว และฐานะทางเศรษฐกิจของครอบครัว โดยรวมและเป็นรายด้าน 3) ศึกษาการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ ของนักศึกษาสถาบันการอาชีวศึกษาภาคกลาง 3 กลุ่มตัวอย่างที่ใช้ในการวิจัย ได้แก่ ผู้บริหาร จำนวน 5 คน ครูอาจารย์ จำนวน 50 คน นักศึกษาสถาบันการอาชีวศึกษาภาคกลาง 3 ระดับประกาศนียบัตรวิชาชีพ (ปวช.) และ ระดับประกาศนียบัตรวิชาชีพชั้นสูง (ปวส.) และนักศึกษาระดับเทคโนโลยีบัณฑิต รวมจำนวน 959 คน ได้มาโดยการเปิดตารางของเครซี่และมอร์แกน และกลุ่มตัวอย่างแบบสัมภาษณ์ (Interview Form) คือ กลุ่มผู้บริหารสถานศึกษา จำนวน 5 คน คือ ผู้อำนวยการสถานศึกษา วิทยาลัยเทคนิคสมุทรปราการ วิทยาลัยเทคนิคนครนายก วิทยาลัยเทคนิคสระแก้ว วิทยาลัยเทคนิคฉะเชิงเทรา และวิทยาลัยเทคนิคปราจีนบุรี เพื่อหาแนวทางส่งเสริม และพัฒนาคุณธรรม จริยธรรม และ คุณลักษณะอันพึงประสงค์ของนักศึกษา โดยการเลือกแบบเจาะจง เครื่องมือที่ใช้ในการวิจัยเป็นแบบสอบถามมาตราส่วนประมาณค่า 5 ระดับ และแบบสัมภาษณ์ สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ค่าความถี่ ค่าร้อยละ ค่าเฉลี่ย ค่าเบี่ยงเบนมาตรฐาน การทดสอบ t-test การวิเคราะห์ความแปรปรวน ทางเดียว One-way ANOVA

ผลการวิจัย

1. ศึกษาการส่งเสริมคุณธรรม จริยธรรมและคุณลักษณะอันพึงประสงค์นักศึกษาผลรวมรายด้านอยู่ในระดับมาก

2. ผลการเปรียบเทียบความคิดเห็นเกี่ยวกับส่งเสริมคุณธรรม จริยธรรมและคุณลักษณะอันพึงประสงค์ของนักศึกษาสถาบันการอาชีวศึกษาภาคกลาง 3 ตามความคิดเห็นของนักศึกษา ทั้ง 4 ด้าน โดยรวมไม่แตกต่างกัน

3. การส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา สถาบันการอาชีวศึกษาภาคกลาง 3 มีดังนี้ 1) ด้านการกำหนดระเบียบปฏิบัติและการควบคุมดูแล เพื่อส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ ควรมีการจัดข้อกำหนดและระเบียบของวิทยาลัยฯ เพื่อควบคุมดูแลส่งเสริมคุณลักษณะที่พึงประสงค์ โดยมีการจัดทำโครงการปฐมนิเทศ เพื่อแจ้งแนวทางปฏิบัติตามระเบียบวิทยาลัย แจ้งข่าวสาร การคัดกรอง กำกับ ดูแล จัดระบบการดูแลช่วยเหลือผู้เรียน รวมทั้งหลักความเป็นธรรมในการพิจารณาตัดสินการกระทำผิดของผู้เรียน แก่ผู้ปกครอง ผู้เรียน ผู้บริหาร และครูทุกคน 2) ด้านการจัดสภาพแวดล้อมในสถานศึกษา เพื่อส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ ควรมีการจัดสิ่งแวดล้อมทั้งหมดในสถานศึกษาโดย ปรับปรุง ซ่อมแซม ตกแต่งอาคารเรียน ปลูกไม้ดอก ไม้ประดับ เพื่อสร้างบรรยากาศ ในการเรียน ให้น่าอยู่ และมีความสะอาดเป็นระเบียบเรียบร้อยทั้งในโรงอาหาร ห้องสุขา สนามกีฬา โดยจัดสร้างพระพุทธรูปและองค์พระวิษณุกรรม ตลอดจนมีการจัดเวรยามรักษาความปลอดภัย 3) ด้านการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของสถาบันการอาชีวศึกษาภาคกลาง 3 ควบคู่กับการจัดกิจกรรมการเรียนการสอน ครูผู้สอนควรมีการดูแลเอาใจใส่ผู้เรียนโดยการให้โอวาทแก่ผู้เรียนทุกครั้งก่อนเริ่มกิจกรรมการเรียนการสอน สอดแทรกในทุกรายวิชาที่เรียน โดยมีครูผู้สอนประพฤติปฏิบัติตนเป็นแบบอย่างที่ดี มีการเชิดชูเกียรติผู้เรียนในการทำความดีเพื่อสร้างแรงบันดาลใจในการส่งเสริมตนเองให้เป็นคนดี 4) ด้านการจัดกิจกรรมส่งเสริมผู้เรียน เพื่อส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ ควรมีการจัดกิจกรรมที่หลากหลาย โดยเน้นผู้เรียนเป็นสำคัญ สถานศึกษามีการร่วมมือกับหน่วยงานภายนอกโดยส่งผู้เรียนเข้าร่วมโครงการเกี่ยวกับกิจกรรมส่งเสริมคุณธรรม จริยธรรม ส่งเสริมผู้เรียนให้เป็นคนตรงเวลา ผู้เรียนได้มีส่วนร่วมในการเสนอโครงการต่างเน้นการเป็นคนดี คนเก่ง โดยสถานศึกษาให้ความสำคัญในการจัดกิจกรรมต่าง ๆ เช่น กิจกรรมโครงการส่งเสริมมารยาทไทย กิจกรรมงดอบายมุขต่าง ๆ กิจกรรม Big Cleaning Day กิจกรรมการแข่งขันกีฬาภายใน กิจกรรมชมรมวิชาชีพ เป็นต้น

คำสำคัญ: การส่งเสริม คุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ สถาบันการอาชีวศึกษาภาคกลาง 3

Abstract

This research aimed to 1) study the level of practice towards promoting morality, ethics, and desirable characteristics of Institute Vocational Education Central 3 students. 2) compare the promotion of morality, ethics, and desirable characteristics of Institute Vocational Education Central 3 students, classified by gender, education level family status, and the economic status of the family overall and on a side-by-side basis. 3) study the ideas of those involved in promoting morality, ethics, and desirable characteristics of Institute Vocational Education Central 3 students. The sample group used in the research included 5 administrators, 50 teachers, students of Institute Vocational Education Central 3, vocational certificate level (Vocational Certificate) and the higher vocational certificate level and bachelor of Technology students, a total of 959 students, were obtained by opening Krejcie and Morgan's tables A sample group of interviews (interview form) to find ways to promote and develop morality, ethics, and desirable characteristics of students,

consisting of the educational institution director, 1 person, teacher, student activity supervisor, 1 person, teacher, administrative supervisor, 1 person, teacher, building and location supervisor, 1 person, teacher, supervisor, advisor teacher, 1 person, teacher teaching civic duties and morality, 1 person, totaling 6 people, by specifying a specific sample (purposive sampling). The research tools were a questionnaire, a 5-level rating scale, and an interview form. Statistics used in data analysis include frequency, percentage, mean, standard deviation, t-test, one-way analysis of variance, one-way ANOVA, and testing of differences in mean scores per pair by Scheffc's method.

Research results

1. Study moral promotion ethics and desirable characteristics of students, the results of each aspect were a high level.

2. Results of comparing opinions regarding promoting morality Ethics and character desired by the Institute Vocational Education Central 3 students, according to students' opinions, were not different in all 4 aspects.

3. The ideas of those involved in promoting morality, ethics, and desirable characteristics of the Institute Vocational Education Central 3 students were as follows: 1) setting regulations and supervision to promote morality, ethics, and desirable characteristics, the requirements and regulations of the college should be organized to control, and promote desirable characteristics of Institute Vocational Education Central 3 along with organizing teaching, and learning activities, teachers should take care of their learners by instructing them every time before starting teaching activities, inserted into every subject studied by the teachers behave themselves as good examples. There were honored students for doing good deeds to inspire them to promote themselves to be good people. 4) Organizing activities to promote students' morality, ethics, and desirable characteristics. There should be a variety of activities organized, focusing on students' importance. Educational institutions cooperate with external agencies by sending students to participate in projects that involve promoting morality and ethics and encouraging students to be punctual. Students participated in presenting various projects that focused on being good people and talented people. Educational institutions gave importance to organizing various activities such as Thai manners promotion activities, activities to refrain from various vices, big cleaning day activities, internal sports competition activities, professional club activities, etc.

Keywords: promotion, morality, ethics, and desirable characteristics, Institute Vocational Education Central 3

บทนำ

จากรายงานสรุปผลการประเมินพฤติกรรมของนักศึกษาในแต่ละปี สถาบันการอาชีวศึกษาภาคกลาง 3 พบปัญหาเกี่ยวกับพฤติกรรมด้านคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษาหลาย ๆ ด้าน เช่น การแต่งกายไม่ถูกระเบียบของสถานศึกษา การมาเรียนสาย การขาดเรียนบ่อยครั้ง นักศึกษาไม่สนใจเรียน และในขณะที่ครูทำการเรียนการสอน นักศึกษาไม่ส่งงานตามเวลาที่กำหนด จากข้อมูลดังกล่าวมีนักศึกษาที่ถูกว่ากล่าวตักเตือนเพื่อให้ปรับพฤติกรรม ตลอดจนไม่ผ่านการประเมินผลการเข้าร่วมกิจกรรม นักศึกษาจะต้องลงทะเบียนซ่อมเสริมกิจกรรม การบำเพ็ญประโยชน์และเข้ารับการฝึกอบรมค่ายคุณธรรม จริยธรรม ในการปรับเปลี่ยนพฤติกรรม โดยปัญหาส่วนใหญ่เกิดจากการขาดคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ที่ดี

ผู้วิจัยซึ่งมีหน้าที่รับผิดชอบการบริหารงานดังกล่าว ของสถาบันการอาชีวศึกษาภาคกลาง 3 ได้มองเห็นความสำคัญในการส่งเสริมคุณธรรม จริยธรรมของนักศึกษารวมทั้งการแก้ปัญหาและส่งเสริมผู้เรียนในภาพรวม จึงมีความสนใจที่จะทำการศึกษาวิจัย เรื่อง การส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา สถาบันการอาชีวศึกษาภาคกลาง 3 และนำผลการวิจัยไปแก้ปัญหาโดยทำการวางแผนในการพัฒนานักศึกษาให้เป็นผู้ที่มีคุณธรรม จริยธรรมและคุณลักษณะที่พึงประสงค์พร้อมเป็นกำลังคนด้านวิชาชีพของประเทศชาติต่อไป

วัตถุประสงค์ของการวิจัย

1 เพื่อศึกษาระดับการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษาสถาบันการอาชีวศึกษาภาคกลาง 3

2 เพื่อเปรียบเทียบ การส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษาสถาบันการอาชีวศึกษาภาคกลาง 3 ตามความคิดเห็นของนักศึกษา จำแนกตามเพศ ระดับการศึกษา สถานภาพทางครอบครัว และฐานะทางเศรษฐกิจของครอบครัว โดยรวมและเป็นรายด้าน

3. เพื่อศึกษาแนวทางการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะ อันพึงประสงค์ของนักศึกษาสถาบันการอาชีวศึกษาภาคกลาง 3

แนวคิด ทฤษฎี กรอบแนวคิด

สถาบันการอาชีวศึกษาภาคกลาง 3 ให้ความสำคัญในการปลูกฝังคุณธรรมจริยธรรมให้กับนักศึกษาทุกคน เพราะถือว่าเป็นสถาบันที่ใกล้ชิดกับนักศึกษาเป็นอันดับสองรองจากสถาบันครอบครัว และสังคมก็คาดหวังว่านักศึกษาของสถาบันการอาชีวศึกษาภาคกลาง 3 จะเป็นคนดีด้วยการอบรมสั่งสอนของครูและเห็นว่าสถาบันการอาชีวศึกษาภาคกลาง 3 ต้องมีส่วนรับผิดชอบโดยตรง ดังนั้นสถาบันการอาชีวศึกษาภาคกลาง 3 จะต้องมุ่งมั่นตั้งใจขับเคลื่อนการดำเนินการปลูกฝังคุณธรรมจริยธรรมให้กับ นักศึกษาโดยผ่านกระบวนการและกิจกรรมที่หลากหลาย ด้วยความร่วมมือของผู้มีส่วนเกี่ยวข้องทุกฝ่าย ในการกำกับดูแลส่งเสริมและสนับสนุนนักศึกษา ให้เป็นคนดีของสังคมและประเทศชาติต่อไป

กรมการศาสนา กระทรวงวัฒนธรรม (2561) ได้กล่าวถึงการส่งเสริมคุณธรรมจริยธรรมว่าต้องเน้นการพัฒนาร่วมกันทั้งระบบในสถานศึกษา ผู้ที่เกี่ยวข้องกับการส่งเสริมคุณธรรม จริยธรรมในสถานศึกษาได้แก่ ผู้บริหาร ครูผู้สอน นักศึกษา ผู้ปกครอง และชุมชน สำหรับขั้นตอนในการส่งเสริมคุณธรรมจริยธรรมในสถานศึกษามี 7 ขั้นตอน ดังนี้ 1) การศึกษาปัญหาเพื่อกำหนดปรัชญา นโยบาย และเป้าหมาย

ของโรงเรียน 2) การจัดตั้งองค์กรในสถานศึกษาและพัฒนาบุคลากร 3) การสร้างความสัมพันธ์กับผู้ปกครองและชุมชน 4) การจัดองค์กรนักศึกษา 5) การจัดกิจกรรมในหลักสูตรให้สอดคล้องกับเป้าหมายการพัฒนาคุณลักษณะด้านจิตพิสัย 6) การจัดกิจกรรมเสริมหลักสูตร และ 7) การประเมินผล นอกจากนี้ยังกล่าวถึงแนวทางการปลูกฝังคุณธรรมจริยธรรม โดยประกาศนโยบายเร่งรัดการปฏิรูปการศึกษา โดยยึดคุณธรรมนำความรู้สร้างความตระหนักสำนึกในคุณค่าของปรัชญาเศรษฐกิจพอเพียง ความสมานฉันท์ สันติวิธีวิถีประชาธิปไตยพัฒนาคน โดยใช้คุณธรรมเป็นพื้นฐานของกระบวนการเรียนรู้ที่เชื่อมโยงความร่วมมือของสถาบันครอบครัว ชุมชน สถาบันศาสนาและสถาบันการศึกษาเพื่อพัฒนาเยาวชนให้เป็นคนดี มีความรู้และอยู่ดีมีสุขโดย 8 คุณธรรมพื้นฐาน ประกอบด้วย 1) ความขยัน 2) ความประหยัด 3) ความซื่อสัตย์ 4) การมีวินัย 5) ความสุภาพ 6) ความสะอาด 7) ความสามัคคี และ 8) การมีน้ำใจ

นอกจากนี้ สำนักงานคณะกรรมการการอาชีวศึกษา(2564) ได้กำหนดแนวทางการจัดการเรียนรู้เรื่องคุณธรรม จริยธรรมและความเป็นไทยในหลักสูตรอาชีวศึกษา 12 ข้อ เพื่อนำไปใช้เป็นแนวทางในการจัดกิจกรรมการเรียนการสอนและเพื่อสร้างความเข้มแข็ง ปลูกฝังคุณธรรมจริยธรรม อยู่ร่วมกันอย่างสมานฉันท์ สามัคคี สำนึกและภาคภูมิใจในความเป็นไทย ธำรงไว้ซึ่งความเป็นชาติไทย ยึดมั่นในศาสนาและเทิดทูนสถาบันพระมหากษัตริย์ 12 ประการ ประกอบด้วย 1) ความประหยัด 2) ความซื่อสัตย์ 3) จิตอาสา 4) ความสุภาพ 5) การละเว้นอบายมุข 6) การมีวินัย 7) ความรับผิดชอบ 8) ความสะอาด 9) ความขยัน 10) ความสามัคคี 11) ความเป็นชาติไทย และ 12) การปฏิบัติตามหลักศาสนาที่ตนนับถือ

วิธีดำเนินการวิจัย

ผู้วิจัยใช้การวิจัยเชิงสำรวจ (Survey research) ที่เน้นการวิจัยแบบตัดขวางที่เป็นการวิจัยเชิงปริมาณผสมผสานกับระเบียบวิจัยเชิงคุณภาพ (Qualitative research) โดยการสัมภาษณ์แบบมีโครงสร้าง (Structured Interview) ที่กำหนดไว้แต่ละประเด็นคำถาม โดยสัมภาษณ์เชิงลึก (In-depth Interview) กับผู้ให้ข้อมูลสำคัญ (Key Informant) เพื่อสนับสนุนการวิจัยเชิงปริมาณ

ประชากรและกลุ่มตัวอย่าง

ประชากรในการวิจัยครั้งนี้ คือ ผู้บริหาร จำนวน 50 คน ครู จำนวน 143 คน และนักศึกษาสถาบันการอาชีวศึกษาภาคกลาง 3 จำนวน 10 วิทยาลัยฯ ได้แก่ วิทยาลัยเทคนิคสมุทรปราการ วิทยาลัยเทคนิคนครนายก วิทยาลัยเทคนิคปราจีนบุรี วิทยาลัยเทคนิคฉะเชิงเทรา วิทยาลัยเทคนิคจุฬาภรณ์(ลาดขวาง) วิทยาลัยเทคนิคสระแก้ว วิทยาลัยเกษตรและเทคโนโลยีฉะเชิงเทรา วิทยาลัยการอาชีพนครนายก วิทยาลัยการอาชีวศึกษาฉะเชิงเทราและวิทยาลัยเทคนิคบูรพาปราจีนบุรี โดยแต่ละแห่งจะมีผู้บริหาร จำนวน 5 คน ได้แก่ ผู้อำนวยการวิทยาลัย จำนวน วิทยาลัยฯละ 1 คน และรองผู้อำนวยการวิทยาลัย จำนวน วิทยาลัยฯละ 4 คน รวมทั้งนักศึกษาที่กำลังศึกษาอยู่ระดับประกาศนียบัตรวิชาชีพ (ปวช.) ระดับประกาศนียบัตรวิชาชีพชั้นสูง (ปวส.) และนักศึกษาระดับเทคโนโลยีบัณฑิต รวมทั้งสิ้น 6,275 คน (ข้อมูล ณ วันที่ 25 มิย. 66)

กลุ่มตัวอย่าง แบ่งเป็น 3 กลุ่ม ได้แก่

1. กลุ่มผู้บริหาร สุ่มตัวอย่างมา จำนวน 5 คน คือ ผู้อำนวยการสถานศึกษาวิทยาลัยเทคนิคสมุทรปราการ วิทยาลัยเทคนิคนครนายก วิทยาลัยเทคนิคสระแก้ว วิทยาลัยเทคนิคฉะเชิงเทราและวิทยาลัยเทคนิคปราจีนบุรี โดยใช้วิธีการสุ่มตัวอย่างแบบเจาะจง (Purposive Sampling) เนื่องจาก

เป็นผู้บริหารระดับสูงสุดของสถานศึกษาซึ่งเป็นผู้รับผิดชอบโดยตรงถือว่าเป็นผู้ให้ข้อมูลคนสำคัญ (key informants)

2. กลุ่มครูและบุคลากรทางการศึกษาของที่เกี่ยวข้องกับการส่งเสริมคุณธรรม จริยธรรม สุ่มตัวอย่างมา จำนวน 50 คน โดยใช้วิธีการสุ่มตัวอย่างแบบเจาะจง (Purposive Sampling) เป็นผู้รับผิดชอบโดยตรง ในการกำหนดระเบียบปฏิบัติ การควบคุมดูแล การจัดกิจกรรมพัฒนาผู้เรียนการพัฒนาอาคารสถานที่ สภาพแวดล้อม และการจัดการเรียนการสอน ซึ่งรับผิดชอบโดยตรงถือว่าเป็นผู้ให้ข้อมูลคนสำคัญ (key informants) คือ หัวหน้างานปกครอง จากสถานศึกษาในสังกัด จำนวน 10 คน หัวหน้างานกิจกรรมนักศึกษาจากสถานศึกษาในสังกัด จำนวน 10 คน หัวหน้างานครูที่ปรึกษาจากสถานศึกษาในสังกัด จำนวน 10 คน หัวหน้างานอาคารสถานที่จากสถานศึกษาในสังกัด จำนวน 10 คน และครูผู้สอนวิชาหน้าที่พลเมืองและศีลธรรมจากสถานศึกษาในสังกัด จำนวน 10 คน

3. กลุ่มตัวอย่างของนักศึกษา กลุ่มนี้ได้จากการเปิดตารางโดยเทียบจากจำนวนประชากรทั้งหมด 6,275 คน เมื่อเปิดตารางของเครซี่และ มอรแกน (Krejcie & Morgan, 1970) เทียบจำนวนประชากรกับจำนวนกลุ่มตัวอย่างได้ จำนวน 959 คน ซึ่งมีความคลาดเคลื่อน ±ร้อยละ 3 ใช้วิธีการสุ่มอย่างง่ายเนื่องจากนักศึกษามีความเป็นเอกพันธ์และจากประชากร 6,275 คน (สำราญ มีแจ้ง, 2557)

เครื่องมือที่ใช้ในการวิจัย

การส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษาของสถาบันการอาชีวศึกษาภาคกลาง 3 เครื่องมือการวิจัย ประกอบด้วย แบบสอบถามมีความเชื่อมั่นค่า Cronbach Alpha 0.715 และแบบสัมภาษณ์แบบมีโครงสร้างมีค่าความตรงเชิงเนื้อหา 0.96 มีรายละเอียดดังนี้

1. แบบสอบถาม (Questionnaire) เป็นแบบสอบถามนี้จะใช้ในการสอบถามความคิดของนักศึกษาโดยใช้คำถามปลายปิด ในส่วนของความคิดเห็นที่เป็นคำถามปลายเปิดจะสร้างข้อคำถามที่เป็นมาตรวัดแบบ Likert's Scale ประกอบไปด้วยความคิดเห็น 5 ระดับ

ตอนที่ 1 เป็นข้อมูลส่วนบุคคลของนักศึกษาผู้ตอบแบบสอบถาม ได้แก่ เพศ ระดับการศึกษา สถานภาพของครอบครัว และฐานะทางเศรษฐกิจของครอบครัว ลักษณะแบบสอบถามเป็นแบบเลือกตอบ (Check lists) จำนวน 6 ข้อ

ตอนที่ 2 เป็นแบบสอบถามเกี่ยวกับการส่งเสริมคุณธรรมจริยธรรมและคุณลักษณะอันพึงประสงค์ของสถาบันการอาชีวศึกษาภาคกลาง 3 ประกอบด้วย 4 ด้าน

ด้านที่ 1- ด้านการกำหนดระเบียบปฏิบัติและการควบคุมดูแล เพื่อส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์

ด้านที่ 2- ด้านการจัดสภาพแวดล้อมในสถานศึกษา เพื่อส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์

ด้านที่ 3- ด้านการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ควบคู่กับการจัดกิจกรรมการเรียนการสอน

ด้านที่ 4- ด้านการจัดกิจกรรมส่งเสริมผู้เรียน เพื่อส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์

แบบสอบถามนี้เป็นแบบสอบถามแบบชนิดมาตราส่วนประมาณค่า (Rating scale) 5 ระดับ ตามวิธีของลิเคิท (Likert Scale) มีคำถามจำนวนทั้งสิ้น 50 ข้อ โดยกำหนดระดับการปฏิบัติ 5 ระดับ ดังนี้

5 หมายถึง มีความคิดเห็น อยู่ในระดับมากที่สุด
4 หมายถึง มีความคิดเห็น อยู่ในระดับมาก
3 หมายถึง มีความคิดเห็นอยู่ในระดับปานกลาง
2 หมายถึง มีความคิดเห็น อยู่ในระดับน้อย
1 หมายถึง มีความคิดเห็น อยู่ในระดับน้อยที่สุด

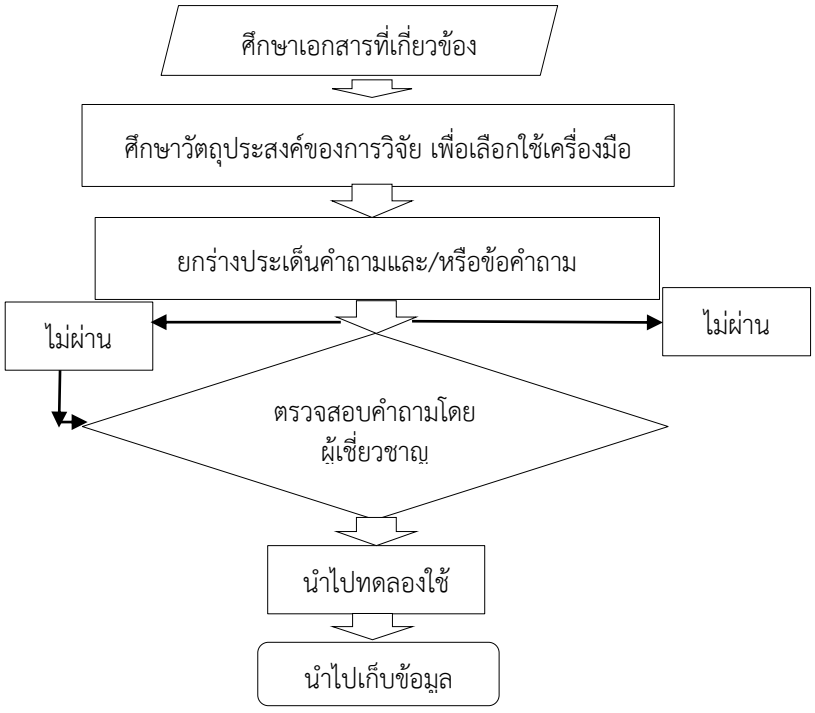
รวมคะแนน เมื่อประเมินการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษาแต่ละข้อเข้าด้วยกัน และทำการแจกแจงความถี่ของคะแนน คำนวณหาค่าเฉลี่ย ($\bar{X}$), ค่าส่วนเบี่ยงเบนมาตรฐาน (S.D.) และแปลผลข้อมูลโดยใช้แบบอิงเกณฑ์ผู้วิจัยกำหนดเกณฑ์การแปลความหมายของค่าคะแนนเฉลี่ย (Likert, R.. (1967)). ดังนี้ 4.50 - 5.00 หมายถึง มีการปฏิบัติในข้อที่เลือกมากที่สุด 3.50 - 4.49 หมายถึง มีการปฏิบัติในข้อที่เลือกมาก 2.50 - 3.49 หมายถึง มีการปฏิบัติในข้อที่เลือกปานกลาง 1.50 - 2.49 หมายถึง มีการปฏิบัติในข้อที่เลือกน้อย 1.00 - 1.49 หมายถึง มีการปฏิบัติในข้อที่เลือกน้อยที่สุด

2. แบบสัมภาษณ์ (Interview Form) เป็นเครื่องมือที่ใช้สำหรับสัมภาษณ์ผู้บริหารของสถานศึกษา ครูหัวหน้างานและครูที่เกี่ยวข้องเพื่อหาแนวทางการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษาของสถาบันการอาชีวศึกษาภาคกลาง 3 โครงสร้างของแบบสัมภาษณ์แบบมีโครงสร้างแบ่งออกได้ ดังนี้

ประเด็นที่ 1 ท่านมีแนวทางในการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์อย่างไร

ประเด็นที่ 2 สิ่งที่คาดหวังที่ต้องการจะให้เกิดขึ้นกับนักศึกษาด้านคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ในอนาคตควรเป็นอย่างไร

วิธีการสร้างเครื่องมือในการวิจัย



ภาพที่ 1 วิธีการสร้างเครื่องมือในการวิจัย

ผลการวิจัย

วัตถุประสงค์การวิจัยข้อที่ 1

การส่งเสริมคุณธรรม จริยธรรมและคุณลักษณะอันพึงประสงค์ของนักศึกษาฯ จำนวน 4 ด้าน ด้านการกำหนดระเบียบปฏิบัติและการควบคุมดูแลฯ ด้านการจัดสภาพแวดล้อมในสถานศึกษาฯ ด้านการส่งเสริมคุณธรรม จริยธรรมฯ และด้านการจัดกิจกรรมส่งเสริมผู้เรียนฯ ผลรวมรายด้าน อยู่ในระดับมาก มีค่าเฉลี่ยเท่ากับ 4.41 ด้านการกำหนดระเบียบปฏิบัติและการควบคุมดูแลฯ มีค่าเฉลี่ยเท่ากับ 4.46 ด้านการจัดสภาพแวดล้อมในสถานศึกษาฯ มีค่าเฉลี่ยเท่ากับ 4.35 ด้านการส่งเสริมคุณธรรม จริยธรรมฯ มีค่าเฉลี่ยเท่ากับ 4.33 และ ด้านการจัดกิจกรรมส่งเสริมผู้เรียนฯ มีค่าเฉลี่ยเท่ากับ 4.51

ตารางที่ 1 ระดับการส่งเสริมคุณธรรม จริยธรรมและคุณลักษณะอันพึงประสงค์ของนักศึกษาฯ

การส่งเสริมคุณธรรม จริยธรรมฯ	$\bar{X}$	S.D.
ด้านการกำหนดระเบียบปฏิบัติและการควบคุมดูแลฯ	4.46	0.65
ด้านการจัดสภาพแวดล้อมในสถานศึกษาฯ	4.35	0.71
ด้านการส่งเสริมคุณธรรม จริยธรรมฯ	4.33	0.66
ด้านการจัดกิจกรรมส่งเสริมผู้เรียนฯ	4.51	0.86
รวม	**4.41**	**0.72**

วัตถุประสงค์การวิจัยข้อที่ 2

การเปรียบเทียบการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา สถาบันการอาชีวศึกษาภาคกลาง 3 ตามความคิดเห็นของนักศึกษา พบว่า ไม่แตกต่าง

วัตถุประสงค์การวิจัยข้อที่ 3

แนวทางการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา สถาบันการอาชีวศึกษาภาคกลาง 3

1. ด้านการกำหนดระเบียบปฏิบัติและการควบคุมดูแล เพื่อส่งเสริมคุณธรรมจริยธรรมและคุณลักษณะอันพึงประสงค์ของนักศึกษา

1.1 สถานศึกษาควรยึดถือกฎระเบียบแนวทางปฏิบัติอย่างเคร่งครัดของรัฐบาล กระทรวงศึกษาธิการ สำนักงานคณะกรรมการการอาชีวศึกษาและสถานศึกษา

1.2 คณะครูจะต้องเข้าใจ เข้าถึง ควบคุมดูแล ปรับเปลี่ยนพฤติกรรม เอาใจใส่นักศึกษาด้วยความเสมอภาค ยุติธรรม

1.3 นักศึกษามีส่วนร่วมแสดงความคิดเห็นในเรื่องกฎระเบียบข้อบังคับตามความเหมาะสม

1.4 เชิญผู้ปกครองและสร้างเครือข่ายความร่วมมือทุกภาคส่วนร่วมแก้ไขปัญหาอย่างต่อเนื่องเพื่อให้เกิดประโยชน์สูงสุดต่อนักศึกษา สถานศึกษา ชุมชน และสังคม

1.5 ครูทุกคนจะต้องอบรมให้ความรู้เกี่ยวกับคุณธรรมจริยธรรมและครูทุกคน คือ ครูปกครอง จะต้องควบคุม กำกับ ดูแล ตักเตือน ให้คำแนะนำและประสานความร่วมมือกับผู้ปกครองหรือหน่วยงานอื่น ๆ

1.6 ส่งเสริมและยกย่องนักศึกษาที่ประพฤติปฏิบัติตนเป็นแบบอย่างที่ดี

1.7 ครูที่ปรึกษาและครูผู้สอนจะต้องดูแลเอาใจใส่อย่างเข้าใจ เข้าถึงนักศึกษา รายบุคคล มีการคัดกรอง มีการป้องกันและแก้ไขปัญหา

1.8 มีการส่งเสริมพัฒนา และการส่งต่อประสานความร่วมมือกับผู้ปกครองในการแก้ไขปัญหา เพื่อลดปัญหาการออกกลางคัน

1.9 นักศึกษา เข้าใจบทบาทหน้าที่ของตนเอง มีเป้าหมายในการศึกษาที่ชัดเจน

2. ด้านการจัดสภาพแวดล้อมในสถานศึกษา เพื่อส่งเสริมคุณธรรมจริยธรรมและคุณลักษณะอันพึงประสงค์ของนักศึกษา

2.1 สถานศึกษาควรดำเนินการพัฒนาสถานที่ห้องเรียน โรงฝึกงานของแต่ละแผนกวิชา อาคารอเนกประสงค์ โรงอาหาร ห้องสุขา ให้อยู่ในสภาพที่พร้อมใช้งาน มีสภาพแวดล้อมภายในสถานศึกษาที่ร่มรื่น มีความสวยงาม

2.2 ควรมีการจัดสิ่งอำนวยความสะดวกให้เพียงพอ มีความปลอดภัยที่ดี ถูกสุขลักษณะและเอื้อต่อการจัดการเรียนการสอน

2.3 สถานศึกษาควรจัดกิจกรรมนันทนาการให้กับนักศึกษา

2.4 สถานศึกษามีการติดข้อเตือนใจพุทธศาสนสุภาษิต คำสอน เพิ่มมากขึ้น เพื่อเป็นข้อคิดข้อเตือนใจ ให้กับนักศึกษาในการประพฤติปฏิบัติตนที่ถูกต้องตามหลักพุทธศาสนา

3. ด้านการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา ควบคู่กับการจัดกิจกรรมการเรียนการสอน

3.1 ผู้บริหาร คณะครูผู้สอน และบุคลากรในสถานศึกษา ต้องเป็นแบบอย่างที่ดี

3.2 ครูผู้สอนจะต้องจัดการเรียนการสอนโดยมีการสอดแทรกคุณธรรมจริยธรรม และคุณลักษณะอันพึงประสงค์ทุกรายวิชาและทุกกิจกรรม

3.3 บุคลากรทุกภาคส่วนในสถานศึกษาควรดูแลเอาใจใส่ช่วยแก้ไขปัญหาด้านความประพฤติที่ไม่เหมาะสม ตลอดจนว่ากล่าวตักเตือนนักศึกษาที่มีความประพฤติที่ไม่เหมาะสมด้วยคำพูดที่สุภาพ อ่อนโยน และให้คำแนะนำที่ถูกต้อง

3.4 ควรมีการยกย่อง ชื่นชม คนดี คนเก่ง อย่างต่อเนื่อง เพื่อให้นักศึกษา มีคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์เพิ่มมากขึ้น

3.5 ครูผู้สอนจะต้องอบรมสั่งสอนคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ให้กับนักศึกษาในขณะจัดกิจกรรมการเรียนการสอน

3.6 บุคลากรทุกคนในสถานศึกษาควรดูแลเอาใจใส่นักศึกษาและช่วยแก้ไขปัญหาด้านความประพฤติที่ไม่เหมาะสม

3.7 สถานศึกษาควรส่งเสริมให้นักศึกษา ได้ช่วยเหลือกันในการเรียนแบบเพื่อนช่วยเพื่อน เพื่อสร้างความรักความสามัคคีความสัมพันธ์ที่ดีระหว่างเพื่อน

4. ด้านการจัดกิจกรรมส่งเสริมผู้เรียนเพื่อส่งเสริมคุณธรรมจริยธรรมและคุณลักษณะอันพึงประสงค์ของนักศึกษา

4.1 สถานศึกษาควรดำเนินการจัดกิจกรรมส่งเสริมคนดี คนเก่ง ในด้านความซื่อสัตย์ ความมีมนุษยสัมพันธ์ ด้านการละเว้นสิ่งเสพติด ด้านจิตอาสา ด้านความคิดริเริ่มสร้างสรรค์ ด้านความสามัคคี ด้านการสนใจใฝ่เรียนรู้ ด้านความเชื่อมั่นในตนเอง ด้านความประหยัด และด้านความมีวินัย ตามคุณลักษณะอันพึงประสงค์ของสถานศึกษา

4.2 สถานศึกษาควรร่วมมือกับหน่วยงานภายนอก จัดกิจกรรมส่งเสริมและพัฒนาอย่างต่อเนื่องและเกิดประโยชน์สูงสุดต่อนักศึกษา สถานศึกษา ชุมชน และสังคม

4.3 สถานศึกษาควรจัดการแข่งกีฬาภายในแต่ละภาคเรียนเพื่อให้นักศึกษาได้แสดงความสามารถทางกีฬาใช้เวลาว่างให้เกิดประโยชน์ ห่างไกลยาเสพติด รู้รักสามัคคี ปรองดอง มีน้ำหนึ่งใจเดียวกัน

4.4 สถานศึกษาควรส่งเสริมการจัดกิจกรรม /โครงการตามรอยพระยุคลบาท ให้มากขึ้น

4.5 สถานศึกษาและบุคลากรควรปลูกฝังให้นักศึกษามีความรู้ความเข้าใจใน ความสำคัญของพระมหากษัตริย์ของไทย และได้เรียนรู้พระราชกรณียกิจในพระบรมวงศานุวงศ์ทุกพระองค์ ในชั่วโมงส่งเสริมกิจกรรม

สรุปและอภิปรายผล

1. วัตถุประสงค์การวิจัยข้อที่ 1

การส่งเสริมคุณธรรม จริยธรรมและคุณลักษณะอันพึงประสงค์ของนักศึกษา สถาบันการอาชีวศึกษาภาคกลาง 3 โดยภาพรวมมีผลการประเมินอยู่ในระดับมาก อาจเป็นเพราะว่าสถาบันการอาชีวศึกษาภาคกลาง 3 ได้มีนโยบายในการส่งเสริมคุณธรรมจริยธรรมโดยประสานงานกับวิทยาลัยฯ ต่าง ๆ ในการสร้างรูปแบบและแนวทางในการจัดกิจกรรมอย่างต่อเนื่อง ซึ่งสอดคล้องกับกัญจน์คหัฐ ปิยะกาญจน์ (2563) ได้ทำการศึกษาเรื่อง วิธีการปลูกฝัง คุณธรรมจริยธรรมแก่เยาวชน พบว่ากลุ่มตัวอย่างมีพฤติกรรมที่ดี อยู่ในระดับพอใช้ถึงดีมาก ส่วนของผู้ปกครองใช้วิธีการปลูกฝังคุณธรรมจริยธรรมที่ผสมผสานกัน ดังนี้ 1) สั่งสอนอบรมโดยตรงโดยบอกให้กระทำหรือ ห้ามกระทำใช้การให้รางวัลและลงโทษ 2) เป็นต้นแบบใน 3 ลักษณะ คือ ตัวแบบจริง ตัวแบบสัญลักษณ์ และตัวแบบคำบอกเล่า 3) สอดแทรกการปลูกฝังคุณธรรมจริยธรรมระหว่างทำกิจกรรมร่วมกันในวันหยุด 4) ใช้หลักศาสนาด้วยการพาบุตรหลานเข้าวัดทำบุญในวันหยุด สวดมนต์ก่อนนอนชี้แจงให้รู้บาปอันเกิดจากการทำผิดศีล 5 และชี้แจงให้เห็นผลของการกระทำ

2. วัตถุประสงค์การวิจัยข้อที่ 2

การส่งเสริมคุณธรรม จริยธรรมและคุณลักษณะอันพึงประสงค์ของนักศึกษา สถาบันการอาชีวศึกษาภาคกลาง 3 เมื่อพิจารณารายด้าน พบว่า ด้านการกำหนดระเบียบ ปฏิบัติและการควบคุมดูแลเพื่อส่งเสริมคุณธรรมจริยธรรม คุณลักษณะอันพึงประสงค์ของนักศึกษา มีการส่งเสริมคุณธรรมจริยธรรมและคุณลักษณะอันพึงประสงค์มากกว่าทุกด้าน ทั้งนี้เกิดขึ้นเพราะสถานศึกษาได้ดำเนินการแจ้งครูนักศึกษาทุกคนรับทราบแนวทางปฏิบัติตามระเบียบสถาบันการอาชีวศึกษาภาคกลาง 3 ว่าด้วยเครื่องแบบการแต่งกายนักศึกษา ซึ่งสอดคล้องกับ พัชรินทร์ บุญเลิศ (2565) ได้ทำการวิจัยเรื่อง ศึกษาวิธีการส่งเสริมคุณธรรมและจริยธรรมนักเรียนในโรงเรียน เขตจอมทอง กรุงเทพมหานคร พบว่า 1) ด้านความมีวินัยและรับผิดชอบโดยภาพรวม อยู่ในระดับดีมาก 2) ด้านความซื่อสัตย์สุจริต โดยภาพรวมอยู่ในระดับมาก 3) ด้านความกตัญญูกตเวที โดยภาพรวมอยู่ในระดับมาก 4) ด้านความเมตตากรุณาเอื้อเฟื้อเผื่อแผ่ และเสียสละเพื่อส่วนร่วม โดยภาพรวมอยู่ในระดับมาก

ผลการส่งเสริมคุณธรรมจริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา สถาบันการอาชีวศึกษาภาคกลาง 3 เมื่อพิจารณารายด้าน พบว่า ด้านการจัดกิจกรรมส่งเสริมผู้เรียน เพื่อส่งเสริมคุณธรรมจริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา มีการส่งเสริมคุณธรรมจริยธรรม และ

คุณลักษณะอันพึงประสงค์ที่ต่ำสุดกว่าทุกด้าน ซึ่งขัดแย้งกับวีระพงศ์ ถิ่นแสนดี (2560) ได้ศึกษาการพัฒนาคุณธรรมจริยธรรมโดยกระบวนการเรียนการสอนบูรณาการ โรงเรียนสิงห์สะอาด อำเภอสหัสขันธ์ จังหวัดกาฬสินธุ์ พบว่าขาดคุณธรรมเป็นจำนวนมาก กลุ่มผู้ร่วมวิจัยได้วิเคราะห์ปัญหาและกำหนดกรอบการพัฒนา คือ การสร้างความตระหนักในปัญหาและสร้างความรู้ความเข้าใจเกี่ยวกับการจัดกิจกรรมการเรียนการสอนแบบบูรณาการแก่ครูผู้ปฏิบัติการสอน โดยการประชุมและการอบรมเชิงปฏิบัติการและการพัฒนาคุณธรรมจริยธรรม 4 ด้าน คือ ความซื่อสัตย์สุจริต ความประหยัด ความกตัญญู และความรับผิดชอบ โดยกระบวนการเรียนการสอนแบบบูรณาการและการนิเทศ กำกับ ติดตามผลการดำเนินงาน พบว่า การประชุมและการอบรมเชิงปฏิบัติการสอนส่วนใหญ่เกิดความตระหนักในปัญหาด้านคุณธรรม จริยธรรมและเกิดความรู้ความเข้าใจเกี่ยวกับแนวทางในการจัดการเรียนการสอนบูรณาการ เพื่อปลูกฝังคุณธรรมจริยธรรมของนักศึกษามากขึ้น มีความกระตือรือร้นในการบริหารจัดการเรียนการสอนและมีความต้องการในการพัฒนาคุณธรรมจริยธรรมอย่างต่อเนื่อง สามารถดำเนินกิจกรรมการเรียนการสอนบูรณาการได้อย่างเหมาะสมกับบริบท ซึ่งทำให้พฤติกรรมความมีคุณธรรมจริยธรรมของนักศึกษาพัฒนาขึ้นอยู่ในระดับพึงพอใจในทุกด้าน โดยภาพรวมนักศึกษาแสดงออกถึงความมีคุณธรรมจริยธรรมดีขึ้น

4. ผลการเปรียบเทียบความคิดเห็นเกี่ยวกับส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา สถาบันการอาชีวศึกษาภาคกลาง 3 ตามความคิดเห็นของนักศึกษา จำแนกตามเพศ พบว่า โดยภาพรวมมีความคิดเห็นแตกต่างกันซึ่งสอดคล้องกับไทยภูษา สุวรรณพันธ์ (2560) ได้ทำการวิจัยเรื่อง ศึกษาคุณธรรมจริยธรรมของนักเรียนระดับช่วงชั้นที่ 2 โรงเรียนอนุบาลวัดโคกท่าเจริญ สังกัดสำนักงานเขตพื้นที่การศึกษา ชลบุรี เขต 2 พบว่า 1) คุณธรรมจริยธรรมของนักเรียนระดับช่วงชั้นที่ 2 โรงเรียนอนุบาลวัดโคกท่าเจริญ สังกัดสำนักงานเขตพื้นที่การศึกษาชลบุรี เขต 2 ใน 5 ด้าน คือ ความมีระเบียบวินัย ความรับผิดชอบ ความซื่อสัตย์ ความเสียสละ และความอดทน โดยภาพรวม และรายด้านอยู่ในระดับมากทุกด้าน 2) ผลการเปรียบเทียบด้านคุณธรรมจริยธรรม จำแนกตามเพศโดยรวม พบว่า ด้านความรับผิดชอบ ด้านความซื่อสัตย์ และด้านความเสียสละ แตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ส่วนด้านความมีระเบียบวินัยและความอดทนไม่แตกต่างกัน จำแนกตามอาชีพผู้ปกครองและสถานภาพทางครอบครัว โดยรวมและรายด้าน ไม่แตกต่างกัน อย่างมีนัยสำคัญทางสถิติ จำแนกตามระดับชั้นโดยรวมและรายด้าน แตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 คือ ด้านความมีระเบียบวินัย ด้านความรับผิดชอบ ด้านความซื่อสัตย์ และด้านความเสียสละ

5. ผลการเปรียบเทียบความคิดเห็นเกี่ยวกับส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษาสถาบันการอาชีวศึกษาภาคกลาง 3 ตามความคิดเห็นของนักศึกษา จำแนกระดับการศึกษา โดยภาพรวม พบว่า มีความคิดเห็นไม่แตกต่างกันสอดคล้องกับแมคมูลลัน (McMullen: 1985) ที่ได้ศึกษาเกี่ยวกับวินัยและระบบการจัดการที่มีประสิทธิภาพในโรงเรียนมัธยมศึกษาตอนปลายและมัธยมศึกษาตอนต้นในเขตเมืองเพื่อเน้นพัฒนาวัยรุ่น พบว่า ปัญหาทางวินัยส่วนใหญ่มีสาเหตุมาจากพฤติกรรมของโรงเรียน เพราะนักเรียนต้องการสิ่งแวดล้อมที่ดียืดหยุ่นได้โรงเรียนให้ความสนใจเอาใจใส่และมีระเบียบวินัย การวิจัยโดยสนับสนุนให้โรงเรียนจัดระบบอย่างมีประสิทธิภาพได้ดังนี้ 1) ฝึกครูให้มีการสร้างสิ่งแวดล้อมที่ดีในการเรียนการสอน 2) สร้างความสัมพันธ์ให้เกิดขึ้นภายในโรงเรียน 3) กำหนดความรับผิดชอบต่อปัญหาให้คำปรึกษากำหนดแนวทางของพฤติกรรม 4) กำหนดโครงการให้นักศึกษาหยุดพักการเรียนชั่วคราว 5) วางแผนพัฒนาผู้ทำผิดบ่อยๆ แต่ละคนเป็นอย่างดี 6) ให้ผู้ปกครองมีส่วนรับรู้และเกี่ยวข้องในการรักษาระเบียบวินัยของโรงเรียน

6. ผลการเปรียบเทียบความคิดเห็นเกี่ยวกับส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษาสถาบันการอาชีวศึกษาภาคกลาง 3 ตามความคิดเห็นของนักศึกษา จำแนกสถานภาพทางครอบครัว พบว่าโดยภาพรวม มีความคิดเห็นไม่แตกต่างกัน สอดคล้องกับ ไทยภูษา สุวรรณพันธ์ (2560) ได้ทำการวิจัยเรื่อง ศึกษาคุณธรรมจริยธรรมของนักเรียนระดับช่วงชั้นที่ 2 โรงเรียนอนุบาลวัดโคกท่าเจริญ สังกัดสำนักงานเขตพื้นที่การศึกษาชลบุรี เขต 2 พบว่า 1) คุณธรรมจริยธรรมของนักเรียนระดับช่วงชั้นที่ 2 โรงเรียนอนุบาลวัดโคกท่าเจริญ สังกัดสำนักงานเขตพื้นที่การศึกษาชลบุรี เขต 2 ใน 5 ด้าน คือ ความมีระเบียบวินัย ความรับผิดชอบ ความซื่อสัตย์ ความเสียสละ และความอดทน โดยภาพรวมและรายด้านอยู่ในระดับมากทุกด้าน 2) ผลการเปรียบเทียบด้านคุณธรรมจริยธรรม จำแนกตามเพศโดยรวม พบว่า ด้านความรับผิดชอบด้านความซื่อสัตย์ และด้านความเสียสละ แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ส่วนด้านความมีระเบียบวินัย และความอดทนไม่แตกต่างกันจำแนกตามอาชีพ ผู้ปกครองและสถานภาพทางครอบครัว โดยรวมและรายด้าน ไม่แตกต่างกัน อย่างมีนัยสำคัญทางสถิติจำแนกตามระดับชั้นโดยรวมและรายด้าน แตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 คือด้านความมีระเบียบวินัย ด้านความรับผิดชอบ ด้านความซื่อสัตย์ และด้านความเสียสละ ยกเว้นด้านความอดทนไม่แตกต่างกัน โดยนักเรียนระดับชั้นประถมศึกษาปีที่ 4 และระดับชั้นประถมศึกษาปีที่ 5 สูงกว่าระดับชั้นประถมศึกษาปีที่ 6

7. ผลการเปรียบเทียบความคิดเห็นเกี่ยวกับส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษาสถาบันการอาชีวศึกษาภาคกลาง 3 ตามความคิดเห็นของนักศึกษา จำแนกฐานะทางเศรษฐกิจของครอบครัว พบว่า ทุกด้านมีความคิดเห็นไม่แตกต่างกัน ซึ่งขัดแย้งกับ สุมาลี สุจินดา (2562) ได้ศึกษาคุณธรรม จริยธรรม ของนิสิตนักศึกษาสถาบันอุดมศึกษาในเขตกรุงเทพมหานคร และปริมณฑล พบว่า นิสิตนักศึกษาในสถาบันอุดมศึกษาของรัฐและเอกชนในเขตกรุงเทพมหานครและปริมณฑล มีคุณธรรมและจริยธรรมโดยรวมอยู่ในระดับสูง เมื่อพิจารณาเป็นรายด้าน พบว่า นิสิตนักศึกษามีคุณธรรม และ จริยธรรม ด้านความมีวินัย และความรับผิดชอบ ความซื่อสัตย์สุจริต ความอดทนอดกลั้น ความประหยัดและความกตัญญูกตเวทีอยู่ในระดับสูง และมีคุณธรรมและจริยธรรมด้านความใฝ่รู้ อยู่ในระดับปานกลาง นิสิตนักศึกษาชายและนิสิตนักศึกษาหญิง มีคุณธรรมและจริยธรรมโดยรวมแตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

3. วัตถุประสงค์การวิจัยข้อที่ 3

สรุปแนวคิดของผู้ที่เกี่ยวข้องในการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา สถาบันการอาชีวศึกษาภาคกลาง 3

1. ด้านการกำหนดระเบียบปฏิบัติและการควบคุมดูแลนักศึกษานั้น สถานศึกษาควรยึดถือกฎระเบียบแนวทางปฏิบัติอย่างเคร่งครัด อภิปรายได้ว่าระเบียบปฏิบัติและการควบคุมดูแลนักศึกษาให้เป็นไปตามระเบียบของกระทรวงศึกษาธิการ จะทำให้นักศึกษาประพฤติปฏิบัติมีวินัยในตนเอง

2. ด้านการจัดสภาพแวดล้อมในสถานศึกษา สถานศึกษาควรดำเนินการพัฒนาสถานที่ภายในสถานศึกษาให้มีความปลอดภัยและถูกสุขลักษณะ อภิปรายได้ว่าการจัดสิ่งแวดล้อมในสถานศึกษาจะสร้างให้นักศึกษามีจิตใจที่อ่อนโยน ซึ่งจะเป็นการสร้างคุณธรรม จริยธรรมให้เกิดขึ้นได้

3. ด้านการส่งเสริมคุณธรรม จริยธรรม สถานศึกษาควรมีการยกย่อง ชื่นชม คนดี คนเก่ง อย่างต่อเนื่องรวมทั้งอบรมสั่งสอนคุณธรรม จริยธรรมอย่างทั่วถึง อภิปรายได้ว่านโยบายในการส่งเสริมคุณธรรม จริยธรรมของสถานศึกษาจะเป็นกรอบการสร้างคุณธรรม จริยธรรมให้เกิดขึ้นได้

4. ด้านการจัดกิจกรรมส่งเสริมผู้เรียน สถานศึกษาควรจัดกิจกรรมส่งเสริมคนดี คนเก่ง ในด้าน

จิตพิสัยอย่างรอบ ด้านอภิปรายได้ว่ากิจกรรมส่งเสริมผู้เรียนตามนโยบายจะทำให้การส่งเสริมคุณธรรมจริยธรรมประสบผลสำเร็จ

ข้อเสนอแนะ

1. ข้อเสนอแนะสำหรับการนำไปใช้หรือนำไปพัฒนา เพื่อใช้เป็นแนวทางในการส่งเสริม คุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา สถาบันการอาชีวศึกษาภาคกลาง 3

จากผลการวิจัยพบว่าการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา สถาบันการอาชีวศึกษาภาคกลาง 3 ด้านการกำหนดระเบียบปฏิบัติและการควบคุมดูแล เพื่อส่งเสริมคุณธรรมจริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา ด้านการจัดสภาพแวดล้อม ในสถานศึกษา เพื่อส่งเสริมคุณธรรมจริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา ด้านการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษาควบคู่กับการจัดกิจกรรมการเรียนการสอน และด้านการจัดกิจกรรมส่งเสริมผู้เรียน เพื่อส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา อยู่ในระดับมาก ผู้วิจัยขอเสนอแนะการนำผลการวิจัยไปใช้ในแต่ละด้าน ดังต่อไปนี้

1.1 ด้านการกำหนดระเบียบปฏิบัติและการควบคุมดูแล เพื่อส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา โดยรวมให้ยึดถือกฎระเบียบแนวทางปฏิบัติอย่างเคร่งครัดของรัฐบาล กระทรวงศึกษาธิการ สำนักงานคณะกรรมการการอาชีวศึกษา และสถานศึกษา คณะครูจะต้องเข้าใจ เข้าถึง ควบคุมดูแล ปรับเปลี่ยนพฤติกรรม เอาใจใส่นักศึกษาด้วยความเสมอภาค ยุติธรรม โดยให้นักศึกษามีส่วนร่วมแสดงความคิดเห็นในเรื่องกฎระเบียบข้อบังคับตามความเหมาะสม เชิญผู้ปกครองและสร้างเครือข่ายความร่วมมือทุกภาคส่วน ร่วมแก้ไขปัญหาอย่างต่อเนื่องเพื่อให้เกิดประโยชน์สูงสุดต่อนักศึกษา สถานศึกษา ชุมชน และสังคม ตลอดจนการส่งเสริมและยกย่องนักศึกษาที่ประพฤติปฏิบัติตนเป็นแบบอย่างที่ดี

1.2 ด้านการจัดสภาพแวดล้อมในสถานศึกษา เพื่อส่งเสริมคุณธรรมจริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา โดยรวมให้สถานศึกษาดำเนินการพัฒนาสถานที่ ห้องเรียน โรงฝึกงานของแต่ละแผนกวิชา อาคารอเนกประสงค์ โรงอาหาร ห้องสุขา ให้อยู่ในสภาพที่พร้อมใช้งาน มีสภาพแวดล้อมภายในสถานศึกษาที่ร่มรื่น มีความสวยงาม มีสิ่งอำนวยความสะดวกที่เพียงพอ มีความปลอดภัยที่ดี ถูกสุขลักษณะและเอื้อต่อการจัดการเรียนการสอน และการจัดกิจกรรมนันทนาการ การให้กับนักศึกษา โดยมีการแบ่งพื้นที่ความรับผิดชอบในการกำกับดูแลของแต่ละแผนกวิชา เพื่อให้นักศึกษาเกิดความรัก ความสามัคคีในสถานศึกษา

1.3 ด้านการส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษาควบคู่กับการจัดกิจกรรมการเรียนการสอน โดยรวมให้ผู้บริหาร คณะครูผู้สอน และบุคลากร ในสถานศึกษาต้องเป็นแบบอย่างที่ดี ครูผู้สอนจะต้องจัดการเรียนการสอนโดยมีการสอดแทรกคุณธรรมจริยธรรม และคุณลักษณะอันพึงประสงค์ทุกรายวิชาและทุกกิจกรรมดูแลเอาใจใส่ ช่วยแก้ไขปัญหาด้านความประพฤติที่ไม่เหมาะสม ตลอดจนว่ากล่าวตักเตือนนักศึกษาที่มีความประพฤติที่ไม่เหมาะสมด้วยคำพูดที่สุภาพอ่อนโยน และให้คำแนะนำที่ถูกต้องและยกย่อง ชื่นชมคนดี คนเก่ง อย่างต่อเนื่อง

1.4 ด้านการจัดกิจกรรมส่งเสริมผู้เรียน เพื่อส่งเสริมคุณธรรม จริยธรรม และคุณลักษณะอันพึงประสงค์ของนักศึกษา โดยรวมให้สถานศึกษาควรดำเนินการจัดกิจกรรมส่งเสริมคนดี คนเก่ง ในด้านความซื่อสัตย์ ความมีมนุษยสัมพันธ์ ด้านการละเว้นสิ่งเสพติด ด้านจิตอาสา ด้านความคิดริเริ่มสร้างสรรค์ ด้านความสามัคคี ด้านการสนใจใฝ่เรียนรู้ ด้านความเชื่อมั่นในตนเองด้านความประหยัด และด้านความมี

วินัยตามคุณลักษณะอันพึงประสงค์ของสถานศึกษา และร่วมมือกับหน่วยงานภายนอก จัดกิจกรรมส่งเสริมและพัฒนาอย่างต่อเนื่องและเกิดประโยชน์สูงสุดต่อนักศึกษา สถานศึกษา ชุมชนและสังคม

2. ข้อเสนอแนะในการทำวิจัยต่อไป

2.1 ควรทำการวิจัยในเชิงคุณภาพ โดยใช้วิธีการในการเก็บรวบรวมข้อมูลในรูปแบบอื่น ๆ เช่น การรวบรวมโดยการสัมภาษณ์ ที่นอกเหนือจากการใช้เครื่องมือในรูปแบบ การใช้แบบสอบถาม ทั้งนี้เพื่อให้ข้อมูลที่มีความละเอียด และครอบคลุมยิ่งขึ้น โดยการสังเกตพฤติกรรมของนักศึกษาหรือการสัมภาษณ์ เป็นต้น

2.2 ควรทำการเก็บข้อมูล การติดตาม และประเมินผลของนักศึกษาที่เรียนจบในด้านของการประกอบอาชีพ เพื่อทำการวิจัยในรูปแบบที่มีส่วนร่วมด้วย

เอกสารอ้างอิง

กรมการศาสนา กระทรวงวัฒนธรรม. (2561). การพัฒนาส่งเสริมคุณธรรมจริยธรรมประชาชน ประจำปี 2560. กรุงเทพฯ: โรงพิมพ์ ชุมนุมสหกรณ์การเกษตรแห่งประเทศไทย

กัญจน์คหัฐ ปิยะกาญจน์. (2563). วิธีการปลูกฝังคุณธรรมจริยธรรมแก่เยาวชน (วิทยานิพนธ์ศึกษาศาสตร์มหาบัณฑิต). บัณฑิตวิทยาลัย มหาวิทยาลัยธรรมศาสตร์ กรุงเทพมหานคร.

ไทยภูษา สุวรรณพันธ์. (2560). ศึกษาคุณธรรมจริยธรรมของนักเรียนระดับช่วงชั้นที่ 2 โรงเรียนอนุบาลวัดโคกท่าเจริญ สังกัดสำนักงานเขตพื้นที่การศึกษาชลบุรี เขต 2 (วิทยานิพนธ์การศึกษามหาบัณฑิต). มหาวิทยาลัยบูรพา ชลบุรี ประเทศไทย.

พัชรินทร์ บุญเลิศ. (2557). ศึกษาวิธีการส่งเสริมคุณธรรมและจริยธรรม นักเรียนในโรงเรียน เขตจอมทอง กรุงเทพมหานคร (วิทยานิพนธ์การศึกษามหาบัณฑิต). มหาวิทยาลัยมหาจุฬาลงกรณราชวิทยาลัย กรุงเทพมหานคร ประเทศไทย.

วีระพงศ์ ถิ่นแสนดี. (2560). การพัฒนาคุณธรรมจริยธรรมนักเรียนโรงเรียนสิงห์สะอาด อำเภอสหัสขันธ์ จังหวัดกาฬสินธุ์ (ปริญญานิพนธ์) ครุศาสตรมหาบัณฑิต มหาวิทยาลัยราชภัฏมหาสารคาม มหาสารคาม ประเทศไทย.

สำราญ มีแจ้ง. (2557). สถิติขั้นสูงสำหรับการวิจัย: ทฤษฎีและปฏิบัติ. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย

สุมาลี สุจินดา. (2562). จริยธรรมนักเรียนระดับมัธยมศึกษาโรงเรียนสังกัดคณะรักกางเขนแห่งจันทบุรี (ปริญญานิพนธ์). การบริหารการศึกษา มหาวิทยาลัยบูรพา ชลบุรี ประเทศไทย.

สำนักงานคณะกรรมการการอาชีวศึกษา. (2564). คู่มือการใช้หลักสูตรประกาศนียบัตรวิชาชีพ พุทธศักราช 2562 และ หลักสูตรประกาศนียบัตรวิชาชีพชั้นสูง พุทธศักราช 2565. กรุงเทพฯ: กระทรวงศึกษาธิการ.

Krejcie, R.V., & D.W. Morgan. (1970). Determining Sample Size for Research Activities. Educational and Psychological Measurement. 30(3) : 607 – 610 .

Likert, R.. (1967). The Method of Constructing and Attitude Scale. In Reading in. Fishbeic, M (Ed.), Attitude Theory and Measurement (pp. 90-95). New. York .

McMullen, C.M. (1985). Effective Discipline and Contingency Management System in an UrbanJunior High/Middle School with and Emphasis on

การศึกษาคุณภาพของเอกสารเอกสารคำสอนวิชา มนุษยสัมพันธ์ในองค์การ (17-4000-1613) สำหรับนักศึกษาเทคโนโลยีบัณฑิต วิทยาลัยเทคนิคสมุทรปราการ

A study of the quality of teaching documents of Human Relations in Organization subject for graduate technology students in Samutprakarn technical college

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บทคัดย่อ

งานวิจัยนี้มีจุดประสงค์เพื่อหาประสิทธิภาพและประสิทธิผลของเอกสารคำสอนวิชามนุษยสัมพันธ์ในองค์การ (17-4000-1613) กลุ่มตัวอย่างเป็นนักศึกษาระดับเทคโนโลยีบัณฑิต สาขาเทคโนโลยียานยนต์ ชั้นปีที่ 1 ปีการศึกษา 2565 ของวิทยาลัยเทคนิคสมุทรปราการ สถาบันการอาชีวศึกษาภาคกลาง 3 จำนวน 24 คน เครื่องมือที่ใช้คือ 1) แบบวัดผลสัมฤทธิ์ก่อนเรียน 2)แบบทดสอบหลังเรียน และ 3) แบบวัดผลสัมฤทธิ์หลังเรียน 4) เอกสารคำสอนวิชามนุษยสัมพันธ์ในองค์การ ตรวจสอบคุณภาพความตรงเชิงเนื้อหา(Content Validity) โดยผู้เชี่ยวชาญ สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ค่าเฉลี่ย ($\overline{X}$) ค่าร้อยละผลการวิจัยพบว่า 1) คะแนนเฉลี่ยรวมระหว่างเรียนของนักศึกษา 73.33 คะแนน คะแนนเฉลี่ยรวมหลังเรียนของนักศึกษา 48.08 คะแนน ประสิทธิภาพเท่ากับ 81.48/80.14 2) คะแนนเต็มของนักศึกษาทั้ง 24 คน เท่ากับ 1,440 คะแนน คะแนนหลังเรียนรวมของนักศึกษา 1,154 คะแนน คะแนนก่อนเรียนรวมของนักศึกษา 540 คะแนน ประสิทธิผล เท่ากับ 0.6822 สรุปได้ว่าเมื่อใช้เอกสารคำสอนวิชามนุษยสัมพันธ์ในองค์การ นักศึกษามีความรู้เพิ่มขึ้น 0.6822 หรือคิดเป็นร้อยละ 68.22

คำสำคัญ: ประสิทธิภาพ, ประสิทธิผล, เอกสารคำสอนวิชามนุษยสัมพันธ์ในองค์การ

Abstract

The purposes of this research were: to find out the quality of teaching documents of Human Relations in Organization subject (17-4000-1613). The sampling group was 24 students in the second year of 2022 at Samutprakarn Technical College. The research instruments consisted of 1) the lessons post-test, and 2) the pre and post-achievement test on the textbook of Human Relations in Organization subject. The analyzing statistic

was percentages. The research results found that 1) the overall average score during the study of students was 73.33 points, the overall average score after the study of students was 48.08 points, and the efficiency was equal to 81.48/80.14. 2) The score of all 24 students was equal to 1,440 points. The total score after studying was 1,154 points, and the total score before studying was 540 points. The effectiveness is equal to 0.6822.

Keywords: Efficiency, Effectiveness, Textbook of Human Relations in Organization Subject.

บทนำ

เอกสารคำสอน มีบทบาทความสำคัญต่อครูผู้สอนในการนำไปใช้สำหรับการเตรียมวางแผนการสอนทำให้ครูสามารถสอนให้บรรลุจุดประสงค์ของหลักสูตร อีกทั้งประหยัดเวลาในการค้นคว้าของครูผู้สอน ในวิชามนุษยสัมพันธ์ในองค์การ (17-4000-1613) เป็นวิชาหนึ่งในกลุ่มวิชามนุษยศาสตร์ ในหลักสูตรเทคโนโลยีบัณฑิต (ต่อเนื่อง) ที่นักศึกษาในระดับปริญญาตรีต้องเรียนรู้เพื่อนำไปใช้ในการทำงานในองค์การ แต่ปัจจุบันเอกสารคำสอนวิชามนุษยสัมพันธ์ในองค์การ ยังไม่มีการจัดทำขึ้นเพื่อนำมาใช้เป็นเอกสารคำสอน ในการจัดการเรียนรู้ ผู้วิจัยได้จัดทำเอกสารคำสอนวิชามนุษยสัมพันธ์ในองค์การขึ้นเพื่อให้ครูผู้สอนได้ใช้เป็นเอกสารคำสอนของนักศึกษา ประกอบด้วยเนื้อหา (Contents) จำนวน 9 หน่วยการเรียน หน่วยที่ 1 เรื่อง แนวความคิดเกี่ยวกับพฤติกรรมและความต้องการของมนุษย์ หน่วยที่ 2 เรื่อง เทคนิคการสร้างมนุษยสัมพันธ์ในองค์การ หน่วยที่ 3 เรื่องความสัมพันธ์ระหว่างบุคคล กลุ่มบุคคลและองค์การ หน่วยที่ 4 เรื่อง การติดต่อสื่อสารระหว่างบุคคลและหน่วยงานภายในองค์การ หน่วยที่ 5 เรื่อง การประสานงานและและเทคนิคการจูงใจในการทำงาน หน่วยที่ 6 เรื่อง ความขัดแย้งในองค์การ หน่วยที่ 7 เรื่อง การบริหารความขัดแย้งในองค์การ หน่วยที่ 8 เรื่อง หลักธรรมในการดำเนินชีวิต และการประกอบอาชีพ หน่วยที่ 9 เรื่อง กิจกรรมการส่งเสริมมนุษยสัมพันธ์ในองค์การ

ในการจัดทำเอกสารคำสอนวิชามนุษยสัมพันธ์ในองค์การนั้น สิ่งที่จำเป็นอย่างยิ่งนั้นก็คือการหาคุณภาพของเอกสารคำสอน ทั้งในด้านประสิทธิภาพและประสิทธิผลของเอกสาร ทั้งนี้เพื่อให้เป็นที่แน่ใจว่าเอกสารคำสอนดังกล่าว นอกจากจะถูกต้องและตรงตามหลักสูตรแล้ว ยังต้องมีคุณภาพเหมาะสมกับการที่จะนำไปใช้ในการจัดการเรียนรู้ กับนักศึกษาในหลักสูตรเทคโนโลยีบัณฑิต(ต่อเนื่อง)ด้วยการหาประสิทธิภาพและประสิทธิผลของเอกสารคำสอนจึงเป็นแนวทางการหาคุณภาพ (อำนวย เดชชัยศรี, 2564)

วัตถุประสงค์ของการวิจัย

1. เพื่อหาประสิทธิภาพของเอกสารคำสอนวิชามนุษยสัมพันธ์ในองค์การ
2. เพื่อหาประสิทธิผลของเอกสารคำสอนวิชามนุษยสัมพันธ์ ในองค์การ

แนวคิด ทฤษฎี กรอบแนวคิด

เอกสารคำสอนเป็นเอกสารที่ใช้สอนวิชาใดวิชาหนึ่งตามหลักสูตรของสถาบันอุดมศึกษาที่สะท้อนให้เห็นเนื้อหาวิชาที่สอนและวิธีการสอนอย่างเป็นระบบมีความสมบูรณ์กว่าเอกสารประกอบการสอนจัดเป็นเครื่องมือสำคัญของนักศึกษาที่นำไปศึกษาด้วยตนเอง หรือเพิ่มขึ้นจากการเรียนในวิชานั้น ๆ

แนวคิดในการหาประสิทธิภาพเอกสารคำสอน

ประสิทธิภาพ (Efficiency) หมายถึง สภาวะหรือคุณภาพของสมรรถนะในการดำเนินงาน เพื่อให้งานมีความสำเร็จโดยใช้เวลา ความพยายาม และค่าใช้จ่ายคุ้มค่าที่สุดตามจุดมุ่งหมายที่กำหนดไว้ เพื่อให้ได้ผลลัพธ์ โดยกำหนดเป็นอัตราส่วนหรือร้อยละระหว่างปัจจัยนำเข้ากระบวนการและผลลัพธ์ (Ratio between input, process and output) การทดสอบประสิทธิภาพ หมายถึง การนำสื่อ ชุดการสอน หรือเอกสารคำสอนไปทดสอบด้วยกระบวนการสองขั้นตอน คือ การทดสอบประสิทธิภาพใช้เบื้องต้น (Try Out) และทดสอบประสิทธิภาพสอนจริง (Trial Run) เพื่อหาคุณภาพของสื่อตามขั้นตอนที่กำหนดใน 3 ประเด็น คือ การทำให้นักศึกษามีความรู้เพิ่มขึ้น การช่วยให้นักศึกษาผ่านกระบวนการเรียนและทำแบบประเมินสุดท้ายได้ดี และการทำให้นักศึกษามีความพึงพอใจ นำผลที่ได้มาปรับปรุงแก้ไขก่อนที่จะผลิตออกมาเผยแพร่เป็นจำนวนมากการกำหนดเกณฑ์ประสิทธิภาพ (Criterion of efficiency) ของสื่อชุดการสอนหรือเอกสารคำสอนเป็นการกำหนดว่าสิ่งใดหรือพฤติกรรมใดมีคุณภาพและหรือปริมาณที่จะรับได้ ระดับประสิทธิภาพของเอกสารคำสอน ที่จะช่วยให้นักศึกษาเกิดการเปลี่ยนแปลงพฤติกรรมเป็นระดับที่ผลิตเอกสารคำสอนจะพึงพอใจว่า หากเอกสารคำสอนมีประสิทธิภาพถึงระดับนั้นแล้ว เอกสารคำสอนนั้นก็มีคุณภาพที่จะนำไปสอนนักศึกษา และคุ้มแก่การลงทุนผลิตออกมาเป็นจำนวนมาก การกำหนดเกณฑ์ประสิทธิภาพกระทำได้โดยการประเมินผลพฤติกรรมของนักศึกษา 2 ประเภท คือพฤติกรรมต่อเนื่อง (กระบวนการ) กำหนดค่า ประสิทธิภาพเป็น E_1 = Efficiency of Process (ประสิทธิภาพของกระบวนการ) และพฤติกรรมสุดท้าย (ผลลัพธ์)กำหนดค่าประสิทธิภาพเป็น E_2 = Efficiency of Product (ประสิทธิภาพของผลลัพธ์)การคำนวณหาประสิทธิภาพ ทำได้โดยการนำคะแนนรวมแบบฝึกปฏิบัติ หรือผลงานในขณะประกอบกิจกรรมกลุ่ม/เดี่ยวและ/หรือคะแนนสอบหลังเรียน มาคำนวณหาค่า E_1/E_2 สำหรับ E_1 คือ ค่าประสิทธิภาพของงานและแบบฝึกปฏิบัติ กระทำได้โดยการนำคะแนนงานทุกชิ้นของนักศึกษาในแต่ละกิจกรรม แต่ละคนมารวมกัน แล้วหาค่าเฉลี่ยและเทียบส่วนโดยเป็นร้อยละ สำหรับค่า E_2 คือ ประสิทธิภาพผลลัพธ์ของการประเมินหลังเรียนของ สื่อ ชุดการสอน หรือเอกสารคำสอน กระทำได้โดยการเอาคะแนนจากการสอบหลังเรียนและคะแนนจากงานสุดท้ายของนักศึกษาทั้งหมดรวมกันหาค่าเฉลี่ยแล้วเทียบส่วนร้อย เพื่อหาค่าร้อยละ การยอมรับหรือไม่ยอมรับประสิทธิภาพ เมื่อทดสอบประสิทธิภาพสื่อหรือชุดการสอนภาคสนามแล้ว เทียบค่า E_1/E_2 ที่หาได้จากสื่อชุดการสอนหรือเอกสารคำสอนกับ E_1/E_2 ที่ตั้งเกณฑ์ไว้ เพื่อดูว่าจะยอมรับประสิทธิภาพหรือไม่การยอมรับประสิทธิภาพให้ถือค่าแปรปรวน 25 – 5 % อาทิ นั่นคือ ประสิทธิภาพของสื่อชุดการสอนหรือเอกสารคำสอน ไม่ควรต่ำกว่าเกณฑ์เกิน 5% แต่โดยปรกติเรากำหนดไว้ 2.5 % อาทิ เราตั้งเกณฑ์ประสิทธิภาพไว้ 90/90 เมื่อ ทดสอบประสิทธิภาพแบบ 1:100 แล้ว สื่อชุดการสอนหรือเอกสารคำสอน นั้นมีประสิทธิผล 87.5/87.5 ครูผู้สอนสามารถยอมรับได้ว่าสื่อชุดการสอนหรือเอกสารคำสอนนั้นมีประสิทธิภาพ การยอมรับประสิทธิภาพของสื่อชุดการสอนหรือเอกสารคำสอน มี 3 ระดับ คือ (1) สูงกว่าเกณฑ์ (2) เท่าเกณฑ์ (3) ต่ำกว่าเกณฑ์ แต่ยอมรับว่ามีประสิทธิภาพ (เอกวิทย์ แก้วประดิษฐ์, 2565)

แนวคิดในการหาประสิทธิผลของเอกสารคำสอน (Effectiveness Index)

การหาค่าดัชนีประสิทธิผล (E.I.) สามารถนำมาประยุกต์ใช้เพื่อประเมินสื่อ ชุดการสอน หรือเอกสารคำสอนต่าง ๆ โดยเริ่มจากการทดสอบก่อนเรียนซึ่งเป็นตัววัดว่า นักศึกษามีความรู้พื้นฐานอยู่ในระดับใด รวมถึงการวัดทางความเชื่อ เจตคติ และความตั้งใจของนักศึกษา คะแนนที่ได้จากการทดสอบมาแปลงเป็นร้อยละ หาค่าสูงสุดที่เป็นไปได้ นำนักศึกษาเข้ารับการทดลอง เสร็จแล้วทำการทดสอบหลังเรียน

แล้วนำคะแนนที่ได้มาหาประสิทธิผล โดยนำคะแนนก่อนเรียนไปลบออกจากคะแนนหลังเรียน แล้วหารด้วยค่าที่ได้จากการทดสอบก่อนเรียนสูงสุดที่นักศึกษาสามารถทำได้ ลบด้วยคะแนนทดสอบก่อนเรียน โดยทำให้อยู่ในรูปร้อยละ ดัชนีประสิทธิผล (E.I.) จะมีค่าอยู่ระหว่าง -1.00 ถึง 1.00 หากค่าคะแนนหลังเรียนเท่ากับคะแนนก่อนเรียน ค่าดัชนีประสิทธิผลเท่ากับศูนย์ และหากคะแนนหลังเรียนมากกว่าคะแนนก่อนเรียนค่าดัชนีประสิทธิผลจะมีค่ามากกว่าศูนย์ (เอกวิทย์ แก้วประดิษฐ์, 2565)

การหาประสิทธิผลของสื่อ ชุดการสอน หรือเอกสารคำสอน ว่ามีประสิทธิผลเพียงใด เหมาะสมที่จะนำไปใช้ในการจัดการเรียนรู้หรือไม่เป็นการสร้างความเชื่อถือให้กับ สื่อชุดการสอน หรือเอกสารคำสอนที่สร้างขึ้นว่ามีคุณภาพ สามารถนำไปใช้ในการจัดการเรียนรู้ได้นักศึกษามีความก้าวหน้าหรือมีความรู้เพิ่มขึ้นหลังจากใช้สื่อ ชุดการสอน หรือเอกสารคำสอน มากน้อยเพียงใด ค่าที่แสดงพัฒนาการที่เพิ่มขึ้นของนักศึกษาโดยการเปรียบเทียบคะแนนก่อนเรียนกับคะแนนหลังเรียนของนักศึกษา ซึ่งค่าที่คำนวณได้ควรถือเกณฑ์ 0.50

วิธีดำเนินการวิจัย

งานวิจัยนี้เป็นงานวิจัยเชิงปริมาณ กลุ่มตัวอย่างแบ่งเป็น 3 กลุ่ม ได้แก่ กลุ่มแบบรายบุคคล จำนวน 4 คน กลุ่มแบบกลุ่มย่อย จำนวน 10 คน และกลุ่มแบบภาคสนาม จำนวน 24 คน ผู้วิจัยดำเนินการเก็บข้อมูล 2 ระยะ คือ ระยะที่ 1 ดำเนินการสร้างเอกสารคำสอนและหาคุณภาพของเครื่องมือโดยผู้เชี่ยวชาญ จำนวน 5 ท่าน เป็นผู้เชี่ยวชาญด้านเนื้อหา 2 คน และด้านการวัดและประเมินผล 3 คน ต่อมาดำเนินการหาคุณภาพของแบบวัดผลสัมฤทธิ์ก่อนเรียน ซึ่งเป็นแบบวัดผลสัมฤทธิ์รวมทุกหน่วยการเรียน จำนวน 60 ข้อ 60 คะแนน แบบทดสอบหลังหน่วยการเรียน ซึ่งเป็นแบบทดสอบผลการเรียนแต่ละหน่วย ๆ ละ 10 ข้อ 10 คะแนน รวม 9 หน่วย 90 คะแนน ไปใช้กับกลุ่มทดลองซึ่งไม่ใช่กลุ่มตัวอย่างในภาคเรียนที่ 1 ปีการศึกษา 2565 ระยะที่ 2 นำข้อมูลคะแนน จากแบบวัดผลสัมฤทธิ์ก่อนเรียนและแบบวัดผลสัมฤทธิ์หลังเรียน มาหาค่าดัชนีประสิทธิผล (Effectiveness Index) ซึ่งผู้วิจัยดำเนินการเก็บข้อมูล ดังนี้

ระยะที่ 1

1. หาคุณภาพความเหมาะสมของรูปแบบเอกสารคำสอน ผลการหาคุณภาพ พบว่า เอกสารคำสอนทั้งฉบับทุกด้าน มีความเหมาะสมในระดับมาก มีค่าเฉลี่ย เท่ากับ 4.44 และมีค่าเบี่ยงเบนมาตรฐานเท่ากับ 0.55

2. หาความตรง (ดัชนีความสอดคล้อง) ของประเด็นคำถามในแบบทดสอบหลังหน่วยการเรียน ผลการหาความตรงพบว่า แบบทดสอบหลังหน่วยการเรียนกับจุดประสงค์เชิงพฤติกรรม ทั้งเล่มรวม 9 หน่วยการเรียนโดยรวมอยู่ระหว่าง 0.60 - 1.00

3. หาความยากง่าย ค่าอำนาจจำแนก และความเชื่อมั่นของประเด็นคำถาม ในแบบทดสอบหลังเรียน พบว่า แบบทดสอบหลังเรียน จำแนกได้ดังนี้

ค่าความยากง่าย (p) รายข้อรวมทั้งฉบับ มีค่าระหว่าง 0.38 ถึง 0.69

ค่าอำนาจจำแนก (r) รายข้อรวมทั้งฉบับ มีค่าระหว่าง 0.27 ถึง 0.53

ค่าความเชื่อมั่น (r_{tt}) รวมทุกฉบับ มีค่าเท่ากับ 0.78

4. หาประสิทธิภาพของเอกสารคำสอนกับนักศึกษาเทคโนโลยีบัณฑิต ซึ่งไม่ใช่กลุ่มตัวอย่าง ที่พบว่า ประสิทธิภาพของเอกสารคำสอนมีประสิทธิภาพตามเกณฑ์ที่กำหนด ดังนี้

4.1 ประสิทธิภาพ แบบรายบุคคล เอกสารคำสอนมีประสิทธิภาพ (E_1 / E_2) เท่ากับ 50.56/ 49.44 จึงนำไปปรับปรุงและพัฒนา

4.2 ประสิทธิภาพ แบบกลุ่มย่อย เอกสารคำสอนมีประสิทธิภาพ (E_1 / E_2) เท่ากับ 62.00/ 60.22 จึงนำไปปรับปรุงและพัฒนา

4.3 ประสิทธิภาพ แบบภาคสนาม เอกสารคำสอนมีประสิทธิภาพ (E_1 / E2) เท่ากับ 81.02 / 80.84 จึงนำไปใช้พัฒนานักศึกษาเทคโนโลยีบัณฑิตรุ่นอื่น ๆ และปรับปรุงพัฒนาเอกสารคำสอนให้ต่อไป

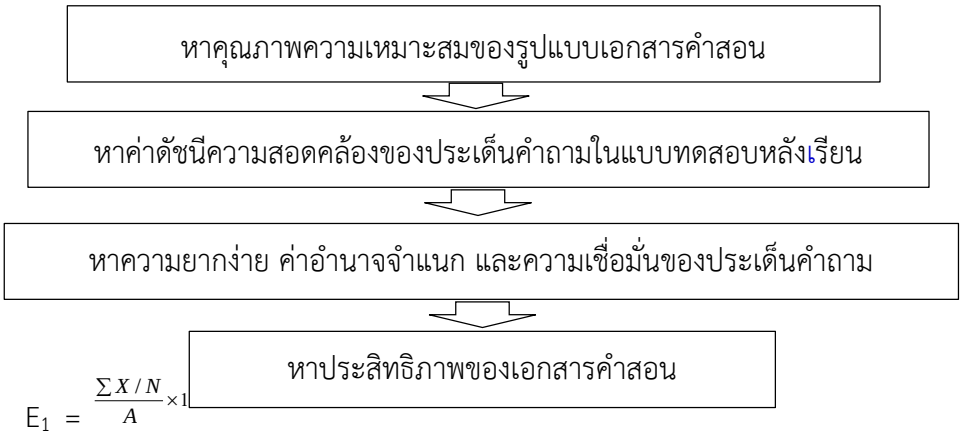
ระยะที่ 2

1. นำคะแนนหาค่าดัชนีประสิทธิผล โดยนำคะแนนผลสัมฤทธิ์ก่อนและหลังเรียนของนักศึกษากลุ่มตัวอย่างทุกคน

2. นำคะแนนในข้อ 1 มาเข้าสูตรเพื่อหาค่าดัชนีประสิทธิผล

3. ผลการหาค่าดัชนีประสิทธิผล มีค่าเท่ากับ 0.69 แสดงว่านักศึกษามีความรู้เพิ่มขึ้น 0.6890 หรือคิดเป็นร้อยละ 68.90

ระยะที่ 1 หาประสิทธิภาพของเอกสารคำสอน



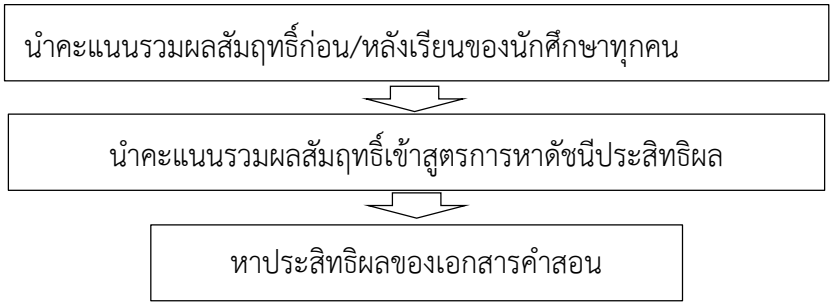
สูตร $E_1 = \frac{\sum X / N}{A} \times 1$

$E_2 = \frac{\sum Y / N}{B} \times 100$

E_1 แทน คะแนนเฉลี่ยร้อยละของนักศึกษาทุกคนระหว่างเรียน ทดสอบโดยใช้ แบบทดสอบหลังเรียน (ประสิทธิภาพกระบวนการ)

E_2 แทน คะแนนเฉลี่ยร้อยละของนักศึกษาทุกคนหลังเรียนทดสอบโดยใช้ผลสัมฤทธิ์ทางการเรียน (ประสิทธิภาพผลลัพธ์)

ระยะที่ 2 หาประสิทธิผลของเอกสารคำสอน



สูตร $E.I. = \frac{P_2 - P_1}{Total - P_1}$

P_1 แทน ผลรวมของคะแนนผลสัมฤทธิ์ทางการเรียนก่อนเรียนทุกคน

P_2 แทน ผลรวมของคะแนนผลสัมฤทธิ์ทางการเรียนหลังเรียนทุกคน

Total แทน ผลคูณของจำนวนนักศึกษากับคะแนนเต็มผลสัมฤทธิ์ทางการเรียน

ผลการวิจัย

ตารางที่ 1 ประสิทธิภาพของเอกสารคำสอนวิชา มนุษยสัมพันธ์ในองค์การ (n=24)

ประสิทธิภาพ	คะแนนเต็ม	คะแนนได้	ร้อยละ	ประสิทธิภาพ
ระหว่างเรียน E_1	90	73.33	81.48	E_1/ E_2
หลังเรียน E_2	60	48.08	80.14	81.48/80.14

ผลการวิจัยพบว่า คะแนนเฉลี่ยรวมระหว่างเรียนของนักศึกษา 73.33 คะแนน คะแนนเฉลี่ยรวมหลังเรียนของนักศึกษา 48.08 คะแนน ประสิทธิภาพเท่ากับ 81.48/80.14

ตารางที่ 2 ประสิทธิผลของเอกสารคำสอนวิชา มนุษยสัมพันธ์ในองค์การ (N=24)

รายการ	**คะแนนที่ได้**	**ประสิทธิผล**
คะแนนเต็ม (Total)	1,440	= (1,154-540)/(1,440-540)
คะแนนหลังเรียนรวมที่ได้ (P_2)	1,154	= 614/900 =0.6822
คะแนนก่อนเรียนรวมที่ได้ (P_1)	540	=0.6822 *100 =68.22 %

ผลการวิจัยพบว่า คะแนนของนักศึกษาทั้ง 24 คน เท่ากับ 1,440 คะแนน คะแนนหลังเรียนรวมของนักศึกษา 1,154 คะแนน คะแนนก่อนเรียนรวมของนักศึกษา 540 คะแนน ประสิทธิผล เท่ากับ 0.6822 แสดงว่าเมื่อใช้เอกสารคำสอนวิชา มนุษยสัมพันธ์ในองค์การ นักศึกษามีความรู้เพิ่มขึ้น 0.6822 หรือคิดเป็นร้อยละ 68.22

สรุปและอภิปรายผล

จากผลการศึกษาการใช้เอกสารคำสอน รายวิชา มนุษยสัมพันธ์ในองค์การ ดังกล่าวข้างต้น อภิปรายผล ดังต่อไปนี้

1. เอกสารคำสอน รายวิชามนุษยสัมพันธ์ในองค์การ รหัสวิชา 17-4000-1613 ที่ผู้วิจัยสร้างและพัฒนา มีการวางแผนอย่างเป็นขั้นตอน มีประสิทธิภาพเท่ากับ 81.48/80.14 ตรงตามสมมติฐานที่ตั้งไว้ ทั้งนี้เป็นเพราะผู้วิจัยมีการคัดกรองเนื้อหาสาระเฉพาะที่สอดคล้องกับระดับความรู้ ประสบการณ์ของนักศึกษา และเพิ่มเติมเนื้อหาให้เหมาะสมกับหลักสูตรเทคโนโลยีบัณฑิต ก่อนจะนำมาสร้างเป็นเอกสารคำสอน นอกจากนี้ผู้วิจัยได้มีการปรับปรุงแก้ไขตามคำแนะนำของผู้เชี่ยวชาญด้านเนื้อหา ด้านการวัดผลและประเมินผล ก่อนนำไปทดลองหาประสิทธิภาพกับกลุ่มทดลอง และกลุ่มตัวอย่าง เพื่อสร้างความมั่นใจว่าเอกสารคำสอนมีประสิทธิภาพจริง จากการดำเนินการดังกล่าวจึงทำให้เอกสารคำสอนมีประสิทธิภาพเป็นไปตามเกณฑ์ที่ตั้งไว้ ซึ่งสอดคล้องกับงานวิจัยของ เด่นเดือน สวนวงศ์ศรี (2564) ที่ได้ศึกษาผลผลการสร้างเอกสารคำสอน รายวิชามนุษยสัมพันธ์กับปรัชญาของเศรษฐกิจพอเพียง รหัสวิชา3000-1503

หลักสูตรประกาศนียบัตรวิชาชีพชั้นสูงพุทธศักราช 2557. วิทยาลัยสารพัดช่างชุมพร พบว่า เอกสารคำสอน ให้การเรียนการสอนมีประสิทธิภาพและนักศึกษาบรรลุจุดมุ่งหมายของหลักสูตร มีประสิทธิภาพตามเกณฑ์ 83.23/81.31 และยังสอดคล้องกับงานวิจัยของ กรณีย์ ประเสริฐสุข (2565) ที่ได้ศึกษาผลการสร้างเอกสารคำสอน รายวิชามนุษยสัมพันธ์กับปรัชญาของเศรษฐกิจพอเพียง รหัสวิชา 3000-1503 หลักสูตรประกาศนียบัตรวิชาชีพชั้นสูง พุทธศักราช 2557. วิทยานิพนธ์ครุศาสตร์มหาบัณฑิต สาขาหลักสูตรและการสอน มหาวิทยาลัยราชภัฏร้อยเอ็ด พบว่า ประสิทธิภาพของเอกสารคำสอนที่สร้างขึ้นมีประสิทธิภาพตามเกณฑ์ เท่ากับ 88.21/85.42

3. ดัชนีประสิทธิผล รายวิชามนุษยสัมพันธ์ในองค์การ รหัสวิชา 17-4000-1613 มีค่าเท่ากับร้อยละ 68.22 เป็นเพราะว่า ผู้วิจัยได้จัดเตรียมกระบวนการเรียนรู้โดยใช้เอกสารคำสอนอย่างเป็นระบบ มีการจัดกิจกรรมการเรียนรู้ตามหลักจิตวิทยาการเรียนรู้สมกับวัยของนักศึกษาเมื่อทดสอบวัดผลสัมฤทธิ์ทางการเรียนหลังเรียนนักศึกษาแต่ละคนจึงทำคะแนนผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงขึ้นกว่าก่อนเรียนซึ่งสูงกว่าสมมติฐานที่ตั้งไว้สอดคล้องกับงานวิจัยของ นักการศึกษา เด่นเดือน สวนวงศ์ศรี (2564) ที่ได้ศึกษาผลการสร้างเอกสารคำสอนรายวิชามนุษยสัมพันธ์ในองค์การ รหัสวิชา 3000-1503 หลักสูตรประกาศนียบัตรวิชาชีพชั้นสูง พุทธศักราช 2557 วิทยาลัยสารพัดช่างชุมพร พบว่าเอกสารคำสอนที่ใช้ในกระบวนการเรียนการสอนมีประสิทธิผล เท่ากับ 0.65 และยังสอดคล้องกับงานวิจัยของ กรณีย์ ประเสริฐสุข (2565) ที่ได้ศึกษาผลสัมฤทธิ์ทางการเรียนจากเอกสารคำสอนการสอน รายวิชา บุคลิกภาพในการทำงาน รหัสวิชา 2203-2009 วิทยาลัยเทคนิคบูรพาปราจีน สำนักงานคณะกรรมการการอาชีวศึกษา พบว่ามีประสิทธิผลทางการเรียน เท่ากับ 0.77

ข้อเสนอแนะ

1. ประสิทธิภาพของเอกสารคำสอนวิชามนุษยสัมพันธ์ในองค์การ รหัสวิชา 17-4000-1613 อยู่ในเกณฑ์ 81.48/80.14 โดยมีคะแนนเฉลี่ยของนักศึกษาทุกคนระหว่างเรียน ซึ่งเป็นประสิทธิภาพกระบวนการ (E_1) เท่ากับ 73.33 คะแนน จากคะแนนเต็ม 90 คะแนน คิดเป็นร้อยละ 81.48 และมีคะแนนเฉลี่ยของนักศึกษาทุกคนหลังเรียนซึ่งเป็นประสิทธิภาพหลังเรียน (E_2) เท่ากับ 48.08 คะแนน จากคะแนนเต็ม 60 คะแนน คิดเป็นร้อยละ 80.14 สรุปได้ว่าประสิทธิภาพของเอกสารคำสอนวิชามนุษยสัมพันธ์ในองค์การ อยู่ในเกณฑ์ 81.48/80.14 สามารถนำไปใช้ในการเรียนรู้ของนักศึกษา หลักสูตร เทคโนโลยีบัณฑิตได้ และการที่ประสิทธิภาพของเอกสารคำสอนวิชามนุษยสัมพันธ์ในองค์การ อยู่ในเกณฑ์ที่สามารถยอมรับได้นั้นเป็นเพราะว่าผู้วิจัยได้วิเคราะห์เนื้อหาวิชาทั้งหลักสูตรให้สอดคล้องกับจิตวิทยาการเรียนรู้ของนักศึกษา ก่อนนำมาสร้างเป็นเอกสารคำสอน และเมื่อสร้างเอกสารคำสอน แล้ว ผู้วิจัยได้นำเอกสารคำสอน ไปขอความคิดเห็นจากผู้เชี่ยวชาญ แล้วแก้ไขเป็นระยะ ๆ และทดลองใช้ (Tryout) กับนักศึกษาจนได้เอกสารคำสอนที่สมบูรณ์

2. เอกสารคำสอนวิชามนุษยสัมพันธ์รหัสวิชา 17-4000-1613 ในองค์การมีค่าประสิทธิผล เท่ากับ 0.6822 โดยมีคะแนนเต็ม (total) 1,440 คะแนน คะแนนหลังเรียนรวมที่ได้ (P_2) 1,154 คะแนน และคะแนนก่อนเรียนรวมที่ได้ (P_2) 1,154 คะแนน เมื่อนำมาหาค่าประสิทธิผลจึงมีค่าเท่ากับ 0.6822 แสดงว่านักศึกษามีความรู้เพิ่มขึ้น คิดเป็นร้อยละ 68.22 อาจเป็นเพราะว่าผู้วิจัยได้สร้างแบบทดสอบหลังเรียนโดยสร้างให้ครอบคลุมจุดประสงค์เชิงพฤติกรรมและเนื้อหาสาระที่เรียน โดยสร้างไว้ล่วงหน้าก่อนจะเริ่มสอนหรือเริ่มทดลอง แล้วนำแบบวัดผลสัมฤทธิ์ทางการเรียนฉบับเดิมแต่สลับข้อคำถาม มาวัดผลสัมฤทธิ์

นักศึกษาที่สอนหลังเรียนอีกครั้ง ตามแนวคิดของ เอกวิทย์ แก้วประดิษฐ์ (2565); เด่นเดือน สวนวงศ์ศรี (2564) ซึ่งแบบวัดผลสัมฤทธิ์ทางการเรียนดังกล่าว มีการหาคุณภาพ ความยากง่าย ค่าอำนาจจำแนก และความเชื่อมั่น ก่อนนำไปใช้จริง จากการดำเนินการอย่างเป็นขั้นเป็นตอนตามหลักวิชา ทำให้เอกสารคำสอนวิชามนุษยสัมพันธ์ ในองค์การที่ผู้วิจัยสร้างและพัฒนาขึ้น มีดัชนีประสิทธิผล เท่ากับ 0.6822 แสดงว่านักศึกษามีความรู้เพิ่มขึ้น คิดเป็นร้อยละ 68.22

ผู้วิจัยมีข้อเสนอแนะว่าในการสร้างสื่อ เอกสารคำสอน นวัตกรรม หรือสื่อสิ่งพิมพ์ รวมทั้งเอกสารคำสอนที่จะนำมาใช้กับนักศึกษาในระดับเทคโนโลยีบัณฑิต ควรนำมาหาค่าประสิทธิภาพและประสิทธิผลให้อยู่ในเกณฑ์ที่ยอมรับได้ก่อนนำไปใช้จริง

เอกสารอ้างอิง

กรณีย์ ประเสริฐสุข. (2565). ผลการสร้างเอกสารคำสอน รายวิชามนุษยสัมพันธ์กับปรัชญาของเศรษฐกิจพอเพียง รหัสวิชา 3000-1503 หลักสูตรประกาศนียบัตรวิชาชีพชั้นสูง พุทธศักราช 2557. วิทยานิพนธ์ครุศาสตรมหาบัณฑิต สาขาหลักสูตรและการสอน มหาวิทยาลัยราชภัฏร้อยเอ็ด.

เด่นเดือน สวนวงศ์ศรี. (2564). ผลการสร้างเอกสารคำสอน รายวิชามนุษยสัมพันธ์กับปรัชญาของเศรษฐกิจพอเพียง รหัสวิชา3000-1503หลักสูตรประกาศนียบัตรวิชาชีพชั้นสูงพุทธศักราช 2557. วิทยาลัยสารพัดช่างชุมพร. วิทยานิพนธ์ปริญญามหาบัณฑิต คณะศึกษาศาสตร์ มหาวิทยาลัยมหาสารคาม.

อนุวัติ คูณแก้ว. (2565). การวิเคราะห์ข้อมูลโดยใช้โปรแกรม SPSS for Windows. เพชรบูรณ์.

อำนวย เดชชัยศรี. (2564). นวัตกรรมและเทคโนโลยีการศึกษา. พิมพ์ครั้งที่ 3 กรุงเทพมหานคร (กรณีเอกสารคำสอน)

เอกวิทย์ แก้วประดิษฐ์. (2565). นวัตกรรมการศึกษา: ศึกษาเฉพาะกรณี. สงขลา: ภาควิชาเทคโนโลยีและสื่อสารการศึกษา มหาวิทยาลัยทักษิณ.

การพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) ตามแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล นักเรียนชั้นประถมศึกษาปีที่ 1

Development of Mathematical Learning Achievement on Mathematical Problem-Solving (Addition, Subtraction) Using Polya's Approach and Bar Model Drawing for Grade 1 Students

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) ตามแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดลของนักเรียนชั้นประถมศึกษาปีที่ 1 โดยเปรียบเทียบผลสัมฤทธิ์จากระหว่างก่อนเรียนกับหลังเรียน และเพื่อศึกษาความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้ ตามแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล นักเรียนชั้นประถมศึกษาปีที่ 1 กลุ่มเป้าหมาย ได้แก่ นักเรียนชั้นประถมศึกษาปีที่ 1 โรงเรียนรัตรสารวิทยา อำเภอสะเดา จังหวัดสงขลา ที่กำลังศึกษาในภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวนนักเรียน 16 คน ซึ่งเลือกแบบเจาะจง เครื่องมือที่ใช้ในการวิจัยได้แก่ 1) แผนการจัดการเรียนรู้ 2) แบบ ทดสอบวัดผลสัมฤทธิ์ทางการเรียน และ 3) แบบวัดความพึงพอใจ ผลการวิจัยพบว่า คะแนนเฉลี่ยทดสอบหลังเรียนสูงกว่าคะแนนเฉลี่ยทดสอบก่อนเรียน และความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้ตามแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล มีความพึงพอใจอยู่ในระดับมาก

คำสำคัญ: การแก้โจทย์ปัญหา, แนวคิดของโพลยา, รูปแบบบาร์โมเดล

Abstract

The objective of this research aimed to develop learning achievement in mathematics problem-solving (addition and subtraction) based on Polya's problem-solving process combined with bar model drawing for first-grade students. This was done by comparing achievement before and after the intervention and by examining the satisfaction of students towards the learning management based on Polya's problem-solving process combined with bar model drawing. The target group consisted of 16 Grade 1 students from

Ratthasart Wittaya School, Sadao District, Songkhla Province, studying in the second semester of the 2024 academic year. The research tools used included: 1) Lesson plans, 2) Achievement tests, and 3) Satisfaction surveys the results of the research indicated that the students' average score on the pre-test was 4.93, while the average score on the post-test was 7.19 the post-test score was significantly higher than the pre-test score. Regarding students' satisfaction with the learning management approach based on Polya's method and bar model drawings, their level of satisfaction was at high level

Keywords: Problem solving, Polya's concept, Bar model

บทนำ

คณิตศาสตร์ถือเป็นวิชาที่สำคัญต่อการพัฒนาทักษะการคิดเชิงตรรกะและการแก้ปัญหาในชีวิตประจำวัน โดยเฉพาะในระดับประถมศึกษา คณิตศาสตร์เป็นรากฐานสำคัญที่ช่วยเสริมสร้างศักยภาพด้านการคิดวิเคราะห์และการคำนวณ ซึ่งเป็นพื้นฐานของวิชาการในระดับสูง ในชั้นประถมศึกษาปีที่ 1 ซึ่งเป็นระดับเริ่มต้นของการเรียนรู้ นักเรียนจำนวนมากยังประสบปัญหาในการทำความเข้าใจโจทย์ปัญหา โดยเฉพาะในเรื่องการบวกและการลบ ซึ่งเป็นเนื้อหาคณิตศาสตร์ที่จำเป็นต่อการต่อยอดความรู้ในระดับที่สูงขึ้น และคณิตศาสตร์ยังมีบทบาทสำคัญยิ่งต่อการพัฒนาความคิดของมนุษย์ ช่วยให้มนุษย์มีความคิดสร้างสรรค์ คิดอย่างมีเหตุผล เป็นระบบ มีแบบแผน สามารถวิเคราะห์ปัญหาและสถานการณ์ได้อย่างถี่ถ้วนรอบคอบ ทำให้สามารถคาดการณ์ วางแผน ตัดสินใจ และแก้ปัญหาได้อย่างเหมาะสม คณิตศาสตร์ยังเป็นเครื่องมือสำคัญในการศึกษาวิทยาศาสตร์ เทคโนโลยี และศาสตร์อื่น ๆ ที่เกี่ยวข้อง อันเป็นรากฐานในการพัฒนาทรัพยากรบุคคลของชาติให้มีคุณภาพและพัฒนาเศรษฐกิจของประเทศให้ทัดเทียมกับนานาชาติ (กระทรวงศึกษาธิการ, 2560)

จากการศึกษาสภาพปัญหาการเรียนการสอนคณิตศาสตร์ในระดับชั้นประถมศึกษาปีที่ 1 พบว่านักเรียนส่วนใหญ่ยังประสบปัญหาในการแก้โจทย์ปัญหาการบวกและการลบ สาเหตุหลักเกิดจากการขาดความเข้าใจในเนื้อหาและกระบวนการวิเคราะห์ปัญหา นักเรียนมักไม่สามารถเชื่อมโยงข้อมูลในโจทย์กับวิธีการแก้ปัญหาได้อย่างเหมาะสม และขาดทักษะในการแปลงข้อมูลที่เป็นข้อความให้เป็นรูปแบบที่เข้าใจง่าย เช่น ตาราง แผนภาพ หรือการแสดงข้อมูลในรูปเชิงภาพจากผลการทดสอบ NT (National Test) ปีการศึกษา 2567 พบว่านักเรียนชั้นประถมศึกษาปีที่ 3 มีคะแนนเฉลี่ยด้านคณิตศาสตร์เพียงร้อยละ 43.18 ซึ่งต่ำกว่าเกณฑ์มาตรฐาน และเมื่อวิเคราะห์สาเหตุพบว่าปัญหาสำคัญเกิดจากการขาดทักษะพื้นฐานในการแก้โจทย์ปัญหาตั้งแต่ระดับชั้นประถมศึกษาปีที่ 1 โดยเฉพาะในเรื่องการบวกและการลบ และจากการศึกษาของสถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี (สสวท.) ในปี 2567 พบว่านักเรียนที่ได้รับการสอนโดยใช้เทคนิคการวาดรูปแบบบาร์โมเดลมีความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์สูงกว่ากลุ่มที่ไม่ได้ใช้เทคนิคนี้อย่างมีนัยสำคัญ โดยเฉพาะในเรื่องการบวกและการลบ

ผู้วิจัยจึงได้ศึกษาเอกสารและงานวิจัยที่เกี่ยวข้องพบว่า มีหลายแนวทางที่สามารถส่งเสริม ทักษะการแก้โจทย์ปัญหาของนักเรียนที่ขาดการวิเคราะห์ โจทย์ปัญหาขาดทักษะการแก้โจทย์ปัญหาและขาดความตระหนักถึงความสมเหตุสมผลของคำตอบ เมื่อพบกับโจทย์จะประสบปัญหาทันที ซึ่งเป็นผลมาจากนักเรียนยังคิดไม่เป็นระบบและไม่ทราบว่าจะเริ่มต้นแก้ปัญหาอย่างไร แนวทางที่ใช้ในการแก้ปัญหาข้างต้นที่ผู้วิจัยได้ศึกษาพบว่ากระบวนการแก้โจทย์ปัญหาของโพลยาที่ประกอบด้วยขั้นตอนการแก้ปัญหา 4

ขั้นตอน ขั้นตอนที่ 1 ขั้นทำความเข้าใจกับโจทย์ปัญหา เป็นการวิเคราะห์โจทย์ ปัญหาว่าโจทย์กำหนดอะไรมาให้ และโจทย์ถามว่าอะไร ขั้นตอนที่ 2 ขั้นวางแผนแก้โจทย์ปัญหา เป็นการหาความสัมพันธ์ของระหว่างข้อมูลที่โจทย์ กำหนดและสิ่งที่โจทย์ต้องการหา เพื่อวางแผนในการแก้โจทย์ปัญหา ขั้นตอนที่ 3 ขั้นดำเนินการตามแผน เป็นขั้นที่นักเรียนลงมือปฏิบัติตามแผนที่วางไว้ และขั้นตอนที่ 4 ตรวจสอบผล เป็นการตรวจสอบความสมเหตุสมผลของคำตอบเป็นวิธีการแก้ปัญหาโจทย์ปัญหาที่เป็นระบบมีขั้นตอนที่ชัดเจนและเป็นวิธีการที่เห็นผลชัดเจนแล้วว่าได้ประสิทธิภาพ แต่ในขั้นตอนกระบวนการแก้โจทย์ปัญหาของโพลยาสำหรับนักเรียนชั้นประถมนักเรียนอาจเกิดความเบื่อหน่าย และไม่สามารถเขียนอธิบายการวางแผนแก้ปัญหาได้ ผู้วิจัยจึงใช้เทคนิคบาร์โมเดล ซึ่งเป็นวิธีการแก้โจทย์ปัญหาทางคณิตศาสตร์อย่างหนึ่งที่ใช้กันแพร่หลายในต่างประเทศ (นวลฤทัย ลาพาแว, 2559) โดยประเทศสิงค์โปร์กำหนดให้ใช้การวาดรูปบาร์โมเดลในการแก้โจทย์ปัญหาทางคณิตศาสตร์ โดยจะวาดเป็นรูปสี่เหลี่ยมผืนผ้าแทนจำนวนที่กำหนดให้ แล้วให้มองหาความสัมพันธ์ของจำนวนโดยวาดเป็นรูปบาร์โมเดล เพื่อวางแผนในการแก้โจทย์ปัญหา นักเรียนจะสามารถเข้าใจโจทย์ปัญหาได้ดีขึ้น ถ้านักเรียนสามารถวาดออกมาเป็นรูปภาพได้

ความสำคัญและเหตุผลข้างต้น การจัดการเรียนรู้โดยใช้แนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล นักเรียนชั้นประถมศึกษาปีที่ 1 คาดว่าจะสามารถลดปัญหาการแก้โจทย์ปัญหา เรื่องการบวกและการลบ ของนักเรียนที่มีปัญหาการวิเคราะห์โจทย์ปัญหา เนื่องจากครูในฐานะที่มีบทบาทสำคัญในการจัดประสบการณ์และสร้างบรรยากาศในการเรียนรู้ จำเป็นต้องมีการปรับปรุงระบบการเรียนการสอนใหม่ โดยเลือกใช้วิธีสอนที่เหมาะสมกับเนื้อหา และความต้องการของผู้เรียนจัดกิจกรรมที่เหมาะกับความสามารถ เพื่อสร้างกระบวนการเรียนการสอนที่มีประสิทธิภาพ และช่วยยกระดับผลสัมฤทธิ์ทางการเรียนของนักเรียน ในระดับประถมศึกษา

วัตถุประสงค์ของการวิจัย

1. เพื่อพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) ตามแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดลของนักเรียนชั้นประถมศึกษาปีที่ 1 โดยเปรียบเทียบผลสัมฤทธิ์จากระหว่างก่อนเรียนกับหลังเรียน
2. เพื่อศึกษาความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้ตามแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล นักเรียนชั้นประถมศึกษาปีที่ 1

แนวคิด ทฤษฎี กรอบแนวคิด

การวิจัย เรื่อง การพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) ตามแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล นักเรียนชั้นประถมศึกษาปีที่ 1 ผู้วิจัยได้ศึกษาเอกสารและงานวิจัยที่เกี่ยวข้อง ดังนี้

สิริพร ทิพย์คง (2556) ให้ความหมายว่า ทักษะการแก้โจทย์ปัญหาคณิตศาสตร์ เป็นกระบวนการที่ผู้เรียนควรจะได้เรียนรู้ ฝึกฝน และพัฒนาให้เกิดทักษะขึ้นในตัวผู้เรียน การแก้ปัญหาต้องใช้ความรู้ความคิด และประสบการณ์เดิมประมวลเข้ากับสถานการณ์ใหม่ที่กำหนดในโจทย์

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี (2555) ให้ความหมายว่า ทักษะการแก้โจทย์ปัญหาคณิตศาสตร์ คือ ความสามารถในการใช้ความรู้ทางคณิตศาสตร์ ทักษะการคิดและเหตุผล เพื่อแก้ปัญหาในสถานการณ์ต่าง ๆ ในชีวิตประจำวันได้สำเร็จ

จากความหมายข้างต้น ผู้วิจัยสรุปได้ว่า ทักษะการแก้โจทย์ปัญหาคณิตศาสตร์ หมายถึง ความสามารถในการใช้ความรู้ ความคิด ประสบการณ์เดิม และกระบวนการทางคณิตศาสตร์ในการพิจารณาไตร่ตรองอย่างรอบคอบเพื่อหาคำตอบของปัญหาหรือสถานการณ์ที่กำหนดให้ได้อย่างถูกต้องและเหมาะสม

วิมลรัตน์ พงษ์รัตน์ (2562) กล่าวว่า ผลสัมฤทธิ์ทางการเรียนไม่เพียงแต่หมายถึงผลการสอบหรือคะแนนที่นักเรียนได้ แต่ยังหมายถึงการพัฒนาทักษะต่าง ๆ ที่ช่วยเสริมสร้างการคิดและการแก้ปัญหาของนักเรียนได้อย่างมีประสิทธิภาพ

Tien (2021) ได้กล่าวว่า ผลสัมฤทธิ์ทางการเรียนเป็นตัวบ่งชี้ที่สำคัญในการประเมินผลการเรียนรู้ โดยสะท้อนถึงความสามารถของนักเรียนในการแสดงผลลัพธ์จากการเรียนรู้และการประยุกต์ใช้ทักษะต่าง ๆ

จากที่กล่าวมาสรุปได้ว่า ความสำเร็จที่นักเรียนได้รับจากการเรียนรู้ ซึ่งสามารถวัดได้จากการประเมินผลต่าง ๆ เช่น คะแนนการสอบ หรือการประเมินในรูปแบบอื่น ๆ ที่สะท้อนถึงความรู้ ความสามารถ และทักษะที่นักเรียนได้เรียนรู้

Polya (1957) อธิบายว่า กระบวนการแก้ปัญหา 4 ขั้นตอน ได้แก่ ทำความเข้าใจปัญหา วางแผนแก้ปัญหา ดำเนินการตามแผน และตรวจสอบผล มีลำดับขั้นของการคิดอย่างเป็นระบบ เพื่อค้นหาวิธีการที่จะบรรลุเป้าหมายในสถานการณ์ที่ไม่คุ้นเคย โดยใช้ความรู้และประสบการณ์เดิมมาประยุกต์ใช้อย่างเป็นขั้นตอน นอกจากนี้กระบวนการแก้ปัญหาตามแนวคิดของโพลยาได้เสนอขั้นตอนในการแก้ปัญหาไว้ 4 ขั้นตอน ถูกนำมาใช้เป็นกระบวนการแก้โจทย์ปัญหาคณิตศาสตร์ ดังนี้

ขั้นที่ 1 ขั้นทำความเข้าใจปัญหา เป็นขั้นทำความเข้าใจโจทย์ปัญหาคณิตศาสตร์ว่าโจทย์ให้ข้อมูลอะไรมาบ้าง มีเงื่อนไขอย่างไร สิ่งที่โจทย์กำหนดให้เพียงพอแก้ปัญหาหรือไม่ สิ่งที่โจทย์ต้องการทราบคืออะไร ในการทำความเข้าใจโจทย์ถ้าไม่ชัดเจนควรใช้การเขียนภาพ แยกสถานการณ์ หรือเงื่อนไขออกเป็นส่วน ๆ บนกระดาษซึ่งจะทำให้เข้าใจโจทย์ได้ดีขึ้น

ขั้นที่ 2 ขั้นวางแผนแก้ปัญหา เป็นขั้นค้นคว้าความเชื่อมโยงระหว่างข้อมูลที่กำหนดให้กับ สิ่งที่ต้องการหา ถ้าหากไม่สามารถเชื่อมได้ก็ควรอาศัยหลักการวางแผนในการแก้ปัญหา

ขั้นที่ 3 ขั้นดำเนินการตามแผน เป็นขั้นการปฏิบัติตามแผนที่วางไว้และตรวจสอบว่าแต่ละขั้นตอนที่ปฏิบัตินั้นถูกต้องหรือไม่

ขั้นที่ 4 ขั้นตรวจสอบผล เป็นขั้นการตรวจสอบผลลัพธ์ที่ได้ว่าถูกต้องหรือไม่ โดยพิจารณาว่าเราสารมารถตรวจสอบผลลัพธ์ที่ได้สมเหตุสมผลหรือไม่ สามารใช้วิธีอื่นในการแก้โจทย์ปัญหาได้หรือไม่

ยุพิน พิพิธกุล (2554) กล่าวว่า กระบวนการแก้ปัญหาของโพลยาเป็นวิธีการสอนที่เน้นให้นักเรียนได้ฝึกการคิดแก้ปัญหาอย่างเป็นระบบ โดยมีขั้นตอนที่ชัดเจน ช่วยให้นักเรียนสามารถทำความเข้าใจปัญหาและหาวิธีแก้ไขได้ด้วยตนเอง

จากที่กล่าวมาผู้วิจัยสรุปได้ว่า กระบวนการแก้ปัญหาตามแนวคิดของโพลยา หมายถึง วิธีการแก้ปัญหาทางคณิตศาสตร์อย่างเป็นระบบที่ประกอบด้วย 4 ขั้นตอนที่มีความสัมพันธ์ต่อเนื่องกัน ได้แก่ การทำความเข้าใจปัญหา การวางแผนแก้ปัญหา การดำเนินการตามแผน และการตรวจสอบผล โดยเน้นให้ผู้เรียนใช้ความรู้และประสบการณ์เดิมในการวิเคราะห์และแก้ปัญหาอย่างเป็นขั้นตอน

Yeap & Berinderjeet (2021) อธิบายว่า บาร์โมเดลเป็นวิธีการแสดงความสัมพันธ์ของข้อมูลในโจทย์ปัญหาคณิตศาสตร์ด้วยแผนภาพรูปสี่เหลี่ยมผืนผ้า เพื่อช่วยให้ผู้เรียนมองเห็นความสัมพันธ์ของข้อมูลและนำไปสู่การแก้ปัญหาได้อย่างเป็นระบบ

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี (2555) กล่าวว่า การวาดรูปแบบบาร์โมเดล เป็นการใช้แผนภาพรูปสี่เหลี่ยมผืนผ้าแสดงความสัมพันธ์ของจำนวนในโจทย์ปัญหา เพื่อช่วยให้นักเรียนมองเห็นความสัมพันธ์ของข้อมูลและวางแผนแก้ปัญหาได้

นวลฤทัย ลาพาแว (2558) เทคนิคการวางรูปบาร์โมเดลเป็นยุทธวิธีหนึ่งในการช่วยให้นักเรียนวิเคราะห์โจทย์จากนามธรรมไปสู่ รูปธรรมยังไม่เพียงพอ ซึ่งยุทธวิธีในการแก้โจทย์ปัญหาที่ช่วยให้นักเรียนมองโจทย์ได้ชัดเจนขึ้น นั่นคือ การวาดรูปบาร์โมเดล คือ การวาดแบบจำลอง แทนสิ่งที่รู้ค่าและไม่รู้ค่าในโจทย์ปัญหานั้น ๆ

BanHar and OThers (2008) ได้กล่าวว่า การวาดบาร์โมเดลจะแสดงให้เห็นถึงความเชื่อมโยงระหว่างข้อมูลภายในโจทย์ปัญหาคณิตศาสตร์ ซึ่งเป็นยุทธวิธีในการแก้โจทย์ปัญหาคณิตศาสตร์ที่มีประสิทธิภาพอย่างมาก เนื่องจากนักเรียนสามารถเชื่อมโยงความรู้ด้านต่าง ๆ ไปสู่การวาดแบบจำลองที่เป็นลำดับขั้นได้ด้วยตนเอง ซึ่งเหมาะกับการสอนแก้โจทย์ปัญหาคณิตศาสตร์ของนักเรียนในระดับชั้นประถมศึกษา เพื่อเป็นการเตรียมความพร้อมของนักเรียนให้มีความสามารถในระดับที่สูงขึ้นไป โดยรูปแบบของการวาดรูปบาร์โมแดล สามารถแบ่งบาร์โมแดลออกเป็น 3 รูปแบบ ดังนี้

1) บาร์โมเดลแบบแบ่งข้อมูลทั้งหมดออกเป็นส่วน ๆ (The Part-Whole Model) บาร์โมเดลรูปแบบนี้จะนำข้อมูลทั้งหมดมาแบ่งออกเป็นส่วน ๆ ตั้งแต่ 2 ส่วนขึ้นไป โดยโจทย์ปัญหาอาจแสดงข้อมูลทั้งหมดมาให้แล้ว หรือให้ข้อมูลมาบางส่วน แล้วให้หาข้อมูลเพิ่มเติมที่จำเป็นในการแก้โจทย์ปัญหา บาร์โมเดลรูปแบบนี้มีส่วนช่วยในการสร้างพื้นฐานการแก้โจทย์ปัญหาคณิตศาสตร์และการคิดทางพีชคณิตเนื่องจากเป็นรูปแบบที่ไม่มีความซับซ้อนมากนัก จึงสามารถใช้ได้ดีกับโจทย์ปัญหาคณิตศาสตร์อย่างง่าย ๆ

2) บาร์โมเดลแบบเปรียบเทียบ (The Comparison Model) บาร์โมเดลรูปแบบนี้จะจำลองความสัมพันธ์ของข้อมูลระหว่างปริมาณจำนวน 2 ข้อมูลขึ้นไป โดยข้อมูลเหล่านั้นจะอยู่ในรูปแบบของการเปรียบเทียบข้อมูลที่มีปริมาณต่างกัน เพื่อแสดงให้เห็นถึงส่วนที่แตกต่างกัน แล้วหาคำตอบของส่วนที่แตกต่างกันนั้น หรือโจทย์ปัญหาอาจกำหนดข้อมูลจำนวนหนึ่งและส่วนที่แตกต่างกันของข้อมูลมาให้เพื่อให้นักเรียนหาข้อมูลอีกจำนวนที่เหลือ

3) บาร์โมเดลแบบแสดงการเปลี่ยนแปลง (The Change Model) บาร์โมเดลรูปแบบนี้จะแสดงความสัมพันธ์ของปริมาณข้อมูลที่เปลี่ยนแปลงไปตามสถานการณ์ปัญหาที่กำหนด อาจเป็นการเพิ่มขึ้นหรือลดลงของข้อมูลภายในสถานการณ์ มโนมติของการเปลี่ยนแปลงทางข้อมูลนี้เป็นสิ่งที่มีความสำคัญอย่างมาก เนื่องจากเป็นพื้นฐานสำคัญในการประยุกต์ใช้ความรู้เรื่องการแก้โจทย์ปัญหาคณิตศาสตร์ และการคิดทางพีชคณิต

จากที่กล่าวมาผู้วิจัยสรุปได้ว่า บาร์โมเดลเป็นยุทธวิธีที่ช่วยในการแก้โจทย์ปัญหาอย่างหนึ่ง โดยการวาดรูปบาร์โมเดลที่มีลักษณะเป็นรูปสี่เหลี่ยมผืนผ้าแทนข้อมูลที่โจทย์กำหนดมาให้ เพื่อแสดงให้เห็นถึงความสัมพันธ์ของข้อมูล ทำให้สามารถหาคำตอบหรือหาแนวทางได้การหาคำตอบของโจทย์ปัญหาได้อย่างถูกต้อง

งานวิจัยที่เกี่ยวข้อง

สมจิตร หงส์สา (2561) ได้ศึกษาผลการจัดการเรียนรู้โดยใช้กระบวนการแก้ปัญหาของโพลยาที่มีต่อความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 2 ผลการวิจัยพบว่า

นักเรียนมีความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์สูงขึ้นและมีเจตคติที่ดีต่อการเรียนคณิตศาสตร์อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

พัชรี อินทรชาธร (2562) ได้ศึกษาการพัฒนาความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์โดยใช้กระบวนการของโพลยาร่วมกับแผนภาพ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 2 ผลการวิจัยพบว่า นักเรียนมีผลสัมฤทธิ์ทางการเรียนสูงขึ้นและมีเจตคติที่ดีต่อการเรียนคณิตศาสตร์ อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

กรอบแนวคิด

การวิจัยในครั้งนี้เป็นการพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) โดยใช้แนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล นักเรียนชั้นประถมศึกษาปีที่ 1 โดยมีกรอบแนวคิดที่ใช้ในการวิจัยดังภาพที่ 1



ภาพที่ 1 กรอบแนวคิดที่ใช้ในการวิจัย

วิธีดำเนินการวิจัย

กลุ่มเป้าหมาย

นักเรียนชั้นประถมศึกษาปีที่ 1 โรงเรียนรัตรสารวิทยา อำเภอสะเดา จังหวัดสงขลา ที่กำลังศึกษาในภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวนนักเรียน 16 คน โดยได้มาจากการเลือกแบบเจาะจง

แบบแผนการวิจัย

ตารางที่ 1 แบบแผนกลุ่มเดียวทดสอบก่อนหลัง (One Group Pretest – Posttest Design)

การสุ่ม	กลุ่ม	ทดสอบก่อน	สิ่งที่ทดลอง	ทดสอบหลัง
-	E	O_1	X	O_2

สัญลักษณ์ที่ใช้ในแบบแผนการวิจัยแบบ One-Group Pretest-Posttest Design

E หมายถึง กลุ่มทดลอง

O_1 หมายถึง การทดสอบก่อนการทดลอง

X หมายถึง ดำเนินการทดลอง

O_2 หมายถึง การวัดผลหลังการทดลอง

เครื่องมือที่ใช้ในการวิจัย

1. แผนการจัดการเรียนรู้ด้วยแนวคิดของโพลยาร่วมกับการวาดรูปบาร์โมเดล เรื่องโจทย์ปัญหาการบวกและการลบ ของนักเรียนชั้นประถมศึกษาปีที่ 1 จำนวน 4 แผน 5 ชั่วโมง

2. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนรู้ในการแก้โจทย์ปัญหาคณิตศาสตร์ ก่อนเรียนกับ

หลังเรียน ของนักเรียนชั้นประถมศึกษาปีที่ 1 โดยใช้แบบทดสอบอัตนัย จำนวน 5 ข้อ

3. แบบวัดความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้ตามแนวคิดของโพลยาร่วมกับการวาดรูปบาร์โมเดล โดยมีแบบมาตรส่วนประมาณค่า (Rating Scale) ตามวิธีของ ธานินทร์ ศิลป์จารุ (2557) ดังนี้ ระดับที่ 1 พึงพอใจน้อยที่สุด, ระดับที่ 2 พึงพอใจน้อย, ระดับที่ 3 พึงพอใจปานกลาง, ระดับที่ 4 พึงพอใจมาก ระดับที่ 5 พึงพอใจมากที่สุด และมีเกณฑ์แปลความหมายดังนี้

คะแนนเฉลี่ย 4.50 – 5.00 หมายถึง ความพึงพอใจมากที่สุด
คะแนนเฉลี่ย 3.50 – 4.49 หมายถึง ความพึงพอใจมาก
คะแนนเฉลี่ย 2.50 – 3.49 หมายถึง ความพึงพอใจปานกลาง
คะแนนเฉลี่ย 1.50 – 2.49 หมายถึง ความพึงพอใจน้อย
คะแนนเฉลี่ย 1.00 – 1.49 หมายถึง ความพึงพอใจน้อยที่สุด

การสร้างเครื่องมือ

1. ศึกษาหลักสูตรกลุ่มสาระการเรียนรู้คณิตศาสตร์ (ฉบับปรับปรุง พ.ศ. 2560) ตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 ระดับชั้นประถมศึกษาปีที่ 1

2. ทฤษฎีเกี่ยวข้องกับการจัดการเรียนรู้ด้วยแนวคิดของโพลยา การวาดรูปแบบบาร์โมเดล และทักษะการแก้โจทย์ปัญหาคณิตศาสตร์

3. ศึกษารายวิชาที่สอนจุดประสงค์การเรียนรู้วิเคราะห์และคัดเลือกเนื้อหาเพื่อนำไปสร้างแผนการจัดการเรียนรู้ให้เหมาะสมกับลักษณะของนักเรียน

4. สร้างแผนการจัดการเรียนรู้คณิตศาสตร์โดยใช้แนวคิดโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล เรื่อง การแก้โจทย์ปัญหาการบวกและการลบ จำนวน 4 แผน รวม 5 ชั่วโมง

5. สร้างแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) ชั้นประถมศึกษาปีที่ 1 ที่ผู้วิจัยสร้างขึ้นตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน เป็นข้อสอบอัตนัย จำนวน 5 ข้อ

ผลการตรวจสอบคุณภาพเครื่องมือ

1. แผนการจัดการเรียนรู้คณิตศาสตร์โดยใช้แนวคิดโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) จำนวน 4 แผน รวม 5 ชั่วโมง ความถูกต้อง เหมาะสมของแผนการจัดการเรียนรู้ โดยผู้เชี่ยวชาญ 3 ท่าน มีค่าเฉลี่ยเท่ากับ 4.4 อยู่ในระดับมาก

2. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนรู้ในการแก้โจทย์ปัญหาคณิตศาสตร์ ระดับชั้นประถมศึกษาปีที่ 1 ได้รับการสร้างขึ้นตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน เป็นข้อสอบอัตนัย จำนวน 5 ข้อ (รวม 10 คะแนน) ซึ่งครอบคลุมสาระการเรียนรู้และจุดประสงค์การเรียนรู้ โดยผ่านการวิเคราะห์ความตรงเชิงเนื้อหา (Content Validity) ผ่านดัชนีความสอดคล้องระหว่างข้อคำถามกับวัตถุประสงค์การวิจัย (Index of Item Objective Congruence: IOC) มีค่าอยู่ในช่วง 0.67 - 1.00 และมีค่าความเชื่อมั่นของแบบทดสอบ ซึ่งวิเคราะห์โดยใช้ค่าสัมประสิทธิ์แอลฟาของครอนบาค (Cronbach's Alpha) เท่ากับ 0.88

3. แบบวัดความพึงพอใจของนักเรียนมีความตรงเชิงเนื้อหาโดยวิเคราะห์ความสอดคล้องระหว่างข้อคำถามกับวัตถุประสงค์การวิจัย อยู่ระหว่าง 0.67 – 1.00 ค่าความเชื่อมั่นของแบบวัด ซึ่งวิเคราะห์โดยใช้ค่าสัมประสิทธิ์แอลฟาของครอนบาค (Cronbach's Alpha) เท่ากับ 0.83

การเก็บรวบรวมข้อมูล

ในการเก็บรวบรวมข้อมูล ผู้วิจัยมีขั้นตอนการเก็บรวบรวมข้อมูล ดังนี้

1. ผู้วิจัยอธิบายให้นักเรียนเข้าใจถึงการจัดกิจกรรมการเรียนรู้ โดยแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) ชั้นประถมศึกษาปีที่ 1 แล้วจึงดำเนินการจัดการเรียนรู้

2. นักเรียนทำการทดสอบก่อนเรียน โดยใช้แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) ชั้นประถมศึกษาปีที่ 1 ผู้วิจัยสร้างขึ้นจำนวน 5 ข้อ

3. ดำเนินการจัดการเรียนรู้ตามแผนการจัดการเรียนรู้ ด้วยแนวคิดโพลยาร่วมกับการวาดแบบบาร์โมเดล ชั้นประถมศึกษาปีที่ 1

4. ผู้วิจัยดำเนินการทดสอบหลังเรียน เมื่อเสร็จสิ้นการจัดกิจกรรมการเรียนรู้โดยแนวคิดโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล ชั้นประถมศึกษาปีที่ 1 ด้วยแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) ฉบับเดียวกับที่ใช้ทดสอบก่อนเรียนมาทดสอบ

5. ผู้วิจัยดำเนินการเก็บข้อมูลความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้โดยแนวคิดของโพลยาร่วมกับการวาดรูปบาร์โมเดล

6. นำข้อมูลที่ได้มาวิเคราะห์ด้วยวิธีทางสถิติ โดยใช้โปรแกรมคอมพิวเตอร์ประมวลข้อมูล

การวิเคราะห์ข้อมูล

1. เปรียบเทียบผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์คณิตศาสตร์ (การบวกและการลบ) นักเรียนชั้นประถมศึกษาปีที่ 1 ก่อนเรียนกับหลังเรียน ใช้โดยแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน โดยการวิเคราะห์ความแตกต่างของคะแนน

2. ความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้ตามแนวคิดของโพลยาร่วมกับการวาดรูปบาร์โมเดล ใช้ค่าสถิติ คือ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน

ผลการวิจัย

การวิจัยเรื่องการพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) นักเรียนชั้นประถมศึกษาปีที่ 1 ผู้วิจัยได้นำเสนอผลการวิจัยออกเป็น 2 ตอนตามวัตถุประสงค์ ดังนี้

ตอนที่ 1 วิเคราะห์การเพื่อพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) ตามแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดลของนักเรียนชั้นประถมศึกษาปีที่ 1 โดยเปรียบเทียบผลสัมฤทธิ์จากระหว่างก่อนเรียนกับหลังเรียน

ตารางที่ 2 ผลการวิเคราะห์เปรียบเทียบผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) นักเรียนชั้นประถมศึกษาปีที่ 1 ก่อนกับหลังการจัดการเรียนเรียนรู้โดยแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล (คะแนนเต็ม 10 คะแนน)

คะแนน	$\bar{x}$	S. D.	ความต่างของคะแนน
ก่อนเรียน	4.88	1.471	2.310
หลังเรียน	7.19	2.062	

** $p < .01$

จากตารางที่ 2 นักเรียนได้คะแนนเฉลี่ยทดสอบก่อนเรียนเท่ากับ 4.88 คะแนน และได้คะแนนเฉลี่ยทดสอบหลังเรียนเท่ากับ 7.19 คะแนน พบว่า คะแนนเฉลี่ยทดสอบหลังเรียนสูงกว่าคะแนนเฉลี่ยทดสอบก่อนเรียนโดยมีคะแนนความต่างเท่ากับ 2.310 คะแนน

ตอนที่ 2 วิเคราะห์ความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 1 ในการพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่องการแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) โดยใช้แนวคิดของโพลยาร่มกับการวาดรูปแบบบาร์โมเดล

ตารางที่ 3 ผลค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และระดับความพึงพอใจ นักเรียนชั้นประถมศึกษาปีที่ 1

	รายการประเมิน	$\bar{X}$	S.D.	แปลความหมาย
1	ด้านเนื้อหา	4.21	0.65	มาก
2	ด้านการจัดการเรียนรู้	4.19	0.70	มาก
3	ด้านสื่อการเรียนรู้	4.23	0.57	มาก
4	ด้านบรรยากาศในชั้นเรียน	4.08	0.75	มาก
	รวม	**4.18**	**0.48**	**มาก**

จากตารางที่ 3 พบว่า ความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 1 ที่มีต่อการจัดการเรียนรู้โดยใช้แนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล เรื่องการแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) มีความพึงพอใจอยู่ในระดับมาก โดยมีคะแนนเฉลี่ยรวม ($\bar{x} = 4.18,\ S.D. = 0.48$)

ตารางที่ 4 ผลค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และระดับความพึงพอใจ ด้านเนื้อหา

	รายการประเมิน	$\bar{X}$	S.D.	แปลความหมาย
1	เนื้อหาเรียงจากง่ายไปยาก	4.50	0.73	มากที่สุด
2	เนื้อหาที่เรียนสามารถสร้างความรู้ความเข้าใจได้ด้วยตนเอง	3.94	1.06	มาก

ตารางที่ 4 (ต่อ)

	รายการประเมิน	$\bar{X}$	S.D.	แปลความหมาย
3	เนื้อหาที่เรียนสามารถนำความรู้ไปใช้ประโยชน์ได้จริงในระดับที่สูงขึ้นไป	4.19	0.75	มาก
	รวม	**4.21**	**0.65**	**มาก**

จากตารางที่ 4 พบว่า แสดงผลค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน แปลผลความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 1 ด้านเนื้อหา พบว่า นักเรียนมีความพึงพอใจอยู่ในระดับมาก โดยมีคะแนนเฉลี่ยด้านเนื้อหา ($\bar{x} = 4.21,\ S.D. = 0.65$)

ตารางที่ 5 ผลค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และระดับความพึงพอใจ ด้านการจัดการเรียนรู้

	รายการประเมิน	$\bar{X}$	S.D.	แปลความหมาย
1	นักเรียนมีความเข้าใจในเนื้อหามากขึ้น	4.56	0.63	มากที่สุด
2	นักเรียนเกิดทักษะกระบวนการเรียนรู้ เกิดการคิดอย่างเป็นระบบ	4.19	1.05	มาก
3	นักเรียนสามารถมองปัญหาจากนามธรรมให้เป็นรูปธรรมได้มากขึ้น	3.81	1.05	มาก
	รวม	**4.19**	**0.70**	**มาก**

จากตารางที่ 5 พบว่า แสดงผลค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน แปลผลความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 1 ด้านการจัดการเรียนรู้ พบว่า นักเรียนมีความพึงพอใจอยู่ในระดับมาก โดยมีคะแนนเฉลี่ยด้านการจัดการเรียนรู้ ($\bar{x} = 4.19,\ S.D. = 0.70$)

ตารางที่ 6 ผลค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และระดับความพึงพอใจ ด้านสื่อการเรียนรู้

	รายการประเมิน	$\bar{X}$	S.D.	แปลความหมาย
1	สื่อการเรียนรู้ช่วยให้นักเรียนเกิดความสนใจในการเรียนมากขึ้น	4.37	0.72	มาก
2	สื่อการเรียนรู้ช่วยให้นักเรียนเข้าใจในเนื้อหามากขึ้น	4.37	0.81	มาก
3	สื่อการเรียนรู้มีความชัดเจน เข้าใจง่าย	3.94	0.85	มาก
	รวม	**4.23**	**0.57**	**มาก**

จากตารางที่ 6 พบว่า แสดงผลค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน แปลผลความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 1 ด้านสื่อการเรียนรู้ พบว่า นักเรียนมีความพึงพอใจอยู่ในระดับมาก โดยมีคะแนนเฉลี่ยด้านสื่อการเรียนรู้ ($\bar{x} = 4.23,\ S.D. = 0.57$)

ตารางที่ 7 ผลค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และระดับความพึงพอใจ ด้านบรรยากาศในชั้นเรียน

	รายการประเมิน	$\bar{X}$	S.D.	แปลความหมาย
1	นักเรียนมีอิสระในการเรียนรู้	4.44	0.73	มาก
2	นักเรียนกล้าแสดงความคิดเห็น และรับฟังความคิดเห็นของผู้อื่น	4.13	0.96	มาก
3	บรรยากาศในการเรียนรู้สนุกสนานน่าเรียน	3.69	1.01	มาก
	รวม	**4.08**	**0.75**	**มาก**

จากตารางที่ 7 พบว่า แสดงผลค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน แปลผล ความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 1 บรรยากาศในชั้นเรียน พบว่า นักเรียนมีความพึงพอใจอยู่ในระดับมาก โดยมีคะแนนเฉลี่ยด้านบรรยากาศในชั้นเรียน ($\bar{x} = 4.08,\ S.D. = 0.75$)

สรุปและอภิปรายผล

จากผลการวิจัยการพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่องการแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) โดยใช้แนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล นักเรียนชั้นประถมศึกษาปีที่ 1 สามารถอภิปรายผลการวิจัยได้ดังนี้

1. เพื่อพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) ตามแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดลของนักเรียนชั้นประถมศึกษาปีที่ 1 โดยเปรียบเทียบผลสัมฤทธิ์จากระหว่างก่อนเรียนกับหลังเรียน มีคะแนนเฉลี่ยหลังการจัดการเรียนรู้โดยแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดลสูงกว่าคะแนนเฉลี่ยก่อนการจัดการเรียนรู้ที่ผลเป็นเช่นนี้ เพราะการจัดการเรียนรู้โดยแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล ส่งเสริมช่วยให้นักเรียนสามารถมองเห็นและเข้าใจโจทย์ปัญหาทางคณิตศาสตร์ได้ชัดเจนยิ่งขึ้น โดยสามารถแสดงความสัมพันธ์ระหว่างข้อมูลต่าง ๆ ได้ ทำให้การคิดคำนวณเป็นระบบมากขึ้นและง่ายต่อการแก้ปัญหาที่ซับซ้อนสอดคล้องกับงานวิจัยอรัญญา ลีลาไพบูลย์ (2558) ได้ศึกษาการพัฒนาทักษะการแก้ปัญหาคณิตศาสตร์ด้วยการใช้บาร์โมเดลและการวิเคราะห์ตามแนวทางโพลยา ผลการวิจัยพบว่า การใช้วิธีนี้มีผลทำให้ความสามารถในการแก้ปัญหาของนักเรียนดีขึ้นอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.01 อีกทั้งสอดคล้องกับ ประภาศรี พัฒนวิจิตร (2562) การศึกษาผลของการใช้บาร์โมเดลและกระบวนการเรียนรู้ตามแนวทางของโพลยาในการพัฒนาทักษะการคิดคำนวณของนักเรียนประถมศึกษา หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

2. ความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 1 ที่มีต่อการจัดการเรียนรู้ตามแนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล ความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 1 ที่มีต่อการจัดการเรียนรู้โดยใช้แนวคิดของโพลยาร่วมกับการวาดรูปแบบบาร์โมเดล เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ (การบวกและการลบ) มีความพึงพอใจอยู่ในระดับมาก มีคะแนนเฉลี่ยเท่ากับ 4.18 ส่วนเบี่ยงเบนมาตรฐาน 0.48 เมื่อพิจารณาแต่ละรายการ พบว่า อยู่ในระดับมากที่สุด 2 รายการ อยู่ในระดับมาก 10 รายการ สำหรับรายการที่มีคะแนนเฉลี่ยสูงสุด คือ นักเรียนมีความเข้าใจในเนื้อหามากขึ้น มีคะแนน เฉลี่ยเท่ากับ 4.56 ซึ่งอยู่ในด้านการจัดการเรียนรู้ และรายการที่มีคะแนนเฉลี่ยต่ำสุด คือ บรรยากาศในการเรียนรู้สนุกสนานน่าเรียน มีคะแนนเฉลี่ยเท่ากับ 3.69 ซึ่งอยู่ในบรรยากาศในชั้นเรียน ซึ่งสอดคล้องกับงานวิจัยของสมศักดิ์ เบาหล่อเพชร (2562) เรื่อง “ผลการจัดการเรียนรู้โดยใช้กระบวนการแก้ปัญหาของโพลยาที่มีต่อความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 2” พบว่านักเรียนมีความพึงพอใจอยู่ในระดับมาก ($\bar{x}$= 4.15, S.D. = 0.45) และงานวิจัยของ นภาพร วงษ์วรรณ์ (2563) ศึกษา “การพัฒนาทักษะการแก้โจทย์ปัญหาคณิตศาสตร์โดยใช้บาร์โมเดลร่วมกับเทคนิคการสอนแบบ KWDL สำหรับนักเรียนชั้นประถมศึกษาปีที่ 1” พบว่านักเรียนมีความพึงพอใจในระดับมาก ($\bar{x}$ = 4.22, S.D. = 0.50) โดยด้านการจัดการเรียนรู้มีค่าเฉลี่ยสูงสุด

ข้อเสนอแนะ

1. ข้อเสนอแนะเพื่อนำไปใช้

1.1 ในการนำบาร์โมเดลมาใช้ร่วมกับการจัดการเรียนรู้ ครูผู้สอนจะต้องอธิบายและสร้างความเข้าใจเกี่ยวกับความหมาย วิธีการใช้บาร์โมเดลอย่างละเอียด เพื่อไม่ให้เกิดการสับสนในระหว่างที่วาดภาพบาร์โมเดล

1.2 ควรมีการพัฒนาบทเรียนให้ครบทุกเนื้อหาและชั้นเรียนที่เหมาะสมในระดับเดียวกัน หรือต่างระดับเพื่อให้เกิดการเรียนรู้ที่มีประสิทธิภาพมากยิ่งขึ้น

2. ข้อเสนอแนะในการทำวิจัยครั้งต่อไป

ควรมีการวิจัยศึกษาประเด็นอื่น ๆ ที่เกี่ยวข้องกับการจัดการเรียนรู้ตามแนวคิดของโพลยาร่วมกับบาร์โมเดล นอกเหนือจากการพัฒนาผลสัมฤทธิ์ทางการเรียน และความพึงพอใจต่อรูปแบบการสอน เช่น ศึกษาพฤติกรรมการเรียนรู้ ศึกษาทักษะกระบวนการต่าง ๆ

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2560). ตัวชี้วัดและสาระการเรียนรู้แกนกลางกลุ่มสาระการเรียนรู้คณิตศาสตร์ตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐานพุทธศักราช 2551 (ฉบับปรับปรุง 2560). กรุงเทพฯ : โรงพิมพ์ชุมนุมสหกรณ์การเกษตรแห่งประเทศไทยจำกัด.

ธานินทร์ ศิลป์จารุ. (2557). การวิจัยและวิเคราะห์ข้อมูลทางสถิติด้วย SPSS และ AMOS (พิมพ์ครั้งที่ 15). กรุงเทพฯ : บิสซิเนสอาร์แอนด์ดี.

นภาพร วงษ์วรรณ์. (2563). การพัฒนาทักษะการแก้โจทย์ปัญหาคณิตศาสตร์โดยใช้บาร์โมเดลร่วมกับเทคนิคการสอนแบบ KWDL สำหรับนักเรียนชั้นประถมศึกษาปีที่ 1. วารสารศึกษาศาสตร์ มหาวิทยาลัยนเรศวร, 22(3), 156-171.

นวลฤทัย ลาพาแว. (2558). การพัฒนาความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 4 โดยใช้เทคนิคบาร์โมเดล. วารสารศึกษาศาสตร์ มหาวิทยาลัยนเรศวร, 17(3), 124-134.

นวลฤทัย ลาพาแว. (2559). การใช้บาร์โมเดลในการแก้ปัญหาคณิตศาสตร์. วารสารการศึกษาคณิตศาสตร์ , 10(1), 22-30.

ประภาศรี พัฒนวิจิตร. (2562). การศึกษาผลของการใช้บาร์โมเดลและกระบวนการเรียนรู้ตามแนวทางของโพลยาในการพัฒนาทักษะการคิดคำนวณของนักเรียนประถมศึกษา. วารสารวิจัยทางการศึกษา, 14(1), 89-102.

พัชรี อินทรชาธร. (2562). การพัฒนาความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์โดยใช้กระบวนการของโพลยาร่วมกับแผนภาพ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 2. วารสารครุศาสตร์, 4(2), 15-28.

ยุพิน พิพิธกุล. (2554). การเรียนการสอนคณิตศาสตร์. กรุงเทพฯ: บพิธการพิมพ์.

วิมลรัตน์ พงษ์รัตน์. (2562). ผลสัมฤทธิ์ทางการเรียนและปัจจัยที่มีผลต่อนักเรียนในระดับประถมศึกษา. วารสารวิจัยทางการศึกษา, 24(3), 122-134.

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี. (2555). การวัดผลประเมินผลคณิตศาสตร์. กรุงเทพฯ : สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี.

สมจิตร หงส์สา. (2561). ผลการจัดการเรียนรู้โดยใช้กระบวนการแก้ปัญหาของโพลยาที่มีต่อความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 2. วารสารการศึกษาและการวิจัย, 12(3), 45-58.

สมศักดิ์ เบาหล่อเพชร. (2562). ผลการจัดการเรียนรู้โดยใช้กระบวนการแก้ปัญหาของโพลยาที่มีต่อความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 2. วารสารวิชาการและวิจัยสังคมศาสตร์, 14(2), 67-82.

สิริพร ทิพย์คง. (2556). คณิตศาสตร์สำหรับครูประถม. กรุงเทพฯ : โรงพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

อรัญญา ลีลาไพบูลย์. (2558). การพัฒนาทักษะการแก้ปัญหาคณิตศาสตร์ด้วยการใช้บาร์โมเดลและการ

วิเคราะห์ตามแนวทางโพลยา. วารสารศึกษาศาสตร์, 15(2), 45-58.

BanHar, Y. et al. (2008). Using a Model Approach to Enhance Algebraic Thinking in the Elementary School Mathernatics Classroom. Algebra and algebraic thinking in school mathematics. Reston, Virginia : National Council of Teachers of Mathematics.

Polya, G. (1957). How to solve it: A new aspect of mathematical method (2nd ed.). Princeton : Princeton University Press.

Tien, L. T. (2021). The impact of learning strategies on academic achievement in the digital age. Educational Psychology Review, 33(4), 1235-1255.

Yeap, B., & Berinderjeet, K. (2021). Bar modeling: A problem-solving tool from research to practice. Singapore : Marshall Cavendish Education.

การพัฒนาทักษะการอ่านภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 4 โดยใช้สื่อคำศัพท์พื้นฐาน

Development of Thai reading skills of grade 4 primary school students using basic vocabulary media

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บทคัดย่อ

การวิจัยครั้งนี้ มีวัตถุประสงค์เพื่อเปรียบเทียบทักษะการอ่านภาษาไทยโดยใช้สื่อบัตรคำศัพท์พื้นฐานในบทเรียนระหว่างก่อนเรียนกับหลังเรียน เพื่อศึกษาความพึงพอใจของนักเรียนในการพัฒนาทักษะการอ่านภาษาไทยโดยการใช้สื่อบัตรคำศัพท์พื้นฐานในบทเรียน การวิจัยครั้งนี้เป็นการวิจัยแบบทดลอง กลุ่มเป้าหมายเป็นนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนบ้านควนสะตอ ตำบลท่าชะมวง อำเภอรัตภูมิ จังหวังสงขลา จำนวน 1 ห้องเรียน จำนวน 14 คน โดยใช้วิธีการสุ่มอย่างง่าย แบบจับสลาก เครื่องมือที่ใช้ในการวิจัย คือ 1) แผนการจัดการเรียนรู้รายวิชาภาษาไทย จำนวน 5 แผน 2) สื่อคำศัพท์พื้นฐาน จำนวน 100 คำ 3) แบบทดสอบวัดทักษะการอ่านคำศัพท์พื้นฐาน ชั้นประถมศึกษาปีที่ 4 และ 4) แบบสอบถามความพึงพอใจแบบทดสอบวัดทักษะการอ่านคำศัพท์พื้นฐาน การวิเคราะห์ข้อมูลโดยใช้สถิติ ได้แก่ ค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน ค่าร้อยละ และ Wilcoxon Signed Ranks Test

ผลการวิจัยพบว่า การพัฒนาทักษะการอ่านภาษาไทยโดยใช้สื่อคำศัพท์พื้นฐาน นักเรียนชั้นประถมศึกษาปีที่ 4 นักเรียนมีคะแนนเฉลี่ยหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 และความพึงพอใจของนักเรียนในการพัฒนาทักษะการอ่านภาษาไทยโดยการใช้สื่อคำศัพท์พื้นฐานอยู่ในระดับมากที่สุด (ค่าเฉลี่ยเท่ากับ 4.57)

คำสำคัญ: ทักษะการอ่าน, สื่อ, คำศัพท์พื้นฐาน

Abstract

This research aims to compare Thai reading skills using basic vocabulary flashcards in lessons before and after learning, as well as to study students' satisfaction with developing Thai reading skills through the use of basic vocabulary flashcards. This study is an experimental research. The target group consists of 14 fourth-grade students from Ban Khuan Sataw School, Tha Chamoung Subdistrict, Rattaphum District, Songkhla Province, selected through a simple random sampling method (lottery drawing). The research instruments include 1) Five Thai language lesson plans 2) 100 basic vocabulary flashcards 3) A test to assess basic vocabulary reading skills for fourth-grade students and 4) A questionnaire on students' satisfaction with the basic vocabulary reading skills test. Data analysis was conducted using statistical methods, including mean, standard deviation, percentage, and the Wilcoxon Signed Ranks Test.

The research findings indicate that the development of Thai reading skills using basic vocabulary flashcards resulted in significantly higher post-learning scores compared to pre-learning scores at the .01 significance level. Additionally, students' satisfaction with the development of their Thai reading skills through the use of basic vocabulary flashcards was at the highest level, with an average score of 4.57.

Keywords: Improving reading skills, Media, Basic vocabulary

บทนำ

การรู้หลักภาษาที่เกิดจากทักษะการฝึกฝนและการเรียนรู้ การอ่านเป็นการสื่อสารระหว่างผู้ส่งสารด้วยการเขียนกับผู้อ่าน โดยอาศัยตัวหนังสือเป็นสื่อ ผู้อ่านจึงเกิดความรู้ ความคิดและประสบการณ์ สามารถนำไปใช้ในชีวิตประจำวันได้ (กนกพร จันทะกล, 2564) และการอ่านเป็นทักษะที่มีความสำคัญต่อการดำรงชีวิตของมนุษย์ทุกคนเป็นอย่างมาก ทั้งด้านการศึกษาหาความรู้ ด้านการประกอบอาชีพ และการหาความสนุกสนานเพลิดเพลิน เพราะการอ่านช่วยส่งเสริมความรู้ความคิด และประสบการณ์ของคนให้เพิ่มพูนยิ่งขึ้น (จุฑามาศ พวงจันทร์ต๊ะ, 2560) ซึ่งนอกจากจะทำให้เกิดความรู้แล้ว การอ่านจึงเป็นหัวใจของการศึกษาทุกระดับ และเป็นเครื่องมือในการแสวงหาความรู้เรื่องต่าง ๆ ฉะนั้น การอ่านที่ดีมีประสิทธิภาพจะต้องอ่านแล้วจับใจความได้สรุปสาระสำคัญของเรื่องที่อ่านได้ (พิพัฒน์ ทัพเจริญ, 2567)

ทักษะการอ่านเป็นทักษะพื้นฐานที่มีความสำคัญอย่างยิ่งในการเรียนรู้ที่ช่วยให้ผู้เรียน สามารถแสวงหาความรู้ พัฒนาความคิด และเปิดโลกทัศน์ให้กว้างมากยิ่งขึ้น (วัฒนาพร ระงับทุกข์, 2560) ในระดับการศึกษาขั้นพื้นฐาน ทักษะการอ่านจึงเป็นรากฐานสำคัญสำหรับนักเรียนที่จะนำไปใช้ในการเรียนรู้ในวิชาอื่น ๆ โดยเฉพาะในช่วงชั้นประถมศึกษาที่นักเรียนจำเป็นต้องได้รับการส่งเสริมและพัฒนาทักษะการอ่านภาษาไทย (สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน, 2564) หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 กลุ่มสาระการเรียนรู้ภาษาไทย ได้กำหนดให้นักเรียนชั้นประถมศึกษาปีที่ 4 ต้องมีทักษะการอ่าน คำประโยค คำประพันธ์ชนิดต่าง ๆ การอ่านในใจเพื่อสร้างความเข้าใจ นำไปปรับใช้ในชีวิตประจำวัน (สำนักวิชาการและมาตรฐานการศึกษา, 2551)

จากการศึกษาของศูนย์วิจัยการศึกษาภาษาไทย ยังพบว่า เด็กในช่วงวัยชั้นประถมศึกษาจะสามารถพัฒนาทักษะการอ่านได้ดีขึ้นหากมีการฝึกฝนผ่านกิจกรรมที่สนุกสนานและเหมาะสมกับวัย เช่น การเรียนรู้ผ่านสื่อที่มีภาพประกอบ คำศัพท์ที่หลากหลาย และเนื้อหาที่เชื่อมโยงกับประสบการณ์ในชีวิตประจำวันซึ่งจะช่วยสร้างแรงจูงใจในการอ่านให้กับนักเรียนที่ต้องอาศัยการฝึกฝนอย่างต่อเนื่อง โดยเฉพาะคำศัพท์พื้นฐานซึ่งเป็นองค์ประกอบสำคัญที่ช่วยให้นักเรียนสามารถอ่านจับใจความและเข้าใจเนื้อหาได้ดีขึ้น (ศูนย์วิจัยการศึกษาภาษาไทย, 2564) คำศัพท์พื้นฐานเป็นสิ่งจำเป็นที่ช่วยให้นักเรียนเข้าใจความหมายของข้อความและยังส่งเสริมให้เกิดความมั่นใจในการอ่านมากขึ้น แต่ในปัจจุบันพบว่า นักเรียนชั้นประถมศึกษาปีที่ 4 หลายคนยังขาดความชำนาญในการอ่าน เนื่องจากมีคลังคำศัพท์พื้นฐานที่จำกัด ทำให้การอ่านไม่ราบรื่นและไม่สามารถเข้าใจข้อความได้อย่างมีประสิทธิภาพ (ไพฑูรย์ สินลารัตน์, 2562)

นักเรียนในระดับชั้นประถมศึกษาปีที่ 4 จะต้องผ่านการประเมินคุณภาพผู้เรียน (NT) หรือการทดสอบความสามารถพื้นฐาน ชั้นประถมศึกษาปีที่ 3 ซึ่งสำนักงานคณะกรรมการการศึกษาขั้นพื้นฐานเป็นหน่วยงานที่ดำเนินการจัดสอบ โดยทดสอบความสามารถพื้นฐาน 2 ด้าน คือ ด้านภาษาไทย (Thai Language) และด้านคณิตศาสตร์ (Mathematics) กระทรวงศึกษาธิการได้มีโครงการประเมินคุณภาพผู้เรียนโดยมีวัตถุประสงค์ของการประเมินเพื่อตรวจสอบความสามารถพื้นฐานที่สำคัญในการเรียนรู้ของผู้เรียนทั้งในด้านการอ่าน การเขียน และการคิดคำนวณตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 เพื่อให้ครูผู้สอนมีข้อมูลความสามารถด้านต่าง ๆ ของผู้เรียนสำหรับไปใช้ในการวางแผนการจัดการเรียนรู้และพัฒนาศักยภาพผู้เรียนเป็นรายบุคคล และทราบถึงสาระการเรียนรู้ที่ต้องปรับปรุงและพัฒนานำข้อมูลไปสู่การปรับวิธีเรียน เปลี่ยนวิธีสอนในปีการศึกษาถัดไป (สำนักทดสอบทางการศึกษา, 2567)

ผู้วิจัยได้รับมอบหมายให้รับผิดชอบในการจัดการเรียนการสอนวิชาภาษาไทย พร้อมทั้งวัดและประเมินผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนบ้านควนสะตอ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 พบว่า ผลการทดสอบความสามารถพื้นฐานระดับชาติ (National Test: NT) ในระดับชั้นประถมศึกษาปีที่ 3 ที่ผ่านมา ด้านภาษาไทย ระดับโรงเรียนมีคะแนนเฉลี่ย 53.13 ระดับสังกัดย่อยมีคะแนนเฉลี่ย 58.55 ระดับจังหวัดมีคะแนนเฉลี่ย 58.70 ระดับศึกษาธิการภาค มีคะแนนเฉลี่ย 61.61 ระดับสังกัดมีคะแนนเฉลี่ย 61.38 และระดับประเทศมีคะแนนเฉลี่ย 62.58 ซึ่งอยู่ในกลุ่มพอใช้ หมายถึง คะแนนต่ำกว่าคะแนนเฉลี่ยแต่ไม่อยู่ใน 10% สุดท้าย (สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน กระทรวงศึกษาธิการ, 2567) ซึ่งในการจัดการเรียนการสอนนักเรียนชั้นประถมศึกษาปีที่ 4 ปีการศึกษา 2567 ผู้วิจัยพบว่า นักเรียนมีความบกพร่องทางการเรียนรู้ด้านการอ่าน จำนวน 6 คน ทำให้นักเรียนมีลำบากในการอ่าน การประมวลผลตัวอักษรและเสียง ทำให้การอ่านคำหรือตัวอักษรไม่ชัดเจน ไม่สามารถอ่านและทำความเข้าใจความหมายคำศัพท์ได้ ส่วนหนึ่งเป็นผลมาจากปัญหาภาวะถดถอยทางการเรียนรู้ ด้านความรู้ ได้แก่ ด้านการอ่านออกเขียนได้ คิดเลขเป็น ผลสัมฤทธิ์ทางการเรียนลดลง คะแนนการวัดผลประเมินผลระดับชาติต่ำกว่าเกณฑ์ (สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน, 2565) ดังนั้น นักเรียนทุกคนควรเรียนรู้และใช้ภาษาไทยได้อย่างถูกต้องทุกโอกาส ภาษาไทยเป็นทักษะที่ต้องฝึกฝนจนเกิดความชำนาญในการใช้ภาษาเพื่อการสื่อสาร เพื่อนำไปปรับใช้ในชีวิตประจำวัน (สำนักวิชาการและมาตรฐานการศึกษา, 2566)

จากสภาพปัญหาดังกล่าวข้างต้น ปัญหาด้านการอ่านควรได้รับการแก้ไขอย่างเร่งด่วน ครูผู้สอนจะต้องมีการศึกษาหาวิธี ปรับปรุง พัฒนาการจัดกิจกรรมการเรียนรู้ให้มีประสิทธิภาพ ให้ทั้งความรู้ทักษะ

การคิด ความสนุกสนานเพลิดเพลินไปพร้อม ๆ กัน มีเทคนิคการสอนที่หลากหลาย ทำให้เกิดการเรียนรู้ เกิดความแม่นยำ จดจำง่าย และเข้าใจอย่างลึกซึ้ง จัดระบบเชื่อมโยง ความคิดต่าง ๆ เข้าด้วยกัน ผู้วิจัยจึงได้ศึกษาแนวคิดและทฤษฎีต่าง ๆ เพื่อหาแนวทางแก้ไขปัญหาดังกล่าว พบว่า การจัดกิจกรรมการเรียนการสอนภาษาไทยเกี่ยวกับคำศัพท์ หากใช้การสอนคำศัพท์แบบปกติทั่วไปโดยให้อ่านในหนังสือหรือคำศัพท์ในบทเรียน ไม่สามารถกระตุ้นความสนใจของนักเรียนได้ แต่เมื่อปรับเปลี่ยนวิธีการสอนโดยใช้สื่อคำศัพท์พื้นฐานสามารถช่วยกระตุ้นความสนใจของนักเรียน ผู้เรียนเกิดการเรียนรู้ ทำให้สามารถแก้ไขปัญหาดังกล่าวได้อย่างมีประสิทธิภาพ

วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบทักษะการอ่านภาษาไทยโดยใช้สื่อบัตรคำศัพท์พื้นฐานในบทเรียนระหว่างก่อนเรียนกับหลังเรียน
2. เพื่อศึกษาความพึงพอใจของนักเรียนในการพัฒนาทักษะการอ่านภาษาไทยโดยการใช้สื่อบัตรคำศัพท์พื้นฐานในบทเรียน

แนวคิด ทฤษฎี กรอบแนวคิด

หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 กลุ่มสาระการเรียนรู้ภาษาไทย

กระทรวงศึกษาธิการ (2551) หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 ภาษาไทยเป็นทักษะที่ต้องฝึกฝนจนเกิดความชำนาญในการใช้ภาษาเพื่อการสื่อสาร โดยสร้างความเข้าใจและการคิดวิเคราะห์สังเคราะห์ความรู้จากสิ่งที่อ่าน เพื่อนำไปปรับใช้ในชีวิตประจำวัน ได้กล่าวถึงหลักการจัดการศึกษาโดยสรุปว่า ให้นักเรียนมีส่วนร่วม มีส่วนกระทำ เป็นผู้ลงมือปฏิบัติกิจกรรม ถือว่านักเรียนสามารถเรียนรู้ได้ทุกคนมีความเท่าเทียมในการศึกษา

ผู้วิจัยสรุปได้ว่า หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พ.ศ. 2551 กลุ่มสาระภาษาไทย มุ่งเน้นให้นักเรียนฝึกฝนการใช้ภาษาเพื่อการสื่อสาร เน้นการปฏิบัติโดยกิจกรรม และให้โอกาสทุกคนได้รับการศึกษาอย่างเท่าเทียมอย่างมีประสิทธิภาพ

ความหมายการอ่าน

วรัญญา ไวบรรเทา (2563) การอ่าน หมายถึง การแปลความหมายจากตัวอักษร สัญลักษณ์ที่อ่านเพื่อรับรู้ถึงความหมาย และทำความเข้าใจสิ่งที่อ่าน สามารถนำมาใช้ประโยชน์เพื่อพัฒนาตนเอง

พรรณิกา ศรีชาญชัย (2562) การอ่าน คือ ทำความเข้าใจตัวอักษร เครื่องหมายต่าง ๆ ที่มีความหมายแล้วสามารถสรุปสาระสำคัญแล้วนำเอาความหมายนั้น ๆ ใช้ได้เกิดประโยชน์

อัญชลี สวัสดิ์โสม (2557) การอ่าน เป็นกระบวนการสื่อสารโดยผู้อ่านใช้ประสาทสัมผัสทางสายตารับรู้ตัวอักษรหรือสัญลักษณ์ แล้วทำความเข้าใจ ระหว่างผู้เขียนกับผู้อ่านให้เข้าใจตรงกัน

ผู้วิจัยได้สรุปว่า การอ่าน คือกระบวนการทำความเข้าใจความหมายจากตัวอักษรและสัญลักษณ์ต่าง ๆ โดยผู้อ่านใช้ประสาทสัมผัสทางสายตาในการรับรู้ เพื่อทำความเข้าใจเนื้อหาที่ผู้เขียนต้องการสื่อสารและสามารถนำความรู้หรือความเข้าใจที่ได้ไปประยุกต์ใช้ให้เกิดประโยชน์ต่อการพัฒนาตนเองต่อไป

คำศัพท์และความสำคัญ

ขนิษฐา ปลื้มใจ (2563) ความสำคัญของคำศัพท์ คือ คำศัพท์เป็นพื้นฐานไม่ว่าจะเป็นภาษาใด ก็ตาม การสอนต้องเน้นให้นักเรียนเรียนรู้คำศัพท์ในปริมาณที่เพียงพอ หากรู้คำศัพท์มากจะส่งผลให้นักเรียนสามารถคิดและพูดได้อย่างมีประสิทธิภาพมากกว่านักเรียนที่มีความรู้ด้านคำศัพท์น้อย

อุไรวรรณ ศรีติวงษ์ (2559) คำศัพท์ คือ กลุ่มเสียงและคำที่มีความหมายทั้งในการพูดและเขียน เป็นองค์ประกอบสำคัญที่มนุษย์ใช้สื่อสาร การใช้คำศัพท์จึงเป็นตัวชี้ประสิทธิภาพในการสื่อสาร ดังนั้น ทุกคนจึงควรเรียนรู้และพัฒนาคลังคำศัพท์อย่างต่อเนื่อง

สลินดา โพธิ์พยัคฆ์ (2556) คำศัพท์มีความสำคัญอย่างยิ่งต่อการเรียนการสอนภาษา ซึ่งมีผลต่อการสื่อสารและการพัฒนาทักษะต่าง ๆ ในแต่ละภาษา นักเรียนที่มีความรู้ด้านคำศัพท์มาก และพัฒนาการเรียนรู้ด้านคำศัพท์อยู่เสมอ ก็จะประสบความสำเร็จในการเรียนด้านภาษาไม่ว่าจะเป็นภาษาใดก็ตาม

ผู้วิจัยได้สรุปว่า คำศัพท์เป็นพื้นฐานสำคัญในการเรียนภาษา นักเรียนที่รู้คำศัพท์มากจะสามารถคิดและสื่อสารได้ดีกว่าผู้ที่รู้คำศัพท์น้อย จึงต้องเน้นให้นักเรียนเรียนรู้คำศัพท์ให้เพียงพอ

ทฤษฎีสื่อการเรียนการสอน

J. Romiszowski (1999) ได้เสนอแนวทางอย่างง่ายในการพิจารณาเลือกใช้สื่อการสอนไว้ว่า การเลือกสื่อการสอนนั้นมีปัจจัยหลายอย่างที่จำเป็นต้องนำมาพิจารณาปัจจัยเหล่านั้น ได้แก่ วิธีการสอน งานการเรียนรู้ ลักษณะของผู้เรียน ข้อจำกัดในทางปฏิบัติ ผู้สอนหรือครู

Jerrold E. Kemp and Don C. Smelle (1989) เสนอว่า นอกจากงานการเรียนรู้ ซึ่งเป็นสิ่งสำคัญที่กำหนดถึงสื่อที่จะเลือกใช้สิ่งสำคัญประการต่อมา คือ คุณลักษณะของสื่อ ควรศึกษาสื่อแต่ละชนิดที่มีศักยภาพของสื่อ ในการแสดงออกซึ่งลักษณะต่าง ๆ เช่น การเคลื่อนไหว สี และเสียง เป็นต้น

สุริยนต์ กัลยาณี (2566) แนวคิดการจัดการเรียนรู้เชิงรุกเป็นการจัดการเรียนรู้ที่ส่งเสริมให้ผู้เรียนร่วมกันลงมือปฏิบัติ จนเกิดเป็นองค์ความรู้ของตนเอง และจะมีส่วนช่วยให้ผู้เรียนมีทักษะในการค้นคว้าแสวงหาความรู้ สื่อสารได้อย่างมีประสิทธิผล มีทักษะชีวิตร่วมมือในการทำงานร่วมกับผู้อื่นได้เป็นอย่างดี

ผู้วิจัยสรุปได้ว่า การเลือกสื่อการสอนต้องคำนึงถึงวิธีสอน ผู้เรียน ข้อจำกัด และความพร้อมของครู ส่วนการเรียนรู้เชิงรุกเน้นให้ผู้เรียนลงมือทำ คิดวิเคราะห์ และสร้างความรู้เอง โดยครูเป็นผู้นำกระบวนการเรียนรู้ให้มีประสิทธิภาพ

หลักในการเลือกกิจกรรมการเรียนการสอนภาษาไทย

กิจกรรมการเรียนการสอนมีมากมาย เราสามารถจัดได้ทุกระยะของการเรียนการสอน ตั้งแต่ขั้นนำเข้าสู่บทเรียน ขั้นสอน ขั้นสรุป และขั้นประเมินผล ครูเป็นผู้เลือกกิจกรรมให้เหมาะสมกับ บทเรียน โดยยึดหลักดังนี้ 1) เลือกให้เหมาะสมกับจุดประสงค์ของบทเรียน 2) เลือกให้เหมาะสมกับ 3) เลือกโดยพิจารณาความสามารถของผู้สอนด้วย 4) เลือกโดยพิจารณาสภาพแวดล้อมในการเรียนการสอน 5) เลือกกิจกรรมให้ความสนุกสนาน ไม่ซับซ้อน 6) เลือกกิจกรรมที่ให้แนวคิดริเริ่มสร้างสรรค์และทุกคนมีส่วนร่วม

วรรณี โสมประยูร (2544) ได้อธิบายถึง การจัดกิจกรรมการเรียนการสอนภาษาไทยในระดับประถมศึกษา ควรคำนึงถึงจุดประสงค์ความพร้อมของผู้เรียนควรให้ผู้เรียนมีพัฒนาการทั้ง 4 ทักษะ คือ ฟัง พูด อ่าน เขียน ครูควรสอดแทรกคุณธรรม และให้รู้จักการทำงานร่วมกับคนอื่นได้ ภาษาไทยจึงไม่น่าจำกัดอยู่เฉพาะในชั่วโมงภาษาไทยเท่านั้น ควรยึดหลักดังนี้ 1) ด้านตัวผู้สอน ควรเป็นแบบอย่างที่ดีในการใช้

ภาษาในการทำกิจกรรม การสอนควรสอนเรื่องใกล้ตัวผู้เรียนและสอนให้สัมพันธ์กับวิชาอื่น ๆ 2) ด้านผู้เรียน ควรมีความพร้อมในการเรียน ศึกษาค้นคว้าด้วยตนเอง และมีการฝึกฝนอยู่เสมอ

ผู้วิจัยสรุปได้ว่า การเลือกกิจกรรมการสอนภาษาไทยต้องเหมาะกับจุดประสงค์ บทเรียน นักเรียน ครู และสภาพแวดล้อม ควรสนุก เข้าใจง่าย ส่งเสริมความคิดสร้างสรรค์ และให้ทุกคนมีส่วนร่วม การสอนควรพัฒนาทักษะ ฟัง พูด อ่าน เขียน เปิดโอกาสให้นักเรียนคิด ตัดสินใจ และแก้ปัญหาเอง ครูควรเป็นแบบอย่างที่ดี และมีการประเมินผลเพื่อพัฒนานักเรียนเรียนอย่างต่อเนื่อง

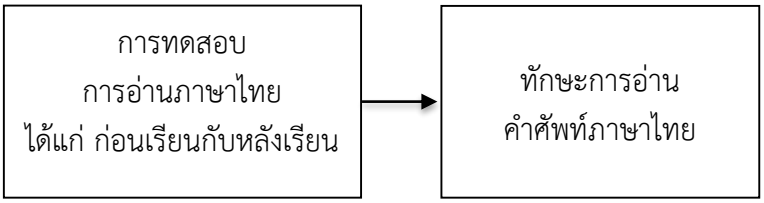
สื่อการเรียนการสอนภาษาไทย

สื่อการเรียนการสอนภาษาไทยมีความสำคัญต่อการเรียนการสอนมาก เพราะสื่อเป็นตัวกลางที่จะช่วยให้การสื่อสารระหว่างครูกับนักเรียนให้เข้าใจตรงกัน ทำความเข้าใจกับบทเรียนได้ง่ายขึ้น ทำให้นักเรียนมีความสนใจบทเรียนมากกว่าการสอนที่มีแต่ครู สื่อการเรียนการสอนจะช่วยนำความมีประสิทธิภาพมาสู่การเรียนการสอน และนำความสำเร็จมาสู่วัตถุประสงค์ที่ตั้งไว้

สื่อการสอน หมายถึง วัสดุ อุปกรณ์ เครื่องมือ วิธีการ และกิจกรรมต่าง ๆ ที่ครูผู้สอนใช้ถ่ายทอดความรู้และประมวลประสบการณ์ไปสู่ผู้เรียน ให้บรรลุตามจุดประสงค์ที่ตั้งไว้ ซึ่งจำแนกสื่อการสอนออกเป็น 3 ประเภทดังนี้ 1) สื่อประเภทวัสดุ 2) สื่อประเภทอุปกรณ์หรือเครื่องมือ 3) สื่อประเภทเทคนิค หรือสื่อการเรียนการสอนภาษาไทยมีหลายชนิด เช่น เกม บัตรคำ ปริศนาคำทาย เทปบันทึกเสียง แผ่นป้ายสำลี สไลด์ประกอบเสียง สถานการณ์จำลอง ฯลฯ

ผู้วิจัยได้สรุปว่า การเลือกใช้สื่อที่เหมาะสมจะช่วยให้การเรียนรู้ภาษาไทยมีประสิทธิภาพมากขึ้น ขึ้นอยู่อยู่กับกลุ่มผู้เรียนและเป้าหมายของการเรียนการสอน มีทั้งสื่อประเภทวัสดุ สื่อประเภทอุปกรณ์หรือเครื่องมือ สื่อประเภทเทคนิคหรือวิธีการแต่ละสื่อขึ้นอยู่กับการจัดกิจกรรมและประเภทของการจัดการเรียนการสอน สื่อแต่ละประเภทส่งผลต่อการจดจำและสามารถนำไปใช้ได้จริง ซึ่งการใช้สื่อคำศัพท์พื้นฐานก็เป็นสื่ออย่างหนึ่งที่เป็นเครื่องมือที่ช่วยในการฝึกฝนและเป็นการสร้างรากฐานที่มั่นคงในการพัฒนาทักษะการอ่านและสามารถนำไปประยุกต์ใช้ในการศึกษาหรือการทำกิจกรรมต่าง ๆ ได้อย่างมีประสิทธิภาพ

กรอบแนวคิดที่ใช้ในการวิจัย



ภาพที่ 1 กรอบแนวคิด

วิธีดำเนินการวิจัย

ประชากรและกลุ่มตัวอย่าง

1. ประชากรที่ใช้ในการศึกษา คือ นักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนในเครือข่ายท่าชะมวงสามัคคี ตำบลท่าชะมวง อำเภอรัตภูมิ จังหวังสงขลา จำนวน 7 โรงเรียน ได้แก่ โรงเรียนบ้านกำแพงเพชร

โรงเรียนบ้านท่ามะปราง โรงเรียนบ้านเนินนิมิต โรงเรียนนิคมสร้างตนเองรัตภูมิ โรงเรียนวัดรัตนวราราม โรงเรียนบ้านลานควาย และโรงเรียนบ้านควนสะตอ รวมประชากรทั้งหมด 317 คน ปีการศึกษา 2567

2. กลุ่มตัวอย่างที่ใช้ในการศึกษา ผู้วิจัยทำการสุ่มโรงเรียนจากประชากรทั้ง 7 โรงเรียน ในเครือข่ายท่าชะมวงสามัคคี โดยการจับสลากแบบไม่คืนที่ (Sampling Without Replacement) จำนวน 1 โรงเรียน ได้แก่ โรงเรียนบ้านควนสะตอ ตำบลท่าชะมวง อำเภอรัตภูมิ จังหวังสงขลา ใช้วิธีการสุ่มห้องเรียนโดยวิธีการสุ่มอย่างง่าย แบบจับสลาก ได้แก่ นักเรียนชั้นประถมศึกษาปีที่ 4 ซึ่งมีจำนวน 1 ห้องเรียน มีนักเรียนจำนวน 14 คน

วิธีการสร้างเครื่องมือที่ใช้ในงานวิจัย

1. การสร้างแผนการจัดการเรียนรู้

1.1 ศึกษาหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พ.ศ. 2551 กลุ่มสาระการเรียนรู้ภาษาไทย

1.2 ออกแบบแผนการสอน 5 แผน

การหาคุณภาพ นำแผนการสอนไปให้ผู้เชี่ยวชาญประเมินความเหมาะสม

2. การสร้างสื่อคำศัพท์พื้นฐาน

2.1 คัดเลือกคำศัพท์พื้นฐานที่เหมาะสมกับนักเรียนชั้นประถมศึกษาปีที่ 4

2.2 จัดทำสื่อในรูปแบบที่ดึงดูดความสนใจ เช่น สื่ออินเทอร์แอคทีฟ

2.3 ออกแบบสื่อให้มีองค์ประกอบ เช่น คำศัพท์ คำอ่าน

การหาคุณภาพ ตรวจสอบค่าความตรงเชิงเนื้อหาโดยผู้เชี่ยวชาญ (IOC ≥ 0.50)

3. การสร้างแบบทดสอบวัดทักษะการอ่านคำศัพท์พื้นฐาน แบบเติมคำ

การหาคุณภาพ วิเคราะห์ค่าดัชนีความสอดคล้อง (IOC = 1.00) วิเคราะห์ความยากง่าย (P = 0.20 - 0.70) วิเคราะห์อำนาจจำแนก (r = 0.20 - 0.50) และวิเคราะห์ความเชื่อมั่น

4. การสร้างแบบสอบถามความพึงพอใจ เป็นแบบมาตราส่วนประมาณค่า (Rating Scale) 5 ระดับ ตามแนวคิดของลิเคิร์ท (Likert, 1932) จำนวน 20 ข้อ

4.1 ออกแบบสอบถาม 5 ระดับ

4.2 กำหนดหมวดหมู่ของคำถาม เช่น ด้านสื่อคำศัพท์ กิจกรรมการเรียนรู้ ประโยชน์ที่ได้รับ การนำไปใช้

4.3 นำแบบสอบถามให้ผู้เชี่ยวชาญตรวจสอบ

การหาคุณภาพ ตรวจสอบค่าความตรงเชิงเนื้อหาโดยผู้เชี่ยวชาญ (IOC ≥ 0.50) และวิเคราะห์ค่าความเชื่อมั่นของแบบสอบถาม

เครื่องมือที่ใช้ในการวิจัย

1. แผนการจัดการเรียนรู้รายวิชาภาษาไทย ชั้นประถมศึกษาปีที่ 4 จำนวน 5 แผน
2. สื่อคำศัพท์พื้นฐาน ชั้นประถมศึกษาปีที่ 4 จำนวน 100 คำ
3. แบบทดสอบวัดทักษะการอ่านคำศัพท์พื้นฐาน ชั้นประถมศึกษาปีที่ 4
4. แบบสอบถามความพึงพอใจแบบทดสอบวัดทักษะการอ่านคำศัพท์พื้นฐาน

ผลการหาคุณภาพเครื่องมือ

1. แผนการจัดการเรียนรู้รายวิชาภาษาไทยชั้นประถมศึกษาปีที่ 4 มีค่าความเหมาะสมอยู่ที่ระดับมากที่สุด

2. สื่อคำศัพท์พื้นฐานภาษาไทย นักเรียนชั้นประถมศึกษาปีที่ 4 ผลการตรวจสอบพบว่า ค่าดัชนีความสอดคล้อง (Index of item objective congruence : IOC) ของแบบทดสอบวัดทักษะการอ่านคำศัพท์พื้นฐาน มีค่าความเที่ยงตรง 1.00 ทุกข้อ

3. แบบทดสอบวัดทักษะการอ่านคำศัพท์พื้นฐาน ผลการตรวจสอบพบว่า ค่าดัชนีความสอดคล้องของแบบทดสอบวัดทักษะการอ่านคำศัพท์พื้นฐาน มีค่าความเที่ยงตรง 1.00 ทุกข้อ มีค่าความยากง่าย (P) อยู่ระหว่าง 0.20 - 0.70 และมีค่าอำนาจจำแนก (r) อยู่ระหว่าง 0.20 - 0.50

4. แบบสอบถามความพึงพอใจแบบทดสอบวัดทักษะการอ่านคำศัพท์พื้นฐาน กลุ่มสาระการเรียนรู้ภาษาไทย ชั้นประถมศึกษาปีที่ 4 โดยใช้แบบมาตราส่วนประมาณค่า 5 ระดับ ศึกษาเอกสาร ทฤษฎี และงานวิจัยที่เกี่ยวข้อง มากำหนดประเด็นคำถามครอบคลุมด้านต่าง ๆ ผลการตรวจสอบพบว่า ผลการประเมินค่าดัชนีความสอดคล้อง (IOC) ของแบบทดสอบวัดทักษะการอ่านคำศัพท์พื้นฐาน จากผู้เชี่ยวชาญทั้ง 3 ท่าน มีค่าความเที่ยงตรง 1.00 ทุกข้อ ผ่านเกณฑ์การประเมินที่กำหนด (IOC ≥ 0.50) สามารถนำแบบทดสอบไปใช้ได้

การเก็บรวมรวมข้อมูล

การวิจัยครั้งนี้ได้ใช้แบบแผนการวิจัยแบบทดลอง (Randomized Control Group Pretest-Posttest Design)

ตารางที่ 1 แบบแผนการวิจัยแบบทดลอง (Randomized Control Group Pretest-Posttest Design)

การสุ่ม	กลุ่ม	ทดสอบก่อนเรียน	ดำเนินการทดลอง	ทดสอบหลังเรียน
R	E	O_1	X	O_2

สัญลักษณ์ที่ใช้ในแบบแผนการวิจัยแบบทดลอง

R แทน การสุ่ม
E แทน กลุ่มทดลอง
O_1 แทน ทดสอบก่อนเรียน
X แทน ดำเนินการทดลอง
O_2 แทน ทดสอบหลังเรียน

สถิติที่ใช้ในการวิเคราะห์ข้อมูล

สถิติพื้นฐาน

ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และค่าร้อยละ

สถิติทดสอบสมมติฐาน

เลือกใช้สถิติ Wilcoxon Signed Ranks Test โดยนำข้อมูลที่มาจากกลุ่มตัวอย่างเดียวกันแต่ถูกวัดสองครั้งในสภาวะที่แตกต่างกัน และเหมาะสำหรับตัวอย่างขนาดเล็ก ซึ่งใช้เปรียบเทียบคะแนนก่อนและหลังเรียนของกลุ่มตัวอย่างเดียวกัน เพื่อดูว่ามีความแตกต่างอย่างมีนัยสำคัญหรือไม่

การดำเนินการวิจัย

1. ทดสอบก่อนเรียน (Pre - test) ด้วยแบบทดสอบวัดความสามารถในการอ่านคำศัพท์พื้นฐาน จำนวน 30 ข้อ กับนักเรียนชั้นประถมศึกษาปีที่ 4 ภาคเรียนที่ 2 ปีการศึกษา 2567
2. ดำเนินการจัดการเรียนรู้ตามแผนการจัดการเรียนรู้โดยใช้สื่อคำศัพท์พื้นฐาน จำนวน 5 แผน ใช้เวลารวมทั้งหมด 10 ชั่วโมง
3. ทดสอบหลังเรียน (Post - test) โดยใช้แบบทดสอบวัดความสามารถในการอ่านคำศัพท์พื้นฐานจำนวน 30 ข้อ ชุดเดียวกันกับการทดสอบก่อนเรียน
4. เก็บข้อมูลความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้โดยใช้สื่อคำศัพท์พื้นฐานด้วยแบบสอบถามความพึงพอใจ
5. นำคำตอบของนักเรียนมาตรวจให้คะแนนและนำมาวิเคราะห์เพื่อทดสอบสมติฐานสรุปผลการวิจัย

ผลการวิจัย

การวิจัยเรื่องการพัฒนาทักษะการอ่านภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 4 โดยใช้สื่อคำศัพท์พื้นฐาน จำนวน 14 คน ผู้วิจัยได้นำเสนอผลการวิจัยออกเป็น 2 ตอน ตามวัตถุประสงค์ดังนี้

ตอนที่ 1 ผลการเปรียบเทียบทักษะการอ่านภาษาไทยโดยใช้สื่อคำศัพท์พื้นฐานระหว่างก่อนเรียนกับหลังเรียน

ตารางที่ 2 ผลการเปรียบเทียบทักษะการอ่านภาษาไทยโดยใช้สื่อคำศัพท์พื้นฐานระหว่างก่อนเรียนกับหลังเรียน (คะแนน 25 คะแนน)

การทดสอบ	$\bar{X}$	S.D.	Z	Asymp. Sig.
ก่อนเรียน	14.07	6.673	3.304**	.000
หลังเรียน	21.07	4.009		

** P < .01

จากตารางที่ 2 พบว่า การทดสอบก่อนเรียนได้คะแนนเฉลี่ยเท่ากับ 14.07 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 6.673 การทดสอบหลังเรียนได้คะแนนเฉลี่ย 21.07 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 4.009 ค่า z เท่ากับ 3.304 แสดงว่า นักเรียนชั้นประถมศึกษาปีที่ 4 ที่เรียนทักษะการอ่านภาษาไทยโดยใช้สื่อคำศัพท์พื้นฐาน มีผลการเรียนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ .01

ตอนที่ 2 ผลการวิเคราะห์ความพึงพอใจของนักเรียนในการพัฒนาทักษะการอ่านภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 4 โดยการใช้สื่อคำศัพท์พื้นฐาน

ตารางที่ 3 ความพึงพอใจด้านสื่อคำศัพท์

ข้อ	รายการประเมิน	$\bar{X}$	S.D.	ระดับความพึงพอใจ
1	สื่อคำศัพท์มีความน่าสนใจและดึงดูดใจ	4.71	.469	มากที่สุด
2	ขนาดและรูปแบบตัวอักษรมีความเหมาะสม อ่านง่าย	4.71	.469	มากที่สุด
3	การจัดวางเนื้อหาและรูปภาพประกอบเหมาะสม	4.64	.497	มากที่สุด
4	คำศัพท์ที่ใช้มีความเหมาะสมกับระดับชั้น	4.36	.497	มาก
5	สื่อคำศัพท์ช่วยให้เข้าใจความหมายได้ง่ายขึ้น	4.64	.497	มากที่สุด
	รวม	**4.61**	**.145**	**มากที่สุด**

จากตารางที่ 3 พบว่า นักเรียนมีความพึงพอใจอยู่ในระดับมากที่สุด โดยมีคะแนนเฉลี่ยเท่ากับ 4.61 (S.D. = .145)

ตารางที่ 4 ความพึงพอใจด้านกิจกรรมการเรียนรู้

ข้อ	รายการประเมิน	$\bar{X}$	S.D.	ระดับความพึงพอใจ
1	กิจกรรมการเรียนรู้มีความหลากหลาย	4.64	.497	มากที่สุด
2	กิจกรรมเปิดโอกาสให้นักเรียนมีส่วนร่วม	4.93	.267	มากที่สุด
3	เวลาที่ใช้ในการทำกิจกรรมมีความเหมาะสม	3.93	.730	มาก
4	กิจกรรมช่วยพัฒนาทักษะการอ่านได้จริง	4.79	.426	มากที่สุด
5	กิจกรรมมีความเหมาะสมกับวัยของผู้เรียน	4.29	.469	มาก
	รวม	**4.52**	**.405**	**มากที่สุด**

จากตารางที่ 4 พบว่า นักเรียนมีความพึงพอใจอยู่ในระดับมากที่สุด โดยมีคะแนนเฉลี่ยเท่ากับ 4.52 (S.D. = .405)

ตารางที่ 5 ความพึงพอใจด้านประโยชน์ที่ได้รับ

ข้อ	รายการประเมิน	$\bar{X}$	S.D.	ระดับความพึงพอใจ
1	ช่วยพัฒนาทักษะการอ่านภาษาไทย	4.79	.426	มากที่สุด
2	เพิ่มความรู้และความเข้าใจคำศัพท์	4.71	.469	มากที่สุด
3	สามารถจดจำความหมายของคำศัพท์ได้ดีขึ้น	4.57	.514	มากที่สุด
4	มีความมั่นใจในการอ่านมากขึ้น	4.57	.514	มากที่สุด
5	สามารถนำความรู้ไปใช้ในชีวิตประจำวันได้	4.57	.514	มากที่สุด
	รวม	**4.64**	**.102**	**มากที่สุด**

จากตารางที่ 5 พบว่า นักเรียนมีความพึงพอใจอยู่ในระดับมากที่สุด โดยมีคะแนนเฉลี่ยเท่ากับ 4.64 (S.D. = .102)

ตารางที่ 6 ความพึงพอใจด้านการนำไปใช้

ข้อ	รายการประเมิน	$\bar{X}$	S.D.	ระดับความพึงพอใจ
1	สามารถนำความรู้ไปใช้ในวิชาอื่น ๆ ได้	4.86	.363	มากที่สุด
2	สามารถอธิบายความหมายของคำให้ผู้อื่นเข้าใจได้	4.50	.519	มาก
3	สามารถนำคำศัพท์ไปใช้ในการแต่งประโยคได้	4.29	.611	มาก
4	สามารถนำความรู้ไปใช้ในการอ่านนอกห้องเรียนได้	4.21	.699	มาก
5	สามารถนำความรู้ไปประยุกต์ใช้ในการเขียนได้	4.71	.469	มากที่สุด
	รวม	**4.51**	**.274**	**มากที่สุด**

จากตารางที่ 6 พบว่า นักเรียนมีความพึงพอใจอยู่ในระดับมากที่สุด โดยมีคะแนนเฉลี่ยเท่ากับ 4.51 (S.D. = .274)

ตารางที่ 7 ผลค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และระดับความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 4

ข้อ	รายการประเมิน	$\bar{X}$	S.D.	ระดับความพึงพอใจ
1	ด้านสื่อคำศัพท์	4.61	.145	มากที่สุด
2	ด้านกิจกรรมการเรียนรู้	4.52	.405	มากที่สุด
3	ด้านประโยชน์ที่ได้รับ	4.64	.102	มากที่สุด
4	ด้านการนำไปใช้	4.51	.274	มากที่สุด
	รวม	**4.57**	**.064**	**มากที่สุด**

จากตารางที่ 7 พบว่า ผลการประเมินความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนบ้านควนสะตอ โดยพัฒนาทักษะการอ่านภาษาไทยโดยใช้สื่อคำศัพท์พื้นฐาน โดยภาพรวม อยู่ในระดับมากที่สุด มีค่าเฉลี่ยเท่ากับ 4.57 (S.D.= .064) เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านที่มีค่าเฉลี่ยมากที่สุด คือ ด้านประโยชน์ที่ได้รับ มีค่าเฉลี่ยเท่ากับ 4.64 (S.D.= .102) รองลงมา คือ ด้านสื่อคำศัพท์ มีค่าเฉลี่ยเท่ากับ 4.61 (S.D.= .145) ด้านกิจกรรมการเรียนรู้ มีค่าเฉลี่ยเท่ากับ 4.52 (S.D.= .405) และด้านการนำไปใช้ มีค่าเฉลี่ยเท่ากับ 4.51 (S.D.= .274) ตามลำดับ

สรุปและอภิปรายผล

จากผลการวิจัยการพัฒนาทักษะการอ่านภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 4 โดยใช้สื่อคำศัพท์พื้นฐาน สามารถอภิปรายผลการวิจัยได้ดังนี้

1. ทักษะการอ่านคำศัพท์พื้นฐานภาษาไทย นักเรียนชั้นประถมศึกษาปีที่ 4 หลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญของสถิติที่ระดับ .01 เนื่องจากการจัดการเรียนรู้โดยใช้สื่อคำศัพท์พื้นฐาน ที่ผู้วิจัยสร้างขึ้น ผ่านหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 กลุ่มสาระการเรียนรู้วิชาภาษาไทย ชั้นประถมศึกษาปีที่ 4 เมื่อนำเกมคำศัพท์มาจัดการเรียนรู้ช่วยดึงดูดความสนใจของผู้เรียน ผู้เรียนเกิดแรงจูงใจในการเรียนรู้มากขึ้น จดจำคำศัพท์ได้ดีขึ้น จึงส่งผลให้ทักษะการอ่านคำศัพท์พื้นฐานภาษาไทย นักเรียนชั้นประถมศึกษาปีที่ 4 สูงกว่าก่อนเรียน ซึ่งสอดคล้องกับงานวิจัย อัญชลี สวัสดิ์โสม (2557) ได้ทำการศึกษา ผลสัมฤทธิ์การอ่านคำศัพท์ภาษาไทย โดยใช้การจัดการเรียนรู้ด้วยเกมร่วมกับแบบ

ฝึกทักษะการอ่านคำศัพท์ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 3 พบว่า ผลสัมฤทธิ์การอ่านคำศัพท์ภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 3 ที่เรียนรู้ด้วยเกมร่วมกับแบบฝึกทักษะการอ่านคำศัพท์หลังเรียนสูงกว่าก่อนเรียนแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 ซึ่งสอดคล้องทั้งด้านกิจกรรมการพัฒนาทักษะการอ่านภาษาไทย และใช้แบบทดสอบวัดผลสัมฤทธิ์การอ่านคำศัพท์ภาษาไทยใช้ทดสอบก่อนเรียนและหลังเรียน

2. ผลการศึกษาความพึงพอใจของนักเรียนที่มีต่อแบบสอบถามความพึงพอใจหลังได้รับการจัดการเรียนรู้การพัฒนาทักษะการอ่านภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 4 โดยใช้สื่อคำศัพท์พื้นฐาน 4 พบว่า โดยภาพรวมอยู่ในระดับมากที่สุด เนื่องจากการออกแบบสื่อและกิจกรรมตอบสนองความต้องการของผู้เรียนได้เป็นอย่างดี เน้นผู้เรียนเป็นศูนย์กลางได้อย่างมีประสิทธิภาพ การปรับเปลี่ยนด้านรูปแบบการจัดกระบวนการเรียนรู้เกี่ยวกับคำศัพท์ ช่วยกระตุ้นความสนใจของผู้เรียนมากยิ่งขึ้น ซึ่งสอดคล้องกับ ขนิษฐา ปลื้มใจ (2563) ได้ทำการศึกษาการพัฒนาความสามารถความเข้าใจคำศัพท์ภาษาไทย นักเรียนชั้นประถมศึกษาปีที่ 1 เป็นการวิจัยเชิงทดลอง ความพึงพอใจของนักเรียนต่อการเรียนรู้ ความเข้าใจคำศัพท์ โดยใช้แผนผังความคิด โดยภาพรวมความพึงพอใจอยู่ในระดับมาก สอดคล้องกับ วรัญญา ไวบรรเทา (2563) ได้ทำการศึกษาการจัดการเรียนรู้โดยใช้นิทานเพื่อพัฒนาทักษะการอ่านคำศัพท์ภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 1 พบว่า ความพึงพอใจที่มีต่อการจัดการเรียนรู้โดยใช้นิทานโดยรวมอยู่ในระดับมาก และสอดคล้องกับ วรรณฤดี สุขชื่น (2563) ได้ทำการศึกษาการพัฒนาทักษะการอ่านภาษาไทย โดยการจัดการเรียนรู้ตามรูปแบบการเรียนรู้แบบร่วมมือด้วยเทคนิค ซี ไอ อาร์ ซี สำหรับนักเรียนชั้นประถมศึกษาปีที่ 1 พบว่า ความพึงพอใจที่มีต่อการจัดการเรียนรู้ตามรูปแบบการเรียนรู้แบบร่วมมือด้วยเทคนิค ซี ไอ อาร์ ซี อยู่ในระดับมาก

สรุป การพัฒนาทักษะการอ่านภาษาไทยโดยใช้สื่อคำศัพท์พื้นฐาน นักเรียนชั้นประถมศึกษาปีที่ 4 ส่งผลให้นักเรียนมีความสามารถในการอ่านภาษาไทยสูงขึ้น โดยมีคะแนนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญ นักเรียนสามารถเข้าใจความหมายของคำศัพท์พื้นฐานภาษาไทยได้มากขึ้น ซึ่งเป็นพื้นฐานสำคัญในการเรียนวิชาอื่น ๆ สามารถจดจำและนำคำศัพท์ไปใช้ในบริบทต่าง ๆ ได้อย่างถูกต้องเหมาะสม มีความกระตือรือร้นในการเรียนเพิ่มขึ้น เนื่องจากสื่อคำศัพท์พื้นฐานมีลักษณะที่น่าสนใจและจูงใจให้เรียนรู้

องค์ความรู้ใหม่ / ความก้าวหน้าทางวิชาการ

การพัฒนาทักษะการอ่านภาษาไทยโดยใช้สื่อคำศัพท์พื้นฐาน นักเรียนชั้นประถมศึกษาปีที่ 4 งานวิจัยได้แสดงให้เห็นความสัมพันธ์เชิงบวกระหว่างการรู้คำศัพท์พื้นฐานกับความสามารถในการอ่านเชิงวิเคราะห์ของนักเรียน ได้เทคนิควิธีการสอน กระบวนการใหม่ ๆ มาใช้ในการจัดการเรียนรู้ โดยพบว่าเมื่อนักเรียนเรียนรู้คำศัพท์ผ่านการใช้สื่อบัตรคำศัพท์พื้นฐาน ช่วยกระตุ้นให้นักเรียนเกิดการเรียนรู้มากขึ้น มีความเข้าใจคำศัพท์พื้นฐานที่ดีขึ้น จะส่งผลให้ความสามารถในการอ่านพัฒนาขึ้นอย่างมีนัยสำคัญ

ข้อเสนอแนะ

ข้อเสนอแนะในการนำผลวิจัยไปใช้

1. ครูผู้สอนสามารถนำสื่อคำศัพท์พื้นฐานภาษาไทย ไปใช้พัฒนาทักษะการอ่านวิชาภาษาไทย ชั้นประถมศึกษาปีที่ 4 ทั้งระดับชั้นของโรงเรียน

2. ครูผู้สอนควรมีความเข้าใจพื้นฐานต่อนักเรียนเป็นรายบุคคล ดังนั้นครูผู้สอนควรเลือกคำศัพท์ที่

มีความยากง่ายและปริมาณของคำศัพท์ไม่มากหรือน้อยจนเกินไปควรให้เหมาะสมกับระดับชั้นของนักเรียน

ข้อเสนอแนะในการวิจัยครั้งต่อไป

1. ควรศึกษาเปรียบเทียบสมรรถนะการพัฒนาทักษะการอ่านของนักเรียน ระหว่างการใช้สื่อคำศัพท์พื้นฐานกับการไม่ใช้สื่อคำศัพท์พื้นฐาน หลังการใช้ของทั้งสองวิธีมีความแตกต่างกันอย่างไร
2. ควรมีการพัฒนาทักษะการอ่าน โดยใช้สื่อคำศัพท์พื้นฐานไปใช้ศึกษาในรายวิชาอื่น

เอกสารอ้างอิง

กนกพร จันทะกล. (2564). การพัฒนาความสามารถด้านการอ่านและการเขียนของนักเรียนชั้นประถมศึกษาปีที่ 4 โดยการจัดการเรียนรู้ตามรูปแบบการอ่านและการเขียนจากภาพ. (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาสารคาม: มหาวิทยาลัยมหาสารคาม.

กระทรวงศึกษาธิการ. (2551). หลักสูตรแกนกลางการศึกษาขั้นพื้นฐานพุทธศักราช 2551. กรุงเทพฯ.

ขนิษฐา ปลื้มใจ (2563) การพัฒนาความสามารถความเข้าใจคำศัพท์ภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 1 โดยใช้แผนผังความคิด. (วิทยานิพนธ์ปริญญามหาบัณฑิต). กรุงเทพฯ: มหาวิทยาลัยธุรกิจบัณฑิตย์.

จุฑามาศ พวงจันทร์ต๊ะ. (2560). การใช้สื่อสิ่งพิมพ์เพื่อพัฒนาทักษะการอ่าน คิดวิเคราะห์ของนักเรียนชั้นประถมศึกษาปีที่ 6. (การค้นคว้าแบบอิสระปริญญาศึกษาศาสตรมหาบัณฑิต). เชียงใหม่: มหาวิทยาลัยเชียงใหม่.

พิพัฒน์ ทัพเจริญ. (2567). สาระการอ่าน การอ่านจับใจความสำคัญ การอ่านคิดวิเคราะห์. สืบค้นเมื่อ 19 กุมภาพันธ์ 2568 จาก https://phasathaikruphiphat.school.blog/

พรรณิกา ศรีชาญชัย. (2562). การพัฒนาชุดกิจกรรมการอ่านภาษาไทยเชิงวิเคราะห์ ด้วยเทคนิคการอ่านแบบ SQ3R สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5. (วิทยานิพนธ์ปริญญามหาบัณฑิต) กรุงเทพฯ: มหาวิทยาลัยบูรพา.

ไพฑูรย์ สินลารัตน์. (2562). คำศัพท์พื้นฐานกับการพัฒนาทักษะการอ่าน. กรุงเทพฯ: สำนักพิมพ์วิชาการ.

วรัญญา ไวบรรเทา. (2563). การจัดการเรียนรู้โดยใช้นิทานเพื่อพัฒนาทักษะการอ่านคำศัพท์ภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 1. (วิทยานิพนธ์ปริญญามหาบัณฑิต) กรุงเทพฯ: มหาวิทยาลัยรังสิต.

วรรณฤดี สุขชื่น. (2563). การพัฒนาทักษะการอ่านภาษาไทย โดยการจัดการเรียนรู้ตามรูปแบบการเรียนรู้แบบร่วมมือด้วยเทคนิค ซี ไอ อาร์ ซี สำหรับนักเรียนชั้นประถมศึกษาปีที่ 1 ศูนย์พัฒนาคุณภาพ การศึกษาป่าขะ-เขาเพิ่ม จังหวัดนครนายก. (วิทยานิพนธ์ปริญญาศึกษาศาสตรมหาบัณฑิต). กรุงเทพฯ: มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี.

วรรณี โสมประยูร. (2544). การสอนภาษาไทยระดับประถมศึกษา. พิมพ์ครั้งที่ 4 กรุงเทพฯ: ไทยวัฒนาพานิช

วัฒนาพร ระงับทุกข์. (2560). การจัดการเรียนการสอนที่เน้นผู้เรียนเป็นสำคัญ. (พิมพ์ครั้งที่ 4). กรุงเทพฯ: ต้นอ้อ.

ศูนย์วิจัยการศึกษาภาษาไทย. (2564). การพัฒนาการอ่านในเด็กประถมศึกษา. กรุงเทพฯ: ศูนย์วิจัย.

สลินดา โพธิ์พยัคฆ์. (2556). การพัฒนาแบบฝึกเสริมการเข้าใจความหมายคำศัพท์ภาษาอังกฤษ โดยการใช้กลวิธีการเคาความหมายจากบริบทของนักศึกษาระดับปริญญาตรีชั้นปีที่ 1 มหาวิทยาลัยเทคในโลยีราชมงคลสุวรรณภูมิศูนย์สุพรรณบุรี (วิทยานิพนธ์ปริญญามหาบัณฑิต). กรุงเทพฯ: มหาวิทยาลัยศิลปากร.

สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน (2567). รายงานผลการประเมินคุณภาพผู้เรียน (NT). กรุงเทพฯ: กระทรวงศึกษาธิการ.

สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน (2565). ถอดบทเรียนการแก้ไขภาวะลดถอยทางการเรียนรู้ LEARNING LOSS. กรุงเทพฯ: กระทรวงศึกษาธิการ.

สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน. (2564). แนวทางการพัฒนาทักษะการอ่านสำหรับนักเรียนประถมศึกษา. กรุงเทพฯ: กระทรวงศึกษาธิการ.

สำนักทดสอบทางการศึกษา. (2567). แนวทางการประเมินคุณภาพผู้เรียน (NT) ชั้นประถมศึกษาปีที่ 3 ปีการศึกษา 2567. กรุงเทพฯ: สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน กระทรวงศึกษาธิการ.

สำนักวิชาการและมาตรฐานการศึกษา. (2566). ตัวชี้วัดและสาระการเรียนรู้แกนกลาง กลุ่มสาระการเรียนรู้ภาษาไทย. กรุงเทพฯ: สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน กระทรวงศึกษาธิการ.

สำนักวิชาการและมาตรฐานการศึกษา. (2551). ตัวชี้วัดและสาระการเรียนรู้แกนกลาง กลุ่มสาระการเรียนรู้ ภาษาไทยตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพฯ: สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน กระทรวงศึกษาธิการ.

สุริยนต์ กัลยาณี. (2566). การจัดการเรียนรู้เชิงรุก (Active Learning) เพื่อพัฒนาทักษะผู้เรียนในศตวรรษที่ 21. สืบค้นเมื่อ 19 กุมภาพันธ์ 2568 จาก https://www.chan1.net/book/2824.

อัญชลี สวัสดิ์โสม. (2557). ผลสัมฤทธิ์การอ่านคำศัพท์ภาษาไทย โดยใช้การจัดการเรียนรู้ด้วยเกมร่วมกับแบบฝึกทักษะการอ่านคำศัพท์ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 3. (วิทยานิพนธ์ปริญญามหาบัณฑิต) ฉะเชิงเทรา: มหาวิทยาลัยราชภัฏราชนครินทร์.

อุไรวรรณ ศรีติวงษ์. (2559). การเรียนรู้คำศัพท์. สืบค้นเมื่อ 19 กุมภาพันธ์ 2568 จาก https://kruoiysmarteng.blogspot.com/2016/08/blog-post_88.html.

J. Romiszowski (eds.). (1999). Instructional Media and Technologies for Learning. NJ: Prentice-Hall, Inc.

Jerrold E. Kemp and Don C. Smelle. (1989) Planning, Producing, and Using Instructional Media. USA: Harper & Row.

Likert, R. (1932). A technique for measurement of attitudes. Archives of Psychology, 140, 5-55.

การพัฒนาชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4

Creating a science skill development kit focused on vertebrate classification for fourth-grade learners.

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์ 1) เพื่อพัฒนาชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 เป็นไปตามเกณฑ์มาตรฐาน 80/80 2) เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนวิชาวิทยาศาสตร์ก่อนเรียนกับหลังเรียน นักเรียนชั้นประถมศึกษาปีที่ 4 โดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์ และ 3) เพื่อศึกษาความพึงพอใจของนักเรียนที่มีต่อชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง กลุ่มประชากรที่ใช้วิจัย คือ นักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนบ้านนิคมวังหิน ตำบลบ้านนิคม อำเภอบางขัน จังหวัดนครศรีธรรมราช จำนวน 1 ห้อง นักเรียน 30 คน ซึ่งได้มาโดยวิธีการสุ่มแบบเจาะจง เครื่องมือที่ใช้ในการวิจัย ได้แก่ ชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง แผนการจัดการเรียนรู้ แบบทดสอบวัดผลการเรียน และแบบสอบถามความพึงพอใจของนักเรียน ใช้สถิติในการวิเคราะห์ข้อมูล ได้แก่ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน และทดสอบสมมติฐาน t-test 2 กลุ่มสัมพันธ์

ผลการวิจัยพบว่า 1) ชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง มีประสิทธิภาพ 85.16/88.00 2) นักเรียนชั้นประถมศึกษาปีที่ 4 มีผลสัมฤทธิ์ก่อนเรียนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลังสูงกว่าหลังเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 และ 3) นักเรียนมีความพึงพอใจต่อนักเรียนชั้นประถมศึกษาปีที่ 4 ที่มีผลต่อการจัดการเรียนรู้โดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง มีค่าเฉลี่ยมากที่สุด ($\bar{x}$ = 4.58 S.D. = 0.50)

คำสำคัญ: ชุดฝึกทักษะ, วิทยาศาสตร์, สัตว์มีกระดูกสันหลัง

Abstract

The objectives of this research were: 1) develop a science skill training set on vertebrate animals for Grade 4 students that meets the standard criteria of 80/80, 2) compare students' academic achievement in science before and after using the training set, and 3) study students' satisfaction with the science skill training set on vertebrate animals. The sample group consisted of 30 Grade 4 students from one classroom at Bannikhomwanghin School, Ban Nikhom Subdistrict, Bang Khan District, Nakhon Si Thammarat Province. The sample was selected using purposive sampling. The research instruments included the science skill training set on vertebrate animals, lesson plans, learning achievement tests, and a student satisfaction questionnaire. Data were analyzed using mean, standard deviation, and t-test 2 relationship groups.

The research findings revealed that: 1) the science skill training set on vertebrate animals achieved an efficiency of 85.16/88.00, 2) Grade 4 students' post-test achievement scores after using the science skill training set on vertebrate animals were significantly higher than their pre-test scores at the .01 level, and 3) students expressed the highest level of satisfaction with the learning management using the science skill training set on vertebrate animals ($\bar{x}$=4.58 S.D. = 0.50).

Keywords: Skill training set, Science, Vertebrate

บทนำ

วิทยาศาสตร์มีบทบาทสำคัญยิ่งในสังคมโลกปัจจุบันและอนาคต เนื่องจากวิทยาศาสตร์เกี่ยวข้องกับชีวิตของทุกคน ทั้งในการดำรงชีวิตประจำวันและในงานอาชีพต่างๆ ความก้าวหน้าทางวิทยาศาสตร์และเทคโนโลยีได้มีการพัฒนาอย่างรวดเร็ว ส่งผลให้หลายประเทศตื่นตัวและเล็งเห็นความสำคัญของการพัฒนาการศึกษาวิทยาศาสตร์ เพื่อสร้างบุคลากรที่มีความรู้ความสามารถทางวิทยาศาสตร์ให้สามารถแข่งขันในระดับนานาชาติได้ (สำนักงานเลขาธิการสภาการศึกษา, 2560)

การจัดการเรียนการสอนวิทยาศาสตร์ในประเทศไทยได้รับการพัฒนาและปรับปรุงมาอย่างต่อเนื่อง โดยเฉพาะอย่างยิ่งในระดับประถมศึกษา ซึ่งเป็นการวางรากฐานที่สำคัญในการเรียนรู้วิทยาศาสตร์ในระดับที่สูงขึ้น หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 (ฉบับปรับปรุง พ.ศ. 2560) ได้กำหนดตัวชี้วัดและสาระการเรียนรู้แกนกลางกลุ่มสาระการเรียนรู้วิทยาศาสตร์ โดยมุ่งหวังให้ผู้เรียนได้เรียนรู้วิทยาศาสตร์ที่เน้นการเชื่อมโยงความรู้กับกระบวนการ มีทักษะสำคัญในการค้นคว้าและสร้างองค์ความรู้ด้วยกระบวนการสืบเสาะหาความรู้ สามารถแก้ปัญหาอย่างเป็นระบบ (กระทรวงศึกษาธิการ, 2560)

เรื่องประเภทของสัตว์มีกระดูกสันหลังเป็นหนึ่งในเนื้อหาสำคัญที่กำหนดไว้ในหลักสูตร เนื่องจากเป็นความรู้พื้นฐานที่จำเป็นในการทำความเข้าใจระบบนิเวศและความหลากหลายทางชีวภาพ จากรายงานผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐาน (O-NET) วิชาวิทยาศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 6 ปีการศึกษา 2566 พบว่า คะแนนเฉลี่ยในสาระที่ 1 วิทยาศาสตร์ชีวภาพ ซึ่งครอบคลุมเนื้อหาเรื่อง

สัตว์มีกระดูกสันหลัง มีค่าเฉลี่ยเพียงร้อยละ 40.75 (สถาบันทดสอบทางการศึกษาแห่งชาติ, 2566) สะท้อนให้เห็นถึงปัญหาในการจัดการเรียนการสอนที่ยังไม่สามารถพัฒนาผู้เรียนให้มีความเข้าใจในเนื้อหาได้อย่างมีประสิทธิภาพ

จากการศึกษาสภาพปัญหาการจัดการเรียนการสอนวิทยาศาสตร์ในระดับประถมศึกษาของประเทศไทย พบว่า ปัญหาสำคัญประการหนึ่งคือการขาดสื่อการเรียนการสอนที่เหมาะสมและมีประสิทธิภาพ โดยเฉพาะสื่อที่ช่วยให้นักเรียนได้ฝึกปฏิบัติและทบทวนความรู้ด้วยตนเอง (วิชัย วงษ์ใหญ่, 2562) ชุดฝึกทักษะเป็นนวัตกรรมทางการศึกษาที่ได้รับการยอมรับว่าสามารถช่วยพัฒนาการเรียนรู้ของผู้เรียนได้อย่างมีประสิทธิภาพ เนื่องจากเป็นสื่อที่เปิดโอกาสให้ผู้เรียนได้ฝึกทักษะซ้ำ ๆ จนเกิดความชำนาญ สามารถเรียนรู้ได้ตามความสามารถของตนเอง และได้ลงมือปฏิบัติจริง ซึ่งสอดคล้องกับทฤษฎีการเรียนรู้ของธอร์นไดค์ที่กล่าวถึงกฎแห่งการฝึกหัด (Law of Exercise) ว่าการฝึกหัดหรือกระทำซ้ำบ่อย ๆ ด้วยความเข้าใจจะทำให้การเรียนรู้นั้นคงทนถาวร (ทิศนา แขมมณี, 2560) นอกจากนี้ การจัดการเรียนการสอนในยุคปัจจุบันยังต้องคำนึงถึงทักษะการเรียนรู้ในศตวรรษที่ 21 ที่เน้นให้ผู้เรียนมีความสามารถในการคิดวิเคราะห์ การแก้ปัญหา และการเรียนรู้ด้วยตนเองการพัฒนาชุดฝึกทักษะวิทยาศาสตร์จึงควรออกแบบให้สอดคล้องกับแนวคิดดังกล่าว โดยบูรณาการเทคโนโลยีและนวัตกรรมการเรียนรู้ที่ทันสมัย เพื่อกระตุ้นความสนใจและสร้างแรงจูงใจในการเรียนรู้ให้กับผู้เรียน (วรรณี แกมเกตุ, 2563)

การจัดการเรียนการสอนวิชาวิทยาศาสตร์ในระดับประถมศึกษาเป็นพื้นฐานสำคัญในการพัฒนาทักษะกระบวนการคิด การสังเกต และการจำแนกสิ่งต่าง ๆ ของนักเรียน โดยเฉพาะเรื่องประเภทของสัตว์มีกระดูกสันหลัง ซึ่งเป็นหนึ่งในบทเรียนสำคัญในหลักสูตรวิชาวิทยาศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 4 จากการสังเกตและประเมินผลการเรียนรู้ของนักเรียนระดับชั้นประถมศึกษาปีที่ 4 โรงเรียนบ้านนิคมวังหิน ตำบลบ้านนิคม อำเภอบางขัน จังหวัดนครศรีธรรมราช พบว่านักเรียนมีผลสัมฤทธิ์ทางการเรียนในเรื่องประเภทของสัตว์มีกระดูกสันหลังอยู่ในระดับที่ต่ำกว่าเกณฑ์ที่กำหนด (ร้อยละ 25.68) นักเรียนส่วนใหญ่ยังไม่สามารถจำแนกประเภทของสัตว์มีกระดูกสันหลังได้อย่างถูกต้อง ขาดความเข้าใจในลักษณะสำคัญที่ใช้ในการจัดจำแนกสัตว์แต่ละประเภท และไม่สามารถเชื่อมโยงความรู้กับสิ่งที่พบเห็นในชีวิตประจำวันได้ สาเหตุสำคัญของปัญหาดังกล่าวอาจเกิดจากการจัดการเรียนการสอนที่ยังไม่เอื้อต่อการเรียนรู้อย่างมีประสิทธิภาพ ขาดสื่อการเรียนรู้ที่หลากหลายและเหมาะสมกับวัยของผู้เรียน รวมถึงบริบทของโรงเรียนที่ตั้งอยู่ในชนบท ซึ่งมีข้อจำกัดในด้านทรัพยากรและสื่อการเรียนการสอนที่ทันสมัย นอกจากนี้การจัดการเรียนการสอนยังขาดกิจกรรมที่กระตุ้นให้ผู้เรียนเกิดความสนใจและมีส่วนร่วมในกระบวนการเรียนรู้อย่างแท้จริง

จากความสำคัญและปัญหาดังกล่าว ผู้วิจัยจึงมีความสนใจที่จะพัฒนาชุดฝึกทักษะวิทยาศาสตร์เรื่องประเภทของสัตว์มีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนบ้านนิคมวังหิน ตำบลบ้านนิคม อำเภอบางขัน จังหวัดนครศรีธรรมราช โดยออกแบบให้มีกิจกรรมที่หลากหลาย เน้นการลงมือปฏิบัติ และสอดแทรกเทคโนโลยีที่เหมาะสม เพื่อพัฒนาผลสัมฤทธิ์ทางการเรียนและสร้างเจตคติที่ดีต่อการเรียนวิทยาศาสตร์ ผลการวิจัยนี้จะเป็นแนวทางในการพัฒนาการจัดการเรียนการสอนวิทยาศาสตร์ให้มีประสิทธิภาพยิ่งขึ้น และเป็นประโยชน์ต่อการพัฒนาการศึกษาวิทยาศาสตร์ในระดับประถมศึกษาอันจะนำไปสู่การยกระดับผลสัมฤทธิ์ทางการเรียนและส่งเสริมให้นักเรียนเกิดความรู้ความเข้าใจในเนื้อหาดังกล่าวได้อย่างถูกต้องและยั่งยืนต่อไป

วัตถุประสงค์ของการวิจัย

1. เพื่อพัฒนาชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง นักเรียนชั้นประถมศึกษาปีที่ 4 เป็นไปตามเกณฑ์มาตรฐาน 80/80

2. เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนวิชาวิทยาศาสตร์ก่อนเรียนกับหลังเรียน นักเรียนชั้นประถมศึกษาปีที่ 4 โดยใช้ชุดฝึกทักษะ เรื่องประเภทของสัตว์มีกระดูกสันหลัง

3. เพื่อศึกษาความพึงพอใจของนักเรียนที่มีต่อชุดฝึกทักษะ เรื่องประเภทของสัตว์มีกระดูกสันหลัง

สมมติฐานการวิจัย

นักเรียนชั้นประถมศึกษาปีที่ 4 ที่เรียนด้วยชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องสัตว์มีกระดูกสันหลัง มีผลสัมฤทธิ์หลังเรียนสูงกว่าก่อนเรียน

แนวคิด ทฤษฎี กรอบแนวคิด

แนวคิดเกี่ยวกับชุดฝึกทักษะ

ราชบัณฑิตยสถาน (2546) แบบฝึก หมายถึง แบบฝึกหัดหรือชุดการสอนที่เป็นแบบฝึกหัดที่ใช้เป็นตัวอย่าง ปัญหาหรือคำสั่งที่ตั้งขึ้นให้นักเรียนตอบ

พรชัย ผาดไธสง (2545) กล่าวถึงชุดฝึกหมายถึง สื่อการสอนที่ใช้ในการประกอบการสอน โดยให้นักเรียนเป็นผู้ลงมือปฏิบัติกิจกรรมเองช่วยให้นักเรียนมีพัฒนาการในการเรียนรู้ทักษะที่เพิ่มขึ้น และนักเรียนเรียนรู้อย่างสนุกสนาน

จินตนา ใบกาซูยี (2542) กล่าวว่า แบบฝึกหรือแบบฝึกหัดเป็นสื่อการเรียนสำหรับให้ผู้เรียนได้ฝึกปฏิบัติ เพื่อช่วยเสริมให้เกิดทักษะและความแตกฉานในบทเรียน

ผู้วิจัยได้สรุปว่า ชุดฝึกเป็นสื่อการสอนที่ช่วยเสริมทักษะและความคิดแตกฉานในบทเรียนและครูสามารถใช้ชุดฝึกทักษะช่วยพัฒนาการเรียนรู้ เพื่อนำมาใช้สอนหรือให้ผู้เรียนได้ฝึกฝนทักษะต่าง ๆ ได้ดีขึ้นหลังจากที่ได้เรียนบทเรียนแล้ว

แนวคิดหลักการสร้างชุดฝึกทักษะ

สำลี รักสุทธี (2553) กล่าวถึง ขั้นตอนการสร้างชุดฝึกทักษะ ดังนี้

1. สำรวจปัญหา สาระ ตัวบ่งชี้ที่เป็นปัญหาและความต้องการ เมื่อจัดกิจกรรมการเรียนการสอนไปแล้ว ครูผู้สอนย่อมทราบดีว่าบรรลุตามจุดประสงค์หรือไม่ รวบรวมปัญหาและความต้องการในการแก้ปัญหาหรือความต้องการที่จะพัฒนาการเรียนการสอนในแต่ละตัวบ่งชี้

2. กำหนดจุดประสงค์ในการสร้างชุดฝึกทักษะให้ชัดเจนตรงตามตัวบ่งชี้ที่เป็นปัญหาเพื่อตอบคำถามว่าสร้างแบบฝึกเพื่ออะไร ต้องการให้ผู้เรียนรู้อะไร และเป็นอย่างไร

3. วิเคราะห์ปัญหาที่เรียนในแต่ละจุดประสงค์ว่าประกอบด้วยอะไร

4. ศึกษาจิตวิทยาการเรียนรู้ จิตวิทยาการอ่านของผู้เรียนในแต่ละชั้นว่านักเรียนแต่ละคนมีความสนใจเรื่องอะไร เช่น จิตวิทยาการอ่านที่นำไปใช้ในชุดฝึกทักษะ ประกอบด้วย

4.1 ความใกล้ชิด คือ ถ้าใช้สิ่งเร้าและตอบสนองเกิดขึ้นในเวลาใกล้เคียงกันจะสร้างความพอใจให้แก่ผู้เรียน

4.2 การฝึกหัด คือ การให้ผู้เรียนทำซ้ำ ๆ เพื่อสร้างความรู้ความเข้าใจที่แม่นยำ

4.3 กฎแห่งผล คือ การให้ผู้เรียนได้ทราบผลการทำงานของตนด้วยการเฉลยคำตอบ

ช่วยให้ผู้เรียนได้ทราบข้อบกพร่องเพื่อปรับปรุงแก้ไขและเป็นการสร้างความพอใจแก่ผู้เรียนได้

4.4 การจูงใจ คือ การจัดแบบฝึกหัดเรียงลำดับจากแบบฝึกที่ง่ายไปสู่แบบฝึกหัดที่ยากขึ้น

5. กำหนดกรอบการสร้างชุดฝึกทักษะว่าควรประกอบด้วยเรื่องอะไรบ้าง แต่ละเรื่องควรมีกิจกรรมอะไรบ้าง มีความยาวเพียงใด จะนำเสนออย่างไร

6. ลงมือเขียนแบบฝึกแต่ละชุด

7. นำชุดฝึกนั้นไปให้ผู้ชำนาญการตรวจสอบความถูกต้อง ความตรงตามเนื้อหาหรือนำไปทดลองกับผู้เรียนจำนวน 1 - 5 คน เพื่อนำไปรวบรวมข้อมูลเพื่อแก้ไขข้อบกพร่อง

8. จัดพิมพ์หรืออัดสำเนาชุดฝึกทักษะเพื่อให้ผู้เรียนนำไปใช้

ผู้วิจัยได้สรุปว่า หลักการสร้างชุดฝึกทักษะ คือ เริ่มจากการสำรวจปัญหา ศึกษาเนื้อหา แบ่งหน่วยการเรียนรู้ สาระสำคัญ โดยเรียงลำดับเนื้อหาจากง่ายไปหายาก กำหนดวัตถุประสงค์ให้ชัดเจน ผลิตสื่อหรือสร้างชุดฝึกทักษะ ประเมินผลก่อนเรียนและหลังเรียนให้สอดคล้องกับวัตถุประสงค์ที่กำหนดไว้ และปรับปรุงแก้ไขเพื่อให้ได้ชุดฝึกทักษะที่มีประสิทธิภาพ

แนวคิดการหาค่าประสิทธิภาพของชุดฝึกทักษะ

ชัยยงค์ พรหมวงศ์ (2556) กล่าวว่า ระดับประสิทธิภาพของสื่อหรือชุดการสอนที่จะช่วยให้ผู้เรียนเกิดการเปลี่ยนแปลงพฤติกรรม เป็นระดับที่ผลิตสื่อหรือชุดการสอนจะพึงพอใจว่า หากสื่อหรือชุดการสอนมีประสิทธิภาพถึงระดับนั้นแล้ว สื่อหรือชุดการสอนนั้นก็มีคุณค่าที่จะนำไปสอนนักเรียนและคุ้มแก่การลงทุนผลิตออกมาเป็นจำนวนมาก การกำหนดเกณฑ์ประสิทธิภาพกระทำได้โดยการประเมินผลพฤติกรรมของผู้เรียน 2 ประเภท คือ พฤติกรรมต่อเนื่อง (กระบวนการ) กำหนดค่าประสิทธิภาพเป็น E_1 = Efficiency of Process (ประสิทธิภาพของกระบวนการ) และพฤติกรรมสุดท้าย (ผลลัพธ์) กำหนดค่าประสิทธิภาพเป็น E_2 = Efficiency of Product (ประสิทธิภาพของผลลัพธ์) ประสิทธิภาพของสื่อหรือชุดการสอนจะกำหนดเป็นเกณฑ์ที่ผู้สอนคาดหมายว่าผู้เรียนจะเปลี่ยนพฤติกรรมเป็นที่พึงพอใจ โดยกำหนดให้ผลเฉลี่ยของคะแนนการทำงานและการประกอบกิจกรรมของผู้เรียนทั้งหมดต่อร้อยละของผลการประเมินหลังเรียนทั้งหมด คือ E_1/ E_2 = ประสิทธิภาพของกระบวนการ/ประสิทธิภาพของผลลัพธ์

ผู้วิจัยได้สรุปว่า การทดสอบประสิทธิภาพของชุดฝึกทักษะและการตั้งเกณฑ์ประสิทธิภาพสามารถทำได้โดยการประเมินผลพฤติกรรมผู้เรียน คือ พฤติกรรมต่อเนื่อง และพฤติกรรมผลลัพธ์ E_1/ E_2 = ประสิทธิภาพของกระบวนการ/ประสิทธิภาพของผลลัพธ์

งานวิจัยที่เกี่ยวข้อง

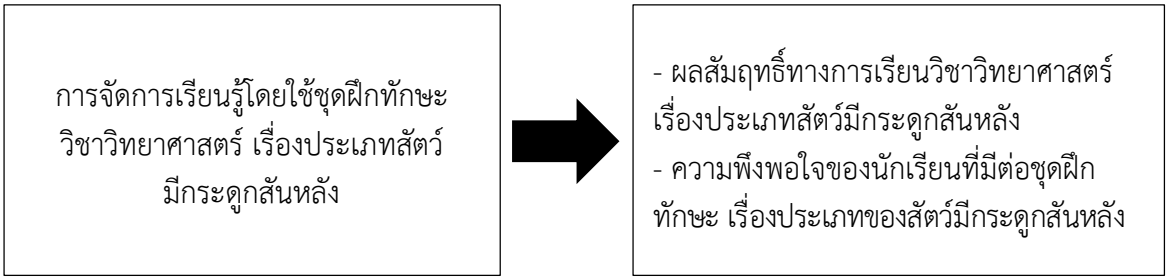
นฤมล หลายประเสริฐพร และณฐพล อยู่เป็นสุข (2566) ได้ทำการวิจัย เรื่องการพัฒนาชุดฝึกทักษะกระบวนการทางวิทยาศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 1 เพื่อส่งเสริมทักษะกระบวนการทางวิทยาศาสตร์ขั้นพื้นฐาน มีวัตถุประสงค์เพื่อศึกษาประสิทธิภาพชุดฝึกทักษะกระบวนการทางวิทยาศาสตร์ขั้นพื้นฐานของนักเรียนชั้นประถมศึกษาปีที่ 1 ให้มีประสิทธิภาพตามเกณฑ์มาตรฐานที่กำหนด 80/80 กลุ่มเป้าหมายที่ใช้นักเรียนชั้นประถมศึกษาปีที่ 1 โรงเรียนหิรัญราษฎร์ภักดีวิทยา สำนักงานเขตพื้นที่การศึกษาประถมศึกษา นนทบุรี เขต 1 จำนวน 40 คน ซึ่งได้มาจากการเลือกกลุ่มตัวอย่างแบบเจาะจง วิธีดำเนินการวิจัยมีขั้นตอนคือ ศึกษาและสร้างชุดฝึกทักษะกระบวนการทางวิทยาศาสตร์ขั้นพื้นฐานนำไปทดลองเพื่อหาค่าประสิทธิภาพ เครื่องมือที่ใช้ในการวิจัย ประกอบด้วยชุดฝึกทักษะกระบวนการทางวิทยาศาสตร์ขั้นพื้นฐาน สถิติที่ใช้ในการวิเคราะห์ผลคือ ประสิทธิภาพของชุดฝึกทักษะ ผลการวิจัยพบว่า การพัฒนาชุดฝึกทักษะกระบวนการทางวิทยาศาสตร์ของนักเรียนชั้น

ประถมศึกษาปีที่ 1 เพื่อส่งเสริมทักษะกระบวนการทางวิทยาศาสตร์ขั้นพื้นฐาน มีประสิทธิภาพอยู่ที่ 82.75/85.50 ซึ่งผ่านเกณฑ์ที่กำหนด

เจวรี ศรีจันไชย (2566) ได้ทำการวิจัยเรื่องการพัฒนาชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD ที่เสริมสร้างการคิดวิเคราะห์พฤติกรรมความร่วมมือและผลสัมฤทธิ์ทางการเรียนของนักเรียน ชั้นประถมศึกษาปีที่ 5 การวิจัยมีวัตถุประสงค์เพื่อ 1) พัฒนาชุดฝึกทักษะวิทยาศาสตร์ โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 ให้มีประสิทธิภาพตามเกณฑ์ 80/80 2) เปรียบเทียบการคิดวิเคราะห์ของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนเรียนและหลังเรียน 3) เปรียบเทียบพฤติกรรมความร่วมมือของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนเรียนและหลังเรียน และ 4) เปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนเรียนและหลังเรียน ด้วยชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD กลุ่มตัวอย่าง ได้แก่ นักเรียนชั้นประถมศึกษาปีที่ 5 โรงเรียนบ้านดงวิทยาคาร จังหวัดนครพนม จำนวน 24 คน ภาคเรียนที่ 2 ปีการศึกษา 2562 ซึ่งได้มาโดย วิธีการสุ่มแบบแบ่งกลุ่ม เครื่องมือที่ใช้ในการวิจัยประกอบด้วย 1) ชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD 2) แบบทดสอบวัดการคิดวิเคราะห์ 3) แบบวัดพฤติกรรมความร่วมมือ และ 4) แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน สถิติทดสอบค่าที (t-test for Dependent Samples) ผลการวิจัยพบว่า 1) ชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 พบว่า มีประสิทธิภาพตามเกณฑ์เท่ากับ 86.40/88.80 สูงกว่าเกณฑ์ 80/80 2) ผลการเปรียบเทียบการคิดวิเคราะห์ของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนเรียนและหลังเรียนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD พบว่า หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 3) ผลการเปรียบเทียบพฤติกรรมความร่วมมือของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนเรียนและหลังเรียนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD พบว่า หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 4) ผลการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนเรียนและหลังเรียนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD พบว่า หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

กรอบแนวคิดที่ใช้ในการวิจัย

การวิจัยในครั้งนี้จากการศึกษาหลักการ แนวคิด และแนวทางการพัฒนา จากเอกสารและงานวิจัยที่เกี่ยวข้อง ผู้วิจัยได้สรุปเป็นกรอบแนวคิดการพัฒนาชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทสัตว์มีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 โดยมีกรอบแนวคิดดังภาพที่ 1



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

รูปแบบการวิจัยการวิจัยครั้งนี้

การวิจัยครั้งนี้เป็นการวิจัยวิจัยกึ่งทดลอง (Quasi-Experimental Research) แบบมีกลุ่มประชากร 1 กลุ่ม และมีการทดสอบก่อนและหลังทดลอง (One group pretest - posttest design)

ประชากร

กลุ่มประชากรการวิจัยครั้งนี้ ได้แก่ นักเรียนระดับชั้นประถมศึกษาปีที่ 4 โรงเรียนบ้านนิคมวังหิน ตำบลบ้านนิคม อำเภอบางขัน จังหวัดนครศรีธรรมราช ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 1 ห้อง จำนวนนักเรียน 30 คน โดยวิธีการสุ่มแบบเจาะจง (Purposive Sampling)

เครื่องมือที่ใช้ในการวิจัย

1. ชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4
2. แผนการจัดการเรียนรู้เพื่อควบคู่กับชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง จำนวน 5 แผน ระยะเวลา 5 ชั่วโมง
3. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่องประเภทของสัตว์มีกระดูกสันหลัง แบบปรนัย 4 ตัวเลือก จำนวน 20 ข้อ
4. แบบสอบถามความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 4 ที่มีต่อการเรียนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง

ผลการหาคุณภาพ

1. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง ของนักเรียนชั้นประถมศึกษาปีที่ 4 มีลักษณะเป็นแบบปรนัยชนิดเลือกตอบ 4 ตัวเลือก จำนวน 20 ข้อ ผู้วิจัยได้ศึกษาข้อมูลที่เกี่ยวข้องจัดทำแบบทดสอบวัดผลสัมฤทธิ์และหาคุณภาพเครื่องมือโดยตรวจสอบความตรงของเนื้อหาจากผู้เชี่ยวชาญ 3 คน พบว่า มีค่า IOC ของแบบทดสอบรายข้อ เท่ากับ 1.00

2. แบบวัดความพึงพอใจของนักเรียนที่มีผลต่อการเรียน โดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง นักเรียนชั้นประถมศึกษาปีที่ 4 และหาคุณภาพของเครื่องมือโดยการตรวจสอบความตรงของเนื้อหาจากผู้เชี่ยวชาญ 3 คน พบว่า ผลการหาคุณภาพมีค่าเท่ากับ 1.00

การเก็บรวบรวมข้อมูล

1. ทดสอบด้วยแบบทดสอบก่อนเรียน เรื่องประเภทของสัตว์มีกระดูกสันหลัง แบบปรนัย 4 ตัวเลือก จำนวน 20 ข้อ

2. สอนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง จำนวน 1 ชุดฝึกทักษะ ใช้ระยะเวลา 5 ชั่วโมง ในการเรียนรู้

3. ทดสอบนักเรียนหลังเรียน (Post-Test) โดยแบบปรนัย 4 ตัวเลือก โดยใช้เนื้อหาจากชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องสัตว์มีกระดูกสันหลัง จำนวน 20 ข้อ

4. แบบสอบถามความพึงพอใจต่อการเรียนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง

การวิเคราะห์ข้อมูล

สถิติที่ใช้ในการวิเคราะห์ข้อมูล

1. วิเคราะห์ประสิทธิภาพของชุดฝึกทักษะโดยใช้เกณฑ์ 80/80

2. วิเคราะห์และเปรียบเทียบการเรียนระหว่างก่อนเรียนและหลังเรียน โดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง นักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนบ้านนิคมวังหิน ตำบลบ้านนิคม อำเภอบางขัน จังหวัดนครศรีธรรมราช ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 1 ห้อง จำนวนนักเรียน 30 คน วิธีการสุ่มแบบเจาะจง (Purposive Sampling) โดยใช้สถิติ t-test (Dependent Samples)

3. วิเคราะห์ผลการตอบแบบสอบถามความพึงพอใจต่อการเรียนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง ค่าเฉลี่ย (Mean) และส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation) ผู้วิจัยมีเกณฑ์การแปลความหมาย (พล เหลืองรังษี, 2567) ดังนี้

ค่าเฉลี่ย 4.50 - 5.00 มีความพึงพอใจอยู่ในระดับมากที่สุด
ค่าเฉลี่ย 3.50 - 4.49 มีความพึงพอใจอยู่ในระดับมาก
ค่าเฉลี่ย 2.50 - 3.49 มีความพึงพอใจอยู่ในระดับปานกลาง
ค่าเฉลี่ย 1.50 - 2.49 มีความพึงพอใจอยู่ในระดับน้อย
ค่าเฉลี่ย 1.00 - 1.49 มีความพึงพอใจอยู่ในระดับน้อยที่สุด

ผลการวิจัย

การวิจัยเรื่อง การพัฒนาชุดฝึกทักษะวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 ผู้วิจัยได้นำเสนอผลการวิจัยออกเป็น 3 ตอน ตามวัตถุประสงค์ของการวิจัย ดังนี้

ตอนที่ 1 วิเคราะห์หาประสิทธิภาพของการพัฒนาของชุดฝึกทักษะวิทยาศาสตร์ เรื่องประเภทสัตว์มีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4

ตารางที่ 1 การหาประสิทธิภาพของการพัฒนาของชุดฝึกทักษะวิทยาศาสตร์ เรื่องประเภทสัตว์มีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4

แบบทดสอบระหว่างเรียน E_1		**แบบทดสอบหลังเรียน** E_2		**ประสิทธิภาพ**
คะแนนเต็ม	ร้อยละ	คะแนนเต็ม	ร้อยละ	E_1/ E_2
20	85.16	20	88.00	85.16/88.00

จากตารางที่ 1 พบว่า ผลการวิเคราะห์ค่าประสิทธิภาพของชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทสัตว์มีกระดูกสันหลัง นักเรียนชั้นประถมศึกษาปีที่ 4 E_1 เท่ากับ 85.16 และประสิทธิภาพของผลลัพธ์ E_2 เท่ากับ 88.00 แสดงให้เห็นว่าการพัฒนาชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง นักเรียนชั้นประถมศึกษาปีที่ 4 มีประสิทธิภาพของกระบวนการและประสิทธิภาพของผลลัพธ์ E_1/ E_2 สูงกว่าเกณฑ์ 80/80 ที่กำหนดไว้

ตอนที่ 2 วิเคราะห์เปรียบเทียบผลสัมฤทธิ์ทางการเรียน เรื่องการพัฒนาชุดฝึกทักษะวิชาวิทยาศาสตร์เรื่องประเภทของสัตว์มีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4

ตารางที่ 2 แสดงการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างก่อนและหลังเรียนวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4

ผลสัมฤทธิ์ทางการเรียน	**N**	**คะแนนเต็ม**	$\bar{X}$	**S.D.**	**t**	**Sig.**
ก่อนเรียน	30	20	8.60	0.56	44.47	.000
หลังเรียน	30	20	16.90	0.92		

จากตารางที่ 2 พบว่า ผลสัมฤทธิ์ก่อนเรียนได้คะแนนเฉลี่ย 8.60 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.56 ผลสัมฤทธิ์หลังเรียนได้คะแนนเฉลี่ย 16.90 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.92 ค่า t เท่ากับ 44.47 แสดงว่านักเรียนชั้นประถมศึกษาปีที่ 4 ที่เรียนด้วยชุดฝึกทักษะวิชาวิทยาศาสตร์ มีผลสัมฤทธิ์ทางการเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ .01**

ตอนที่ 3 ผลการศึกษาความพึงพอใจของนักเรียนที่มีต่อการเรียนด้วยชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4

ตารางที่ 3 แสดงค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานความพึงพอใจของนักเรียนที่มีต่อการเรียนด้วยชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง

รายการประเมิน	$\bar{X}$	S.D.	แปลผล
ด้านเนื้อหา	**4.45**	**0.50**	**มาก**
1. เนื้อหามีความชัดเจน เข้าใจง่าย	4.40	0.50	มาก
2. การจัดเรียงลำดับเนื้อหาเหมาะสม	4.43	0.50	มาก
3. ปริมาณเนื้อหาเหมาะสมกับเวลา	4.50	0.50	มากที่สุด
4. เนื้อหามีความทันสมัย น่าสนใจ	4.47	0.51	มาก
ด้านการออกแบบชุดฝึก	**4.48**	**0.50**	**มาก**
1. รูปแบบชุดฝึกมีความน่าสนใจ	4.37	0.49	มาก
2. ขนาดตัวอักษรอ่านง่าย ชัดเจน	4.30	0.47	มาก
3. ภาพประกอบสื่อความหมายชัดเจน	4.57	0.50	มากที่สุด
4. การจัดวางองค์ประกอบเหมาะสม	4.67	0.48	มากที่สุด
ด้านกิจกรรมการเรียนรู้	**4.63**	**0.50**	**มากที่สุด**
1. กิจกรรมมีความหลากหลาย	4.47	0.51	มาก
2. กิจกรรมส่งเสริมการเรียนรู้	4.55	0.50	มากที่สุด
3. กิจกรรมเหมาะสมกับระดับผู้เรียน	4.74	0.51	มากที่สุด
4. เวลาในการทำกิจกรรมเหมาะสม	4.77	0.51	มากที่สุด
ด้านประโยชน์ที่ได้รับ	**4.77**	**0.50**	**มากที่สุด**
1. ได้รับความรู้เพิ่มขึ้น	4.75	0.48	มากที่สุด
2. สามารถนำไปประยุกต์ใช้ได้	4.68	0.49	มากที่สุด
3. เกิดความมั่นใจในการเรียนรู้	4.81	0.51	มากที่สุด
4. เกิดความกระตือรือร้นในการเรียน	4.84	0.51	มากที่สุด
ภาพรวม	**4.58**	**0.50**	**มากที่สุด**

จากตารางที่ 3 พบว่า การประเมินความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 4 ที่มีต่อการเรียนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์ ด้านเนื้อหามีความพึงพอใจอยู่ในระดับมาก ($\bar{x}$ = 4.45 S.D. = 0.50) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อยคือ ปริมาณเนื้อหาเหมาะสมกับเวลา ($\bar{x}$ = 4.50 S.D. = 0.51) เนื้อหามีความทันสมัย น่าสนใจ ($\bar{x}$ = 4.47 S.D. = 0.51) การจัดเรียงลำดับเนื้อหาเหมาะสม ($\bar{x}$ = 4.43 S.D. = 0.50) และเนื้อหามีความชัดเจน เข้าใจง่าย ($\bar{x}$ = 4.40 S.D. = 0.50) ด้านการออกแบบชุดฝึกมีความพึงพอใจอยู่ในระดับมาก ($\bar{x}$ = 4.48 S.D. = 0.50) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อย คือ การจัดวางองค์ประกอบเหมาะสม ($\bar{x}$ = 4.67 S.D. = 0.48) ภาพประกอบสื่อความหมายชัดเจน ($\bar{x}$ = 4.57 S.D. = 0.50) รูปแบบชุดฝึกมีความน่าสนใจ ($\bar{x}$ = 4.37 S.D. = 0.49) และขนาดตัวอักษรอ่านง่าย ชัดเจน ($\bar{x}$ = 4.30 S.D. = 0.47) ด้านกิจกรรมการเรียนรู้มีความพึงพอใจอยู่ในระดับมากที่สุด ($\bar{x}$ = 4.63 S.D. = 0.50) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อยคือ เวลาในการทำกิจกรรมเหมาะสม ($\bar{x}$ = 4.77 S.D. = 0.51) กิจกรรมเหมาะสมกับระดับผู้เรียน ($\bar{x}$ = 4.74 S.D. =

0.51) กิจกรรมส่งเสริมการเรียนรู้ ($\bar{x}$ = 4.55 S.D. = 0.50) และกิจกรรมมีความหลากหลาย ($\bar{x}$ = 4.47 S.D. = 0.51) และด้านประโยชน์ที่ได้รับมีความพึงพอใจอยู่ในระดับมากที่สุด ($\bar{x}$ = 4.77 S.D. = 0.50) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อย คือ เกิดความกระตือรือร้นในการเรียน ($\bar{x}$ = 4.84 S.D. = 0.51) เกิดความมั่นใจในการเรียนรู้ ($\bar{x}$ = 4.81 S.D. = 0.51) ได้รับความรู้เพิ่มขึ้น ($\bar{x}$ = 4.75 S.D. = 0.48) และสามารถนำไปประยุกต์ใช้ได้ ($\bar{x}$ = 4.68 S.D. = 0.49)

สรุปและอภิปรายผล

1. ผลการศึกษาการพัฒนาชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง นักเรียนชั้นประถมศึกษาปีที่ 4 พบว่า มีประสิทธิภาพด้านกระบวนการ E_1 และประสิทธิภาพด้านผลลัพธ์ E_2 เท่ากับ 85.16/88 สูงกว่าเกณฑ์การพิจารณา 80/80 ทั้งนี้เป็นเพราะว่า ผู้วิจัยได้พัฒนาชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 ที่มีกระบวนการจัดการเรียนรู้ให้ผู้เรียนได้ลงมือปฏิบัติเป็นระบบตามวิธีการที่เหมาะสม โดยเริ่มจากการศึกษาเอกสาร แนวคิด ทฤษฎีและงานวิจัยที่เกี่ยวข้องกับการพัฒนาชุดฝึกทักษะ ได้ทำการวิเคราะห์กิจกรรมเสริมทักษะให้มีความเหมาะสมกับนักเรียน โดยเรียงเนื้อหาจากง่ายไปยากและเนื้อหาของแบบทดสอบมีความสอดคล้องกับสาระการเรียนรู้ พร้อมทั้งผ่านขั้นตอนการตรวจคุณภาพอย่างเป็นระบบ และประเมินคุณภาพจากผู้เชี่ยวชาญ ผ่านการทดลองเพื่อหาประสิทธิภาพ แล้วปรับปรุงแก้ไขให้สมบูรณ์ก่อนนำไปใช้จริง นอกจากนี้นักเรียนได้ทำแบบฝึกการเรียนรู้อย่างสม่ำเสมอจนเกิดความรู้ ความเข้าใจ สามารถนำไปประยุกต์ใช้ในการเรียนรายวิชาอื่นได้ รวมถึงทำแบบทดสอบได้คะแนนที่สูงขึ้น ดังนั้นการพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่องประเภทของสัตว์มีกระดูกสันหลัง โดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์มีประสิทธิภาพที่จะช่วยให้นักเรียนมีผลสัมฤทธิ์ทางการเรียนสูงกว่าก่อนเรียน ซึ่งผลการศึกษาสอดคล้องกับงานวิจัยของนฤมล หลายประเสริฐพร และณฐพล อยู่เป็นสุข (2566) ได้ทำการวิจัยเรื่องการพัฒนาชุดฝึกทักษะกระบวนการทางวิทยาศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 1 เพื่อส่งเสริมทักษะกระบวนการทางวิทยาศาสตร์ขั้นพื้นฐาน มีวัตถุประสงค์เพื่อศึกษาประสิทธิภาพชุดฝึกทักษะกระบวนการทางวิทยาศาสตร์ขั้นพื้นฐานของนักเรียนชั้นประถมศึกษาปีที่ 1 ให้มีประสิทธิภาพตามเกณฑ์มาตรฐานที่กำหนด 80/80 กลุ่มเป้าหมายที่ใช้นักเรียนชั้นประถมศึกษาปีที่ 1 โรงเรียนหิรัญราษฎร์ภักดีวิทยา สำนักงานเขตพื้นที่การศึกษาประถมศึกษา นนทบุรี เขต 1 จำนวน 40 คน ซึ่งได้มาจากการเลือกกลุ่มตัวอย่างแบบเจาะจง วิธีดำเนินการวิจัยมีขั้นตอนคือ ศึกษาและสร้างชุดฝึกทักษะกระบวนการทางวิทยาศาสตร์ขั้นพื้นฐานนำไปทดลองเพื่อหาค่าประสิทธิภาพ เครื่องมือที่ใช้ในการวิจัย ประกอบด้วยชุดฝึกทักษะกระบวนการทางวิทยาศาสตร์ขั้นพื้นฐาน สถิติที่ใช้ในการวิเคราะห์ผลคือ ประสิทธิภาพของชุดฝึกทักษะ ผลการวิจัยพบว่าการพัฒนาชุดฝึกทักษะกระบวนการทางวิทยาศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 1 เพื่อส่งเสริมทักษะกระบวนการทางวิทยาศาสตร์ขั้นพื้นฐาน มีประสิทธิภาพอยู่ที่ 82.75/85.50 ซึ่งผ่านเกณฑ์ที่กำหนด

2. ผลการเปรียบเทียบเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างก่อนและหลังเรียนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์ หลังได้รับการพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่องประเภทของสันมีกระดูกสันหลัง สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 มีผลสัมฤทธิ์หลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 ทั้งนี้ เป็นเพราะชุดฝึกทักษะวิชาวิทยาศาสตร์เป็นเครื่องที่ช่วยให้เด็กได้ทบทวนซ้ำทำให้นักเรียนเกิดความเข้าใจมากขึ้น เพราะชุดฝึกทักษะช่วยให้นักเรียนได้ลงมือปฏิบัติด้วยตนเอง ซึ่งสอดคล้องกับทฤษฎีการเรียนรู้แบบ Active Learning ที่สนับสนุนให้ผู้เรียนได้เป็นผู้กระทำมากกว่าผู้รับ

ความรู้เพียงฝ่ายเดียว ผู้วิจัยได้ออกแบบให้นักเรียนได้ฝึกการสังเกต จำแนก เปรียบเทียบ และวิเคราะห์ลักษณะของสัตว์มีกระดูกสันหลังแต่ละประเภท ซึ่งเป็นทักษะพื้นฐานทางวิทยาศาสตร์ที่สำคัญซึ่งสอดคล้องกับสมมติฐานการวิจัยที่ตั้งไว้ ชุดฝึกทักษะประกอบด้วยสื่อหลากหลายรูปแบบ เช่น รูปภาพ แผนภาพ แบบจำลอง ซึ่งช่วยให้นักเรียนเข้าใจลักษณะและการจำแนกประเภทของสัตว์มีกระดูกสันหลังได้ชัดเจนยิ่งขึ้น และที่สำคัญผู้วิจัยได้สร้างชุดฝึกทักษะที่มีเฉลยหรือแนวทางการตรวจสอบคำตอบ ทำให้นักเรียนทราบผลการเรียนรู้ของตนเองได้ทันที สามารถปรับปรุงความเข้าใจได้อย่างต่อเนื่อง ช่วยกระตุ้นความอยากรู้อยากเห็นของนักเรียน เพิ่มแรงจูงใจในการเรียนรู้ ซึ่งผลการศึกษาสอดคล้องกับงานวิจัย เจวรี ศรีจันไชย (2566) ได้ทำการวิจัยเรื่องการพัฒนาชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD ที่เสริมสร้างการคิดวิเคราะห์พฤติกรรมความร่วมมือและผลสัมฤทธิ์ทางการเรียนของนักเรียน ชั้นประถมศึกษาปีที่ 5 การวิจัยมีวัตถุประสงค์เพื่อ 1) พัฒนาชุดฝึกทักษะวิทยาศาสตร์ โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 ให้มีประสิทธิภาพตามเกณฑ์ 80/80 2) เปรียบเทียบการคิดวิเคราะห์ของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนเรียนและหลังเรียน 3) เปรียบเทียบพฤติกรรมความร่วมมือของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนเรียนและหลังเรียนและ 4) เปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนเรียนและหลังเรียนด้วยชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD กลุ่มตัวอย่าง ได้แก่ นักเรียนชั้นประถมศึกษาปีที่ 5 โรงเรียนบ้านดงวิทยาคาร จังหวัดนครพนม จำนวน 24 คน ภาคเรียนที่ 2 ปีการศึกษา 2562 ซึ่งได้มาโดยวิธีการสุ่มแบบแบ่งกลุ่ม เครื่องมือที่ใช้ในการวิจัย ประกอบด้วย 1) ชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD 2) แบบทดสอบวัดการคิดวิเคราะห์ 3) แบบวัดพฤติกรรมความร่วมมือ และ 4) แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน สถิติทดสอบค่าที (t-test for Dependent Samples) ผลการวิจัยพบว่า 1) ชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 พบว่า มีประสิทธิภาพตามเกณฑ์เท่ากับ 86.40/88.80 สูงกว่าเกณฑ์ 80/80 2) ผลการเปรียบเทียบการคิดวิเคราะห์ของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนเรียนและหลังเรียนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD พบว่า หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 3) ผลการเปรียบเทียบพฤติกรรมความร่วมมือของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนเรียนและหลังเรียนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD พบว่า หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 4) ผลการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนเรียนและหลังเรียนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD พบว่า หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

3. ผลการศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 4 ที่มีต่อการเรียนด้วยชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องประเภทของสัตว์มีกระดูกสันหลัง โดนรวมอยู่ในระดับดีมาก เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านเนื้อหามีความพึงพอใจอยู่ในระดับดีมาก ด้านการออกแบบชุดฝึกมีความพึงพอใจอยู่ในระดับดีมาก ด้านกิจกรรมการเรียนรู้มีความพึงพอใจอยู่ในระดับดีมาก และด้านประโยชน์ที่ได้รับมีความพึงพอใจอยู่ในระดับดีมาก ตามลำดับ และนักเรียนสามารถเห็นพัฒนาการและความก้าวหน้าของตนเองได้อย่างชัดเจนผ่านชุดฝึกทักษะ ทำให้เกิดความพึงพอใจและมีแรงจูงใจในการเรียนรู้อย่างต่อเนื่อง ซึ่งผลการศึกษาสอดคล้องกับงานวิจัยของชนิดา รื่นรมย์ (2564) ได้ทำการวิจัยเรื่องการพัฒนาผลสัมฤทธิ์

ทางการเรียนคณิตศาสตร์ โดยใช้ชุดฝึกเสริมทักษะการคิดคำนวณทางคณิตศาสตร์ เรื่องจำนวนเต็ม สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 1 งานวิจัยนี้มีวัตถุประสงค์เพื่อ 1) พัฒนาและหาประสิทธิภาพแบบฝึกทักษะเพื่อส่งเสริมการอ่านจับใจความโดยใช้วิธีการสอนแบบ REAP ร่วมกับการใช้เทคนิคเพื่อนคู่คิด สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 ให้มีประสิทธิภาพตามเกณฑ์ 80/80 2) เปรียบเทียบความสามารถในการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนและหลังการจัดการเรียนรู้ด้วยแบบฝึกทักษะเพื่อส่งเสริมการอ่านจับใจความ โดยใช้วิธีการสอนแบบ REAP ร่วมกับการใช้เทคนิคเพื่อนคู่คิด 3) ศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 5 ที่มีต่อแบบฝึกทักษะเพื่อส่งเสริมการอ่านจับใจความโดยใช้วิธีการสอนแบบ REAP ร่วมกับเทคนิคเพื่อนคู่คิด กลุ่มตัวอย่าง คือ นักเรียนชั้นประถมศึกษาปีที่ 5 จำนวน 31 คน ได้มาจากการสุ่มตัวอย่างแบบกลุ่ม (Cluster Sampling) เครื่องมือในการวิจัยได้แก่ 1) แบบฝึกทักษะเพื่อส่งเสริมการอ่านจับใจความ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 2) แผนการจัดการเรียนรู้ เรื่อง การอ่านจับใจความ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 โดยใช้วิธีการสอนแบบ REAP ร่วมกับเทคนิคเพื่อนคู่คิด จำนวน 5 แผน 3) แบบทดสอบวัดความสามารถการอ่านจับใจความ เป็นแบบทดสอบรูปแบบปรนัย 1 ฉบับ ชนิดเลือกคำตอบ จำนวน 30 ข้อ 4) แบบสอบถามความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้ ด้วยแบบฝึกทักษะ เพื่อส่งเสริมการอ่านจับใจความโดยใช้วิธีการสอนแบบ REPA ร่วมกับเทคนิคเพื่อนคู่คิด วิเคราะห์ข้อมูลโดยการหาประสิทธิภาพ (E_1/ E_2) ค่าเฉลี่ย ($\bar{x}$) ส่วนเบี่ยงเบนมาตรฐาน (S.D.) และค่า t-test แบบ Dependent ผลการวิจัยพบว่า 1) ค่าประสิทธิภาพ (E_1/ E_2) ของแบบฝึกทักษะเพื่อส่งเสริมการอ่านจับใจความโดยใช้วิธีการสอนแบบ REAP ร่วมกับการใช้เทคนิคเพื่อนคู่คิด สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 มีค่าเท่ากับ 80.26/84.84 2) แสดงผลการเปรียบเทียบความสามารถในการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนและหลังการจัดการเรียนรู้ด้วยแบบฝึกทักษะเพื่อส่งเสริมการอ่านจับใจความ โดยใช้วิธีการสอนแบบ REAP ร่วมกับการใช้เทคนิคเพื่อนคู่คิด มีคะแนนเฉลี่ยเท่ากับ 15.97 และ 23.71 โดยคะแนนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 3) แสดงผลการศึกษาความพึงพอใจต่อการจัดการเรียนรู้ด้วยแบบฝึกเสริมทักษะเพื่อส่งเสริมการอ่านจับใจความโดยใช้วิธีการสอนแบบ REAP ร่วมกับการใช้เทคนิคเพื่อนคู่คิด สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 ภาพรวมอยู่ในระดับพอใจมากที่สุด ($\bar{x}$ = 4.57 S.D. = 0.12)

ข้อเสนอแนะ

1. ข้อเสนอแนะสำหรับการนำผลวิจัยไปใช้

1.1 ครูผู้สอนวิชาวิทยาศาสตร์ ควรนำการเรียนรู้วิทยาศาสตร์ไปใช้ในการจัดการเรียนรู้ให้กับนักเรียนอย่างต่อเนื่องโดยปรับใช้กับเนื้อหาในเรื่องอื่น

1.2 ครูควรส่งเสริมให้การจัดกิจกรรมการเรียนรู้ที่มีความน่าสนใจ กระตุ้นให้นักเรียนมีความสนใจที่จะเรียนรู้มากขึ้นมีความ กระตือรือร้นในการปฏิบัติกิจกรรมการเรียนรู้ภายในห้องเรียน เพื่อให้นักเรียนเกิดความสนุกสนาน เพลิดเพลินและมีความสุขในการเรียนรู้

2. ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

2.1 ควรพัฒนาชุดฝึกทักษะในเนื้อหาอื่นๆ ของวิชาวิทยาศาสตร์

2.2 ควรศึกษาผลการใช้ชุดฝึกทักษะร่วมกับวิธีการสอนแบบอื่นๆ

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2560). ตัวชี้วัดและสาระการเรียนรู้แกนกลาง กลุ่มสาระการเรียนรู้วิทยาศาสตร์ (ฉบับปรับปรุง พ.ศ. 2560) ตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพฯ: โรงพิมพ์ชุมนุมสหกรณ์การเกษตรแห่งประเทศไทย.

จินตนา ใบกาซูยี. (2542). การเขียนสื่อการสอน. กรุงเทพฯ: สุวีริยาสาส์น.

เจวรี ศรีจันไชย. (2566). การพัฒนาชุดฝึกทักษะวิชาวิทยาศาสตร์โดยการเรียนรู้แบบโครงงานร่วมกับเทคนิค STAD ที่เสริมสร้างการคิดวิเคราะห์พฤติกรรมการร่วมมือและผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 5. (วิทยานิพนธ์ปริญญา ครุศาสตรมหาบัณฑิต). มหาวิทยาลัยราชภัฏสกลนคร, สกลนคร.

ชนิดา รื่นรมย์. (2564). การพัฒนาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ โดยใช้ชุดฝึกเสริมทักษะการคิดคำนวณทางคณิตศาสตร์เรื่องจำนวนเต็ม สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 1. (วิทยานิพนธ์ปริญญามหาบัณฑิต) มหาวิทยาลัยบูรพา.

ชัยยงค์ พรหมวงศ์. (2556). การทดสอบประสิทธิภาพสื่อหรือชุดการสอน. วารสารศิลปากรศึกษาศาสตร์วิจัย คณะศึกษาศาสตร์ มหาวิทยาลัยศิลปากร. 5(1), 5-20.

ทิศนา แขมมณี. (2560). ศาสตร์การสอน: องค์ความรู้เพื่อการจัดกระบวนการเรียนรู้ที่มีประสิทธิภาพ (พิมพ์ครั้งที่ 21). กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

นฤมล หลายประเสริฐพร และณฐพล อยู่เป็นสุข. (2566). การพัฒนาชุดฝึกทักษะกระบวนการทางวิทยาศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 1 เพื่อส่งเสริมทักษะกระบวนการทางวิทยาศาสตร์ขั้นพื้นฐาน. วารสารวิชการ ครุศาสตร์สวนสุนันทา. 7(1), 36-42.

พรชัย ผาดไธสง. (2545). การพัฒนาแบบฝึกทักษะกิจกรรมขั้นตอนที่ 5 เรื่องผักบุ้งประกอบการสอนภาษาไทยมุ่งประสบการณ์ทางภาษา ชั้นประถมศึกษาปีที่ 2 ในโรงเรียนประถมศึกษา สังกัดสำนักงานการประถมศึกษาจังหวัดอำนาจเจริญ. (วิทยานิพนธ์ปริญญามหาบัณฑิต) สถาบันราชภัฏอุบลราชธานี, อุบลราชธานี.

พล เหลืองรังษี. (2567). การวิจัยทางหลักสูตรและการจัดการเรียนรู้. (พิมพ์ครั้งที่ 1). สงขลา: อะวา 2013.

ราชบัณฑิตนสถาน. (2546). พจนานุกรมฉบับราชบัณฑิตยสถาน พ.ศ. 2542. กรุงเทพฯ: นานมีบุ๊ส์พับลิเคชั่นส์.

วรรณี แกมเกตุ. (2563). การพัฒนาการเรียนการสอนในยุคดิจิทัล: แนวคิด ทฤษฎี และการประยุกต์ใช้. กรุงเทพฯ: โรงพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

วิชัย วงษ์ใหญ่. (2562). การพัฒนาหลักสูตรและการจัดการเรียนรู้เชิงรุก. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

สถาบันทดสอบทางการศึกษาแห่งชาติ. (2566). รายงานผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐาน (O-NET) ชั้นประถมศึกษาปีที่ 6 ปีการศึกษา 2566. กรุงเทพฯ: สถาบันทดสอบทางการศึกษาแห่งชาติ.

สำนักงานเลขาธิการสภาการศึกษา. (2560). แผนการศึกษาแห่งชาติ พ.ศ. 2560-2579. กรุงเทพฯ: พริกหวานกราฟฟิค.

สำลี รักสุทธี. (2553). การจัดทำสื่อนวัตกรรมและแผนประกอบสื่อนวัตกรรม. นนทบุรี: เพิ่มทรัพย์การพิมพ์.

การศึกษาผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษ เรื่อง สัตว์ โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) นักเรียนชั้นประถมศึกษาปีที่ 1

The Study of English Vocabulary Memorization Achievement on Animals through the Total Physical Response (TPR) Method for Primary 1 Students

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อเปรียบเทียบผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษ เรื่อง สัตว์ โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) ของนักเรียนชั้นประถมศึกษาปีที่ 1 ระหว่างก่อนเรียนกับหลังเรียน และเพื่อศึกษาความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้โดยวิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) กลุ่มเป้าหมาย ได้แก่ นักเรียนชั้นประถมศึกษาปีที่ 1 โรงเรียนวัดเขาป้าเจ้ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาพัทลุง เขต 1 ตำบลแพรกหา อำเภอควนขนุน จังหวัดพัทลุง ที่กำลังศึกษาในภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวนนักเรียน 10 คน ซึ่งใช้วิธีการสุ่มอย่างง่าย แบบจับฉลาก เครื่องมือที่ใช้ในการวิจัยได้แก่ 1) แผนการจัดการเรียนรู้ 2) แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน และ 3) แบบวัดความพึงพอใจ ผลการวิจัยพบว่า คะแนนเฉลี่ยทดสอบหลังเรียนสูงกว่าคะแนนเฉลี่ยทดสอบก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 และความพึงพอใจของนักเรียนที่มีต่อวิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) มีความพึงพอใจอยู่ในระดับมาก

คำสำคัญ: การจดจำคำศัพท์, การสอนแบบตอบสนองด้วยท่าทาง

Abstract

The purpose of this research was to compare English vocabulary achievement on the topic of animals using the Total Physical Response (TPR) method among first-grade elementary school students before and after learning, and to study students' satisfaction toward learning management using the Total Physical Response (TPR) method. The target group consisted of 10 first-grade students from Wat Khao Pa Jae School under Phatthalung Primary Educational Service Area Office 1, Phreak Ha Sub-district, Khuan Khanun District, Phatthalung Province, who were studying in the second semester of the 2024 academic year. The students were selected through simple random sampling by drawing lots.

The research instruments included: 1) lesson plan, 2) achievement, and 3) satisfaction assessment forms. The research results revealed that the average post-test scores were significantly higher than the average pre-test scores at the .05 statistical significance level. Additionally, students' satisfaction toward the Total Physical Response (TPR) teaching method was at a high level.

Keywords: Vocabulary Memorization Ability, Total Physical Response Method

บทนำ

กิจกรรมการเรียนการสอนภาษาอังกฤษในยุคศตวรรษที่ 21 เป็นยุคสังคมแห่งการเรียนรู้มีการใช้เครื่องมืออย่างหลากหลายในการแสวงหาความรู้ ภาษาอังกฤษถือว่าเป็นทักษะที่สำคัญแห่งศตวรรษที่ 21 เป็นเครื่องมือที่สำคัญในยุคสังคมแห่งการเรียนรู้ ในปัจจุบันภาษาอังกฤษเป็นภาษาสากลที่มีการใช้อย่างแพร่หลายมากที่สุดภาษาหนึ่ง ภาษาอังกฤษจึงมีความจำเป็นที่จะต้องจัดให้มีการเรียนการสอนในปัจจุบัน ประเทศไทยจำเป็นต้องพัฒนาขีดความสามารถของบุคคล เพื่อเป็นกำลังสำคัญในการพัฒนาประเทศให้เจริญก้าวทันต่อกระแสความเปลี่ยนแปลงของสังคมโลก โดยเฉพาะอย่างยิ่งการเข้าสู่เสรีประชาคมอาเซียนที่กำหนดให้ภาษาอังกฤษเป็นภาษาสากลที่ใช้ในการสื่อสาร นั่นหมายถึงผู้ที่สามารถสื่อสารด้วยภาษาอังกฤษย่อมได้เปรียบทุกทาง ภาษาอังกฤษจึงเข้ามามีความสำคัญต่อการดำรงชีวิตประจำวันของคนไทยมากขึ้น (จิราพร เณรธรณี, 2558)

เนื่องจากภาษาอังกฤษเป็นเครื่องมือที่สำคัญในการติดต่อสื่อสาร การศึกษา การแสวงหาความรู้ การประกอบอาชีพ ดังนั้น การใช้ภาษาอังกฤษได้นั้นจึงมีความสำคัญอย่างมาก ควรต้องพัฒนาทักษะ ในการใช้ภาษาอังกฤษให้ได้ดีในทุกด้าน อาทิ การฟัง การพูด การอ่าน และการเขียนไปพร้อม ๆ กัน อย่างไรก็ตามการจะเรียนรู้ภาษาให้มีประสิทธิภาพจนสามารถใช้ในการสื่อสารได้นั้น ควรเริ่มจากการเรียนรู้คำศัพท์ซึ่งเป็นพื้นฐานสำคัญ ดังนั้น การเรียนรู้คำศัพท์จะทำให้ผู้เรียนมีความสามารถในการ ใช้ทักษะภาษาอังกฤษได้ดียิ่งขึ้น และจะสามารถใช้ภาษาอังกฤษเป็นเครื่องมือในการติดต่อสื่อสารกับนานาประเทศได้

นักเรียนระดับชั้นประถมศึกษาปีที่ 1 อยู่ในช่วงวัยที่สมองกำลังพัฒนา การเชื่อมโยงคำศัพท์ภาษาอังกฤษกับความหมายอาจเป็นเรื่องที่ท้าทาย จากรายงานผลสัมฤทธิ์ทางการเรียนของนักเรียนระดับชั้นประถมศึกษาปีที่ 1 โรงเรียนวัดเขาป้าเจ้ ภาคเรียนที่ 1 ปีการศึกษา 2567 พบว่า รายงานผลสัมฤทธิ์ทางการเรียนรายวิชาภาษาอังกฤษ มีคะแนนอยู่ระหว่าง 25-30 จากคะแนนเก็บและคะแนนสอบ 50 คะแนน อยู่ในเกณฑ์ที่ต้องได้รับการพัฒนา ซึ่งพบว่าปัญหาเกิดจากนักเรียนชั้นประถมศึกษาปีที่ 1 มีการจดจำคำศัพท์ภาษาอังกฤษค่อนข้างอ่อนถึงปานกลาง เพราะอยู่ในช่วงวัยที่สมองกำลังพัฒนา การเชื่อมโยงคำศัพท์ภาษาอังกฤษกับความหมายอาจเป็นเรื่องที่ท้าทาย แม้จะมีการท่องศัพท์ทุกวัน แต่ก็ไม่สามารถช่วยให้นักเรียนจดจำคำศัพท์ได้ดี เนื่องจากภาษาอังกฤษมีโครงสร้างและระบบการออกเสียงที่แตกต่างจากภาษาไทย การเชื่อมโยงคำศัพท์ภาษาอังกฤษกับความหมายจึงเป็นเรื่องท้าทายสำหรับเด็ก ๆ ในชั้นประถมศึกษาปีที่ 1 โดยเฉพาะในช่วงเริ่มต้นของการเรียนรู้ภาษาอังกฤษ

การเรียนการสอนภาษาอังกฤษในระดับชั้นประถมศึกษาปีที่ 1 จึงต้องใช้วิธีการที่เหมาะสม เพื่อกระตุ้นการเรียนรู้และสร้างความสนุกสนานในกระบวนการเรียนรู้ หนึ่งในวิธีการที่ได้รับความนิยมคือวิธีการสอนแบบการตอบสนองด้วยท่าทาง (TPR) เป็นการใช้กริยาท่าทางประกอบการปฏิบัติตามคำสั่ง ซึ่งจะทำให้ผู้เรียนจดจำได้ดีขึ้น โดยให้ความสำคัญต่อทักษะการฟังมาเป็นอันดับแรกก่อนทักษะอื่น ๆ และใช้

ประโยคคำสั่งและการเรียนรู้จากการปฏิบัติ ทั้งยังเป็นเครื่องมือที่สำคัญในการช่วยให้ผู้เรียนภาษาขั้นต้นได้เกิดความรู้ความเข้าใจและมุ่งไปสู่ทักษะอื่น ๆ (Asher, 1979)

คำศัพท์เกี่ยวกับสัตว์เป็นหมวดหมู่คำศัพท์ที่นักเรียนมีความคุ้นเคย และมีประสบการณ์ร่วมในชีวิตประจำวัน ไม่ว่าจะเป็นสัตว์เลี้ยงที่พบเห็นในบ้าน สัตว์ในท้องถิ่น หรือสัตว์ที่นักเรียนรู้จักผ่านนิทาน การ์ตูน และสื่อต่าง ๆ ความคุ้นเคยนี้สร้างความเชื่อมโยงทางความคิดและช่วยให้การเรียนรู้คำศัพท์ใหม่ในภาษาอังกฤษเป็นไปอย่างมีความหมาย นอกจากนี้ ธรรมชาติของนักเรียนระดับชั้นประถมศึกษาปีที่ 1 มักมีความสนใจและความผูกพันกับสัตว์ต่าง ๆ อย่างมาก ทำให้การเรียนรู้คำศัพท์กลุ่มนี้สร้างแรงจูงใจและความกระตือรือร้นในการเรียนได้เป็นอย่างดี

จากเหตุผลที่กล่าวมาดังกล่าวข้างต้น ผู้วิจัยจึงต้องการพัฒนาทักษะการจดจำคำศัพท์ภาษาอังกฤษโดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) ในระดับชั้นประถมศึกษาปีที่ 1 ซึ่งผู้วิจัยได้เลือกคำศัพท์เกี่ยวกับเรื่อง สัตว์ เพราะนักเรียนพบเจอได้ในชีวิตประจำวัน และเป็นเรื่องที่นักเรียนให้ความสนใจ ซึ่งผลการวิจัยนี้ จะเป็นแนวทางในการพัฒนาการเรียนการสอนภาษาอังกฤษ ส่งผลต่อการเรียนรู้และพัฒนาผลสัมฤทธิ์ทางการเรียนภาษาอังกฤษของนักเรียนให้มีประสิทธิภาพ

วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษก่อนเรียนและหลังเรียน ที่สอนโดยวิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR)
2. เพื่อศึกษาความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้โดยใช้วิธีการสอน แบบตอบสนองด้วยท่าทาง (TPR)

แนวคิด ทฤษฎี กรอบแนวคิด

วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR)

Asher (1986) ได้กล่าวว่าวิธีการสอนแบบตอบสนองด้วยท่าทาง (Total Physical Response : TPR) เป็นเรียนรู้ภาษาที่ 2 หรือภาษาต่างประเทศ โดยให้ความสนใจหลักการเรียนรู้ผ่านกระบวนการทำงานสมองด้านขวาของผู้เรียนที่จะทำการเรียนรู้ภาษา ผ่านการตอบสนองของร่างกายต่อการสั่ง หรือคำสั่ง และการแสดงท่าทางเป็นตัวอย่างของครู ในขณะที่ผู้เรียนกำลังปฏิบัติกิจกรรมเคลื่อนไหวด้วยท่าทาง กระบวนการทำงานของสมองซีกขวารับรู้ข้อมูลหรือคำสั่งจากการเรียนมาก่อน ในขณะที่ผู้เรียนก็ใช้สมองซีกซ้ายในการเรียนรู้พร้อม ๆ กัน จึงทำให้เกิดการเรียนรู้ที่สามารถจำได้เป็นระยะเวลานาน (Long retention)

พรชนก ปานวน (2564) ได้กล่าวว่า วิธีการสอนแบบการตอบสนองด้วยท่าทาง (Total Physical Response: TPR) นั้น เป็นวิธีการสอนภาษาอังกฤษผ่านการกระทำ (English through action) ซึ่งเหมาะกับนักเรียนที่เริ่มเรียนภาษาต่างประเทศ เป็นการสอนที่เป็นไปตามธรรมชาติของการเรียนรู้ภาษา คือ การเรียนรู้จากการฟัง การเลียนแบบ แล้วจึงเกิดการพูด โดยการจัดการเรียนรู้โดยวิธีการนี้ นักเรียนควรเริ่มจากการฟังคำสั่งหรือคำพูดจากผู้อื่น ทำท่าท่าทางตอบรับเพื่อเป็นการแสดงความเข้าใจ จากนั้นเมื่อเกิดความพร้อมผู้เรียน จึงสามารถพูดได้อย่างเป็นธรรมชาติ ซึ่งวิธีการสอนแบบการตอบสนองด้วยท่าทาง (Total Physical Response: TPR) ควรจัดการเรียนรู้ที่มุ่งเน้นการใช้ท่าทางในการเรียนรู้ เน้นความสนุกสนานและหลีกเลี่ยงความเครียดอันก่อให้เกิดเจตคติที่ไม่ดีต่อการเรียนรู้ภาษา

ประเภทของวิธีการสอนแบบการตอบสนองด้วยท่าทาง (Total Physical Response: TPR)

วิธีการสอนแบบการตอบสนองด้วยท่าทาง (Total Physical Response: TPR)สามารถจัดรูปแบบออกเป็น 4 ประเภท คือ วิธีการสอนแบบการตอบสนองด้วยท่าทางโดยใช้ร่างกาย

ประเภทที่ 1 วิธีการสอนแบบการตอบสนองด้วยท่าทางโดยใช้ร่างกาย หรือ TPR-B (Total Physical Response-Body) เป็นการสอนโดยใช้คำสั่งที่มีคำศัพท์ เกี่ยวกับการเคลื่อนไหวของร่างกายเพียงอย่างเดียว เริ่มจากการฟัง และปฏิบัติท่าทางตามที่ตนเองได้ยิน ซึ่งควรใช้คำสั่งที่สั้น กระชับ และเข้าใจง่าย แล้วจึงเพิ่มความยากขึ้นภายหลัง เช่น นั่งลง (sit down) ยืนขึ้น (stand up) เลี้ยวซ้าย (turn left) เลี้ยวขวา (turn right) เดินหน้า (go straight) ถอยหลัง (back) กระโดด (jump) ปรบมือ (clap your hand) หยุด (stop) กลับหลังหัน (turn around) ชูมือขึ้น (raise your hand) เอามือลง (put down your hand) โบกมือ (wave your hand) เป็นต้นต้น

ประเภทที่ 2 วิธีการสอนแบบการตอบสนองด้วยท่าทางโดยใช้สิ่งของ หรือ TPR-O (Total Physical Response-Objects) ถูกพัฒนาโดย เบลน เรย์ (Blaine ray) เนื่องจากเรย์พบว่าเมื่อใช้วิธีการสอนแบบการตอบสนองด้วยท่าทางโดยใช้ร่างกาย หรือ TPR-B ไประยะหนึ่ง นักเรียนเกิดความเบื่อหน่ายกับคำสั่งและท่าทางซ้ำเดิม จึงได้ประยุกต์สิ่งของรอบตัวมาเป็นสื่อในการจัดการเรียนรู้ โดยจัดให้เป็นการจัดการเรียนรู้โดยใช้คำสั่งที่มีคำศัพท์ที่เป็นสิ่งของ (objects) ร่วมกับการแสดงท่าทาง ซึ่งสามารถเพิ่มจำนวนคำศัพท์และเพิ่มความยาวของประโยคได้ โดยเริ่มจากการแนะนำสิ่งของต่าง ๆ เช่น สมุด (book) ปากกา (pen) ดินสอ (pencil) ยางลบ (eraser) ไม้บรรทัด (ruler) แผนที่(map)โต๊ะ (table) เก้าอี้ (chair) ประตู (door) นาฬิกา (clock) ไฟฉาย (flash light) ดอกไม้ (lower) ใบไม้ (leaf) ก้อนหิน (rock) จาน (plate) ชาม (bow) แก้วน้ำ (glass) ช้อน (spoon) ส้อม (fork) หวี (comb) กระจก (mirror) เป็นต้น จากนั้นจึงสอนไวยากรณ์เพิ่มเติม เช่น This is a pen. These are pens. และใช้คำสั่งเพื่อย้ำความเข้าใจของผู้เรียน เช่น Give me your pens. Give this pen to your friend. เป็นต้น

ประเภทที่ 3 วิธีการสอนแบบการตอบสนองด้วยท่าทางโดยใช้รูปภาพ หรือ TPR-P (Total Physical Response-Picture) เป็นการสอนเกี่ยวกับการออกคำสั่งโดยใช้รูปภาพ ควรเลือกภาพที่ใช้ในการจัดการเรียนรู้ที่เหมาะสมกับนักเรียน เพื่อเพิ่มความตื่นเต้นและสนุกสนาน โดยผู้สอนสามารถใช้ภาพจริงที่เกิดขึ้นภายในชีวิตประจำวัน หรือสิ่งที่เกิดขึ้นจริงในบริบทของนักเรียนแต่ประเด็นสำคัญคือควรคำนึงถึงถึงความสามารถของผู้เรียน ความยาก-ง่ายของเนื้อหา และขั้นตอนในการนำเสนอ

ประเภทที่ 4 วิธีการสอนแบบการตอบสนองด้วยท่าทางโดยใช้การเล่าเรื่อง หรือ TPR-S (Total Physical Response-Story telling) จากการสอนที่เพิ่มด้วยการใช้สิ่งของและรูปภาพแล้วนั้น ทำให้วิธีการสอนแบบการตอบสนองด้วยท่าทาง (Total Physical Response: TPR) โดดเด่นและใช้โครงร่างที่ซับซ้อนมากยิ่งขึ้น ต่อมาในปี ค.ศ. 1997 เรย์ ได้เพิ่มเทคนิคการสอนด้วยเรื่องเล่าหรือการเล่าเรื่องเรียกว่า วิธีการสอนแบบการตอบสนองด้วยท่าทางโดยใช้การเล่าเรื่อง หรือ TPR-S (Total Physical Response-Story telling) เขาคิดว่าการนำเสนอเรื่องราวที่เป็นเรื่องเล่า จะทำให้ผู้เรียนเกิดการเรียนรู้ภาษาในเรื่องเล่านั้น ๆ ได้

สรุปได้ว่า วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) เป็นวิธีการสอนภาษาที่เน้นการฟังและการปฏิบัติจริง โดยผู้เรียนไม่จำเป็นต้องพูดในทันที แต่จะเรียนรู้ผ่านการฟังคำสั่งและทำตามท่าทางที่ครูสาธิตก่อน เมื่อนักเรียนมีความเข้าใจมากพอแล้ว จะเกิดความพร้อมในการพูดภาษาเองตามธรรมชาติ นอกจากนี้ยังช่วยสร้างบรรยากาศการเรียนรู้ที่สนุกสนาน กระตุ้นความกระตือรือร้น และช่วยพัฒนาทักษะการฟังและความเข้าใจภาษาในระยะยาว โดยในการศึกษาครั้งนี้ผู้วิจัยใช้วิธีการสอนแบบตอบสนองด้วย

ท่าทาง (TPR) ประเภท TPR – P (Total Physical Response – Picture) เนื่องจากเป็นการสอนเกี่ยวกับการออกคำสั่งที่เกี่ยวข้องกับรูปภาพ ช่วยให้ผู้เรียนจดจำคำศัพท์ได้นานกว่า และภาพที่สวยงาม น่าสนใจ สามารถดึงดูดความสนใจของผู้เรียนได้ดี และทำให้ผู้เรียนมีสมาธิกับการเรียนรู้มากขึ้น โดยสอดคล้องกับ คณิฐา ปัชชามาตย์ (2560) สรุปได้ว่า การสอนภาษาอังกฤษโดยใช้การสอนแบบตอบสนองด้วยท่าทางเป็นการเรียนภาษาอย่างเป็นธรรมชาติโดยการปฏิบัติหรือใช้กริยาอาการประกอบ ผู้เรียนจะจำได้ดีถ้าได้ปฏิบัติหรือแสดงการโต้ตอบ การเรียนภาษาควรเรียนเป็นกลุ่มคำที่มีความหมาย ไม่ใช่การเรียนคำโดด ๆ เน้นภาษาพูดมากกว่าภาษาเขียน ผู้เรียนควรได้รับการฝึกฟังให้เข้าใจก่อนที่จะฝึกพูดผู้เรียนจะเรียนรู้ภาษาจากการสังเกตการกระทำของผู้อื่นและจากการฝึกปฏิบัติด้วยตนเอง

ทฤษฎีเกี่ยวกับความสามารถด้านความจำ

ในทางจิตวิทยา ได้มีการกล่าวถึงทฤษฎีเกี่ยวกับการจำและการลืมไว้หลายทฤษฎีแต่ที่สำคัญสรุปได้มี 4 ทฤษฎี คือ

ทฤษฎีความจำสองกระบวนการ (Two - Process Theory of Memory) ทฤษฎีนี้สร้างขึ้นโดย แอดดินสัน และชิฟฟริน (Atkinson and Shiffrin) ในปี ค.ศ. 1968 กล่าวถึงความจำระยะสั้นหรือความจำทันทีทันใดและความจำระยะยาวว่า ความจำระยะสิ้นเป็นความจำชั่วคราว สิ่งใดก็ตามถ้าอยู่ในความจำระยะสั้นจะต้องได้รับการทบทวนอยู่ตลอดเวลา มิฉะนั้นความจำสิ่งนั้นจะสลายตัวไปอย่างรวดเร็ว ในการทบทวนนั้น เราจะไม่สามารถทบทวนทุกสิ่งที่เข้ามาอยู่ในระบบความจำระยะสั้น ดังนั้นจำนวนที่เราจำได้ในความจำระยะสั้น จึงมีจำกัดการทบทวนป้องกันไม่ให้ความจำสลายตัวไปจากความจำระยะสั้น และถ้าสิ่งใดอยู่ในความจำระยะสั้นเป็นระยะเวลายิ่งนาน สิ่งนั้นก็มีโอกาสฝังตัวในความจำระยะยาว ถ้าเราจำสิ่งใดได้ได้ในความจำระยะเวลายิ่งนาน สิ่งนั้นก็มีโอกาสฝังตัวในความจำระยะยาว ถ้าเราจำสิ่งใดไว้ไว้ในความจำระยะยาวสิ่งนั้นก็จะติดอยู่ในความทรงจำตลอดไป (ชัยพร วิชชาวุธ, 2520)

ทฤษฎีการสลายตัว (Decay Theory) เป็นทฤษฎีการลืม กล่าวว่า การลืมเกิดขึ้นเพราะการละเลยในการทบทวน หรือไม่นำสิ่งที่จะจำไว้ออกมาใช้เป็นประจำ การละเลยจะทำให้ความจำค่อย ๆ สลายตัวไปเองในที่สุด ทฤษฎีการสลายตัวนี้น่าจะเป็นจริงในความจำระยะสั้น เพราะในความจำระยะสั้นหากเรามิได้จดจ่อหรือสนใจทบทวนในสิ่งที่ต้องการจะจำเพียงชั่วครู่ สิ่งนั้นจะหายไปจากความทรงจำทันที (Adams, 1967)

ทฤษฎีการรบกวน (Interference Theory) เป็นทฤษฎีเกี่ยวกับการลืมที่ยอมรับกันในปัจจุบันทฤษฎีหนึ่ง ทฤษฎีนี้ขัดแย้งกับทฤษฎีการสลายตัว โดยกล่าวว่าเวลาเพียงอย่างเดียวไม่สามารถทำให้เกิดการลืมได้ แต่สิ่งที่เกิดในช่วงดังกล่าวจะเป็นสิ่งคอยรบกวนสิ่งอื่น ๆ ในการจำ การรบกวนนี้แยกออกเป็น 2 แบบ คือ การตามรบกวน (Proactive Interference) หรือการรบกวนตามเวลา หมายถึง สิ่งเก่า ๆ ที่เคยประสบมาแล้วหรือจำได้อยู่แล้วมารบกวนสิ่งที่จะจำใหม่ ทำให้จำสิ่งสิ่งเร้าใหม่ไม่ค่อยได้ อีกแบบของการรบกวนก็คือ การย้อนรบกวน (Retroactive Interference) หรือการรบกวนย้อนเวลา หมายถึงการพยายามจำสิ่งใหม่ทำให้ลืมสิ่งเก่าที่จำได้มาก่อน (Adams, 1980) จึงกล่าวได้ว่า ทฤษฎีการลืมนี้เกิดขึ้นโดยความรู้ใหม่ไปรบกวนความรู้เก่า ทำให้ลืมความรู้เก่าและความรู้เก่าก็สามารถไปรบกวนความรู้ใหม่ได้ (มณฑนา เรืองสกุลราช, กาญจนา รัตนปรีดานันต์, จุฑามาศ พงษ์ช้างอยู่, น้ำทิพย์ หวังวิวัฒน์เจริญ, ปาณัช อชินธรางกูร, สิรินันท์ สามัคคีนนท์ และกิตติพงษ์ คงสมบูรณ์, 2553)

ทฤษฎีการจัดกระบวนการตามระดับความเล็ก (Depth - of – Processing Theory) ทฤษฎีนี้สร้างขึ้นโดย เครก และลอกฮาร์ท (Craik and Lockhart) ในปี 1972 ซึ่งขัดแย้งกับความคิดของ แอตดินสัน

และชิฟฟริน ที่กล่าวว่า ความจำมีโครงสร้างและตัวแปรสำคัญของความจำในความจำระยะยาวก็คือ ความยาวนานของเวลาที่ทบทวนสิ่งที่จะจำในความจำระยะสั้น แต่เครก และลอกฮาร์ท มีความคิดว่า ความจำไม่มีโครงสร้างและความจำที่เพิ่มขึ้นไม่ได้เกิดขึ้นเพราะมีเวลาทบทวนในความจำระยะสั้นนาน แต่เกิดขึ้นเพราะความซับซ้อนของการเข้ารหัสที่ซับซ้อน หรือการโยงความสัมพันธ์ของสิ่งที่ต้องการจำ ย่อมอาศัยเวลาแต่เวลาดังกล่าวไม่ใช่เพื่อการทบทวน แต่เพื่อการระลึกหรือซับซ้อนของการกระทำกับสารที่เข้าไป (การเข้ารหัส) ถ้ายิ่งลึก (ซับซ้อน) ก็จะยิ่งจำได้มาก นั่นคือต้องใช้เวลามากด้วย (ไสว เลี่ยมแก้ว, 2528) ในด้านเชาวน์ปัญญาและความถนัดนั้น ทฤษฎีความถนัดด้านความจำยังไม่มีผู้ใดกล่าวไว้โดยตรง แต่จะรวมอยู่เป็นองค์ประกอบหนึ่งในทฤษฎีต่าง ๆ เช่น

1. ทฤษฎีหลายองค์ประกอบ (Multiple Factor Theory) ของเทอร์สโตนซึ่งวิเคราะห์องค์ประกอบในปี 1958 พบว่า ความสามารถปฐมภูมิของสมอง (Primary Mental Ability) ของมนุษย์ที่เห็นและสำคัญมีอยู่ 7 ประการ คือ องค์ประกอบด้านภาษา (Verbal Factor) องค์ประกอบด้านความคล่องแคล่วในการใช้คำ (Word Fluency Factor) องค์ประกอบด้านจำนวน (Number Factor) องค์ประกอบด้านมิติสัมพันธ์ (Space Factor) องค์ประกอบด้านความจำ (Memory Factor) องค์ประกอบด้านการรับรู้ (Perception Factor) และองค์ประกอบด้านเหตุผล (Relation Factor) สำหรับองค์ประกอบด้านความจำนั้นเป็นความสามารถด้านความทรงจำเรื่องราว และมีสติระลึกรู้จนสามารถถ่ายทอดได้ (ล้วน สายยศ และอังคณา สายยศ, 2527 อ้างถึงใน อุดมพร เปตานนท์, 2560)

2. โครงสร้างทางสมอง (The Structure of Intellect Theory) ของกิลฟอร์ด (Guilford) เสนอว่า โครงสร้างทางสมองมองได้ในลักษณะ 3 มิติ ผลของการคิด หมายถึง ผลของกระบวนการจัดกระทำของความคิดกับข้อมูลจากเนื้อหา นับองค์ประกอบรวมกันได้ 120 องค์ประกอบ (Guilford, 1971) ต่อมาได้พบว่าในส่วนของภาพ (Figural) แบ่งเป็นสิ่งที่มองเห็น (Visual) และสิ่งที่ได้ยิน (Auditory) ส่วนที่เป็นความจำ (Memory) นั้น แบ่งออกเป็นการบันทึกความจำ (Memory Recording) และการเก็บรักษาความจำ (Memory Retention) นับองค์ประกอบรวมขึ้นเป็น 180 องค์ประกอบ (Guilford, 1988)

3. ทฤษฎีความสามารถทางสมองสองระดับ (Two - Level Theory of Mental Ability) กล่าวว่าความสามารถทางสมองมีอยู่ 2 ระดับ ระดับที่ 1 (Level I) เป็นความสามารถด้านการเรียนรู้และจำอย่างนกแก้ว นั่นคือ เป็นความสามารถที่จะสั่งสมหรือสะสมข้อมูลไว้ได้และพร้อมที่จะระลึกออกได้ ระดับนี้ไม่ได้รวมการแปลงรูปหรือการกระทำทางสมองแต่ประการใด เป็นวิธีการที่ไม่ใช้ความคิดเลย ระดับที่ 2 (Level II) เป็นระดับที่สมองสร้างมโนภาพ เหตุผล และแก้ปัญหา (ล้วน สายยศ และอังคณา สายยศ, 2527 อ้างถึงใน อุดมพร เปตานนท์, 2560)

สรุปได้ว่า การจำและการลืมเกิดขึ้นจากหลายปัจจัย ทั้งกระบวนการจัดเก็บความจำ การทบทวนข้อมูล การรบกวนจากสิ่งเร้าใหม่ และระดับความซับซ้อนของการเชื่อมโยงข้อมูล นอกจากนี้ ทฤษฎีเกี่ยวกับเชาวน์ปัญญายังกล่าวถึง ความสามารถทางความจำ ในฐานะองค์ประกอบสำคัญของความคิดสร้างสรรค์ การจดจำข้อมูล และการแก้ปัญหาในชีวิตประจำวัน ซึ่งทฤษฎีเหล่านี้ช่วยอธิบายการทำงานของสมองในกระบวนการเรียนรู้และพัฒนาทักษะความจำ โดยสอดคล้องกับสุรีย์ลักษณ์ สุจริตพงศ์ และรวิวรรณ รุ่งไพรวัลย์, ทิพวรรณ หรรษาคุณาชัย, บานชื่น เบญจสุวรรณเทพ, อดิศร์สุดา เฟื่องฟู, จริยา จุฑาภิสิทธิ์ และพัฏ โรจน์มหามงคล (2561) ได้กล่าวถึงความจำใช้งานว่าเป็นความสามารถใน การจดจำหรือเก็บรักษาข้อมูล รวมทั้งผสานเชื่อมโยงข้อมูลใหม่รวมกับข้อมูลเดิมเพื่อประมวลผล หรือเรียกว่าความสามารถในการทำงานกับข้อมูลที่ไม่ปรากฏอยู่ในขณะนั้นได้ ความจำใช้งานมีความสำคัญอย่างมาก

ต่อการอ่าน การเขียน หรือการคำนวณ เพราะจะต้องจดจำข้อมูลบางส่วนขณะ อ่าน หรือการเขียนหนังสือ ประโยคก่อนหน้า แล้วสามารถนำมาเชื่อมโยงกับข้อมูลใหม่ที่ได้รับ

ความพึงพอใจ

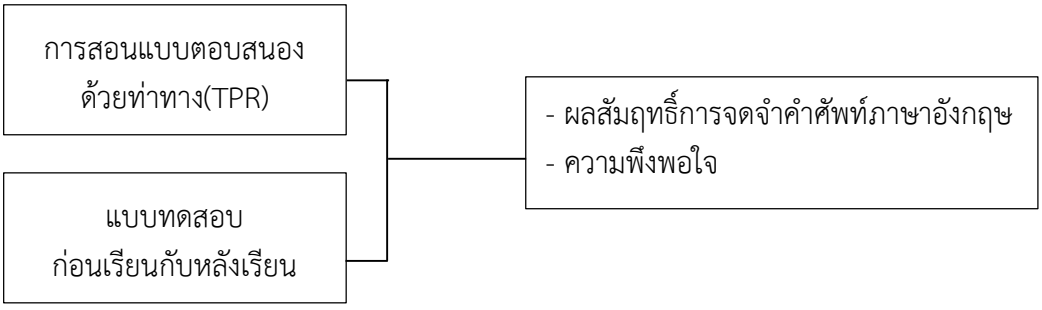
ความพึงพอใจ (Satisfaction) เป็นทัศนะที่เป็นนามธรรม ซึ่งไม่สามารถมองเห็นเป็นรูปธรรมได้ นักการศึกษา ได้ให้ความหมายของความพึงพอใจไว้ดังนี้

สุธิดา แบบเจริญ (2561) กล่าวไว้ว่า ความพึงพอใจ หมายถึง ความรู้สึกที่ดี ที่ชอบหรือพอใจของบุคคลที่มีต่อสิ่งใดสิ่งหนึ่ง เช่น การบริการ การปฏิบัติงาน ซึ่งเป็นความรู้สึกที่ดีเกิดจากการตอบสนองทั้งทางร่างกาย จิตใจ จนทำให้เกิดความพึงพอใจ ความรู้สึกหรืออารมณ์ทางบวกทำให้บุคคลมีความรู้สึกกระตือรือร้น มีความมุ่งมั่นที่จะทำงาน มีขวัญกำลังใจ ซึ่งมีผลต่อประสิทธิภาพและประสิทธิผลของการทำงานและส่งผลต่อความสำเร็จตามเป้าหมายขององค์การ

ณัฐสุดา แจ่มประทิพย์ (2562) กล่าวว่า ความพึงพอใจ เป็นความรู้สึกที่ดีหรือทัศนคติที่ดีของบุคคล ซึ่งมักเกิดจากการได้รับการตอบสนองตามที่ตนต้องการก็จะเกิดความรู้สึกที่ดีต่อสิ่งนั้น ตรงกันข้ามหากความต้องการของตนไม่ได้รับการตอบสนองความไม่พึงพอใจก็จะเกิดขึ้น

จากการศึกษาความหมายของความพึงพอใจสรุปได้ว่า ความพึงพอใจเป็นความรู้สึกทางบวกที่เกิดขึ้นเมื่อบุคคลได้รับสิ่งที่ตอบสนองความต้องการหรือความคาดหวังของตน ส่งผลให้เกิดความร่วมมือ ความกระตือรือร้น และความมุ่งมั่นในการทำงานหรือการเรียนรู้ ซึ่งจะช่วยให้กิจกรรมหรือกระบวนการต่าง ๆ ประสบความสำเร็จได้อย่างมีประสิทธิภาพ โดยสอดคล้องกับยุกตะนันท์ ดีนาน (2563) กล่าวว่า ความพึงพอใจ เป็นความรู้สึกชอบหรือไม่ชอบเกี่ยวกับกระบวนการจัดการเรียนการสอนของครูผู้สอน และเป็นความรู้สึกนึกคิดของบุคคลที่มีต่อการปฏิบัติกิจกรรมในเชิงบวก ซึ่งความรู้สึกชอบหรือรักจะเกิดขึ้นก็ต่อเมื่อได้รับการตอบสนอง

กรอบแนวคิดการวิจัย



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

รูปแบบการวิจัยการวิจัยครั้งนี้ การวิจัยครั้งนี้เป็นการวิจัยกึ่งทดลอง (Quasi-Experimental Research)

ตารางที่ 1 แบบแผนการวิจัยกึ่งทดลอง (Quasi-Experimental Control Group Pretest-Posttest Design)

การสุ่ม	กลุ่ม	ทดสอบก่อนเรียน	ดำเนินการทดลอง	ทดสอบหลังเรียน
-	R	O_1	X	O_2

สัญลักษณ์ที่ใช้ในแบบแผนการวิจัยแบบกึ่งทดลอง

R แทน กลุ่มทดลอง

O_1 แทน ทดสอบก่อนเรียน

X แทน ดำเนินการทดลอง

O_2 แทน ทดสอบหลังเรียน

ประชากรและกลุ่มตัวอย่าง

1. ประชากรที่ใช้ในการศึกษา คือ นักเรียนชั้นประถมศึกษาปีที่ 1 โรงเรียนในเครือข่ายพัฒนาคุณภาพการศึกษาจตุรมิตร สำนักงานเขตพื้นที่การศึกษาประถมศึกษาพัทลุง เขต 1 จำนวน 13 โรงเรียน ได้แก่ โรงเรียนวัดโงกน้ำ โรงเรียนวัดลานแซะ โรงเรียนบ้านขันหมู่ โรงเรียนวัดเกาะยาง โรงเรียนวัดพังดาน โรงเรียนวัดควนแพรกหา โรงเรียนบ้านระหว่างควน โรงเรียนบ้านใสอ้อย โรงเรียนบ้านควนดินแดง โรงเรียนทุ่งยางเปล (เทพบาลอนุสสร) โรงเรียนวัดหรังแคบ โรงเรียนชุมชนบ้านควนปริง และโรงเรียนวัดเขาป้าเจ้ รวมประชากรทั้งหมด 1,147 คน ปีการศึกษา 2567

2. กลุ่มตัวอย่างที่ใช้ในการศึกษา ผู้วิจัยทำการสุ่มโรงเรียนจากประชากรทั้ง 13 โรงเรียนในเครือข่ายพัฒนาคุณภาพการศึกษาจตุรมิตร สำนักงานเขตพื้นที่การศึกษาประถมศึกษาพัทลุง เขต 1 โดยการสุ่มตัวอย่างแบบไม่ใส่คืน (Sampling Without Replacement) จำนวน 1 โรงเรียน ได้แก่ โรงเรียนวัดเขาป้าเจ้ ตำบลแพรกหา อำเภอควนขนุน จังหวัดพัทลุง ใช้วิธีการสุ่มห้องเรียนโดยวิธีการสุ่มอย่างง่าย แบบจับฉลาก ได้แก่ นักเรียนชั้นประถมศึกษาปีที่ 1 ซึ่งมีจำนวน 1 ห้องเรียน มีนักเรียนจำนวน 10 คน

เครื่องมือที่ใช้ในการวิจัย

1. แผนการจัดการเรียนรู้ เรื่อง สัตว์ โดยการเรียนรู้คำศัพท์ภาษาอังกฤษเกี่ยวกับสัตว์ชนิดต่าง ๆ ใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง TPR –P (Total Physical Response - Picture เป็นการสอนเกี่ยวกับการออกคำสั่งที่เกี่ยวข้องกับรูปภาพ นักเรียนชั้นประถมศึกษาปีที่ 1 จำนวน 1 แผน 10 ชั่วโมง

2. แบบทดสอบวัดผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษ โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) ก่อนเรียนกับหลังเรียน นักเรียนชั้นประถมศึกษาปีที่ 1 ใช้แบบทดสอบรูปภาพแบบปรนัยเลือกตอบ 3 ตัวเลือก จำนวน 20 ข้อ โดยครูอ่านออกเสียงคำศัพท์ในแต่ละตัวเลือกให้นักเรียนฟัง

3. แบบวัดความพึงพอใจที่มีต่อการจัดการเรียนรู้โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) เป็นแบบมาตรส่วนประมาณค่า 5 ระดับ (Rating scale) ของลิเคิร์ท (Likert) ได้แก่

5 คะแนน หมายถึง พึงพอใจอยู่ในระดับมากที่สุด

4 คะแนน หมายถึง พึงพอใจอยู่ในระดับมาก

3 คะแนน หมายถึง พึงพอใจอยู่ในระดับปานกลาง

2 คะแนน หมายถึง พึงพอใจอยู่ในระดับน้อย

1 คะแนน หมายถึง พึงพอใจอยู่ในระดับน้อยที่สุด

ซึ่งผู้วิจัยมีการแปลผลคะแนนเฉลี่ยของแบบสอบถามความพึงพอใจต่อการจัดการเรียนรู้ โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) ชั้นประถมศึกษาปีที่ 1 ดังนี้

4.51 – 5.00 หมายถึง มีความพึงพอใจอยู่ในระดับมากที่สุด
3.51 – 4.50 หมายถึง มีความพึงพอใจอยู่ในระดับมาก
2.51 – 3.50 หมายถึง มีความพึงพอใจอยู่ในระดับปานกลาง
1.51 – 2.50 หมายถึง มีความพึงพอใจอยู่ในระดับน้อย
1.00 – 1.50 หมายถึง มีความพึงพอใจอยู่ในระดับน้อยที่สุด

ผลการตรวจสอบคุณภาพเครื่องมือ

1. แบบทดสอบวัดผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษ โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) นักเรียนชั้นประถมศึกษาปีที่ 1 โรงเรียนวัดเขาป้าเจ้ ตำบลแพรกหา อำเภอควนขนุน จังหวัดพัทลุง ผลการตรวจสอบพบว่า ค่าดัชนีความสอดคล้อง (Index of item objective congruence : IOC) ของแบบทดสอบรายข้อ โดยผู้ทรงคุณวุฒิ จำนวน 3 ท่าน มีค่าความเที่ยงตรง 1.00 ทุกข้อ

2. แบบวัดความพึงพอใจของนักเรียนมีความตรงเชิงเนื้อหา โดยวิเคราะห์ความสอดคล้องระหว่างข้อคำถามกับวัตถุประสงค์การวิจัยมีค่าความเที่ยงตรง 1.00 ทุกข้อ มีค่าความยากง่าย (P) อยู่ระหว่าง 0.20 - 0.70 และมีค่าอำนาจจำแนก (r) อยู่ระหว่าง 0.20 - 0.50

การเก็บรวบรวมข้อมูล ผู้วิจัยมีขั้นตอนการเก็บรวบรวมข้อมูล ดังนี้

1. ผู้วิจัยให้นักเรียนทำแบบทดสอบก่อนเรียนแบบปรนัย แบบเลือกตอบ 3 ตัวเลือก จำนวน 20 ข้อ 20 คะแนน

2. เริ่มจัดกิจกรรมการเรียนการสอน ใช้แผนการจัดการเรียนรู้โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) เรื่อง สัตว์ นักเรียนชั้นประถมศึกษาปีที่ 1 จำนวน 1 แผน 10 ชั่วโมง

3. ผู้วิจัยดำเนินการทดสอบหลังเรียน เมื่อเสร็จสิ้นการจัดกิจกรรมการเรียนรู้โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) เรื่อง สัตว์ นักเรียนชั้นประถมศึกษาปีที่ 1 ด้วยแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่อง สัตว์ ฉบับเดียวกับที่ใช้ทดสอบก่อนเรียนมาทดสอบ

4. ผู้วิจัยดำเนินการเก็บข้อมูลความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR)

5. นำข้อมูลที่ได้มาวิเคราะห์ด้วยวิธีทางสถิติ โดยใช้โปรแกรมคอมพิวเตอร์ประมวลข้อมูล

การวิเคราะห์ข้อมูล

1. วิเคราะห์เปรียบเทียบผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษ เรื่อง สัตว์ โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) นักเรียนชั้นประถมศึกษาปีที่ 1 ก่อนเรียนกับหลังเรียน โดยใช้สถิติ Wilcoxon Signed Ranks Test

2. วิเคราะห์แบบสอบถามความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) ใช้ค่าสถิติ คือ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน

ผลการวิจัย

การวิจัยเรื่องการพัฒนาผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษ เรื่อง สัตว์ โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) นักเรียนชั้นประถมศึกษาปีที่ 1 ผู้วิจัยได้นำเสนอผลการวิจัยออกเป็น 2 ตอน ตามวัตถุประสงค์ของการวิจัยดังนี้

ตอนที่ 1 วิเคราะห์เปรียบเทียบผลสัมฤทธิ์เรื่องการพัฒนาผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษ เรื่อง สัตว์ โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) นักเรียนชั้นประถมศึกษาปีที่ 1

ตารางที่ 2 แสดงการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างก่อนและหลังเรียนวิชาภาษาอังกฤษ เรื่อง สัตว์ โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) นักเรียนชั้นประถมศึกษาปีที่ 1

ผลสัมฤทธิ์ทางการเรียนภาษาอังกฤษ	$\bar{X}$	S.D.	t	Asymp. Sig.
หลังเรียน	16.00	2.98	2.81*	0.01
ก่อนเรียน	9.90	4.20		

จากตารางที่ 2 พบว่า ผลสัมฤทธิ์ก่อนเรียนได้คะแนนเฉลี่ย 9.90 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 4.20 ผลสัมฤทธิ์หลังเรียนได้คะแนนเฉลี่ย 16.00 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 2.98 ค่า t เท่ากับ 2.81 แสดงว่านักเรียนชั้นประถมศึกษาปีที่ 1 ที่เรียนโดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

ตอนที่ 2 แสดงผลการประเมินความพึงพอใจต่อการจัดการเรียนรู้โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) นักเรียนชั้นประถมศึกษาปีที่ 1

ตารางที่ 3 ความพึงพอใจการจัดการเรียนการสอน

ข้อ	รายการประเมิน	$\bar{X}$	S.D.	แปลผล
1	สื่อมีการใช้สีสันที่สวยงามและน่าสนใจ	3.90	0.88	มาก
2	รูปภาพมีขนาดที่ไม่เล็กจนเกินไป	3.60	0.70	มาก
3	กิจกรรมการเรียนรู้มีความสนุกสนาน	3.80	0.63	มาก
4	กิจกรรมการเรียนรู้มีความหลากหลาย	4.10	0.74	มาก
5	สามารถจดจำคำศัพท์ภาษาอังกฤษได้ดีขึ้น	3.90	0.88	มาก
6	มีความเข้าใจคำศัพท์ภาษาอังกฤษมากขึ้น	4.10	0.74	มาก
7	สามารถใช้คำศัพท์ในสถานการณ์ต่าง ๆ ได้	4.00	0.67	มาก
8	สามารถใช้ท่าทางสื่อสารกับผู้อื่นได้	3.70	0.82	มาก
9	สามารถนำคำศัพท์ไปใช้ในวิชาอื่น ๆ ได้	4.00	0.82	มาก
10	มีความกล้าแสดงออกมากขึ้น	4.30	0.68	มาก
	รวม	**3.94**	**0.75**	**มาก**

จากตารางที่ 3 พบว่าผลการประเมินความพึงพอใจการจัดการเรียนการสอนของนักเรียนชั้นประถมศึกษาปีที่ 1 โรงเรียนวัดเขาป้าเจ้ ต่อการจัดการเรียนรู้โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) โดยภาพรวมอยู่ในระดับมาก ($\bar{X}$ = 3.94 , S.D. = 0.75) และเมื่อพิจารณาแต่ละรายการ พบว่า ทุกรายการอยู่ในระดับมาก สำหรับรายการที่มีค่าเฉลี่ยสูงสุด คือ มีความกล้าแสดงออกมากขึ้น ($\bar{X}$ = 4.30 , S.D. = 0.68) รองลงมา คือ กิจกรรมการเรียนรู้มีความหลากหลาย ($\bar{X}$ = 4.10 , S.D. = 0.74) มีความเข้าใจคำศัพท์ภาษาอังกฤษมากขึ้น ($\bar{X}$ = 4.10 , S.D. = 0.74) สามารถนำคำศัพท์ไปใช้ในวิชาอื่น ๆ ได้ ($\bar{X}$ = 4.00 , S.D. =0.82) สามารถใช้คำศัพท์ในสถานการณ์ต่าง ๆ ได้ ($\bar{X}$ = 4.00 , S.D. = 0.67) สื่อมี

การใช้สีสันที่สวยงามและน่าสนใจ ($\overline{X}$ = 3.90 , S.D. = 0.88) สามารถจดจำคำศัพท์ภาษาอังกฤษได้ดีขึ้น ($\overline{X}$ = 3.90 , S.D. = 0.88) กิจกรรมการเรียนรู้มีความสนุกสนาน ($\overline{X}$ = 3.80 , S.D. = 0.63) สามารถใช้ท่าทางสื่อสารกับผู้อื่นได้ ($\overline{X}$ = 3.70 , S.D. = 0.82) ส่วนรายการที่มีค่าเฉลี่ยต่ำสุด คือ รูปภาพมีขนาดที่ไม่เล็กจนเกินไป ($\overline{X}$ = 3.60 , S.D. = 0.70)

สรุปและอภิปรายผล

จากผลการวิจัยการพัฒนาผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษ เรื่อง สัตว์ โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) นักเรียนชั้นประถมศึกษาปีที่ 1 สามารถอภิปรายผลการวิจัยได้ดังนี้

1. ผลการเปรียบเทียบผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษ เรื่อง สัตว์ นักเรียนชั้นประถมศึกษาปีที่ 1 โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) พบว่า มีคะแนนเฉลี่ยหลังการจัดการเรียนรู้สูงกว่าคะแนนเฉลี่ยก่อนการจัดการเรียนรู้ อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 เนื่องจากผู้วิจัยจัดการเรียนรู้โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง TPR –P (Total Physical Response – Picture) เกี่ยวกับการออกคำสั่งที่เกี่ยวข้องกับรูปภาพ ทำให้ผู้เรียนเกิดการจดจำคำศัพท์ ส่งเสริมช่วยให้นักเรียนเข้าใจความหมายของคำศัพท์มากยิ่งขึ้น ซึ่งสอดคล้องกับศุภราภรณ์ วงศ์ชัชวาลย์ (2559) ที่ได้ศึกษาเรื่อง การพัฒนาความรู้ด้านคำศัพท์ภาษาอังกฤษ และความสามารถด้านการฟังภาษาอังกฤษโดยวิธีการสอนแบบตอบสนองด้วยท่าทาง (The Total Physical Response: TPR) ของนักเรียนชั้นประถมศึกษาปีที่ 2 พบว่า ความรู้ด้านคำศัพท์ภาษาอังกฤษของนักเรียนสูงขึ้น หลังจากการเรียนรู้โดยวิธีการสอนแบบตอบสนองด้วยท่าทางเมื่อพิจารณาจากคะแนน เฉลี่ยของผลการทดสอบความรู้คำศัพท์ภาษาอังกฤษของผู้เรียนก่อนเรียนและหลังเรียนคะแนนการทดสอบความรู้ด้านคำศัพท์ภาษาอังกฤษหลังเรียน สูงกว่าคะแนนการทดสอบความรู้ด้านคำศัพท์ภาษาอังกฤษก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

2. ความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 1 ที่มีต่อการจัดการเรียนรู้โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) เรื่อง สัตว์ โดยภาพรวมอยู่ในระดับมาก เนื่องมาจากการจัดการเรียนรู้โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) สามารถตอบสนองความต้องการของผู้เรียนได้เป็นอย่างดี การเรียนรู้มีความหลากหลาย สื่อมีสีสันสวยงามและน่าสนใจ กระตุ้นให้ผู้เรียนเกิดความสนุกสนานมีความเข้าใจคำศัพท์ สามารถจดจำคำศัพท์ภาษาอังกฤษมากขึ้น ส่งผลให้ผู้เรียนมีความกล้าแสดงออก ซึ่งสอดคล้องกับงานวิจัยของวารุณี ศิริ และอภิราดี จันทร์แสง (2560) ที่ได้ศึกษาการพัฒนาการจัดการเรียนรู้โดยใช้วิธีสอนแบบตอบสนองด้วยท่าทาง (TPR) ที่มีผลต่อทักษะการฟังและการพูดภาษาอังกฤษสำหรับนักเรียนชั้นประถมศึกษาปีที่ 1 พบว่าเจตคติต่อการเรียนภาษาอังกฤษสำหรับนักเรียนชั้นประถมศึกษาปีที่ 1 หลังเรียน โดยใช้วิธีสอนแบบตอบสนองด้วยท่าทาง มีค่าเฉลี่ย 4.20 อยู่ในระดับมาก

จากผลการวิจัยเรื่องการพัฒนาผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษ เรื่อง สัตว์ โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) ในนักเรียนชั้นประถมศึกษาปีที่ 1 งานวิจัยนี้ได้พัฒนาและทดสอบรูปแบบการสอนแบบ TPR-P ที่เน้นการใช้รูปภาพการเรียนรู้คำศัพท์เกี่ยวกับสัตว์ โดยใช้สื่อภาพที่เหมาะกับเด็กวัยประถมศึกษาตอนต้น ทำให้เกิดแนวทางการสอนที่เจาะจงมากขึ้นสำหรับกลุ่มคำศัพท์ประเภทนี้ เหมาะสมกับบริบทการศึกษาไทย และการเชื่อมโยงการเรียนภาษากับการพัฒนาทักษะอื่น ๆ ซึ่งสามารถนำไปต่อยอดในการพัฒนาหลักสูตร การจัดการเรียนการสอน และการวิจัยในอนาคตได้

จากผลการวิจัยเรื่องการพัฒนาผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษ เรื่องสัตว์ โดยใช้วิธีการ

สอนแบบตอบสนองด้วยท่าทาง (TPR) ผลการวิจัยแสดงให้เห็นว่าวิธีการสอนแบบ TPR สามารถพัฒนาผลสัมฤทธิ์การจดจำคำศัพท์ภาษาอังกฤษได้อย่างมีประสิทธิภาพ และสามารถนำวิธีการสอนแบบ TPR ไปประยุกต์ใช้ในการสอนคำศัพท์หมวดอื่น ๆ นอกเหนือจากคำศัพท์เกี่ยวกับสัตว์ เช่น อาหาร เครื่องแต่งกาย อวัยวะในร่างกาย หรือกิจกรรมต่าง ๆ

ข้อเสนอแนะ

1. ข้อเสนอแนะเพื่อนำไปใช้

1.1 ควรสร้างสื่อการสอนที่มีภาพประกอบคำศัพท์อย่างหลากหลายและเหมาะสมกับวัยของนักเรียน เช่น การ์ดภาพ สไลด์ หรือแอปพลิเคชันที่ช่วยให้การเรียนรู้เป็นไปอย่างมีประสิทธิภาพ

1.2 ควรสร้างกิจกรรมที่กระตุ้นการเคลื่อนไหวของนักเรียน เช่น เกม การแสดงท่าทาง เพื่อช่วยให้นักเรียนมีส่วนร่วมและสนุกกับการเรียนรู้คำศัพท์

1.3 ควรขยายระยะเวลาในการจัดกิจกรรมการเรียนรู้ให้มากขึ้น เพื่อเสริมสร้างความคงทนในการจดจำคำศัพท์ของนักเรียนให้มีประสิทธิภาพยิ่งขึ้น

2. ข้อเสนอแนะในการทำวิจัยครั้งต่อไป

ควรทำการศึกษาผลสัมฤทธิ์การจดจำคำศัพท์ โดยวิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) กับนักเรียนระดับชั้นอื่น

เอกสารอ้างอิง

คณิฐา ปัชชามาตย์. (2560). การพัฒนาความสามารถในการเรียนรู้คำศัพท์ภาษาอังกฤษโดยใช้วิธีสอนแบบตอบสนองด้วยท่าทางของนักเรียนชั้นประถมศึกษาปีที่ 5 [วิทยานิพนธ์ปริญญามหาบัณฑิต]. มหาวิทยาลัยราชภัฏอุดรธานี.

จิราพร เณรธรณี. (2558). การจัดการเรียนการสอนภาษาอังกฤษในศตวรรษที่ 21. วารสารวิจัยและพัฒนา มหาวิทยาลัยราชภัฏยะลา, 2(2), 69-78.

ชัยพร วิชชาวุธ. (2520). ความจำมนุษย์. กรุงเทพฯ : ชวนพิมพ์.

ณัฐสุดา แจ่มประทิพย์. (2562). การพัฒนาชุดฝึกอบรมแบบสาธิตเชิงปฏิบัติการร่วมกับการจัดกิจกรรมกลุ่มเพื่อส่งเสริมความสามารถในการใช้งานระบบสนับสนุนการเรียนการสอน (LEB2) สำหรับอาจารย์ มหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี [วิทยานิพนธ์ปริญญามหาบัณฑิต]. มหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี.

พรชนก ปานวน. (2564). ผลของการจัดการเรียนรู้โดยใช้วิธีการตอบสนองด้วยท่าทางต่อความสามารถในการฟังและการพูดภาษาอังกฤษ ของนักเรียนชั้นประถมศึกษาปีที่ 1 [การค้นคว้าอิสระปริญญามหาบัณฑิต]. มหาวิทยาลัยนเรศวร.

มณฑนา เรืองสกุลราช, กาญจนา รัตนปรีดานันต์, จุฑามาศ พงษ์ช้างอยู่, น้ำทิพย์ หวังวิวัฒน์เจริญ, ปาณัช อชินธรางกูร, สิรินันท์ สามัคคีนนท์ และกิตติพงษ์ คงสมบูรณ์. (2553). ผลของสีที่มีต่อความจำของนิสิตคณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ องครักษ์. เวชสารวิทยาศาสตร์การแพทย์ มศว. 1-10.

ยุกตะนันท์ ดีนาน. (2563). การพัฒนาความรู้ด้านคำศัพท์ภาษาอังกฤษ โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) ของนักเรียนชั้นประถมศึกษาปี ที่ 2 [วิทยานิพนธ์ปริญญาศึกษาศาสตรมหาบัณฑิต] สาขาวิชาหลักสูตรและการสอน มหาวิทยาลัยรังสิต.

สุรีย์ลักษณ์ สุจริตพงศ์, รวิวรรณ รุ่งไพรวัลย์, ทิพวรรณ หรรษาคุณาชัย, บานชื่น เบญจสุวรรณเทพ, อดิศร์ สุดา เฟื่องฟู, จริยา จุฑาภิสิทธิ์ และพัฏ โรจน์มหามงคล. (2561). ตำราพัฒนาการและพฤติกรรมเด็ก. กรุงเทพฯ: ชมรม พัฒนาการและพฤติกรรมเด็กแห่งประเทศไทย ภาควิชากุมารเวชศาสตร์ คณะแพทย์ศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

สุธิดา แบบเจริญ. (2561). การศึกษาความพึงพอใจของครูที่มีต่อระบบบริหารจัดการอาชีวศึกษาของสถานศึกษา สังกัดสำนักงานคณะกรรมการการอาชีวศึกษาในภาคตะวันออก [วิทยานิพนธ์ปริญญามหาบัณฑิต]. มหาวิทยาลัยราชภัฏรำไพพรรณี.

ไสว เลี่ยมแก้ว. (2528). ความจำมนุษย์: ทฤษฎีและวิธีทดสอบ. ปัตตานี: โครงการตำรา มหาวิทยาลัยสงขลานครินทร์.

วารุณี ศิริ และ อภิราดี จันทร์แสง. (2560). การพัฒนาการจัดการเรียนรู้โดยใช้วิธีการสอนแบบตอบสนองด้วยท่าทาง (TPR) ที่มีผลต่อทักษะการฟังและการพูดภาษาอังกฤษ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 1. วารสารมหาวิทยาลัยราชภัฏร้อยเอ็ด, 11(2): 195-206.

ศุภราภรณ์ วงศ์ชัชวาลย์. (2559). การพัฒนาความรู้ดานคำศัพท์ภาษาอังกฤษ และความสามารถด้านการฟังภาษาอังกฤษ โดยวิธีการสอนแบบตอบสนองด้วยท่าทาง (The Total Physical Response: TPR) ของนักเรียนชั้นประถมศึกษาปีที่ 2 โรงเรียนบ้านสบพลึง จังหวัดลำปาง. วิทยานิพนธ์ปริญญาศิลปศาสตรมหาบัณฑิต สาขาวิชาภาษาอังกฤษ คณะศิลปศาสตร์ มหาวิทยาลัยพะเยา.

อุดมพร เปตานนท์. (2560). การแก้ปัญหาการขาดทักษะการวิเคราะห์ส่วนประสมทางการตลาด 4 P’s ของนักเรียน นักศึกษาระดับชั้นประกาศนียบัตรวิชาชีพชั้นสูง ชั้นปีที่ 2 ห้อง 3 ห้อง 4 และห้อง 13 สาขาวิชาการตลาด วิทยาลัยเทคโนโลยีอรรถวิทย์พณิชยการ โดยใช้แบบฟอร์มในการท่องจำ. วิทยาลัยเทคโนโลยีอรรถวิทย์พณิชยการ.

Adams (1967). Human Memory. New York: McGraw-Hill.

Adams (1980). Learning and Memory. Illinois: Dorsey Press Homewood.

Asher, J. J. (1979). Learning Another Language through Actions: the complete Teacher’s Guidebook. California: Sky Oaks Productions.

Asher, J. J. (1986). Learning Another Language Through Actions: The Complete Teacher's Guidebook (3rd ed.). Los Gatos, CA: Sky Oaks Productions.

Guilford, J.P. (1971). The Nature of Human Intelligence. New York: McGraw - Hil.

Guilford, J.P. (1988). "Some Change in the Structure - of Intellect Model", Educational and Psychological Measurement. 58(Spring 1988), 1 - 4.

การพัฒนาความสามารถการเล่นเปียโนโดยใช้สื่อมัลติมีเดีย นักเรียนชั้นอนุบาลปีที่ 3
The Development of Piano ability With Multimedia for Kindergarten School Years 3 Students

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อเปรียบเทียบทักษะการเล่นเปียโนของนักเรียนชั้นอนุบาลปีที่ 3 ที่ใช้สื่อมัลติมีเดีย ระหว่างก่อนเรียนกับหลังเรียน และเพื่อเปรียบเทียบทักษะการเล่นเปียโนของนักเรียนชั้นอนุบาลปีที่ 3 โดยใช้สื่อมัลติมีเดียกับการสอนแบบปกติ กลุ่มตัวอย่างคือนักเรียนชั้นอนุบาลปีที่ 3 โรงเรียนสมาคมนักเรียนเก่ามหาวชิราวุธ อำเภอเมืองสงขลา จังหวัดสงขลา ภาคเรียนที่ 2 ปีการศึกษา 2567 ซึ่งได้มาโดยการสุ่มอย่างง่าย แบบจับสลาก ประกอบด้วยกลุ่มทดลอง 1 ห้อง คือ นักเรียนห้อง อ.3/1 จำนวน 16 คน และกลุ่มควบคุม 1 ห้อง คือ นักเรียนห้อง อ.3/2 จำนวน 16 คน เครื่องมือที่ใช้ในการวิจัยครั้งนี้ คือ แผนการจัดการเรียนรู้ แบบทดสอบทักษะการเล่นเปียโน สถิติที่ใช้วิเคราะห์ข้อมูล คือ ค่าร้อยละ ค่าเฉลี่ย Wilcoxon Signed Ranks Test และ Mann-Whitney U Test

ผลการวิจัยพบว่า 1) ทักษะการเล่นเปียโนนักเรียนชั้นอนุบาลปีที่ 3 หลังเรียนโดยใช้สื่อมัลติมีเดียสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 2) ทักษะการเล่นเปียโนของนักเรียนชั้นอนุบาลปีที่ 3 โดยใช้สื่อมัลติมีเดียสูงกว่าการสอนแบบปกติ อย่างมีนัยสำคัญทางสถิติที่ระดับ .01

คำสำคัญ: ทักษะการเล่นเปียโน, แผนการจัดการเรียนรู้, สื่อมัตติมีเดีย

Abstract

This research aimed to compare the piano playing skills of kindergarten 3 students using multimedia before and after learning, and to compare the piano playing skills of kindergarten 3 students using multimedia with conventional teaching. The sample group was kindergarten 3 students of Mahavajiravudh Alumni Asscociation School, Mueang Songkhla District, Songkhla Province, the second semester of the academic year 2024, which was selected by simple random sampling. There was one experimental group: 16 students in class A.3/1 and one control group: 16 students in class A.3/2. The research instruments were the lesson plans and piano playing skills test. The statistics used for data analysis were percentage, mean, Wilcoxon Signed Ranks Test, and Mann-Whitney U Test.

The results of the research found that 1) the piano playing skills of kindergarten 3 students after learning using multimedia were higher than before learning, with statistical significance at the .01 level. 2) The piano playing skills of kindergarten 3 students using multimedia were higher than those of conventional teaching. Statistically significant at the .01 level

Keywords: Piano Playing Skills, Lesson Plan, Multimedia

บทนำ

พระราชบัญญัติการศึกษาแห่งชาติ พ.ศ. 2562 (ฉบับแก้ไขเพิ่มเติมครั้งที่ 4 พ.ศ. 2562) ระบุถึงวัฒนธรรมดนตรีในมาตรา 6 ไว้ว่า ลักษณะอันพึงประสงค์ของพลเมืองในชาติไทยที่มีความสมบูรณ์จำเป็นต้องเป็นผู้ที่มีความสมบูรณ์ทั้งด้านจิตใจ สติปัญญา ความรู้ คุณธรรมและวัฒนธรรมในการดำรงชีวิตสามารถอยู่ร่วมกับผู้อื่นได้อย่างมีความสุข ในมาตราที่ 7 ได้กล่าวไว้ว่า กระบวนการเรียนรู้ในส่วนของดนตรีที่ได้เข้ามาเกี่ยวข้อง กับการปลุกจิตสำนึกให้เกิดความภาคภูมิใจในความเป็นไทย การส่งเสริมศิลปวัฒนธรรมของชาติ ภูมิปัญญา ท้องถิ่น ภูมิปัญญาไทยและความรู้สากล (กระทรวงศึกษาธิการ, 2562) ทำให้หลักสูตรการสอนดนตรีมีความชัดเจนมากยิ่งขึ้น จากการที่มีพระราชบัญญัติการศึกษาภาคบังคับ พุทธศักราช 2545 ที่เน้นในเรื่องการปฏิรูประบบการบริหารและการจัดการศึกษาให้มีประสิทธิภาพ กระทรวงศึกษาธิการได้มีคำสั่งให้ใช้หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน 2551 (ฉบับปรับปรุง 2560) ทำให้สถานศึกษาจำเป็นต้องจัดการเรียนรู้ในกลุ่มสาระการเรียนรู้ต่าง ๆ ให้สอดคล้องกับหลักสูตรแกนกลางที่กระทรวงศึกษาธิการเป็นผู้กำหนด โดยกลุ่มสาระการเรียนรู้ศิลปะมุ่งพัฒนาให้ผู้เรียนเกิดความเข้าใจ และได้แสดงออกอย่าง อิสระ ดนตรีถูกจัดอยู่ในสาระการเรียนรู้ศิลปะ ให้ผู้เรียนมีความเข้าใจและแสดงออกทางดนตรีอย่างสร้างสรรค์ วิเคราะห์ วิพากษ์ วิจารณ์คุณค่าทางดนตรี ถ่ายทอดความรู้สึกความคิดต่อดนตรีอย่าง อิสระชื่นชม และประยุกต์ใช้ในชีวิตประจำวัน (กระทรวงศึกษาธิการ, 2551)

นอกจากหลักสูตรแล้ว กิจกรรมการเรียนการสอนถือว่าเป็นส่วนสำคัญที่ทำให้ประสิทธิภาพในการเกิดการเรียนรู้ของผู้เรียนมีคุณภาพ หากผู้สอนรู้จักใช้วิธีการสอน การจัดกิจกรรมการเรียนการสอน ที่มีความน่าสนใจ มีความหลากหลาย และแปลกใหม่ ไม่น่าเบื่อ สามารถช่วยกระตุ้นให้ผู้เรียนเกิดความสนใจและเป็นการสร้างแรงจูงใจในการเรียนรู้ตามที่ ทิศนา แขมมณี (2561) ได้ให้ความหมายไว้ว่า เทคนิคการสอนคือวิธีต่าง ๆ ที่ใช้ในกระบวนการเรียนการเรียนการสอน ขั้นตอนการสอน วิธีการสอน หรือการดำเนินการทางการสอน เพื่อช่วยให้การสอนมีคุณภาพ และมีประสิทธิภาพมากยิ่งขึ้น เช่นเดียวกับการเรียนการสอนวิชาดนตรี เป็นการเรียนการสอนที่ต้องรู้จักใช้วิธีการสอนที่หลากหลาย เพราะมีเนื้อหาที่ต้องให้ผู้เรียนทำความเข้าใจด้านทฤษฎี การอ่าน เขียนโน้ตดนตรีสากล กิจกรรมด้านปฏิบัติทางดนตรี การร้องหรือเล่นดนตรีเดี่ยวและกลุ่ม กิจกรรมทางดนตรี หนึ่งในกิจกรรม พัฒนาผู้เรียนด้านสุนทรีภาพภายในสถานศึกษา อีกทั้งยังเสริมสร้างความมีระเบียบวินัย ความคิด ความจำ ความอดทน เสริมสร้างจินตนาการ ฝึกความรับผิดชอบในการทำงานร่วมกันเป็นทีม การใช้ทักษะชีวิต ร่วมกับผู้อื่น รู้จักการเสียสละ การตรงต่อเวลาและการใช้เวลาว่างให้เกิดประโยชน์ อีกทั้งยังสามารถเป็นแนวทางในการศึกษาต่อยอดเพื่อประกอบอาชีพ ครูผู้สอนจำเป็นจะต้องมีความรู้ความสามารถด้านดนตรีโดยเฉพาะ รู้จักทฤษฎีดนตรี ทักษะการปฏิบัติเครื่องดนตรี รวมไปถึงทักษะการสอน และการบำรุง รักษาเครื่องดนตรี เพื่อจัดการให้มีประสิทธิภาพ

โรงเรียนสมาคมนักเรียนเก่ามหาวชิราวุธได้เห็นถึงความสำคัญของการพัฒนานักเรียนผู้มีความสามารถพิเศษด้านดนตรี โดยมีการส่งเสริมสนับสนุนและเปิดโอกาสให้นักเรียนผู้มีความสามารถพิเศษด้านดนตรีหรือผู้ที่มีความชอบและสนใจเรียนดนตรี ได้เรียนรู้ตามความสนใจและความถนัด และได้รับการพัฒนาให้มีความสมบูรณ์ทั้งทางร่างกาย อารมณ์ สังคม และจิตใจ รวมถึงสร้างเครือข่ายร่วมพัฒนาหน่วยงานและองค์กรทางการศึกษา ในการพัฒนาและส่งต่อนักเรียนผู้มีความสามารถพิเศษด้านดนตรีให้ได้รับการศึกษาที่สูงขึ้น และสร้างโอกาสในการประกอบอาชีพทางด้านดนตรีต่อไปในอนาคต ซึ่งวิชาดนตรีสำหรับนักเรียนระดับชั้นอนุบาลที่ 3 ของโรงเรียนสมาคมนักเรียนเก่ามหาวชิราวุธ ผู้เรียนจะต้องมีทักษะในการอ่านโน้ตดนตรีสากล รู้จักค่าโน้ต อ่านโน้ตในลักษณะต่าง ๆ ร้องเพลง โดยเน้นเทคนิคการแสดงออกและคุณภาพของการแสดง จากประสบการณ์การสอนวิชาดนตรีของผู้วิจัย พบว่านักเรียนที่เข้ามาเรียนดนตรีในสมาคมนักเรียนเก่ามหาวชิราวุธ มีปัญหาเกี่ยวกับพื้นฐานทางดนตรีด้านการอ่านโน้ตดนตรี นักเรียนอ่านโน้ตดนตรีสากลไม่ได้ ไม่รู้จักตัวโน้ตสากล รวมไปถึงการอ่านตัวโน้ตในรูปแบบต่าง ๆ ทำให้การเรียนการสอนดนตรีสำหรับนักเรียนเป็นไปอย่างล่าช้า ต้องใช้เวลาในการสอนพื้นฐานเริ่มต้น และใช้เวลานานกับการให้นักเรียนจดจำ อีกทั้งรายวิชาดนตรีเป็นวิชาเพิ่มเติมทำให้ชั่วโมงเรียนนั้นไม่มากพอที่จะให้นักเรียนที่มีพื้นฐานอ่อนได้ฝึกฝนและเรียนรู้เนื้อหาที่มาก ในเวลานาน ๆ ได้ จึงทำให้นักเรียนลืมเนื้อหาสัปดาห์ที่ผ่านมาได้ง่าย และต้องมาเริ่มต้นสอนเนื้อหาในชั่วโมงของสัปดาห์ก่อนและย้อนเนื้อหาเก่าเป็นเวลานานทำให้เกิดเป็นปัญหาในการเรียนการสอนดนตรี ซึ่งความสำคัญของการเสริมสร้างและพัฒนาทักษะการอ่านโน้ตดนตรีสากลเป็นเรื่องพื้นฐานที่สำคัญหรับการเรียนดนตรี การเรียนการสอนทักษะเปียโนสำหรับชั้นอนุบาลปีที่ 3 ต้องรู้จักโน้ตดนตรีสากล และสัญลักษณ์ทางดนตรีสากล การอ่านโน้ตและเขียนโน้ตดนตรีสากล ผู้วิจัยสนใจที่จะพัฒนาทักษะการเล่นเปียโนโดยใช้สื่อมัลติมีเดียเนื่องจากผู้วิจัยได้ศึกษางานวิทยานิพนธ์การพัฒนารูปแบบการสอนดนตรีสากลโดยใช้สื่อมัลติมิเดีย (ชัยวัฒน์ เชาว์รัตนะ และ เจตชรินทร์ จิรสันติธรรม, 2550) พบว่า การพัฒนารูปแบบการสอนดนตรีสากลโดยใช้สื่อมัลติมิเดียช่วยให้เกิดความรู้ความเข้าใจทักษะดนตรีจากสื่อมัลติมิเดีย ส่งผลต่อพัฒนาการทางดนตรีที่ดีของผู้เรียน ความอดทน เสริมสร้างจินตนาการ ฝึกความรับผิดชอบในการทำงาน การใช้ทักษะชีวิต การตรงต่อเวลาและการใช้เวลาว่างให้เกิดประโยชน์ อีกทั้งยังสามารถเป็นแนวทางในการศึกษาต่อยอด ครูผู้สอนต้องมีความรู้ความสามารถด้านดนตรีโดยเฉพาะ รู้จักทฤษฎีดนตรี ทักษะการปฏิบัติเครื่องดนตรี รวมไปถึงทักษะการสอน และการบำรุงรักษาเครื่องดนตรี เพื่อจัดการบริหารนักเรียนให้มีประสิทธิภาพ

จากปัญหาและเหตุผลความสำคัญดังกล่าว ผู้วิจัยมีความสนใจที่จะพัฒนาทักษะการเล่นเปียโนโดยใช้สื่อมัลติมีเดีย ของนักเรียนชั้นอนุบาลปีที่ 3 โดยใช้สื่อมัลติมีเดีย จะทำให้นักเรียนเกิดความรู้ ความเข้าใจ และสามารถจดจำวิธีการอ่านโน้ตดนตรีสากลได้ มีการทำแบบฝึกทักษะควบคู่กับการเรียนไปด้วยเพื่อทำให้นักเรียนสามารถทดสอบตัวเองได้สม่ำเสมอ และยังช่วยให้ครูผู้สอนสามารถ รู้จุดบกพร่องของนักเรียนในเรื่องต่างๆ ตามหัวข้อแบบทดสอบได้ หากนักเรียนมีผลสัมฤทธิ์ทางการเรียนที่ดีเมื่อเรียนด้วยสื่อมัลติมีเดีย จะทำให้เรียนผู้เรียนรู้สึกสนุกในการเรียน มีความอยากเรียนรู้เพิ่มเติม ต่อยอดความรู้ของตนเองให้สูงขึ้น ตลอดจนสามารถนำความรู้ความจำที่ได้ไปปรับใช้กับทักษะด้านอื่น ที่เกี่ยวข้องกับการเรียนการสอนวิชาดนตรี และกิจกรรมทางด้านดนตรีอื่น ๆ เช่น การปฏิบัติเครื่องดนตรี การบรรเลงดนตรีรวมวงร่วมกับผู้อื่น ตลอดจนสามารถนำไปต่อยอดทางการศึกษาดนตรีในระดับสูงขึ้นต่อไป

วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบการฝึกการเล่นเปียโนนักเรียนชั้นอนุบาลปีที่ 3 ที่ใช้สื่อมัลติมีเดีย ระหว่างก่อนเรียนกับหลังเรียน

2. เพื่อเปรียบเทียบการฝึกการเล่นเปียโนของชั้นอนุบาลปีที่ 3 โดยการสอนโดยใช้สื่อมัลติมีเดียควบคู่กับการสอนแบบปกติกับสอนปกติโดยไม่มีสื่อมัลติมีเดีย

สมมติฐานการวิจัย

1. ทักษะการเล่นเปียโนนักเรียนชั้นอนุบาลปีที่ 3 หลังเรียนโดยใช้สื่อมัลติมีเดียสูงกว่าก่อนเรียน
2. ทักษะการเล่นเปียโนนักเรียนชั้นอนุบาลปีที่ 3 โดยใช้สื่อมัลติมีเดียสูงกว่าการสอนแบบปกติ

แนวคิด ทฤษฎี กรอบแนวคิด

1. ทฤษฎีการสอนดนตรี

สุกรี เจริญสุข (2545) ได้ศึกษารูปแบบการสอนดนตรีของซูซูกิเป็นการฝึกฝนซึ่งประกอบด้วย 4 ขั้นตอน คือ 1) การฟัง (Listening) คือ ให้เด็กทารกฟังเพลงคลาสสิกประมาณ 20 เพลง โดยมอบให้พ่อแม่รับหน้าที่เปิดให้ลูกวัยทารกฟังอย่างสม่ำเสมอ จนกระทั่งเด็กอายุ 2 ปี 2) การเลียนแบบ (Imitation) เมื่อผ่านขั้นที่ 1 แล้ว เด็กทุกคนต้องเข้ากลุ่มร่วมกับเด็กอื่นที่เรียนกับซูซูกิอยู่ก่อน ซึ่งมีวัยต่างกัน 2 - 3 ปี และทำกิจกรรมเข้าจังหวะ รวมถึงกายบริหารร่วมกัน โดยมีครูและผู้ปกครองร่วมกิจกรรมด้วย โดยกิจกรรมนี้จะใช้ระยะเวลา 6 เดือน ซึ่งเป็นกิจกรรมที่มีความน่าสนใจ เช่น เด็กที่เรียนอยู่ก่อนจะแสดงดนตรี (Recital) เพื่อให้เด็กที่เข้าใหม่ได้ชมเป็นแบบอย่างว่าอีกไม่นานเด็กใหม่ก็จะได้แสดงกิจกรรมเช่นนี้เหมือนกัน สำหรับเด็กที่เรียนอยู่ก่อนก็ถือว่าเป็นโอกาสได้แสดงพัฒนาการทางดนตรี ซึ่งต้องพัฒนาให้ดียิ่ง ๆ ขึ้นต่อไป 3) ทำซ้ำ (Reiteration) การที่เด็กเข้าสู่ชั้นเรียนโดยมีครูสอนเดี่ยว มีเครื่องดนตรีของตนเอง เด็กจะเรียนไปพร้อม ๆ กับผู้ปกครองประมาณ 1 เดือน หลังจากนั้นผู้ปกครองจะลดบทบาทของตนเอง โดยครูจะเป็นผู้รับหน้าที่ดูแลฝึกฝน 4) จดจำฝังใจ (Memorize) เมื่อเด็กเรียนดนตรีตามหลักสูตร เด็กมีวินัยในตนเอง มีการฝึกซ้อมอย่างสม่ำเสมอ เรียนด้วยใจรัก รวมถึงกับความคุ้นเคยกับเสียงดนตรีที่ ได้ฟังอย่างสม่ำเสมอ ตั้งแต่วัยทารก เด็กจึงสามารถสร้างเสียงที่ถูกต้องเหมาะสมออกมาได้ ในระยะเวลา 2 - 3 ปี เด็กจะสามารถฟังเพลงยากขึ้นได้หลังจากนั้นก็เรียนเรื่องการอ่านโน้ตในภายหลัง

ธวัชชัย นาควงษ์ (2544) กล่าวว่า กิจกรรมดนตรีตามแนวคิดของโคดายนั่นคือ โคดาย ให้ความสำคัญกับตัวผู้เรียน ซึ่งเป็นหลักเดียวกับจิตวิทยาพัฒนาการเด็ก คือ การเรียนการสอนดนตรีควรมีระดับความยากง่ายเหมาะสมกับลักษณะการพัฒนาของเด็ก ดังนั้น สิ่งง่าย ๆ ไม่สลับซับซ้อนควรนำเสนอก่อนสิ่งที่ยาก ดังเช่นในเรื่องทำนองของ โคดาย เริ่มด้วยการสอนเพลงที่ ประกอบด้วยโน้ต 3 ตัว คือ la so mi ก่อน และเพิ่มเป็นเพลงที่มีโน้ต 4 ตัว คือ so mi re do และจึงเป็นเพลงที่ใช้บันไดเสียงเพนตาโทนิก คือ มีโน้ต 5 ตัว ได้แก่ la so mi re do ซึ่งเป็นลักษณะของเพลงพื้นบ้านของฮังการี ในที่สุดจึงนำเพลงในบันไดเสียงไดอะโทนิก คือ มีตัวโน้ต 7 ตัว ได้แก่ do re mi fa so la ti มาสอน และผู้เรียนจะได้เรียนรู้ถึงตัวโน้ตอื่น ๆ ต่อไป หรือในเรื่องของอัตราจังหวะ โดยปกติอัตราจังหวะ 2 จังหวะ ทั้งลักษณะปกติและผสม (2/4: 6/8) จะพบได้มากกว่าเพลงในอัตราจังหวะสามจังหวะ (3/4) การสอนจึงควรใช้เพลงอัตราจังหวะสองจังหวะก่อน ส่วนเรื่ององค์ประกอบดนตรีอื่น ๆ (เสียงประสาน รูปแบบ สีสัน ลักษณะของเสียง) ก็เช่นกัน ควรมีการจัดเรียงจากง่ายไปยาก จึงสามารถกล่าวได้ว่าวิธีการของ โคดาย เน้นการจัดระบบ

ขั้นตอนของสาระดนตรีเป็นอย่างมาก โดยคำนึงลักษณะความยากง่ายของสาระดนตรี ประกอบกับลักษณะวัฒนธรรมทางดนตรีของแต่ละสังคม รวมทั้งพัฒนาการของเด็กด้วยหลักการของโคดายเน้นการร้องเป็นหลัก โดยมีการจัดสาระดนตรีอย่างมีระบบ ระเบียบและใช้ระบบสัญลักษณ์แทนเสียงดนตรีให้เหมาะสมกับพัฒนาการของเด็ก รวมทั้งการใช้ระบบการอ่านโน้ตแบบซอล-ฟา ในบันไดเสียงเมเจอร์ โดยให้ตัวโทนิก คือ โด และ ลา ในบันไดเสียงไมเนอร์ เคลื่อนที่ไปตามบันไดเสียงต่าง ๆ (movable-do) โดยมีสัญญาณมือช่วยในการอ่านวรรณคดีดนตรีที่เป็นหลักในการเรียนการสอนระยะแรก คือ เพลงพื้นบ้าน ระยะต่อมาจึงใช้เพลงเป็นศิลปะ

2. วิธีการสอนเปียโน

พีรพงศ์ สุรวรรณ (2562) กล่าวว่า โน้ตบนเปียโนและคีย์บอร์ด คือ ระดับเสียงและความยาวของเสียง อีกทั้งยังสามารถแสดงอยู่ในรูปของตัวโน้ตดนตรี และเป็นส่วนประกอบในการเขียนเพลงในแทบทุกขั้นตอน เช่น การแบ่งตัวโน้ตในเนื้อเพลงเพื่อช่วยในการแสดง การตีความ และการวิเคราะห์เนื้อเพลง

1. ระดับของเสียงประกอบด้วยการสั่นสะเทือนหรือคลื่น
2. ประกอบด้วยความเร็วหรือความถี่ โดยระดับของเสียงนั้นใช้เพื่อแสดงว่าโน้ตตัวนั้นมีเสียงต่ำหรือเสียงสูงเท่าใดยิ่งคลื่นมีความความถี่สูง ระดับเสียงของโน้ตก็จะยิ่งสูงขึ้น
3. บันไดเสียงและบันไดตัวโน้ตนักดนตรีส่วนใหญ่ใช้บันเสียงโครมาติกซึ่งเป็นโน้ตดนตรี 7 ตัว คือ A, B, C, D, E, F และ G โน้ตแต่ละตัวจะมีความถี่หรือระดับเสียงที่แตกต่างกันนอก จากนี้โน้ตเหล่านี้ยังมีความแตกต่างกัน คือ ชาร์ป (#) และแฟลต (b) โดยชาร์ปจะเคลื่อนที่ขึ้นทีละครึ่งเสียง ส่วนแฟลตจะเคลื่อนที่ลงทีละครึ่งเสียง
4. อ็อกเทฟโน้ต 8 ตัว แต่ละชุดดังที่ได้กล่าวมาข้างต้นและโน้ตครึ่งขั้นเสียงจะเรียกว่าอ็อกเทฟ โดยอ็อกเทฟตัว “กลาง” มักเรียกว่าอ็อกเทฟตัวที่ 4 ดังนั้น อ็อกเทฟตัวก่อนหน้าจะเป็นตัวที่ 3 ส่วนอ็อกเทฟตัวหลังตัวที่ 5 โน้ตแต่ละตัวในอ็อกเทฟจะมีระดับเสียงหรือความถี่เป็นสองเท่าของโน้ต ตัวเดียวกันจากอ็อกเทฟตัวที่อยู่ก่อนหน้า ตัวอย่างเช่น A ในอ็อกเทฟที่ 4 จะมีความถี่ 440Hz ส่วน A ในอ็อกเทฟที่ 5 จะมีความถี่ 880Hz

3. สื่อมัลติมีเดีย

สุพิน สุภโณ (2556) ได้กล่าวถึงการเรียนการสอนโดยใช้สื่อมัลติมีเดียไว้ ว่าสื่อมัลติมีเดียที่ใช้ในการเรียนรู้เป็นวัตกรรมทางการศึกษาที่นักการศึกษาหลายท่านให้ความสนใจเป็นอย่างมาก พัฒนาการของสื่อมัลติมีเดียในประเทศทางตะวันตก ตั้งแต่ปี ค.ศ. 1980 มีความก้าวหน้าอย่างเด่นชัด เมื่อมีการใช้งานร่วมกันกับระบบเครือข่ายด้วยแล้ว สื่อมัลติมีเดีย สำหรับการเรียนรู้จะมีบทบาทยิ่งขึ้นและไร้ขอบเขต สื่อมัลติมีเดียเพื่อการเรียนรู้รูปแบบต่าง ๆ ได้รับ การพัฒนาไปตามความก้าวหน้าของเทคโนโลยีคอมพิวเตอร์ เมื่อกล่าวถึงสื่อมัลติมีเดีย จะเข้าใจได้ว่าเป็นการนำสื่อหลากหลายรูปแบบมารวมกันเพื่อนำเสนอจากระบบคอมพิวเตอร์ และควบคุม ด้วยระบบคอมพิวเตอร์ ในปัจจุบันสื่อมัลติมีเดียเพื่อการเรียนรู้เรียกบทเรียนลักษณะนี้ว่า CAI ซึ่ง บันทึกไว้ในซีดีรอม โดย CAI เป็นสื่อมัลติมีเดียที่นำเสนอบทเรียนโดยมีเสียงและภาพเป็น องค์ประกอบหลัก เสียงและภาพเหล่านี้อาจอยู่ในรูปแบบของภาพนิ่ง ภาพเคลื่อนไหว ข้อความ หรือวีดิทัศน์ ทั้งนี้ขึ้นอยู่กับการออกแบบบทเรียน ส่วนเสียงนั้นจะมีทั้งเสียงบรรยายเสียงจริงและอื่นๆ ที่เหมาะสม โดยทั้งหมดนี้จะแสดงผ่านระบบคอมพิวเตอร์ซึ่งต่อเป็นระบบเครือข่ายหรือคอมพิวเตอร์ส่วนบุคคล

ปณภา ภิรมย์นาค (2557) ได้กล่าวถึงการเรียนการสอนโดยใช้สื่อมัลติมีเดียไว้ว่า สื่อทุกแบบเป็นองค์ประกอบสำคัญในการ ถ่ายทอดความคิด ความรู้ และทักษะต่าง ๆ โดยเฉพาะอย่างยิ่งเมื่อสภาพสังคมในปัจจุบันเต็มไปด้วยข่าวสารข้อมูล การใช้สื่อการสอน ในรูปแบบที่เหมาะสมจึงมีความจำเป็นอย่างยิ่ง เพราะสื่อทำให้การรับรู้มีประสิทธิภาพที่สูงขึ้น แต่ก็ขึ้นอยู่กับวิธีการเสนอและคุณภาพของสื่อ และสื่อนั้น ๆ ด้วย ไม่ว่าจะเป็นสื่อที่ธรรมดาที่สุด เช่น ไวท์บอร์ด หากมีการออกแบบการใช้ที่ดีก็จะมีประสิทธิภาพในการอธิบาย ความหมายได้ดีมากกว่าการใช้สื่อที่ซับซ้อน หรือมีราคาแพงกว่าได้ อย่างไรก็ตาม สื่อทุกประเภทย่อมมีข้อดีและข้อจำกัดในตัวเอง

4. งานวิจัยที่เกี่ยวข้อง

พรเทพ กิ่งนอก (2565) ศึกษาการใช้บทเรียนมัลติมีเดียร่วมกับการจัดการเรียนรู้ แบบห้องเรียนกลับด้าน วิชาดนตรี เรื่อง การอ่านโน้ตดนตรีสากล บนบรรทัด 5 เส้น สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 พบว่า บทเรียนมัลติมีเดียร่วมกับการจัดการเรียนรู้แบบห้องเรียนกลับด้าน วิชาดนตรี เรื่อง การอ่านโน้ตดนตรีสากลบนบรรทัด 5 เส้น สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 ที่พัฒนาขึ้นมีประสิทธิภาพ E1/E2 เท่ากับ 82.17/81.83 เป็นไปตามเกณฑ์ที่กำหนดไว้ คือ 80/80 และผลสัมฤทธิ์ทางการเรียนของผู้เรียนที่เรียนด้วยบทเรียนมัลติมีเดียร่วมกับการจัดการเรียนรู้แบบห้องเรียนกลับด้าน วิชาดนตรี เรื่อง การอ่านโน้ตดนตรีสากลบนบรรทัด 5 เส้น สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 สูงกว่าผู้เรียนที่เรียนแบบปกติ อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

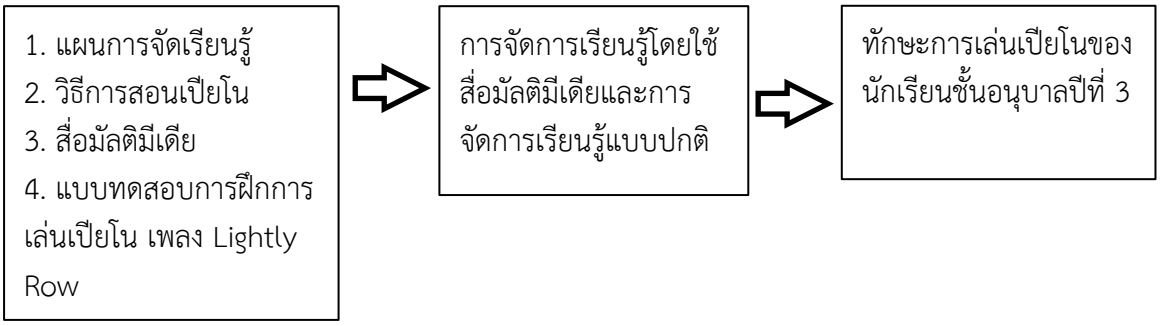
สุทธิณี ภาพพิมพ์ใจ (2561) ศึกษาการพัฒนาผลสัมฤทธิ์ทางการเรียน โดยใช้ชุดกิจกรรมมัลติมีเดีย เรื่อง เทคโนโลยีน่ารู้ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 3 พบว่า สื่อมัลติมีเดีย เรื่องเทคโนโลยีน่ารู้ ของนักเรียนชั้นประถมศึกษา ปีที่ 3 ภาคเรียนที่ 2 ปีการศึกษา 2560 มีประสิทธิภาพ 91.14/ 85.44 ผลสัมฤทธิ์ทางการเรียนชุดกิจกรรมการเรียนรู้เรื่องเทคโนโลยีน่ารู้ของนักเรียน ชั้นประถมศึกษาปีที่ 3 ก่อนและหลังเรียนโดยใช้สื่อมัลติมีเดีย สูงกว่าก่อนเรียนอย่างมีนัยสำคัญ ทางสถิติที่ระดับ .01 เจตคติของนักเรียนต่อสื่อมัลติมีเดียเรื่องเทคโนโลยีน่ารู้ของนักเรียนชั้นประถมศึกษาปีที่ 3 โดยภาพรวมมีค่าเฉลี่ยอยู่ในระดับมากที่สุด

5. ทฤษฎีพัฒนาการของกีเซล

ทฤษฎีพัฒนาการของกีเซล (Gesell) อาร์โนลด์ กีเซล (Arnold Gesell. 1880 - 1961) (อ้างถึงใน สิริมา ภิญโญอนันตพงษ์, 2547) เป็นนักจิตวิทยาชาวอเมริกัน ผู้เริ่มก่อตั้งสถาบันพัฒนาการเด็ก (Institute of Child Development) ณ มหาวิทยาลัยเยล ระหว่างปี ค.ศ. 1930 - 1940 อธิบายทฤษฎีเกี่ยวกับการเจริญเติบโตและพัฒนาการของ เด็กว่าการเจริญเติบโตของเด็กทางร่างกาย เนื้อเยื่อ อวัยวะ หน้าที่ของอวัยวะต่าง ๆ และพฤติกรรมที่ปรากฏ ขึ้นเป็นรูปแบบที่แน่นอนและเกิดขึ้นเป็นลำดับขั้น ประสบการณ์ และสภาพแวดล้อมเป็นองค์ประกอบรองที่เติมเต็มเสริมพัฒนาการต่าง ๆ กีเซลเชื่อว่าวุฒิภาวะจะถูกกำหนดโดยพันธุกรรม และมีในเด็กแต่ละคนมาตั้งแต่เกิด ซึ่งเป็นสิ่งสำคัญที่ทำให้เด็กแต่ละวัยมีความพร้อมทำสิ่งต่าง ๆ ได้ ถ้าวุฒิภาวะหรือความพร้อมยังไม่เกิดขึ้น ตามปกติในวัยนั้น สภาพแวดล้อมจะไม่มีอิทธิพลต่อพัฒนาการของเด็ก อาร์โนลด์ กีเซล (Arnold Gesell) ได้สร้างเกณฑ์มาตรฐานสำหรับวัดพฤติกรรมของเด็กในแต่ละระดับ เน้นความแตกต่างระหว่างบุคคลโดยใช้วิธีการสังเกตพฤติกรรม ซึ่งเขาได้แบ่งพัฒนาการของเด็กที่ต้องการวัด และประเมินออกเป็น 4 กลุ่มใหญ่ 1) พฤติกรรมทางการเคลื่อนไหว (Motor Behavior) ครอบคลุมการบังคับอวัยวะต่าง ๆ ของร่างกาย และความสัมพันธ์ทางด้านการเคลื่อนไหว 2) พฤติกรรมทางการปรับตัว (Adaptive Behavior) ครอบคลุมความสัมพันธ์ของ

การใช้มือ และ สายตา การสำรวจ ค้นหา การกระทำต่อวัตถุ การแก้ปัญหาในการทำงาน 3) พฤติกรรมทางการใช้ภาษา (Language Behavior) ครอบคลุมการที่เด็กใช้ภาษา การฟัง การพูด การอ่าน และการเขียน 4) พฤติกรรมส่วนตัวและสังคม (Personal-social Behavior) ครอบคลุมการฝึกปฏิบัติส่วนตัว เช่น การกินอาหาร การขับถ่าย และการฝึกต่อสภาพสังคม เช่น การเล่น การตอบสนองผู้อื่น จากแนวความคิดของ อาร์โนลด์ กีเซล (Arnold Gesell) สามารถนำมาอธิบายพัฒนาการของมนุษย์ ในด้านการเจริญเติบโต พัฒนาการทางร่างกาย และสามารถนำไปเชื่อมโยงกับพัฒนาการทางสติปัญญาได้อีกด้วย นอกจากนั้น อาร์โนลด์ กีเซล (Arnold Gesell) ได้เขียนหนังสือขึ้น 2 เล่ม คือ The First Five Year of Life และ The Child from Five to Ten ซึ่งแนวคิดดังกล่าวนี้มีบทบาทมากต่อการจัดกลุ่มเด็กเข้าศึกษาในชั้นอนุบาลศึกษาและชั้นประถมศึกษา เกณฑ์มาตรฐานใช้เป็นแบบทดสอบมาตรฐานในการทำนายพฤติกรรม วิเคราะห์กลุ่ม และทำวิจัย เพื่อบอกลักษณะพัฒนาการของเด็ก โดยใช้อายุทางปฏิทินเป็นเกณฑ์ นอกจากนี้มี บทบาทมากในการจัดกิจกรรมการเรียนรู้ให้กับเด็ก โดยการจัดกิจกรรมนั้นต้องให้เหมาะสมกับวุฒิภาวะของ เด็กแต่ละคน

กรอบแนวคิดการวิจัย



ภาพที่ 1 กรอบแนวคิดงานวิจัย

1. รูปแบบการวิจัย

การวิจัยครั้งนี้เป็นการวิจัยเชิงทดลอง (Experimental Research) ผู้วิจัยได้ดำเนินการทดลองตามแบบแผนการวิจัยแบบเปรียบเทียบสองกลุ่ม มีการวัดผลการทดลองก่อนและหลัง (Pretest-posttest Control Group Design)

การสุ่ม	กลุ่ม	ก่อนทดลอง	สิ่งที่ทดลอง	หลังทดลอง
R	E	O_1	x	O_2
	C	O_3	-	O_4

สัญลักษณ์ที่ใช้ในแบบแผนการทดลอง

E หมายถึง กลุ่มทดลอง

C หมายถึง กลุ่มควบคุม

X หมายถึง การจัดการเรียนโดยใช้สื่อมัตติมีเดีย

O_1 หมายถึง กลุ่มทดลองก่อนเรียน

O_2 หมายถึง กลุ่มทดลองหลังเรียน
O_3 หมายถึง กลุ่มควบคุมก่อนเรียน
O_4 หมายถึง กลุ่มควบคุมหลังเรียน

2. ประชากรและกลุ่มตัวอย่าง

ประชากรที่ใช้ในการวิจัยครั้งนี้นักเรียนระดับชั้นอนุบาลปีที่ 3 โรงเรียนสมาคมนักเรียนเก่ามหาวชิราวุธ อำเมืองสงขลา จังหวัดสงขลา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวนห้องเรียน 2 ห้อง จำนวนนักเรียน 32 คน

กลุ่มตัวอย่างเป็นนักเรียนระดับชั้นอนุบาลปีที่ 3 โรงเรียนสมาคมนักเรียนเก่ามหาชิราวุธ อำเมืองสงขลา จังหวัดสงขลา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 16 คน โดยการสุ่มห้องเรียนอย่างง่าย (Simple random sampling) แบบจับฉลาก

3. เครื่องมือในการวิจัย

3.1 แผนการจัดเรียนรู้ 2 ประเภท ได้แก่ แผนการจัดเรียนรู้แบบใช้สื่อมัลติมีเดีย และแผนการจัดเรียนรู้แบบปกติ

แผนการจัดเรียนรู้แบบใช้สื่อมัลติมีเดีย ของนักเรียนระดับชั้นอนุบาลปีที่ 3 จำนวน 4 แผน แผนละ 2 ชั่วโมง ต่อสัปดาห์ รวมทั้งหมด 8 ชั่วโมง 4 สัปดาห์ ได้แก่ การวางมือวางนิ้วบนเปียโนใช้เวลาในการฝึก 2 ชั่วโมง ฝึกการวางมือซ้ายและมือขวาตามตัวโน้ตบนเปียโน การรู้จักตัวโน้ตและเสียงบนเปียโนใช้เวลาในการฝึก 2 ชั่วโมง ฝึกให้เด็กอ่านโน้ตตามที่กำหนดให้และกดเสียงบนเปียโน สื่อมัลติมีเดียการเล่นเปียโนเพลง Lightly Row ใช้เวลาในการฝึก 2 ชั่วโมง โดยให้เด็กปฏิบัติตามสื่อมัลติมีเดีย การเล่นเปียโนเพลง Lightly Row ใช้เวลาในการฝึก 2 ชั่วโมง โดยเล่นเพลง Lightly Row ได้ด้วยตนเอง

แผนการจัดเรียนรู้แบบสอนปกติ ของนักเรียนระดับชั้นอนุบาลปีที่ 3 จำนวน 4 แผน แผนละ 2 ชั่วโมง ต่อสัปดาห์ รวมทั้งหมด 8 ชั่วโมง 4 สัปดาห์ ได้แก่ การวางมือวางนิ้วบนเปียโน การรู้จักตัวโน้ตและเสียงบนเปียโน การอ่านและออกเสียงโน้ตในเพลง Lightly Row การปฏิบัติเล่นเปียโนเพลง Lightly Row

3.2 แบบทดสอบการฝึกการเล่นเปียโน เพลง Lightly Row

4. การเก็บรวบรวมข้อมูล

4.1 ผู้วิจัยทดสอบก่อนเรียนกับกลุ่มตัวอย่างโดยการวางมือวางนิ้วบนเปียโน ตัวโน้ตและเสียงบนเปียโน โดยใช้การสังเกตจากการปฏิบัติ

4.2 ผู้วิจัยดำเนินการทดลองโดยใช้แผนการจัดเการเรียรู้แบบใช้สื่อมัลติมีเดีย ได้แก่ วางมือวางนิ้วบนเปียโน ตัวโน้ตและเสียงบนเปียโนสื่อมัลติมีเดียการเล่นเปียโน โดยใช้สื่อมัลติมีเดียเพลง Lightly Row

5. การวิเคราะห์ข้อมูล

5.1 วิเคราะห์เปรียบเทียบผลวัดทักษะการเล่นเปียโน ระหว่างก่อนและหลังโดยใช้สื่อมัลติมีเดีย โดยใช้สถิติ Wilcoxon Signed Ranks Test

5.2 วิเคราะห์เปรียบเทียบผลวัดทักษะการเล่นเปียโน ระหว่างโดยใช้แผนการจัดเรียนรู้แบบใช้สื่อมัลติมีเดีย โดยใช้สถิติ Mann-Whitney U Test

ผลการวิจัย

ตารางที่ 1 ผลวิเคราะห์เปรียบเทียบทักษะการเล่นเปียโน นักเรียนชั้นอนุบาลปีที่ 3 ระหว่างก่อนและหลังที่ได้รับการจัดการเรียนรู้โดยใช้สื่อมัลติมีเดีย

คะแนน	$\bar{X}$	S.D.	Z	Asymp. Sig.
ก่อนเรียน	11.94	2.35	3.60**	.000
หลังเรียน	15.56	2.87		

** มีนัยสำคัญทางสถิติที่ระดับ .01

จากตารางที่ 1 พบว่า ทักษะการเล่นเปียโนของนักเรียนชั้นอนุบาลปีที่ 3 ที่ได้รับการจัดการเรียนรู้โดยใช้สื่อมัลติมีเดียก่อนได้รับการจัดการเรียนรู้โดยใช้สื่อมัลติมีเดียมีคะแนน 11.94 และหลังได้รับการจัดการเรียนรู้โดยใช้สื่อมัลติมีเดียมีค่าเฉลี่ย 15.56 เมื่อทดสอบความแตกต่าง โดยผลสัมฤทธิ์ทางการเรียนหลังเรียนโดยใช้สื่อมัลติมีเดีย สูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .01

ตารางที่ 2 ผลวิเคราะห์เปรียบเทียบทักษะการเล่นเปียโน นักเรียนชั้นอนุบาลปีที่ 3 หลังได้รับการจัดการเรียนรู้วิชาดนตรี ระหว่างการจัดการเรียนรู้โดยใช้สื่อมัลติมีเดียกับการจัดการเรียนรู้แบบปกติ

คะแนน	$\bar{X}$	S.D.	Z	Asymp. Sig.
การสอนแบบสื่อมัตติมีเดีย	16.31	2.82	1.19**	.235
การสอนแบบปกติ	14.69	3.64		

** มีนัยสำคัญทางสถิติที่ระดับ .01

จากตารางที่ 2 พบว่า การเรียนของกลุ่มทดลองหลังได้รับการจัดการเรียนรู้เฉลี่ยอยู่ที่ 16.31 และทักษะการเล่นเปียโนทางการเรียนของกลุ่มควบคุมหลังได้รับการจัดการเรียนรู้เฉลี่ยอยู่ที่ 14.69 ซึ่งทักษะการเล่นเปียโนทางการเรียนหลังได้รับการจัดการเรียนรู้สูงกว่า ทางการเรียนหลังได้รับการจัดการเรียนรู้อย่างมีนัยสำคัญทางสถิติที่ระดับ .01

สรุปและอภิปรายผล

จากการศึกษาผลการการเปรียบเทียบทักษะการเล่นเปียโน ระหว่างวิธีการจัดการเรียนรู้โดยแบบปกติ กับการจัดการเรียนรู้โดยใช้สื่อมัลติมีเดียของนักเรียนชั้นอนุบาลปีที่ 3 ปรากฏผลดังนี้

1. ทักษะการเล่นเปียโนทางการเรียนของนักเรียนหลังได้รับการจัดการเรียนรู้โดยใช้สื่อมัลติมีเดีย สูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .01 ซึ่งผลการวิจัยเป็นไปตามสมมติฐานที่ตั้งไว้ เนื่องจากการจัดการเรียนรู้โดยใช้สื่อมัลติมีเดียเป็นการจัดการเรียนรู้ที่ เน้นการฟัง การดูในฝึกทักษะการเล่นเปียโนจนทำให้นักเรียนเข้าใจ เนื่องด้วยจากการฝึกปฏิบัติ แบบซ้ำ ๆ อย่างต่อเนื่อง นักเรียนเกิดความชำนาญจนถึงขั้น จดจำแบบฝังใจ ส่งผลให้นักเรียนมีผลการเรียนที่สูงขึ้น ซึ่งสอดคล้องกับสุกรี เจริญสุข (2545) ที่กล่าวถึงรูปแบบการเรียนรู้ที่นำมาประยุกต์ใช้ในรายวิชาดนตรี โดยประกอบด้วย 4 ขั้นตอน ดังนี้ ขั้นที่ 1 ขั้นการฟัง เป็นการฟังเพลงหรือแบบฝึกทักษะจากการสาธิตของผู้สอน หรือ การฟังจากสื่อการเรียนรู้ในรูปแบบต่างๆ ขั้นที่ 2 ขั้นเลียนแบบ เป็นการเลียนแบบทักษะจากผู้สอนหรือสื่อการเรียนรู้อื่น ขั้นที่ 3 ขั้นทำซ้ำ เป็นการให้นักเรียนฝึกปฏิบัติทักษะแบบซ้ำๆ ขั้นที่ 4 ขั้นจดจำฝังใจ เมื่อผ่านขั้นทำซ้ำนักเรียนจะเกิดความำนาญ นักเรียนจะมีทักษะเหล่านั้นและแสดงออกได้ถูกต้องเป็นธรรมชาติ นอกจากนี้

ยังสอดคล้องกับงานวิจัยของ สุทธิณี ภาพพิมพ์ใจ (2561) ศึกษาการพัฒนาผลสัมฤทธิ์ทางการเรียน โดยใช้ชุดกิจกรรมมัลติมีเดีย เรื่อง เทคโนโลยีน่ารู้ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 3 พบว่า สื่อมัลติมีเดียเรื่องเทคโนโลยีน่ารู้ของนักเรียนชั้นประถมศึกษาปีที่ 3 ภาคเรียนที่ 2 ปีการศึกษา 2560 มีประสิทธิภาพ 91.14/ 85.44 ผลสัมฤทธิ์ทางการเรียนชุดกิจกรรมการเรียนรู้เรื่องเทคโนโลยีน่ารู้ของนักเรียนชั้นประถมศึกษาปีที่ 3 ก่อนและหลังเรียนโดยใช้สื่อมัลติมีเดีย สูงกว่าก่อนเรียนอย่างมีนัยสำคัญ ทางสถิติที่ระดับ .01 เจตคติของนักเรียนต่อสื่อมัลติมีเดียเรื่องเทคโนโลยีน่ารู้ของนักเรียนชั้นประถมศึกษาปีที่ 3 โดยภาพรวมมีค่าเฉลี่ยอยู่ในระดับมากที่สุด

2. ทักษะการเล่นเปียโนทางการเรียนของนักเรียนหลังได้รับการจัดการเรียนรู้โดยใช้สื่อมัลติมีเดียสูงกว่าการจัดการเรียนรู้โดยแบบปกติ อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 ซึ่งผลการวิจัยเป็นไปตามสมมติฐานที่ตั้งไว้เนื่องจากการจัดการเรียนรู้โดยใช้สื่อมัลติมีเดียมีความชัดเจนในการแสดงผล ทั้ง ภาพและเสียง มีความน่าสนใจ มีความทันสมัยเข้ากับรูปแบบการเรียนการสอนในศตวรรษที่ 21 ซึ่งนักเรียนให้ความสนใจมากเนื่องจาก มีการสื่อความหมายชัดเจนมากกว่าการจัดการเรียนรู้โดยแบบปกติ โดยการที่ฟังครูอธิบาย ซึ่งสอดคล้องกับปณภา ภิรมย์นาค (2557) ได้กล่าวถึงการเรียนการสอนโดยใช้สื่อมัลติมีเดียไว้ว่า สื่อจะช่วยให้การรับรู้มีประสิทธิภาพสูงขึ้น และสอดคล้องกับ (พีรพงศ์ สุรวรรณ, 2562) กล่าวว่า โน้ตบนเปียโนและคีย์บอร์ดคือ ระดับเสียงแลความยาวของเสียง อีกทั้งยังสามารถแสดงอยู่ในรูปของตัวโน้ตดนตรี และเป็นส่วนประกอบในการเขียนเพลงในแทบทุกขั้นตอน เช่น การแบ่งตัวโน้ตในเนื้อเพลงเพื่อช่วยในการแสดงการตีความ และการวิเคราะห์เนื้อเพลง พบว่า การจัดการเรียนรู้โดยใช้สื่อมัลติมีเดียในการปฏิบัติผู้เรียนมีทักษะการเล่าเปียโนดีขึ้นตามลำดับ ทำให้ผู้เรียนมีความสุขและสนุกสนานในการเรียนรู้ด้วยชุดการสอนมัลติมีเดีย รวมถึงในรายวิชาดนตรีนักเรียนยังได้รับการ แก้ปัญหาเป็นรายบุคคล ทำให้สามารถพัฒนาทักษะได้ดียิ่งขึ้น

ข้อเสนอแนะ

1. ข้อเสนอแนะในการนำผลการวิจัยไปใช้

1. ควรให้ครูผลิตสื่อมัลติมีเดีย ประกอบการสอนในเนื้อหาอื่น ๆ หรือบทเพลงอื่น ๆ เพื่อพัฒนาทักษะของเด็กให้สูงขึ้น

2. ควรเป็นการสอนแบบปกติ ผสมกับสื่อมัลติมีเดีย เพราะ ถ้าผลออกมาว่าการเรียนจากสื่อ ดีกว่าการสอนจากครูผู้สอนทำให้เห็นว่าไม่จำเป็นต้องมีครูดนตรีก็ได้

2. ข้อเสนอแนะในการวิจัยครั้งต่อไป

1. ครูควรมีการดูแลการปฏิบัติการเล่นเปียโนของผู้เรียนอย่างใกล้ชิด เพื่อที่จะสามารถให้คำแนะนำผู้เรียนในการเล่นเปียโนได้

2. การศึกษาค้นคว้าครั้งนี้เป็นแนวทางแก่ครูผู้สอนและผู้เกี่ยวข้องกับเด็กในการพัฒนา ทักษะการเล่นเปียโน และการสร้างสื่อมัลติมีเดียในเรื่องอื่นๆ ต่อไป

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2551). หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพฯ: โรงพิมพ์คุรุสภาลาดพร้าว

กระทรวงศึกษาธิการ. (2562). พระราชบัญญัติการศึกษาแห่งชาติ 2542 แก้ไขเพิ่มเติม ฉบับที่ 2 (2545)

ฉบับที่ 3 (2553) และฉบับที่ 4 (2562). กรุงเทพฯ: โรงพิมพ์คุรุสภาลาดพร้าว.

ชัยวัฒน์ เชาว์รัตนะและเจตชรินทร์ จิรสันติธรรม. (2550). ศิลปกรรมศาสตร์. ปทุมธานี. เทคโนโลยีราชมงคลธัญบุรี

ทิศนา แขมมณี. (2561). ศาสตร์การสอน. กรุงเทพ: จุฬาลงกรณ์มหาวิทยาลัย

ธวัชชัย นาควงษ์. (2544). โคดาสู่การปฏิบัติ. กรุงเทพมหานคร: สำนักพิมพ์ มหาวิทยาลัยเกษตรศาสตร์.

ปณภา ภิรมย์นาค. (2557). การพัฒนาบทเรียนคอมพิวเตอร์ เรื่อง การใช้สื่อมัลติมีเดียเพื่อพัฒนาผลสัมฤทธิ์ ของนักศึกษา รายวิชา LSC303/SLM211. มหาวิทยาลัยศรีปทุม, กรุงเทพมหานคร. (คณะบริหารธุรกิจ).

พีรพงศ์ สุรวรรณ. (2562). มาทำความรู้จักกับตัวโน้ตจากการเรียนเปียโน, สืบค้นเมื่อวันที่ 31 มกราคม 2568 จาก https://ww.peerapongmusicschool.ac.th/learning-the-musical-notes-in-piano-course.html.

พรเทพ กิ่งนอก. (2565). การศึกษาผลการใช้บทเรียนมัลติมีเดียร่วมกับการจัดการเรียนรู้ แบบห้องเรียนกลับด้าน วิชาดนตรี เรื่อง การอ่านโน้ตดนตรีสากล บนบรรทัด 5 เส้นสำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 (วิทยานิพนธ์, มหาวิทยาราชภัฏนครราชสีมา).

สิริมา ภิญโญอนันตพงษ์. (2547). การวัดและประเมินแนวใหม่ : เด็กปฐมวัย. กรุงเทพฯ: ภาควิชาหลักสูตรและการสอน สาขาการศึกษาปฐมวัย คณะศึกษาศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ.

สุกรี เจริญสุข. (2545) คู่มือการอบรมครูซูซูกิและการเป็นครูซูซูกิชั้นต้น. นครปฐม : วิทยาลัยดุริยางค์ศิลป์ มหาวิทยาลัยมหิดล.

สุทธิณี ภาพพิมพ์ใจ. (2561). การพัฒนาผลสัมฤทธิ์ทางการเรียน โดยใช้ชุดกิจกรรมมัลติมีเดีย เรื่อง เทคโนโลยีน่ารู้ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 3 (วิทยานิพนธ์, สาขาวิชา: หลักสูตรและการสอน; กศ.ม. หลักสูตรและการสอน คณะศึกษาศาสตร์ มหาวิทยาลัยบูรพา)

สุพิน สุภโณ. (2556). ครูยุคไอที, สืบค้นเมื่อวันที่ 31 มกราคม 2568 จาก https://sites.google.com/site/khruyukhxithi/home

การพัฒนาแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4
The Development of Mathematics Skills Training Exercises on Word Problems for 4th graders

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อ 1) พัฒนาแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 ให้มีประสิทธิภาพตามเกณฑ์ 75/75 2) เปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างก่อนและหลังเรียน และ 3) ศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 4 ต่อการใช้แบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา กลุ่มตัวอย่างคือ นักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนวัดท่าประดู่ อำเภอนาทวี จังหวัดสงขลา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 14 คน เครื่องมือการวิจัย ได้แก่ แบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา แผนการจัดการเรียนรู้ แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน และแบบสอบถามความพึงพอใจที่มีต่อแบบฝึกทักษะคณิตศาสตร์ สถิติที่ใช้ได้แก่ ค่าร้อยละ ค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน และ Paired Sample T-test

ผลการวิจัยพบว่า 1) แบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา มีประสิทธิภาพ 74.83/77.14 2) นักเรียนชั้นประถมศึกษาปีที่ 4 มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติ ที่ระดับ .01 และ 3) นักเรียนมีความพึงพอใจต่อการใช้แบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา อยู่ในระดับมาก

คำสำคัญ: แบบฝึกทักษะ, คณิตศาสตร์, โจทย์ปัญหา

Abstract

The objectives of this research were: 1) to develop mathematics skill exercises on word problems for 4th graders to meet the efficiency criterion of 75/75, 2) to compare learning achievement before and after using the exercises, and 3) to study 4th graders satisfaction towards the mathematics skill exercises on word problems. The sample group consisted of 14 4th graders from Watthapradu School, Nathawee District, Songkhla Province, during the second semester of academic year 2024. The research instruments included mathematics skill exercises on word problems, a learning achievement test, and

a satisfaction questionnaire on the mathematics skill exercises. The statistics used were percentage, mean, standard deviation, and Paired Sample T-test.

The research findings revealed that: 1) the mathematics skill exercises on word problems had an efficiency of 74.83/77.14, 2) 4th graders learning achievement after using the exercises was significantly higher than before at the .01 level, and 3) students' satisfaction towards the mathematics skill exercises on word problems was at a high level.

Keywords: Practice exercises, Mathematics, Problem Solving achievement

บทนำ

คณิตศาสตร์มีบทบาทสำคัญยิ่งต่อการพัฒนาความคิดมนุษย์ ทำให้มนุษย์มีความคิดสร้างสรรค์ คิดอย่างมีเหตุผล เป็นระบบ มีแบบแผน สามารถวิเคราะห์ปัญหาหรือสถานการณ์ได้อย่างถี่ถ้วน รอบคอบ ช่วยให้คาดการณ์ วางแผน ตัดสินใจ แก้ปัญหาและนำไปใช้ในชีวิตประจำวันได้อย่างถูกต้องเหมาะสม นอกจากนี้คณิตศาสตร์ ยังเป็นเครื่องมือในการศึกษาทางด้านวิทยาศาสตร์ เทคโนโลยีและศาสตร์อื่น ๆ คณิตศาสตร์จึงมีประโยชน์ต่อการดำเนินชีวิต ช่วยพัฒนาคุณภาพชีวิตให้ดีขึ้น และสามารถอยู่ร่วมกับผู้อื่นได้อย่างมีความสุข (กระทรวงศึกษาธิการ, 2551) ถึงแม้ว่าคณิตศาสตร์จะมีบทบาทสำคัญและมีความจำเป็น แต่การจัดการเรียนรู้รายวิชาคณิตศาสตร์ กลับยังไม่ประสบผลสำเร็จเท่าที่ควร เมื่อพิจารณาผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐาน (O-NET) ของนักเรียนชั้นประถมศึกษาปีที่ 6 สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 3 ในปีการศึกษา 2566 พบว่า มีคะแนนเฉลี่ยวิชาคณิตศาสตร์เท่ากับ 25.51 และค่าเฉลี่ยของโรงเรียนวัดท่าประดู่เท่ากับ 22.75 (สถาบันการทดสอบระดับชาติ, 2566) กล่าวคือ คะแนนเฉลี่ยไม่ถึงร้อยละ 50 โดยสำนักทดสอบทางการศึกษา ได้กำหนดโครงสร้างแบบทดสอบโดยใช้ข้อสอบกลางที่เน้นการคิดวิเคราะห์ผ่านโจทย์ปัญหาทางคณิตศาสตร์ ซึ่งนักเรียนจำเป็นต้องเข้ารับการทดสอบอย่างหลีกเลี่ยงไม่ได้

การพัฒนาความสามารถในการแก้โจทย์ปัญหาทางคณิตศาสตร์ ในนักเรียนระดับชั้นประถมศึกษาปีที่ 4 จึงถือเป็นพื้นฐานสำคัญในการเตรียมความพร้อมที่จะเข้าทำการทดสอบระดับชาติ (O-NET) ในปีการศึกษา 2569 และจากการสอนพบว่านักเรียนส่วนใหญ่ยังประสบปัญหาในการแก้โจทย์ปัญหา นักเรียนไม่สามารถวิเคราะห์โจทย์ปัญหาได้ ว่าโจทย์ต้องการอะไรและมีข้อมูลอะไรที่เกี่ยวข้องบ้าง ทำให้ไม่สามารถวางแผนแก้ปัญหาได้อย่างถูกต้อง นอกจากนี้นักเรียนยังขาดทักษะในการแปลงข้อความในโจทย์ปัญหาให้เป็นประโยคสัญลักษณ์ทางคณิตศาสตร์ เนื่องจากไม่เข้าใจความหมายของคำสำคัญที่ปรากฏในโจทย์ ไม่สามารถอธิบายเหตุผลหรือแสดงวิธีคิดในการแก้โจทย์ปัญหาได้ แสดงให้เห็นว่านักเรียนยังขาดความเข้าใจในกระบวนการแก้ปัญหาอย่างแท้จริง

ในการจัดการเรียนการสอนวิชาคณิตศาสตร์ แบบฝึกทักษะจึงเป็นสื่อการเรียนการสอนที่มีความสำคัญอย่างยิ่ง เนื่องจากมีคุณสมบัติที่เหมาะสมกับการเรียนรู้วิชาคณิตศาสตร์ แบบฝึกทักษะช่วยให้นักเรียนได้ฝึกตอบ ฝึกปฏิบัติ และฝึกฝนอย่างต่อเนื่องจนเกิดความชำนาญ จึงนับเป็นเครื่องมือที่มีความจำเป็นอย่างมากต่อการเรียนรู้ นอกจากจะช่วยสร้างความสนุกสนานในการเรียนแล้ว แบบฝึกทักษะยังช่วยแบ่งเบาภาระของครูผู้สอน และส่งเสริมให้นักเรียนได้พัฒนาตนเองอย่างเต็มศักยภาพ เสริมสร้างความมั่นใจ และนำไปสู่ความสำเร็จในการเรียน (ยุวดี ศรีสังข์, 2563) และควบคู่กับการจัดการเรียนรู้แบบ Active Learning เป็นอีกแนวทางหนึ่งที่สำคัญ ผู้สอนต้องจัดการเรียนการสอนโดยมุ่งเน้นที่ผู้เรียน

กระตุ้นให้เกิดการปฏิบัติและลงมือกระทำด้วยตนเอง ซึ่งจะส่งผลให้เกิดความรู้ความเข้าใจที่คงทนถาวร การเรียนที่เน้นให้ผู้เรียนมีปฏิสัมพันธ์ผู้อื่น และมีส่วนร่วมในการจัดการเรียนรู้ ส่งผลให้ผู้เรียนมีประสิทธิภาพดีขึ้น ซึ่งแนวทางการจัดการศึกษาที่สอดคล้องกบการเปลี่ยนวิธีการสอนแบบเดิม ๆ เป็นการสอนที่เปิดโอกาสให้ผู้เรียนได้แสวงหาความรู้ กระตุ้นให้เกิดการใฝ่รู้ รู้จักคิด วิเคราะห์ วิพากษ์วิจารณ์ และแก้ไขปัญหาได้ ส่งผลให้ผู้เรียนมีผลการเรียนที่ดีขึ้น (แพรทิพย์ พูดเพราะ, 2561)

ความสำคัญและเหตุผลดังกล่าว การจัดการเรียนรู้โดยใช้แบบฝึกทักษะ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 คาดว่าจะสามารถลดปัญหาของนักเรียนที่มาสามรถวิเคราะห์โจทย์ปัญหาได้ และแบบฝึกทักษะยังเป็นสื่อการเรียนรู้ ที่ช่วยให้นักเรียนได้ฝึกฝนการแก้โจทย์ปัญหาอย่างเป็นระบบและต่อเนื่อง มีโอกาสฝึกซ้ำในเรื่องที่ยังไม่เข้าใจ และได้รับข้อมูลย้อนกลับทันที ซึ่งจะช่วยสร้างความมั่นใจและเจตคติที่ดีต่อการเรียนคณิตศาสตร์ อีกทั้งยังเป็นเครื่องมือที่ช่วยให้ครูสามารถจัดการเรียนการสอนได้อย่างมีประสิทธิภาพมากขึ้น ซึ่งจะช่วยยกระดับผลสัมฤทธิ์ทางการเรียนของนักเรียน พัฒนาทักษะการคิดวิเคราะห์และการแก้ปัญหา ตลอดจนสร้างเจตคติที่ดีต่อการเรียนคณิตศาสตร์ต่อไป ผู้วิจัยจึงมีความสนใจที่จะพัฒนาแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 เพื่อเป็นสื่อการเรียนการสอนที่ช่วยพัฒนาผลสัมฤทธิ์ทางการเรียนของนักเรียน และเป็นแนวทางในการพัฒนาการเรียนการสอนวิชาคณิตศาสตร์ให้มีประสิทธิภาพยิ่งขึ้นต่อไป

วัตถุประสงค์ของการวิจัย

1. เพื่อพัฒนาแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 ให้มีประสิทธิภาพตามเกณฑ์ 75/75
2. เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างก่อนเรียนกับหลังเรียน
3. เพื่อศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 4 ต่อการใช้แบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา

สมมติฐานการวิจัย

นักเรียนชั้นประถมศึกษาปีที่ 4 ที่เรียนด้วยแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียน

แนวคิด ทฤษฎี กรอบแนวคิด

ความหมายของแบบฝึก

แบบฝึกคือเครื่องมือที่ผู้สอนสร้างขึ้นอย่างหลากหลาย โดยมีจุดมุ่งหมายเพื่อฝึกทักษะของผู้เรียนให้เกิดความชำนาญในเรื่องนั้น ๆ โดยนักเรียนสามารถกลับไปทบทวนใหม่ได้กรณีที่ไม่เข้าใจ โดยผู้เรียนจะต้องลงมือทำด้วยตัวเอง ซึ่งแบบฝึกนั้นเป็นเครื่องมือในการพัฒนาทักษะได้เป็นอย่างดี (กัญญาภัค ธรรมสุข, 2563) และแบบฝึกยังเป็นสื่อการเรียนการสอนประเภทหนึ่งที่ถูกสร้างขึ้น เพื่อให้ผู้เรียนได้ฝึกปฏิบัติหลังจากการเรียนเนื้อหาในบทเรียน โดยมีจุดมุ่งหมายเพื่อเสริมสร้างความรู้ ความเข้าใจให้ลึกซึ้งยิ่งขึ้น พัฒนาความชำนาญและทักษะเฉพาะด้านของผู้เรียน อีกทั้งยังเป็นเครื่องมือสำคัญ ในการทบทวนและฝึกฝนบทเรียน ทำให้ผู้เรียนสามารถนำความรู้ที่ได้ไปประยุกต์ใช้ในชีวิตประจำวันได้อย่างมีประสิทธิภาพ

ขั้นตอนในการสร้างแบบฝึกทักษะ

ขั้นตอนการสร้างแบบฝึกทักษะ ประกอบด้วย ส่วนต่าง ๆ ดังนี้ ศึกษาและวิเคราะห์ปัญหาการเรียนรู้ของผู้เรียน วิเคราะห์หลักสูตร (มาตรฐานการเรียนรู้ สาระการเรียนรู้) กำหนดวัตถุประสงค์ของแบบฝึก กำหนดเนื้อหาในแบบฝึก จัดทำแบบฝึก ผู้เชี่ยวชาญนำมาตรวจสอบและปรับปรุงแก้ไข นำไปทดลองใช้และปรับปรุงแก้ไข นำไปปฏิบัติจริงในห้องเรียน วิเคราะห์ผลการใช้แบบฝึกสรุปและจัดทำรายงานผล (ประภาพรรณ เส็งวงศ์, 2550) และการสร้างแบบฝึกทักษะต้องมีขั้นตอนเป็นระบบ เริ่มจากการวิเคราะห์ปัญหาผู้เรียนและหลักสูตร กำหนดวัตถุประสงค์และเนื้อหา ออกแบบแบบฝึกให้เหมาะสมกับวัย มีคำชี้แจงชัดเจน กิจกรรมหลากหลายน่าสนใจ ใช้ภาษาเข้าใจง่าย ผ่านการตรวจสอบจากผู้เชี่ยวชาญและทดลองใช้ก่อนนำไปใช้จริง และต้องมีการวิเคราะห์ผลเพื่อปรับปรุงพัฒนาต่อไป

โจทย์ปัญหาคณิตศาสตร์

โจทย์ปัญหาทางคณิตศาสตร์เป็นสถานการณ์หรือคำถามที่เกี่ยวข้องกับการคำนวณเพื่อต้องการคำตอบ ซึ่งบุคคลต้องใช้ทักษะกระบวนการ ความรู้พื้นฐาน และประสบการณ์ทางคณิตศาสตร์มากำหนดแนวทางหรือวิธีการในการหาคำตอบอย่างมีเหตุผลทางตรรกศาสตร์ (บุญรัตน์ ฐิตยานุวัฒน์, 2553) และสถานการณ์ที่ผู้แก้โจทย์ปัญหาต้องค้นหาความจริงหรือคำตอบ โดยอาศัยความรู้ ประสบการณ์ทางคณิตศาสตร์ และกระบวนการแก้โจทย์ปัญหามาใช้ในการหาคำตอบ

ผลสัมฤทธิ์ทางการเรียน

ผลสัมฤทธิ์ทางการเรียน หมายถึง ระดับความรู้ความสามารถและทักษะที่ได้รับและพัฒนามาจากการเรียนการสอนวิชาต่าง ๆ โดยอาศัยเครื่องมือ ในการวัดผลหลังจากการเรียนหรือจากการฝึกอบรม (วุฒิชัย ดานะ, 2553) และยังหมายถึงความสามารถและทักษะ ที่ได้รับจากการเรียนรู้ด้วยตนเอง หรือการเรียนรู้ในชั้นเรียน ในรายวิชาต่าง ๆ โดยอาศัยความสามารถเฉพาะบุคคล ซึ่งสามารถวัดเป็นคะแนนที่ได้จากการทดสอบ หรือเกรดที่ได้จากการเรียน

ทฤษฎีการสอนคณิตศาสตร์

ทฤษฎีที่นำมาใช้ในการจัดการเรียนการสอนคณิตศาสตร์ จำแนกได้ 2 ประเภท คือ ทฤษฎีการสอนคณิตศาสตร์และทฤษฎีการเรียนรู้ ทฤษฎีการสอนคณิตศาสตร์ คือ การฝึกฝนเป็นทฤษฎีการสอนคณิตศาสตร์ที่เน้น เรื่องการฝึกฝน ให้ทำ แบบฝึกให้ได้มาก ๆ ซ้ำ ๆ จนกว่า เด็กจะเคยชินกับวิธีการนั้น ๆ การสอนจึงเริ่มโดยครูจะเป็นผู้ให้ตัวอย่างหรือบอกสูตรหรือกฎเกณฑ์แล้วให้เด็กฝึกฝน ทฤษฎีการเรียนรู้ คือ การทางสติปัญญา (Intellectual Development) ของ Piaget หลักการเรียนรู้ตามแนวคิดของ Piaget เด็กเรียนรู้จากสิ่งแวดล้อม เรียนรู้เรื่องของแต่ละบุคคล (ทรงศักดิ์ สุโพธิณะ, 2542)

การจัดการเรียนรู้แบบ Active Learning

การจดัการเรียนรู้ที่ให้ผู้เรียนได้มีส่วนร่วมในการเรียนการสอนและลงมือปฏิบัติจริงในกิจกรรมต่าง ๆ มากกว่าการเป็นผู้รับเพียงฝ่ายเดียว เป็นการจัดการเรียนรู้ที่เปิดโอกาสให้ผู้เรียนมีปฏิสัมพันธ์กับผู้สอนและเพื่อนในชั้นเรียนนำไปสู่การสร้างองค์ความรู้จากสิ่งที่ได้ปฏิบัติระหว่างการเรียนการสอน เพื่อพัฒนากระบวนการคิดอย่างเป็นระบบ อาจให้ผู้เรียนทำงานคนเดียว กลุ่มเล็ก หรือกลุ่มใหญ่ก็ได้ (แพรทิพย์ พูดเพราะ, 2561) และการจัดการเรียนรู้แบบ Active Learning เป็นกระบวนการจัดการเรียนการสอนที่ผู้เรียนมีบทบาทสำคัญในการเรียนรู้ของตนเอง โดยเป็นผู้ลงมือปฏิบัติ คิด วิเคราะห์ และสร้างความรู้ด้วยตนเอง แทนที่จะเป็นเพียงผู้รับความรู้จากครูผู้สอนฝ่ายเดียว โดยผู้เรียนมีส่วนร่วมในกิจกรรม

การเรียนรู้อย่างกระตือรือร้น เกิดการคิดอย่างมีวิจารณญาณ การแก้ปัญหา การทำงานร่วมกัน และการสื่อสาร ซึ่งทักษะเหล่านี้เป็นพื้นฐานสำคัญที่จะช่วยให้ผู้เรียนสามารถนำความรู้ไปประยุกต์ใช้ได้จริงในชีวิตประจำวัน การเรียนรู้ในรูปแบบนี้จึงไม่เพียงแต่ทำให้ผู้เรียนเข้าใจเนื้อหาได้ลึกซึ้งยิ่งขึ้น แต่ยังช่วยพัฒนาทักษะที่จำเป็นสำหรับการเรียนรู้ตลอดชีวิตอีกด้วย

ความพึงพอใจ

พึงพอใจในการเรียนรู้ หมายถึง ความรู้สึกพอใจ ชอบใจ ในการร่วมปฏิบัติกิจกรรมการเรียนการสอน และต้องการดำเนินกิจกรรมนั้น ๆ จนบรรลุผลสำเร็จ (ฉัตรลดา ปุณณขันธ์, 2548) และความคิดเห็นของผู้เรียนว่ามีความพอใจหรือไม่พอใจ ต่อการเรียนหรือการปฏิบัติกิจกรรมต่าง ๆ ที่ ได้รับมอบหมายซึ่งเป็นผลเนื่องมาจากการเรียน (พัชระ งามชัด, 2549) ความรู้สึกชอบใจ พอใจของผู้เรียนที่มีต่อการเรียนการสอนและการปฏิบัติกิจกรรมต่าง ๆ ซึ่งเป็นพฤติกรรมที่แสดงออกถึง ความต้องการในการมีส่วนร่วมและความมุ่งมั่นที่จะดำเนินกิจกรรมนั้น ๆ ให้บรรลุตามจุดมุ่งหมายที่ตั้งไว้

งานวิจัยที่เกี่ยวข้อง

สราญจิต อ้นพา (2561) ได้ศึกษาการพัฒนาแบบฝึกทักษะการแก้โจทย์ปัญหาคณิตศาสตร์ด้วยการจัดการเรียนรู้โดยใช้เทคนิค KWDL ร่วมกับแนวคิด Flipped Classroom เพื่อเสริมสร้างความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 4 ผลการวิจัยพบว่า 1) นักเรียนและครูกลุ่มสาระการเรียนรู้คณิตศาสตร์ เห็นความสำคัญต่อการใช้แบบฝึกทักษะประกอบการจัดการเรียนรู้ โดยใช้เทคนิค KWDL ร่วมกับแนวคิด Flipped Classroom เพื่อเสริมสร้างความสามารถในการแก้ปัญหาของนักเรียนชั้นประถมศึกษาปีที่ 4 และเห็นว่าแบบฝึกทักษะควรประกอบด้วย ชื่อเรื่อง คำนำ สารบัญ คำชี้แจง คำแนะนำ ในการใช้แบบฝึกทักษะ จุดประสงค์การทำแบบฝึกทักษะ แบบทดสอบก่อนเรียน แบบฝึกทักษะ แบบทดสอบหลังเรียน แบบประเมินความสามารถในการแก้ปัญหา เฉลย และบรรณานุกรม 2) แบบฝึกทักษะวิชาคณิตศาสตร์ จัดการเรียนรู้โดยใช้เทคนิค KWDL ร่วมกับแนวคิด The Flipped Classroom เพื่อเสริมสร้างความสามารถในการแก้ปัญหาของนักเรียนชั้นประถมศึกษาปีที่ 4 มีประสิทธิภาพ 82.46/80.00 ซึ่งสูงกว่าเกณฑ์มาตรฐาน 80/80 3) ผลการเปรียบเทียบผลการเรียนรู้ก่อนและหลังใช้แบบฝึกทักษะ พบว่า ผลการเรียนรู้หลังใช้แบบฝึกทักษะการแก้โจทย์ปัญหาคณิตศาสตร์สูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 4) ความสามารถในการแก้ปัญหาหลังใช้แบบฝึกทักษะ พบว่า ความสามารถในการแก้ปัญหาของนักเรียนอยู่ในระดับดี 5) ความคิดเห็นของนักเรียนต่อแบบฝึกทักษะการแก้โจทย์ปัญหาคณิตศาสตร์ ด้วยการจัดการเรียนรู้โดยใช้เทคนิค KWDL ร่วมกับแนวคิด Flipped Classroom เพื่อเสริมสร้างความสามารถในการแก้ปัญหาของนักเรียนชั้นประถมศึกษาปีที่ 4 พบว่า ความคิดเห็นโดยภาพรวมอยู่ในระดับมาก เมื่อพิจารณาเป็นรายด้าน พบว่า นักเรียนเห็นด้วยในระดับมากทุกด้าน

กัญญาภัค ธรรมสุข (2563) ได้ศึกษาการพัฒนาแบบฝึกทักษะการแก้ปัญหาคณิตศาสตร์ เรื่อง การบวก ลบ คูณ หารระคน สำหรับชั้นประถมศึกษาปีที่ 2 ผลการวิจัยพบว่า 1) แบบฝึกทักษะการแก้ปัญหาคณิตศาสตร์ เรื่อง การบวก ลบ คูณ หารระคน สำหรับนักเรียนชั้นประถมศึกษาปีที่ 2 โดยภาพรวม มีความเหมาะสมอยู่ในระดับมาก และจากการทดสอบประสิทธิภาพภาคสนาม มีค่าประสิทธิภาพตามเกณฑ์ เท่ากับ 81.10/79.05 เป็นไปตามเกณฑ์ 75/75 2) ผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 2 โดยใช้แบบฝึกทักษะแก้ปัญหาทางคณิตศาสตร์ หลังเรียนสูงกว่าก่อนเรียน

อย่างมีนัยสำคัญทางสถิติที่ ระดับ .01 และ 3) นักเรียนชั้นประถมศึกษาปีที่ 2 ที่เป็นกลุ่มตัวอย่าง มีเจตคติต่อคณิตศาสตร์ หลังเรียนด้วยแบบฝึกทักษะการแก้ปัญหาโดยภาพรวมอยู่ในระดับดี

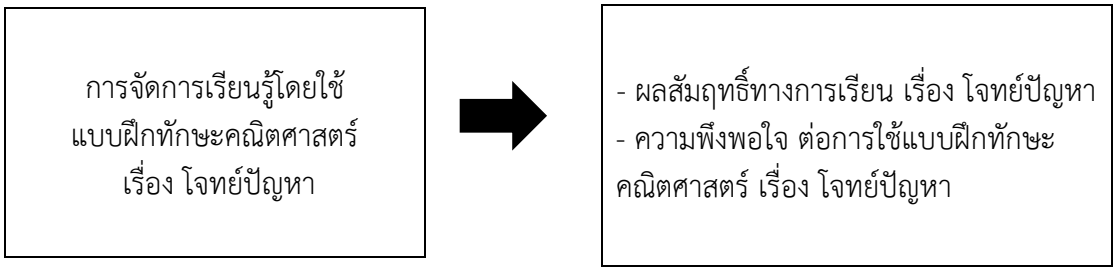
นูรีมาน สือรี (2563) ได้ศึกษาการพัฒนาผลสัมฤทธิ์ทางการเรียนเรื่องเลขยกกำลัง โดยใช้แบบฝึกทักษะสำหรับนักเรียนระดับชั้นมัธยมศึกษาปีที่ 1 ผลการวิจัยพบว่า 1) ผลการศึกษาประสิทธิภาพแบบฝึกทักษะวิชาคณิตศาสตร์สำหรับนักเรียนระดับชั้นมัธยมศึกษาปีที่ 1 เรื่องเลขยกกำลัง มีประสิทธิภาพสูงกว่าเกณฑ์ 80.84/80.11 2) ผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ เรื่องเลขยกกำลัง สำหรับนักเรียนระดับชั้นมัธยมศึกษาปีที่ 1 โดยใช้แบบฝึกทักษะผลสัมฤทธิ์ทางการเรียนหลังเรียนมีค่าสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ.01 3) ความพึงพอใจสูงสุดของนักเรียนที่มีต่อการเรียนวิชาคณิตศาสตร์เรื่องเลขยกกำลังสำหรับนักเรียนระดับชั้นมัธยมศึกษาปีที่ 1 โดยใช้แบบฝึกทักษะ โดยภาพรวมอยู่ในระดับมาก

ยุวดี ศรีสังข์ (2563) ได้ศึกษาการพัฒนาแบบฝึกทักษะคณิตศาสตร์โดยใช้เทคนิค KWDL เพื่อส่งเสริมความสามารถในการแก้ปัญหา เรื่อง ร้อยละ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 ผลการวิจัยพบว่า 1) แบบฝึกทักษะคณิตศาสตร์โดยใช้เทคนิค KWDL เพื่อส่งเสริมความสามารถในการแก้ปัญหา เรื่องร้อยละ ชั้นประถมศึกษาปีที่ 5 ที่สร้างขึ้นมีประสิทธิภาพ เท่ากับ 80.69/78.10 ซึ่งสูงกว่าเกณฑ์ที่ตั้งไว้ 75/75 2) ค่าดัชนีประสิทธิผลของแบบฝึกทักษะคณิตศาสตร์โดยใช้เทคนิค KWDL เพื่อส่งเสริมความสามารถในการแก้ปัญหา เรื่องร้อยละ ชั้นประถมศึกษาปีที่ 5 เท่ากับ 0.6806 แสดงว่าหลังการจัดกิจกรรมการเรียนรู้ด้วยแบบฝึกทักษะคณิตศาสตร์โดยใช้เทคนิค KWDL เพื่อส่งเสริมความสามารถในการแก้ปัญหา เรื่องร้อยละ นักเรียนมีความก้าวหน้าทางการเรียนรู้เพิ่มขึ้น 0.6806 หรือคิดเป็นร้อยละ 68.06 3) นักเรียนชั้นประถมศึกษาปีที่ 5 ที่เรียนโดยใช้แบบฝึกทักษะคณิตศาสตร์โดยใช้เทคนิค KWDL เพื่อส่งเสริมความสามารถในการแก้ปัญหา เรื่องร้อยละ มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 4) นักเรียนชั้นประถมศึกษาปีที่ 5 ที่เรียนโดยใช้แบบฝึกทักษะคณิตศาสตร์โดยใช้เทคนิค KWDL เพื่อส่งเสริมความสามารถในการแก้ปัญหา เรื่องร้อยละ มีความสามารถในการแก้ปัญหาทางคณิตศาสตร์ หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .01 5) นักเรียนชั้นประถมศึกษาปีที่ 5 ที่เรียนโดยใช้แบบฝึกทักษะคณิตศาสตร์โดยใช้เทคนิค KWDL เพื่อส่งเสริมความสามารถในการแก้ปัญหา จำนวนไม่น้อยกว่าร้อยละ 70 ของจำนวนนักเรียนทั้งหมดมีความสามารถในการแก้ปัญหาทางคณิตศาสตร์ เรื่อง ร้อยละ ผ่านเกณฑ์ร้อยละ 70 ของคะแนนเต็มอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 6) นักเรียนชั้นประถมศึกษาปีที่ 5 ที่เรียนโดยใช้แบบฝึกทักษะคณิตศาสตร์โดยใช้เทคนิค KWDL เพื่อส่งเสริมความสามารถในการแก้ปัญหา เรื่องร้อยละ โดยภาพรวมมีความพึงพอใจระดับ มากที่สุด (ค่าเฉลี่ย = 4.77, S.D. = 0.41)

ชนิดา รื่นรมย์ (2564) ได้ศึกษาการพัฒนาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ โดยใช้ชุดฝึกเสริมทักษะการคิดคำนวณทางคณิตศาสตร์ เรื่องจำนวนเต็ม สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 1 ผลการวิจัยพบว่า ชุดฝึกเสริมทักษะการคิดคำนวณทางคณิตศาสตร์ เรื่องจำนวนเต็ม มีประสิทธิภาพ 76.31/71.17 ซึ่งสูงกว่าเกณฑ์ที่ตั้งไว้ 70/70 และ 2) ค่าดัชนีประสิทธิผลของผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ มีค่าเท่ากับ 0.63 ซึ่งสูงกว่าเกณฑ์ที่ตั้งไว้ 0.6 แสดงว่านักเรียนมีความรู้และพัฒนาการทางการเรียนเพิ่มมากขึ้น

กรอบแนวคิดที่ใช้ในการวิจัย

การวิจัยในครั้งนี้จากการศึกษาหลักการ แนวคิด และแนวทางการพัฒนา จากเอกสารและงานวิจัยที่เกี่ยวข้อง ผู้วิจัยได้สรุปเป็นกรอบแนวคิดการพัฒนาแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 โดยมีกรอบแนวคิด ดังภาพที่ 1



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

รูปแบบการวิจัย

การวิจัยครั้งนี้เป็นการวิจัยเชิงทดลอง (Experimental Research) แบบมีกลุ่มตัวอย่าง 1 กลุ่ม และมีการทดสอบก่อนและหลังการทดลอง (One group pretest -posttest design)

ตารางที่ 1 แบบแผนกลุ่มเดียวทดสอบก่อนหลัง (One group pretest–posttest design)

การสุ่ม	กลุ่ม	ทดสอบก่อน	สิ่งที่ทดลอง	ทดสอบหลัง
-	E	O_1	X	O_2

สัญลักษณ์ที่ใช้ในแบบแผนการวิจัยแบบทดลอง

E แทน กลุ่มทดลอง

O_1 แทน ทดสอบก่อนเรียน

X แทน ดำเนินการทดลอง

O_2 แทน ทดสอบหลังเรียน

ประชากรและกลุ่มตัวอย่าง

ประชากรที่ใช้ในการวิจัย คือ นักเรียนชั้นประถมศึกษาปีที่ 4 ภาคเรียนที่ 2 ปีการศึกษา 2567 โรงเรียนวัดท่าประดู่ อำเภอนาทวี จังหวัดสงขลา สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 3 จำนวน 14 คน

กลุ่มตัวอย่างที่ใช้ในการวิจัย คือ นักเรียนชั้นประถมศึกษาปีที่ 4 ภาคเรียนที่ 2 ปีการศึกษา 2567 โรงเรียนวัดท่าประดู่ อำเภอนาทวี จังหวัดสงขลา สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 3 จำนวน 14 คน ได้มาโดยวิธีการเลือกแบบเจาะจง

เครื่องมือที่ใช้ในการวิจัย

1. แผนการจัดการเรียนรู้ รายวิชาคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 จำนวน 4 แผน รวม 4 ชั่วโมง

2. แบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 จำนวน 1 ชุด

3. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนก่อนและหลังเรียน เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 เป็นแบบปรนัย ชนิดเลือกตอบ 4 ตัวเลือก จำนวน 20 ข้อ

4. แบบสอบถามความพึงพอใจที่มีต่อแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 จำนวน 10 ข้อ

การสร้างเครื่องมือวิจัย

1. การสร้างแผนการจัดการเรียนรู้ รายวิชาคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 จำนวน 4 แผน

1.1 ศึกษาหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 (ฉบับปรับปรุง 2560) รายวิชาคณิตศาสตร์ เรื่อง โจทย์ปัญหาการบวก ลบ คูณ หารระคน และศึกษาหลักสูตรสถานศึกษาของโรงเรียนวัดท่าประดู่ อำเภอนาทวี จังหวัดสงขลา ปีการศึกษา 2567 กลุ่มสาระการเรียนรู้คณิตศาสตร์

1.2 ศึกษาค้นคว้าตำรา ทฤษฎี หลักการและแนวคิดที่สำคัญ งานวิจัยที่เกี่ยวข้อง

1.3 กำหนดเนื้อหา ความคิดรวบยอด และจุดประสงค์การเรียนรู้ เรื่อง โจทย์ปัญหาการบวก ลบ คูณ หารระคน

1.4 สร้างแผนการจัดการเรียนรู้โดยใช้แบบฝึกทักษะ เรื่อง โจทย์ปัญหาการบวก ลบ คูณ หารระคน จำนวน 4 แผน ใช้เวลาในการสอน 4 ชั่วโมง ซึ่งผู้วิจัยกำหนดเวลาตามความเหมาะสมของเนื้อหาในแต่ละแผนการจัดการเรียนรู้ ดังนี้

แผนที่ 1 การวิเคราะห์โจทย์ปัญหาการบวก ลบ คูณ หารระคน จำนวน 1 ชั่วโมง

แผนที่ 2 การแสดงวิธีทำโจทย์ปัญหาการบวก ลบ คูณ หารระคน จำนวน 1 ชั่วโมง

แผนที่ 3 การสร้างโจทย์ปัญหาการบวก ลบ คูณ หารระคนจากประโยคสัญลักษณ์ จำนวน 1 ชั่วโมง

แผนที่ 4 การสร้างโจทย์ปัญหาการบวก ลบ คูณ หารระคนจากภาพ จำนวน 1 ชั่วโมง

1.5 เสนอแผนการจัดการเรียนรู้ที่สร้างเสร็จเรียบร้อยต่อผู้เชี่ยวชาญ เพื่อตรวจสอบความถูกต้องเหมาะสมเชิงเนื้อหา เพื่อนำมาปรับปรุงแก้ไขและนำแผนไปใช้

2. การสร้างแบบฝึกทักษะวิชาคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักชั้นประถมศึกษาปีที่ 4 ผู้วิจัยดำเนินการสร้างและหาคุณภาพตามลำดับขั้นตอน ดังนี้

2.1 ศึกษาหลักสูตรแกนกลางขั้นพื้นฐาน พุทธศักราช 2551 (ฉบับปรับปรุง 2560) กลุ่มสาระการเรียนรู้คณิตศาสตร์ ศึกษาหลักสูตรสถานศึกษาของโรงเรียนวัดท่าประดู่ อำเภอนาทวี จังหวัดสงขลา ปีการศึกษา 2567 กลุ่มสาระการเรียนรู้คณิตศาสตร์ งานวิจัยที่เกี่ยวข้องกับการสอน โดยใช้แบบฝึกทักษะวิชาคณิตศาสตร์

2.2 สร้างแบบฝึกทักษะวิชาคณิตศาสตร์ เรื่อง โจทย์ปัญหา ชั้นประถมศึกษาปีที่ 4 จำนวน 1 แบบฝึก

2.3 เสนอแบบฝึกทักษะที่ปรับปรุงแล้วเสนอต่อผู้เชี่ยวชาญ 3 ท่าน เพื่อตรวจสอบความถูกต้องเหมาะสมเชิงเนื้อหา ซึ่งประกอบด้วย จุดประสงค์การเรียนรู้ กระบวนการจัดการเรียนรู้สื่อ และแหล่งการเรียนรู้ ตลอดจนวิธีการวัด และเครื่องมือวัดและประเมินผล

2.4 นำแบบฝึกทักษะมาแก้ไขปรับปรุงตามข้อเสนอแนะของผู้เชี่ยวชาญ เพื่อให้เกิดความถูกต้องและสมบูรณ์มากขึ้น ให้มีความชัดเจน และมีความสอดคล้องกับจุดประสงค์การเรียนรู้ก่อนนำไปใช้จริงกับกลุ่มเป้าหมาย

2.5 นำแบบฝึกทักษะมาจัดพิมพ์แล้วนำไปใช้กับกลุ่มเป้าหมาย

3. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนก่อนเรียนและหลังเรียน เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 ผู้วิจัยสร้างขึ้นมีลักษณะเป็นปรนัย 4 ตัวเลือก จำนวน 20 ข้อ โดยมีขั้นตอนการสร้างและหาประสิทธิภาพ ดังนี้

3.1 ศึกษาหลักสูตรสถานศึกษาของโรงเรียนวัดท่าประดู่ อำเภอนาทวี จังหวัดสงขลา ปีการศึกษา 2567 กลุ่มสาระการเรียนรู้คณิตศาสตร์

3.2 ศึกษาแนวคิด ทฤษฎี และผลการวิจัยที่เกี่ยวข้องกับผลสัมฤทธิ์ทางการเรียน

3.3 ศึกษาหลักการและวิธีสร้างแบบทดสอบปรนัย

3.4 วิเคราะห์เนื้อหาแบบทดสอบจากตามจุดประสงค์การเรียนรู้ จากแผนการจัดการเรียนรู้

3.5 สร้างแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน แบบปรนัยชนิดเลือกตอบ 4 ตัวเลือก จำนวน 20 ข้อให้ครอบคลุมเนื้อหาและผลการเรียนรู้

3.6 นำแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนเสนอต่อผู้เชี่ยวชาญ 3 ท่าน เพื่อพิจารณาข้อคำถามของข้อสอบแต่ละข้อว่า สอดคล้องกับจุดประสงค์การเรียนรู้ และเพื่อหาค่า (IOC) โดยใช้แบบประเมินความสอดคล้อง

3.7 นำแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 ที่ได้รับการปรับปรุงแล้ว นำไปใช้เครื่องมือเก็บข้อมูลในการวิจัยกับกลุ่มเป้าหมาย

4. แบบสอบถามความพึงพอใจ

4.1 ศึกษาเอกสารการสร้าง และการหาคุณภาพของแบบสอบถามความพึงพอใจ

4.2 สร้างแบบสอบถามความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 4 มีต่อแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา จำนวน 10 ข้อ เป็นมาตราส่วนประมาณค่า 5 ระดับ

ผลการหาคุณภาพเครื่องมือ

1. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนก่อนเรียนและหลังเรียน เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 เป็นแบบปรนัย ชนิดเลือกตอบ 4 ตัวเลือก ผ่านการตรวจสอบจากผู้เชี่ยวชาญ จำนวน 3 ท่าน พบว่า มีค่า IOC อยู่ระหว่าง 0.67 - 1.0 และค่าความยาก (P) ได้ค่าระหว่าง 0.4 - 0.8 ค่าอำนาจจำแนก (r) ได้ค่าระหว่าง 0.3 - 0.8

2. แบบสอบถามความพึงพอใจ ที่มีต่อแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 จำนวน 10 ข้อ โดยหาคุณภาพของเครื่องมือด้วยการตรวจสอบความตรงของเนื้อหาจากผู้เชี่ยวชาญ จำนวน 3 ท่าน พบว่า ผลการหาคุณภาพ มีค่าเท่ากับ 1.00

เก็บรวบรวมข้อมูล

1. ผู้วิจัยอธิบายและทำความเข้าใจเกี่ยวกับการจัดการเรียนรู้ด้วยแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา

2. นักเรียนทำการสอบก่อนเรียน โดยใช้แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่อง โจทย์ปัญหา แบบปรนัย ชนิดเลือกตอบ 4 ตัวเลือก จำนวน 20 ข้อ

3. ดำเนินการจัดการเรียนรู้ตามแผนการจัดการเรียนรู้ทั้ง 4 แผน และให้นักเรียนทำแบบฝึกทักษะคณิตศาสตร์ เรื่องโจทย์ปัญหา ควบคู่กับการเรียนการสอน

4. ผู้วิจัยให้นักเรียนทดสอบหลังเรียนด้วยแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่อง โจทย์ปัญหา โดยสลับข้อ แบบปรนัยชนิดเลือกตอบ 4 ตัวเลือก จำนวน 20 ข้อ

5. ให้นักเรียนทำแบบสอบถาม ความพึงพอใจที่มีต่อแบบฝึกทักษะคณิตศาสตร์ เรื่องโจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 จำนวน 10 ข้อ

6. นำผลการทดสอบมาวิเคราะห์ข้อมูลและรายงานผลวิจัยต่อไป

การวิเคราะห์ข้อมูล

1. วิเคราะห์หาประสิทธิภาพของแบบฝึกทักษะคณิตศาสตร์ เรื่องโจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 ตามเกณฑ์ 75/75

2. วิเคราะห์เปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 4 ระหว่างก่อนและหลังได้รับการจัดการเรียนรู้ด้วยแบบฝึกทักษะคณิตศาสตร์ เรื่องโจทย์ปัญหา โดยใช้สถิติ Paired Sample T-test

3. วิเคราะห์แบบสอบถามความพึงพอใจ ที่มีต่อแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา โดยใช้ร้อยละ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน โดยกำหนดคะแนนความพึงพอใจ ดังนี้

ระดับน้อยที่สุด	กำหนดให้ 1 คะแนน
ระดับน้อย	กำหนดให้ 2 คะแนน
ระดับปานกลาง	กำหนดให้ 3 คะแนน
ระดับมาก	กำหนดให้ 4 คะแนน
ระดับมากที่สุด	กำหนดให้ 5 คะแนน

นำข้อมูลจากแบบสอบถามไปวิเคราะห์ เพื่อคำนวณหา ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และนำข้อมูลมาแปลความหมายของค่าเฉลี่ยความพึงพอใจโดยใช้เกณฑ์ ดังนี้

ค่าเฉลี่ย 4.51 – 5.00	แปลความได้ว่า	มีความพึงพอใจระดับมากที่สุด
ค่าเฉลี่ย 3.51 – 4.50	แปลความได้ว่า	มีความพึงพอใจระดับมาก
ค่าเฉลี่ย 2.51 – 3.50	แปลความได้ว่า	มีความพึงพอใจระดับปานกลาง
ค่าเฉลี่ย 1.51 – 2.50	แปลความได้ว่า	มีความพึงพอใจระดับน้อย
ค่าเฉลี่ย 1.00 – 1.50	แปลความได้ว่า	มีความพึงพอใจระดับน้อยที่สุด

ผลการวิจัย

ตารางที่ 2 ผลการวิเคราะห์การหาประสิทธิภาพ แบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4

แบบทดสอบระหว่างเรียน (E_1)		แบบทดสอบหลังเรียน (E_2)		ประสิทธิภาพ
คะแนนเต็ม	ร้อยละ	คะแนนเต็ม	ร้อยละ	E_1/ E_2
20	74.83	20	77.14	74.83/77.14

จากตารางที่ 2 พบว่า ผลการวิเคราะห์ค่าประสิทธิภาพ ของแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 (E_1) เท่ากับ 74.83 และ ประสิทธิภาพของผลลัพธ์ (E_2) เท่ากับ 77.14 แสดงให้เห็นว่า การพัฒนาแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 มีประสิทธิภาพของกระบวนการและประสิทธิภาพของผลลัพธ์ (E_1/ E_2) สูงกว่าเกณฑ์ 75/75 ที่กำหนดไว้

ตารางที่ 3 ผลการวิเคราะห์เปรียบเทียบผลสัมฤทธิ์ทางการเรียน ระหว่างก่อนและหลังเรียนวิชาคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4

ผลสัมฤทธิ์ทางการเรียน วิชาคณิตศาสตร์	$\bar{X}$	S.D.	t	Asymp Sig.
ก่อนเรียน	9.21	1.93	11.81***	.000
หลังเรียน	15.43	1.40		

จากตารางที่ 3 พบว่า ผลสัมฤทธิ์ทางการเรียนก่อนเรียน ได้คะแนนเฉลี่ย 9.21 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 1.93 ผลสัมฤทธิ์ทางการเรียนหลังเรียน ได้คะแนนเฉลี่ย 15.43 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 1.40 ค่า t เท่ากับ 11.81 แสดงว่า นักเรียนชั้นประถมศึกษาปีที่ 4 ที่เรียนด้วยแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ .01

ตารางที่ 4 ผลการประเมินความพึงพอใจที่มีต่อแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหาด้านกิจกรรม

ข้อที่	รายการประเมิน	$\bar{X}$	S.D.	แปลผล
1.	กิจกรรมการเรียนการสอนช่วยให้นักเรียนเข้าใจบทเรียนได้ง่ายและเรียนรู้ได้เร็วขึ้น	4.29	0.83	มาก
2.	กิจกรรมมีความน่าสนใจและกระตือรือร้นในการเรียนมากขึ้น	4.14	0.77	มาก
3.	นักเรียนทุกคนมีส่วนร่วมในการทำกิจกรรมอย่างทั่วถึง	4.21	0.97	มาก
4.	กิจกรรมส่งเสริมการคิดวิเคราะห์ของนักเรียน	4.43	0.51	มาก
5.	นักเรียนสามารถนำความรู้จากการใช้แบบฝึกทักษะไปใช้ประโยชน์ได้	4.43	0.51	มาก
	รวมด้านกิจกรรม	**4.30**	**0.72**	**มาก**

จากตารางที่ 4 พบว่า นักเรียนมีความพึงพอใจต่อแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหาด้านกิจกรรม ในระดับมาก ($\bar{x}$ = 4.30 S.D. = 0.72) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อย พบว่า ความพึงพอใจอยู่ในระดับมากทุกข้อ โดยกิจกรรมส่งเสริมการคิดวิเคราะห์ของนักเรียน ($\bar{x}$ = 4.43 S.D. = 0.51) นักเรียนสามารถนำความรู้จากการใช้แบบฝึกทักษะไปใช้ประโยชน์ได้ ($\bar{x}$ = 4.43 S.D. = 0.51) กิจกรรมการเรียนการสอนช่วยให้นักเรียนเข้าใจบทเรียนได้ง่ายและเรียนรู้ได้เร็วขึ้น ($\bar{x}$ = 4.29 S.D. = 0.83) นักเรียนทุกคนมีส่วนร่วมในการทำกิจกรรมอย่างทั่วถึง ($\bar{x}$ = 4.21 S.D. = 0.97) และกิจกรรมมีความน่าสนใจและกระตือรือร้นในการเรียนมากขึ้น ($\bar{x}$ = 4.14 S.D. = 0.77)

ตารางที่ 5 ผลการประเมินความพึงพอใจที่มีต่อแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา ด้านเนื้อหา

ด้านที่	รายการประเมิน	$\bar{X}$	S.D.	แปลผล
1.	แบบฝึกทักษะมีขั้นตอนชัดเจน	4.36	0.74	มาก
2.	แบบฝึกหัดมีความเหมาะสมกับระดับชั้นของนักเรียน	4.71	0.61	มากที่สุด
3.	แบบฝึกทักษะมีความหลากหลายน่าสนใจ	4.29	0.83	มาก
4.	โจทย์ปัญหามีความชัดเจน เข้าใจง่าย	4.50	0.76	มาก
5.	เนื้อหาแบบฝึกมีความเหมาะสมกับเวลา	4.43	0.51	มาก
	รวมด้านเนื้อหา	**4.46**	**0.69**	**มาก**

จากตารางที่ 5 พบว่า นักเรียนมีความพึงพอใจต่อแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหาด้านเนื้อหา อยู่ในระดับมาก ($\bar{x}$ = 4.46 S.D. = 0.69) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อย พบว่า แบบฝึกหัดมีความเหมาะสมกับระดับชั้นของนักเรียน อยู่ในระดับมากที่สุด ($\bar{x}$ = 4.71 S.D. = 0.61) การใช้โจทย์ปัญหามีความชัดเจน เข้าใจง่าย อยู่ในระดับมาก ($\bar{x}$ = 4.50 S.D. = 0.76) เนื้อหาแบบฝึกมีความเหมาะสมกับเวลา อยู่ในระดับมาก ($\bar{x}$ = 4.43 S.D. = 0.51) แบบฝึกทักษะมีขั้นตอนชัดเจน อยู่ในระดับมาก ($\bar{x}$ = 4.36 S.D. = 0.74) และแบบฝึกทักษะมีความหลากหลายน่าสนใจ อยู่ในระดับมาก ($\bar{x}$ = 4.29 S.D. = 0.83)

ตารางที่ 6 ผลการประเมินความพึงพอใจที่มีต่อแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา ในภาพรวมทั้ง 2 ด้าน

ด้านที่	รายการประเมิน	$\bar{X}$	S.D.	แปลผล
1.	ด้านกิจกรรม	4.30	0.73	มาก
2.	ด้านเนื้อหา	4.46	0.69	มาก
	ภาพรวมทั้ง 2 ด้าน	**4.38**	**0.71**	**มาก**

จากตารางที่ 6 พบว่า นักเรียนมีความพึงพอใจต่อแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหาในภาพรวมทั้ง 2 ด้าน อยู่ในระดับมาก ($\bar{x}$ = 4.38 S.D. = 0.71) เมื่อพิจารณาเป็นประเด็น พบว่า ความพึงพอใจทั้ง 2 ด้านอยู่ในระดับมาก ด้านเนื้อหา ($\bar{x}$ = 4.46 S.D. = 0.69) และ ด้านกิจกรรม ($\bar{x}$ = 4.30 S.D. = 0.73)

สรุปและอภิปรายผล

1. ผลการศึกษาประสิทธิภาพของการพัฒนาแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 พบว่า มีประสิทธิภาพด้านกระบวนการ (E_1) และประสิทธิภาพด้านผลลัพธ์ (E_2) เท่ากับ 74.83/77.14 สูงกว่าเกณฑ์การพิจารณา 75/75 ทั้งนี้ เป็นเพราะว่าผู้วิจัยได้พัฒนาแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา นักเรียนชั้นประถมศึกษาปีที่ 4 ที่มีกระบวนการจัดการเรียนรู้ ให้ผู้เรียนเป็นผู้ลงมือปฏิบัติ โดยครูเป็นผู้คอยชี้แนะ มีตัวอย่างและคำอธิบายที่ชัดเจน ช่วยให้นักเรียนเข้าใจมีกระบวนการสร้างอย่างเป็นระบบ และมีวิธีการสร้างที่เหมาะสม อีกทั้งยังผ่านกระบวนการกลั่นกรองตรวจสอบ ปรับปรุง จากผู้เชี่ยวชาญที่มีความรู้และประสบการณ์ทางด้านการจัดการเรียนการสอนมาเป็นอย่างดี ทำให้นักเรียนเกิดการเรียนรู้และทักษะกระบวนการทางคณิตศาสตร์ มีความมั่นใจในการแก้โจทย์ปัญหามากขึ้น และนำความรู้ไปประยุกต์ใช้ในการทำแบบทดสอบได้ ซึ่งผลการศึกษาสอดคล้องกับงานวิจัยของ กัญญาภัค ธรรมสุข (2563) ได้ศึกษาการพัฒนาแบบฝึกทักษะการแก้ปัญหาคณิตศาสตร์ เรื่อง การบวก ลบ คูณ หารระคน สำหรับชั้นประถมศึกษาปีที่ 2 ผลการวิจัยพบว่า แบบฝึกทักษะการแก้ปัญหาคณิตศาสตร์ เรื่อง การบวก ลบ คูณ หารระคน สำหรับนักเรียนชั้นประถมศึกษาปีที่ 2 โดยภาพรวมมีความเหมาะสมอยู่ในระดับมาก และจากการทดสอบประสิทธิภาพภาคสนาม มีค่าประสิทธิภาพตามเกณฑ์ เท่ากับ 81.10/79.05 สอดคล้องกับงานวิจัยของ นูรีมาน สือรี (2563) ได้ศึกษาการพัฒนาผลสัมฤทธิ์ทางการเรียนเรื่องเลขยกกำลัง โดยใช้แบบฝึกทักษะสำหรับนักเรียนระดับชั้นมัธยมศึกษาปีที่ 1 ผลการวิจัยพบว่า ผลการศึกษาประสิทธิภาพแบบฝึกทักษะวิชาคณิตศาสตร์สำหรับนักเรียนระดับชั้นมัธยมศึกษาปีที่ 1 เรื่องเลขยกกำลัง มีประสิทธิภาพสูงกว่าเกณฑ์ 80.84/80.11 และสอดคลองกับงานวิจัยของ ชนิดา รื่นรมย์ (2564) ได้ศึกษาการพัฒนาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์โดยใช้ชุดฝึกเสริมทักษะการคิดคำนวณทาง คณิตศาสตร์เรื่องจำนวนเต็ม สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 1 ผลการวิจัยพบว่า ชุดฝึกเสริมทักษะการคิดคำนวณทางคณิตศาสตร์เรื่องจำนวนเต็ม มีประสิทธิภาพ 76.31/71.17 ซึ่งสูงกว่าเกณฑ์ที่ตั้งไว้ 70/70

2. มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 ทั้งนี้ เป็นเพราะแบบฝึกทักษะคณิตศาสตร์ที่ผู้วิจัยสร้างขึ้นเป็นเครื่องมือที่ช่วยให้นักเรียนได้ฝึกฝนซ้ำ ๆ ส่งผลให้เกิดความชำนาญ ทำให้นักเรียนได้เรียนรู้จากการลงมือปฏิบัติจริงและเข้าใจเนื้อหาได้ดียิ่งขึ้น และเมื่อนักเรียนมีความสามารถในแก้ปัญหาทางคณิตศาสตร์และควบคู่กับการจัดการเรียนรู้แบบ Active Learning เป็นอีกแนวทางหนึ่งที่สำคัญ โดยผู้สอนต้องจัดการเรียนการสอนโดยมุ่งเน้นที่ผู้เรียน กระตุ้นให้ผู้เรียนเกิดการปฏิบัติและลงมือกระทำด้วยตนเอง ส่งผลให้เกิดความรู้ความเข้าใจที่คงทนถาวร การเปลี่ยนจากวิธีการสอนแบบเดิมมาเป็นการสอนที่เปิดโอกาสให้ผู้เรียนได้แสวงหาความรู้ด้วยตนเอง กระตุ้นให้เกิดการใฝ่รู้ ฝึกการคิดวิเคราะห์ วิพากษ์วิจารณ์ และแก้ไขปัญหาได้ ทำให้ผู้เรียนมีผลการเรียนที่ดีขึ้น โดยเฉพาะอย่างยิ่งในวิชาคณิตศาสตร์ที่จะเห็นผลสัมฤทธิ์ทางการเรียนสูงขึ้นอย่างชัดเจน ซึ่งผลการศึกษาสอดคลองกับงานวิจัยของ กัญญาภัค ธรรมสุข (2563) ได้ศึกษาการพัฒนาแบบฝึกทักษะการแก้ปัญหาคณิตศาสตร์ เรื่อง การบวก ลบ คูณ หารระคน สำหรับชั้นประถมศึกษาปีที่ 2 ผลการวิจัยพบว่า ผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 2 โดยใช้แบบฝึกทักษะแก้ปัญหาทางคณิตศาสตร์หลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ ระดับ .01 และสอดคลองกับงานวิจัยของ นูรีมาน สือรี (2563) ได้ศึกษาการพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่อง เลขยกกำลัง โดยใช้แบบฝึกทักษะสำหรับนักเรียนระดับชั้นมัธยมศึกษาปีที่ 1 ผลการวิจัยพบว่า ผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ เรื่อง เลข

ยกกำลัง สำหรับนักเรียนระดับชั้นมัธยมศึกษาปีที่ 1 โดยใช้แบบฝึกทักษะผลสัมฤทธิ์ทางการเรียน หลังเรียนมีค่าสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ.01

3. ผลการศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 4 ที่มีต่อการพัฒนาแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา โดยภาพรวมอยู่ในระดับมาก เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านกิจกรรมและด้านเนื้อหา มีความพึงพอใจอยู่ในระดับมาก ทั้งนี้ เพราะว่าแบบฝึกทักษะคณิตศาสตร์ เรื่อง โจทย์ปัญหา เป็นกิจกรรมที่เน้นการมีส่วนร่วมและการลงมือปฏิบัติ ทำให้นักเรียนได้ฝึกคิดและแก้ปัญหาด้วยตนเอง ซึ่งผลการศึกษาสอดคล้องกับงานวิจัยของ สราญจิต อ้นพา (2561) ได้ศึกษาการพัฒนาแบบฝึกทักษะการแก้โจทย์ปัญหาคณิตศาสตร์ ด้วยการจัดการเรียนรู้โดยใช้เทคนิค KWDL ร่วมกับแนวคิด Flipped Classroom เพื่อเสริมสร้างความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปี ที่ 4 ผลการวิจัยพบว่า ความคิดเห็นของนักเรียนต่อแบบฝึกทักษะการแก้โจทย์ปัญหาคณิตศาสตร์ ด้วยการจัดการเรียนรู้โดยใช้เทคนิค KWDL ร่วมกับแนวคิด Flipped Classroom เพื่อเสริมสร้างความสามารถในการแก้ปัญหาของนักเรียนชั้นประถมศึกษาปี ที่ 4 พบว่า ความคิดเห็นโดยภาพรวมอยู่ในระดับมาก เมื่อพิจารณาเป็นรายด้าน พบว่า นักเรียนเห็นด้วยในระดับมากทุกด้าน และสอดคล้องกับงานวิจัยของ นูรีมาน สือรี (2563) ได้ศึกษาการพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่อง เลขยกกำลัง โดยใช้แบบฝึกทักษะสำหรับนักเรียนระดับชั้นมัธยมศึกษาปีที่ 1 ผลการวิจัยพบว่า ความพึงพอใจสูงสุดของนักเรียนที่มีต่อการเรียนวิชาคณิตศาสตร์ เรื่อง เลขยกกำลังสำหรับนักเรียนระดับชั้นมัธยมศึกษาปีที่ 1 โดยใช้แบบฝึกทักษะ โดยภาพรวมอยู่ในระดับมาก

ข้อเสนอแนะ

1. ข้อเสนอแนะนำในการนำไปใช้

1.1 ครูผู้สอนสามารถใช้เทคนิค KWDL ควบคู่กับเทคนิคอื่นได้เพื่อเพิ่มคุณภาพ

1.2 ควรสร้างบรรยากาศการสอนด้วยเกม และสังเกตพฤติกรรมของนักเรียน ก่อนทำแบบฝึกหัดว่ามีความรู้ความเข้าใจมากน้อยเพียงใด

2. ข้อเสนอแนะในการวิจัยครั้งต่อไป

2.1 ควรมีการสร้างแบบฝึกทักษะในหน่วยการเรียนรู้อื่น

2.2 ควรมีสื่อการสอนผสมผสานระหว่างเทคโนโลยีและแบบฝึกหัด

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2551). หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพมหานคร: โรงพิมพ์ชุมนุมสหกรณ์การเกษตรแห่งประเทศไทย.

กัญญาภัค ธรรมสุข. (2563). การพัฒนาแบบฝึกทักษะการแก้ปัญหาคณิตศาสตร์ เรื่อง การบวก ลบ คูณ หาร สำหรับชั้นประถมศึกษาปีที่ 2 (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยราชภัฏรำไพพรรณี, จันทบุรี.

ฉัตรลดา ปุณณขันธ์. (2548). การพัฒนาแผนการจัดกิจกรรมการเรียนรู้แบบบูรณาการ เรื่องเพลงไทยกลุ่มสาระการเรียนรู้ศิลปะ ชั้นประถมศึกษาปีที่ 4 (การค้นคว้าอิสระปริญญามหาบัณฑิต). มหาวิทยาลัยมหาสารคาม, มหาสารคาม.

ชนิดา รื่นรมย์. (2564). การพัฒนาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ โดยใช้ชุดฝึกเสริมทักษะการคิดคำนวณทางคณิตศาสตร์ เรื่อง จำนวนเต็ม สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 1 (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยบูรพา, ชลบุรี.

ทรงศักดิ์ สุโพธิณะ. (2542). การสร้างบทเรียนคอมพิวเตอร์ช่วยสอน วิชาคณิตศาสตร์สำหรับนักเรียนชั้นประถมศึกษาปีที่ 6. (การค้นคว้าอิสระปริญญามหาบัณฑิต). มหาวิทยาลัยเชียงใหม่, เชียงใหม่.

นูรีมาน สือรี. (2563). การพัฒนาผลสัมฤทธิ์ทางการเรียนเรื่องเลขยกกำลัง โดยใช้แบบฝึกทักษะ สำหรับนักเรียนระดับชั้นมัธยมศึกษาปีที่ 1 (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยทักษิณ, สงขลา.

บุญรัตน์ ฐิตยานุวัฒน์. (2553). การพัฒนาผลการเรียนรู้เรื่องโจทย์ปัญหาการบวก สำหรับนักเรียนที่มีความบกพร่องทางการได้ยิน ชั้นประถมศึกษาปี ที่ 6 ที่จัดการเรียนรู้แบบร่วมมือกันโดยใช้เทคนิค STAD ร่วมกับ KWDL (ปริญญาศึกษาศาสตรมหาบัณฑิต). มหาวิทยาลัยศิลปากร, นครปฐม.

ประภาพรรณ เส็งวงศ์. (2550). การพัฒนาการเรียนรู้ด้วยการวิจัยในชั้นเรียน. กรุงเทพฯ: อี เค บุ๊คส์.

พัชระ งามชัด. (2549). การเปรียบเทียบผลสัมฤทธิ์ทางการเรียน เรื่องบทประยุกต์ ความพึงพอใจต่อการเรียนวิชาคณิตศาสตร์และความสามารถในการคิดวิเคราะห์ของนักเรียนชั้นประถมศึกษาปี ที่ 6 ระหว่างการจัดการเรียนรู้โดยใช้เทคนิค STAD และการจัดกิจกรรมการเรียนรู้ตามคู่มือครู. (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยมหาสารคาม, มหาสารคาม.

แพรทิพย์ พูดเพราะ. (2561). ผลการจัดการเรียนรู้วิชาคณิตศาสตร์ เรื่อง ระบบจำนวนเต็มโดยใช้การจัดการเรียนรู้ แบบ Active Learning ที่มีผลต่อผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ ของนักเรียนชั้นมัธยมศึกษาปีที่ 1 (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยบูรพา, ชลบุรี.

ยุวดี ศรีสังข์. (2563). การพัฒนาแบบฝึกทักษะคณิตศาสตร์โดยใช้เทคนิค KWDL เพื่อส่งเสริมความสามารถในการแก้ปัญหาเรื่อง ร้อยละ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยมหาสารคาม, มหาสารคาม.

วุฒิชัย ดานะ. (2553). ความสัมพันธ์ระหว่างบรรยากาศและสิ่งแวดล้อมในโรงเรียนกับผลสัมฤทธิ์ทางการเรียนของนักเรียนในโรงเรียนสังกัดสำนักงานเขตพื้นที่การศึกษาในจังหวัดเลย (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยราชภัฏเลย, เลย.

สถาบันการทดสอบระดับชาติ. (2566). สรุปผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐานชั้นประถมศึกษาปีที่ 6 ปีการศึกษา 2566. สืบค้น 10 มกราคม 2568 จาก http://www.niets.or.th

สราญจิต อ้นพา. (2561). การพัฒนาแบบฝึกทักษะการแก้โจทย์ปัญหาคณิตศาสตร์ด้วยการจัดการเรียนรู้โดยใช้เทคนิค KWDL ร่วมกับแนวคิด Flipped Classroom เพื่อเสริมสร้างความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 4 (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยศิลปากร, นครปฐม.

การสร้างสื่อเสริมประกอบการสอนที่มีรูปทรงนูนในวิชาสังคมศึกษา สำหรับผู้พิการทางสายตา กรณีศึกษาโรงเรียนสอนคนตาบอดธรรมสากล หาดใหญ่

The creation of bas-relief instructional media for people with visually impaired Case study of Thamsakul School, Hat Yai, Songkhla

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บทคัดย่อ

งานวิจัยการสร้างสื่อเสริมประกอบการสอนที่มีรูปทรงนูนในวิชาสังคมศึกษา สำหรับผู้พิการทางสายตา กรณีศึกษาโรงเรียนสอนคนตาบอดธรรมสากล หาดใหญ่ มีจุดประสงค์เพื่อทำสื่อการเรียนรู้ที่มีภาพนูนต่ำประกอบอักษรเบรลล์ ให้ผู้เรียนสามารถจินตนาการถึงรูปแบบที่สื่อนำเสนอออกมาอย่างเป็นจริง ซึ่งการผลิตสื่อรูปทรงนูนที่สามารถให้ผลสัมฤทธิ์ที่สมบูรณ์จะต้องประกอบด้วยความเหมาะสมต่าง ๆ คือ ขนาดของชิ้นงานที่เหมาะสมกับมือที่สร้างภาพจากการคลำ ความนูนของชิ้นงาน ความคมชัดของเส้นขอบของภาพนูน ตำแหน่งของอักษรเบรลล์ รวมไปถึงวัสดุที่ใช้ในการผลิตสื่อ งานวิจัยนี้ได้นำร่องการผลิตสื่อด้วยการคัดเลือกชิ้นงานที่จะผลิตคือ

1. ภาพนูนแผนที่ประเทศไทยที่แบ่งเป็นสี่ภาค (ภาคใต้, ภาคกลาง, ภาคตะวันออก, ภาคเหนือ)
2. ภาพนูนการเรียงตำแหน่งของดวงดาวในระบบสุริยะ

ซึ่งจะมีอักษรเบรล์ลบรรยายในตำแหน่งต่าง ๆ ด้วย จากแบบทดสอบที่สามารถก่อให้เกิดผลสัมฤทธิ์ในการสร้างจินตนาการให้เข้าใจมากที่สุดมีผลรวมความพอใจอยู่ในระดับดี และผู้รับการทดสอบรวมไปถึงครูผู้สอนต้องการให้พัฒนาไปสู่เนื้อหาอื่นต่อไป

คำสำคัญ: สื่อเสริมประกอบการสอน, คนตาบอด, ความปลอดภัย

Abstract

The research on creating bas-relief instructional media for people with visually impaired, case study of Thamsakul School, Hat Yai, Songkhla aims at providing those who have visually impaired with relief image and Braille language. With this method, learners will be able to imagine forms and patterns of the presented media. Furthermore, there are some important factors in order to produce effective bas- relief instructional media, which are size, curve, sharpness, position of Braille language as well as material. With the intention to achieve the effectiveness level, the researcher had decided to make a pilot project on some selected work pieces as below;

1. The bas-relief sculpture of the map of Thailand, which was divided into 4 regions
2. The bas -relief of solar system

It was stated that all works must be provided with Braille language. According to the test, the bas-relief instructional media can successfully bring about the effectiveness in promoting imagination among learners. With the overall achievement, the researcher has expected to extend and develop the project into other topics.

Keywords: Teaching aids, blind person, safety

บทนำ

คนที่พิการทางสายตาหรือคนตาบอดเป็นคนที่ด้อยโอกาสในสังคม สามารถรับรู้ถึงสิ่งต่าง ๆ ได้โดยอาศัยประสาทสัมผัสต่าง ๆ ที่เขามีอยู่ (Remaining Senses) การฝึกใช้ประสาทสัมผัสต่าง ๆ ตั้งแต่วัยเด็กเล็กเป็นสิ่งที่สำคัญมาก จะต้องฝึกเด็กให้เร็วที่สุดและควรจะระลึกอยู่เสมอว่าเด็กตาบอดก็คือ เด็กคนหนึ่งซึ่งเหมือนกับเด็กทั่วไป คือ ต้องการความอบอุ่น ความรัก และความเป็นเจ้าของ ซึ่งควรที่จะต้องได้รับการเอาใจใส่ในการกระตุ้นให้เด็กได้ทำกิจกรรมอย่างต่อเนื่องและถูกต้องตามขั้นตอน โดยใช้ประสาทสัมผัสที่เขามีอยู่การสัมผัสด้วยมือเป็นสิ่งสำคัญมาก ช่วยให้เด็กได้เรียนรู้และเข้าใจในสิ่งต่าง ๆ เกี่ยวกับโลกภายนอกได้อย่างรวดเร็ว เด็กจะไม่สามารถจิตนาการรูปทรง หรือ ลักษณะของสิ่งของที่แท้จริงได้เลย ถ้าใช้เพียงประสาทสัมผัสที่อยู่ไกลตัว (Remote Senses) ซึ่งได้แก่การใช้สายตา การฟัง เสียง และการดมกลิ่น ถ้าไม่ได้สัมผัสลูบคลำด้วยมือ (ยุพา มหามาตร, 2551)

ดังนั้น ผู้วิจัยจึงต้องการเพิ่มโอกาสทางการเรียนรู้ให้เท่าเทียมคนที่มีสายตาปกติในการรับรู้ เข้าใจเรื่องราวต่าง ๆ มากขึ้น เพราะสื่อการเรียนรู้ที่ผลิตขึ้นมาโดยเฉพาะนั้นมีน้อยและไม่หลากหลาย จากการได้ทำงานวิจัยหนังสือนิทานสำหรับผู้พิการทางสายตา (งบประมาณเงินรายได้ ปี พ.ศ. 2558) ที่มีรูปแบบงานวิจัยผลิตหนังสือนิทานเป็นภาพนูนต่ำ 3 มิติประกอบ อักษรเบรลล์ ซึ่งได้ผลทดสอบออกมาอยู่ในระดับดี (ซึ่งต้องมีการพัฒนาต่อ) พบว่า ความต้องการสื่อการเรียนรู้ที่สามารถเสริมความเข้าใจในเนื้อหาอื่นก็มีความจำเป็นมาก เนื่องจากในการสอนปกตินั้น ผู้สอนจะสื่อสารด้วยเสียงเป็นหลัก และจะมีการลูบคลำวัตถุประกอบร่วมด้วย แต่ปัญหาที่เกิดขึ้นคือ ภาพนูนที่โรงเรียนการศึกษาคนตาบอดธรรมสากล หาดใหญ่มีนั้น จะเป็นเพียงเส้นขอบนูนเท่านั้น มีลักษณะเป็นเส้นด้ายไหมพรมติดกาวลาเท็กซ์เมื่อภาพมีเส้นเล็กเส้นน้อยมากเกินไปทำให้ลักษณะการคลำของผู้เรียนจะเกิดความสับสนสับสนได้ง่าย ไม่สามารถรับรู้ได้ว่าเป็นภาพลักษณะอย่างไร หรือภาพต้องการสื่อถึงอะไร งานวิจัยนี้จึงต้องการผลิตที่มีสื่อการเรียนรู้รูปแบบปั้นนูน 3 มิติ คือ มีระดับความทับซ้อน มีความเรียบ ความโค้ง ตามลักษณะของวัตถุต้นแบบ มีระดับความนูนตามระยะใกล้ ไกล ตามหลักวิชาประติมากรรมนูนต่ำ

ความต้องการสื่อการเรียนรู้ประกอบการสอนในหน่วยต่าง ๆ ของวิชาเรียนสำหรับสอนคนตาบอดมีลักษณะเป็นความต้องการที่เน้นไปเฉพาะกลุ่ม การหาซื้อตามท้องตลาดหาได้น้อยหรืออาจไม่มีเลยหรือมีก็จะเป็นของที่ผลิตต่างประเทศที่ไม่มีความเข้าใจ และไม่มีความเหมาะสมกับบริบทการเรียนการสอนในประเทศไทย และมีราคาสูง

ปัจจุบันมีความต้องการส่งเสริมให้นักเรียนและคนทั่วไปเข้าใจรากเหง้า และภาคภูมิใจในอัตลักษณ์ของตน และอัตลักษณ์พื้นถิ่นเกิดความซาบซึ้งความภาคภูมิใจจนสามารถต่อยอดไปถึงการอนุรักษ์ รักษาให้ส่งทอดต่อไปยังลูกหลานได้

ในรายวิชาสังคมศึกษาของผู้พิการทางสายตา จะมีเนื้อหาวิชาที่เกี่ยวข้องกับประเทศไทยของเรา ท้องถิ่นของเรา และในหน่วยย่อยของการสอนแต่ละสัปดาห์ (สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน, 2561) ก็มีเนื้อหาเฉพาะเจาะจงลงไปอีก ซึ่งจะเป็นความรู้ความเข้าใจพื้นฐานของนักเรียน การวิจัยนี้ก็เพื่อผลิตสื่อภาพนูน 3 มิติที่ช่วยสร้างการเรียนรู้ในมิติเสมือนจริงมากขึ้นโดยใช้วัสดุยางซิลิโคน (สุวิทย์ วิทยาจักษ์, 2550) นักเรียนจะมีสิ่งเร้าความสนใจในการศึกษาในเนื้อหาวิชาสังคมศึกษาได้ดีขึ้น และทำให้มีสื่อการเรียนรู้ที่เหมาะสม ตรงความต้องการของนักเรียน ผู้สอน หรือการแบ่งเบาภาระการสอนของบุคคลทั่วไปที่มีหน้าที่ผูกพันกับผู้พิการทางสายตา เช่น พ่อ แม่ อีกด้วย

วัตถุประสงค์ของการวิจัย

1. เพื่อพัฒนาสื่อนวัตกรรมการเรียนรู้ที่มีประสิทธิภาพสำหรับผู้พิการทางสายตา โดยใช้รูปแบบภาพนูนร่วมกับอักษรเบรลล์เป็นสื่อประกอบ สำหรับนักเรียนที่มีความบกพร่องทางสายตาในโรงเรียนโรงเรียนสอนคนตาบอดธรรมสากล หาดใหญ่
2. เพื่อเสริมสร้างโอกาสในการเข้าถึงข้อมูลและองค์ความรู้อย่างเท่าเทียมกับบุคคลทั่วไป
3. เพื่อต้องการสร้างสื่อการเรียนรู้สำหรับผู้พิการทางสายตาที่สามารถใช้ได้ในราคาถูก

แนวคิด ทฤษฎี กรอบแนวคิด

1. การวิจัยครั้งนี้เป็นการวิจัยที่ทำการมุ่งเน้นผลิตนวัตกรรมประเภทสื่อการเรียนรู้ สำหรับผู้พิการทางสายตา ที่มีลักษณะเป็นภาพรูปทรงนูนและมีอักษรเบรลล์ติดประกอบในภาพ เพื่ออธิบายเสริมความเข้าใจในหน่วยการเรียนรู้ต่าง ๆ สำหรับผู้พิการทางสายตาให้กับโรงเรียนสอนคนตาบอดธรรมสากล หาดใหญ่ จังหวัดสงขลา เพื่อให้ผู้พิการทางสายตามีสื่อเสริมการเรียนรู้ที่ช่วยให้เข้าใจเนื้อหาได้อย่างเหมาะสม และเป็นการส่งเสริมทฤษฎีการศึกษาที่เท่าเทียม/เสมอภาค (Equitable Education) ด้วย (SDG Vocab, 2565)
2. งานวิจัยสามารถสร้างชิ้นงานประกอบด้วยสื่อการเรียนรู้ ที่เป็นนวัตกรรมเหมาะสมประกอบการสอนในวิชาสังคมศึกษา สำหรับผู้พิการทางสายตาในโรงเรียนสอนคนตาบอดธรรมสากล หาดใหญ่ จังหวัดสงขลา และพัฒนาทั้งรูปแบบ รูปทรงให้เหมาะสมกับผู้เรียน เพื่อให้เกิดการพัฒนาปรับปรุงสื่อการเรียนการสอนสู่การจดสิทธิบัตรในอนาคต

วิธีดำเนินการวิจัย

กลุ่มประชากร

นักเรียนโรงเรียนสอนคนตาบอดธรรมสากลหาดใหญ่ จังหวัดสงขลาจำนวน 55 คน

กลุ่มตัวอย่าง

ตัวแทนนักเรียนชั้นประถมศึกษาประถมศึกษาปีที่ 2 จำนวน 5 คน

แบบแผนการวิจัย

การหาผลของการวิจัยผู้วิจัยได้ออกแบบเกณฑ์ต่าง ๆ เพื่อให้ได้ข้อมูลตามตารางดังนี้ ผู้วิจัยได้แบ่งหัวข้อตามหน่วยการเรียนรู้ตามสาระทั้ง 5 สาระ (สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน, 2561) ตามมาตรฐานต่าง ๆ ที่ได้คัดเลือกไว้ และผู้วิจัยได้กำหนดเกณฑ์และตารางการให้คะแนนกลุ่มสาระทั้ง 5 ดังนี้

ให้หมายเลข 1 แทนกลุ่มสาระ ศาสนา ศีลธรรม จริยธรรม
ให้หมายเลข 2 แทนกลุ่มสาระ หน้าที่พลเมือง วัฒนธรรม และการดำเนินชีวิตในสังคม
ให้หมายเลข 3 แทนกลุ่มสาระ เศรษฐศาสตร์
ให้หมายเลข 4 แทนกลุ่มสาระ ประวัติศาสตร์
ให้หมายเลข 5 แทนกลุ่มสาระ ภูมิศาสตร์

โดยใช้เกณฑ์ความเหมาะสม 5 ระดับ และในแต่ละระดับมีระดับคะแนน จาก 1 - 5 ดังนี้

1. ความเหมาะสมมากที่สุด มีระดับคะแนน 5
2. ความเหมาะสมมาก มีระดับคะแนน 4
3. ความเหมาะสมปานกลาง มีระดับคะแนน 3
4. ความเหมาะสมน้อย มีระดับคะแนน 2
5. ความเหมาะสมน้อยที่สุด มีระดับคะแนน 1

ผู้วิจัยได้ประชุมร่วมกับผู้ช่วยวิจัยที่รับผิดชอบการทำต้นแบบ ซึ่งจะต้องคำนึงถึงกระบวนการออกแบบชิ้นงานและทำต้นแบบออกมาให้เป็นรูปธรรม ได้ให้คะแนนและคัดเลือกชิ้นงานที่จะนำมาประดิษฐ์เป็นชิ้นงานได้ดังตารางข้างล่าง

ตารางที่ 1 แสดงการคัดเลือกหน่วยการเรียนรู้ตามสาระทั้ง 5 สาระ

เกณฑ์คัดเลือกประดิษฐ์สื่อการเรียนรู้	เหมาะสมน้อยที่สุด คะแนน 1	เหมาะสมน้อย คะแนน 2	เหมาะสมปานกลาง คะแนน 3	เหมาะสมมาก คะแนน 4	เหมาะสมมากที่สุด คะแนน 5
1.เป็นสื่อที่มีเนื้อหาใกล้ตัวและมีการอ้างอิงใช้เป็นฐานของความรู้อื่น	หมายเลข x	หมายเลข x	หมายเลข x	หมายเลข x	หมายเลข x
2.เนื้อหาสามารถแปลเป็นภาพและสามารถออกแบบออกมาเป็นสื่อได้ง่ายไม่ซับซ้อนสามารถสร้างจินตนาการได้ผลตรงกับชิ้นงานสื่อมากที่สุด	หมายเลข x	หมายเลข x	หมายเลข x	หมายเลข x	หมายเลข x
3.สื่อที่มีการผลิตแล้วแต่ไม่สื่อความให้เกิดความเข้าใจหรือยังไม่มีการผลิตเลย	หมายเลข x	หมายเลข x	หมายเลข x	หมายเลข x	หมายเลข x
รวม	x	x	x	x	x

ผู้วิจัยได้กำหนดหมายเลขของเนื้อหาที่ได้คัดเลือกไว้ ดังนี้
ให้หมายเลข 1 แทน ชิ้นงานแผนที่ประเทศไทย
ให้หมายเลข 2 แทน ชิ้นงานลูกโลก
ให้หมายเลข 3 แทน ชิ้นงานกราฟ
ให้หมายเลข 4 แทน ชิ้นงานแผนภูมิผังระบบสุริยะ

โดยใช้เกณฑ์ความเหมาะสม 5 ระดับและในแต่ละระดับมีระดับคะแนน จาก 1 - 5 ดังนี้

1. ความเหมาะสมมากที่สุด มีระดับคะแนน 5
2. ความเหมาะสมมาก มีระดับคะแนน 4

3. ความเหมาะสมปานกลาง มีระดับคะแนน 3
4. ความเหมาะสมน้อย มีระดับคะแนน 2
5. ความเหมาะสมน้อยที่สุด มีระดับคะแนน 1

ตารางที่ 2 แสดงการคัดเลือกเนื้อหาที่จะนำมาประดิษฐ์

รูปแบบสื่อ	เป็นสื่อที่มีเนื้อหาใกล้ตัวและสามารถสอนในวิชาอื่นได้ด้วย	เนื้อหาสามารถแปลเป็นสื่อได้ง่าย	ผลิตแล้วแต่ไม่สื่อความเข้าใจหรือยังไม่มีการผลิตเลย	รวม
1. แผนที่ประเทศไทย	x	x	x	x
2. ลูกโลก	x	x	x	x
3. กราฟ	x	x	x	x
4. แผนภูมิผังระบบสุริยะ	x	x	x	x

ตารางที่ 3 แสดงรูปแบบการจัดทำสื่อและสรุปชิ้นงานที่ควรประดิษฐ์

เกณฑ์จัดทำสื่อ	เหมาะสมน้อยที่สุด (1 คะแนน)	เหมาะสมน้อย (2 คะแนน)	เหมาะสมปานกลาง (3 คะแนน)	เหมาะสมมาก (4 คะแนน)	เหมาะสมมากที่สุด (5 คะแนน)
1. ขนาดของชิ้นงานที่เหมาะสมกับมือที่สร้างภาพจากการคลำ	x	x	x	x	x
2. ความหนานูนของชิ้นงาน	x	x	x	x	x
3. ขอบและความคมชัดของภาพนูน	x	x	x	x	x
4. ตำแหน่งการวางของอักษรเบรลล์	x	x	x	x	x
5. วัสดุที่ใช้ในการผลิตสื่อ	x	x	x	x	x
6. ขนาดและความสะดวกในการใช้งาน	x	x	x	x	x
รวม	x	x	x	x	x

ออกแบบโจทย์ 6 ข้อ ที่สามารถให้คะแนนออกมาเป็นความเหมาะสมของชิ้นงานว่าสามารถเป็นสื่อที่ดีตรงตามจุดประสงค์หรือไม่

1.ขนาดของชิ้นงานที่เหมาะสมกับมือที่สร้างภาพจากการคลำ

อธิบาย: ขนาดจะต้องเหมาะสมพอดีกับการสัมผัสด้วยฝ่ามือ

2.ความหนานูนของชิ้นงาน

อธิบาย: ความหนานูนเป็นสิ่งช่วยเสริมสร้างจินตนาการได้

3.ขอบและความคมชัดของภาพนูน

อธิบาย: ขอบของความนูนช่วย ทำให้มองเห็นภาพรวมทั้งหมด

4.ตำแหน่งการวางของอักษรเบรลล์

อธิบาย: การวางในตำแหน่งถูกต้องทำให้ผู้ดูไม่สับสน

5.วัสดุที่ใช้ในการผลิตสื่อ

อธิบาย: วัสดุที่ใช้ในการผลิตสื่อนั้นจะต้องเป็นวัสดุที่สามารถรับแรงกด แรงกระแทกได้

6.ขนาดและความสะดวกในการใช้งาน

อธิบาย: ขนาดมีความสำคัญต่อการสัมผัส สามารถลูบคลำสะดวก

โดยใช้เกณฑ์ความเหมาะสม 5 ระดับและในแต่ละระดับมีระดับคะแนน จาก 1 - 5 ดังนี้

1. ความเหมาะสมมากที่สุด มีระดับคะแนน 5
2. ความเหมาะสมมาก มีระดับคะแนน 4
3. ความเหมาะสมปานกลาง มีระดับคะแนน 3
4. ความเหมาะสมน้อย มีระดับคะแนน 2
5. ความเหมาะสมน้อยที่สุด มีระดับคะแนน 1

การรวมค่าเฉลี่ยใช้สูตร คะแนนมากที่สุด (5 คะแนน) x เกณฑ์จัดทำสื่อ (6 ข้อ) = 30 คะแนน และการหาค่าช่วงคะแนนเฉลี่ยใช้สูตร คะแนนที่ได้จากแต่ช่องความเหมาะสมรวมกัน คือ

คะแนนในระดับ	เหมาะสมมากที่สุด	มีค่าคะแนนช่องอยู่	30	คะแนน
คะแนนในระดับ	เหมาะสมมาก	มีค่าคะแนนช่องอยู่	24	คะแนน
คะแนนในระดับ	เหมาะสมปานกลาง	มีค่าคะแนนช่องอยู่	18	คะแนน
คะแนนในระดับ	เหมาะสมน้อย	มีค่าคะแนนช่องอยู่	12	คะแนน
คะแนนในระดับ	เหมาะสมน้อยที่สุด	มีค่าคะแนนช่องอยู่	6	คะแนน

ดังนั้นค่าช่วงค่าคะแนนเฉลี่ยจะได้ดังนี้

คะแนนในระดับ	เหมาะสมมากที่สุด	มีค่าคะแนนช่วงอยู่	25 – 30 คะแนน
คะแนนในระดับ	เหมาะสมมาก	มีค่าคะแนนช่วงอยู่	19 – 24 คะแนน
คะแนนในระดับ	เหมาะสมปานกลาง	มีค่าคะแนนช่วงอยู่	13 – 18 คะแนน
คะแนนในระดับ	เหมาะสมน้อย	มีค่าคะแนนช่วงอยู่	7 – 12 คะแนน
คะแนนในระดับ	เหมาะสมน้อยที่สุด	มีค่าคะแนนช่วงอยู่	1 – 6 คะแนน

จากสูตรค่าเฉลี่ยแต่ละระดับจะมีค่าต่างกันอยู่ที่ 6 คะแนน

เครื่องมือที่ใช้ในการวิจัย

1. หน่วยการเรียนรู้วิชาสังคมศึกษาในหลักสูตรระดับประถมศึกษา กลุ่มสาระ ภูมิศาสตร์ อธิบายลักษณะของโลกทางกายภาพ การใช้แผนที่ และเครื่องมือทางภูมิศาสตร์
2. สื่อเสริมประกอบการสอนที่มีรูปทรงนูนในวิชาสังคมศึกษาสำหรับผู้พิการ ทางสายตา 2 ชิ้นงาน
3. ตารางประเมินที่ใช้ในขั้นตอนต่าง ๆ
   3.1 แสดงการคัดเลือกหน่วยการเรียนรู้ตามสาระทั้ง 5 สาระ
   3.2 แสดงการคัดเลือกเนื้อหาที่จะนำมาประดิษฐ์
   3.3 ตารางแสดงรูปแบบการจัดทำสื่อและสรุปชิ้นงานที่ควรประดิษฐ์

การเก็บรวบรวมข้อมูล

1. นำสื่อเสริมประกอบการสอนที่มีรูปทรงนูนในวิชาสังคมศึกษาสำหรับผู้พิการทางสายตา 2 ชิ้นงาน ไปทดสอบกับกลุ่มตัวอย่าง จำนวน 5 คน
2. ผู้วิจัยเก็บข้อมูลในตารางผลทดสอบโดยแยก 2 แบบทดสอบชิ้นงาน

การวิเคราะห์ข้อมูล

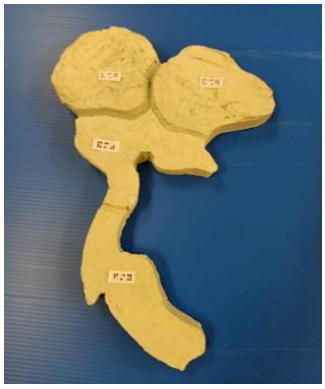
1.วิเคราะห์หาค่าประเมินความพึงพอใจของนักเรียนที่มีต่อแบบทดสอบทั้ง 2 แบบ ได้กำหนดเกณฑ์ดังนี้

ค่าระดับคะแนน เหมาะสมน้อยที่สุด	(1 คะแนน)	หมายถึง	พึงพอใจน้อยที่สุด
ค่าระดับคะแนน เหมาะสมน้อย	(2 คะแนน)	หมายถึง	พึงพอใจน้อย
ค่าระดับคะแนน เหมาะสมปานกลาง	(3 คะแนน)	หมายถึง	พึงพอใจปานกลาง
ค่าระดับคะแนน เหมาะสมมาก	(4 คะแนน)	หมายถึง	พึงพอใจมาก
ค่าระดับคะแนน เหมาะสมมากที่สุด	(5 คะแนน)	หมายถึง	พึงพอใจมากที่สุด

ผลการวิจัย

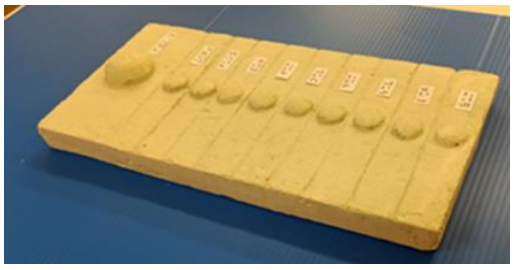
1. ผลงานผ่านกระบวนการประติมากรรมและหล่อชิ้นงานเป็นวัสดุยางซิลิโคน

1.1 สื่อชิ้นงานแผนที่ประเทศไทยหล่อเป็นวัสดุซิลิโคน



ภาพที่ 1 สื่อชิ้นงานแผนที่ประเทศไทย

1.2 สื่อชิ้นงานแผนภูมิผังระบบสุริยะหล่อเป็นวัสดุซิลิโคน



ภาพที่ 2 สื่อชิ้นงานแผนภูมิผังระบบสุริยะ

2. ผลการทดสอบชิ้นงานแผนภูมิผังระบบสุริยะ

ตารางที่ 4 แสดงผลคะแนนการทดสอบสื่อ

เกณฑ์จัดทำสื่อ	เหมาะสมน้อยที่สุด (1 คะแนน)	เหมาะสมน้อย (2 คะแนน)	เหมาะสมปานกลาง (3 คะแนน)	เหมาะสมมาก (4 คะแนน)	เหมาะสมมากที่สุด (5 คะแนน)
1. ขนาดของชิ้นงานที่เหมาะสมกับมือที่สร้างภาพจากการคลำ					/
2. ความหนานูนของชิ้นงาน				/	
3. ขอบและความคมชัดของภาพนูน				/	
4. ตำแหน่งการวางของอักษรเบรล์ล					/
5. วัสดุที่ใช้ในการผลิตสื่อ			/		
6. ขนาดและความสะดวกในการใช้งาน				/	
รวมคะแนน	0	0	3	12	10

สรุปผลการทดสอบ

ชิ้นงานแผนภูมิผังระบบสุริยะได้คะแนนอยู่ในระดับเหมาะสมมากที่สุด จำนวน 2 ข้อ ได้คะแนนอยู่ในระดับเหมาะสมมาก จำนวน 3 ข้อ และได้คะแนนอยู่ในระดับเหมาะสมปานกลาง จำนวน 1 ข้อ แต่ในระดับคะแนนที่ต่ำ คือ คะแนนอยู่ในระดับเหมาะสมน้อย และคะแนนอยู่ในระดับเหมาะสมน้อยที่สุด ไม่มีคะแนน ซึ่งผลของคะแนนอยู่ในระดับปานกลางไปจนถึงมากที่สุด

ผลการทดสอบชิ้นงานแผนที่ประเทศไทย

ตารางที่ 5 แสดงผลคะแนนการทดสอบสื่อ

เกณฑ์จัดทำสื่อ	เหมาะสมน้อยที่สุด (1 คะแนน)	เหมาะสมน้อย (2 คะแนน)	เหมาะสมปานกลาง (3 คะแนน)	เหมาะสมมาก (4 คะแนน)	เหมาะสมมากที่สุด (5 คะแนน)
1. ขนาดของชิ้นงานที่เหมาะสมกับมือที่สร้างภาพจากการคลำ					/
2. ความหนานูนของชิ้นงาน					/
3. ขอบและความคมชัดของภาพนูน				/	
4. ตำแหน่งการวางของอักษรเบรล์ล				/	
5. วัสดุที่ใช้ในการผลิตสื่อ			/		
6. ขนาดและความสะดวกในการใช้งาน				/	
รวมคะแนน	0	0	3	12	10

สรุปผลการทดสอบ

ชิ้นงานแผนที่ประเทศไทยได้คะแนนอยู่ในระดับเหมาะสมมากที่สุด จำนวน 2 ข้อ ได้คะแนนอยู่ในระดับเหมาะสมมาก จำนวน 3 ข้อ และได้คะแนนอยู่ในระดับเหมาะสมปานกลาง จำนวน 1 ข้อ แต่ในระดับคะแนนที่ต่ำคือ คะแนนอยู่ในระดับเหมาะสมน้อย และคะแนนอยู่ในระดับเหมาะสมน้อยที่สุด ไม่มีคะแนน ซึ่งผลของคะแนนอยู่ในระดับปานกลางไปจนถึงมากที่สุด ทำให้ผลสรุปพอจะแยกเป็นข้อได้ดังนี้

1. การออกแบบสื่อการเรียนรู้ การเลือกใช้สื่อที่มีรูปทรงนูนร่วมกับอักษรเบรลล์เป็นการพัฒนาสื่อการเรียนรู้ที่เข้ากับลักษณะความต้องการของผู้พิการทางสายตา โดยการทำงานที่มุ่งเน้นการใช้ประสาทสัมผัสที่มีอยู่เพื่อให้ผู้เรียนสามารถเข้าใจและจินตนาการได้ดียิ่งขึ้น เช่น แผนที่ประเทศไทยที่มีการแบ่งภาคและแผนภูมิผังระบบสุริยะ โดยการใช้วัสดุที่เหมาะสมและระดับความนูนที่ถูกต้องถือว่าเป็นปัจจัยสำคัญในการทำให้ผู้เรียนเข้าใจภาพหรือข้อมูลที่ต้องการสื่อ

2. การเก็บข้อมูลโดยการใช้เกณฑ์การให้คะแนนที่ระบุระดับความเหมาะสมของชิ้นงานในหลาย ๆ ด้าน เช่น ขนาด ความนูน ความคมชัดของเส้น ขอบเขตการสัมผัส รวมถึงวัสดุที่ใช้ถือเป็นการประเมินที่เป็นระบบ ทำให้สามารถวัดความเหมาะสมของแต่ละองค์ประกอบได้

สรุปและอภิปรายผล

สรุปผลวิจัย จากผลการวิจัยพบว่า ทั้ง 2 ชิ้นงานได้คะแนนผลทดสอบเหมือนกัน คือ

1.ระดับคะแนนความพึงพอใจของผลทดสอบมีผลของคะแนน อยู่ในระดับปานกลางถึงสูงสุด ซึ่งแสดงว่า ผลงานสามารถใช้งานได้จริง และนักเรียนกลุ่มตัวอย่างมีความพึงพอใจมาก แต่มีสิ่งที่ต้องแก้ไข คือ ข้อที่ได้คะแนนปานกลาง คือ วัสดุที่ใช้ในการผลิตสื่อ ต้องปรับปรุง

2. ระดับคะแนนแสดงผลการทดสอบสื่อมีผลทดสอบที่ระดับเหมาะสมที่สุด อยู่ 2 ช่อง ระดับเหมาะสมมากอยู่ 2 ช่อง และระดับเหมาะสมปานกลางอยู่ 1 ช่อง ส่วนช่องเหมาะสมน้อยกับเหมาะสมน้อยที่สุดไม่มีคะแนนเลย ทำให้ค่าเฉลี่ยความเหมาะสมต่อการใช้งานจริง อยู่ที่ระดับดี โดยเฉพาะข้อที่ชี้ถึงขนาดของชิ้นงานที่เหมาะสมกับมือที่สร้างภาพจากการคลำ และความหนานูนของชิ้นงานได้รับคะแนนมากที่สุด

การอภิปรายผล

1. งานวิจัยนี้มุ่งพัฒนาสื่อการเรียนรู้ 2 ชิ้น ได้แก่ แผนที่ประเทศไทย และแผนภูมิระบบสุริยะ เพื่อให้บรรลุวัตถุประสงค์ทางการศึกษาผลการศึกษาพบว่า สื่อการเรียนรู้ที่พัฒนาขึ้นช่วยให้ผู้เรียนมีความเข้าใจที่ดีขึ้น สอดคล้องกับนโยบายปีพ.ศ. 2542 (สำนักงานคณะกรรมการการศึกษาแห่งชาติ, 2542) ที่กำหนดให้ผู้พิการได้รับโอกาสทางการศึกษาอย่างเท่าเทียมที่ว่า “ผู้พิการทุกคน อยากเรียนต้องได้เรียน” และยังได้กล่าวอีกว่า “การจัดการศึกษาสำหรับบุคคลซึ่งมีความบกพร่องทางร่างกาย จิตใจ สติปัญญา อารมณ์ สังคม การสื่อสาร และการเรียนรู้ หรือมีร่างกายพิการ หรือทุพพลภาพ หรือบุคคลซึ่งไม่สามารถพึ่งตนเองได้ หรือไม่มีผู้ดูแลหรือด้อยโอกาส ต้องจัดให้บุคคลดังกล่าวมีสิทธิ และโอกาสได้รับการศึกษาขั้นพื้นฐานเป็นพิเศษ” และโดย “การศึกษาที่เท่าเทียม/เสมอภาค” ตามปฏิญญาการศึกษาอินชอน 2030 (SDG Vocab, 2565) ซึ่งที่กล่าวมา ผู้วิจัยมีความตั้งใจที่จะทำตามคำกล่าวนี้ โดยเฉพาะผู้พิการทางสายตาถือเป็นผู้ที่ขาดโอกาสในด้านการรับรู้ และการเห็นสภาพความเป็นไปของโลกภายนอก การรับรู้ถึงความงามต่าง ๆ ที่ต้องอาศัยการมองเห็นเท่านั้น การอ่านหนังสือหรือการฟังบรรยายไม่อาจจินตนาการถึงสื่อที่ผู้วิจัยสร้างสรรค์ออกมาเป็นสิ่งใหม่ที่สามารถช่วนในการเรียนการสอนดังนี้

1. เป็นสื่อที่ช่วยให้ครูสอนได้อย่างมีประสิทธิภาพ
2. เป็นสิ่งที่ช่วยกระตุ้นและสร้างความสนใจให้ผู้เรียนเพิ่มขึ้น
3. ช่วยให้ผู้เรียนมีส่วนร่วมในกิจกรรมการเรียนการสอน
4. ช่วยเสริมให้นักเรียนสนใจค้นคว้าหาความรู้และเกิดความคิดสร้างสรรค์จากการใช้สื่อ
5. สำหรับผู้พิการทางสายตาสื่อช่วยสร้างความสัมพันธ์ในการทำงานของมือกับสมอง เพราะเป็นสื่อประเภทสัมผัส

6. ช่วยสร้างจินตภาพในสมองทำให้เกิดความทรงจำที่ดี

7. ช่วยกระตุ้นให้นักเรียนที่ตาบอดสนิทและที่เห็นเลือนรางมีความใฝ่รู้ใฝ่เรียนมากขึ้น

8. สื่อชุดนี้สร้างขึ้นโดยใช้วัสดุที่เป็นยางซิลิโคน มีความนิ่ม ยืดหยุ่น และไม่เป็นพิษต่อร่างกาย ทำให้สื่อไม่สามารถนำมาใช้เป็นอาวุธทำร้ายกันเมื่อเกิดการทะเลาะวิวาท

9. บทความวิจัยนี้เป็นการพัฒนาสื่อการเรียนรู้ที่มีประโยชน์ต่อผู้พิการทางสายตา ผ่านการใช้วัสดุใหม่ (ยางซิลิโคน) ซึ่งเป็นองค์ความรู้ใหม่ในด้านสื่อการศึกษาเฉพาะทาง และมีผลต่อแนวทางการพัฒนาสื่อการเรียนรู้ในอนาคต นอกจากนี้ยังเป็นการตอบสนองต่อนโยบายด้านการศึกษา และสามารถช่วยลดช่องว่างทางการเรียนรู้ระหว่างผู้พิการกับบุคคลทั่วไปได้

เห็นได้ว่าสื่อการเรียนรู้สำหรับผู้พิการทางสายตาที่ดีนั้น จะสามารถเสริมสร้างโอกาสในการรับรู้ให้ได้อย่างมากมาย เนื่องเพราะการมองเห็นนั้นสามารถจินตนาการ พัฒนาการได้มากกว่าการสัมผัส การได้ยิน และการดมกลิ่นอยู่แล้ว

บทความวิจัยนี้ ช่วยเพิ่มการเข้าถึงเนื้อหาการเรียนรู้และสนับสนุนการพัฒนานวัตกรรมในการศึกษาสำหรับผู้พิการทางสายตาที่สามารถขยายผลไปสู่การใช้ในโรงเรียนสอนคนตาบอดอื่น ๆ ได้

ข้อเสนอแนะ

จากการลงพื้นที่ทำวิจัยพบว่า โรงเรียนสำหรับเด็กพิเศษทั่วไปยังมีความต้องการสื่อการเรียนรู้อีกมาก ทุกคนสามารถเข้าไปเกี่ยวข้องกับความบกพร่องได้ตลอดเวลา ซึ่งอาจเกิดขึ้นกับตัวเอง คนรอบข้างเราก็ได้ สำหรับโรงเรียนสอนคนตาบอดธรรมสากล หาดใหญ่ ยังมีความต้องการสื่อการเรียนรู้ใหม่ ๆ ตลอดเวลา เพราะโลกที่พัฒนาอย่างรวดเร็วแต่สำหรับคนปกติเท่านั้น แต่ในคนที่บกพร่องยังต้องการสื่อการเรียนรู้ต่าง ๆ เพื่อเพิ่มโอกาสการเท่าเทียมในสังคมอยู่ เช่น ในหน่วยของรายวิชาเรียนที่มีอยู่ก็ไม่ครอบคลุมและไม่เพียงพอ เช่น แผนที่ประเทศไทยที่มีอยู่ก็เป็นเพียงเส้นนูน ส่งเสริมความเข้าใจได้น้อยมาก การเพิ่มโอกาสการเท่าเทียมของมนุษย์เป็นจำเป็น งานวิจัยเพื่อคนพิการจะช่วยลดช่องว่างนั้นลงได้เพราะไม่รู้ความบกพร่องจะเข้ามาเกี่ยวข้องเราเมื่อใด

เอกสารอ้างอิง

ยุพา มหามาตร. (2551). การสร้างสรรค์งานศิลปภาพพิมพ์นูนต่ำเพื่อเด็กพิการทางสายตา. วารสารวิจิตรศิลป์, 1(2), 134 – 151.

สุวิทย์ วิทยาจักษุ์. (2550). การสร้างสรรค์แม่พิมพ์เพื่องานหล่อ. วิทยาลัยเพาะช่าง มทร.รัตนโกษินทร์, กรุงเทพมหานคร.

สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน. (2561). สาระการเรียนรู้ สังคมศึกษา ศาสนาและวัฒนธรรมในหลักสูตรโรงเรียนบ้านทุ่งนุ้ย “มิตรภาพที่ 49”พ.ศ. 2561. โรงเรียนบ้านทุ่งนุ้ย, สตูล.

สำนักงานคณะกรรมการการศึกษาแห่งชาติ. (2542). พระราชบัญญัติการศึกษาแห่งชาติ พ.ศ. 2542 และที่แก้ไขเพิ่มเติม (ฉบับที่ 2) พ.ศ. 2545 กระทรวงที่เกี่ยวข้องและพระราชบัญญัติการศึกษาภาคบังคับ. พ.ศ. 2545. กรุงเทพมหานคร: บริษัท พริกหวานกราฟิค จำกัด.

SDG Vocab. (2565). 10 – Equitable Education–การศึกษาที่เท่าเทียม/เสมอภาค. สืบค้นเมื่อ 26 เมษายน 2565. จาก https://www.sdgmove.com/2021/05/25/sdg-vocab-10-equitable-education/

การพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม ด้วยเทคนิค STAD ร่วมกับเกมนักเรียนชั้นประถมศึกษา ศูนย์การเรียนรู้ระดับตำบลแหลมโพธิ์

The development of learning achievement on the topic of living organisms and the environment using the STAD technique combined with games for elementary school students at the local learning promotion center of Laem Phor Subdistrict.

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บทคัดย่อ

การวิจัยในครั้งนี้มีวัตถุประสงค์เพื่อ เปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษา เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม ก่อนเรียนและหลังเรียนด้วยเทคนิค STAD ร่วมกับเกม และเพื่อศึกษาความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม กลุ่มตัวอย่างที่ใช้ในการวิจัย ได้แก่ นักเรียนชั้นประถมศึกษาศูนย์การเรียนรู้ระดับตำบลแหลมโพธิ์ อำเภอยะหริ่ง จังหวัดปัตตานี ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 30 คน ซึ่งได้มาโดยใช้วิธีการสุ่มแบบเจาะจง เครื่องมือที่ใช้ในการวิจัย ประกอบด้วย แผนการจัดการเรียนรู้ ด้วยเทคนิค STAD ร่วมกับเกม แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน และแบบสอบถามความพึงพอใจที่มีต่อการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และเปรียบเทียบค่าเฉลี่ย 2 กลุ่มสัมพันธ์

ผลการวิจัย พบว่า นักเรียนชั้นประถมศึกษา ศูนย์การเรียนรู้ระดับตำบลแหลมโพธิ์ มีผลสัมฤทธิ์หลังเรียนโดยใช้วิธีการจัดการเรียนรู้ด้วยเทคนิค STAD ร่วมกับเกม เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อมสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 และความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนด้วยเทคนิค STAD ร่วมกับเกม มีค่าเฉลี่ยมากที่สุด ($\bar{X}$ = 4.59 S.D. = 0.50)

คำสำคัญ: เทคนิค STAD ,เกม, สิ่งมีชีวิตกับสิ่งแวดล้อม, ผลสัมฤทธิ์ทางการเรียน

Abstract

The purpose of this research is to compare the academic achievement of primary school students on the topic of living organisms and the environment before and after learning using the STAD technique combined with games, and to study students' satisfaction with the learning process using the STAD technique combined with games. The sample group for the research consisted of 30 primary school students from the Learning Promotion Center in the Laem Pho subdistrict, Yaring District, Pattani Province, during the second semester of the 2024 academic year, selected using purposive sampling. The research instruments included a lesson plan using the STAD technique combined with games, an academic achievement test, and a questionnaire to assess students' satisfaction with the STAD technique combined with games. The statistical analysis used in this study included percentage, mean, standard deviation, and paired t-test.

The research findings revealed that the students from the Subdistrict Learning Promotion Center, Laem Pho, had significantly higher post-learning achievement after being taught using the STAD technique combined with games on the topic of living things and the environment, with a statistical significance level of .01. Moreover, students' satisfaction with learning management using the STAD technique combined with games was at the highest level ($\bar{X}$ = 4.59, S.D. = 0.50).

Keywords: STAD technique, games, living organisms and the environment, academic achievement.

บทนำ

วิทยาศาสตร์มีบทบาทสำคัญยิ่งในสังคมโลกปัจจุบันและอนาคตเพราะวิทยาศาสตร์มีความเกี่ยวข้องกับทุกคน ทั้งในชีวิตประจำวันและอาชีพการทำงานรวมถึงเทคโนโลยี อุปกรณ์เครื่องมือเครื่องใช้ต่าง ๆ ที่มนุษย์สร้างขึ้นมาเพื่อใช้อำนวยความสะดวกในชีวิตประจำวัน ล้วนเป็นผลมาจากความรู้วิทยาศาสตร์ที่ผสมผสานกับความคิดสร้างสรรค์ และศาสตร์อื่น ๆ วิทยาศาสตร์ช่วยให้มนุษย์ได้พัฒนาวิธีคิดความเป็นเหตุเป็นผลการคิดสร้างสรรค์ การคิดวิเคราะห์ วิจารณ์ สามารถสืบเสาะหาความรู้และคิดแก้ปัญหาอย่างมีแบบแผน ดังนั้นทุกคนต้องรู้ให้เท่าทันวิทยาศาสตร์ เพื่อนำความรู้ทางด้านวิทยาศาสตร์ไปใช้ในชีวิตประจำวันได้อย่างมีเหตุผล สร้างสรรค์ และมีคุณธรรม (กระทรวงศึกษาธิการ, 2552)

การศึกษาวิทยาศาสตร์ในระดับประถมศึกษาเป็นรากฐานสำคัญในการพัฒนาความรู้และทักษะทางวิทยาศาสตร์ให้แก่นักเรียน ซึ่งช่วยเสริมสร้างกระบวนการคิดอย่างมีเหตุผล การสังเกต การตั้งคำถามและการแก้ปัญหา (Piaget, 1973) อย่างไรก็ตาม จากการศึกษาพบว่า นักเรียนระดับชั้นประถมศึกษามักประสบปัญหาในการเรียนรู้เรื่อง สิ่งมีชีวิตกับสิ่งแวดล้อม เนื่องจากเนื้อหามีความซับซ้อน และบางแนวคิดเป็นนามธรรม ทำให้เกิดความเข้าใจคลาดเคลื่อนหรือขาดแรงจูงใจในการเรียน (Ausubel, 1968) กระบวนการเรียนการสอน แบบดั้งเดิมที่เน้นการบรรยายและท่องจำอาจไม่สามารถตอบสนองต่อความต้องการของผู้เรียนได้อย่างมีประสิทธิภาพ (Slavin, 1995) การเรียนรู้ที่มีประสิทธิผลควรเป็นการเรียนรู้แบบมีส่วนร่วม โดยนักเรียนสามารถสร้างองค์ความรู้ได้ด้วยตนเองผ่านกิจกรรมที่หลากหลาย และการทำงานเป็นทีม หนึ่งในแนวทางที่ได้รับการยอมรับว่าเป็นเครื่องมือสำคัญในการพัฒนาผลสัมฤทธิ์ทางการ

เรียนคือ เทคนิคการเรียนแบบร่วมมือ STAD (Student Teams - Achievement Divisions) ซึ่งเป็นหนึ่งในกลยุทธ์ของการเรียนรู้แบบร่วมมือที่ช่วยส่งเสริมให้นักเรียนทำงานเป็นทีม แลกเปลี่ยนความคิดเห็นและสนับสนุนกันและกันเพื่อให้บรรลุเป้าหมายทางการเรียนรู้ (Slavin, 1980)

เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม เป็นหนึ่งในเนื้อหาสำคัญที่กำหนดไว้ในหลักสูตร เนื่องจากเป็นความรู้พื้นฐานที่จำเป็นในการทำความเข้าใจระบบนิเวศและความหลากหลายทางชีวภาพ จากรายงานผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐาน (N - NET) กลุ่มสาระพื้นฐานของนักเรียนชั้นประถมศึกษาปีการศึกษา 2566 พบว่า คะแนนเฉลี่ยในสาระความรู้พื้นฐาน ซึ่งครอบคลุมเนื้อหาในรายวิชาวิทยาศาสตร์เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม มีค่าเฉลี่ยเพียงร้อยละ 34.29 (สถาบันทดสอบทางการศึกษาแห่งชาติ, 2566) สะท้อนให้เห็นถึงปัญหา ในการจัดการเรียนการสอนที่ยังไม่สามารถพัฒนาผู้เรียนให้มีความเข้าใจในเนื้อหาได้อย่างมีประสิทธิภาพ ดังนั้นการนำเทคนิคการสอนที่เน้นการมีส่วนร่วมของนักเรียนมาใช้ในการเรียนการสอนจึงเป็นแนวทางหนึ่งที่สามารถช่วยแก้ปัญหาดังกล่าวได้ เทคนิค STAD (Student Teams-Achievement Divisions) เป็นรูปแบบหนึ่งของการเรียนรู้แบบร่วมมือที่ช่วยให้นักเรียนสามารถทำงานร่วมกัน แบ่งปันความรู้ และช่วยเหลือกันภายในกลุ่ม ส่งผลให้เกิดการเรียนรู้ที่มีประสิทธิภาพ (Slavin, 1995) นอกจากนี้การใช้เกมในการเรียนการสอนยังช่วยกระตุ้นความสนใจและส่งเสริมความสนุกสนานในการเรียนรู้ (Gee, 2007)

จากสาเหตุและสภาพปัญหาดังกล่าว ผู้วิจัยจึงมีความสนใจที่จะนำเทคนิคการจัดการเรียนรู้ด้วยเทคนิค STAD ร่วมกับเกม มาใช้ในการจัดการกิจกรรมเรียนการสอน ในศูนย์การเรียนรู้ระดับตำบลแหลมโพธิ์ เพื่อมุ่งเน้นการพัฒนาผลสัมฤทธิ์ทางการเรียน โดยใช้เทคนิค STAD ร่วมกับเกม เข้ามามีบทบาทสำคัญต่อการพัฒนาทักษะและความรู้พื้นฐานของผู้เรียน กระตุ้นความสนใจและความสนุกในการเรียน ซึ่งเกมช่วยสร้างบรรยากาศการเรียนรู้ที่สนุกและไม่น่าเบื่อ อีกทั้งนักเรียนมีส่วนร่วมในการทำกิจกรรม และแก้ปัญหาร่วมกัน การใช้เทคนิค STAD ร่วมกับเกมในการสอนเรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม ทำให้การเรียนรู้มีประสิทธิภาพมากขึ้น ทั้งในแง่ของการเข้าใจเนื้อหา การมีส่วนร่วมของนักเรียน และการพัฒนาทักษะทางวิทยาศาสตร์และสังคม เหมาะสำหรับการเรียนรู้ในศตวรรษที่ 21 ที่เน้นการเรียนรู้แบบลงมือปฏิบัติและการทำงานร่วมกัน

วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษา ศูนย์การเรียนรู้ระดับตำบลแหลมโพธิ์ เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม ก่อนเรียนและหลังเรียนด้วยเทคนิค STAD ร่วมกับเกม
2. เพื่อศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษา เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม โดยใช้เทคนิค STAD ร่วมกับเกม

สมมติฐานการวิจัย

นักเรียนชั้นประถมศึกษา ที่ได้รับการจัดการเรียนรู้ด้วยเทคนิค STAD ร่วมกับเกม เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม มีผลสัมฤทธิ์หลังเรียนสูงกว่าก่อนเรียน

แนวคิด ทฤษฎี กรอบแนวคิด

ความหมายของการเรียนรู้แบบร่วมมือเทคนิค STAD

การเรียนรู้แบบร่วมมือเทคนิค STAD มีความสำคัญต่อการจัดการเรียนการสอน โดยนักการศึกษาได้ให้ความหมายของการเรียนรู้แบบร่วมมือเทคนิค STAD ไว้ดังนี้ สุวิทย์ มูลคำ และอรทัย มูลคำ (2550) กล่าวว่า เป็นการเรียนรู้ โดยแบ่งผู้เรียนให้มีความสามารถแตกต่างกันออกเป็นกลุ่ม เพื่อทำงานร่วมกัน กลุ่มละ ประมาณ 4 - 5 คน โดยผู้สอนเป็นผู้จัดเตรียมเนื้อหาสาระที่เรียน คะแนนที่ได้จากการทดสอบของสมาชิกแต่ละคนนำเอามาคิดเป็นคะแนนรวมของทีม ผู้สอนจะต้องใช้เทคนิคการเสริมแรง เช่น ให้รางวัล คำชมเชย ดังนั้นสมาชิกกลุ่มจะต้องมีการช่วยเหลือซึ่งกันและกัน เพื่อความสำเร็จของกลุ่ม

ผู้วิจัยได้สรุปว่า เทคนิค STAD ช่วยให้นักเรียนเข้าใจเนื้อหามากขึ้น เนื่องจากต้องเรียนรู้ร่วมกันในกลุ่มและช่วยเหลือกันทำความเข้าใจ ซึ่งการเรียนรู้ผ่านการทำงานเป็นทีมช่วยให้สามารถอธิบายแนวคิดและเนื้อหาแก่กันและกัน ส่งผลให้จดจำเนื้อหาได้ดีขึ้น นักเรียนมีความมั่นใจในการเรียนมากขึ้นเพราะได้รับการสนับสนุนจากเพื่อนในกลุ่ม นักเรียนได้ฝึกทักษะการทำงานเป็นทีม พร้อมเรียนรู้ที่จะรับฟังความคิดเห็นของผู้อื่น และลดความเหลื่อมล้ำในการเรียนรู้ เพราะนักเรียนที่เก่งจะช่วยนักเรียนที่อ่อนกว่าทำให้ทุกคนมีโอกาสเรียนรู้ไปด้วยกัน

ความหมายของเกม

วราภรณ์ ถิรสิริ, วารีย์ เมืองเกษม และวิรัตน์ เจริญสุข (2551) ให้ความหมายของเกมไว้ว่า เกม หมายถึง กิจกรรมการเล่น หรือการแข่งขันเพื่อการเรียนรู้มีการกำหนดจุดมุ่งหมาย กฎเกณฑ์ กติกา ผู้เล่น วิธีการเล่น การตัดสินผลการเล่นเป็นแพ้หรือชนะ ในช่วงเวลาที่จำกัด การนำเกมมาประกอบการสอนจะช่วยทำให้ห้องเรียนมีชีวิตชีวา บทเรียนนั้น ๆ น่าสนใจไม่รู้สึกเบื่อหน่าย ก่อให้เกิดความสนุกสนาน เพลิดเพลินนักเรียนมีโอกาสใช้ปฏิภาณไหวพริบของตน สามารถจำบทเรียนได้ง่ายเร็ว และจำได้นาน นอกจากนี้การที่เด็กได้เล่นเกมจะได้ความรู้ทางวิชาการสามารถจำบทเรียนได้ง่ายมากยิ่งขึ้น

ผู้วิจัยได้สรุปว่า ความหมายของเกมไว้ว่า เกมเป็นกิจกรรมการเล่นหรือการแข่งขันที่มีเป้าหมาย กฎเกณฑ์ ผู้เล่น วิธีการเล่น และการตัดสินผลแพ้ชนะภายในเวลาที่กำหนด ซึ่งการนำเกมมาใช้ในการสอนจะช่วยสร้างบรรยากาศที่มีชีวิตชีวา น่าสนใจ สนุกสนาน และส่งเสริมให้นักเรียนได้ใช้ไหวพริบ ทำให้จดจำบทเรียนได้ง่าย รวดเร็ว และยาวนานยิ่งขึ้น รวมถึงได้รับความรู้ทางวิชาการเพิ่มขึ้นด้วย

ประเภทของเกม

ทิศนา แขมมณี (2552) ประเภทของเกมออกเป็น 3 ประเภท ดังนี้

1. เกมแบบไม่มีการแข่งขัน เช่น เกมการสื่อสาร เกมการตอบคำถาม เป็นต้น

2. เกมแบบแข่งขัน มี ผู้แพ้ ผู้ชนะ เกมส่วนใหญ่จะเป็นเกมแบบนี้ เพราะการแข่งขันช่วยให้การเล่นเพิ่มความสนุกสนานมากขึ้น

3. เกมจำลองสถานการณ์ เป็นเกมที่จำลองความเป็นจริง สถานการณ์จริง ซึ่งผู้เล่นจะต้องคิดตัดสินใจจากข้อมูลที่มีและได้รับผลของการตัดสินใจเหมือนกับที่ควรจะได้รับความเป็นจริงเกมจำลองสถานการณ์ (Simulation Game) เป็นเกมที่จำลองความเป็นจริงสถานการณ์จริง ซึ่งผู้เล่นจะต้องคิดตัดสินใจจากข้อมูลที่มีและได้รับผลของการตัดสินใจเหมือนกับที่ควรจะได้รับในความจริงเกมแบบนี้ มีอยู่ 2 ลักษณะ คือ

3.1 ลักษณะเป็นการจำลองความเป็นจริงลงมาเล่นในกระดานหรือ บอร์ดเกม (Board Game) เช่น เกมเศรษฐี เกมมลภาวะเป็นพิษ (Pollution) เกมแก้ปัญหา ความขัดแย้ง (Conflict)

3.2 ลักษณะเกมเป็นสถานการณ์ที่จำลองสถานการณ์และบทบาท ขึ้นให้เหมือนความเป็นจริง และผู้เล่นจะต้องลงไปเล่นจริง ๆ โดยสวมบทบาทเป็นคนใดคน หนึ่งในสถานการณ์นั้น เกมแบบนี้อาจใช้เวลาเล่นเพียง 2:3 ชั่วโมง หรือใช้เวลาเป็นวันหรือหลายวันติดต่อกันหรือแม้กระทั่งเล่นกันตลอดภาคเรียน เป็นการเรียนรู้ทั้งรายวิชาที่มีในยุคปัจจุบันที่เทคโนโลยีขั้นสูงได้พัฒนาก้าวหน้าไปมากจึงเกิดเกมจำลองสถานการณ์ในรูปแบบใหม่ ๆ ขึ้น คือ คอมพิวเตอร์เกม (Computer Game) ซึ่งเป็นเกมจำลองสถานการณ์ที่ผู้เล่นสามารถควบคุมการเล่นผ่านทางจอคอมพิวเตอร์ได้ปัจจุบัน เกมแบบนี้ได้รับความนิยมสูงมาก

ผู้วิจัยได้สรุปว่าประเภทของเกม

1. เกมแบบไม่มีการแข่งขัน: เป็นเกมที่เน้นการสื่อสาร การตอบคำถาม หรือกิจกรรมร่วมกันโดยไม่มีการตัดสินแพ้ชนะ
2. เกมแบบแข่งขัน: เป็นเกมที่มีผู้แพ้และผู้ชนะ ซึ่งส่วนใหญ่มักจะสร้างความสนุกสนานและกระตุ้นความสนใจในการเล่น
3. เกมจำลองสถานการณ์: เป็นเกมที่จำลองสถานการณ์จริงเพื่อให้ผู้เล่นได้คิดและตัดสินใจจากข้อมูลที่มี และผลลัพธ์ที่เกิดขึ้นจะสอดคล้องกับความเป็นจริง

สรุปเพิ่มเติมเกี่ยวกับเกมจำลองสถานการณ์: เกมจำลองสถานการณ์สามารถแบ่งออกได้เป็น 2 ลักษณะ คือ:

- เกมกระดาน (Board Game): เป็นการจำลองสถานการณ์ลงบนกระดาน ตัวอย่างเช่น เกมเศรษฐี เกมมลภาวะเป็นพิษ และเกมแก้ปัญหาความขัดแย้ง
- เกมสวมบทบาท: เป็นการจำลองสถานการณ์และบทบาทให้ผู้เล่นได้เข้าไปเล่นจริง สวมบทบาทเป็นตัวละครในสถานการณ์นั้น ๆ ซึ่งอาจใช้เวลาเล่นตั้งแต่ 2 - 3 ชั่วโมง ไปจนถึงตลอดภาคเรียน

นอกจากนี้ ในยุคปัจจุบัน เทคโนโลยีได้พัฒนาไปมากทำให้เกิดเกมคอมพิวเตอร์ (Computer Game) ซึ่งเป็นเกมจำลองสถานการณ์อีกรูปแบบหนึ่งที่ผู้เล่นสามารถควบคุมการเล่นผ่านทางหน้าจอคอมพิวเตอร์ และได้รับความนิยมอย่างสูงในปัจจุบัน

งานวิจัยที่เกี่ยวข้อง

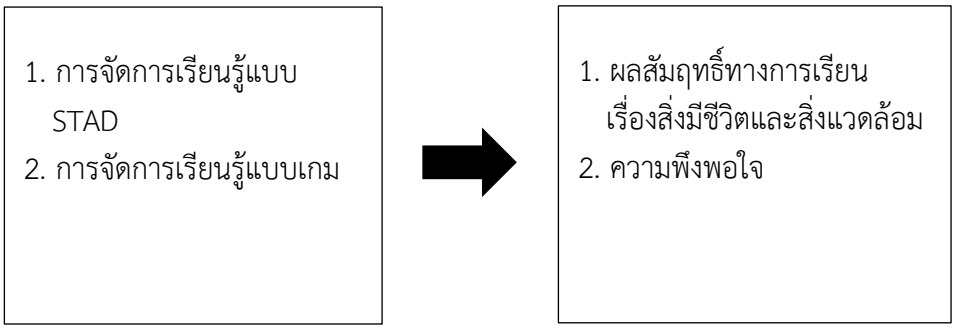
นงนุช บริเอก (2565) ได้ทำการวิจัยเรื่อง การพัฒนาทักษะกระบวนการทางวิทยาศาสตร์และผลสัมฤทธิ์ทางการเรียน ของนักเรียนชั้นประถมศึกษาปีที่ 3 เรื่องชีวิตของมนุษย์และสัตว์ โดยการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม วัตถุประสงค์เพื่อ 1) พัฒนาแผนการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม ชั้นประถมศึกษาปีที่ 3 เรื่องชีวิตของมนุษย์และสัตว์ให้มีประสิทธิภาพตามเกณฑ์ 80/80 2) เปรียบเทียบทักษะกระบวนการทางวิทยาศาสตร์ของนักเรียนก่อนเรียนและหลังเรียน 3) เปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักเรียนก่อนเรียนและหลังเรียน และ 4) ศึกษาความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม กลุ่มตัวอย่างที่ใช้ในการวิจัย ได้แก่ นักเรียนชั้นประถมศึกษาปีที่ 3 โรงเรียนบ้านปากอูน (ปากอูนผดุงวิทย์) เขต 2 ภาคเรียนที่ 1 ปีการศึกษา 2564 จำนวน 36 คน เครื่องมือที่ใช้ในการวิจัย ประกอบด้วย แผนการจัดการเรียนรู้ แบบทดสอบวัดทักษะกระบวนการทางวิทยาศาสตร์ มีค่าความเชื่อมั่นเท่ากับ 0.80 แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน มีค่าความเชื่อมั่นเท่ากับ 0.79 และแบบสอบถามความพึงพอใจที่มีต่อการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม สถิติที่ใช้ในการวิเคราะห์

ข้อมูล ได้แก่ ค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และสถิติทดสอบค่าที (t-test for Dependent Samples) มีผลการวิจัยพบว่า แผนการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกมชั้นประถมศึกษาปีที่ 3 เรื่องชีวิตของมนุษย์และสัตว์ มีประสิทธิภาพเท่ากับ 80.59/80.05 ซึ่งเป็นไปตามเกณฑ์ 80/80 ที่ตั้งไว้

พัชราภรณ์ ไชยเบ้า (2565) ได้ทำการวิจัยการพัฒนาทักษะกระบวนการทางวิทยาศาสตร์และผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นมัธยมศึกษาปีที่ 3 เรื่องการถ่ายทอดลักษณะทางพันธุกรรมโดยการจัดการเรียนรู้เทคนิค STAD ร่วมกับปรัชญาเศรษฐกิจพอเพียง การวิจัยมีวัตถุประสงค์ 1) พัฒนาแผนการจัดการเรียนรู้เทคนิค STAD ร่วมกับปรัชญาเศรษฐกิจพอเพียง เรื่องการถ่ายทอดลักษณะทางพันธุกรรมของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ให้มีประสิทธิภาพตามเกณฑ์ 80/80 2) ศึกษาและเปรียบเทียบทักษะกระบวนการทางวิทยาศาสตร์ของนักเรียนก่อนเรียนและหลังเรียน 3) ศึกษาและเปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักเรียนก่อนเรียนและหลังเรียน และ 4) ศึกษาความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้เทคนิค STAD ร่วมกับปรัชญาเศรษฐกิจพอเพียง กลุ่มตัวอย่าง ได้แก่ นักเรียนชั้นมัธยมศึกษาปีที่ 3 ภาคเรียนที่ 1 ปีการศึกษา 2564 โรงเรียนบ้านหมากแข้ง จำนวน 41 คน โดยการสุ่มตัวอย่างแบบกลุ่ม เครื่องมือที่ใช้ประกอบด้วย แผนการจัดการเรียนรู้เทคนิค STAD ร่วมกับปรัชญาเศรษฐกิจพอเพียง แบบทดสอบวัดทักษะกระบวนการทางวิทยาศาสตร์ แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนวิทยาศาสตร์ และแบบสอบถามความพึงพอใจ สถิติที่ใช้ได้แก่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และสถิติทดสอบค่าทีแบบกลุ่มที่ไม่เป็นอิสระต่อกัน ผลการวิจัย 1) ผลสัมฤทธิ์ทางการเรียนวิทยาศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 3 เรื่อง การถ่ายทอดลักษณะทางพันธุกรรม โดยใช้การจัดการเรียนรู้เทคนิค STAD ร่วมกับปรัชญาเศรษฐกิจพอเพียงซึ่งมีคะแนนเฉลี่ยก่อนเรียนเท่ากับ 14.71 คิดเป็นร้อยละ 48.37 และหลังเรียนมีคะแนนเฉลี่ยเท่ากับ 23.59 คิดเป็นร้อยละ 78.61 เมื่อเปรียบเทียบคะแนนเฉลี่ยหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .01 4) ความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้เทคนิค STAD ร่วมกับปรัชญาเศรษฐกิจพอเพียงอยู่ในระดับมาก

กรอบแนวคิดที่ใช้ในการวิจัย

การวิจัยในครั้งนี้เป็นการพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อมด้วยเทคนิค STAD ร่วมกับเกม ของนักเรียนชั้นประถมศึกษา ศูนย์การเรียนรู้ระดับตำบลแหลมโพธิ์โดยมีกรอบแนวคิดดังภาพที่ 1



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

รูปแบบการวิจัยการวิจัยครั้งนี้

การวิจัยครั้งนี้เป็นการวิจัยกึ่งเชิงทดลอง มีการทดสอบก่อนและหลังทดลอง (One Group Pretest - Posttest Design)

ประชากร

ประชากรการวิจัยครั้งนี้ ได้แก่ นักเรียนชั้นประถมศึกษา ศูนย์การเรียนรู้ระดับตำบลแหลมโพธิ์ อำเภอยะหริ่ง จังหวัดปัตตานี จำนวน 1 กลุ่ม นักเรียน 30 คน โดยวิธีการเลือกแบบเจาะจง (Purposive Sampling)

เครื่องมือที่ใช้ในการวิจัย

1. แผนการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม จำนวน 5 แผน ระยะเวลา 10 ชั่วโมง

2. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม แบบปรนัย 4 ตัวเลือก จำนวน 20 ข้อ

3. แบบสอบถามความพึงพอใจของนักเรียนชั้นประถมศึกษา ที่มีต่อการเรียนโดยใช้เทคนิค STAD ร่วมกับเกม

ผลการหาคุณภาพเครื่องมือ

1. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนวิชาวิทยาศาสตร์ เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อมของนักเรียนชั้นประถมศึกษา มีลักษณะเป็นแบบปรนัยชนิดเลือกตอบ 4 ตัวเลือก จำนวน 20 ข้อ ผู้วิจัยได้ศึกษาข้อมูลที่เกี่ยวข้องจัดทำแบบทดสอบวัดผลสัมฤทธิ์และหาคุณภาพเครื่องมือ โดยตรวจสอบความตรงของเนื้อหาจากผู้เชี่ยวชาญ 3 คน พบว่า มีค่า IOC ของแบบทดสอบรายข้อ เท่ากับ 1.00 ถือเป็นข้อสอบที่มีความเหมาะสม

2. แบบวัดความพึงพอใจของนักเรียนที่มีผลต่อการเรียน โดยใช้เทคนิค STAD ร่วมกับเกม เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม นักเรียนชั้นประถมศึกษา และหาคุณภาพของเครื่องมือโดยการตรวจสอบความตรงของเนื้อหาจากผู้เชี่ยวชาญ 3 คน พบว่า ผลการหาคุณภาพมีค่าระหว่าง 0.67 - 1.00

การเก็บรวบรวมข้อมูล

1. ทดสอบด้วยแบบทดสอบก่อนเรียน เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม แบบปรนัย 4 ตัวเลือก จำนวน 20 ข้อ

2. สอนโดยใช้เทคนิค STAD ร่วมกับเกม เรื่อง สิ่งมีชีวิตกับสิ่งแวดล้อม จำนวน 5 แผน ระยะเวลา 10 ชั่วโมง ในการเรียนรู้

3. ทดสอบนักเรียนหลังเรียน โดยแบบปรนัย 4 ตัวเลือก เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม จำนวน 20 ข้อ

4. สอบถามความพึงพอใจต่อการเรียนโดยใช้ชุดฝึกทักษะวิชาวิทยาศาสตร์ เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม

การวิเคราะห์ข้อมูล

สถิติที่ใช้ในการวิเคราะห์ข้อมูล

1. วิเคราะห์และเปรียบเทียบการเรียนระหว่างก่อนเรียนและหลังเรียน โดยใช้โดยใช้เทคนิค STAD ร่วมกับเกม เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม นักเรียนชั้นประถมศึกษา โดยใช้สถิติ t-test (Dependent Samples)

2. วิเคราะห์ผลการตอบแบบสอบถามความพึงพอใจต่อการสอนโดยใช้เทคนิค STAD

ร่วมกับเกม เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม ค่าเฉลี่ย (Mean) และส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation) ผู้วิจัยมีเกณฑ์การแปลความหมาย (พล เหลืองรังษี, 2567) ดังนี้

ค่าเฉลี่ย 4.50 - 5.00 มีความพึงพอใจอยู่ในระดับมากที่สุด
ค่าเฉลี่ย 3.50 - 4.49 มีความพึงพอใจอยู่ในระดับมาก
ค่าเฉลี่ย 2.50 - 3.49 มีความพึงพอใจอยู่ในระดับปานกลาง
ค่าเฉลี่ย 1.50 - 2.49 มีความพึงพอใจอยู่ในระดับน้อย
ค่าเฉลี่ย 1.00 - 1.49 มีความพึงพอใจอยู่ในระดับน้อยที่สุด

ผลการวิจัย

การวิจัยเรื่อง เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อมด้วยเทคนิค STAD ร่วมกับเกมนักเรียนชั้นประถมศึกษาปีที่ 3 ผู้วิจัยได้นำเสนอผลการวิจัยออกเป็น 2 ตอน ตามวัตถุประสงค์ของการวิจัย ดังนี้

ตอนที่ 1 เปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างก่อนและหลังเรียนวิชาวิทยาศาสตร์ เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม ด้วยเทคนิค STAD ร่วมกับเกมนักเรียนชั้นประถมศึกษา

ตารางที่ 1 แสดงการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างก่อนและหลังเรียนวิชาวิทยาศาสตร์ เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม ด้วยเทคนิค STAD ร่วมกับเกมนักเรียนชั้นประถมศึกษา

ผลสัมฤทธิ์ทางการเรียน	N	คะแนนเต็ม	$\bar{X}$	S.D.	t	Sig.
ก่อนเรียน	30	20	8.07	1.17		
หลังเรียน	30	20	17.73	0.83	-40.87**	.000

จากตารางที่ 1 พบว่า ผลสัมฤทธิ์ก่อนเรียนได้คะแนนเฉลี่ย 8.07 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 1.17 ผลสัมฤทธิ์หลังเรียนได้คะแนนเฉลี่ย 17.73 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.83 ค่า t เท่ากับ 40.87 แสดงว่านักเรียนชั้นประถมศึกษาปีที่ 3 ที่เรียนด้วยเทคนิค STAD ร่วมกับเกม สูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ .01

ตอนที่ 2 ผลการศึกษาความพึงพอใจของนักเรียนที่เรียนกิจกรรมการเรียนรู้เรื่อง การพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม ด้วยเทคนิค STAD ร่วมกับเกมนักเรียนชั้นประถมศึกษาด้านเนื้อหาสาระความรู้

ตารางที่ 2 แสดงค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานความพึงพอใจของนักเรียนที่มีต่อการเรียนเรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม ด้วยเทคนิค STAD ร่วมกับเกม ด้านเนื้อหาสาระความรู้

รายการประเมิน	$\bar{X}$	S.D.	แปลผล
1. ได้รับความรู้เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อมที่มีความสอดคล้องกับจุดประสงค์และตัวชี้วัด	4.50	0.51	มากที่สุด
2. เนื้อหาสาระในแต่ละเรื่องทำให้นักเรียนมีความรู้ความรู้ความเข้าใจ และเกิดทักษะกระบวนการทางวิทยาศาสตร์	4.57	0.50	มากที่สุด

รายการประเมิน	$\bar{X}$	S.D.	แปลผล
3. เนื้อหาสาระในแต่ละเรื่อง ทำให้นักเรียนสามารถนำความรู้ไปใช้ในการพัฒนาผลสัมฤทธิ์ทางการเรียนได้	4.63	0.49	มากที่สุด
4. เนื้อหาสาระในแต่ละเรื่องมีความเหมาะกับเวลาใช้ในการจัดการเรียนรู้	4.57	0.50	มากที่สุด
ภาพรวม	**4.57**	**0.50**	**มากที่สุด**

จากตารางที่ 2 พบว่า การประเมินความพึงพอใจของนักเรียนชั้นประถมศึกษาที่มีต่อการเรียน โดยเทคนิค STAD ร่วมกับเกม ด้านเนื้อหาสาระความรู้ มีความพึงพอใจอยู่ในระดับมาก ($\bar{X}$ = 4.57, S.D. = 0.50) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อยคือ ปริมาณเนื้อหาสาระในแต่ละเรื่อง ทำให้นักเรียนสามารถนำความรู้ไปใช้ในการพัฒนาผลสัมฤทธิ์ทางการเรียนได้ ($\bar{X}$= 4.63, S.D. = 0.49) เนื้อหาสาระในแต่ละเรื่องมีความเหมาะกับเวลาใช้ในการจัดการเรียนรู้ ($\bar{X}$= 4.57, S.D. = 0.50) เนื้อหาสาระในแต่ละเรื่องมีความเหมาะกับเวลาใช้ในการจัดการเรียนรู้ ($\bar{X}$= 4.57, S.D. = 0.50) และได้รับความรู้เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อมที่มีความสอดคล้องกับจุดประสงค์และตัวชี้วัด ($\bar{X}$= 4.50, S.D. = 0.51) ตามลำดับ

ตารางที่ 3 แสดงค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานความพึงพอใจของนักเรียนที่มีต่อการเรียนเรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม ด้วยเทคนิค STAD ร่วมกับเกม ด้านกิจกรรมการเรียนรู้

รายการประเมิน	$\bar{X}$	S.D.	แปลผล
1. กิจกรรมการเรียนรู้ ส่งเสริมการพัฒนาผลสัมฤทธิ์ทางการเรียน	4.37	0.49	มาก
2. กิจกรรมการเรียนรู้ส่งเสริมให้นักเรียนฝึกทักษะกระบวนการทางวิทยาศาสตร์	4.43	0.50	มาก
3. กิจกรรมการเรียนรู้ ส่งเสริมให้นักเรียนได้แลกเปลี่ยนความรู้และช่วยเหลือกัน	4.47	0.51	มาก
4. กิจกรรมการเรียนรู้ทำให้นักเรียนได้ปฏิบัติกิจกรรมด้วยตนเอง	4.53	0.51	มากที่สุด
ภาพรวม	**4.45**	**0.50**	**มาก**

จากตารางที่ 3 พบว่า การประเมินความพึงพอใจของนักเรียนชั้นประถมที่มีต่อการเรียนโดยเทคนิค STAD ร่วมกับเกม ด้านเนื้อหามีความพึงพอใจอยู่ในระดับมาก ($\bar{X}$ = 4.45, S.D. = 0.50) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อยคือ กิจกรรมการเรียนรู้ทำให้นักเรียนได้ปฏิบัติกิจกรรมด้วยตนเอง ($\bar{X}$= 4.53, S.D. = 0.51) กิจกรรมการเรียนรู้ ส่งเสริมให้นักเรียนได้แลกเปลี่ยนความรู้และช่วยเหลือกัน ($\bar{X}$= 4.47, S.D. = 0.51) กิจกรรมการเรียนรู้ส่งเสริมให้นักเรียนฝึกทักษะกระบวนการทางวิทยาศาสตร์ ($\bar{X}$= 4.43, S.D. = 0.50) และกิจกรรมการเรียนรู้ส่งเสริมการพัฒนาผลสัมฤทธิ์ทางการเรียน ($\bar{X}$ = 4.37, S.D. = 0.49) ตามลำดับ

ตารางที่ 4 แสดงค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานความพึงพอใจของนักเรียนที่มีต่อการเรียนเรื่อง สิ่งมีชีวิตกับสิ่งแวดล้อม ด้วยเทคนิค STAD ร่วมกับเกม ด้านสื่อ อุปกรณ์ การเรียนรู้

รายการประเมิน	$\bar{X}$	S.D.	แปลผล
1. สื่อและอุปกรณ์เพียงพอต่อการจัดกิจกรรมต่อการจัดกิจกรรมการเรียนรู้	4.53	0.51	มากที่สุด
2. สื่อและอุปกรณ์เหมาะสมกับการจัดกิจกรรม	4.52	0.51	มากที่สุด
3. สื่อและอุปกรณ์ช่วยให้นักเรียนสร้างความรู้ความเข้าใจและช่วยพัฒนาทักษะกระบวนการทางวิทยาศาสตร์ได้	4.81	0.50	มากที่สุด
4. สื่อและอุปกรณ์การจัดการเรียนรู้ทำให้นักเรียนสามารถนำไปประยุกต์ใช้ในวิชาอื่น ๆ ได้	4.84	0.50	มากที่สุด
ภาพรวม	**4.67**	**0.50**	**มากที่สุด**

จากตารางที่ 4 พบว่า การประเมินความพึงพอใจของนักเรียนชั้นประถมศึกษา ที่มีต่อการเรียนโดยเทคนิค STAD ร่วมกับเกม ด้านเนื้อหามีความพึงพอใจอยู่ในระดับมาก ($\bar{X}$= 4.67, S.D. = 0.50) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อยคือ สื่อและอุปกรณ์การจัดการเรียนรู้ทำให้นักเรียนสามารถนำไปประยุกต์ใช้ในวิชาอื่น ๆ ได้ ($\bar{X}$= 4.84, S.D. = 0.50) สื่อและอุปกรณ์ช่วยให้นักเรียนสร้างความรู้ความเข้าใจและช่วยพัฒนาทักษะกระบวนการทางวิทยาศาสตร์ได้ ($\bar{X}$= 4.81, S.D. = 0.50) สื่อและอุปกรณ์เพียงพอต่อการจัดกิจกรรมต่อการจัดกิจกรรมการเรียนรู้ ($\bar{X}$= 4.53, S.D. = 0.51) และสื่อและอุปกรณ์เหมาะสมกับการจัดกิจกรรม ($\bar{X}$ = 4.52, S.D. = 0.51) ตามลำดับ

ตารางที่ 5 แสดงค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานความพึงพอใจของนักเรียนที่มีต่อการเรียนเรื่อง สิ่งมีชีวิตกับสิ่งแวดล้อม ด้วยเทคนิค STAD ร่วมกับเกม ด้านการวัดและประเมินผล

รายการประเมิน	$\bar{X}$	S.D.	แปลผล
1. วิธีการประเมินผลสอดคล้องกับวัตถุประสงค์และกิจกรรมการเรียนการสอน	4.50	0.48	มากที่สุด
2. นักเรียนมีส่วนร่วมในการวัดและประเมินผล	4.84	0.51	มาก
3. การวัดและประเมินผลด้วยรูปแบบที่หลากหลาย ได้แก่ การประเมินด้านความรู้ ด้านทักษะกระบวนการทางวิทยาศาสตร์และด้านคุณลักษณะอันพึงประสงค์	4.77	0.50	มากที่สุด
4. การวัดและประเมินผลมีประสิทธิ์ภาพและยุติธรรม	4.61	0.43	มากที่สุด
ภาพรวม	**4.68**	**0.50**	**มากที่สุด**

จากตารางที่ 5 พบว่า การประเมินความพึงพอใจของนักเรียนชั้นประถมศึกษาที่มีต่อการเรียนโดยเทคนิค STAD ร่วมกับเกม ด้านเนื้อหามีความพึงพอใจอยู่ในระดับมาก ($\bar{X}$= 4.68, S.D. = 0.50) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อยคือ นักเรียนมีส่วนร่วมในการวัดและประเมินผล ($\bar{X}$= 4.84,

S.D. = 0.51) การวัดและประเมินผลด้วยรูปแบบที่หลากหลาย ได้แก่ การประเมินด้านความรู้ ด้านทักษะกระบวนการทางวิทยาศาสตร์และด้านคุณลักษณะอันพึงประสงค์ ($\bar{X}$= 4.77, S.D. = 0.50) การวัดและประเมินผลมีประสิทธิภาพและยุติธรรม ($\bar{X}$= 4.61, S.D. = 0.43) และวิธีการประเมินผลสอดคล้องกับวัตถุประสงค์และกิจกรรมการเรียนการสอน ($\bar{X}$= 4.50, S.D. = 0.48) ตามลำดับ

ตารางที่ 6 แสดงค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานความพึงพอใจของนักเรียนที่มีต่อการเรียน เรื่อง สิ่งมีชีวิตกับสิ่งแวดล้อม ด้วยเทคนิค STAD ร่วมกับเกม ทั้ง 4 ด้าน

รายการประเมิน	$\bar{X}$	S.D.	แปลผล
1. ด้านเนื้อหาสาระความรู้	4.57	0.50	มากที่สุด
2. ด้านกิจกรรมการเรียนรู้	4.45	0.50	มาก
3. ด้านสื่อ อุปกรณ์ การเรียนรู้	4.67	0.50	มากที่สุด
4. ด้านการวัดและประเมินผล	4.68	0.50	มากที่สุด
ภาพรวม	**4.59**	**0.50**	**มากที่สุด**

จากตารางที่ 6 พบว่า การประเมินความพึงพอใจของนักเรียนชั้นประถมศึกษาที่มีต่อการเรียนโดยเทคนิค STAD ร่วมกับเกม ด้านเนื้อหามีความพึงพอใจอยู่ในระดับมาก ($\bar{X}$= 5.59, S.D. = 0.50) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อยคือ ด้านการวัดและประเมินผล ($\bar{X}$= 4.68, S.D. = 0.50) ด้านสื่อ อุปกรณ์การเรียนรู้ ($\bar{X}$= 4.67, S.D. = 0.50) ด้านเนื้อหาสาระความรู้ ($\bar{X}$= 4.57, S.D. = 0.50) ด้านกิจกรรมการเรียนรู้ ($\bar{X}$ = 4.45, S.D. = 0.50) ตามลำดับ

สรุปและอภิปรายผล

การพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม ด้วยเทคนิค STAD ร่วมกับเกม นักเรียนชั้นประถมศึกษา ศูนย์การเรียนรู้ระดับตำบลแหลมโพธิ์ สามารถนำผลมาอภิปรายผลตามสมมติฐานการวิจัย ดังนี้

1. ผลสัมฤทธิ์ทางการเรียนก่อนเรียนและหลังเรียนของนักเรียนชั้นประถมศึกษา เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม โดยการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม พบว่า ผลสัมฤทธิ์ทางการเรียนก่อนเรียนเท่ากับ 8.07 และคะแนนเฉลี่ยหลังเรียนเท่ากับ 17.73 แสดงว่า ผลสัมฤทธิ์ทางการเรียนของนักเรียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 เป็นไปตามสมมติฐานข้อที่ 1 ที่ตั้งไว้ ทั้งนี้เนื่องจากกิจกรรมการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม ทำให้ผู้เรียนมีความรู้ ความเข้าใจส่งผลให้ผลสัมฤทธิ์ทางการเรียนสูงขึ้น ซึ่งผู้เรียนได้เล่นเกมและทำกิจกรรมเป็นกลุ่มช่วยกันคิด ช่วยกันเรียน ช่วยเหลือกันในกลุ่มและแลกเปลี่ยนเรียนรู้ สอดคล้องกับงานวิจัย ของศิริรักษ์ แก้วหานาม, อนันต์ ปานศุภวัชร และอรุณรัตน์ คำแหงพล (2562) ได้ทำการวิจัยเรื่องการพัฒนาทักษะกระบวนการทางวิทยาศาสตร์และผลสัมฤทธิ์ทางการเรียน เรื่องเสียงกับการได้ยินโดยใช้การจัดกิจกรรมการเรียนรู้แบบร่วมมือเทคนิค STAD ร่วมกับผังมโนทัศน์ของนักเรียนชั้นประถมศึกษาปีที่ 5 พบว่า ผลสัมฤทธิ์ทางการเรียนของนักเรียน หลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01

2. ความพึงพอใจของนักเรียนชั้นประถมศึกษา เรื่องสิ่งมีชีวิตกับสิ่งแวดล้อม โดยการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม อยู่ในระดับมากที่สุดมีค่าเฉลี่ยรวมเท่ากับ 4.58 ค่าเฉลี่ยการวิเคราะห์รายด้าน

จากค่าเฉลี่ยมากไปหาน้อย ดังนี้ 1) ด้านการวัดและประเมินผล มีค่าเฉลี่ยเท่ากับ 4.68 2) ด้านสื่อ อุปกรณ์การเรียนรู้ มีค่าเฉลี่ยเท่ากับ 4.67 3) ด้านเนื้อหาสาระความรู้ มีค่าเฉลี่ยเท่ากับ 4.57 4) ด้านกิจกรรมการเรียนรู้มีค่าเฉลี่ยเท่ากับ 4.45 ซึ่งผลการศึกษาสอดคล้องกับงานวิจัยของอัญชลีพร แซ่ตั้ง และอรนุช ลิมตศิริ (2565) ได้ทำการวิจัย เรื่องการศึกษาผลสัมฤทธิ์ทางการเรียนและความพึงพอใจต่อวิชาสังคมศึกษาของนักเรียนชั้นมัธยมศึกษาปีที่ 5 ที่เรียนโดยบทเรียนมัลติมีเดีย วิจัยนี้มีวัตถุประสงค์ คือ 1) เพื่อสร้างและหาประสิทธิภาพของบทเรียนมัลติมีเดีย เรื่องประชากรและการตั้งถิ่นฐานให้มีประสิทธิภาพตามเกณฑ์ 80/80 2) เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนในรายวิชาสังคมศึกษา 3 ระหว่างก่อนเรียนและหลังเรียนด้วยการจัดการเรียนรู้โดยใช้บทเรียนมัลติมีเดีย 3) เพื่อศึกษาความพึงพอใจของนักเรียนที่เรียนด้วยบทเรียนมัลติมีเดีย กลุ่มตัวอย่างในการวิจัยครั้งนี้ ผู้วิจัยใช้วิธีการสุ่มตัวอย่างแบบอย่างง่าย โดยวิธีจับสลาก ซึ่งจับสลากได้กลุ่มตัวอย่าง คือ นักเรียนชั้นมัธยมศึกษาปีที่ 5/4 โรงเรียนเทพศิรินทร์ ภาคเรียนที่ 1 ปีการศึกษา 2564 จำนวน 44 คน เครื่องมือที่ใช้ในการวิจัย ประกอบด้วย 1) บทเรียนมัลติมีเดีย เรื่องประชากรและการตั้งถิ่นฐานที่ผู้วิจัยสร้างขึ้น 2) แผนการจัดการเรียนรู้ด้วยบทเรียนมัลติมีเดีย 3) แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนวิชาสังคมศึกษาและ 4) แบบสอบถามความพึงพอใจของนักเรียนที่มีต่อบทเรียนมัลติมีเดีย สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการทดสอบแบบไม่เป็นอิสระต่อกัน (t-test for Dependent) ผลการวิจัยพบว่า 1) ผลสัมฤทธิ์ทางการเรียนของนักเรียนกลุ่มทดลองที่เรียนด้วยบทเรียนมัลติมีเดีย มีคะแนนเฉลี่ยหลังเรียน สูงกว่าคะแนนเฉลี่ยก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 3) ผลการสอบถามความพึงพอใจของนักเรียนที่มีต่อการเรียนด้วยบทเรียนมัลติมีเดียโดยเฉลี่ยอยู่ในระดับมากที่สุด

ข้อเสนอแนะ

1. ข้อเสนอแนะสำหรับการนำผลวิจัยไปใช้

1.1 ก่อนดำเนินการวิจัยควรเข้าใจลักษณะเฉพาะของนักเรียน เช่น พื้นฐานความรู้เดิม ความสนใจ รูปแบบการเรียนรู้ที่ถนัดหรือความท้าทายในการเรียนรู้ที่อาจมีข้อมูลเหล่านี้ จะช่วยในการออกแบบกิจกรรมและเกมที่เหมาะสม

1.2 ก่อนดำเนินวิจัยจริงควรมีการนำร่องกับนักเรียนกลุ่มเล็ก ๆ ที่มีลักษณะคล้ายกับกลุ่มตัวอย่าง เพื่อทดสอบความเหมาะสมของแผนการจัดการเรียนรู้ เกม และเครื่องมือการวิจัย รวมถึงปรับปรุงแก้ไขข้อบกพร่อง

2. ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

2.1 ควรพัฒนาเกมให้มีความหลากหลาย เช่น เกมดิจิทัล (Digital Game-Based Learning) เพื่อเพิ่มความน่าสนใจและโอกาสในการเรียนรู้

2.2 ทดลองใช้ AR (Augmented Reality) หรือ VR (Virtual Reality) ในการสอน เพื่อให้การเรียนรู้มีความสมจริงยิ่งขึ้น

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2552). วิทยาศาสตร์: ความรู้และทักษะสำคัญในการพัฒนาชีวิตและสังคม. กรุงเทพฯ: กระทรวงศึกษาธิการ.

ทิศนา แขมมณี. (2552). ศาสตร์การสอน: องค์กรเพื่อการจัดกระบวนการเรียนรู้ที่มีประสิทธิภาพ. (พิมพ์ครั้งที่ 5). กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์ มหาวิทยาลัย.

นงนุช บริเอก. (2565). การพัฒนาทักษะกระบวนการทางวิทยาศาสตร์และผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 3 เรื่องชีวิตของมนุษย์และสัตว์ โดยการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม. วิทยานิพนธ์ปริญญามหาบัณฑิต สาขาวิชาการสอนวิทยาศาสตร์ มหาวิทยาลัยราชภัฏสกลนคร, สกลนคร.

พัชราภรณ์ ไชยเบ้า. (2565). การพัฒนาทักษะกระบวนการทางวิทยาศาสตร์และผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นมัธยมศึกษาปีที่ 3 เรื่องการถ่ายทอดลักษณะทางพันธุกรรม โดยการจัดการเรียนรู้เทคนิค STAD ร่วมกับปรัชญาเศรษฐกิจพอเพียง. ครุศาสตรมหาบัณฑิตสาขาวิชา การสอนวิทยาศาสตร์ มหาวิทยาลัยราชภัฏสกลนคร, สกลนคร.

พล เหลืองรังษี. (2567). การวิจัยทางหลักสูตรและการจัดการเรียนรู้. สงขลา: อะวา 2013.

วราภรณ์ ถิรสิริ์, วารีย์ เมืองเกษม และวิรัตน์ เจริญสุข. (2551). การใช้เกมในการเรียนการสอนวิทยาศาสตร์ระดับมัธยมศึกษา. ปทุมธานี: สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ.

ศิริรักษ์ แก้วหานาม, อนันต์ ปานศุภวัชร, และอรุณรัตน์ คำแหงพล. (2562). การพัฒนาทักษะกระบวนการทางวิทยาศาสตร์และผลสัมฤทธิ์ทางการเรียน เรื่องเสียงกับการได้ยิน โดยใช้การจัดกิจกรรมการเรียนรู้แบบร่วมมือเทคนิค STAD ร่วมกับผังมโนทัศน์ของนักเรียนชั้นประถมศึกษาปีที่ 5. ครุศาสตรมหาบัณฑิต (ค.ม.) สาขาวิชา การสอนวิทยาศาสตร์ มหาวิทยาลัยราชภัฏสกลนคร, สกลนคร.

สถาบันทดสอบทางการศึกษาแห่งชาติ. (2566). ผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐาน (N-NET) วิชาวิทยาศาสตร์. สืบค้นเมื่อ 25 กุมภาพันธ์ 2568 จาก https://www.niets.or.th/th/

สุวิทย์ มูลคำ และอรทัย มูลคำ. (2551). วิธีการจัดการเรียนรู้: เพื่อพัฒนาความรู้และทักษะ. (พิมพ์ครั้งที่ 7). กรุงเทพฯ: ภาพพิมพ์.

อัญชลีพร แซ่ตั้ง และอรนุช ลิมตศิริ. (2565). การศึกษาผลสัมฤทธิ์ทางการเรียนและความพึงพอใจต่อวิชาสังคมศึกษาของนักเรียนชั้นมัธยมศึกษาปีที่ 5 ที่เรียนโดยบทเรียนมัลติมีเดีย. วารสารร้อยแก่นสารบัญฑิต, 7(4), 190-206.

Ausubel, D. P. (1968). Educational psychology: A cognitive view. New York: Holt, Rinehart & Winston.

Gee, J. P. (2007). What video games have to teach us about learning and literacy. Computers in Entertainment (CIE), 1(1), 20-20.

Piaget, J. (1973). To understand is to invent: The future of education. New York: Viking Press.

Slavin, R. E. (1980). Team-assisted individualization. Educational Leadership, 38(4), 43-47.

Slavin, R. E. (1995). Cooperative learning: Theory, research, and practice (2nd ed). New Jersey: Prentice Hall.

แนวทางการส่งเสริมการจัดการเรียนรู้เชิงรุก โดยใช้หลักการนิเทศ 4 ร่วมตามแนวทางศาสตร์พระราชาของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

Guideline for Promoting Active Learning by using using the 4 Collaborative Supervision Principles Process according to the Royal philosophy of Bannakhuanlung School Under the Songkhla Primary Educational Area Service Office 2

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาแนวทางการส่งเสริมการจัดการเรียนรู้เชิงรุก โดยใช้หลักการนิเทศ 4 ร่วม ตามแนวทางศาสตร์พระราชา ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 กลุ่มเป้าหมาย คือ ครูผู้สอน โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) ปีการศึกษา 2565 จำนวน 37 คน ได้มาโดยวิธีการเฉพาะเจาะจง เครื่องมือที่ใช้ในการวิจัย ได้แก่ แบบวิเคราะห์เอกสาร แบบสัมภาษณ์เชิงลึก แบบประเมินทักษะการจัดการเรียนรู้เชิงรุก แบบบันทึกผลการนิเทศ และแบบประเมินความพึงพอใจ สถิติที่ใช้วิเคราะห์ข้อมูล คือค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการวิเคราะห์เนื้อหา (Content Analysis) ผลการวิจัยพบว่า แนวทางทางการส่งเสริมการจัดการเรียนรู้เชิงรุก ตามแนวทางศาสตร์พระราชา โดยใช้หลักการนิเทศ 4 ร่วม ประกอบด้วย ร่วมวางแผน ร่วมปฏิบัติ ร่วมตรวจสอบและประเมิน ร่วมปรับปรุง พัฒนา และชื่นชม 3) ครูมีทักษะการจัดการเรียนรู้แบบเชิงรุก ในภาพรวมมีการปฏิบัติงานอยู่ในระดับดี และมีความพึงพอใจอยู่ในระดับมาก

คำสำคัญ: การจัดการเรียนรู้เชิงรุก, การนิเทศแบบ 4 ร่วม, ศาสตร์พระราชา

Abstract

The purpose of this research was to study ways to Guideline for Promoting Active Learning by using the 4 Collaborative Supervision Principles Process according to the Royal philosophy of Bannakhuanlung School Under the Songkhla Primary Educational Area Service Office 2 The target group consisted of 37 teachers from Bannakhuanlung School during the 2022 academic year, selected using a purposive sampling method. The research instruments included: a document analysis form, in-depth interviews about promoting

active learning using the 4 Collaborative Supervision Principles Process according to the Royal philosophy, an assessment form for active learning management skills, a supervision record form, and a satisfaction evaluation form. The statistical analysis used percentage, mean, standard deviation, and content analysis.

The research findings revealed that the promotion of active learning management following the King's philosophy using the 4 Collaborative Supervision Principles Process consists of: Plan collaboration– Planning should involve collaborative analysis of information, identifying strengths and weaknesses, and raising awareness together. Implement collaboration Checking collaboration – Emphasizing participation, flexibility, and being a supportive colleague. – Collaborating to check and assess, preparing or developing supervision tools, monitoring, evaluating, analyzing data, and summarizing the results. Enable collaboration– Collaboratively improving weak areas, appreciating strengths, and reinforcing continuous development. Teachers demonstrated good overall performance in active learning management skills and reported a high level of satisfaction.

Keywords: Active Learning, The 4 Collaborative Supervision Principles Process, Royal philosophy

บทนำ

การจัดการเรียนรู้เป็นกระบวนการสำคัญในการนำหลักสูตรสู่การปฏิบัติ ให้ผู้เรียนเกิดการเรียนรู้ มีสมรรถนะและคุณลักษณะอันพึงประสงค์ เป็นเป้าหมายที่สำคัญในการพัฒนาผู้เรียน ดังนั้นครูผู้สอนต้องพยายามคัดสรรกระบวนการจัดการเรียนรู้ สื่อ นวัตกรรม และเทคโนโลยีเพื่อการ เรียนรู้ ที่เหมาะสม สอดคล้องและทันกับสถานการณ์ ในยุคศตวรรษที่ 21 ที่เป็นยุคของข้อมูลข่าวสาร และการเปลี่ยนแปลง ครูผู้สอนจึงจำเป็นต้องปรับเปลี่ยนรูปแบบวิธีการจัดการเรียนรู้ให้ตอบสนองความเปลี่ยนแปลงของสังคม เทคโนโลยี จากผู้สอนที่มีบทบาทเป็นผู้ถ่ายทอดความรู้ปรับเปลี่ยนบทบาทเป็นผู้จัดการเรียนรู้ เน้นบทบาท และการมีส่วนร่วมของผู้เรียน ประยุกต์ใช้สื่อ นวัตกรรม เทคโนโลยี ให้ผู้เรียนสามารถศึกษา ค้นคว้า แสวงหาความรู้ได้ด้วยตนเอง สร้างความเข้าใจด้วยตนเองจนเกิดเป็นการเรียนรู้อย่างมี ความหมาย Active Learning เป็นวิธีการจัดการเรียนรู้แบบหนึ่งที่สอดคล้องกับการส่งเสริม คุณลักษณะของผู้เรียนในศตวรรษที่ 21 และยังสอดคล้องกับยุคไทยแลนด์ 4.0 โดยเป็น กระบวนการเรียนการสอนอย่างหนึ่งที่เน้นการเรียนรู้ผ่านการปฏิบัติ หรือการลงมือทำผู้เรียนได้ใช้ กระบวนการคิดเกี่ยวกับสิ่งที่เขาได้กระทำลงไปปฏิบัติ เป็นกระบวนการจัดการเรียนรู้ตามแนวคิดการ สร้างสรรค์ทางปัญญา (Constructivism) ที่เน้นกระบวนการเรียนรู้ มากกว่าเนื้อหาวิชา เพื่อช่วยให้ ผู้เรียนสามารถเชื่อมโยงความรู้ หรือสร้างความรู้ให้เกิดขึ้นในตนเอง (เดชดนัย จุ้ยชุม, เกษรา บ่าวแช่มช้อย และศิริกัญญา แก่นทอง, 2559)

การขับเคลื่อนการแก้ปัญหาดังกล่าวจะเกิดขึ้นได้อย่างมีประสิทธิภาพและเกิดประสิทธิผลนั้น จะต้องมีองค์ประกอบสำคัญ 3 ประการ คือ การบริหารจัดการ การจัดการเรียนรู้และการนิเทศการศึกษา โดยให้ความสำคัญกับ “การนิเทศ การศึกษา” เป็นลำดับแรก เนื่องจากการนิเทศการศึกษาเป็นกระบวนในการให้ความช่วยเหลือ แนะนำ ชี้แนะ ลดความขัดแย้ง สร้างขวัญและกำลังใจ ให้ความร่วมมือกับครูและบุคคลที่เกี่ยวข้องกับ การจัดการศึกษา ปรับปรุงการเรียนการสอนของครู และเพิ่มคุณภาพของนักเรียน

ให้เป็นไปตามเป้าหมายของการศึกษา มุ่งเน้นในการพัฒนาคุณภาพการศึกษา โดยปฏิบัติการผ่านครูเพื่อให้ผลสัมฤทธิ์ทางการเรียนของนักเรียนสูงขึ้น ปัจจุบันการนิเทศของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) ยังมีปัญหาด้านการขาดความรู้ ทักษะและเจตคติในการนิเทศ ไม่ต่อเนื่องและไม่ครอบคลุมภาระงานที่รับผิดชอบ ส่งผลต่อคุณภาพของผู้เรียนยังไม่บรรลุตามเป้าหมายที่กำหนด โรงเรียนจึงได้ดำเนินงานศึกษาแนวทางการส่งเสริมการจัดการเรียนรู้เชิงรุก โดยใช้หลักการนิเทศ 4 ร่วม ตามแนวทางศาสตร์พระราชา ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ซึ่งประกอบด้วย 4 ขั้นตอนที่สำคัญ คือ ร่วมวางแผน ร่วมปฏิบัติ ร่วมตรวจสอบ ประเมิน และร่วมปรับปรุง พัฒนา ชื่นชม เพื่อให้เกิดการพัฒนาและเปลี่ยนแปลงการดำเนินการนิเทศการศึกษาที่สามารถส่งผลต่อคุณภาพในการจัดการศึกษาทุกระดับ โดยเฉพาะครูผู้สอนสามารถจัดการเรียนรู้เชิงรุก (Active Learning) ตามแนวทางศาสตร์พระราชา คือ เข้าใจ เข้าถึง พัฒนาอย่างยั่งยืน สู่ครูมืออาชีพ อันจะส่งผลต่อคุณภาพของผู้เรียน ดี เก่ง สุข อย่างมั่นคงยั่งยืนตลอดไป

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาแนวทางการส่งเสริมการจัดการเรียนรู้เชิงรุก โดยใช้หลักการนิเทศ 4 ร่วม ตามแนวทางศาสตร์พระราชา ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2
2. เพื่อศึกษาทักษะการจัดการเรียนรู้เชิงรุกตามแนวทางศาสตร์พระราชาโดยใช้หลักการนิเทศ 4 ร่วม ของครูผู้สอนโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2
3. เพื่อศึกษาความพึงพอใจที่มีต่อการส่งเสริมการจัดการเรียนรู้เชิงรุก โดยใช้หลักการนิเทศ 4 ร่วม ตามแนวทางศาสตร์พระราชา

แนวคิด ทฤษฎี กรอบแนวคิด

การนิเทศการศึกษา

กระทรวงศึกษาธิการ (2557) ได้ให้ความหมายของการนิเทศภายในสถานศึกษาว่า หมายถึง การจัดการให้เกิดความร่วมมือหรือประสานงานกบบุคคลที่เกี่ยวข้องเพื่อพัฒนาหรือปรับปรุง คุณภาพการบริหารจัดการ การจัดการเรียนการสอน การจัดกิจกรรมในโรงเรียน และการจัดกิจกรรม ชุมชนสัมพันธ์ให้มีประสิทธิภาพสูงสุด

Glickman, Gordon & Ross Gordon (2019) ได้ให้ความหมายของการนิเทศภายในสถานศึกษาว่าหมายถึง แนวคิดเกี่ยวกับงานและหน้าที่ที่เกี่ยวข้องกับการปรับปรุงการเรียนการสอน ซึ่งเป็นการสอนในเรื่องหลักสูตร การจัดครูเข้าสอน การจัดสื่อการสอน สิ่งอำนวยความสะดวก การเตรียมและพัฒนาครู รวมทั้งการประเมินผลการเรียนการสอน

อธิศ ไชยคิรินทร์ (2562) กล่าวว่า การนิเทศภายในเป็นเรื่องสำคัญและจำเป็น สำหรับสถานศึกษาทุกแห่งเนื่องจากการเปลี่ยนแปลงทางเศรษฐกิจ สังคม สื่อเทคโนโลยี และวิทยากรต่าง ๆ ที่หลากหลายและรวดเร็ว ครูและบุคลากรต้องการมีการปรับตัวให้ทันเหตุการณ์จากปัญหา การขาดแคลนศึกษานิเทศก์ที่จะมานิเทศ ติดตามให้คำชี้แนะจึงเป็นเรื่องยากและไม่ทันเหตุการณ์ ครู และบุคลากรในยุคปัจจุบันมีการศึกษาสูง มีความรู้ความสามารถที่จะนิเทศการสอนกันเองได้ และที่ สำคัญที่สุด คือ การที่บุคคลภายใน

มาร่วมมือกันนิเทศ ติดตาม ย่อมเข้าใจบริบทของบุคลากร เพราะ คุ้นเคย และวางใจกันมากกว่าบุคคลภายนอก ก่อให้เกิดความรัก สามัคคี ร่วมมือร่วมใจในการทำงาน มากยิ่งขึ้น

รัศมี ภูกันดาน (2562) กล่าวว่า หลักการที่สำคัญของการนิเทศภายในโรงเรียน ประกอบไปด้วยหลักการดังนี้

1. หลักการวางแผน คือ กระบวนการวิเคราะห์ผล กำหนดวัตถุประสงค์ไว้ล่วงหน้าโดย เลือกทางปฏิบัติที่เหมาะสมที่สุดเพื่อให้บรรลุผลสำเร็จตามวัตถุประสงค์ที่ตั้งไว้

2. หลักความร่วมมือ คือ กระบวนการทำงานร่วมกัน มีความเกี่ยวข้องสัมพันธ์กัน ร่วมมือร่วมใจกัน เพื่อดำเนินการแก้ไขปัญหาและประสานงานซึ่งกันและกัน

3. หลักการบูรณาการ คือ กระบวนการนำสิ่งย่อยต่าง ๆ ที่มีความเหมาะสมเข้าไว้ ด้วยกัน

4. หลักการประเมิน คือ กระบวนการวัดผลการดำเนินงานต่าง ๆ ด้วยเครื่องมือที่มี คุณภาพ และมีความเหมาะสมกับบริบทนั้น ๆ โดยควรเริ่มจากความถูกต้องตามหลักวิชา ความเป็นประชาธิปไตย ใช้กระบวนการทางวิทยาศาสตร์ มีบรรยากาศแบบสร้างสรรค์ มีการประสานงาน ทำงานเป็นหมู่คณะ ช่วยให้ผู้รับการนิเทศมีความเชื่อมั่น พึ่งตนเอง และพัฒนาตนเองต่อไป

สุรศักดิ์ ปาเฮ (2562) กล่าวว่า ผู้บริหารสถานศึกษาจะต้องถือว่าเป็นหน้าที่โดยตรงที่จะต้องนิเทศการศึกษาของตนเองที่รับผิดชอบอยู่ การดำเนินการนิเทศการศึกษาจะต้องเป็นการร่วมมือหรือยอมรับของบุคคลในสถานศึกษาที่จะช่วยการพัฒนาปรับปรุงแก้ไขซึ่งกันและกันภายใต้บรรยากาศแห่งความเป็นประชาธิปไตย ใช้กระบวนการทางวิทยาศาสตร์ มีบรรยากาศแบบสร้างสรรค์ มีการประสานงานทำงานเป็นหมู่คณะ การนิเทศการศึกษาจะต้องเกิดขึ้นจากความต้องการแก้ไขปัญหาหรือต้องการตอบสนองความต้องการของสถานศึกษาที่จะต้องยกระดับคุณภาพการศึกษาของสถานศึกษาและ การนิเทศการศึกษาจะต้องเป็นการส่งเสริมสนับสนุนให้กำลังใจแก่บุคลากรในสถานศึกษาให้มีความเชื่อมั่นในตนเองและพร้อมที่จะเผยแพร่ผลงานทางวิชาการเพื่อให้บุคคลในหน่วยงานมีความรู้ความสามารถสูงขึ้น

สรุปได้ว่าการดำเนินงานการนิเทศที่ดีควรดำเนินการอย่างเป็นระบบ ประกอบด้วย การวางแผน การปฏิบัติ การติดตามประเมินผล และการปรับปรุงแก้ไขภายใต้การมีส่วนร่วมของผู้ที่มีส่วนเกี่ยวข้อง

การบริหารแบบมีส่วนร่วม

การมีส่วนร่วมเป็นพลังสร้างสรรค์ที่ก่อให้เกิดประโยชน์กับบุคคลแต่ละคน และผลผลิตของสังคม ก่อให้เกิดปฏิสัมพันธ์ ความผูกพันของบุคคลในสังคม นวัตกรรมของสังคมที่เกิดขึ้นในอดีตจนถึงปัจจุบันและจะเกิดขึ้นใหม่ในอนาคตเป็นผลจากแนวคิดของการมีส่วนร่วมเกือบทั้งสิ้น จะช้าหรือเร็วขึ้นอยู่กับความต้องการ ลักษณะของสังคม วัฒนธรรม ความเชื่อ ค่านิยม และเจตคติที่มีต่อการมีส่วนร่วม นอกจากนั้นการมีส่วนร่วมยังช่วยยกระดับแรงจูงใจ (Motivation) การสร้างข้อผูกพัน ของการเปลี่ยนแปลง (Commitment to Change) การให้ความร่วมมือ (Co - operation) และคุณภาพของการตัดสินใจ แนวคิดหลักของการมีส่วนร่วมมีองค์ประกอบที่สำคัญคือ จะต้องมีบุคคล ที่เข้าไปเกี่ยวข้อง (Involvement) การช่วยเหลือและการทำประโยชน์ (Contribution) ความรับผิดชอบ (Responsibility) ซึ่งเกี่ยวข้องทางจิตใจมากกว่าทางร่างกาย (เสริมศักดิ์ วิศาลาภรณ์, 2555)

สันติ บุญภิรมย์ (2562) ได้ให้แนวทางการบริหารแบบมีส่วนร่วมว่า การบริหารแบบมีส่วนร่วมเป็นการบริหารอีกรูปแบบหนึ่งที่ผู้บริหารจะต้องใช้ศิลปะในการบริหารมากกว่าใช้ศาสตร์ แนวทางการบริหารแบบมีส่วนร่วม อาจจำแนกได้ดังนี้ 1) การร่วมคิด 2) การร่วมทำ 3) ร่วมประเมินผลงาน 4) ร่วมยอมรับในผลการประเมิน 5) ร่วมปรับปรุงวิธีการทำงานใหม่

การจัดการเรียนรู้เชิงรุก (Active Learning)

แนวคิดทฤษฎีเกี่ยวกับการจัดการเรียนรู้ Active Learning ปรัชญาการศึกษาแบบพิพัฒนาการนิยม (Progressivism) John Dewey มีแนวคิดว่าในการให้การศึกษา ร่างกายจะต้องได้ปฏิบัติ ได้เห็นของจริงได้ใช้ประสาททั้งห้าให้มากที่สุด และรูปแบบของการสอน หรือกระสวนของการสอน (Pattern of Teaching) ได้แก่ กระสวนการสอนแบบกลุ่มที่มีความร่วมมือกันแบบพลวัต (Dynamic Cooperative Group Pattern) ซึ่งมุ่งฝึกให้ผู้เรียนได้สร้างการเรียนรู้ด้วยการกระทำและมีโอกาสได้ฝึกการทำงาน การเล่น และการอยู่ร่วมกันในสังคมแบบประชาธิปไตย (กระทรวงศึกษาธิการ, 2560) นักการศึกษาหลายท่านได้ให้นิยามคำว่า Active Learning ให้มีชื่อเรียกภาษาไทยว่าการเรียนรู้เชิงรุก (ปราวีณยา สุวรรณณัฐโชติ, 2558) เป็นการจัดการเรียนรู้โดยการลงมือปฏิบัติ (Hands-on Learning) บาลด์วิน และวิลเลียม (Baldwin ; & Williams, 1988) ได้เสนอขั้นตอนการจัดการเรียนรู้เชิงรุก (Active learning) ไว้ 4 ขั้น ดังนี้

1. ขั้นเตรียมพร้อม เป็นขั้นที่ผู้สอนนำผู้เรียนเข้าสู่เนื้อหา โดยการสร้างแรงจูงใจให้ ผู้เรียนเกิดความกระตือรือร้นในการอยากที่จะเรียนรู้ต่อไป

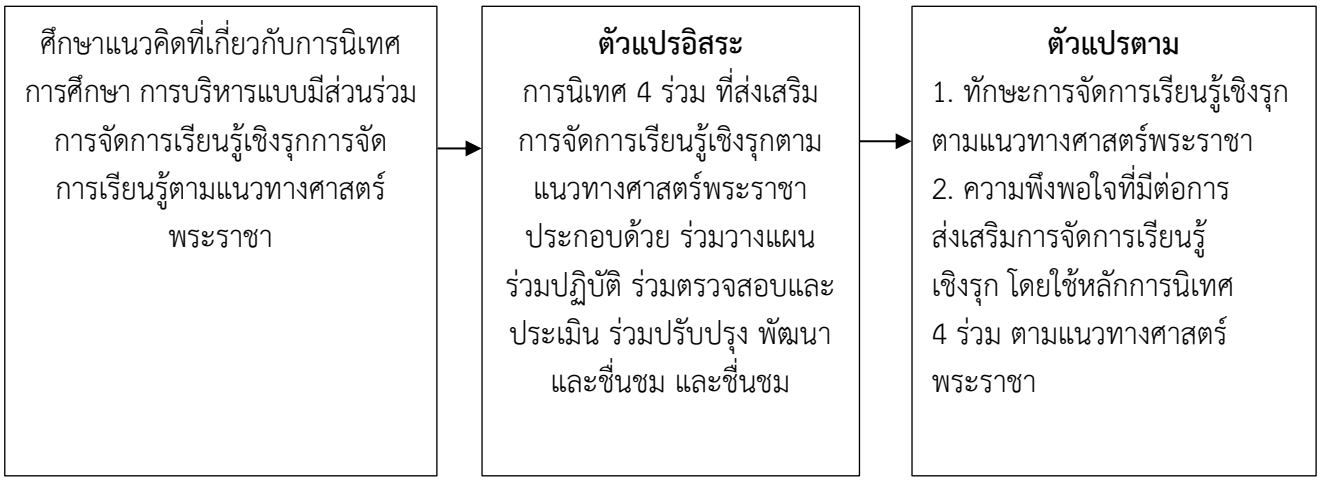
2. ขั้นปฏิบัติงานกลุ่ม เป็นขั้นที่ผู้สอนให้ผู้เรียนเข้ากลุ่มย่อย เพื่อทำงานร่วมกัน และสรุปความคิดเห็นของกลุ่ม อีกทั้งต้องแลกเปลี่ยนเรียนรู้กันระหว่างกลุ่มอื่น ๆ โดยที่ผู้สอนต้องเสริม ข้อมูลให้สมบูรณ์

3. ขั้นประยุกต์ ใช้เป็นขั้นที่ให้ผู้เรียนทำแบบฝึกหัด หรือทำแบบทอสอบหลังเรียน

4. ขั้นติดตามผล เป็นขั้นที่ให้ผู้เรียนได้ค้นคว้าอิสระเพิ่มเติม โดยจัดทำเป็นรายงาน หรือ ให้นักเรียนเขียนบันทึกประจำวัน รวมถึงให้ผู้เรียนเขียนสรุปความรู้ที่ได้รับในคาบเรียนนั้น ๆ

การจัดการเรียนรู้ตามแนวทางศาสตร์พระราชา

คณะกรรมาธิการการศึกษาและการกีฬา สภานิติบัญญัติแห่งชาติ (2561) ได้นำเสนอหลักการแนวคิดศาสตร์พระราชาไว้ว่า เป็นการสร้างโอกาสทางการศึกษาอย่างต่อเนื่องและเป็นการเรียนรู้ตลอดชีวิตเพื่อให้คนทุกกลุ่ม ทุกวัย สามารถเข้าถึงการเรียนรู้ได้ครบทุกคนด้วยแหล่งเรียนรู้ และองค์ความรู้ที่หลากหลาย เชื่อมโยงข้อมูล ความรู้จากแหล่งเรียนรู้ต่าง ๆ ให้สามารถเรียนรู้ตามความสนใจ สามารถเรียนรู้ในสถานที่จริงได้หากมีความสนใจ และความต้องการ ทำให้คนไทยมีแนวโน้มได้รับการศึกษามากขึ้น โดยการเรียนรู้เชื่อมโยงกับศาสตร์พระราชาทุกด้านตามบริบทและภูมิสังคมของแต่ละแห่ง เพื่อยกระดับการศึกษาของประชาชนให้สูงขึ้น และพัฒนาศักยภาพคนไทยให้มีภูมิคุ้มกันต่อการเปลี่ยนแปลงของสังคมโลก พัฒนากำลังแรงงานให้มีความรู้และสมรรถนะที่สอดคล้องกับโครงสร้างการผลิตและการบริการบนฐานความรู้และเศรษฐกิจ สร้างสรรค์ด้วยกระบวนการ เรียนรู้ตามวิธีทรงงานของพระราชา ใช้กระบวนการคิดขั้นสูงเชิงระบบ ประกอบด้วย การรวบรวมข้อมูล (Gathering : G) จัดกระทำข้อมูลให้มีความหมายผ่านโครงสร้างการคิดวิเคราะห์ วิจารณ์เพิ่มคุณธรรม จริยธรรม ค่านิยม และการกระทำสรุปเป็นความรู้ระดับความคิดรวบยอด และลงมือปฏิบัติจริง (Processing : P) จนนำสู่ผล แล้วสรุปความรู้ให้เป็นหลักการหรือองค์ความรู้ (Applying and Construction Knowledge : Applying ศาสตร์ของพระราชาเน้นการพัฒนาที่มุ่งสร้างความสมดุลทางเศรษฐกิจ สังคม สิ่งแวดล้อม และวัฒนธรรม ตลอดจนสร้างความสุขแบบยั่งยืนภายใต้หลัก 3 S ได้แก่ Survival (การอยู่รอด) Sufficiency (พอเพียง) และ Sustainability (ยั่งยืน)



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

การวิจัยครั้งนี้ มีขั้นตอนการดำเนินงาน 2 ขั้นตอน ดังนี้

ขั้นตอนที่ 1 การศึกษาแนวทางการส่งเสริมการจัดการเรียนรู้เชิงรุก (Active Learning) โดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ตามแนวทางศาสตร์พระราชา ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ประกอบด้วย

ส่วนที่ 1 ศึกษาแนวทางการส่งเสริมการจัดการเรียนรู้เชิงรุก โดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ตามแนวทางศาสตร์พระราชา โดยการวิเคราะห์เอกสาร แนวคิด ทฤษฎี และงานวิจัยที่เกี่ยวกับการนิเทศ ติดตาม ตรวจสอบและประเมินผลการศึกษา การบริหารแบบมีส่วนร่วม การจัดการเรียนรู้เชิงรุก และหลักการแนวคิดศาสตร์พระราชา เครื่องมือที่ใช้ในการวิจัย ได้แก่ แบบวิเคราะห์เอกสาร เก็บรวบรวมข้อมูลจากเอกสารและงานวิจัยที่เกี่ยวข้อง วิเคราะห์ข้อมูลด้วยการวิเคราะห์เนื้อหา (Content Analysis)

ส่วนที่ 2 ศึกษาแนวทางการส่งเสริมการจัดการเรียนรู้เชิงรุก โดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ตามแนวทางศาสตร์พระราชา โดยการสนทนากลุ่ม (Focus Group) กลุ่มผู้ให้ข้อมูลได้แก่ ผู้ทรงคุณวุฒิ จำนวน 9 คน ได้มาโดยการเลือกแบบเจาะจง เป็นผู้บริหารการศึกษา จำนวน 1 คน ผู้บริหารสถานศึกษา จำนวน 3 คน ครูผู้สอน จำนวน 2 คน และศึกษานิเทศก์ จำนวน 3 คน เครื่องมือที่ใช้ในการวิจัย ได้แก่ แบบบันทึกประเด็นการสนทนากลุ่ม เก็บรวบรวมข้อมูล จากการสนทนากลุ่มด้วยตนเอง วิเคราะห์ข้อมูลด้วยการวิเคราะห์เนื้อหา (Content Analysis)

ส่วนที่ 3 สร้างแนวทางการส่งเสริมการจัดการเรียนรู้เชิงรุก โดยใช้หลักการนิเทศ 4 ร่วม (4 collaborations) ตามแนวทางศาสตร์พระราชา ด้วยการนำข้อมูลที่ได้จากการศึกษาเอกสาร งานวิจัยที่เกี่ยวข้อง และการสนทนากลุ่ม ผู้วิจัยและทีมงานวิชาการทำหน้าที่ในการรวบรวมข้อมูล วิเคราะห์ และจัดทำร่างแนวทางประกอบด้วย 4 ประเด็นคือ ร่วมวางแผน ร่วมปฏิบัติ ร่วมตรวจสอบและประเมินร่วมปรับปรุง พัฒนา และชื่นชม ตรวจสอบความถูกต้อง เหมาะสมโดยผู้ทรงคุณวุฒิ จำนวน 5 คน ได้มาโดยการเลือกแบบเจาะจง เป็นผู้อำนวยการสถานศึกษาที่ได้รับรางวัลการบริหารจัดการสถานศึกษายอดเยี่ยมระดับประเทศ จำนวน 3 คน ศึกษานิเทศก์ จำนวน 1 คน อาจารย์มหาวิทยาลัย จำนวน 1 คน ปรับปรุง

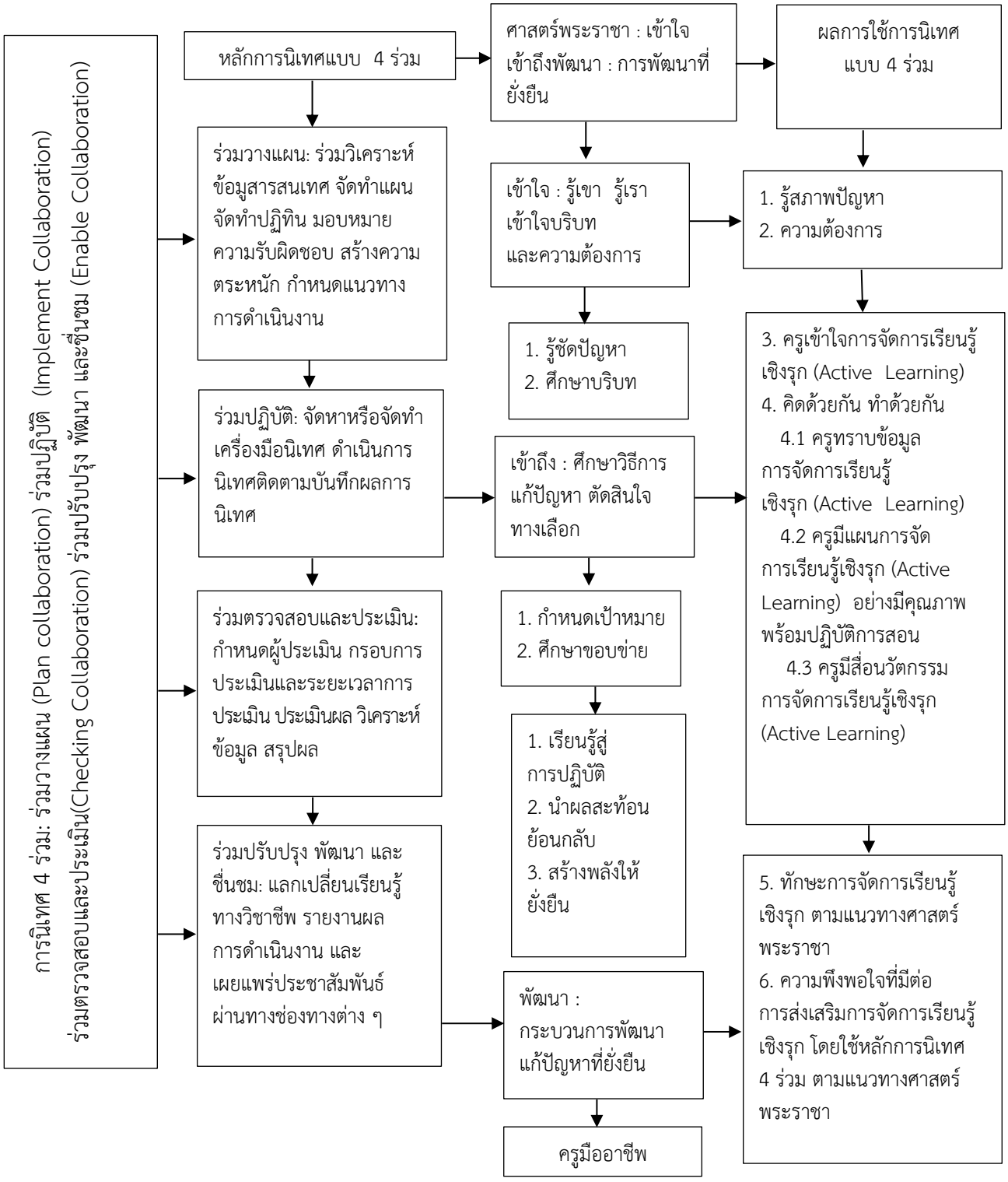
ร่างแนวทางตามข้อเสนอแนะของผู้ทรงคุณวุฒิจนได้แนวทางการส่งเสริมการจัดการเรียนรู้เชิงรุก โดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ตามแนวทางศาสตร์พระราชา ก่อนนำไปทดลองใช้

ขั้นตอนที่ 2 ประเมินผลการส่งเสริมการจัดการเรียนรู้เชิงรุก (Active Learning) โดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ตามแนวทางศาสตร์พระราชา ด้วยการประเมินทักษะการจัดการเรียนรู้เชิงรุก และประเมินความพึงพอใจ

ส่วนที่ 1 ประเมินผลการจัดการเรียนรู้เชิงรุก ของครูผู้สอนเก็บข้อมูลโดยใช้แบบบันทึกผลการนิเทศ ของคณะกรรมการนิเทศ โดยมีประเด็นที่สำคัญประกอบด้วย การเตรียมการจัดการเรียนรู้ การจัดกิจกรรมการเรียนรู้ สื่อการเรียนรู้ การวัดผลประเมินผล ผู้ให้ข้อมูล ได้แก่ คณะกรรมการนิเทศ จำนวน 5 คน ประกอบด้วย ผู้อำนวยการโรงเรียน จำนวน 1 คน รองผู้อำนวยการโรงเรียน จำนวน 2 คน และศึกษานิเทศประจำศูนย์เครือข่ายสถานศึกษา จำนวน 1 คน เครื่องมือที่ใช้ในการวิจัย คือ แบบบันทึกผลการนิเทศ ของคณะกรรมการนิเทศ เก็บข้อมูลโดยใช้แบบบันทึกผลการนิเทศ ผู้วิจัยได้มอบหมายให้รองผู้อำนวยการด้านการบริหารงานวิชาการ และหัวหน้างานวิชาการเป็นผู้เก็บรวบรวม วิเคราะห์ข้อมูลที่ได้จากการสังเกตการสอนของผู้นิเทศเกี่ยวกับการจัดการเรียนรู้เชิงรุกของครูผู้สอน เป็นแบบมาตราส่วนประมาณค่า 5 ระดับ ใช้ค่าเฉลี่ย (μ) และส่วนเบี่ยงเบนมาตรฐาน (σ) นำค่าเฉลี่ยไปเปรียบเทียบกับเกณฑ์ตามแนวคิดของการแบ่งช่วงค่าเฉลี่ยของ พิชิต ฤทธิ์จรูญ (2557) โดยแบ่งเป็น 5 ระดับ ดังนี้

ค่าเฉลี่ย 1.00 – 1.49 หมายความว่า มีลักษณะการปฏิบัติ อยู่ในระดับน้อยที่สุด
ค่าเฉลี่ย 1.50 – 2.49 หมายความว่า มีลักษณะการปฏิบัติ อยู่ในระดับน้อย
ค่าเฉลี่ย 2.50 – 3.49 หมายความว่า มีลักษณะการปฏิบัติ อยู่ในระดับปานกลาง
ค่าเฉลี่ย 3.50 – 4.49 หมายความว่า มีลักษณะการปฏิบัติ อยู่ในระดับดี
ค่าเฉลี่ย 4.50 – 5.00 หมายความว่า มีลักษณะการปฏิบัติ อยู่ในระดับดีมาก

ส่วนที่ 2 ประเมินความพึงพอใจ ผู้ให้ข้อมูล ได้แก่ ผู้บริหาร ประกอบด้วย ผู้อำนวยการโรงเรียน จำนวน 1 คน รองผู้อำนวยการโรงเรียน จำนวน 2 คน และครูผู้สอน จำนวน 37 คน เครื่องมือการวิจัยเป็นแบบสอบถามความพึงพอใจ แบบมาตราส่วนประมาณค่า 5 ระดับ จำนวน 15 ข้อ เก็บข้อมูลโดยใช้ Google Form สถิติที่ใช้ คือ ค่าเฉลี่ย (μ) และส่วนเบี่ยงเบนมาตรฐาน (σ) นำค่าเฉลี่ยไปเปรียบเทียบกับเกณฑ์แบ่งเป็น 5 ระดับ คือ น้อยที่สุด น้อย ปานกลาง มาก และมากที่สุด ของ พิชิต ฤทธิ์จรูญ (2557) เช่นเดียวกัน



ภาพที่ 2 การส่งเสริมการจัดการเรียนรู้เชิงรุก (Active Learning) ตามแนวทางศาสตร์พระราชา โดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations)

ผลการวิจัย

1. แนวทางการส่งเสริมการจัดการเรียนรู้เชิงรุก (Active Learning) โดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ตามแนวทางศาสตร์พระราชา ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 พบว่า ประกอบด้วย 4 ประเด็น ได้แก่

ร่วมวางแผน (Plan Collaboration) เป็นการร่วมกันวางแผน ร่วมวิเคราะห์ข้อมูลสารสนเทศ จุดดี จุดด้อยร่วมสร้างความตระหนักร่วมวางแผนการนิเทศ กำหนดภารกิจ ผู้รับผิดชอบ และแนวทางในการดำเนินงานร่วมกำหนดปฏิทินการปฏิบัติงาน ตามประเด็นหลัก 2 ประเด็น คือ สร้างความตระหนัก และกำหนดแนวทางการพัฒนา

ร่วมปฏิบัติ (Implement Collaboration) เป็นการร่วมกันแก้ปัญหาและพัฒนา มีกิจกรรมที่สำคัญ ได้แก่ ประชุมเชิงปฏิบัติการเพื่อวิเคราะห์ข้อมูลการจัดการเรียนรู้เชิงรุก (Active Learning) จัดทำแผนการจัดการเรียนรู้เชิงรุก (Active Learning) ผลิตสื่อนวัตกรรมส่งเสริมการเรียนรู้เชิงรุก (Active Learning) จัดหาหรือจัดทำเครื่องมือนิเทศ ดำเนินการนิเทศติดตามบันทึกผลการนิเทศลงในแบบบันทึกการนิเทศในประเด็นที่สำคัญ 4 ประเด็น ได้แก่ การเตรียมการจัดการเรียนรู้ การจัดกิจกรรมการเรียนรู้ สื่อการเรียนรู้ และการวัดผลประเมินผล

ร่วมตรวจสอบและประเมิน (Checking Collaboration) มีแนวดำเนินการดังนี้ กำหนดผู้ประเมิน กรอบการประเมินและระยะเวลาการประเมิน ประเมินผล วิเคราะห์ข้อมูล สรุปผลการนิเทศ ติดตามประเมินผล

ร่วมปรับปรุง พัฒนา และชื่นชม (Enable Collaboration) เป็นการร่วมปรับแต่งในส่วนด้อย ร่วมชื่นชมในส่วนเด่นและเสริมแรงเพื่อการพัฒนาอย่างต่อเนื่อง โดยใช้การแลกเปลี่ยนเรียนรู้ทางวิชาชีพ (PLC: Professional Learning Community) รายงานผลการดำเนินงาน และเผยแพร่ประชาสัมพันธ์ผ่านทางช่องทางต่าง ๆ



ภาพที่ 3 การนิเทศแบบ 4 ร่วม (4 Collaborations) ตามแนวทางศาสตร์พระราชา

2. ผลการประเมินการส่งเสริมการจัดการเรียนรู้เชิงรุก (Active Learning) โดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ตามแนวทางศาสตร์พระราชา ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ด้วยการประเมินทักษะการจัดการเรียนรู้เชิงรุก (Active Learning) และประเมินความพึงพอใจที่มีต่อการนิเทศแบบ 4 ร. ตามแนวทางศาสตร์พระราชา

2.1 ผลการประเมินทักษะการจัดการเรียนรู้เชิงรุก (Active Learning) ของครูผู้สอน

ตารางที่ 1 ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และระดับคุณภาพการจัดการเรียนรู้เชิงรุก (Active Learning) ตามแนวทางศาสตร์พระราชาโดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ของครูผู้สอนโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

ที่	รายการ	μ	σ	ระดับคุณภาพ
1	ครูจัดทำแผนการจัดการเรียนรู้เชิงรุก	3.80	0.38	ดี
2	ครูจัดกิจกรรมการเรียนรู้ที่ส่งเสริมให้นักเรียนได้ปฏิบัติจริง	3.49	0.50	ปานกลาง
3	ครูจัดกิจกรรมที่ส่งเสริมให้นักเรียนได้พัฒนาทักษะกระบวนการคิดที่หลากหลาย	3.25	0.45	ปานกลาง
4	ครูใช้คำถามกระตุ้นให้นักเรียนมีส่วนร่วมในการแสดงความคิดเห็นในการจัดกิจกรรมการเรียนรู้	3.56	0.52	ดี
5	ครูนำศาสตร์พระราชาและค่านิยมอันพึงประสงค์ มาบูรณาการในการจัดกิจกรรมการเรียนรู้	3.38	0.66	ปานกลาง
6	ครูใช้สื่อการสอนที่เหมาะสม สอดคล้องกับเนื้อหาและเพียงพอกับจำนวนนักเรียน	3.58	0.54	ดี
7	ครูจัดบรรยากาศและสภาพแวดล้อมการเรียนรู้ที่เอื้อต่อการเรียนรู้สำหรับผู้เรียน	3.62	0.54	ดี
8	ครูมีการใช้เสริมแรง ยกย่อง ชมเชยนักเรียนตลอดการจัดกิจกรรมการเรียนรู้	3.72	0.49	ดี
9	ครูเปิดโอกาสให้ผู้เรียนแลกเปลี่ยนเรียนรู้และนำเสนอผลงาน	3.50	0.50	ดี
10	ครูใช้วิธีการวัดและประเมินผลด้วยวิธีการที่หลากหลายและสอดคล้องกับมาตรฐาน/ตัวชี้วัด เน้นการประเมินผลตามสภาพจริง	3.32	0.56	ปานกลาง
	รวม	**3.52**	**0.54**	**ดี**

ผลการนิเทศ ติดตาม เรื่อง การจัดการเรียนรู้เชิงรุก (Active Learning) ตามแนวทางศาสตร์พระราชาโดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ของครูผู้สอนโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ในภาพรวมมีการจัดการเรียนรู้อยู่ในระดับดี (μ = 3.52, σ = 0.54) เมื่อพิจารณาเป็นรายการ พบว่า อยู่ในระดับดี 7 รายการ อยู่ในระดับปานกลาง 3 รายการ คือ โดยรายการที่มีค่าเฉลี่ยสูงสุด คือ ครูจัดทำแผนการจัดการเรียนรู้เชิงรุก

(μ = 3.80, σ = 0.38) รองลงมา คือ ครูมีการใช้เสริมแรง ยกย่อง ชมเชยนักเรียนตลอดการจัดกิจกรรมการเรียนรู้ (μ = 3.72, σ = 0.49) ส่วนรายการที่มีค่าเฉลี่ยต่ำที่สุด คือ ครูจัดกิจกรรมที่ส่งเสริมให้นักเรียนได้พัฒนาทักษะกระบวนการคิดที่หลากหลาย (μ = 3.25, σ = 0.45)

2.2 ผลการประเมินความพึงพอใจที่มีต่อการดำเนินงานการส่งเสริมการจัดการเรียนรู้เชิงรุก (Active Learning) โดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ตามแนวทางศาสตร์พระราชา (N = 39)

ตารางที่ 2 ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานของความพึงพอใจที่มีต่อการดำเนินงานการส่งเสริมการจัดการเรียนรู้เชิงรุก (Active Learning) โดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ตามแนวทางศาสตร์พระราชา (N = 39)

ข้อที่	รายการประเมิน	μ	σ	แปลผล
	ขั้นร่วมกันวางแผน			
1.	ร่วมกันวิเคราะห์ข้อมูลสารสนเทศ จุดเด่นจุดด้อย	4.50	0.51	มากที่สุด
2.	ร่วมสร้างความตระหนัก ความเข้าใจ	4.54	0.51	มากที่สุด
3.	ร่วมวางแผนการนิเทศ กำหนดภารกิจ ผู้รับผิดชอบ และแนวทางในการดำเนินงาน	4.38	0.50	มาก
4.	ร่วมกำหนดปฏิทินการปฏิบัติงาน	4.50	0.51	มากที่สุด
	รวมรายขั้น	**4.48**	**0.51**	**มาก**
.	**ขั้นร่วมกันปฏิบัติ**			
5.	ร่วมปฏิบัติงานตามแผนที่วางไว้	4.46	0.51	มาก
6.	ร่วมกันแก้ปัญหาและพัฒนา	4.54	0.51	มากที่สุด
7.	ร่วมกันนิเทศ สังเกตการสอน	4.39	0.50	มาก
8.	ร่วมสะท้อน แลกเปลี่ยนเรียนรู้	4.52	0.50	มากที่สุด
	รวมรายขั้น	**4.48**	**0.51**	**มาก**
	ขั้นร่วมกันตรวจสอบและประเมิน			
9.	กำหนดผู้ประเมิน กรอบการประเมินและระยะเวลาการประเมิน	4.46	0.51	มาก
10.	จัดหาหรือจัดทำเครื่องมือนิเทศ ดำเนินการนิเทศติดตามประเมินผล	4.58	0.50	มากที่สุด
11.	วิเคราะห์ข้อมูล สรุปผลการนิเทศ ติดตาม ประเมินผล	4.46	0.51	มาก
12.	นำผลการนิเทศ ติดตาม ประเมินผล ไปปรับปรุงพัฒนา	4.45	0.48	มาก
	รวมรายขั้น	**4.49**	**0.50**	มาก
	ขั้นร่วมปรับปรุง พัฒนา และชื่นชม			
13.	ร่วมปรับแต่งในส่วนด้อย ร่วมชื่นชม ในส่วนเด่นและเสริมแรง	4.35	0.61	มาก

ตารางที่ 2 (ต่อ)

ข้อที่	รายการประเมิน	μ	σ	แปลผล
14.	จัดทำ PLC ผลการดำเนินงาน สรุปผล พัฒนาและแลกเปลี่ยนเรียนรู้	4.52	0.54	มากที่สุด
15.	เผยแพร่ ประชาสัมพันธ์ ยกย่องเชิดชูเกียรติ	4.36	0.50	มาก
	รวมรายข้อ	**4.41**	**0.55**	**มาก**
	รวมทั้งหมด	**4.47**	**0.52**	**มาก**

โดยภาพรวมความพึงพอใจที่มีต่อการดำเนินงานการส่งเสริมการจัดการเรียนรู้เชิงรุก (Active Learning) โดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ตามแนวทางศาสตร์พระราชา อยู่ในระดับมาก (μ= 4.47, **σ**= 0.52) พิจารณารายข้อ ข้อที่มีค่าเฉลี่ยสูงสุด คือ ข้อร่วมกันตรวจสอบและประเมิน (μ= 4.49, **σ**= 0.50) รองลงมาคือ ข้อร่วมกันวางแผน และข้อร่วมปฏิบัติ (μ= 4.48, **σ**= 0.51) ข้อที่มีค่าเฉลี่ยต่ำสุด คือ ข้อร่วมปรับปรุง พัฒนา และชื่นชม (μ= 4.41, **σ**= 0.55) พิจารณาเป็นรายการ รายการที่มีค่าเฉลี่ยสูงสุด คือ จัดหาหรือจัดทำเครื่องมือนิเทศ ดำเนินการนิเทศติดตาม ประเมินผล (μ= 4.58, **σ**= 0.50) รองลงมา คือ ร่วมสร้างความตระหนัก ความเข้าใจ, ร่วมกันแก้ปัญหาและพัฒนา (μ= 4.54, **σ**= 0.51) และร่วมสะท้อน แลกเปลี่ยนเรียนรู้, จัดทำ PLC ผลการดำเนินงาน สรุปผล พัฒนาและแลกเปลี่ยนเรียนรู้ (μ= 4.52, **σ**= 0.54) ตามลำดับรายการที่มีค่าเฉลี่ยต่ำสุดคือ ร่วมปรับแต่งในส่วนด้อย ร่วมชื่นชม ในส่วนเด่นและเสริมแรง (μ= 4.35, **σ**= 0.61)

สรุปและอภิปรายผล

1. การดำเนินงานการส่งเสริมการจัดการเรียนรู้เชิงรุก (Active Learning) โดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ตามแนวทางศาสตร์พระราชา ประกอบด้วย ร่วมวางแผน (Plan Collaboration) ควรวางแผน ร่วมวิเคราะห์ข้อมูลสารสนเทศ จุดเด่น จุดด้อยร่วมสร้างความตระหนัก, ร่วมปฏิบัติ (Implement Collaboration) การปฏิบัติโดยเน้นการมีส่วนร่วม ยืดหยุ่น และเป็นกัลยาณมิตร, ร่วมตรวจสอบและประเมิน (Checking Collaboration) ด้วยการจัดหาหรือจัดทำเครื่องมือนิเทศ นิเทศติดตาม ประเมินผล วิเคราะห์ข้อมูล สรุปผลการนิเทศ ติดตาม ประเมินผล ร่วมปรับปรุงพัฒนา และชื่นชม (Enable Collaboration) ร่วมปรับแต่งในส่วนด้อย ร่วมชื่นชมในส่วนเด่นและเสริมแรงเพื่อการพัฒนาอย่างต่อเนื่อง ผลการวิจัยเป็นเช่นนี้อาจจะเป็นเพราะว่าผู้วิจัยได้น้อมนำศาสตร์ของพระราชา เน้นการพัฒนาที่มุ่งสร้างความสมดุลทางเศรษฐกิจ สังคม สิ่งแวดล้อม และวัฒนธรรม ตลอดจนสร้างความสุขแบบยั่งยืนภายใต้หลัก 3 S ได้แก่ Survival (การอยู่รอด) Sufficiency (พอเพียง) และ Sustainability (ยั่งยืน) มาใช้ในการพัฒนาคุณภาพการศึกษาเพื่อสู่การพัฒนาที่มั่นคง มั่งคั่ง และยั่งยืน ตามที่คณะกรรมาธิการการศึกษาและการกีฬา สภานิติบัญญัติแห่งชาติ (2561) ได้นำเสนอหลักการแนวคิดศาสตร์พระราชาไว้ว่า เป็นการสร้างโอกาสทางการศึกษาอย่างต่อเนื่องและเป็นการเรียนรู้ตลอดชีวิตเพื่อให้คนทุกกลุ่ม ทุกวัย สามารถเข้าถึงการเรียนรู้ได้ครบทุกคนด้วยแหล่งเรียนรู้ และองค์ความรู้ที่หลากหลาย เชื่อมโยงข้อมูล ความรู้จากแหล่งเรียนรู้ต่าง ๆ ให้สามารถเรียนรู้ตามความสนใจ สามารถเรียนรู้ในสถานที่จริงได้หากมีความสนใจ และความต้องการ ด้วยกระบวนการ เรียนรู้ตามวิธีทรงงานของ

พระราชา ใช้กระบวนการคิดขั้นสูงเชิงระบบ ประกอบด้วย การรวบรวมข้อมูล (Gathering : G) จัดกระทำข้อมูลให้มีความหมายผ่านโครงสร้างการคิดวิเคราะห์ วิจารณ์เพิ่มคุณธรรม จริยธรรม ค่านิยม และการกระทำสรุปเป็นความรู้ระดับความคิดรวบยอด และลงมือปฏิบัติจริง (Processing : P) จนนำสู่ผล แล้วสรุปความรู้ให้เป็นหลักการหรือองค์ความรู้ (Applying and Construction Knowledge : Applying ศาสตร์ของพระราชา เน้นการพัฒนาที่มุ่งสร้างความสมดุลทางเศรษฐกิจ สังคม สิ่งแวดล้อม และวัฒนธรรม ตลอดจนสร้างความสุขแบบยั่งยืนภายใต้หลัก 3 S ได้แก่ Survival (การอยู่รอด) Sufficiency (พอเพียง) และSustainability (ยั่งยืน) รวมทั้งได้นำหลักการบริหารแบบมีส่วนร่วมมาประยุกต์ใช้เพราะการมีส่วนร่วมช่วยยกระดับแรงจูงใจ ความผูกพันในองค์กร ดังที่ เสริมศักดิ์ วิศาลาภรณ์ (2555) ได้สรุปไว้ว่า การมีส่วนร่วมเป็นพลังสร้างสรรค์ที่ก่อให้เกิดประโยชน์กับบุคคลแต่ละคน และผลผลิตของสังคมก่อให้เกิดปฏิสัมพันธ์ ความผูกพันของบุคคลในสังคม นวัตกรรมของสังคมที่เกิดขึ้นในอดีตจนถึงปัจจุบันและจะเกิดขึ้นใหม่ในอนาคตเป็นผลจากแนวคิดของการมีส่วนร่วมเกือบทั้งสิ้น

2. ผลการนิเทศ ติดตามทักษะการจัดการเรียนรู้เชิงรุกของครูผู้สอน พบว่า ในภาพรวมมีการจัดการเรียนรู้อยู่ในระดับดี เมื่อพิจารณาเป็นรายการ พบว่า อยู่ในระดับดี 7 รายการ อาจเนื่องมาจากมีการนำข้อมูลผลการวิเคราะห์สภาพปัจจุบันปัญหาสาเหตุของปัญหาและความต้องการมากำหนดกิจกรรมและแนวทางการปฏิบัติงานนิเทศ โดยร่วมกันวางแผนนิเทศภายในโรงเรียนอย่างเป็นระบบ มีขั้นตอนการดำเนินงานที่ชัดเจน ส่งผลให้กระบวนการในการดำเนินงานสามารถนำไปปฏิบัติได้ ดังที่ รัศมี ภูกันดาน (2562) กล่าวว่า หลักการที่สำคัญของการนิเทศภายในโรงเรียน ประกอบไปด้วย 1) หลักการวางแผน คือ กระบวนการวิเคราะห์ผล กำหนดวัตถุประสงค์ไว้ล่วงหน้าโดย เลือกทางปฏิบัติที่เหมาะสมที่สุดเพื่อให้บรรลุผลสำเร็จตามวัตถุประสงค์ที่ตั้งไว้ 2) หลักความร่วมมือ คือ กระบวนการทำงานร่วมกัน มีความเกี่ยวข้องสัมพันธ์กัน ร่วมมือร่วมใจกัน เพื่อดำเนินการแก้ไขปัญหาและประสานงานซึ่งกันและกัน 3) หลักการบูรณาการ คือ กระบวนการนำสิ่งย่อยต่าง ๆ ที่มีความเหมาะสมเข้าไว้ ด้วยกัน 4) หลักการประเมิน คือ กระบวนการวัดผลการดำเนินงานต่าง ๆ ด้วยเครื่องมือที่มีคุณภาพ และมีความเหมาะสมกับบริบทนั้น ๆ โดยควรเริ่มจากความถูกต้องตามหลักวิชาความเป็นประชาธิปไตย ใช้กระบวนการทางวิทยาศาสตร์ มีบรรยากาศแบบสร้างสรรค์ มีการประสานงาน ทำงานเป็นหมู่คณะ ช่วยให้ผู้รับการนิเทศมีความเชื่อมั่นพึ่งตนเอง และพัฒนาตนเองต่อไป

3. ความพึงพอใจที่มีต่อการดำเนินงานการส่งเสริมการจัดการเรียนรู้เชิงรุก (Active Learning) โดยใช้หลักการนิเทศ 4 ร่วม (4 Collaborations) ตามแนวทางศาสตร์พระราชา ภาพรวมอยู่ในระดับมาก (μ= 4.47, σ= 0.52) รายข้อ อยู่ในระดับมาก และมากที่สุด อาจเป็นเพราะว่า ผู้บริหารสถานศึกษาและครูผู้สอน มีความเข้าใจบทบาทหน้าที่และแนวทางในการปฏิบัติงานมากยิ่งขึ้น มีการดำเนินงานที่หลากหลาย เช่น การประชุมชี้แจงให้ครูทุกคนได้รับรู้และเข้าใจในบทบาทหน้าที่ของตนเอง มีการประสานและส่งเสริมให้ครูมีการทำงานเป็นทีม มีการใช้กระบวนการกลุ่มในการปฏิบัติงานมากขึ้น มีการจัดทำรายละเอียดในการนิเทศติดตามช่วยเหลือ มีการรายงานผลการประสานสัมพันธ์เพื่อสร้างขวัญและกำลังใจแก่ครูในสถานศึกษาในการพัฒนาการเรียนการสอนโดยใช้นวัตกรรมและสื่อต่าง ๆ โดยมีผู้บริหารสถานศึกษาคอยกำกับ ติดตามให้มีการดำเนินงานอย่างต่อเนื่อง ดังคำกล่าวที่ว่า เข้าใจ เข้าถึง จึงพัฒนา จึงได้รับความพึงพอใจอย่างมากจากทุกฝ่าย ดังที่ สุรศักดิ์ ปาเฮ (2562) กล่าวว่า ผู้บริหารสถานศึกษาจะต้องถือว่าเป็นหน้าที่โดยตรงที่จะต้องนิเทศการศึกษาของตนเองที่รับผิดชอบอยู่ การดำเนินการนิเทศการศึกษาจะต้องเป็นการร่วมมือหรือยอมรับของบุคคลในสถานศึกษาที่จะช่วยการพัฒนาปรับปรุงแก้ไขซึ่งกันและกันภายใต้บรรยากาศ

แห่งความเป็นประชาธิปไตย ใช้กระบวนการทางวิทยาศาสตร์ มีบรรยากาศแบบสร้างสรรค์มีการประสานงานทำงานเป็นหมู่คณะ การนิเทศการศึกษาจะต้องเกิดขึ้นจากความต้องการแก้ไขปัญหาหรือต้องการตอบสนองความต้องการของสถานศึกษาที่จะต้องยกระดับคุณภาพการศึกษาของสถานศึกษาและการนิเทศการศึกษาจะต้องเป็นการส่งเสริมสนับสนุนให้กำลังใจแก่บุคลากรในสถานศึกษาให้มีความเชื่อมั่นในตนเองและพร้อมที่จะเผยแพร่ผลงานทางวิชาการเพื่อให้บุคคลในหน่วยงานมีความรู้ความสามารถสูงขึ้น

ข้อเสนอแนะ

1. ควรส่งเสริมให้โรงเรียนใช้แนวทางนิเทศแบบ 4 ร่วม (ร่วมวางแผน ร่วมปฏิบัติ ร่วมตรวจสอบและประเมิน ร่วมปรับปรุง พัฒนา และชื่นชม) อย่างต่อเนื่อง เพื่อส่งเสริมการมีส่วนร่วมระหว่างผู้บริหาร ครู และบุคลากรทางการศึกษา ในการยกระดับคุณภาพการจัดการเรียนรู้เชิงรุก

2. ควรมีการจัดอบรมเชิงปฏิบัติการให้แก่ครูอย่างสม่ำเสมอ เพื่อเสริมสร้างทักษะการจัดการเรียนรู้แบบเชิงรุก พร้อมทั้งแลกเปลี่ยนเรียนรู้ระหว่างครูที่มีประสบการณ์ดีในการจัดการเรียนรู้ตามศาสตร์พระราชา

3. ควรศึกษาความสัมพันธ์ระหว่างระดับทักษะของครูกับผลสัมฤทธิ์ทางการเรียนของนักเรียน หรือศึกษาผลกระทบระยะยาวของการใช้แนวทางนิเทศแบบ 4 ร่วมต่อคุณภาพการจัดการเรียนรู้

4. ควรศึกษาเปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักเรียนระหว่างห้องเรียนที่ใช้แนวทางการจัดการเรียนรู้เชิงรุกตามศาสตร์พระราชา กับห้องเรียนที่ใช้รูปแบบการเรียนรู้แบบดั้งเดิม

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2557). หลักการและแนวคิดในการนิเทศการศึกษายุคใหม่. กรุงเทพฯ : ธารอักษร.

_____. (2560). แนวทางการนิเทศเพื่อพัฒนาและส่งเสริมการจัดการเรียนรู้เชิงรุก (Active Learning) ตามนโยบายลดเวลาเรียนเพิ่มเวลารู้. สืบค้นเมื่อ 30 มกราคม 2565 จาก http://academic.obec.go.th/images/document/1603180137_d_1.pdf

คณะกรรมาธิการการศึกษาและการกีฬา สภานิติบัญญัติแห่งชาติ. (2561). ศาสตร์ของพระราชา : ผู้นำโลกในการพัฒนาอย่างยั่งยืนรวมกฎหมายสนับสนุนโครงการอันเนื่องมาจากพระราชดำริในพระบาทสมเด็จพระปรมินทรมหาภูมิพลอดุลยเดช บรมนาถบพิตร. กรุงเทพฯ : อมรินทร์พริ้นติ้ง แอนด์พับลิชชิ่ง.

เดชดนัย จุ้ยชุม, เกษรา บ่าวแซ่มช้อย และศิริกัญญา แก่นทอง. (2559). การพัฒนาผลสัมฤทธิ์ทางการเรียนเรื่อง ทักษะการคิดของนักศึกษาในรายวิชาทักษะการคิด (Thinking Skills) รหัส วิชา 11-024-112 ภาคเรียนที่ 1 ปีการศึกษา 2558 ด้วยการเรียนรู้แบบมีส่วนร่วม (Active Learning). วารสารมหาวิทยาลัยนราธิวาสราชนครินทร์ สาขามนุษยศาสตร์และสังคมศาสตร์, 2(3), 47-57.

ปราวีณยา สุวรรณณัฐโชติ. (2558). การเรียนรู้เชิงรุก (Active Learning). กรุงเทพฯ : จุฬาลงกรณ์มหาวิทยาลัย.

พิชิต ฤทธิ์จรูญ. (2557). หลักการวัดและประเมินผลการศึกษา (พิมพครั้งที่ 3). กรุงเทพ : เฮาสออฟเคอร์มีสท.

สันติ บุญภิรมย์. (2562). การบริหารงานวิชาการ. กรุงเทพฯ : บุ๊คพอยท์.

สุรศักดิ์ ปาเฮ. (2562). การนิเทศภายในโรงเรียน. กรุงเทพฯ : ชัยศิริ.

เสริมศักดิ์ วิศาลาภรณ์. (2555). ความขัดแย้ง : การบริหารเพื่อความสร้างสรรค์. กรุงเทพฯ : เลิฟ แอนด์

ลิฟเพรส จำกัด.

รัศมี ภูกันดาน. (2562). การพัฒนารูปแบบการนิเทศภายในโดยใช้ทีมเป็นฐานในโรงเรียนมัธยมศึกษา (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยมหาสารคาม, มหาสารคาม.

อธิศ ไชยคิรินทร์. (2562). การพัฒนารูปแบบการนิเทศภายในโดยใช้ชุมชนการเรียนรู้ทางวิชาชีพสำหรับโรงเรียนมัธยมศึกษา (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยมหาสารคาม, มหาสารคาม.

Baldwin, Jill.; & Williams, Hank. (1988). Active Learning : a Trainer's Guide. England : Blackwell Education.

Glickman, Carl D. Stephen P. Gordon & Jovita M. Ross-Gordon. (2019). Supervision of Instruction. New York : Allyn and Bacon.

การพัฒนารูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

Development of a Student Care System Model for Improving the Quality of Learners in the 21st Century of Bannakhuanlung School under the Songkhla Primary Educational Area Service Office 2

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อ 1) ศึกษาสภาพปัญหาและความต้องการของการพัฒนารูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 2) พัฒนารูปแบบการบริหาร ระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) 3) ทดลองใช้รูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนฯ 4) ประเมินรูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนฯ เป็นการวิจัยเป็นแบบผสานวิธี กลุ่มผู้ให้ข้อมูล คือ ผู้ทรงคุณวุฒิ รองผู้อำนวยการโรงเรียน ครูผู้สอน และนักเรียน ได้มาโดยวิธีการเฉพาะเจาะจง เครื่องมือที่ใช้ในการวิจัย ได้แก่ แบบวิเคราะห์เอกสาร แบบสัมภาษณ์เชิงลึก แบบสนทนากลุ่ม แบบสังเกตพฤติกรรม แบบสอบถามเพื่อประเมินด้านความถูกต้อง ด้านความเหมาะสม ด้านความเป็นไปได้ และด้านการใช้ประโยชน์ โดยใช้การสแกนคิวอาร์โค้ด สถิติที่ใช้วิเคราะห์ข้อมูล คือ ค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการวิเคราะห์เนื้อหา ผลการวิจัยพบว่า 1) ระดับปัญหาในการดำเนินงานระบบดูแลช่วยเหลือนักเรียน โดยภาพรวมมีปัญหาอยู่ในระดับมาก 2) รูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนฯ มีชื่อว่า PDTACA ประกอบด้วย 5 องค์ประกอบ คือ องค์ประกอบที่ 1 หลักการของรูปแบบ องค์ประกอบที่ 2 วัตถุประสงค์ของรูปแบบ องค์ประกอบที่ 3 ปัจจัยนำเข้า องค์ประกอบที่ 4 กระบวนการบริหาร และ องค์ประกอบที่ 5 ผลผลิต 3) ผลการทดลองใช้ทำให้คุณภาพของผู้เรียนในศตวรรษที่ 21 ด้านผลสัมฤทธิ์ทางการเรียน คุณลักษณะอันพึงประสงค์ และทักษะการดำรงชีวิตปีการศึกษา 2566 สูงกว่าปีการศึกษา 2565 4) ผลการตรวจสอบและประเมินรูปแบบมีความถูกต้อง เหมาะสม เป็นไปได้และสามารถนำไปใช้ให้เกิดประโยชน์ได้มากที่สุด

คำสำคัญ: การพัฒนารูปแบบ, ระบบการดูแลช่วยเหลือนักเรียน, คุณภาพผู้เรียนในศตวรรษที่ 21

Abstract

This research has two main objectives: 1) The findings revealed that, overall, the school faces significant challenges in operating the system. to examine problems and needs 2) to develop a management model for the student support system that impacts the quality of learners in the 21st century, 3) implement the developed model and 4) to examine the effects of using the developed management model for the student support system on the quality of learners in the 21st century. This study employed a mixed-methods research approach, combining both quantitative and qualitative research methods. The participants included experts, deputy school directors, teachers and student selected using purposive sampling. The research instruments used were document analysis, in-depth interviews, focus group discussions, and questionnaires to evaluate the accuracy, appropriateness, feasibility, and usability of the model, using a QR code scanning method. The statistical analysis methods included percentage, mean, standard deviation, and content analysis. The findings of the study revealed that: 1) 2) The developed model, named PDTACA, consisting of five key components: model principles, model objectives, input factors, management processes and outcomes. 3) The implementation of this model led to improvements in 21st century student competencies, including academic achievement, desirable characteristics, and life skills, with better results in the 2023 academic year compared to 2022and 4) The model was validated as accurate, appropriate, feasible, and beneficial for practical application.

Keywords: Model development, Student Care System, Quality of Learners in the 21st Century

บทนำ

นโยบายในการดำเนินงานระบบการดูแลช่วยเหลือนักเรียน ปรากฏไว้ในแผนพัฒนาคุณภาพการจัดการศึกษาของสำนักงานเขตพื้นที่การศึกษาในหัวข้อที่ 2 พ.ศ. 2566 ซึ่งกำหนดไว้ในข้อกลุ่มส่งเสริมการจัดการศึกษามีอำนาจหน้าที่ “ประสานการป้องกัน และแก้ไขปัญหาการใช้สารเสพติด และส่งเสริมป้องกัน แก้ไข และคุ้มครองความประพฤตินักเรียน และนักศึกษา รวมทั้งระบบดูแลช่วยเหลือนักเรียน”ผู้เรียนที่จบการศึกษาขั้นพื้นฐาน มีความสามารถและทักษะจำเป็นในศตวรรษที่ 21 (สำนักงานสภาพัฒนาการเศรษฐกิจและสังคมแห่งชาติ, 2562) ในศตวรรษที่ 21 ระบบการศึกษาเผชิญกับความเปลี่ยนแปลงอย่างรวดเร็วจากกระแสโลกาภิวัตน์และเทคโนโลยีที่พัฒนาอย่างก้าวกระโดด ทำให้การพัฒนาคุณภาพผู้เรียนไม่สามารถพึ่งพาเพียงแค่การจัดการเรียนการสอนภายในห้องเรียนเท่านั้น แต่ต้องมีระบบการดูแลช่วยเหลือนักเรียนที่มีประสิทธิภาพ เพื่อให้สามารถตอบสนองต่อปัญหาและความต้องการของผู้เรียนได้อย่างครอบคลุม ปัจจุบัน ระบบการดูแลช่วยเหลือนักเรียนมีบทบาทสำคัญในการส่งเสริมคุณภาพของผู้เรียน โดยเน้นการพัฒนาด้านร่างกาย อารมณ์ สังคม และสติปัญญาไปพร้อมกัน อย่างไรก็ตาม ยังพบว่าหลายสถานศึกษายังขาดแนวทางการบริหารที่เป็นระบบและต่อเนื่อง ส่งผลให้นักเรียนที่มีปัญหาด้านการเรียน การปรับตัว และพฤติกรรมไม่ได้รับการช่วยเหลืออย่างทันท่วงที นอกจากนี้ ความซับซ้อน

ของปัญหาสังคม เช่น ปัญหาครอบครัว ความเหลื่อมล้ำทางเศรษฐกิจ และอิทธิพลของสื่อออนไลน์ ยิ่งทำให้การบริหารระบบการดูแลช่วยเหลือนักเรียนต้องมีความเป็นองค์รวม และปรับให้สอดคล้องกับบริบทของศตวรรษที่ 21 มากขึ้น

จากปัญหาดังกล่าว การพัฒนารูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่มีประสิทธิภาพจึงเป็นสิ่งจำเป็นเพื่อให้สถานศึกษาสามารถดำเนินการช่วยเหลือนักเรียนได้อย่างเป็นระบบ มีแนวทางที่ชัดเจน และสามารถตอบสนองต่อความต้องการของผู้เรียนได้อย่างแท้จริง งานวิจัยนี้มุ่งเน้นไปที่การพัฒนารูปแบบการบริหารที่สามารถนำไปใช้ได้จริง เพื่อยกระดับคุณภาพผู้เรียนให้สอดคล้องกับคุณภาพผู้เรียนที่จำเป็นในศตวรรษที่ 21 ผู้วิจัยในฐานะผู้บริหารมีหน้าที่โดยตรงในการบริหารงานด้านต่าง ๆ เพื่อให้การดำเนินงานระบบการดูแลช่วยเหลือนักเรียนประสบผลสำเร็จ ประกอบกับที่ผ่านมาโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ยังไม่มีรูปแบบการบริหารระบบดูแลช่วยเหลือนักเรียน ที่มีลักษณะเฉพาะเจาะจง เป็นเพียงการดำเนินงานที่เป็นลักษณะงานประจำเท่านั้น (โรงเรียนบ้านหน้าควนลัง(ราษฎร์สามัคคี), 2565) จึงมีความสนใจที่จะศึกษาการพัฒนารูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียน เพื่อให้การบริหารระบบการดูแลช่วยเหลือนักเรียนสามารถขับเคลื่อนได้อย่างมีประสิทธิภาพ ส่งผลต่อการเรียนรู้นักเรียนมีทักษะชีวิตที่ดีและได้รับการส่งเสริมพัฒนาเต็มตามศักยภาพ สอดคล้องกับผลลัพธ์ของผู้เรียนในศตวรรษที่ 21 มากยิ่งขึ้น

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาสภาพปัญหาและความต้องการของการพัฒนารูปแบบการบริหาร ระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2
2. เพื่อพัฒนารูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2
3. เพื่อทดลองใช้รูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2
4. เพื่อประเมินรูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

แนวคิด ทฤษฎี กรอบแนวคิด

ระบบการดูแลช่วยเหลือนักเรียน

สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน (2559) ให้ความหมายของระบบการดูแลช่วยเหลือนักเรียน หมายถึง กระบวนการดำเนินงานที่มุ่งให้การคุ้มครอง ป้องกัน ดูแล แก้ไข ให้ความ ช่วยเหลือและส่งเสริมพัฒนาศักยภาพนักเรียน อย่างมีแบบแผนและมีขั้นตอนที่ชัดเจน โดยครูที่ปรึกษาเป็นบุคลากรหลักในการดำเนินงานร่วมกับบุคลากรทั้งภายในและภายนอกโรงเรียน เพื่อให้นักเรียนเป็น คนเก่ง คนดี มีความสุข มีสมรรถนะ และคุณลักษณะที่พึงประสงค์ มีทักษะชีวิต มีภูมิคุ้มกันอย่างเหมาะสม เพียงพอต่อการดำรงชีวิตให้อยู่รอดปลอดภัยจากสภาวะวิกฤตต่าง ๆ ได้

คุณค่าและความสำคัญของระบบการดูแลช่วยเหลือนักเรียน ดังนี้

1. ช่วยให้ผู้เรียนได้รับการส่งเสริมพัฒนาการ ดูแล แก้ไขปัญหาต่าง ๆ และได้รับความช่วยเหลืออย่างทั่วถึงถูกวิธีและทันเวลา ตรงตามสภาพปัญหาและความต้องการของผู้เรียนเป็นรายบุคคล

2. เป็นกลไกสำคัญในการลดปัญหาการออกกลางคัน แต่จะช่วยประคับประคองให้ผู้เรียนอยู่ในระบบการศึกษาได้ตลอดหลักสูตร

3. สร้างความเชื่อมั่นให้ผู้เรียน ผู้ปกครอง ชุมชน และสังคม ว่าผู้เรียนแต่ละสถานภาพจะได้รับบริการการศึกษาที่มีคุณภาพอย่างเท่าเทียมกัน

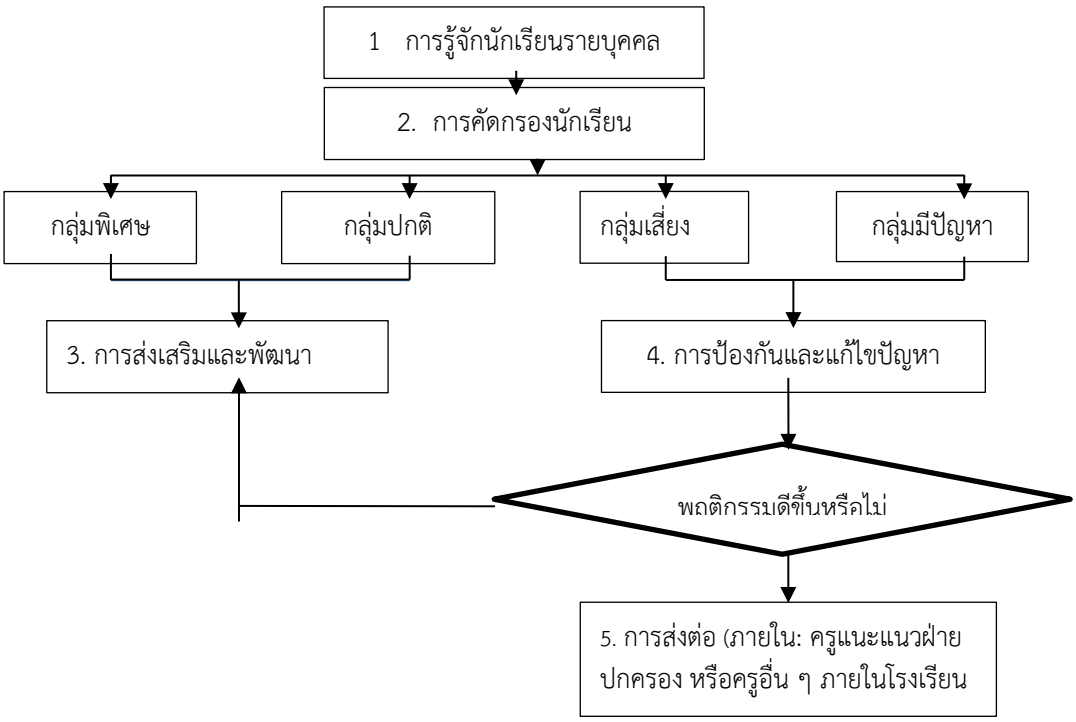
4. ก่อให้เกิดความสัมพันธภาพที่ดีระหว่างครูกับนักเรียน ผู้เรียนได้รับการดูแลช่วยเหลือ อย่างอบอุ่นด้วยความเอาใจใส่อย่างใกล้ชิด

5. ผู้เรียนรักโรงเรียน ได้เรียนรู้อย่างมีความสุข ได้รับการส่งเสริมพัฒนาเต็มตามศักยภาพ อย่างรอบด้าน ก่อให้เกิดภูมิคุ้มกันทางจิตใจ มีทักษะชีวิต สมรรถนะและคุณลักษณะที่พึงประสงค์

6. ผู้เรียนได้รับการพัฒนา ปรับเปลี่ยนพฤติกรรมให้เป็นผู้รู้จักตนเอง ควบคุมตนเองได้ มีความฉลาดทางอารมณ์ ซึ่งเป็นรากฐานที่สำคัญของการพัฒนาความเก่ง มีคุณธรรม จริยธรรม มีเป้าหมายในชีวิตและมุ่งมั่นไม่ย่อท้อต่อปัญหาอุปสรรค

7. มีเครือข่ายความร่วมมือจากผู้เกี่ยวข้องในการพัฒนาคุณภาพผู้เรียน ก่อให้เกิดระบบงาน ด้านการดูแลช่วยเหลือนักเรียนที่มีความเข้มแข็ง

กระบวนการและขั้นตอนของระบบการดูแลช่วยเหลือนักเรียน มีองค์ประกอบสำคัญ 5 ประการ ได้แก่ การรู้จักนักเรียนเป็นรายบุคคล การคัดกรองนักเรียน การป้องกันและแก้ไขปัญหา การส่งเสริมพัฒนานักเรียน และการส่งต่อ ซึ่งมีรายละเอียดดังนี้



ภาพที่ 1 กระบวนการและขั้นตอนของระบบการดูแลช่วยเหลือนักเรียน
(สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน,2559)

การพัฒนารูปแบบ

สุรโรจน์ นวลมังสอ (2560) กล่าวถึง ขั้นตอนการพัฒนารูปแบบว่า การพัฒนารูปแบบ อาจเป็นทั้งการสร้างรูปแบบใหม่ ๆ ของลักษณะของสิ่งของต่าง ๆ หรือปรากฏการณ์ต่าง ๆ และการเสริมสร้างรูปแบบเดิมที่มีอยู่แล้วให้มีประสิทธิภาพมากขึ้น บรรลุเป้าหมายที่กำหนดไว้ อย่างทันเวลาและใช้ประโยชน์ได้อย่างเต็มสมรรถนะ ในการพัฒนารูปแบบควรมีทฤษฎีรองรับ และมีการวิจัยเพื่อทดสอบรูปแบบก่อนที่จะนำรูปแบบไปใช้ตามจุดมุ่งหมายของการพัฒนารูปแบบนั้น

บุญชม ศรีสะอาด (2560) ได้กล่าวถึงกระบวนการวิจัยการพัฒนารูปแบบ โดยแบ่งออกเป็น 2 ขั้นตอน ได้แก่ 1) การสร้างหรือพัฒนารูปแบบ และ 2) การทดสอบความเที่ยงตรงของรูปแบบ

สรุปได้ว่า ในการพัฒนารูปแบบ ประกอบด้วย 3 ขั้นตอน คือ1) การศึกษาสภาพ 2) การพัฒนารูปแบบ และ 3) การนำรูปแบบไปใช้ ซึ่งผู้วิจัยจะนำมาเป็นกรอบแนวคิดในการพัฒนารูปแบบ ครั้งนี้

สำหรับขั้นตอนในการพัฒนารูปแบบก่อนที่จะนำรูปแบบไปใช้จำเป็นจะต้องมีการตรวจสอบรูปแบบ เพื่อให้รูปแบบมีประสิทธิภาพก่อนนำไปใช้ ซึ่งมีนักวิชาการได้กำหนดในการตรวจสอบรูปแบบดังนี้

สุวิมล ว่องวานิช (2559) การตรวจสอบรูปแบบด้วยการประเมินคุณภาพตามมาตรฐาน ที่กำหนดการประเมินที่พัฒนาโดย The Joint Committee on Standards of Educational Evaluation ภายใต้การดำเนินงานของ (Suffete) และคณะได้นำเสนอหลักการประเมิน เพื่อเป็นบรรทัดฐานของกิจกรรมการตรวจสอบรูปแบบ ประกอบด้วย มาตรฐานคุณภาพรูปแบบการบริหาร 4 ด้าน ดังนี้

1 ความถูกต้อง (Accuracy) หมายถึง คุณลักษณะที่บ่งชี้ภาพรวมและทุกองค์ประกอบของการพัฒนารูปแบบการบริหาร เป็นการประเมินความน่าเชื่อถือ และได้สาระครอบคลุมครบถ้วน ตามความต้องการอย่างแท้จริง

2 ความเหมาะสม (Propriety) หมายถึง คุณลักษณะที่บ่งชี้ภาพรวมทุกองค์ประกอบของการพัฒนารูปแบบการบริหาร มีความเหมาะสมและคำนึงถึงผู้เกี่ยวข้องในการประเมินและผู้ได้รับผลกระทบจากการประเมิน

3 ความเป็นไปได้ (Feasibility) หมายถึง คุณลักษณะที่บ่งชี้ภาพรวมและทุกองค์ประกอบของการพัฒนารูปแบบการบริหาร มีความสอดคล้องกับสภาพความเป็นจริงเป็นไปได้ในทางปฏิบัติ และก่อให้เกิดประสิทธิภาพ

4 ความเป็นประโยชน์ (Utility) หมายถึง คุณลักษณะที่บ่งชี้ถึงภาพรวม และทุกองค์ประกอบของการพัฒนารูปแบบการบริหาร เป็นการประเมินการสนองตอบต่อความต้องการของผู้ใช้รูปแบบ สามารถนำไปใช้ในการบริหารให้ประสบผลสำเร็จตามเป้าหมาย และเผยแพร่ต่อสาธารณชนต่อไปได้

สมาน อัศวภูมิ. (2557, น.55) ที่ได้กลาวถึงองคประกอบของรูปแบบที่ดี ควรประกอบดวย 7 องคประกอบ 1) วัตถุประสงคของรูปแบบในการพัฒนารูปแบบใด ๆ ก็ตาม ผูออกแบบตองรูวาจะออกแบบรูปแบบมาเพื่อวัตถุประสงคใด 2) ทฤษฎีพื้นฐานและหลักการของรูปแบบเพื่อใหการดำเนินงานของรูปแบบเปนไปตามวัตถุประสงคที่กำหนดไว 3) ระบบงานและกลไกของรูปแบบ เพื่อใหการดำเนินงานเปนไปตามหลักการและบรรลุวัตถุประสงคของรูปแบบ 4) วิธีการดำเนินงานของรูปแบบ ดวยการกำหนดภารกิจ กระบวนการ วิธีการ กิจกรรม และอื่น ๆ ที่ตองดำเนินการ เพื่อการบรรลุวัตถุประสงคของรูปแบบ 5) แนวการประเมินรูปแบบ คือ การกำหนดแนวทางและเครื่องมือในการประเมินผล รูปแบบตามวัตถุประสงคของรูปแบบ และการประเมินการดำเนินงานตามรูปแบบวาเปนไปตามที่กำหนดไวหรือไมเพียงใด 6)

คำอธิบายประกอบรูปแบบ เป็นการอธิบายคำศัพทเฉพาะที่นำมาใชในการออกแบบรูปแบบ เพื่อสื่อความให้ตรงกันในการนำรูปแบบไปใช้ และ 7) ระบุเงื่อนไขการนำรูปแบบไปใช้ เนื่องจากรูปแบบมีข้อจำกัดของตนเอง

คุณภาพผู้เรียนในศตวรรษที่ 21

คุณภาพของผู้เรียนตามกรอบหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 (ฉบับปรุงปรุง 2560) กระทรวงศึกษาธิการ การที่ผู้เรียนมีความสามารถ เชิงบูรณาการ จากการนำความรู้ ทักษะ คุณลักษณะนำมาใช้เป็นองค์ความรู้หลัก มาประยุกต์ใช้ ร่วมกับทัศนคติ ค่านิยม เจตคติเป็นแรงขับเคลื่อนภายในจะเชื่อว่าตนเองสามารถปฏิบัติงานอย่างมีประสิทธิภาพ ตลอดจนสามารถประยุกต์ใช้กับสถานการณ์จริงและแก้ปัญหาได้ผลอย่างสูงสุด ประกอบด้วย 3 ประเด็น คือ ผลสัมฤทธิ์ทางการเรียน คุณลักษณะอันพึงประสงค์ และทักษะการดำรงชีวิต (กระทรวงศึกษาธิการ, 2561)

ผลสัมฤทธิ์ทางการเรียน เป็นผลที่เกิดขึ้นหลังจากผ่านกระบวนการเรียนรู้โดยการใช้เอกสารประกอบการเรียน ทำให้ผู้เรียนเกิดการเรียนรู้ และทักษะต่าง ๆ ที่ได้รับจากการเรียนรู้ซึ่งเกิดขึ้นแตกต่างกันของบุคคล แสดงให้เห็นถึงความสำเร็จในการเรียน หลังจากที่นักเรียนได้เรียนหรือได้รับประสบการณมาแลว สามารถวัดและประเมินผลได จากแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน ในที่นี้หมายถึงผลสัมฤทธิ์ทางการเรียนใน 8 กลุ่มสาระการเรียนรู้ ผู้สอนวัดและประเมินผลการเรียนรู้ ผู้เรียนเปนรายวิชาบนพื้นฐานของตัวชี้วัดในรายวิชาพื้นฐานและผลการเรียนรูในรายวิชาเพิ่มเติมตามที่กำหนด ในหนวยการเรียนรูผู้สอนใชวิธีการที่หลากหลายจากแหลงข่อมูลหลาย ๆ แหลง เพื่อให้ไดผลการประเมินที่สะทอนความรูความสามารถที่แทจริงของผู้เรียน โดยวัดและประเมินการเรียนรูอยางตอเนื่องไปพรอมกับการจัดการเรียนการสอน สังเกตพัฒนาการและความประพฤติของผู้เรียน สังเกตพฤติกรรมการเรียน การรวมกิจกรรม ผู้สอนควรเน้นการประเมินตามสภาพจริง เชน การประเมินการปฏิบัติงาน การประเมินจากโครงงาน หรือการประเมินจากแฟมสะสมงาน ฯลฯ ควบคูไปกับการใชการทดสอบแบบตาง ๆ อยางสมดุลตองให้ความสำคัญกับการประเมินระหวางเรียนมากกวาการประเมิน

คุณลักษณะอันพึงประสงค์ เปนการประเมินคุณลักษณะที่ต้องการให้เกิดขึ้นกับผู้เรียน อันเปนคุณลักษณะที่สังคมต้องการในดานคุณธรรม จริยธรรม คานิยม จิตสำนึก สามารถอยูรวมกับผู้อื่นในสังคมได้อยางมีความสุข ทั้งในฐานะพลเมืองไทยและพลโลก หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 กำหนดคุณลักษณะอันพึงประสงค์ 8 ประการ ได้แก่ รักชาติ ศาสน์ กษัตริย์ ซื่อสัตย์สุจริต มีวินัย ใฝ่เรียนรู้ อยู่อย่างพอเพียง มุ่งมั่นในการทำงาน รักความเป็นไทย มีจิตสาธารณะ เพื่อปลูกฝังและพัฒนาผู้เรียนให้เป็นผู้ที่มีความรู้คู่คุณธรรม มีคุณลักษณะที่ดีสำหรับการดำรงชีวิตในสังคม ในการประเมินให้ประเมินแต่ละคุณลักษณะแล้วรวบรวมผลการประเมินจากผู้ประเมินทุกฝาย และแหล่งข้อมูลหลายแหล่งเพื่อให้ได้ข้อมูลนำมาสู่การสรุปเปนรายป/รายภาค และใชเปนข่อมูลเพื่อประเมินการเลื่อนชั้นและการจบการศึกษาระดับตาง ๆ

ทักษะการดำรงชีวิต การพัฒนาผู้เรียนให้มีทักษะการเรียนรู้ในศตวรรษที่ 21 (3Rs8Cs) เป็นทักษะการเรียนรู้ตามแผนการศึกษาแห่งชาติ พ.ศ. 2560-2579 กำหนดวิสัยทัศน์ (Vision) ไว้ดังนี้ “คนไทยทุกคนได้รับการศึกษาและเรียนรู้ตลอดชีวิตอย่างมีคุณภาพ ดำรงชีวิตอย่างเป็นสุข สอดคล้องกับ หลักปรัชญาของเศรษฐกิจพอเพียง และการเปลี่ยนแปลงของโลกศตวรรษที่ 21”เพื่อให้บรรลุวิสัยทัศน์และจุดมุ่งหมายในการจัดการศึกษาดังกล่าวข้างต้น แผนการศึกษาแห่งชาติได้วางเป้าหมาย ด้านผู้เรียน (Learner Aspirations) โดยมุ่งพัฒนาผู้เรียนทุกคนให้มีคุณลักษณะและทักษะการเรียนรู้ในศตวรรษที่ 21 (3Rs8CS)

ประกอบด้วย การอ่านออก การเขียนได้ การคิดเลขเป็น การคิดอย่างมีวิจารณญาณ และทักษะในการแก้ปัญหา การสร้างสรรค์และนวัตกรรม ความเข้าใจต่างวัฒนธรรม ต่างกระบวนทัศน์ ความร่วมมือ การทำงานเป็นทีม และภาวะผู้นำ การสื่อสารสารสนเทศและการรู้เท่าทันสื่อ ทักษะด้านคอมพิวเตอร์ และเทคโนโลยีสารสนเทศและการสื่อสาร

การบริหารการศึกษาเพื่อพัฒนาทักษะในศตวรรษที่ 21

การบริหารการศึกษาเป็นกระบวนการวางแผน จัดการ ควบคุม และพัฒนาให้เกิดประสิทธิภาพสูงสุดในการจัดการเรียนรู้ เพื่อให้ผู้เรียนสามารถพัฒนาทักษะที่จำเป็นต่อการดำรงชีวิตและการทำงานในยุคศตวรรษที่ 21 ตามแนวคิดของ Trilling & Fadel (2009) กล่าวว่า ทักษะสำคัญในศตวรรษที่ 21 สามารถจำแนกได้เป็น 3 กลุ่มหลัก ได้แก่ ทักษะการเรียนรู้และนวัตกรรม (Learning and Innovation Skills) เช่น การคิดวิเคราะห์ การแก้ปัญหา และการสร้างสรรค์นวัตกรรม ทักษะด้านสารสนเทศ สื่อ และเทคโนโลยี (Information, Media, and Technology Skills) เช่น การรู้เท่าทันสื่อและการใช้เทคโนโลยีดิจิทัล ทักษะชีวิตและอาชีพ (Life and Career Skills) เช่น การทำงานเป็นทีม การปรับตัว และความเป็นผู้นำ

การบริหารการศึกษาจึงต้องปรับเปลี่ยนจากรูปแบบดั้งเดิมที่มุ่งเน้นเนื้อหา ไปสู่การบริหารที่สนับสนุนการพัฒนาทักษะที่หลากหลายของผู้เรียน ผ่านการเรียนรู้ที่มีความยืดหยุ่นและสามารถนำไปประยุกต์ใช้ได้จริง (วุฒิชัย ใหม่วงค์. 2565)

รูปแบบการบริหารที่สนับสนุนการพัฒนาทักษะในศตวรรษที่ 21นักวิชาการด้านการบริหารการศึกษาได้นำเสนอรูปแบบการบริหารที่สามารถพัฒนาทักษะผู้เรียนในศตวรรษที่ 21 ได้แก่

1. การบริหารแบบการเรียนรู้เชิงรุก (Active Learning Management) รูปแบบนี้ส่งเสริมให้ผู้เรียนมีส่วนร่วมในการเรียนรู้มากขึ้น ผ่านการจัดการเรียนรู้ที่เน้นการลงมือปฏิบัติ การแก้ปัญหาจากสถานการณ์จริง และการเรียนรู้ผ่านโครงการ (Project-based Learning) ซึ่งช่วยพัฒนาทักษะการคิดวิเคราะห์ ความคิดสร้างสรรค์ และการทำงานเป็นทีม

2. การบริหารแบบมีส่วนร่วม (Participatory Management) แนวทางนี้เน้นการมีส่วนร่วมของผู้เกี่ยวข้องทุกฝ่าย ไม่ว่าจะเป็นผู้บริหาร ครู นักเรียน ผู้ปกครอง และชุมชน ซึ่งช่วยสร้างวัฒนธรรมการเรียนรู้ที่มีความต่อเนื่องและส่งเสริมการพัฒนาทักษะทางสังคมของผู้เรียน

3. การบริหารแบบดิจิทัล (Digital-based Management) เทคโนโลยีดิจิทัลมีบทบาทสำคัญในการบริหารการศึกษาในยุคปัจจุบัน ระบบการบริหารจัดการเรียนรู้ (Learning Management System - LMS) และแพลตฟอร์มออนไลน์ต่าง ๆ ช่วยให้ผู้เรียนสามารถเข้าถึงแหล่งเรียนรู้ที่หลากหลาย และพัฒนาทักษะการใช้เทคโนโลยีควบคู่ไปกับการเรียนรู้ในวิชาอื่น ๆ

ปัจจัยที่ส่งผลต่อการบริหารเพื่อพัฒนาทักษะในศตวรรษที่ 21

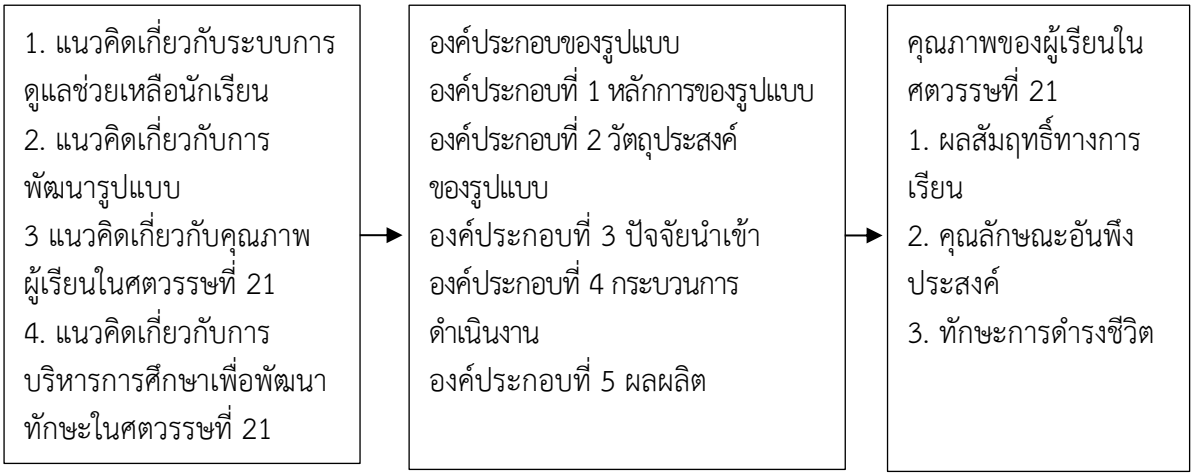
1. บทบาทของผู้นำทางการศึกษา ผู้นำทางการศึกษามีบทบาทสำคัญในการกำหนดทิศทางการพัฒนาทักษะของผู้เรียน โดยต้องมีวิสัยทัศน์ที่กว้างไกล เปิดรับนวัตกรรมใหม่ ๆ และสามารถสร้างสภาพแวดล้อมที่เอื้อต่อการเรียนรู้

2. การพัฒนาครูและบุคลากรทางการศึกษา ครูเป็นผู้ที่มีบทบาทโดยตรงในการพัฒนาทักษะของผู้เรียน จึงต้องได้รับการพัฒนาให้สามารถออกแบบการเรียนรู้ที่ส่งเสริมทักษะที่จำเป็น เช่น การใช้เทคโนโลยีดิจิทัล การจัดกิจกรรมเชิงสร้างสรรค์ และการเป็นที่ปรึกษาให้นักเรียน

3. การสนับสนุนจากภาครัฐและนโยบายการศึกษาที่ส่งเสริมการพัฒนาทักษะในศตวรรษที่ 21 ควรมุ่งเน้นการสร้างความเท่าเทียมในการเข้าถึงการศึกษา การจัดสรรงบประมาณเพื่อพัฒนาสื่อและเทคโนโลยี และการพัฒนาหลักสูตรที่สอดคล้องกับความต้องการของตลาดแรงงาน

สรุปได้ว่าการบริหารการศึกษาเพื่อพัฒนาทักษะในศตวรรษที่ 21 จำเป็นต้องมีแนวทางที่เป็นระบบ โดยเน้นการเรียนรู้เชิงรุก การใช้เทคโนโลยีดิจิทัล และการมีส่วนร่วมของทุกภาคส่วน นอกจากนี้ ผู้นำทางการศึกษา ครู และนโยบายของภาครัฐก็มีบทบาทสำคัญในการผลักดันให้เกิดการเปลี่ยนแปลงที่สอดคล้องกับบริบทของศตวรรษที่ 21 มากยิ่งขึ้น

จากการศึกษาแนวคิดที่เกี่ยวข้องนำมาเขียนเป็นกรอบแนวคิดสำหรับดำเนินงานได้ดังนี้



ภาพที่ 2 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

การวิจัยเรื่อง การพัฒนารูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 เป็นงานวิจัยแบบผสม (Mixed Method) ซึ่งมีทั้งเชิงปริมาณ (Quantitative Research Method) และเชิงคุณภาพ (Qualitative Research Method) ดำเนินการวิจัยแบ่งออกเป็น 4 ขั้นตอน ดังนี้

ขั้นตอนที่ 1 ศึกษาสภาพปัญหาและความต้องการของการพัฒนารูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

ศึกษาทฤษฎีและแนวคิดเกี่ยวกับระบบการดูแลช่วยเหลือนักเรียน ทบทวนแนวคิดและงานวิจัยที่เกี่ยวข้องกับการบริหารการศึกษาและการพัฒนาทักษะในศตวรรษที่ 21 กำหนดกรอบแนวคิดในการศึกษาสภาพปัญหาและความต้องการ เก็บข้อมูลโดยใช้แบบสอบถาม เก็บข้อมูลจากครู นักเรียน และผู้บริหารเกี่ยวกับสภาพปัญหาและความต้องการในการพัฒนาระบบการดูแลช่วยเหลือนักเรียน จัดสนทนากลุ่ม (Focus Group Discussion): จัดประชุมร่วมกับครูและนักเรียนเพื่อระดมความคิดเห็นเกี่ยวกับปัญหาและแนวทางการพัฒนา วิเคราะห์ข้อมูลจากแบบสอบถามโดยใช้ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการแจกแจงความถี่ และวิเคราะห์เนื้อหา (Content Analysis) ข้อมูลจากการสนทนากลุ่ม

ขั้นตอนที่ 2 พัฒนารูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

สังเคราะห์เอกสารหลักการแนวคิดการบริหารระบบการดูแลช่วยเหลือนักเรียนในสถานศึกษาเพื่อพัฒนาคุณภาพผู้เรียนในศตวรรษที่ 21 แนวคิดเกี่ยวกับรูปแบบและการพัฒนารูปแบบ สัมภาษณ์ผู้บริหารโรงเรียนที่มีผลการปฏิบัติที่ดี (Best Practices) ด้านระบบการดูแลช่วยเหลือนักเรียน เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลเป็นแบบสัมภาษณ์เชิงลึก (In-depth Interview) วิเคราะห์ข้อมูลด้วยการวิเคราะห์เนื้อหา (Content Analysis) นำข้อมูลที่ได้มายกร่างรูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนฯ และตรวจสอบร่างรูปแบบโดยผู้ทรงคุณวุฒิ จำนวน 9 คน ด้วยการสนทนากลุ่ม (Focus Group) วิเคราะห์ข้อมูลด้วยการวิเคราะห์เนื้อหาและปรับปรุงร่างรูปแบบตามข้อเสนอแนะของผู้ทรงคุณวุฒิจนได้รูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 สำหรับนำไปทดลองใช้ ซึ่งผู้วิจัยได้ดำเนินการจัดทำคู่มือการดำเนินงานสำหรับนำรูปแบบที่พัฒนาขึ้นไปทดลองใช้ด้วย

ขั้นตอนที่ 3 ทดลองใช้รูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

นำรูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่พัฒนาขึ้น มาทดลองใช้ตามคู่มือการดำเนินงานที่ได้จัดทำขึ้นด้วยการไปใช้จริงในโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) เป็นระยะเวลา 1 ปีการศึกษา คือ ปีการศึกษา 2566 หลังจากนั้นมีการติดตามผลการทดลองใช้รูปแบบโดยใช้แบบสอบถามผู้ให้ข้อมูล ได้แก่ รองผู้อำนวยการโรงเรียน ครูผู้สอน และนักเรียน วิเคราะห์ผลจากแบบสอบถาม และรวบรวมผลลัพธ์เชิงประจักษ์ ที่เกิดกับผู้เรียนได้แก่คุณภาพผู้เรียนในศตวรรษที่ 21 ประกอบด้วยผลสัมฤทธิ์ทางการเรียน คุณลักษณะอันพึงประสงค์ และทักษะการดำรงชีวิตโดยการเปรียบเทียบผลระหว่างปีการศึกษา 2566 และ 2565

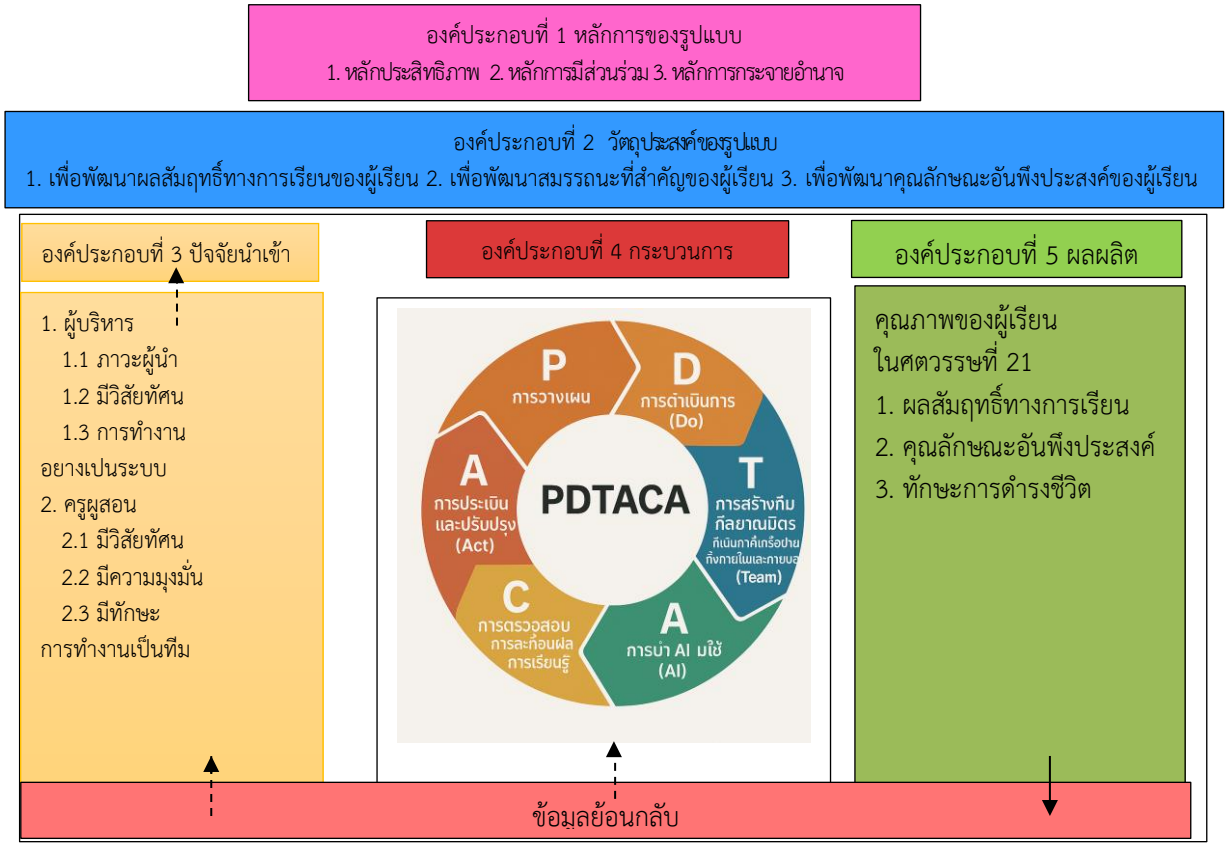
ขั้นตอนที่ 4 ประเมินรูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

ประเมินด้านความถูกต้อง (Accuracy) ด้านความเหมาะสม (Propriety) ด้านความเป็นไปได้ (Feasibility) และด้านการใช้ประโยชน์(Utility) ของรูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ผู้วิจัยได้เก็บรวบรวมข้อมูลโดยใช้แบบสอบถามเพื่อประเมินด้านความถูกต้อง (Accuracy) ด้านความเหมาะสม (Propriety) ด้านความเป็นไปได้(Feasibility) และด้านการใช้ประโยชน์(Utility) ผู้ทำการประเมินประกอบด้วย รองผู้อำนวยการโรงเรียน จำนวน 2 คน และครูผู้สอน จำนวน 37 คน วิเคราะห์ข้อมูลจากแบบสอบถามโดยใช้ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน

ผลการวิจัย

1. สภาพปัญหาของระบบการดูแลช่วยเหลือนักเรียน พบว่าระดับปัญหาในการดำเนินงานระบบดูแลช่วยเหลือนักเรียนของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) โดยภาพรวมมีปัญหาอยู่ในระดับมาก (μ=4.02, σ=0.65) สถานศึกษายังขาดแนวทางที่เป็นระบบและต่อเนื่องในการบริหารระบบการดูแลช่วยเหลือนักเรียน ทำให้การดำเนินงานไม่สามารถตอบสนองต่อความต้องการของนักเรียนได้อย่างมีประสิทธิภาพ ครูและบุคลากรทางการศึกษายังขาดความรู้ความเข้าใจในแนวทางการดำเนินงานที่สอดคล้องกับยุคดิจิทัล ผู้ปกครองและชุมชนยังไม่ได้มีบทบาทสำคัญในการช่วยเหลือนักเรียนมากเท่าที่ควร ระบบสารสนเทศ เพื่อสนับสนุนการดูแลช่วยเหลือนักเรียนยังไม่ได้รับการพัฒนาอย่างเต็มที่ ทำให้การติดตามและให้คำปรึกษานักเรียนยังขาดประสิทธิภาพ ต้องการรูปแบบการบริหารที่ชัดเจนและเป็นระบบ สนับสนุนด้านเทคโนโลยี และพัฒนาเครือข่ายการดูแลช่วยเหลือนักเรียน

2. ผลการพัฒนารูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ได้รูปแบบที่ให้ชื่อว่า “PDTACA Model” ผลการตรวจสอบรูปแบบ พบว่า ผู้ทรงคุณวุฒิมีความคิดเห็นต่อรูปแบบ ในภาพรวมอยู่ในระดับมากที่สุด (ค่าเฉลี่ยเท่ากับ 4.58) เมื่อพิจารณารายองค์ประกอบ พบว่า มีค่าเฉลี่ยตั้งแต่ 4.54-4.62 ซึ่งอยู่ในระดับมากที่สุดทุกด้าน โดยองค์ประกอบที่มีความคิดเห็นสูงสุด คือ องค์ประกอบที่ 2 วัตถุประสงค์ของรูปแบบ (ค่าเฉลี่ยเท่ากับ 4.62) รองลงมา คือ องค์ประกอบที่ 1 หลักการของรูปแบบ (ค่าเฉลี่ยเท่ากับ 4.60) องค์ประกอบที่ 3 ปัจจัยนำเข้า (ค่าเฉลี่ยเท่ากับ 4.59) องค์ประกอบที่ 4 กระบวนการบริหาร (ค่าเฉลี่ยเท่ากับ 4.56) และองค์ประกอบที่ 5 ผลผลิต (ค่าเฉลี่ย เท่ากับ 4.54) ตามลำดับ



ภาพที่ 3 รูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

จากภาพรูปแบบประกอบด้วย 5 องค์ประกอบ คือ หลักการของรูปแบบ ได้แก่ หลักประสิทธิภาพ หลักการมีส่วนร่วม หลักการกระจายอำนาจ วัตถุประสงค์ของรูปแบบ เพื่อพัฒนาคุณภาพผู้เรียนในศตวรรษที่ 21 3 ด้าน ได้แก่ ผลสัมฤทธิ์ทางการเรียน คุณลักษณะอันพึงประสงค์ ทักษะการดำรงชีวิต ปัจจัยนำเข้า ประกอบด้วย 2 ปัจจัย คือ ปัจจัยด้านผู้บริหาร ได้แก่ ภาวะผู้นำ การมีวิสัยทัศน์ การทำงานอย่างเปนระบบ ปัจจัยด้านครูผู้สอน ได้แก่ การมีวิสัยทัศน มีความมุงมั่น มีทักษะการทำงาน เป็นทีม กระบวนการบริหาร ประกอบด้วย PDTACA คือ การวางแผน (P : Plan) การดำเนินการ (D : Do) การสร้างทีมกัลยาณมิตรที่เน้นภาคีเครือข่ายทั้งภายในและภายนอก (T : Team) การนำ AI มาใช้ (A) การตรวจสอบ การสะท้อนผลการเรียนรู้ (C: Check) การประเมินและปรับปรุง (A : Act) ผลผลิต คือ ผลลัพธ์ผู้เรียนในศตวรรษที่ 21 ได้แก่ ผลสัมฤทธิ์ทางการเรียน คุณลักษณะอันพึงประสงค์ และทักษะการดำรงชีวิต

3. ผลจากการทดลองใช้รูปแบบฯ พบว่า การบริหารระบบการดูแลช่วยเหลือนักเรียนมีความเป็นระบบมากขึ้น ครูและบุคลากรสามารถดำเนินงานได้อย่างมีแนวทางชัดเจน ลดความสับสนในการดำเนินการ นักเรียนได้รับการดูแลที่มีประสิทธิภาพมากขึ้น นักเรียนที่ได้รับการช่วยเหลืออย่างเหมาะสมมากขึ้น โดยเฉพาะกลุ่มที่มีปัญหาด้านพฤติกรรมและการเรียน เทคโนโลยีช่วยเพิ่มประสิทธิภาพในการดูแลนักเรียน ระบบติดตามข้อมูลนักเรียนผ่านแอปพลิเคชันช่วยให้ครูสามารถตรวจสอบพฤติกรรมและให้คำปรึกษาได้สะดวกขึ้น ผลกระทบต่อคุณภาพของผู้เรียนในศตวรรษที่ 21 พบว่า ทักษะการเรียนรู้ดีขึ้น นักเรียนมีความกระตือรือร้นในการเรียนรู้มากขึ้น และสามารถแก้ปัญหาได้ดีขึ้น ทักษะทางสังคมดีขึ้น พบนักเรียนมีพฤติกรรมที่เหมาะสมมากขึ้น สามารถทำงานเป็นทีมและสื่อสารได้ดีขึ้น นักเรียนกล้าแสดงออกและมีความสุขกับการเรียนมากขึ้นส่งผลให้คุณภาพของผู้เรียนในศตวรรษที่ 21 ทุกด้านคือ ผลสัมฤทธิ์ทางการเรียน คุณลักษณะอันพึงประสงค์ และทักษะการดำรงชีวิตปีการศึกษา 2566 สูงกว่า ปีการศึกษา 2565

4. ผลการประเมินรูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ด้านความถูกต้อง(Accuracy) ด้านความเหมาะสม (Propriety) ด้านความเป็นไปได้ (Feasibility) และด้านการใช้ประโยชน์ (Utility) ในภาพรวมอยู่ในระดับมากที่สุด (คาเฉลี่ยเทากับ 4.56) เมื่อพิจารณารายองค์ประกอบ พบวา มีคาเฉลี่ยตั้งแต 4.53-4.60 ซึ่งอยู่ในระดับมากที่สุดทุกดาน โดยองค์ประกอบที่มีความคิดเห็นสูงสุด คือ องคประกอบที่ 1 หลักการของรูปแบบ (คาเฉลี่ยเทากับ 4.60) รองลงมา คือ องคประกอบที่ 2 วัตถุประสงคของรูปแบบ (คาเฉลี่ยเทากับ 4.58) องคประกอบที่ 4 กระบวนการบริหาร (คาเฉลี่ยเทากับ 4.57) องคประกอบที่ 3 ปจจัยนำเขา (คาเฉลี่ย เทากับ 4.54) และองคประกอบที่ 5 ผลผลิต (คาเฉลี่ยเทากับ 4.53) ตามลำดับ

อภิปรายผล

1. ผลการวิจัยพบว่าระดับปัญหาในการดำเนินงานระบบดูแลช่วยเหลือนักเรียนของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) โดยภาพรวมมีปัญหาอยู่ในระดับมาก ระบบการดูแลช่วยเหลือนักเรียนในปัจจุบันยังมีข้อจำกัดหลายด้าน ได้แก่ ขาดแนวทางที่เป็นระบบและต่อเนื่อง ทำให้การดูแลช่วยเหลือนักเรียน ไม่มีมาตรฐานที่ชัดเจนบุคลากรยังขาดความรู้ความเข้าใจเกี่ยวกับแนวทางการดำเนินงานที่ทันสมัย โดยเฉพาะการใช้เทคโนโลยีเข้ามาสนับสนุน การมีส่วนร่วมของผู้ปกครองและชุมชนยังไม่มากพอ ส่งผลให้การช่วยเหลือนักเรียนเป็นหน้าที่หลักของครูและโรงเรียนเท่านั้น ระบบสารสนเทศยังไม่ได้รับการพัฒนาเต็มที่ ทำให้การติดตามข้อมูลนักเรียนมีข้อจำกัด ผลการศึกษานี้สอดคล้องกับงานวิจัยของสำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน (2559) ที่ระบุว่าการพัฒนาระบบการดูแลช่วยเหลือนักเรียนในยุคดิจิทัลควรให้ความสำคัญกับการใช้เทคโนโลยี การมีส่วนร่วมของทุกฝ่าย และการสร้างแนวทางที่มีประสิทธิภาพ

2. รูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 พบว่าประกอบด้วย 5 องค์ประกอบ คือ องค์ประกอบที่ 1 หลักการของรูปแบบ องค์ประกอบที่ 2 วัตถุประสงค์ของรูปแบบ องค์ประกอบที่ 3 ปัจจัยนำเข้า องค์ประกอบที่ 4 กระบวนการบริหาร และ องค์ประกอบที่ 5 ผลผลิต ทั้งนี้เป็นเพราะว่า การกำหนดรูปแบบที่มีตัวแปรผันครบ แสดงให้เห็นถึงความสัมพันธ์ในลักษณะเปนเหตุเปนผลกัน และความสัมพันธเหลานั้นตองสามารถตอบวัตถุประสงคของการสรางรูปแบบ โดยมีข้อมูลตาง ๆ ที่เชื่อถือได พิสูจนได และเปนที่ยอมรับกันทั่วไป สอดคล้องกับแนวคิดของสมาน อัศวภูมิ, (2557, น.55) ที่ได้กลาวถึงองคประกอบของรูปแบบที่ดี ควรประกอบดวย 7 องคประกอบ 1) วัตถุประสงค์ของรูปแบบ ในการพัฒนารูปแบบใด ๆ ก็ตาม ผูออกแบบตองรูวาจะออกแบบรูปแบบมาเพื่อวัตถุประสงค์ใด 2) ทฤษฎีพื้นฐานและหลักการของรูปแบบ เพื่อให้การดำเนินงานของรูปแบบเปนไป ตามวัตถุประสงค์ที่กำหนดไว 3) ระบบงานและกลไกของรูปแบบ เพื่อให้การดำเนินงานเปนไปตามหลักการและบรรลุวัตถุประสงคของรูปแบบ 4) วิธีการดำเนินงานของรูปแบบ ดวยการกำหนดภารกิจ กระบวนการ วิธีการกิจกรรม และอื่น ๆ ที่ตองดำเนินการ เพื่อการบรรลุวัตถุประสงคของรูปแบบ 5) แนวการประเมินรูปแบบ คือ การกำหนดแนวทางและเครื่องมือในการประเมินผล รูปแบบตามวัตถุประสงค์ของรูปแบบ และการประเมินการดำเนินงานตามรูปแบบวาเปนไปตามที่กำหนดไวหรือไมเพียงใด 6) คำอธิบายประกอบรูปแบบ เป็นการอธิบายคำศัพทเฉพาะที่นำมาใชในการออกแบบรูปแบบ เพื่อสื่อความให้ตรงกันในการนำรูปแบบไปใช และ 7) ระบุเงื่อนไขการนำรูปแบบไปใช เนื่องจากรูปแบบมีขอจำกัดของตนเอง สอดคล้องกับงานวิจัยของ วุฒิชัย ใหม่วงค์ (2565) ที่วิจัยรูปแบบการบริหารงานระบบดูแลช่วยเหลือนักเรียนสู่ความเป็นเลิศในโรงเรียน สังกัดสำนักงานเขตพื้นที่การศึกษามัธยมศึกษา เชียงรายและพะเยา พบว่า รูปแบบ มีองค์ประกอบสำคัญ 5 องค์ประกอบ ได้แก่ (1) หลักการ (2) จุดมุ่งหมาย (3) กระบวนการ (4) การวัดและประเมินผล (5) เงื่อนความสำเร็จ

3. เมื่อนำรูปแบบการบริหารไปทดลองใช้ในโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) พบว่าครูและบุคลากรสามารถดำเนินงานได้เป็นระบบมากขึ้น มีแนวทางที่ชัดเจนในการติดตามและช่วยเหลือนักเรียน นักเรียนได้รับการดูแลที่มีคุณภาพมากขึ้นโดยเฉพาะนักเรียนกลุ่มเสี่ยงที่มีปัญหาพฤติกรรมหรือการเรียน การใช้เทคโนโลยีช่วยให้การติดตามข้อมูลเป็นไปอย่างมีประสิทธิภาพ ลดภาระของครูและช่วยให้โรงเรียนสามารถวิเคราะห์ข้อมูลได้แม่นยำขึ้น การมีส่วนร่วมของผู้ปกครองและชุมชนเพิ่มขึ้น ทำให้

การช่วยเหลือนักเรียนเป็นไปอย่างครอบคลุมมากขึ้น นักเรียนมีความกระตือรือร้นในการเรียนรู้มากขึ้น และสามารถแก้ปัญหาได้ดีขึ้น ทักษะทางสังคมดีขึ้น พบนักเรียนมีพฤติกรรมที่เหมาะสมมากขึ้น สามารถทำงานเป็นทีมและสื่อสารได้ดีขึ้น นักเรียนกล้าแสดงออกและมีความสุขกับการเรียนมากขึ้น เพราะว่าการมีรูปแบบการบริหารที่ชัดเจนช่วยให้ครูมีแนวทางที่เป็นระบบ ลดความสับสนในการดำเนินงาน ครูเข้าใจบทบาทของตนเองมากขึ้น การกำหนดกระบวนการติดตามผลที่ชัดเจนช่วยให้สามารถวางแผน การช่วยเหลือนักเรียนได้อย่างต่อเนื่องผลการทดลองใช้สอดคล้องกับงานวิจัยของ Fullan (2014) ที่ระบุว่าการบริหารการศึกษาที่มีประสิทธิภาพต้องอาศัยการมีส่วนร่วมของทุกฝ่ายและการใช้เทคโนโลยี เพื่อเพิ่มประสิทธิภาพในการดำเนินงาน

4. ผลการประเมินรูปแบบการบริหารระบบการดูแลช่วยเหลือนักเรียนที่ส่งผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ด้านความถูกต้อง(Accuracy) ด้านความเหมาะสม (Propriety) ด้านความเป็นไปได้ (Feasibility) และด้านการใช้ประโยชน์ (Utility) ทุกด้านอยู่ในระดับมากที่สุดเพราะได้นำนโยบายระบบดูแลช่วยเหลือนักเรียนของสำนักงานคณะกรรมการการศึกษาขั้นพื้นฐานมาปฏิบัติ โดยได้กำหนดนโยบายการดูแลช่วยเหลือนักเรียน การเสริมสร้างทักษะชีวิต และการคุ้มครองนักเรียนอย่าง ปลอดภัย และจัดทำมาตรฐานการจัดดำเนินงานระบบการดูแลช่วยเหลือ และในการพัฒนาโครงการ โรงเรียนได้ใช้กระบวนการ PDCA เข้ามาบริหารจัดการ เสริมการใช้เทคโนโลยี และการทำงานเป็นทีม ซึ่งมีความจำเป็นในการบริหารเพื่อพัฒนาทักษะผู้เรียนในศตวรรษที่ 21 โดยมีเป้าหมายให้นักเรียนทุกคนได้รับการส่งเสริมให้มีทักษะชีวิตและมีความสามารถในการปรับตัว นักเรียนกลุ่มมีปัญหาได้รับการปกป้อง คุ้มครองและดูแลอย่างทั่วถึง ทันเวลา และถูกวิธี นักเรียนที่มีความสามารถพิเศษได้รับการส่งเสริมพัฒนาเต็มตามศักยภาพ และได้นำข้อมูลสารสนเทศมาเป็นข้อมูลพื้นฐานสำหรับการพัฒนาโครงการ ได้ศึกษาความต้องการจำเป็นในด้านต่าง ๆ เพื่อนำมากำหนดแนวทางการพัฒนาและกิจกรรมการพัฒนาผู้เรียนในด้านต่าง ๆ ให้สอดคล้องกับความต้องการ สอดคล้องกับนโยบายการตัดสินใจในการบริหารของระบบ และไดสรางพัฒนาตามหลักการทางวิชาการ ผานการตรวจสอบและแนะนำจากผูเชี่ยวชาญ ซึ่งสอดคล้องกับแนวคิดของสำราญ มีแจ้ง (2558) ที่ได้นำเสนอไว้ว่าการปรับปรุง กำหนดทิศทางการประเมิน เพื่อจะได้สอดคล้องกับนโยบายการตัดสินใจในการบริหารเชิงระบบ

ข้อเสนอแนะ

ข้อเสนอแนะในการนำผลการวิจัยไปใช้

1. การนำรูปแบบไปใช้ ควรประชุมชี้แจงและทำความเข้าใจกับครูเกี่ยวกับการดำเนินงานตามรูปแบบเพื่อให้การดำเนินงานไปในทิศทางเดียวกันและเหมาะสมกับบริบทของสถานศึกษา รวมทั้งสร้างการมีส่วนร่วมในการบริหารงานตั้งแต่เริ่มต้นจนสิ้นสุดอย่างต่อเนื่อง

2. ควรมีการวิเคราะห์ข้อมูลนักเรียนรายบุคคล เพื่อคัดกรองนักเรียนออกเป็น 3 กลุ่ม ได้แก่ กลุ่มปกติ กลุ่มเสี่ยงและกลุ่มที่มีปัญหาและจัดทำเอกสารสนเทศผลการคัดกรองนักเรียนระดับสถานศึกษาที่เป็นปัจจุบันและจัดเก็บเป็นระบบ โดยนำเทคโนโลยีมาใช้มากยิ่งขึ้น

3. ควรมีการจัดกิจกรรม เพื่อการส่งเสริมและพัฒนาคุณภาพคุณภาพผู้เรียนในศตวรรษที่ 21 โดยมีกิจกรรมที่หลากหลายมากยิ่งขึ้น

ข้อเสนอแนะในการทำวิจัยครั้งต่อไป

1. ควรมีการศึกษาความคิดเห็นของบุคลากรทางการศึกษาอื่นและผู้มีส่วนได้ส่วนเสีย ในการดำเนินงานระบบการดูแลช่วยเหลือนักเรียนในสถานศึกษาให้ครอบคลุมทุกกลุ่ม

2. ควรศึกษาปัจจัยเชิงสาเหตุต่อการบริหารระบบการดูแลช่วยเหลือนักเรียนที่มีผลต่อคุณภาพผู้เรียนในศตวรรษที่ 21

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2561). หลักสูตรการจัดการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพฯ: โรงพิมพ์คุรุสภา.

บุญชม ศรีสะอาด. (2560). การวิจัยเบื้องต้น. (พิมพ์ครั้งที่ 8). กรุงเทพฯ: สุวีริยาสาสน์.

โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี). (2565). รายงานการพัฒนาคุณภาพการศึกษา ปีการศึกษา 2565. สงขลา: โรงเรียน.

วุฒิชัย ใหม่วงค์. (2565). รูปแบบการบริหารงานระบบดูแลช่วยเหลือนักเรียนสู่ความเป็นเลิศ ในโรงเรียนสังกัดสำนักงานเขตพื้นที่การศึกษามัธยมศึกษา เชียงรายและพะเยา. เชียงราย: สำนักงานเขตพื้นที่การศึกษามัธยมศึกษา เชียงรายและพะเยา.

สมาน อัศวภูมิ. (2557). รูปแบบการบูรณาการระบบการประกันคุณภาพภายในกับการบริหารสถานศึกษาสำหรับสถานขั้นพื้นฐานขนาดกลาง. กรุงเทพฯ: จุฬาลงกรณ์มหาวิทยาลัย.

สำนักงานสภาพัฒนาการเศรษฐกิจและสังคมแห่งชาติ. (2562). แผนพัฒนาเศรษฐกิจและสังคมแห่งชาติ. กรุงเทพฯ: สำนักงานสภาพัฒนาการเศรษฐกิจและสังคมแห่งชาติ.

สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน. (2559). การดำเนินงานระบบดูแลช่วยเหลือนักเรียนในสถานศึกษา. กรุงเทพฯ: องค์การรับส่งสินค้าและพัสดุ.

สำราญ มีแจ้ง. (2558). การประเมินโครงการทางการศึกษา. กรุงเทพฯ: นิชินแอดเวอร์ไทซิ่งกรุ๊ฟ

สุรโรจน์ นวลมังสอ. (2560). การพัฒนารูปแบบภาวะผู้นำการเรียนรู้ของผู้บริหารสถานศึกษาเอกชนประเภทสามัญศึกษา. ดุษฎีนิพนธ์ปรัชญาดุษฎีบัณฑิต. สาขาวิชาการบริหารการศึกษา. คณะศึกษาศาสตร์ มหาวิทยาลัยราชภัฏนครศรีธรรมราช. นครศรีธรรมราช: มหาวิทยาลัยราชภัฏนครศรีธรรมราช.

สุวิมล ว่องวานิช. (2559). การวิจัยประเมินความต้องการจำเป็น. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

Fullan, M. (2014). Stratosphere: Integrating technology, pedagogy, and change knowledge.Toronto: Pearson.

Trilling, B. & Brief Review of Fadel, C. (2009). 21st Century Skills: Learning for Life in Our Times. San Francisco: Jossey-Bass. By Dr. Gary L. Ackerman, March 2010.

แนวปฏิบัติที่เป็นเลิศ ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

Best Practice: Living a Happy Life Free from Drugs and Vices through the “BNK Comfort Model,” of Bannakhuanlung School Under the Songkhla Primary Educational Area Service Office 2

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บทคัดย่อ

แนวปฏิบัติที่เป็นเลิศ (Best Practice) ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ดำเนินการวิจัย 3 ขั้นตอน คือ ศึกษาสภาพปัญหาและความต้องการสร้างแนวปฏิบัติที่เป็นเลิศ และนำไปทดลองใช้ เครื่องมือวิจัย ได้แก่ แบบสอบถามสภาพปัจจุบัน ปัญหาและความต้องการจำเป็น แบบตรวจสอบความสอดคล้ององค์ประกอบ แบบประเมินพฤติกรรมเสี่ยงต่อสารเสพติดและอบายมุข แบบวัดระดับความสุขในชีวิตของนักเรียน แบบสัมภาษณ์เชิงลึก ผู้วิจัยเก็บข้อมูลด้วยตนเอง วิเคราะห์ข้อมูลเชิงปริมาณโดยใช้ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการแจกแจงความถี่ วิเคราะห์ข้อมูลเชิงคุณภาพด้วยการวิเคราะห์เนื้อหา ผลการวิจัย: 1) นักเรียนบางส่วนยังขาดภูมิคุ้มกันทางใจในการปฏิเสธสิ่งยั่วยุ การดำเนินกิจกรรมป้องกันยาเสพติดในยังไม่ต่อเนื่องและขาดรูปแบบที่ชัดเจน จึงมีความจำเป็นเร่งด่วนในการพัฒนาแนวปฏิบัติที่ชัดเจนและเหมาะสมกับบริบทของโรงเรียน 2) ได้แนวปฏิบัติที่เป็นเลิศภายใต้ชื่อว่า “BNK Comfort Model” พัฒนาขึ้นจากแนวคิดเชิงบูรณาการด้านการสร้างความร่วมมือ ภาคีเครือข่าย การสร้างบรรยากาศที่เป็นมิตร ภายใต้บริบทของ ความสุข ความปลอดภัย และการใช้ชีวิตอย่างสมดุล 3) ผลการทดลองใช้ ทำให้คะแนนเฉลี่ยของพฤติกรรมเสี่ยงต่อสารเสพติดและอบายมุขของนักเรียน ลดลงอย่างมีนัยสำคัญทางสถิติ และคะแนนเฉลี่ยของระดับความสุขในชีวิต เพิ่มขึ้นอย่างมีนัยสำคัญทางสถิติ

คำสำคัญ: แนวปฏิบัติที่เป็นเลิศ, ชีวิตอยู่อย่างมีสุข, ปลอดจากยาเสพติดและอบายมุข

Abstract

This study aims to develop and implement a best practice model entitled Living a Happy Life Free from Drugs and Vices through the " BNK Comfort Model" of Bannakhuanlung School Under the Songkhla Primary Educational Area Service Office 2. The research was conducted in three sequential phases: 1) an assessment of existing conditions and needs, 2) the development of a contextually appropriate best practice model, and 3) implementation and evaluation of the model's effectiveness. Research instruments included: a questionnaire assessing current conditions, problems, and needs; a component validity checklist; a risk behavior assessment tool related to substance abuse and vices; a happiness scale for student well-being; and an in-depth interview protocol. Data were collected directly by the researcher. Quantitative data were analyzed using descriptive statistics—mean, standard deviation, and frequency distribution—while qualitative data were analyzed through content analysis. The findings revealed that: 1) A portion of students lacked the psychological resilience to resist negative influences, and drug prevention initiatives within the school were inconsistent and lacked a structured framework, highlighting an urgent need for a well-defined and context-sensitive practice model. 2) The resulting best practice model, referred to as the *BNK Comfort Model*, was developed based on integrative principles emphasizing stakeholder collaboration, network partnerships, and the creation of a supportive and safe school environment. The model is grounded in the concepts of happiness, safety, and balanced living. 3) The implementation of the BNK Comfort Model led to a statistically significant reduction in student risk behaviors associated with substance abuse and vices, alongside a statistically significant increase in levels of reported happiness among students.

Keywords: Best Practice, Student Well-being, Drug Prevention

บทนำ

ในยุคปัจจุบัน สังคมไทยเผชิญกับปัญหายาเสพติดและอบายมุขในหมู่เด็กและเยาวชนเพิ่มมากขึ้นอย่างต่อเนื่อง ปัญหาเหล่านี้ไม่เพียงแต่ส่งผลกระทบต่อสุขภาพกายและจิตใจของเยาวชน แต่ยังกระทบต่อพฤติกรรม การเรียนรู้ และการดำรงชีวิตในอนาคต (สำนักงานคณะกรรมการป้องกันและปราบปรามยาเสพติด, 2565) สถานศึกษาในฐานะสถาบันหลักในการปลูกฝังคุณธรรม จริยธรรม และเสริมสร้างทักษะชีวิต จึงจำเป็นต้องมีบทบาทสำคัญในการสร้างเกราะป้องกันและส่งเสริมการใช้ชีวิตอย่างมีคุณภาพ นโยบายของกระทรวงศึกษาธิการ (2565) ให้ความสำคัญกับการขับเคลื่อน "คุณภาพผู้เรียน" โดยเน้นการพัฒนาเด็กและเยาวชนให้มีคุณลักษณะที่พึงประสงค์ มีภูมิคุ้มกันทางสังคม และห่างไกลจากพฤติกรรมเสี่ยง พร้อมทั้งส่งเสริมให้สถานศึกษาเป็นพื้นที่ปลอดภัย (Safe School) และพื้นที่แห่งความสุข (Happy School) ซึ่งสอดคล้องกับยุทธศาสตร์ชาติ (พ.ศ. 2561 - 2580) ด้านการพัฒนาและเสริมสร้างทรัพยากรมนุษย์ ที่มุ่งเน้นการพัฒนาคนไทยทุกช่วงวัยให้เป็น "คนดี เก่ง และมีคุณภาพชีวิตที่ดี" มีทักษะชีวิต ทักษะอาชีพ และมีจิตสำนึกในความรับผิดชอบต่อสังคม

การบริหารจัดการและดำเนินงานเพื่อเสริมสร้างความสุขและความปลอดภัยให้กับนักเรียนของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ยังขาดแนวทางการบริหารที่เป็นระบบและต่อเนื่อง อาจจะส่งผลต่อสุขภาพกายและจิตใจ พฤติกรรม การเรียนรู้และการดำรงชีวิตในอนาคตของนักเรียน (โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี), 2565) ผู้วิจัยในฐานะผู้บริหารสถานศึกษาจึงร่วมกับครูผู้รับผิดชอบงานสถานศึกษาสีขาวจึงได้คิดค้นแนวทางการปฏิบัติเพื่อให้สถานศึกษาสามารถดำเนินงานได้อย่างเป็นระบบ โดยนำแนวคิดเชิงบูรณาการด้านการสร้างความร่วมมือ ภาคีเครือข่าย การสร้างบรรยากาศที่เป็นมิตร ภายใต้บริบทของ ความสุข ความปลอดภัย และการใช้ชีวิตอย่างสมดุล มาปรับใช้ สำหรับขับเคลื่อนโรงเรียนสู่ความเป็นโรงเรียนแห่งความสุขและปลอดภัย นักเรียนใช้ชีวิตอย่างมีความสุข ปลอดภัยห่างไกลยาเสพติดและอบายมุข

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาสภาพปัญหาและความต้องการจำเป็นในการพัฒนาแนวปฏิบัติที่เป็นเลิศ: ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2
2. เพื่อสร้างแนวปฏิบัติที่เป็นเลิศ: ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2
3. เพื่อศึกษาผลการทดลองใช้แนวปฏิบัติที่เป็นเลิศ: ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

แนวคิด ทฤษฎี กรอบแนวคิด

แนวคิดเกี่ยวกับการปฏิบัติที่เป็นเลิศ (Best Practice)

สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน (2564) ได้เสนอไว้ว่า แนวปฏิบัติที่เป็นเลิศหมายถึง กิจกรรมหรือรูปแบบที่มีประสิทธิภาพและประสิทธิผลสูง เห็นผลในทางปฏิบัติ และสามารถถอดบทเรียนไปใช้ในพื้นที่อื่นได้ โดยมีลักษณะสำคัญ คือ สอดคล้องกับบริบทของพื้นที่ มีการมีส่วนร่วมจากหลายภาคส่วน มีผลลัพธ์ที่ชัดเจนต่อเป้าหมาย เช่น ลดพฤติกรรมเสี่ยง เพิ่มทักษะชีวิต มีความยั่งยืน และสามารถพัฒนาอย่างต่อเนื่อง

กระบวนการในการสร้างนวัตกรรม ทางการศึกษาแต่ละขั้นตอน มีรายละเอียดดังนี้

ขั้นตอนที่ 1: การกำหนดวัตถุประสงค์ในการพัฒนา เมื่อได้ระบุปัญหาการได้อย่างชัดเจนแล้ว สิ่งสำคัญที่จะต้องดำเนินการก็คือจะต้องกำหนด วัตถุประสงค์ในการพัฒนาให้แน่ชัดลงไป และจะต้องเป็นวัตถุประสงค์ที่เป็นไปได้ด้วย

ขั้นตอนที่ 2: การศึกษาค้นคว้าเพื่อกำหนดกรอบแนวคิดในการพัฒนานวัตกรรม ที่ได้จากการศึกษาค้นคว้าหลักวิชาแนวคิด ทฤษฎี ศึกษาวิธีสอน และผลงานการวิจัยต่าง ๆ ที่เกี่ยวข้องตรงกับวัตถุประสงค์ในการผสมผสานกับความคิดและประสบการณ์ เพื่อจัดสร้างเป็นต้นแบบของนวัตกรรมที่จะนำมาใช้แก้ปัญหา

ขั้นตอนที่ 3: การสร้างต้นแบบของนวัตกรรม มีองค์ประกอบย่อย ดังนี้

1) ชื่อนวัตกรรม

2) วัตถุประสงค์ของการใช้นวัตกรรม

3) ทฤษฎีหรือหลักการที่ใช้ในการสร้างนวัตกรรม

4) ส่วนประกอบของนวัตกรรม

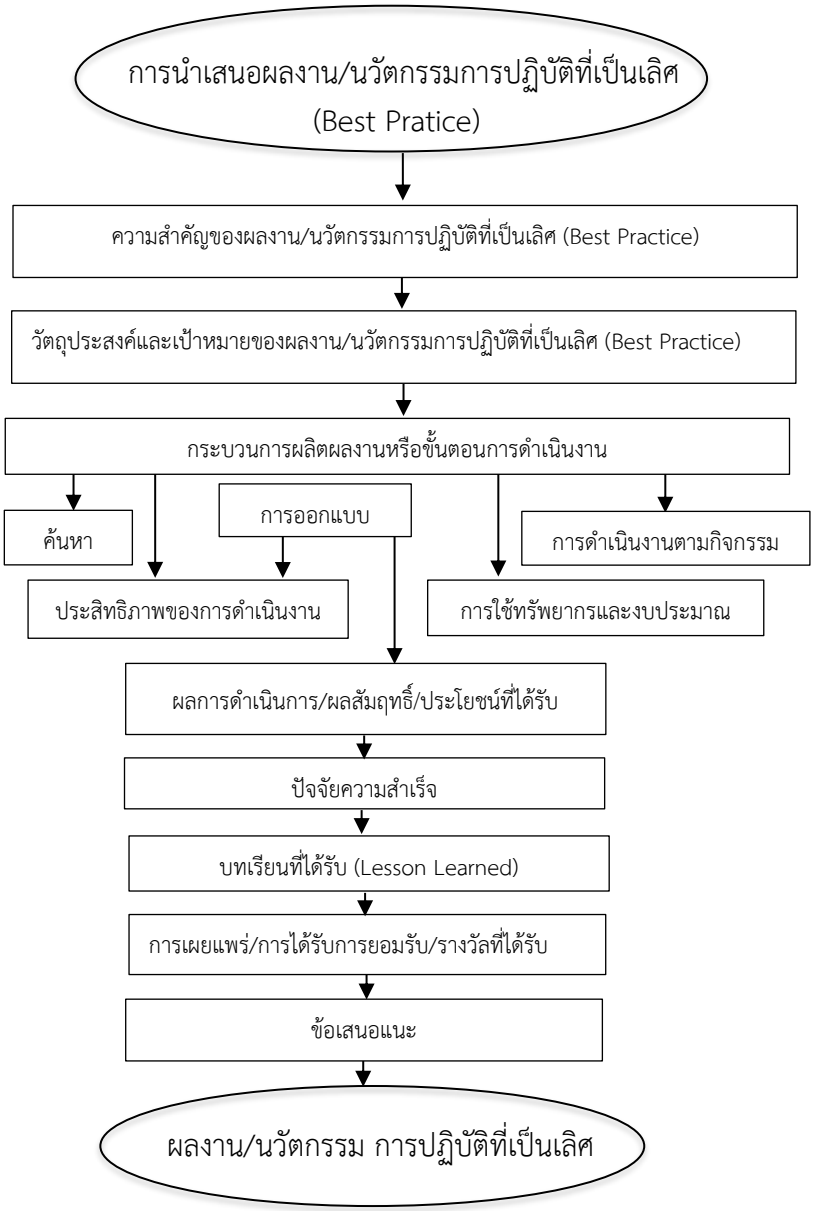
5) ลักษณะทางเทคนิค

6) แนวการใช้นวัตกรรม

ขั้นตอนที่ 4: การตรวจสอบเพื่อปรับปรุงคุณภาพของนวัตกรรมต้นแบบ การตรวจสอบต้นแบบของนวัตกรรมที่จัดสร้างขึ้นเสร็จแล้วจะดำเนินการ 2 ลักษณะ คือ การตรวจสอบโดยผู้เชี่ยวชาญ และการตรวจสอบโดยการทดลองใช้กับผู้เรียนกลุ่มเด็ก

ขั้นตอนที่ 5: การทดลองใช้ในชั้นเรียนปกติ เป็นการทดลองใช้นวัตกรรมเพื่อพัฒนาคุณลักษณะของผู้เรียนตามจุดประสงค์ที่กำหนดไว้

ขั้นตอนที่ 6: การเผยแพร่และนำไปใช้ขยายผลให้ครูคนอื่นได้ทดลองใช้



ภาพที่ 1 การนำเสนอการปฏิบัติที่เป็นเลิศ (Best Practice)

จากภาพที่ 1 การนำเสนอการปฏิบัติที่เป็นเลิศ (Best Practice) ประกอบด้วยเนื้อหาต่าง ๆ ได้แก่ ชื่อ ความเป็นมา ความสำคัญ วัตถุประสงค์ ขั้นตอนการดำเนินงาน ผลการดำเนินงาน ปัจจัยความสำเร็จ บทเรียนที่ได้รับ การเผยแพร่ และข้อเสนอแนะ

แนวคิดเกี่ยวกับความสุขและความปลอดภัย

ความสุข (Happiness) และความปลอดภัย (Safety) ถือเป็นพื้นฐานสำคัญของการดำรงชีวิต โดยเฉพาะในกลุ่มเยาวชน ซึ่งเป็นวัยที่กำลังเติบโตและเผชิญกับแรงกดดันหลากหลายด้าน

Seligman (2011) กล่าวไว้ว่า ความสุขสามารถเกิดจากการมีความสัมพันธ์ที่ดี การมีจุดมุ่งหมาย และการมีส่วนร่วมในกิจกรรมที่มีคุณค่า ความปลอดภัยมีทั้งในมิติของร่างกาย จิตใจ และสังคม โดยเฉพาะการรู้เท่าทันและหลีกเลี่ยงสิ่งเสพติดหรืออบายมุข เช่น เหล้า บุหรี่ การพนัน และพฤติกรรมเสี่ยงทางเพศ

ศูนย์สุขวิทยาจิต (2562) นำเสนอไว้ว่า ความสุขที่แท้จริงควรมาจากการมีสุขภาพกายและใจที่ดี มีความสัมพันธ์ที่อบอุ่นในครอบครัว และการมีจิตใจที่มั่นคง การเสพสารเสพติดและอบายมุขเป็นเพียงการหลีกหนีปัญหาและความทุกข์ชั่วคราว ซึ่งส่งผลเสียต่อสุขภาพกายและจิตใจ ทำลายความสัมพันธ์ในครอบครัว และก่อให้เกิดปัญหาทางสังคม

ธนพร สุวรรณวรบุญ (2563) รายงานว่าบุคลากรที่มีสุขภาวะจิตดีและมีรายได้เพียงพอมีความสุขในการทำงานสูงขึ้น ซึ่งส่งผลต่อประสิทธิภาพในการฟื้นฟูผู้ป่วย ดังนั้นการสนับสนุนสุขภาพจิตและความเป็นอยู่ของผู้ดูแลจึงเป็นสิ่งสำคัญ

อัญชลี จุมพฏจามีกร (2564) นำเสนอไว้ว่า การป้องกันและแก้ไขปัญหาสารเสพติดควรเริ่มจากการสร้างความเข้าใจและความรักในครอบครัว การให้การศึกษาเกี่ยวกับพิษภัยของสารเสพติด การส่งเสริมกิจกรรมที่สร้างสรรค์ เช่น กีฬา ดนตรี และการมีส่วนร่วมในชุมชน นอกจากนี้การให้คำปรึกษาและการบำบัดรักษาอย่างเหมาะสมก็เป็นสิ่งสำคัญในการช่วยเหลือผู้ที่ประสบปัญหา

แนวทางการดำเนินงานป้องกันและแก้ไขปัญหายาเสพติดในสถานศึกษา

สำนักงานคณะกรรมการป้องกันและปราบปรามยาเสพติดแห่งชาติ (2565) ได้สรุปผลการศึกษาแนวทางการดำเนินงานป้องกันและแก้ไขปัญหายาเสพติดในสถานศึกษาไว้ว่า สถานศึกษาเป็นหัวใจสำคัญการขับเคลื่อนงานป้องกันและแก้ไขปัญหายาเสพติดลงสู่นักเรียน นักศึกษา ท่ามกลางสถานการณ์ปัญหาในรูปแบบที่หลากหลายซับซ้อน และแปรเปลี่ยนอย่างรวดเร็ว ภายใต้สภาพแวดล้อมไปด้วยปัจจัยเสี่ยงและพื้นที่เสี่ยงต่อการเข้าไปเกี่ยวข้องกับยาเสพติด ในสังคมปัจจุบัน สถานศึกษาจำเป็นต้องจัดระบบงานด้านยาเสพติด เพื่อบูรณาการการทำงาน ทั้งหน่วยงาน ภายในและหน่วยงานภายนอก ให้สามารถดำเนินการได้อย่างเต็มประสิทธิภาพ และประสิทธิผลโดย แบ่งออกเป็น 6 แนวทาง เพื่อเป็นระบบงานเพื่อรองรับการปฏิบัติงาน ด้านยาเสพติดในสถานศึกษา คือ ระบบข้อมูล ระบบป้องกันและแก้ไขปัญหายาเสพติด ระบบการให้คำปรึกษา ระบบเฝ้าระวัง ระบบสนับสนุนจากชุมชน เครือข่ายการทำงาน และระบบบริหารจัดการ

ระบบข้อมูลมีความสำคัญต่อการวางแผน และวิธีการที่เหมาะสมกับสถานการณ์ปัญหายาเสพติดในสถานศึกษา

ระบบป้องกันและแก้ไขปัญหายาเสพติดเป็นแนวทางในการปฏิบัติและการให้ความรู้เรื่อง ยาเสพติด เพื่อให้ความรู้เกี่ยวกับโทษ พิษภัย และอันตรายจากยาเสพติด การจัดกิจกรรมต่าง ๆ เพื่อให้มีการพัฒนาตนเองให้สามารถป้องกันตนเองจากยาเสพติด

ระบบการให้คำปรึกษาเป็นกระบวน การให้ความช่วยเหลือนักเรียนที่มีปัญหาเพื่อให้นักเรียน

สามารถหาทางแก้ไขปัญหาที่เกิดขึ้นด้วยตนเองได้ถูกต้องและเหมาะสม

ระบบเฝ้าระวัง เป็นกลไกในการเฝ้าระวังยาเสพติดในโรงเรียน ระบบการสนับสนุนจากชุมชนและเครือข่ายการทำงาน เป็นการดำเนินงานป้องกันและแก้ไขปัญหายาเสพติดในสถานศึกษา ต้องได้รับความร่วมมือสนับสนุนจากชุมชนและหน่วยงานในพื้นที่

ระบบบริหารจัดการ โดยสถานศึกษาควรจัดโครงสร้างและกลไกบริหารจัดการงานด้านยาเสพติดเพื่ออำนวยการดำเนินงานในระบบต่าง ๆ ด้วยการสร้างกลไกลการทำงาน

นอกจากนี้การได้รับความร่วมมือจากทุกฝ่าย ทุกหน่วยงานจะส่งผลให้เกิดการพัฒนาการดำเนินงานในการป้องกันและแก้ไขยาเสพติดอย่างมีประสิทธิภาพมากขึ้น

แนวคิดของโครงการสถานศึกษาสีขาวปลอดยาเสพติดและอบายมุข

กระทรวงศึกษาธิการ (2560) กล่าวว่า การดำเนินงานโครงการสถานศึกษาสีขาว ปลอดยาเสพติดและอบายมุข ได้ดำเนินงานมาอย่างต่อเนื่อง โดยใช้แนวคิดและหลักการของ “4 ประสาน 2 ค้ำ” ซึ่ง 4 ประสาน ได้แก่ ผู้บริหารสถานศึกษา ผู้แทนครูอาจารย์ ผู้แทนผู้ปกครอง ผู้แทนนักเรียนนักศึกษา และส่วนของ 2 ค้ำ เดิมเป็นผู้แทนชุมชน แต่พื้นที่เสี่ยงเพิ่มมากขึ้นจึงได้กำหนดใหม่เพื่อให้มีบุคลากรสำคัญที่จะเข้ามาช่วยสถานศึกษาในการดำเนินงานโครงการสถานศึกษาสีขาว ปลอดยาเสพติดและอบายมุข ได้แก่ ตำรวจทหาร ผู้นำท้องถิ่น และผู้นำศาสนา ซึ่งอยู่ในบริเวณท้องถิ่น และชุมชน ทั้งนี้ เพื่อช่วยสถานศึกษามีมาตรการป้องกัน และการปราบปรามผู้จำหน่าย/ผู้เสพมาตรการ ความปลอดภัย เป็นการเพิ่มความมั่นใจให้กับผู้บริหารสถานศึกษา ครู อาจารย์ในการป้องกันและแก้ไขปัญหายาเสพติด แหล่งอบายมุข รอบสถานศึกษา ดังนั้นเพื่อให้สถานศึกษามีระบบการป้องกันที่เข้มแข็ง ต่อเนื่อง และยั่งยืน จึงให้มีการดำเนินงานตามยุทธศาสตร์ 5 มาตรการ และกลยุทธ์ 4 ต้อง 2 ไม่ เป็นแนวทางการดำเนินงานโครงการสถานศึกษาสีขาวปลอดยาเสพติดและอบายมุขในสถานศึกษาซึ่งสอดคล้องกับแนวทางการดำเนินงานป้องกันและแก้ไขปัญหายาเสพติดในสถานศึกษาของสำนักงานคณะกรรมการป้องกันและปราบปรามยาเสพติดแห่งชาติ (2565) ดังนี้

ยุทธศาสตร์ที่ 1 มาตรการด้านการป้องกัน
ยุทธศาสตร์ที่ 2 ด้านการค้นหา
ยุทธศาสตร์ที่ 3 ด้านการรักษา
ยุทธศาสตร์ที่ 4 ด้านการเฝ้าระวัง
ยุทธศาสตร์ที่ 5 ด้านการบริหารจัดการ

กลยุทธ์ 4 ต้อง 2 ไม่ คือ

1.สถานศึกษาต้องมีกลยุทธ์ในการป้องกันและแก้ไขปัญหายาเสพติดที่สอดคล้องกับสภาพปัญหายาเสพติดและบริบทพื้นที่

2. สถานศึกษาต้องมีแผนงานยาเสพติดในสถานศึกษาที่ชัดเจน

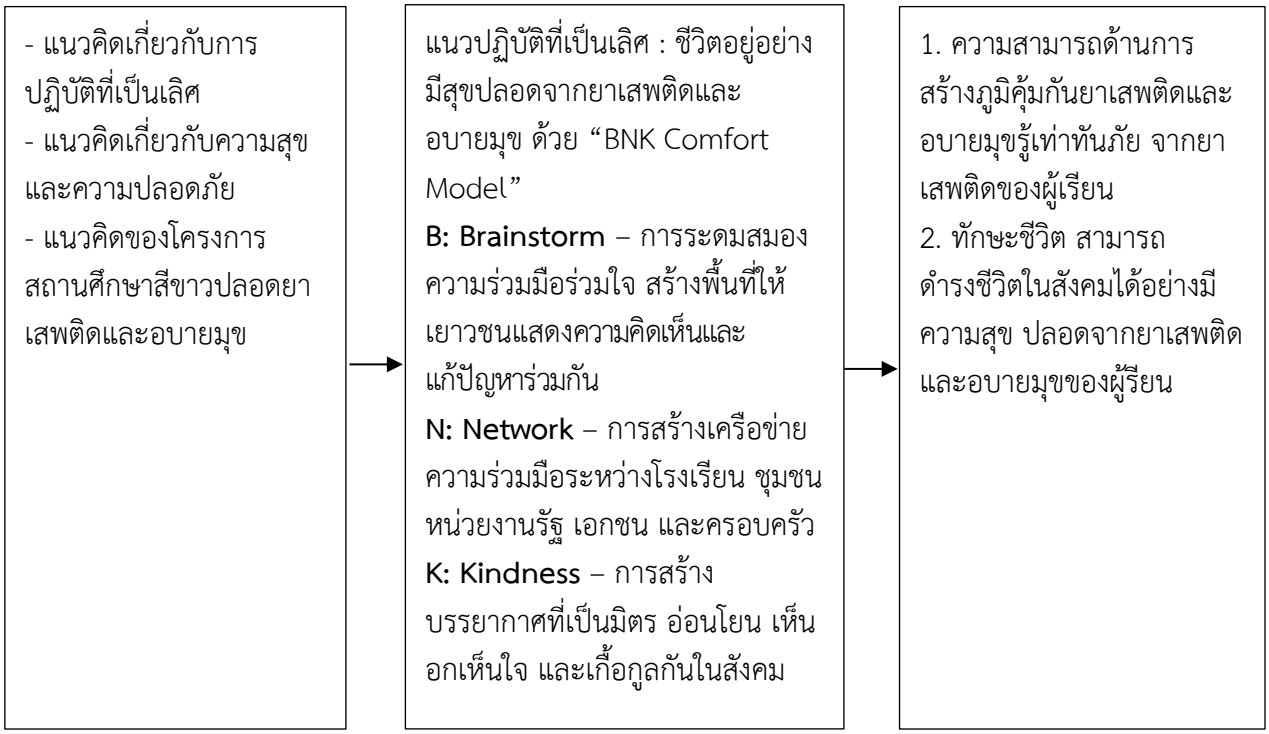
3.สถานศึกษาต้องพัฒนาระบบงานรองรับยุทธศาสตร์ 4 ระบบ คือ ป้องกัน เฝ้าระวัง ดูแลช่วยเหลือ และบริหารจัดการ

4.สถานศึกษาต้องมีเครือข่ายการทำงานระหว่างนักเรียน ครู ผู้ปกครอง และชุมชน

และในส่วนของ 2 ไม่ คือ 1) สถานศึกษาไม่ปกปิดข้อมูล กลุ่มเสพ กลุ่มติด กลุ่มค้ายา และไม่ผลักปัญหา 2) ไม่ไล่นักเรียนออกจากสถานศึกษา แต่ต้องนำไปบำบัดรักษาแล้วกลับมาเรียนใหม่ได้ ทั้งนี้ โครงการสถานศึกษาสีขาว ปลอดยาเสพติด ได้ดำเนินงานมาอย่างต่อเนื่อง โดยยึดหลักการประสานงาน

และหลัก 5 มาตรการ ได้แก่ ป้องกัน ค้นหา รักษา เฝ้าระวัง และบริหารจัดการ ภายใต้กลยุทธ์ 4 ต้อง 2 ไม่

จากการศึกษาแนวคิดที่เกี่ยวข้องนำมาเขียนเป็นกรอบแนวคิดสำหรับการวิจัย ได้ดังนี้



ภาพที่ 2 กรอบแนวคิดการวิจัย

วิธีดำเนินการ

ขั้นตอนที่ 1 ศึกษาสภาพปัญหาและความต้องการจำเป็นในการพัฒนาแนวปฏิบัติที่เป็นเลิศ: ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

ศึกษาสภาพปัญหาและความต้องการจำเป็นในการพัฒนาแนวปฏิบัติที่เป็นเลิศ เครื่องมือที่ใช้เก็บข้อมูล คือ แบบสอบถามสภาพปัจจุบัน ปัญหา และความต้องการจำเป็น เก็บข้อมูลจากครู นักเรียน และผู้บริหารเกี่ยวกับสภาพปัญหาและความต้องการจำเป็นในการพัฒนาแนวปฏิบัติที่เป็นเลิศ วิเคราะห์ข้อมูลเชิงปริมาณจากแบบสอบถามโดยใช้ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการแจกแจงความถี่ และสัมภาษณ์เชิงลึกจากผู้บริหาร ครู นักเรียน และผู้ปกครอง เครื่องมือที่ใช้คือแบบสัมภาษณ์เชิงลึก วิเคราะห์ข้อมูลเชิงคุณภาพที่ได้จากการสัมภาษณ์ด้วยการวิเคราะห์เนื้อหา (Content Analysis)

ขั้นตอนที่ 2 พัฒนาแนวปฏิบัติที่เป็นเลิศ: ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

ศึกษาทฤษฎีและแนวคิดเกี่ยวกับการปฏิบัติที่เป็นเลิศ (Best Practice) แนวคิดเกี่ยวกับความสุขและความปลอดภัย แนวทางการดำเนินงานป้องกันและแก้ไขปัญหายาเสพติดในสถานศึกษา แนวคิดของโครงการสถานศึกษาสีขาวปลอดยาเสพติดและอบายมุข และสัมภาษณ์ผู้บริหาร จำนวน 2 คน ครู จำนวน 3 คน กรรมการสถานศึกษา จำนวน 3 คน และผู้ปกครอง จำนวน 3 คน รวมจำนวน 11 คน ได้มาด้วยการเลือกแบบจำเพาะเจาะจง เกี่ยวกับแนวทางการปฏิบัติโดยใช้แบบสัมภาษณ์ สังเคราะห์องค์ความรู้ที่ได้

จากการศึกษาทฤษฎีและแนวคิดงานวิจัย โดยใช้ตารางสังเคราะห์องค์ประกอบ และวิเคราะห์เนื้อหา (Content Analysis) จากข้อมูลที่ได้จากการสัมภาษณ์ เพื่อออกแบบกิจกรรมที่เหมาะสม จัดทำร่างโมเดล BNK Comfort และนำเสนอผู้ทรงคุณวุฒิเพื่อขอข้อเสนอแนะและปรับปรุงให้สมบูรณ์มากำหนดองค์ประกอบและแนวปฏิบัติที่เป็นเลิศ: ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 โดยมีองค์ประกอบย่อย ดังนี้

1) ชื่อนวัตกรรม
2) วัตถุประสงค์ของการใช้นวัตกรรม
3) ทฤษฎีหรือหลักการที่ใช้ในการสร้างนวัตกรรม
4) ส่วนประกอบของนวัตกรรม
5) ลักษณะทางเทคนิค
6) แนวการใช้นวัตกรรม

ยกร่างแนวทางการปฏิบัตินำเสนอต่อผู้ทรงคุณวุฒิเพื่อตรวจสอบความสอดคล้องขององค์ประกอบ จำนวน 5 คน ได้มาโดยการเลือกแบบเจาะจง เป็นผู้อำนวยการสถานศึกษาที่ได้รับรางวัลโครงการสถานศึกษาระดับเพชร จำนวน 3 คน ครูผู้สอนผู้รับผิดชอบโครงการสถานศึกษาสีขาวที่ได้รับรางวัลโครงการสถานศึกษาระดับเพชร จำนวน 3 คน ผู้บริหารการศึกษา (รองผู้อำนวยการสถานศึกษาที่รับผิดชอบดูแลกลุ่มงานส่งเสริมกิจกรรมนักเรียน) จำนวน 1 คน เครื่องมือที่ใช้ คือ แบบตรวจสอบความสอดคล้ององค์ประกอบ 5 ระดับ กำหนดเกณฑ์การให้คะแนน (บุญชม ศรีสะอาด, 2560) ดังนี้

5 หมายถึง มีความสอดคล้อง ระดับมากที่สุด
4 หมายถึง มีความสอดคล้อง ระดับมาก
3 หมายถึง มีความสอดคล้อง ระดับปานกลาง
2 หมายถึง มีความสอดคล้อง ระดับน้อย
1 หมายถึง มีความสอดคล้อง ระดับน้อยที่สุด

นำเสนอข้อมูลทั้งรายข้อและรายด้านด้วยค่าเฉลี่ยเลขคณิต (Arithmetic Mean) และค่าส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation) โดยการแปลความหมายของค่าเฉลี่ย ดังนี้

4.51 - 5.00 หมายถึง มีความสอดคล้อง ระดับมากที่สุด
3.51 - 4.50 หมายถึง มีความสอดคล้อง ระดับมาก
2.51 - 3.50 หมายถึง มีความสอดคล้อง ระดับปานกลาง
1.51 - 2.50 หมายถึง มีความสอดคล้อง ระดับน้อย
1.00 - 1.50 หมายถึง มีความสอดคล้อง ระดับน้อยที่สุด

ปรับปรุงร่างแนวทางทางการปฏิบัติตามข้อเสนอแนะของผู้ทรงคุณวุฒิจนได้แนวทางการปฏิบัติไปทดลองใช้ในโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี)

ขั้นตอนที่ 3 ศึกษาผลการทดลองใช้ แนวปฏิบัติที่เป็นเลิศ (Best Practice) ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

การดำเนินการในขั้นตอนนี้มีจุดมุ่งหมายเพื่อประเมินผลการนำแนวปฏิบัติที่เป็นเลิศมาใช้ในบริบทของโรงเรียน โดยเน้นที่การสร้างความสุขและความปลอดภัยในชีวิตนักเรียนห่างไกลจากยาเสพติดและอบายมุข โดยมีรายละเอียดการดำเนินการดังนี้

ผู้วิจัย คือ ผู้บริหารสถานศึกษาและครูผู้รับผิดชอบโครงการสถานศึกษาสีขาวของโรงเรียนร่วมกับครูประจำชั้นทำการประเมินผลก่อนทดลองใช้แนวปฏิบัติที่เป็นเลิศที่ได้คิดค้นขึ้นมา โดยใช้แบบประเมินพฤติกรรมเสี่ยงต่อสารเสพติดและอบายมุข แบบวัดระดับความสุขในชีวิตของนักเรียนชั้นประถมศึกษาปีที่ 4 - 6 โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) ปีการศึกษา 2565 ได้มาโดยการเลือกแบบเฉพาะเจาะจง บันทึกข้อมูลไว้ ต่อจากนั้นจึงได้นำแนวปฏิบัติที่เป็นเลิศ (Best Practice) ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) ไปทดลองใช้เป็นเวลา 1 ปีการศึกษา เริ่มตั้งแต่วันที่ 16 พฤษภาคม พ.ศ. 2565 ถึงวันที่ 31 มีนาคม พ.ศ. 2566 จากนั้นทำการประเมินผลโดยใช้เครื่องมือวิจัย ประกอบด้วย แบบประเมินพฤติกรรมเสี่ยงต่อสารเสพติดและอบายมุข แบบวัดความสุขในชีวิตของนักเรียน บันทึกผลการเปลี่ยนแปลงด้านพฤติกรรม และระดับความสุขของนักเรียนเป็นรายบุคคล วิเคราะห์ข้อมูลเชิงปริมาณโดยใช้สถิติเชิงพรรณนา เช่น ค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และสัมภาษณ์ครู ผู้ปกครอง และนักเรียนเกี่ยวกับผลการใช้แนวปฏิบัติ โดยใช้แบบสัมภาษณ์ วิเคราะห์ข้อมูลเชิงคุณภาพจากการสัมภาษณ์และการสังเกตโดยใช้การวิเคราะห์เนื้อหา (Content Analysis) สรุปผลจากการทดลองใช้ BNK Comfort Model ว่าส่งผลต่อพฤติกรรมการป้องกันตนเองจากยาเสพติดและความสุขของนักเรียนหรือไม่ เปรียบเทียบผลก่อนและหลังการใช้พร้อมอภิปรายผลที่ได้รับเพื่อใช้ในการพัฒนาแนวทางในอนาคต

ผลการดำเนินงาน

1. ผลการศึกษาในขั้นตอนนี้ดำเนินการโดยใช้แบบสอบถามและการสัมภาษณ์เชิงลึกจากกลุ่มผู้บริหาร ครู นักเรียน และผู้ปกครอง เพื่อวิเคราะห์สภาพปัจจุบันของปัญหาและความต้องการจำเป็นในการส่งเสริมความสุขและความปลอดภัยในชีวิตของนักเรียน โดยมีผลการวิเคราะห์ ดังนี้

สภาพปัญหาจากข้อมูลที่ได้ พบว่า นักเรียนบางส่วนยังขาดภูมิคุ้มกันทางใจในการปฏิเสธสิ่งยั่วยุ เช่น บุหรี่ เครื่องดื่มแอลกอฮอล์ และพฤติกรรมเสี่ยงอื่น ๆ ในชุมชน นอกจากนี้ยังพบว่า การดำเนินกิจกรรมป้องกันยาเสพติดในโรงเรียนยังไม่ต่อเนื่องและขาดรูปแบบที่ชัดเจน ทำให้เกิดช่องว่างในการเสริมสร้างพฤติกรรมเชิงบวก ความต้องการจำเป็น กลุ่มตัวอย่างส่วนใหญ่มีความต้องการกิจกรรมที่เสริมสร้างทักษะชีวิต การรู้เท่าทันสื่อ การพัฒนาทักษะการคิดวิเคราะห์ และการสร้างความภาคภูมิใจในตนเอง โดยเฉพาะต้องการโมเดลที่สามารถใช้ได้จริงในสถานศึกษาและปรับใช้ตามบริบทของโรงเรียนที่อยู่ในชุมชนชนบท ข้อเสนอแนะจากผู้มีส่วนเกี่ยวข้อง ได้แก่ ผู้บริหารและครูเสนอให้มีการบูรณาการกิจกรรมพัฒนาผู้เรียนร่วมกับแนวปฏิบัติด้านคุณธรรมจริยธรรม นักเรียนต้องการกิจกรรมที่สนุก เข้าใจง่าย และมีส่วนร่วมอย่างแท้จริง ผู้ปกครองเน้นการมีส่วนร่วมในกิจกรรมเพื่อร่วมดูแลลูกหลานอย่างใกล้ชิด

สรุปผลการวิเคราะห์ได้ว่า โรงเรียนมีความจำเป็นเร่งด่วนในการพัฒนาแนวปฏิบัติที่ชัดเจนและเหมาะสมกับบริบทของโรงเรียน เพื่อเสริมสร้างชีวิตที่มีความสุขและปลอดภัยจากยาเสพติดและอบายมุข โดยควรเป็นรูปแบบที่นักเรียนสามารถนำไปใช้ในชีวิตจริง และเกิดการเปลี่ยนแปลงทางพฤติกรรมในเชิงบวก

2. ผลการพัฒนาแนวปฏิบัติที่เป็นเลิศภายใต้ชื่อว่า “BNK Comfort Model” มีรายละเอียด ดังนี้

BNK Comfort Model พัฒนาขึ้นจากแนวคิดเชิงบูรณาการด้านการสร้างความร่วมมือ ภาคีเครือข่าย การสร้างบรรยากาศที่เป็นมิตร ประกอบด้วย 3 องค์ประกอบหลัก ได้แก่

B: Brainstorm – การระดมสมอง ความร่วมมือร่วมใจ สร้างพื้นที่ให้เยาวชนแสดงความคิดเห็นและแก้ปัญหาร่วมกัน

N: Network – การสร้างเครือข่ายความร่วมมือระหว่างโรงเรียน ชุมชน หน่วยงานรัฐ เอกชน และครอบครัว

K: Kindness – การสร้างบรรยากาศที่เป็นมิตร อ่อนโยน เห็นอกเห็นใจ และเกื้อกูลกันในสังคม

ทั้งสามองค์ประกอบดำเนินการภายใต้บริบทของ “Comfort” คือ ความสุข ความปลอดภัย และการใช้ชีวิตอย่างสมดุล โดยมีรายละเอียดดังนี้

C: care and support system (ระบบดูแลช่วยเหลือนักเรียน) O: outstanding (ความมั่นใจในการใช้ชีวิตอย่างปลอดภัย) M: maintenance (ดูแลรักษาตนเองให้ปลอดภัย) F: family base (ครอบครัวเป็นฐานที่อบอุ่นเข้าใจ) O: opportunity (โอกาส) R: responsibility (ความรับผิดชอบต่อเองและสังคม) T: technology (ทันสมัย รู้และเข้าใจ ใช้เทคโนโลยีอย่างปลอดภัย) และดำเนินงานโดยใช้วงจรคุณภาพ PDCA ของเดรมมิ่ง เขียนเป็นแผนภาพได้ดังนี้



ภาพที่ 3 แนวปฏิบัติที่เป็นเลิศ (Best Practice) ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

3. ผลการทดลองใช้ แนวปฏิบัติที่เป็นเลิศ (Best Practice) ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

จากการวิเคราะห์ข้อมูลผลการทดลองใช้แนวปฏิบัติที่เป็นเลิศ (Best Practice) ชีวิตอยู่อย่างมีสุข ปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ของโรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี) สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 โดยใช้แบบประเมินพฤติกรรมเสี่ยงต่อสารเสพติดและอบายมุข และแบบวัดระดับความสุขในชีวิตของนักเรียนชั้นประถมศึกษาปีที่ 4 - 6 สามารถสรุปผลการวิจัย ได้ดังนี้

3.1 ผลต่อพฤติกรรมเสี่ยงต่อสารเสพติดและอบายมุข

นักเรียนชั้นประถมศึกษาปีที่ 4 - 6 ที่ได้รับการดำเนินงานตาม “BNK Comfort Model” มีคะแนนเฉลี่ยของพฤติกรรมเสี่ยงต่อสารเสพติดและอบายมุข ลดลงอย่างมีนัยสำคัญทางสถิติ เมื่อเปรียบเทียบกับก่อนการทดลอง โดยค่าเฉลี่ยของคะแนนพฤติกรรมเสี่ยงต่อสารเสพติดและอบายมุขของนักเรียน ลดลง จาก 15.50 เป็น 10.25

3.2 ผลต่อระดับความสุขในชีวิตของนักเรียน

นักเรียนชั้นประถมศึกษาปีที่ 4 - 6 ที่ได้รับการดำเนินงานตาม “BNK Comfort Model” มีคะแนนเฉลี่ยของระดับความสุขในชีวิต โดยภาพรวมเพิ่มขึ้นอย่างมีนัยสำคัญทางสถิติ โดยค่าเฉลี่ยของคะแนนระดับความสุขในชีวิตของนักเรียน เพิ่มขึ้น จาก 75.80 ก่อนการทดลอง เป็น 82.15 หลังการทดลอง เมื่อเปรียบเทียบกับก่อนการทดลอง พิจารณารายด้านพบว่า ความสุขทางกาย ใจ สังคม สติปัญญา นักเรียนมีความสุขในด้านต่าง ๆ เพิ่มขึ้นทุกด้าน

3.3 ผลจากการสัมภาษณ์ครู ผู้ปกครอง และนักเรียน

สอดคล้องกันในทิศทางที่ว่า การนำแนวปฏิบัติที่เป็นเลิศ “BNK Comfort Model” มาใช้ส่งผลเชิงบวกต่อสุขภาวะและความปลอดภัยของนักเรียนอย่างรอบด้าน โดยมีการเปลี่ยนแปลงที่ดีขึ้นในด้านพฤติกรรม ความสุข ความสัมพันธ์ การตระหนักถึงภัยของยาเสพติดและอบายมุข รวมถึงการสร้างบรรยากาศที่เป็นมิตรและความร่วมมือในโรงเรียนและชุมชน ครูส่วนใหญ่สังเกตเห็นการเปลี่ยนแปลงในพฤติกรรมของนักเรียนไปในทิศทางที่ดีขึ้น เช่น มีความกระตือรือร้นในการเข้าร่วมกิจกรรมมากขึ้น มีปฏิสัมพันธ์กับเพื่อนและครูอย่างเป็นมิตรมากขึ้น แสดงความเห็นอกเห็นใจและช่วยเหลือเพื่อนร่วมชั้นเรียนมากขึ้น การลดลงของพฤติกรรมเสี่ยง เช่น การทะเลาะวิวาท การรวมกลุ่มที่ไม่เหมาะสม การพูดคุยถึงสิ่งอบายมุขลดน้อยลง ผู้ปกครองส่วนใหญ่ให้ข้อมูลว่า สังเกตเห็นบุตรหลานมีความสุขมากขึ้น ร่าเริงแจ่มใสขึ้น มีความมั่นใจในตนเองมากขึ้น และมีการปรับตัวทางสังคมที่ดีขึ้น นักเรียนส่วนใหญ่ให้ข้อมูลว่ารู้สึกมีความสุขมากขึ้น สนุกกับการมาโรงเรียน และรู้สึกปลอดภัยทั้งในและนอกโรงเรียน นักเรียนชอบกิจกรรมต่าง ๆ ที่โรงเรียนจัดขึ้นตามแนวคิดของโมเดล เช่น กิจกรรมระดมสมอง การทำงานกลุ่ม การช่วยเหลือเพื่อน ความเข้าใจเรื่องยาเสพติดและอบายมุข

สรุปและอภิปรายผล

จากข้อค้นพบหลังนำรูปแบบการปฏิบัติที่เป็นเลิศ “BNK Comfort Model” ไปใช้ในการดำเนินงาน สามารถนำมาอภิปรายผลได้ดังนี้

1. ผลต่อพฤติกรรมเสี่ยงต่อสารเสพติดและอบายมุขนักเรียนชั้นประถมศึกษาปีที่ 4 - 6 ที่ได้รับการดำเนินงานตาม “BNK Comfort Model” มีคะแนนเฉลี่ยของพฤติกรรมเสี่ยงต่อสารเสพติดและอบายมุข ลดลงอย่างมีนัยสำคัญทางสถิติ เมื่อเปรียบเทียบกับก่อนการทดลอง โดยค่าเฉลี่ยของคะแนนพฤติกรรมเสี่ยงต่อสารเสพติดและอบายมุขของนักเรียน ลดลง เนื่องมาจากการเรียนรู้จากการสังเกตและ

เลียนแบบ: โมเดล BNK Comfort ส่งเสริมการสร้างบรรยากาศที่เป็นมิตร (Kindness - K) และการสร้างเครือข่ายความร่วมมือ (Network - N) ซึ่งเปิดโอกาสให้นักเรียนได้สังเกตและเลียนแบบพฤติกรรมเชิงบวกจากครู เพื่อน ผู้ปกครอง และบุคคลในชุมชนที่เป็นแบบอย่างที่ดี การเห็นบุคคลเหล่านี้แสดงพฤติกรรมที่หลีกเลี่ยงสารเสพติดและอบายมุข รวมถึงการมีปฏิสัมพันธ์ที่สร้างสรรค์ จะช่วยลดโอกาสที่นักเรียนจะเลียนแบบพฤติกรรมเสี่ยง เสริมสร้างความเชื่อมั่นในตนเอง (Self-Efficacy): กิจกรรมที่ส่งเสริมการระดมสมองและการแก้ปัญหาร่วมกัน (Brainstorm - B) ช่วยให้นักเรียนรู้สึกว่าตนเองมีความสามารถและมีคุณค่า ซึ่งเป็นองค์ประกอบสำคัญของความเชื่อมั่นในตนเอง นักเรียนที่มีความเชื่อมั่นในตนเองสูงมีแนวโน้มที่จะสามารถปฏิเสธแรงกดดันจากภายนอกที่ชักจูงไปในทางที่ไม่ดี และสามารถเลือกที่จะไม่เข้าไปเกี่ยวข้องกับสารเสพติดและอบายมุข และได้รับการเสริมแรงทางบวก: การสร้างบรรยากาศที่อบอุ่นและมีการดูแลเอาใจใส่ (Care and Support System - C ภายใต้ Comfort) จะช่วยให้นักเรียนรู้สึกได้รับการยอมรับและสนับสนุน เมื่อนักเรียนแสดงพฤติกรรมที่เหมาะสมหรือไม่เข้าไปเกี่ยวข้องกับสิ่งเสพติดและอบายมุข พวกเขาจะได้รับการเสริมแรงทางบวกจากครู ผู้ปกครอง และเพื่อน ซึ่งจะช่วยส่งเสริมพฤติกรรมเหล่านั้นต่อไป สอดคล้องกับทฤษฎีการเรียนรู้ทางสังคม (Social Learning Theory) ของ Bandura ที่นำเสนอไว้ว่าบุคคลเรียนรู้พฤติกรรมใหม่ ๆ ผ่านกระบวนการหลักของการสังเกต (Observation) เลียนแบบ (Imitation หรือ Modeling) และการเสริมแรง (Reinforcement) โดยเน้นปฏิสัมพันธ์ระหว่างปัจจัยทางสิ่งแวดล้อม ปัจจัยส่วนบุคคล (เช่น ความคิด ความเชื่อ) และพฤติกรรม (Bandura, 1991)

2. ผลต่อระดับความสุขในชีวิตของนักเรียน

นักเรียนชั้นประถมศึกษาปีที่ 4 - 6 ที่ได้รับการดำเนินงานตาม “BNK Comfort Model” มีคะแนนเฉลี่ยของระดับความสุขในชีวิตโดยภาพรวมเพิ่มขึ้นอย่างมีนัยสำคัญทางสถิติ โดยค่าเฉลี่ยของคะแนนระดับความสุขในชีวิตของนักเรียนเพิ่มขึ้นจาก 75.80 (ก่อนการทดลอง) เป็น 82.15 (หลังการทดลอง) เมื่อเปรียบเทียบกับก่อนการทดลอง พิจารณารายด้านพบว่า ความสุขทางกาย ใจ สังคม สติปัญญา นักเรียนมีความสุขในด้านต่าง ๆ เพิ่มขึ้นทุกด้าน เนื่องมาจากการดำเนินงานของรูปแบบตอบสนองความต้องการพื้นฐาน สอดคล้องกับแนวคิดทฤษฎีของมาสโลว์ (Maslow, 1954) ที่กล่าวว่าความปลอดภัยเป็นความต้องการพื้นฐานของมนุษย์ เมื่อนักเรียนรู้สึกปลอดภัยทั้งทางร่างกายและจิตใจ พวกเขาก็จะมีแนวโน้มที่จะมีความสุขมากขึ้น องค์ประกอบของ “BNK Comfort Model” ที่เน้นการสร้างบรรยากาศที่เป็นมิตร อ่อนโยน (Kindness - K) และการดูแลรักษาตนเองให้ปลอดภัย (Maintenance - M ภายใต้ Comfort) รวมถึงการสร้างความมั่นใจในการใช้ชีวิตอย่างปลอดภัย (Outstanding - O ภายใต้ Comfort) มีส่วนช่วยในการสร้างความรู้สึกปลอดภัยให้กับนักเรียน นอกจากนี้ โมเดลยังส่งเสริมความปลอดภัยในหลากหลายมิติ ซึ่งเป็นรากฐานสำคัญของความสุขและความเป็นอยู่ที่ดี การบูรณาการองค์ประกอบต่าง ๆ ของโมเดลได้ส่งผลเชิงบวกต่อพัฒนาการทั้งทางกาย ใจ สังคม และสติปัญญาของนักเรียน ซึ่งนำไปสู่ระดับความสุขที่สูงขึ้นอย่างเห็นได้ชัดเจน

ข้อเสนอแนะ

ข้อเสนอแนะในการนำผลการวิจัยไปใช้

1. โรงเรียนควรมีการวางแผนกิจกรรมป้องกันยาเสพติดในระยะยาว โดยกำหนดเป้าหมาย วัตถุประสงค์ กิจกรรม ผู้รับผิดชอบ และงบประมาณที่ชัดเจน

2. โรงเรียนควรสร้างคู่มือและแนวทางการใช้โมเดล: พัฒนาคู่มือการใช้ “BNK Comfort Model” ที่มีรายละเอียดของกิจกรรม แนวทางการดำเนินงาน และเครื่องมือประเมินผล เพื่อให้โรงเรียนอื่น ๆ

สามารถนำไปปรับใช้ได้ง่ายและมีประสิทธิภาพ

3. โรงเรียนควรบูรณาการหลักการและกิจกรรมของ “BNK Comfort Model” เข้าสู่แผนการจัดการเรียนรู้ในรายวิชาต่าง ๆ และกิจกรรมพัฒนาผู้เรียนอย่างต่อเนื่อง ไม่ใช่เพียงแค่โครงการระยะสั้น เพื่อให้การเสริมสร้างพฤติกรรมเชิงบวกและภูมิคุ้มกันทางใจเป็นส่วนหนึ่งของวัฒนธรรมโรงเรียน

ข้อเสนอแนะในการทำวิจัยครั้งต่อไป

1. ศึกษาผลกระทบของ “BNK Comfort Model” ต่อพฤติกรรมเสี่ยงต่อสารเสพติดและอบายมุข รวมถึงระดับความสุขของนักเรียนในระยะยาว

2. ศึกษาปัจจัยความสำเร็จที่มีต่อการนำแนวปฏิบัติที่เป็นเลิศ (Best Practice) ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model” ไปใช้

3. ศึกษาเปรียบเทียบผลระหว่างกลุ่มที่ใช้และกลุ่มที่ไม่ใช้แนวปฏิบัติที่เป็นเลิศ (Best Practice) ชีวิตอยู่อย่างมีสุขปลอดจากยาเสพติดและอบายมุข ด้วย “BNK Comfort Model”

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2560). คู่มือการดำเนินงานโครงการสถานศึกษาสีขาว ปลอดยาเสพติดและอบายมุข. กรุงเทพฯ: โรงพิมพ์คุรุสภา.

กระทรวงศึกษาธิการ. (2565). แผนปฏิบัติการป้องกันและแก้ไขปัญหายาเสพติดในสถานศึกษา ปี 2565. กรุงเทพฯ: โรงพิมพ์คุรุสภา.

ธนพร สุวรรณวรบุญ. (2563). ความสุขในการทำงานและสุขภาวะทางจิตของบุคลากรผู้ดูแลผู้ป่วยสารเสพติด. (วิทยานิพนธ์ปริญญาวิทยาศาสตรมหาบัณฑิต). จุฬาลงกรณ์มหาวิทยาลัย, เชียงใหม่.

บุญชม ศรีสะอาด. (2560). การวิจัยเบื้องต้น (พิมพ์ครั้งที่ 10). กรุงเทพฯ: สุวีริยาสาส์น.

โรงเรียนบ้านหน้าควนลัง. (ราษฎร์สามัคคี) (2565). รายงานสถานการณ์การแพร่ระบาดของยาเสพติด. สงขลา: โรงเรียนบ้านหน้าควนลัง (ราษฎร์สามัคคี).

ศูนย์สุขวิทยาจิต. (2562). รายงานผลการดำเนินงานประจำปีงบประมาณ 2562. นนทบุรี: กรมสุขภาพจิต กระทรวงสาธารณสุข.

สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน. (2564). คู่มือการจัดทำผลงาน/นวัตกรรมการปฏิบัติที่เป็นเลิศ (Best Practice). กรุงเทพฯ: โรงพิมพ์คุรุสภา.

สำนักงานคณะกรรมการป้องกันและปราบปรามยาเสพติด. (2565). รายงานสถานการณ์ยาเสพติดประเทศ ไทย ประจำปี 2565. กรุงเทพฯ: สำนักงานคณะกรรมการป้องกันและปราบปรามยาเสพติด.

สำนักงานเลขาธิการสภาการศึกษา. (2560). แนวทางการดำเนินงานป้องกันและแก้ไขพฤติกรรมไม่พึงประสงค์. กรุงเทพฯ: สำนักงานเลขาธิการสภาการศึกษา.

อัญชลี จุมพฏจามีกร. (2564). อยู่อย่างไรให้เป็นสุขในวัยสูงอายุ. สืบค้นเมื่อ 22 ธันวาคม 2565 จาก https://www.rama.mahidol.ac.th/ramamental/generalknowledge/general.

Bandura, A. (1991). Social cognitive theory of self-regulation. Organizational Behavior and Human Decision Processes, 50(2), 248-287.

Maslow, A. H. (1954). Motivation and personality. Harper [1] and Row.

Seligman, M. E. P. (2011). Flourish: A visionary new understanding of happiness and well-being. NY: Atria Books.

การพัฒนาผลสัมฤทธิ์ทางการเรียนการงานอาชีพ เรื่อง ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืชด้วยวิธีการจัดการเรียนรู้ผ่านการทำงาน นักเรียนชั้นมัธยมศึกษาปีที่ 4 โรงเรียนพะตงวิทยามูลนิธิจังหวัด สงขลา

Improving Learning Achievement in Vocational Education on the Topic of Factors Influencing Plant Growth through the Learning-by-Doing Method for grade 10 students at Phatong Wittaya Mulnithi School, Songkhla Province.

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อ 1) เปรียบเทียบผลสัมฤทธิ์ทางการเรียนการงานอาชีพ เรื่อง ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืชด้วยวิธีการจัดการเรียนรู้ผ่านการทำงาน นักเรียนชั้นมัธยมศึกษาปีที่ 4 ระหว่างวิธีการจัดการเรียนรู้ผ่านการทำงาน กับวิธีการจัดการเรียนรู้แบบปกติ และ 2) ศึกษาความพึงพอใจของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ที่มีต่อการจัดการเรียนรู้ผ่านการทำงานทางการเรียนการงานอาชีพ เรื่องปัจจัยที่มีอิทธิพลต่อการผลิตพืช กลุ่มตัวอย่างที่ใช้ในการวิจัย คือ นักเรียนชั้นมัธยมศึกษาปีที่ 4 จำนวน 2 กลุ่ม ซึ่งได้มาจากการสุ่มอย่างง่ายโดยการจับสลาก เครื่องมือที่ใช้ในการวิจัยประกอบด้วยแผนการจัดกิจกรรมการเรียนรู้ แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน และแบบสอบถามความพึงพอใจต่อวิธีการจัดการเรียนรู้ผ่านการทำงาน การวิเคราะห์ข้อมูลใช้สถิติเชิงพรรณนา ได้แก่ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการทดสอบค่าที 2 กลุ่มอิสระ

ผลการวิจัยพบว่า 1) หลังการใช้วิธีการจัดการเรียนรู้ผ่านการทำงาน นักเรียนมีผลสัมฤทธิ์ทางการเรียนสูงขึ้นอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 2) ผลการศึกษาความพึงพอใจพบว่าภาพรวมอยู่ในระดับมาก

คำสำคัญ: ผลสัมฤทธิ์ทางการเรียน, การเรียนรู้ผ่านการทำงาน, ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืช

Abstract

This research aims to compare the academic achievement in Career Education on the topic of factors influencing plant growth through learning activities using Learning by Doing methods among Grade 10 students, between the Learning by Doing approach and the traditional teaching method; and study the satisfaction of Grade -10 students towards Career Education on the topic of factors influencing plant growth through Learning by Doing activities. The sample group for this research consisted of 100 Grade 10 students, selected using non-purposive sampling. The research tools included a Learning by Doing activity plan, an achievement test, and a student satisfaction survey. Data analysis used basic statistics such as mean, standard deviation, and independent group t-test.

The results revealed that after the implementation of Learning by Doing activities, students' academic achievement increased significantly at the .05 In addition, students reported a high level of satisfaction with the instructional method.

Keywords: academic achievement, learning by doing, Factors affecting plant growth

บทนำ

การเรียนรู้เกี่ยวกับอาชีพเป็นสิ่งสำคัญอย่างยิ่ง โดยเฉพาะการจัดการเรียนรู้ในระดับการศึกษาขั้นพื้นฐาน ซึ่งเป็นช่วงเวลาในการเตรียมความพร้อมของผู้เรียนที่จะเลือกการประกอบอาชีพในอนาคต ประการสำคัญ การมีทักษะชีวิตและอาชีพ (Life and Career Skill) ถือเป็นคุณลักษณะที่บุคคลในศตวรรษที่ 21 พึงมี (อดุลย์ วังศรีคูณ, 2557)

สาระการเรียนรู้การงานอาชีพเป็นกลุ่มสาระการเรียนรู้ที่มุ่งพัฒนาให้ผู้เรียนมีความรู้ ความสามารถทั้งด้านวิชาการ ทักษะการทำงาน และทักษะการดำรงชีวิต เพื่อให้สามารถดำรงชีวิตอยู่ในสังคมได้อย่างมีความสุข สอดคล้องกับแนวคิดใหม่ของการจัดการศึกษาขั้นพื้นฐาน คุณภาพผู้เรียนที่ระบุไว้ในพระราชบัญญัติการศึกษาแห่งชาติ (ฉบับที่ 4) พ.ศ. 2562 มาตรา 6 ที่ว่า การจัดการศึกษาต้องเป็นไปเพื่อพัฒนาคนไทยให้เป็นมนุษย์ที่สมบูรณ์ทั้งร่างกาย จิตใจ สติปัญญา ความรู้และคุณธรรม มีจริยธรรมและวัฒนธรรมในการดำรงชีวิตสามารถอยู่ร่วมกับผู้อื่นได้อย่างมีความสุข (กระทรวงศึกษาธิการ, 2562)

ในปัจจุบันการเรียนการสอนในรายวิชาการงานอาชีพ เป็นสิ่งสำคัญที่ช่วยเตรียมความพร้อมให้นักเรียนสามารถนำความรู้ไปประยุกต์ใช้ในชีวิตประจำวัน รวมถึงพัฒนาทักษะที่จำเป็นสำหรับอนาคต ซึ่งการศึกษาระดับชาติ หลักสูตรแกนกลางวิชาการงานอาชีพที่มุ่งให้ผู้เรียนมีทักษะจำเป็น โดยเฉพาะ ในเรื่องปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืช ซึ่งเป็นพื้นฐานสำคัญสำหรับการทำเกษตรกรรมและการ

จัดการทรัพยากรธรรมชาติอย่างยั่งยืน ทั้งนี้ โรงเรียนพะตงวิทยามูลนิธิให้ความสำคัญในเรื่องการพัฒนานักเรียนให้เกิดทักษะในศตวรรษที่ 21 เป็นอย่างยิ่ง โดยการเรียนการสอนวิชางานเกษตร ในปัจจุบันนั้นพบว่า นักเรียนส่วนใหญ่สามารถจดจำเนื้อหาได้เป็นอย่างดี แต่ยังไม่สามารถประยุกต์ใช้ความรู้สู่การปฏิบัติงาน และการแก้ไขปัญหาที่เกิดขึ้นระหว่างการปฏิบัติงานได้ ในรายวิชาผลผลิตทางการเกษตร ชั้นมัธยมศึกษาปีที่ 4 กลุ่มสาระการเรียนรู้การงานอาชีพ โรงเรียนพะตงวิทยามูลนิธิ พบว่า นักเรียน มีผลสัมฤทธิ์ต่ำกว่าเกณฑ์ร้อยละ 60 ซึ่งเป็นเป้าหมายที่โรงเรียนกำหนด นักเรียนและผู้เกี่ยวข้องจึงได้ร่วมกันวิเคราะห์หาสาเหตุพบว่า เกิดจากปัญหา นักเรียนส่วนใหญ่ขาดทักษะการปฏิบัติงาน ได้แก่ ไม่สามารถประยุกต์ใช้ความรู้สู่การปฏิบัติงาน ซึ่งปัญหาเหล่านี้เป็นสาเหตุสำคัญที่ส่งผลให้นักเรียนมีผลสัมฤทธิ์ไม่ผ่านเกณฑ์ตามค่าเป้าหมายที่กลุ่มสาระการเรียนรู้การงานอาชีพและเทคโนโลยีตามที่โรงเรียนพะตงวิทยามูลนิธิกำหนดไว้ (โรงเรียนพะตงวิทยามูลนิธิ, 2566)

เพื่อแก้ไขปัญหาดังกล่าว ผู้วิจัยจึงได้ปรับวิธีการจัดการเรียนการสอน โดยการใช้วิธีการเรียนรู้ผ่านการทำงาน ซึ่งจะช่วยให้นักเรียนสามารถพัฒนาทั้งความรู้ ความเข้าใจ และทักษะในการปฏิบัติงานจริง รวมถึงสร้างทัศนคติที่ดีต่อการเรียนรู้ในวิชาเกษตร งานวิจัยนี้มุ่งหวังที่จะช่วยให้กระบวนการเรียนรู้เชิงปฏิบัติสามารถเพิ่มผลสัมฤทธิ์ทางการเรียนของนักเรียน ในเรื่องปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืชและพัฒนานักเรียนให้มีทักษะที่จำเป็น ในการดำเนินงานเกษตรกรรมอย่างยั่งยืนในอนาคต

ณัฏฐพงษ์ ฉายแสงประทีป (2559) ทฤษฎีการเรียนรู้จากการปฏิบัติ Learning by Doing เป็นแนวทางการจัดกิจกรรมที่เน้นให้ผู้เรียนลงมือปฏิบัติจริง เพื่อสร้างประสบการณ์ตรง โดยผู้เรียนจะได้เรียนรู้ด้วยตนเองผ่านกระบวนการทางวิทยาศาสตร์ ซึ่งช่วยพัฒนาทักษะการคิดวิเคราะห์ แก้ปัญหา และความคิดสร้างสรรค์ เพราะความรู้เกิดจากการลงมือทำ ไม่ใช่เพียงแค่การรับข้อมูล ครูจึงมีบทบาทเป็นผู้ชี้แนะและอำนวยความสะดวกเท่านั้น จากการศึกษาของ สาวิตรี ผิวงาม (2567) พบว่า การใช้รูปแบบ Learning by Doing ร่วมกับการเรียนรู้แบบโครงงาน ส่งผลให้นักเรียนชั้น ม.5 มีผลสัมฤทธิ์ทางการเรียนและทักษะการเขียนโปรแกรมพื้นฐานดีขึ้นอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

คำถามการวิจัย

1. วิธีการจัดการเรียนรู้ผ่านการทำงาน ทำให้ผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นมัธยมศึกษาปีที่ 4 สูงกว่าผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ห้องที่เรียนด้วยวิธีการจัดการเรียนรู้แบบปกติหรือไม่

2. นักเรียนชั้นมัธยมศึกษาปีที่ 4 มีความพึงพอใจต่อการเรียนการงานอาชีพ เรื่อง ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืชที่ใช้วิธีการจัดการเรียนรู้ผ่านการทำงานอยู่ในระดับใด

วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนการงานอาชีพ เรื่อง ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืช ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ด้วยวิธีการจัดการเรียนรู้ผ่านการทำงาน กับวิธีการจัดการเรียนรู้แบบปกติ

2. เพื่อศึกษาความพึงพอใจของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ที่มีต่อการจัดการเรียนรู้ผ่านการทำงาน เรื่องปัจจัยที่มีอิทธิพลต่อการผลิตพืช

สมมติฐาน

นักเรียนระดับชั้นมัธยมศึกษาปีที่ 4 ที่เรียนด้วยวิธีการจัดการเรียนรู้ผ่านการทำงาน มีผลสัมฤทธิ์ทางการเรียนสูงกว่าวิธีการจัดการเรียนรู้แบบปกติ อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.5

แนวคิด ทฤษฎี กรอบแนวคิด

1. แนวคิดเกี่ยวกับวิธีการจัดการเรียนรู้ผ่านการทำงาน
2. ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืช
3. ความพึงพอใจ

1. แนวคิดเกี่ยวกับวิธีการจัดการเรียนรู้ผ่านการทำงาน (Learning by Doing)

นักการศึกษาที่มีชื่อเสียงที่มีความเชื่อปรัชญาการศึกษานี้คือ จอห์น ดิวอี้ (John Dewey) เป็นนักปราชญ์ซึ่งเชื่อว่ามนุษย์จะต้องปรับตัวเพื่อให้ชีวิตอยู่รอด จึงมีวลีที่แพร่หลายและนำมาใช้ในการจัดการศึกษาคือ Learning by Doing หรือการเรียนรู้โดยการปฏิบัติจริง แนวคิดของจอห์น ดิวอี้ คือ ปรัชญาของ จอห์น ดิวอี้ เป็นปรัชญาที่ยกย่องประสบการณ์ ผู้เรียนต้องเรียนรู้จากการกระทำในสถานการณ์จริง การศึกษาตามทัศนะของจอห์น ดิวอี้ คือ ความเจริญงอกงามทั้งทางด้านร่างกาย อารมณ์ สังคมและสติปัญญา การจัดกระบวนการเรียนรู้ที่เน้นการปฏิบัติจริง เป็นการจัดกิจกรรมในลักษณะกลุ่มปฏิบัติการที่เรียนรู้ด้วยประสบการณ์ตรงจากการเผชิญสถานการณ์จริงและการแก้ปัญหา เพื่อให้เกิดการเรียนรู้จากการกระทำ ผู้เรียนได้ปฏิบัติจริง ฝึกคิด ฝึกลงมือทำ ฝึกทักษะกระบวนการต่าง ๆ ฝึกการแก้ปัญหาด้วยตนเอง และฝึกทักษะการเสาะแสวงหาความรู้ร่วมกันเป็นกลุ่ม กระบวนการเรียนรู้แบบแก้ปัญหา เป็นกิจกรรมการเรียนการสอนที่เน้นให้ผู้เรียนเรียนรู้ด้วยตนเอง เพื่อให้ผู้เรียนคิดเป็นและแก้ปัญหาเป็น โดยการนำวิธีการทางวิทยาศาสตร์มาใช้บางครั้งก็เรียกวิธีสอนนี้ว่า การสอนแบบวิทยาศาสตร์

การเรียนรู้โดยการกระทำจะทำให้เด็กเกิดการเรียนรู้ได้ดียิ่งขึ้นตามแนวคิดของ John Dewey ซึ่งความคิดเรื่อง การเรียนรู้โดยการกระทำ หรือ Learning by Doing ของ จอห์น ดิวอี้ เป็นแนวคิดที่แพร่หลายและได้รับการยอมรับทั่วโลก การจัดการเรียนการสอนโดยให้ผู้เรียนเป็นผู้ลงมือปฏิบัติจึงเป็นการเปลี่ยนบทบาทในการเรียนรู้ของผู้เรียนจากการเป็นผู้รับ มาเป็นผู้เรียน และเปลี่ยนบทบาทของครูจาก ผู้สอนหรือผู้ถ่ายทอดข้อมูลความรู้มาเป็นผู้จัดประสบการณ์การเรียนรู้ให้ผู้เรียน ซึ่งการเปลี่ยนแปลงบทบาทนี้เท่ากับเป็นการเปลี่ยนจุดเน้นของการเรียนรู้ว่าอยู่ที่ผู้เรียนมากกว่าอยู่ที่ผู้สอน

พระราชบัญญัติการศึกษาแห่งชาติ (ฉบับที่ 4) พ.ศ. 2562 มาตรา 22 ได้กำหนดหลักการจัดการศึกษาที่สำคัญว่า ผู้เรียนทุกคนมีความสามารถในการเรียนรู้และพัฒนาตนเองได้ และถือว่าผู้เรียนมีความสำคัญที่สุด การจัดการศึกษาจึงต้องส่งเสริมให้ผู้เรียนพัฒนาตนเองตามธรรมชาติและเต็มศักยภาพ โดยเฉพาะ การจัดกิจกรรมการเรียนรู้ที่มุ่งเน้นให้ผู้เรียนได้เรียนรู้จากประสบการณ์จริงผ่านการ ลงมือปฏิบัติ ฝึกกระบวนการคิดและการแก้ปัญหา ซึ่งสอดคล้องกับแนวทางการจัดการเรียนรู้ผ่านการทำงาน (Learning by Doing) ที่เน้นการเรียนรู้ด้วยการลงมือกระทำจริง อันจะช่วยกระตุ้นให้ผู้เรียนมีความกระตือรือร้น สนุกกับการเรียน และเกิดความเข้าใจที่ลึกซึ้งจากประสบการณ์ตรง ทั้งนี้ มาตรา 23 และ 24 ยังเน้นถึงความสำคัญของการบูรณาการ สาระการเรียนรู้ให้เหมาะสมกับแต่ละระดับการศึกษา โดยเฉพาะสาระด้านวิทยาศาสตร์ ทรัพยากรธรรมชาติ และสิ่งแวดล้อม ซึ่งเกี่ยวข้องโดยตรงกับเนื้อหาเรื่อง ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืชในรายวิชาการงานอาชีพ การจัดการเรียนรู้ในลักษณะนี้ จึงมีความ

เหมาะสมต่อการพัฒนาผลสัมฤทธิ์ทางการเรียนของนักเรียน ทั้งในด้านความรู้ ทักษะ และคุณลักษณะที่พึงประสงค์ ตลอดจนส่งเสริมให้เกิดการเรียนรู้อย่างต่อเนื่อง และสามารถนำความรู้ไปประยุกต์ใช้ในชีวิตจริงได้อย่างมีประสิทธิภาพ

อย่างไรก็ตาม การจัดกระบวนการเรียนรู้ต้องจัดให้เนื้อหาสาระและกิจกรรมให้สอดคล้องกับความสนใจและความถนัดของผู้เรียน โดยคำนึงถึงความแตกต่างระหว่างบุคคล ฝึกทักษะ กระบวนการคิด การจัดการ การเผชิญสถานการณ์ และการประยุกต์ความรู้มาใช้เพื่อป้องกันและแก้ไขปัญหา จัดกิจกรรมให้ผู้เรียนได้เรียนรู้จากประสบการณ์จริง ฝึกการปฏิบัติ ให้ทำได้ คิดเป็น ทำเป็น รักการอ่านและเกิดการใฝ่รู้อย่างต่อเนื่อง จัดการเรียนการสอนโดยผสมผสานสาระความรู้แต่ละด้านให้ได้สัดส่วนสมดุลกัน รวมทั้งปลูกฝังคุณธรรม ค่านิยมที่ดีงามและคุณลักษณะอันพึงประสงค์ไว้ในทุกวิชาส่งเสริมสนับสนุนให้ผู้สอนสามารถจัดบรรยากาศ สภาพแวดล้อม สื่อการเรียนและอำนวยความสะดวกเพื่อให้ผู้เรียนเกิดการเรียนรู้และมีความรอบรู้ รวมทั้งสามารถใช้การวิจัยเป็นส่วนหนึ่งของกระบวนการเรียนรู้ ทั้งนี้ ผู้สอนและผู้เรียนอาจเรียนรู้ไปพร้อมกันจากสื่อการเรียนการสอนและแหล่งวิทยาการประเภทต่าง ๆ และจัดการเรียนรู้ให้เกิดขึ้นได้ทุกเวลาทุกสถานที่ มีการประสานความร่วมมือ กับบิดามารดา ผู้ปกครอง และบุคคลในชุมชนทุกฝ่าย เพื่อร่วมกันพัฒนาผู้เรียนตามศักยภาพการจัดการเรียนการสอนที่เน้นผู้เรียนเป็นสำคัญ หมายถึงการจัดกิจกรรมโดยวิธีต่าง ๆ อย่างหลากหลายที่มุ่งให้ผู้เรียนเกิดการเรียนรู้อย่างแท้จริง เกิดการพัฒนาตนเอง และสั่งสมคุณลักษณะที่จำเป็นสำหรับการเป็นสมาชิกที่ดีของสังคมของประเทศชาติ การจัดกิจกรรมการเรียนการสอนในลักษณะนี้จำเป็นต้องใช้เทคนิควิธีการเรียนรู้ รูปแบบการสอน หรือกระบวนการเรียนการสอนอย่างหลากหลาย

2. ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืช

การเจริญเติบโตของพืชเป็นกระบวนการทางชีวภาพที่ซับซ้อน ซึ่งเกี่ยวข้องกับการเพิ่มขนาดของเซลล์ การแบ่งเซลล์ และการพัฒนาของอวัยวะต่าง ๆ ทั้งนี้ การเจริญเติบโตของพืชจะเกิดขึ้นได้อย่างสมบูรณ์ก็ต่อเมื่อมีปัจจัยที่เหมาะสมทั้งภายในและภายนอก ซึ่งสามารถจำแนกได้ดังนี้

1) ปัจจัยภายนอก

1.1 แสง แสงเป็นแหล่งพลังงานสำคัญที่พืชใช้ในกระบวนการสังเคราะห์ด้วยแสง (Photosynthesis) ซึ่งมีผลโดยตรงต่อการเจริญเติบโต ลักษณะการเจริญเติบโตของพืชจะแตกต่างกันตามความเข้มแสง ช่วงคลื่นของแสง และระยะเวลาที่ได้รับแสง โดยเฉพาะแสงในช่วงคลื่นสีแดงและน้ำเงินมีอิทธิพลอย่างมากต่อการยืดตัวของลำต้นและการเจริญของใบ (Taiz & Zeiger, 2010)

1.2 อุณหภูมิ อุณหภูมิส่งผลต่ออัตราการเกิดปฏิกิริยาเคมีภายในเซลล์พืช เช่น การหายใจ การดูดน้ำ และการสังเคราะห์สารต่าง ๆ พืชแต่ละชนิดมีช่วงอุณหภูมิที่เหมาะสมแตกต่างกัน พืชบางชนิดอาจเติบโตดีในอากาศเย็น ขณะที่บางชนิดต้องการอุณหภูมิสูงเพื่อกระตุ้นกระบวนการทางชีวภาพ (Hopkins & Hüner, 2008)

1.3 น้ำ น้ำเป็นองค์ประกอบหลักของเซลล์พืชและมีบทบาทในการลำเลียงแร่ธาตุและสารอาหาร น้ำยังช่วยรักษาความดันในเซลล์พืช (Turgor Pressure) ซึ่งมีผลต่อความแข็งแรงของลำต้น การขาดน้ำจะส่งผลให้พืชเหี่ยวเฉาและหยุดการเจริญเติบโต (Salisbury & Ross, 1992)

1.4 ธาตุอาหารพืช พืชต้องการธาตุอาหารเพื่อใช้ในการสร้างเซลล์ และการทำหน้าที่ต่าง ๆ แบ่งเป็น 2 กลุ่มคือ ธาตุอาหารหลัก เช่น ไนโตรเจน (N), ฟอสฟอรัส (P), โพแทสเซียม (K) และธาตุ

อาหารรอง เช่น แมงกานีส เหล็ก และสังกะสี ธาตุอาหารเหล่านี้มีผลต่อการสร้างคลอโรฟิลล์ การแบ่งเซลล์ และการเจริญเติบโตโดยรวมของพืช (Marschner, 2012)

1.5 ดิน ดินเป็นแหล่งที่อยู่และแหล่งสะสมสารอาหารของพืช ดินที่ดีควรมีโครงสร้างร่วนซุย มีความสามารถในการระบายน้ำและอุ้มความชื้น รวมทั้งมีอินทรียวัตถุที่เหมาะสมต่อการเจริญเติบโตของจุลินทรีย์ที่เป็นประโยชน์ต่อพืช (Brady & Weil, 2010)

งานวิจัยที่เกี่ยวข้อง

สุริยะ หาญพิชัย (2562) ได้ทำการศึกษาการพัฒนาผลสัมฤทธิ์ทางการเรียนในรายวิชาท้องถิ่นศึกษา โดยใช้การเรียนรู้แบบลงมือทำ ผลการวิจัยพบว่านักศึกษามีผลสัมฤทธิ์ทางการเรียนสูงขึ้นอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 พร้อมทั้งมีความพึงพอใจในระดับมาก โดยเฉพาะด้านประโยชน์ที่ได้รับรองลงมาคือ บรรยากาศการเรียน กิจกรรม และเนื้อหา ซึ่งผลการวิจัยนี้สอดคล้องกับแนวทางการเรียนรู้เชิงประสบการณ์ที่เน้นการมีส่วนร่วมของผู้เรียนในการลงมือปฏิบัติจริง (สุริยะ หาญพิชัย, 2562).

สาวิตรี ผิวงาม (2567) ศึกษาการพัฒนาทักษะการเขียนโปรแกรมพื้นฐานและทักษะการแก้ปัญหาโดยใช้การเรียนรู้แบบ Learning by Doing ร่วมกับการเรียนรู้แบบโครงงาน (Project-based Learning) กับนักเรียนชั้นมัธยมศึกษาปีที่ 5 พบว่า นักเรียนมีผลสัมฤทธิ์ทางการเรียน และทักษะการแก้ปัญหาสูงขึ้นอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 โดยมีการประเมินจากพฤติกรรมในระหว่างกิจกรรมการเรียนรู้ ซึ่งแสดงให้เห็นว่า การจัดการเรียนรู้ที่เน้นการลงมือปฏิบัติสามารถพัฒนาศักยภาพผู้เรียนได้อย่างรอบด้าน (สาวิตรี ผิวงาม, 2567).

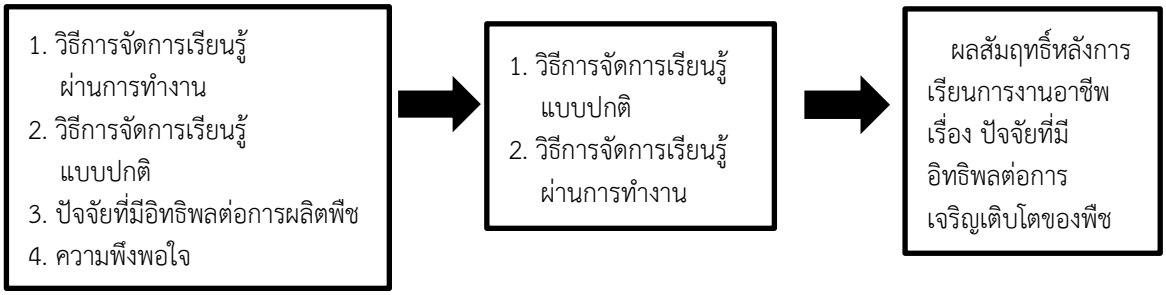
3. ความพึงพอใจที่มีต่อวิธีจัดการเรียนรู้ผ่านการทำงาน

ความพึงพอใจเป็นการสนองตอบในลักษณะที่ชื่นชอบ ชื่นชม พอใจ ในการได้รับจากสิ่งเร้าที่กระตุ้นให้เกิดการเรียนรู้ ทำให้ผู้เรียนเกิดประสบการณ์พัฒนาการในทุกด้านในระดับต่าง ๆ กันตามศักยภาพของผู้เรียน เป็นผลทำให้เห็นระดับความสำเร็จบรรลุเป็นเป้าหมายของครูผู้จัดกิจกรรมการเรียนการสอน

ความพึงพอใจที่มีต่อวิธีจัดการเรียนรู้ผ่านการทำงาน หมายถึง ความรู้สึกหรือทัศนคติของนักเรียนที่รู้สึกชอบหรือพอใจในวิธีจัดการเรียนรู้ผ่านการทำงาน และการมีส่วนร่วมในกิจกรรมการเรียนการสอน โดยมีการสอบถามความพึงพอใจทั้งหมด 2 ด้าน ได้แก่ ด้านการจัดการเรียนรู้ผ่านการทำงาน และด้านผลลัพธ์จากการจัดการเรียนรู้ผ่านการทำงาน ซึ่งสามารถวัดได้จากแบบประเมินความพึงพอใจของนักเรียนที่ผู้วิจัยสร้างขึ้นตามแนวคิดของลิ เคอร์ท (Likert) ซึ่งเป็นแบบมาตราส่วนประมาณค่า 5 ระดับ

กรอบแนวคิดที่ใช้ในการวิจัย

การวิจัยในครั้งนี้เป็นการพัฒนาผลสัมฤทธิ์ทางการเรียนการงานอาชีพ เรื่อง ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืชด้วยการจัดกิจกรรมการเรียนรู้ผ่านการทำงาน โดยมีกรอบแนวคิดดังภาพที่ 1



วิธีดำเนินการวิจัย

1. รูปแบบการวิจัยครั้งนี้

การวิจัยครั้งนี้เป็นการวิจัยเชิงทดลอง (Experimental Research) โดยมีการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างกลุ่มทดลอง ซึ่งเรียนด้วยวิธีการจัดการเรียนรู้ผ่านการทำงาน กับกลุ่มควบคุมที่เรียนด้วยวิธีการจัดการเรียนรู้แบบปกติ และมีการวัดผลหลังการเรียน

2. ประชากรและกลุ่มตัวอย่าง

ประชากร ได้แก่ นักเรียนชั้นมัธยมศึกษาปีที่ 4 โรงเรียนพะตงวิทยามูลนิธิ ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 3 ห้อง 150 คน

กลุ่มตัวอย่าง ได้มาจากการสุ่มอย่างง่าย (Simple Random Sampling) ด้วยการจับสลากโดยใช้ห้องเรียนจำนวน 2 ห้อง ได้แก่ นักเรียนชั้นมัธยมศึกษาปีที่ 4 ห้อง 1 เป็นกลุ่มทดลอง จำนวน 50 คน และนักเรียนชั้นมัธยมศึกษาปีที่ 4 ห้อง 2 เป็นกลุ่มควบคุม จำนวน 50 คน

3. เครื่องมือวิจัย

3.1 แผนการจัดการเรียนรู้ 2 ประเภท ได้แก่ แผนการจัดการเรียนรู้ผ่านการทำงาน และแผนการจัดการเรียนรู้แบบปกติ

แผนการจัดการเรียนรู้ผ่านการทำงาน (Learning by Doing) ของนักเรียนระดับชั้นมัธยมศึกษาปีที่ 4 จำนวน 3 แผน แผนละ 2 ชั่วโมง รวม 6 ชั่วโมง ได้แก่ การทดลองผลของแสงแดดต่อการเจริญเติบโตของพืช 2 ชั่วโมง การวิเคราะห์ผลของปริมาณน้ำต่อพืชผักสวนครัว 2 ชั่วโมง การสำรวจชนิดของดินและความเหมาะสมในการปลูกพืช 2 ชั่วโมง โดยให้นักเรียนสังเกตและจดบันทึกการเปลี่ยนแปลงจากพืชที่นักเรียนปลูกเอง

แผนการจัดการเรียนรู้แบบปกติ ของนักเรียนระดับชั้นมัธยมศึกษาปีที่ 4 จำนวน 3 แผน แผนละ 2 ชั่วโมง รวม 6 ชั่วโมง ได้แก่ ปัจจัยของแสงแดดต่อพืช ปริมาณน้ำที่พืชต้องการ ลักษณะของดินที่ใช้ปลูกพืช

3.2 แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่องปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืช จำนวน 40 ข้อ เป็นแบบปรนัย 4 ตัวเลือก

3.3 แบบสอบถามความพึงพอใจของนักเรียนต่อการจัดการเรียนรู้ผ่านการทำงานเป็นมาตราส่วนประมาณค่าแบบลิเคิร์ท 5 ระดับ ครอบคลุม 2 ด้าน ได้แก่ ด้านเนื้อหาและประโยชน์ที่ได้รับ

4. ผลการหาคุณภาพเครื่องมือ

4.1 แผนการจัดการเรียนรู้ที่จัดการเรียนรู้ผ่านการทำงาน (Learning by Doing) จำนวน 3 แผนแผนละ 2 ชั่วโมง รวม 6 ชั่วโมง ได้รับการตรวจสอบคุณภาพโดยผู้เชี่ยวชาญจำนวน 3 ท่าน เพื่อประเมินความเหมาะสมและความสอดคล้องของเนื้อหา กิจกรรมการเรียนรู้ และวิธีการวัดผลกับจุดประสงค์การเรียนรู้ โดยมีการคำนวณค่าดัชนีความสอดคล้อง (IOC) พบว่า แผนการสอนทั้งหมดมีค่า IOC อยู่ระหว่าง 0.80 - 1.00

4.2 แผนการจัดการเรียนรู้แบบปกติ จำนวน 3 แผน แผนละ 2 ชั่วโมง รวม 6 ชั่วโมง ได้รับการตรวจสอบคุณภาพโดยผู้เชี่ยวชาญจำนวน 3 ท่าน เพื่อประเมินความเหมาะสมและความสอดคล้องของเนื้อหา กิจกรรมการเรียนรู้ และวิธีการวัดผลกับจุดประสงค์การเรียนรู้ โดยมีการคำนวณค่าดัชนีความสอดคล้อง (IOC) พบว่า แผนการสอนทั้งหมดมีค่า IOC อยู่ระหว่าง 0.80 - 1.00

4.3 แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่อง ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืช ผ่านการตรวจสอบความตรงเชิงเนื้อหาโดยผู้เชี่ยวชาญ 3 ท่าน มีค่า IOC อยู่ระหว่าง 0.67 – 1.00

4.4 แบบสอบถามความพึงพอใจที่มีต่อวิธีการจัดการเรียนรู้ผ่านการทำงาน เรื่อง ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืช โดยกำหนดคะแนนความพึงพอใจที่มีต่อวิธีการจัดการเรียนรู้ผ่านการทำงาน ดังนี้

ระดับน้อยที่สุด	กำหนดให้ 1 คะแนน
ระดับน้อย	กำหนดให้ 2 คะแนน
ระดับปานกลาง	กำหนดให้ 3 คะแนน
ระดับมาก	กำหนดให้ 4 คะแนน
ระดับมากที่สุด	กำหนดให้ 5 คะแนน

แบบสอบถามความพึงพอใจที่มีต่อวิธีการจัดการเรียนรู้ผ่านการทำงาน ผ่านการตรวจสอบจากผู้เชี่ยวชาญ 3 ท่าน มีค่า IOC อยู่ระหว่าง 0.67 – 1.00

5. การเก็บรวบรวมข้อมูล

กลุ่มทดลอง

1. ผู้วิจัยอธิบายและชี้แจงกิจกรรมการเรียนการสอนด้วยวิธีการจัดการเรียนรู้ผ่านการทำงาน เรื่อง ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืชให้กลุ่มทดลองเข้าใจ

2. เริ่มจัดกิจกรรมการเรียนการสอน โดยให้กลุ่มทดลองตามแผนการสอนที่ผู้วิจัยได้อธิบายและชี้แจงไว้ จำนวน 3 แผน แผนละ 2 ชั่วโมง รวมเวลา 6 ชั่วโมง

3. เมื่อเสร็จสิ้นการจัดกิจกรรมการเรียนการสอนในแผนการจัดการเรียนรู้ผ่านการทำงาน ให้กลุ่มทดลองทำแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน

4. ผู้วิจัยให้กลุ่มทดลองตอบแบบสอบถามความพึงพอใจที่มีต่อวิธีจัดการเรียนรู้ ผ่านการทำงาน ทั้งหมด 2 ด้าน ได้แก่ ด้านเนื้อหาและด้านประโยชน์ที่ได้รับ

กลุ่มควบคุม

1. ผู้วิจัยใช้วิธีการจัดการเรียนรู้แบบปกติ เรื่อง ปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืชให้กลุ่มควบคุมเข้าใจ

2. เริ่มจัดกิจกรรมการเรียนการสอนโดยให้นักเรียนกลุ่มควบคุม ตามแผนการสอนที่ผู้วิจัยได้อธิบายและชี้แจงไว้ จำนวน 3 แผน แผนละ 2 ชั่วโมง รวมเวลา 6 ชั่วโมง

3. เมื่อเสร็จสิ้นการจัดกิจกรรมการเรียนการสอน ให้กลุ่มควบคุมทำแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน

6. การวิเคราะห์ข้อมูล

1) การวิเคราะห์ข้อมูลในงานวิจัยนี้ใช้สถิติเชิงพรรณนา ได้แก่ ค่าเฉลี่ย และค่าส่วนเบี่ยงเบนมาตรฐาน โดยนำข้อมูลจากแบบสอบถามความพึงพอใจไปวิเคราะห์ผ่านโปรแกรมสำเร็จรูป SPSS เพื่อคำนวณหาค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน และแปลความหมายของค่าเฉลี่ยความพึงพอใจโดยใช้เกณฑ์มาตรฐานการแปลผลค่าเฉลี่ย 5 ระดับ ดังนี้

ค่าเฉลี่ย 4.51 – 5.00 หมายถึง มีความพึงพอใจระดับมากที่สุด
ค่าเฉลี่ย 3.51 – 4.50 หมายถึง มีความพึงพอใจระดับมาก
ค่าเฉลี่ย 2.51 – 3.50 หมายถึง มีความพึงพอใจระดับปานกลาง
ค่าเฉลี่ย 1.51 – 2.50 หมายถึง มีความพึงพอใจระดับน้อย
ค่าเฉลี่ย 1.00 – 1.50 หมายถึง มีความพึงพอใจระดับน้อยที่สุด

2) การเปรียบเทียบค่าเฉลี่ย 2 กลุ่มอิสระโดยใช้สถิติ Independent Sample T-test เพื่อเปรียบเทียบความแตกต่างของค่าเฉลี่ย ระหว่างกลุ่มทดลองที่เรียนด้วยวิธีการเรียนรู้ผ่านการทำงาน กับกลุ่มควบคุมที่เรียนด้วยวิธีการจัดการเรียนรู้แบบปกติ การวิเคราะห์ข้อมูลดำเนินการด้วยโปรแกรมสำเร็จรูป SPSS

ผลการวิจัย

การวิจัยเรื่อง การพัฒนาผลสัมฤทธิ์ทางการเรียนเรื่องปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืชด้วยวิธีการจัดการเรียนรู้ผ่านการทำงาน นักเรียนระดับชั้นมัธยมศึกษาปีที่ 4 ผู้วิจัยได้นำเสนอผลการวิจัยออกเป็น 2 ตอน ตามวัตถุประสงค์ของการวิจัย ดังนี้

ตอนที่ 1 วิเคราะห์เปรียบเทียบผลสัมฤทธิ์เรื่องปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืชด้วยวิธีการจัดการเรียนรู้ผ่านการทำงาน นักเรียนระดับชั้นมัธยมศึกษาปีที่ 4

ตารางที่ 1 แสดงการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างวิธีการจัดการเรียนรู้ผ่านการทำงานและวิธีการจัดการเรียนรู้แบบปกติ ดังนี้

ผลสัมฤทธิ์ทางการเรียนการงานอาชีพ	$\overline{x}$	S.D.	t	Sig.
วิธีการจัดการเรียนรู้ผ่านการทำงาน	36.58	4.01	4.92	.000
วิธีการจัดการเรียนรู้แบบปกติ	32.98	3.27		

จากตารางที่ 1 พบว่า ผลสัมฤทธิ์ทางการเรียนของกลุ่มทดลองที่ใช้วิธีการจัดการเรียนรู้ผ่านการทำงาน ได้คะแนนเฉลี่ย 36.58 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 4.01 ผลสัมฤทธิ์ทางการเรียนของกลุ่มควบคุมที่ใช้วิธีการจัดการเรียนรู้แบบปกติ ได้คะแนนเฉลี่ย 32.98 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 3.27 แสดงว่านักเรียนชั้นมัธยมศึกษาปีที่ 4 ที่ใช้วิธีการจัดการเรียนรู้ผ่านการทำงาน มีผลสัมฤทธิ์ทางการเรียนสูงกว่านักเรียนที่วิธีการจัดการเรียนรู้แบบปกติ อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 จากการที่ผู้วิจัยได้เปรียบเทียบผลสัมฤทธิ์ทางการเรียนวิชาวิทยาศาสตร์ของนักเรียนทั้ง 2 กลุ่ม ในภาคเรียนที่ 2/2566 พบว่านักเรียนทั้ง 2 กลุ่ม มีค่าเฉลี่ยผลสัมฤทธิ์ทางการเรียนวิชาวิทยาศาสตร์ที่ใกล้เคียงกันโดยวัดจากผลการสอบปลายภาคเรียนวิชาวิทยาศาสตร์พบว่า กลุ่มทดลอง ได้คะแนนเฉลี่ย 14.18 ส่วนเบี่ยงเบนมาตรฐาน

เท่ากับ 1.32 กลุ่มควบคุม ได้คะแนนเฉลี่ย 14.62 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 1.09 (โรงเรียนพะตงวิทยามูลนิธิ, 2566) จึงทำให้ผลการทดลองนี้สามารถเชื่อถือได้

ตารางที่ 2 ความพึงพอใจของนักเรียนต่อการจัดการเรียนรู้ผ่านการทำงาน

รายการประเมิน	ค่าเฉลี่ย ($\bar{x}$)	S.D.	ระดับความพึงพอใจ
ด้านที่ 1: เนื้อหา	**4.44**	**0.61**	**มาก**
มีความเข้าใจต่อเนื้อหาที่ได้เรียนรู้	4.52	0.58	มากที่สุด
เนื้อหาของการเรียนรู้มีความเหมาะสมกับระดับผู้เรียน	4.46	0.61	มาก
การเรียนรู้ผ่านการทำงานช่วยให้เกิดประสบการณ์ตรงและมีประโยชน์	4.52	0.58	มากที่สุด
สื่อการเรียนรู้และกิจกรรมที่ใช้มีความน่าสนใจ	4.42	0.60	มาก
ระยะเวลาในการเรียนรู้เหมาะสมกับเนื้อหา	4.42	0.59	มาก
การได้รับคำแนะนำจากผู้สอน/ผู้ให้คำปรึกษามีความชัดเจนและเป็นประโยชน์	4.32	0.65	มาก
สามารถนำความรู้ไปใช้ในสถานการณ์จริงได้	4.44	0.64	มาก
ด้านที่ 2: ประโยชน์ที่ได้รับ	**4.48**	**0.58**	**มากที่สุด**
การเรียนรู้แบบผ่านการทำงานช่วยเพิ่มทักษะอาชีพ	4.44	0.61	มาก
มีความรู้ความเข้าใจเพิ่มขึ้น	4.56	0.54	มากที่สุด
สามารถแก้ปัญหาการผลิตพืชได้จริง	4.42	0.60	มาก
การทำงานเป็นทีมมีประสิทธิภาพมากขึ้น	4.42	0.64	มาก
สามารถประยุกต์ใช้ทักษะที่เรียนรู้ไปสู่การทำงานจริงได้	4.56	0.50	มากที่สุด
สรุปรวมทั้ง 2 ด้าน	**4.46**	**0.60**	**มาก**

จากการวิจัยเรื่อง การพัฒนาผลสัมฤทธิ์ทางการเรียนการงานอาชีพ เรื่องปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืชด้วยวิธีการจัดการเรียนรู้ผ่านการทำงาน กลุ่มตัวอย่างคือ นักเรียนชั้นมัธยมศึกษาปีที่ 4 โรงเรียนพะตงวิทยามูลนิธิ จังหวัดสงขลา โดยมีวัตถุประสงค์เพื่อศึกษาระดับความพึงพอใจของผู้เรียนต่อกระบวนการจัดการเรียนรู้และประโยชน์ที่ได้รับจากการเรียนรู้ผ่านการทำงาน ผลการวิจัยพบว่า นักเรียนมีความพึงพอใจต่อการจัดการเรียนรู้ผ่านการทำงานในภาพรวมอยู่ในระดับมาก ($\bar{x}$ = 4.44, S.D. = 0.19) เมื่อพิจารณาเป็นรายด้าน พบว่า

1.ด้านเนื้อหา มีค่าเฉลี่ยอยู่ในระดับมาก ($\bar{x}$ = 4.41, S.D. = 0.25) โดยประเด็นที่ได้รับค่าคะแนนเฉลี่ยสูงสุด ได้แก่ นักเรียนมีความเข้าใจต่อเนื้อหาที่เรียนรู้ และเห็นว่าการเรียนรู้ผ่านการทำงานช่วยให้เกิดประสบการณ์ตรงและเป็นประโยชน์ต่อการเรียนรู้ ($\bar{x}$ = 4.52) รองลงมา ได้แก่ ความเหมาะสมของเนื้อหาต่อระดับผู้เรียน การนำความรู้ไปประยุกต์ใช้ในสถานการณ์จริง สื่อและกิจกรรมที่ใช้มีความน่าสนใจ รวมถึงการจัดสรรเวลาในการเรียนรู้ที่เหมาะสม

2. ด้านประโยชน์ที่ได้รับ มีค่าเฉลี่ยอยู่ในระดับมากเช่นกัน ($\bar{X}$ = 4.48, S.D. = 0.23) โดยนักเรียนมีความรู้และความเข้าใจเพิ่มขึ้นจากการเรียนรู้ ($\bar{X}$ = 4.56) และสามารถประยุกต์ใช้ทักษะที่ได้เรียนรู้ไปสู่การทำงานจริงได้ รวมถึงสามารถพัฒนาทักษะอาชีพ แก้ปัญหาการผลิตพืชได้จริง และส่งเสริมการทำงานเป็นทีมได้อย่างมีประสิทธิภาพ

โดยสรุป การจัดการเรียนรู้ผ่านการทำงานส่งผลในเชิงบวกต่อการพัฒนาผลสัมฤทธิ์ทางการเรียนรู้ด้านการงานอาชีพของนักเรียน ทั้งในด้านความรู้ ทักษะ และเจตคติ อันเอื้อต่อการนำไปใช้ในบริบทจริงได้อย่างมีประสิทธิภาพ

สรุปและอภิปรายผล

1. ผลการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างวิธีการจัดการเรียนรู้ผ่านการทำงาน และวิธีการจัดการเรียนรู้แบบปกติพบว่า นักเรียนที่เรียนผ่านวิธีการจัดการเรียนรู้ผ่านการทำงานมีผลสัมฤทธิ์ทางการเรียนสูงกว่านักเรียนที่เรียนผ่านวิธีการจัดการเรียนรู้แบบปกติ อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ซึ่งเป็นไปตามสมมุติฐานที่ตั้งไว้ แสดงให้เห็นว่า การจัดการเรียนรู้ผ่านการทำงานช่วยส่งเสริมให้นักเรียนมีความเข้าใจในเนื้อหาอย่างลึกซึ้งมากยิ่งขึ้น จากการได้ลงมือปฏิบัติจริงได้เรียนรู้จากประสบการณ์ตรง อันเป็นกระบวนการที่ช่วยกระตุ้นให้เกิดการคิดวิเคราะห์อย่างมีระบบ และสามารถนำความรู้ไปประยุกต์ใช้ได้จริงในสถานการณ์ต่าง ๆ โดยเฉพาะในรายวิชาที่จำเป็นต้องให้นักเรียนลงมือปฏิบัติด้วยตนเอง ทั้งนี้ผู้เรียนได้มีโอกาสฝึกฝนทักษะ ทั้งทางด้านวิชาการและด้านทักษะชีวิตควบคู่กันไป ซึ่งสอดคล้องกับแนวคิดของ Dewey (1938) ที่เน้นว่า การเรียนรู้ที่แท้จริงจะเกิดขึ้นจากประสบการณ์ (Experience) และสนับสนุนให้ผู้เรียนได้เรียนรู้ผ่านการมีส่วนร่วมในกิจกรรมที่สัมพันธ์กับชีวิตจริง นอกจากนี้ การเรียนรู้ผ่านการทำงานยังช่วยพัฒนาทักษะในศตวรรษที่ 21 ได้แก่ ทักษะการคิดวิเคราะห์ การแก้ปัญหา และการทำงานเป็นทีม (อดุลย์ วังศรีคูณ, 2557)

ผลการวิจัยยังสอดคล้องกับงานของ สาวิตรี ผิวงาม (2567) ที่นำแนวคิด Learning by Doing มาพัฒนาการเรียนรู้ด้านการเขียนโปรแกรม ซึ่งพบว่า ผู้เรียนมีผลสัมฤทธิ์ทางการเรียนและทักษะการแก้ปัญหาที่สูงขึ้นอย่างมีนัยสำคัญทางสถิติ เมื่อได้รับการจัดการเรียนรู้ผ่านการลงมือปฏิบัติจริงในสถานการณ์ที่หลากหลายและท้าทายทำให้ผู้เรียนเกิดการเรียนรู้เชิงลึก และเกิดความเข้าใจที่ยั่งยืนมากยิ่งขึ้น

2. ผลการศึกษาความพึงพอใจของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ที่เรียนผ่านวิธีการจัดการเรียนรู้ผ่านการทำงาน มีระดับความพึงพอใจโดยรวมอยู่ในระดับมาก ($\bar{X}$ = 4.44, S.D. = 0.61) เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านประโยชน์ที่ได้รับมีค่าคะแนนเฉลี่ยสูงสุด ($\bar{X}$ = 4.44, S.D. = 0.19) รองลงมาคือด้านเนื้อหา ($\bar{X}$ = 4.41, S.D. = 0.25) แสดงให้เห็นว่า การจัดกิจกรรมการเรียนรู้ที่เน้นการลงมือปฏิบัติสามารถตอบสนองความต้องการของผู้เรียนได้เป็นอย่างดี ช่วยให้ผู้เรียนเห็นคุณค่าของสิ่งที่เรียน มีแรงจูงใจในการเรียน และสามารถเชื่อมโยงความรู้กับชีวิตจริงได้อย่างมีประสิทธิภาพ

ผลการศึกษานี้สอดคล้องกับงานของ ณัฏฐพงษ์ ฉายแสงประทีป (2559) และ สุริยะ หาญพิชัย (2562) ที่พบว่า ผู้เรียนมีความพึงพอใจในระดับมากต่อการเรียนรู้ผ่านการทำงาน โดยเฉพาะด้านประโยชน์ที่ได้รับและเนื้อหา ซึ่งผู้เรียนรู้สึกว่าสามารถนำไปใช้ได้จริงในชีวิตประจำวัน อีกทั้งยังสอดคล้องกับแนวคิดของ Kolb (1984) ในทฤษฎีการเรียนรู้จากประสบการณ์ (Experiential Learning Theory) ที่กล่าวว่าการเรียนรู้จะเกิดขึ้นอย่างมีประสิทธิภาพ เมื่อผู้เรียนได้เผชิญกับประสบการณ์ตรง แล้วสะท้อนคิด วิเคราะห์ และนำไปทดลองปฏิบัติใหม่ ซึ่งวงจรการเรียนรู้แบบนี้จะนำไปสู่ความเข้าใจที่ลึกซึ้งและยั่งยืน

ดังนั้น การจัดการเรียนรู้ผ่านการทำงานจึงเป็นแนวทางที่มีประสิทธิภาพ ทั้งในด้านการพัฒนาผลสัมฤทธิ์ทางการเรียนและความพึงพอใจของผู้เรียน โดยเฉพาะในเนื้อหาที่ต้องอาศัยความเข้าใจในกระบวนการหรือธรรมชาติของสิ่งที่ศึกษา เช่น เรื่องปัจจัยที่มีอิทธิพลต่อการเจริญเติบโตของพืช ที่ต้องใช้การสังเกต ทดลอง และวิเคราะห์ข้อมูลจากประสบการณ์จริง จึงจะทำให้ผู้เรียนมีความเข้าใจเชิงลึกสามารถนำความรู้ไปใช้จริง วิธีการเรียนรู้ผ่านการทำงานยังเหมาะที่จะนำไปใช้ในกับเนื้อหาวิชาอื่นอีกด้วย ซึ่งทั้งหมดนี้ สอดคล้องกับแนวคิดของ Dewey (1938) ที่เน้นการเรียนรู้จากประสบการณ์ และการมีส่วนร่วมกับโลกจริง นักเรียนกลุ่มทดลองมีความกระตือรือร้นในการเรียนรู้มากขึ้น โดยเฉพาะเมื่อได้ทำงานร่วมกันเป็นกลุ่ม ซึ่งส่งเสริมการแลกเปลี่ยนความคิดเห็น นักเรียนบางกลุ่มพัฒนาทักษะการคิดวิเคราะห์อย่างเห็นได้ชัด แม้ผลสัมฤทธิ์จะไม่เพิ่มสูงมาก

ผลการวิจัยสะท้อนให้เห็นว่า การจัดการเรียนรู้ผ่านการทำงานเป็นแนวทางที่ส่งเสริมการเรียนรู้อย่างมีความหมาย โดยเฉพาะอย่างยิ่งในกลุ่มสาระการเรียนรู้การงานอาชีพ ซึ่งต้องอาศัยทั้งความรู้เชิงทฤษฎีและทักษะปฏิบัติ นักเรียนมีความพึงพอใจต่อการเรียนรู้ในระดับมาก โดยประเด็นที่มีค่าคะแนนเฉลี่ยสูงสุด คือ การมีความรู้ความเข้าใจเพิ่มขึ้นจากการเรียนรู้ ซึ่งสอดคล้องกับแนวคิดของการเรียนรู้ผ่านการปฏิบัติจริง (Experiential Learning) ที่ส่งเสริมให้ผู้เรียนสร้างองค์ความรู้จากประสบการณ์ตรง นอกจากนี้ การที่ผู้เรียนสามารถประยุกต์ใช้ทักษะที่ได้รับไปสู่สถานการณ์จริงได้ สะท้อนถึงความสามารถในการถ่ายโอนความรู้ (Transfer of Learning) ซึ่งเป็นเป้าหมายสำคัญของการเรียนรู้ในศตวรรษที่ 21 ทั้งนี้ ยังพบว่า การเรียนรู้ผ่านการทำงานช่วยเสริมสร้างทักษะด้านอื่น ๆ เช่น การทำงานเป็นทีม การคิดวิเคราะห์ และการแก้ปัญหา ซึ่งเป็นทักษะที่จำเป็นในบริบทอาชีพและชีวิตประจำวัน

ข้อเสนอแนะ

1.ข้อเสนอแนะในการนำผลการวิจัยไปใช้

1.1 ครูผู้สอนสามารถนำวิธีการจัดการเรียนรู้ผ่านการทำงานไปใช้พัฒนาผลสัมฤทธิ์ทางการเรียนวิชาการงานอาชีพนักเรียนชั้นมัธยมศึกษาปีที่ 4 ห้องอื่นที่โรงเรียนได้

1.2 ครูผู้สอนควรมีความเข้าใจพื้นฐานต่อนักเรียนรายบุคคล เพราะแต่ละคนมีพื้นฐานแตกต่างกัน ดังนั้นครูผู้สอนจึงควรเลือกเนื้อหาในรายวิชาการงานอาชีพที่มีความยากง่าย เหมาะสมกับระดับชั้นเรียนและศักยภาพของนักเรียน

2.ข้อเสนอแนะในการวิจัยครั้งต่อไป

2.1 ควรศึกษาเปรียบเทียบสมรรถนะการพัฒนาผลสัมฤทธิ์ของนักเรียน ระหว่างวิธีการจัดการเรียนรู้ผ่านการทำงานกับวิธีการสอนอื่น เช่น การเรียนรู้แบบใช้ปัญหาเป็นฐาน หรือการสอนแบบโครงงาน

2.2 ควรมีการศึกษาติดตามผลสัมฤทธิ์ทางการเรียนของนักเรียนในระยะยาว เช่น ความสามารถในการนำความรู้ไปใช้ในชีวิตจริง หรือการศึกษาต่อในระดับที่สูงขึ้น

2.3 ควรนำการพัฒนาผลสัมฤทธิ์ทางการเรียน โดยใช้วิธีการจัดการเรียนรู้ผ่านการทำงานไปใช้ศึกษาในรายวิชาอื่น

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2562). พระราชบัญญัติการศึกษาแห่งชาติ (ฉบับที่2) พ.ศ. 2542 และแก้ไขเพิ่มเติม (ฉบับที่ 4) พ.ศ. 2562. กรุงเทพฯ: โรงพิมพ์องค์การรับส่งสินค้าและพัสดุภัณฑ์.

ณัฏฐพงษ์ ฉายแสงประทีป. (2559). การศึกษาการเรียนรู้แบบลงมือปฏิบัติในรายวิชา TMT423 ระเบียบวิธีวิจัยสำหรับอุตสาหกรรมท่องเที่ยว. วารสารวิจัยและพัฒนา วไลยอลงกรณ์ ในพระบรมราชูปถัมภ์, 9(1), 45-58.

นวพร ชลารักษ์. (2558). บทบาทของครูกับการเรียนการสอนในศตวรรษที่ 21.วารสารวิชาการมหาวิทยาลัยฟาร์อีสเทอร์น. 9(1), 64-71.

ภัทรุท นามเมือง. (2557). การพัฒนาผลสัมฤทธิ์ทางการเรียนรู้วิชาระบบบัญชีเดี่ยวและสินค้าโดยจัดกิจกรรมการสอนแบบ Learning by Doing ด้วยหลัก 5 ค. วิทยาลัยเทคโนโลยีวานิชบริหารธุรกิจ, นนทบุรี.

โรงเรียนพะตงวิทยามูลนิธิ. (2566). รายงานประจำปีของสถานศึกษา. สงขลา เขต2, สงขลา.

ล้วน สายยศ และ อังคณา สายยศ. (2553). เทคนิคการวิจัยทางการศึกษา. กรุงเทพฯ: สุวีริยาสาส์น.

วิจารณ์ พานิช. (2555). วิถีสร้างการเรียนรู้เพื่อศิษย์ในศตวรรษที่ 21. กรุงเทพมหานคร: มูลนิธิสดศรีสฤษดิ์วงศ์.

สาวิตรี ผิวงาม. (2567). การพัฒนาผลสัมฤทธิ์ทางการเรียนทักษะการเขียนโปรแกรมพื้นฐานและทักษะการแก้ปัญหาโดยใช้รูปแบบ Learning by Doing ร่วมกับการเรียนรู้แบบโครงงานเป็นฐานของนักเรียนระดับชั้นมัธยมศึกษาปีที่ 5. วารสารมนุษยศาสตร์และสังคมศาสตร์เพื่อการพัฒนาอย่างยั่งยืน, 7(1), 32-46.

สุมาลี ชัยเจริญ. (2551). เทคโนโลยีการศึกษา: หลักการ ทฤษฎีสู่การปฏิบัติ. ขอนแก่น: โรงพิมพ์คลังนานาวิทยา.

สุริยะ หาญพิชัย. (2562). การพัฒนาผลสัมฤทธิ์ทางการเรียนในรายวิชาท้องถิ่นศึกษาโดยใช้การเรียนรู้แบบลงมือทำ. Lawarath Social E-Journal, 1(3), 51–64.

หทัยวรรณ เจียมกีรติกานนท์, กนก รุ่งกีรติกุล และ รุ่งฤดี เลียวกิตติกุล. (2561). การจำคำศัพท์ภาษาญี่ปุ่นโดยใช้สื่อการเรียนรู้แบบออนไลน์ผ่านกิจกรรมโครงงานตามแนวคิด “Learning by doing”. Journal of Arts and Thai Studies, 44(2), 131-150.

อดุลย์ วังศรีคูณ. (2557). การศึกษาไทยในศตวรรษที่ 21: ผลผลิตและแนวทางการพัฒนา. วารสารมนุษยศาสตร์และสังคมศาสตร์บัณฑิตวิทยาลัย มหาวิทยาลัยราชภัฏพิบูลสงคราม, 8(1), 1-17.

Brady, N. C., & Weil, R. R. (2010). Elements of the nature and properties of soils (3rd ed.). Pearson Prentice Hall.

Dewey, J. (1938). Experience and education. New York: Macmillan Company.

Hopkins, W. G., & Hüner, N. P. A. (2008). Introduction to plant physiology (4th ed.). John Wiley & Sons.

Kolb, D.A. (1984). Experiential learning: experience as the source of learning and development. Englewood Cliffs, NJ: Prentice Hall.

Marschner, P. (2012). Marschner's mineral nutrition of higher plants (3rd ed.).

Cambridge, Massachusetts: Academic Press.

Salisbury, F. B., & Ross, C. W. (1992). Plant physiology (4th ed.). San Francisco: Wadsworth Publishing Company.

Taiz, L., & Zeiger, E. (2010). Plant physiology (5th ed.). Massachusetts, United States: Sinauer Associates.

การพัฒนาผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ เรื่อง การแก้โจทย์ปัญหาการคูณ โดยใช้เทคนิค KWDL นักเรียนชั้นประถมศึกษาปีที่ 3 โรงเรียนชาตรีวิทยา จังหวัดสงขลา

Improving learning achievement in Mathematics Solving Multiplication Problems Using the KWDL Technique for Grade 3 primary school students Chatreewittaya School Songkhla Province

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ เรื่อง การแก้โจทย์ปัญหาการคูณ โดยการจัดการเรียนรู้ด้วยเทคนิค KWDL นักเรียนชั้นประถมศึกษาปีที่ 3 ระหว่างก่อนเรียนกับหลังเรียน และศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 3 ที่มีต่อการจัดการเรียนรู้ด้วยเทคนิค KWDL กลุ่มเป้าหมาย คือ นักเรียนชั้นประถมศึกษาปีที่ 3 โรงเรียนชาตรีวิทยา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 17 คน เครื่องมือที่ใช้การวิจัย ได้แก่ แผนการจัดการเรียนรู้ร่วมกับเทคนิค KWDL แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ และแบบสอบถามความพึงพอใจของนักเรียนที่มีต่อการเรียนคณิตศาสตร์ โดยใช้เทคนิค KWDL สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน ค่าร้อยละ และ Wilcoxon Signed Ranks Test

ผลการวิจัยพบว่า 1) ผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 และ 2) ความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้ด้วยเทคนิค KWDL อยู่ในระดับมาก

คำสำคัญ: ผลสัมฤทธิ์ทางการเรียน, เทคนิค KWDL, โจทย์ปัญหาการคูณ

Abstract

This research aimed to compare the academic achievement in mathematics on solving multiplication problems by using the KWDL learning technique of Grade 3 primary school students before and after learning. and study the satisfaction of Grade 3 primary school students towards learning management with KWDL technique. The target group is Grade 3 primary school students of Chatriwitthaya School, 2, semester, academic year 2024, 17 people. The research instruments used were the learning management plan with KWDL

technique, the mathematics achievement test, and the questionnaire on students' satisfaction with learning mathematics using KWDL technique. Statistics used for data analysis included mean, standard deviation, percentage, and Wilcoxon Signed Ranks Test.

Research results: 1) The academic achievement after learning was significantly higher than before learning at a statistical level of .01 and 2) The students' satisfaction with the learning management using the KWDL technique was at the highest level.

Keywords: Academic achievement, KWDL Technique, Multiplication Problems

บทนำ

คณิตศาสตร์เป็นวิชาที่มีบทบาทสำคัญในชีวิตประจำวันและการพัฒนาศักยภาพทางปัญญาของมนุษย์ตั้งแต่ระดับพื้นฐานไปจนถึงระดับสูง วิชานี้ไม่เพียงแต่ช่วยให้ผู้เรียนมีความสามารถในการคำนวณตัวเลข แต่ยังส่งเสริมการคิดอย่างมีเหตุผล การแก้ปัญหา และการตัดสินใจอย่างมีหลักการ การจัดการเรียนรู้วิชาคณิตศาสตร์ของประเทศไทยยังประสบปัญหาและไม่บรรลุตามวัตถุประสงค์ที่ต้องการ จากรายงานการประเมินระดับชาติ สะท้อนว่านักเรียนไทยยังขาดความรู้ความเข้าใจเชิงลึกในมโนทัศน์ ไม่สามารถเชื่อมโยงความรู้ไปใช้ในชีวิตประจำวันได้ และพบว่านักเรียนไทยขาดทักษะการคิด ไม่ว่าจะเป็นการคิดวิเคราะห์ การคิดอย่างมีวิจารณญาณ การคิดสร้างสรรค์ และการคิดแก้ปัญหา เมื่อพิจารณาถึงสาเหตุพบว่านักเรียนไม่สามารถคิดวิเคราะห์โจทย์ปัญหาได้ เมื่อพบโจทย์ปัญหาไม่สามารถทำความเข้าใจโจทย์ปัญหา และไม่สามารถวิเคราะห์โจทย์ปัญหาได้ ไม่สามารถสรุปความจากการอ่านโจทย์ปัญหาได้ขาดทักษะการคิดที่เป็นระบบ การแก้โจทย์ปัญหาปัจจุบันพบว่า ผู้เรียนไม่สามารถแก้โจทย์ปัญหาได้ คือ ผู้เรียนไม่รู้จักวิธีคิด ไม่ทราบว่าจะเริ่มต้นแก้โจทย์ปัญหานั้นอย่างไร อ่านโจทย์แล้วไม่เข้าใจว่าจะดำเนินการแก้โจทย์ปัญหาอย่างไร ทำให้ผู้เรียนไม่สามารถแก้โจทย์ปัญหาได้ ในการแก้โจทย์ปัญหานั้นผู้เรียนขาดความสามารถในการวิเคราะห์โจทย์ปัญหาซึ่งเป็นเรื่องยากสำหรับนักเรียน นักเรียนไม่สามารถแก้โจทย์ปัญหาได้ เนื้อหาที่เป็นปัญหาต่อนักเรียนในสาระการเรียนรู้คณิตศาสตร์มากที่สุด คือ การแก้โจทย์ปัญหา การที่ครูผู้สอนจะแก้ปัญหาให้กับผู้เรียนครูจะต้องตระหนักให้ได้ว่าคณิตศาสตร์เป็นวิชาทักษะที่เน้นให้นักเรียนได้คิดคำนวณบ่อย ๆ การเรียนรู้จะต้องเริ่มจากง่ายไปยากพื้นฐานทางคณิตศาสตร์จะต้องดีจึงจะเรียนได้ดี พบว่านักเรียนไม่สามารถทำความเข้าใจโจทย์ไม่สามารถวิเคราะห์โจทย์ปัญหาได้ ขาดทักษะการคิดคำนวณอย่างเป็นระบบ

จากผลการทดสอบระดับชาติ (National Test: NT) ปี 2567 พบว่า ผลสัมฤทธิ์ทางการเรียนของนักเรียนระดับชั้นประถมศึกษาปีที่ 3 โรงเรียนชาตรีวิทยา ในด้านการแก้โจทย์ปัญหาทางคณิตศาสตร์ยังคงมีแนวโน้มต่ำกว่ามาตรฐานที่กำหนด ซึ่งสะท้อนให้เห็นถึงความท้าทายในการพัฒนาทักษะด้านการคำนวณและการคิดวิเคราะห์ของนักเรียน เทคนิค KWDL เป็นหนึ่งในแนวทางที่สามารถนำมาประยุกต์ใช้เพื่อเสริมสร้างความเข้าใจและพัฒนาความสามารถในการแก้โจทย์ปัญหาการคูณ โดยเน้นการจัดกระบวนการเรียนรู้ที่ช่วยให้ผู้เรียนสามารถวิเคราะห์และแก้ไขปัญหาได้อย่างเป็นระบบ งานวิจัยนี้มุ่งเน้นไปที่การศึกษาผลกระทบของเทคนิค KWDL ต่อผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 3 เพื่อหาข้อสรุปและแนวทางการพัฒนากระบวนการเรียนการสอนที่มีประสิทธิภาพมากขึ้น (โรงเรียนชาตรีวิทยา, 2567)

จากปัญหาที่พบดังกล่าว จึงต้องหาวิธีการหรือรูปแบบที่เหมาะสมมาจัดการเรียนรู้ การจัดการเรียนรู้ด้วยเทคนิค KWDL โอเกิล (Ogle 1986 , อ้างถึงใน วัชรา เล่าเรียนดี, 2554) ได้เสนอเทคนิคดังกล่าวในการสอนที่ต้องอาศัยทักษะการอ่านเป็นพื้นฐาน นั่นคือ นักเรียนต้องมีความสามารถในการอ่านก่อนจึงจะสามารถพัฒนาทักษะการอ่านให้มีคุณภาพมากขึ้น การดำเนินการตามลำดับขั้นตอน KWDL จะช่วยชี้นำการคิดแนวทางในการอ่านและหาคำตอบของคำถามสำคัญต่าง ๆ ยังสามารถนำมาใช้ในการเรียนรู้ความต้องการเข้าใจของนักเรียน และนำมาใช้ในการสอนคณิตศาสตร์ในระยะต่อมา เนื่องจากการคิดคำตอบโจทย์ปัญหานั้นนักเรียนจะต้องอ่านโจทย์ให้เข้าใจและวิเคราะห์โจทย์ก่อนจึงจะสามารถคิดคำนวณ 4 ได้ เทคนิค KWDL ช่วยให้นักเรียนสามารถนำไปประยุกต์ใช้ในสถานการณ์ต่าง ๆ ในชีวิตประจำวันได้

การจัดการเรียนรู้ด้วยเทคนิค KWDL มีรายละเอียดที่สำคัญ 4 ขั้น คือ ขั้นที่ 1 ขั้น K : เรารู้อะไร (What we know) หรือโจทย์บอกอะไรเราบ้าง ขั้นที่ 2 ขั้น W : เราต้องการรู้,ต้องการทราบอะไร (What we want to know) โจทย์ให้อะไรหรือโจทย์บอกอะไรบ้าง ขั้นที่ 3 ขั้น D : เราทำอะไร (What we do และหาคำตอบ) หรือเรามีวิธีการอย่างไรบ้าง หรือมีวิธีดำเนินการเพื่อหาคำตอบอย่างไร ขั้นที่ 4 ขั้น L: เราเรียนรู้อะไรจาก (การดำเนินการในขั้นที่3) (What we learned) ซึ่งคือคำตอบ สาระความรู้และวิธีศึกษาคำตอบ ขั้นตอนในการคำนวณ

ชวลิต ด้วงเหมือน (2561) กล่าวว่าครูผู้สอนจำเป็นต้องเปลี่ยนเทคนิคการจัดการเรียนรู้ โดยการจัดกิจกรรมการเรียนรู้เพื่อแก้ปัญหาการเรียนรู้วิชาคณิตศาสตร์ต้องอาศัยความสามารถในการอ่านและ คิดวิเคราะห์ของนักเรียนเป็นหลัก ซึ่งวิธีการจัดการเรียนรู้ด้วยเทคนิค KWDL เป็นวิธีที่ช่วยให้นักเรียนฝึกคิดวิเคราะห์โจทย์ปัญหาอย่างเป็นขั้นตอน ส่งผลให้นักเรียนทำความเข้าใจโจทย์ได้อย่างชัดเจน หาวิธีการแก้ปัญหาได้หลากหลาย และสามารถมองเห็นความสัมพันธ์ของโจทย์แต่ละข้อได้อย่างมีประสิทธิภาพ สอดคล้องกับงานวิจัยของ สุกัญญา บุญน้อย (2561) ซึ่งศึกษาการเปรียบเทียบผลการเรียนแบบร่วมมือเทคนิค KWDL กับการจัดการเรียนรู้ตามแนว สสวท. ในกลุ่มนักเรียนชั้นประถมศึกษาปีที่ 2 และพบว่า เทคนิค KWDL ส่งผลให้ผลสัมฤทธิ์ทางการเรียนของนักเรียนสูงกว่าการเรียนรู้ตามแนว สสวท. อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 และนักเรียนยังมีความพึงพอใจในระดับมากที่สุดต่อการเรียนรู้ด้วยเทคนิคดังกล่าว

ผู้วิจัยจึงมีแนวคิดที่จะนำเทคนิค KWDL มาใช้ในการจัดการเรียนรู้ เพื่อพัฒนาผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ เรื่อง การแก้โจทย์ปัญหาการคูณ ของนักเรียนชั้นประถมศึกษาปีที่ 3 ให้นักเรียนมีผลสัมฤทธิ์ทางการเรียนที่สูงขึ้น และเป็นการวางรากฐานความรู้ให้กับผู้เรียนในการเรียนในระดับชั้นที่สูงขึ้นไป

วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียน วิชาคณิตศาสตร์ เรื่อง การแก้โจทย์ปัญหาการคูณ โดยใช้เทคนิค KWDL ระหว่างก่อนเรียนกับหลังเรียน
2. เพื่อศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 3 ที่มีต่อการจัดการเรียนรู้โดยใช้เทคนิค KWDL

สมมติฐานการวิจัย

นักเรียนชั้นประถมศึกษาปีที่ 3 ที่เรียนโดยการจัดการเรียนรู้โดยเทคนิค KWDL มีผลสัมฤทธิ์ทางการเรียน วิชาคณิตศาสตร์ เรื่อง การแก้โจทย์ปัญหาการ หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

แนวคิด ทฤษฎี กรอบแนวคิด

ผู้วิจัยได้ศึกษาเอกสารและงานวิจัยที่เกี่ยวข้องดังนี้

ความหมายของการจัดการเรียนรู้ด้วยเทคนิค KWDL

วัชรา เล่าเรียนดี (2554) ได้สรุปการจัดการเรียนรู้ด้วยเทคนิค KWDL ที่มีการพัฒนามาจากเทคนิค KWDL ของ Ogle ที่ต้องอาศัยทักษะการอ่านพื้นฐาน หมายถึง การเรียนรู้แบบที่จะช่วยชี้นำการคิดแนวทางในการอ่านและหาคำตอบของคำถามสำคัญต่าง ๆ จากเรื่องนั้นและยังสามารถนำมาใช้ในการเรียนรู้ และเร้าความสนใจเป็นอย่างดีซึ่งมี 4 ขั้นตอน ซึ่งเทคนิค KWDL มาจากคำถามที่ว่า

1. K (What we Know) เรารู้อะไร
2. W (What we Want to know) เราต้องการรู้ ต้องการทราบอะไร
3. D (What we Do) เราทำอย่างไรหรือเรามีวิธีการอย่างไรบ้าง
4. L (What we Learned) เราเรียนรู้อะไรบ้าง

ชอว์ (Shaw 1997 , อ้างถึงใน รุจิอร รักใหม่, 2557) อาจารย์ประจำมหาวิทยาลัยมิสซิสซิปปี้ ประเทศสหรัฐอเมริกา ได้นำเทคนิค KWDL มาใช้จัดการเรียนรู้ในกลุ่มสาระการเรียนรู้คณิตศาสตร์ โดยมีขั้นตอนการจัดการเรียนรู้ 4 ขั้นตอน ดังนี้

ขั้นตอนที่ 1 แบ่งกลุ่มนักเรียนช่วยกันหาสิ่งที่รู้เกี่ยวกับโจทย์ สิ่งที่โจทย์กำหนดให้และสิ่งที่โจทย์ต้องการทราบ โดยใช้บัตรกิจกรรมเทคนิค KWDL

ขั้นตอนที่ 2 นักเรียนในกลุ่มร่วมกันอภิปราย เพื่อหาสิ่งที่ต้องการรู้เพิ่มเติมเกี่ยวกับโจทย์ หาความสัมพันธ์ของโจทย์ และกำหนดวิธีการในการแก้ปัญหา

ขั้นตอนที่ 3 นักเรียนช่วยกันดำเนินการเพื่อแก้โจทย์ปัญหาโดยเขียนโจทย์ปัญหาให้อยู่ในรูปของประโยคสัญลักษณ์ หาคำตอบ และตรวจสอบคำตอบ

ขั้นตอนที่ 4 ให้นักเรียนแต่ละกลุ่มสรุปเป็นความรู้ที่ได้รับจากการแก้โจทย์ปัญหาโดยให้ตัวแทนกลุ่มออกมานำเสนอความคิดในการแก้โจทย์ปัญหา และสรุปเป็นความรู้ที่ได้จากการเรียนการจัดการเรียนรู้ด้วยเทคนิค KWDL

ชอว์ (Shaw 1987 , อ้างถึงใน ชญาณิศา เป็งจันทร์, 2563) ได้กล่าวว่า เทคนิค KWDL หมายถึง การจัดการเรียนรู้ที่ประกอบไปด้วย 4 ขั้นตอน คือ

1. K (What we Know) เรารู้อะไร
2. W (What we Want to know) เราต้องการรู้ ต้องการทราบอะไร
3. D (What we Do) เราทำ อะไรไปบ้างแล้ว
4. L (What we Learned) เราเรียนรู้อะไรบ้าง

จากที่กล่าวมาข้างต้นสรุปได้ว่า การจัดการเรียนรู้ด้วยเทคนิค KWDL เป็นกระบวนการเรียนรู้ที่เน้นให้ผู้เรียนมีทักษะกระบวนการด้านต่าง ๆ พัฒนาทักษะการอ่าน เน้นกระบวนการวิเคราะห์ เพื่อพัฒนาการคิดให้เป็นลำดับขั้นตอนโดยผู้เรียนจะได้รับการฝึกให้ตระหนักในกระบวนการทำความเข้าใจตนเอง ซึ่งการกำหนดขั้นตอนของเทคนิค KWDL จะมีคำถามนำเพื่อให้คิดหาข้อมูลของคำตอบตามที่ต้องการในแต่ละขั้นจะช่วยส่งเสริมการอ่านมากขึ้น โดยเฉพาะการอ่านเชิงวิเคราะห์ การนำกระบวนการหรือเทคนิค KWDL ไปใช้ในการจัดการเรียนรู้วิชาคณิตศาสตร์เป็นวิธีที่เหมาะสมอีกวิธีหนึ่งขั้นตอนของการจัดการเรียนรู้ด้วยเทคนิค KWDL

ฐิติรัตน์ ฤทธิ์สมบูรณ์ (2549) ที่กล่าวว่า การใช้เทคนิค KWDL ทำให้นักเรียนได้ฝึกการคิดที่เป็นลำดับขั้นตอนทั้งนี้เนื่องมาจากการนำเทคนิค KWDL มาใช้ปฏิบัติในขณะดำเนินการจัดการเรียนรู้และการปฏิบัติงานกลุ่มของนักเรียน มีขั้นตอนในการแก้ปัญหาที่ชัดเจนทำให้นักเรียนรู้จักคิดวิเคราะห์อย่างเป็นระบบ เป็น

ขั้นตอน ทำให้เข้าใจปัญหาได้อย่างชัดเจนจึงสามารถวางแผนแก้ปัญหาได้อย่างถูกต้องเหมาะสม และนักเรียนสามารถอธิบายขั้นตอนการแก้ปัญหาได้อย่างถูกต้องชัดเจน ทำให้การเรียนวิชาคณิตศาสตร์น่าสนใจและไม่น่าเบื่อ

สรุปได้ว่า การจัดการเรียนรู้โดยใช้เทคนิค KWDL เป็นเทคนิคการจัดการเรียนรู้ที่เน้นผู้เรียนได้ฝึกคิดวิเคราะห์ โจทย์ปัญหาคณิตศาสตร์ได้อย่างหลากหลายตามขั้นตอนที่กำหนด และสามารถหาวิธีแก้ปัญหาที่ดีที่สุดพร้อมให้เหตุผลประกอบได้อย่างชัดเจน รวมทั้งผู้เรียนสามารถทำงานร่วมกับผู้อื่นได้อย่างมีประสิทธิภาพ ในการวิจัยครั้งนี้ผู้วิจัยได้ใช้เทคนิค KWDL ช่วยให้นักเรียนสามารถดำเนินการวิเคราะห์โจทย์ปัญหาแก้โจทย์ปัญหาคณิตศาสตร์ได้ เนื่องจากมีการดำเนินการเป็นลำดับขั้นที่ชัดเจน

ประโยชน์ของการจัดการเรียนรู้ด้วยเทคนิค KWDL

นักการศึกษาหลายท่านได้กล่าวถึงประโยชน์ของการจัดการเรียนรู้ด้วยเทคนิค KWDL ดังนี้

เพ็ญนิตย์ เมตตา (2553) ได้สรุปไว้ว่าเทคนิค KWDL มีความสำคัญและประโยชน์ นอกจากช่วยให้ผู้เรียนมีความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์ได้แล้วยังช่วยส่งเสริมให้ผู้เรียนมีความสามารถในการอ่าน มีทักษะกระบวนการทางคณิตศาสตร์ความสามารถในการคิดเชิงวิเคราะห์และสังเคราะห์ และถ้าจัดให้ผู้เรียนฝึกการทำงานร่วมกันเป็นกลุ่มก็จะช่วยพัฒนาทักษะการอยู่ร่วมกันทางสังคม

วัชรา เล่าเรียนดี (2554) ได้สรุปการจัดการเรียนรู้โดยใช้เทคนิค KWDL เป็นการจัดการเรียนรู้ที่ช่วยส่งเสริมการอ่านเชิงวิเคราะห์ให้กับผู้เรียนว่า การจัดการเรียนรู้โดยใช้เทคนิค KWDL มีความสำคัญและประโยชน์ นอกจากช่วยให้ผู้เรียนมีความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์ได้ แล้วยังช่วยส่งเสริมให้ผู้เรียนมีความสามารถในการอ่าน มีทักษะกระบวนการทางคณิตศาสตร์ความสามารถในการคิดเชิงวิเคราะห์และสังเคราะห์

จากที่กล่าวมาข้างต้นสรุปได้ว่า เทคนิค KWDL มีความสำคัญและประโยชน์ที่ช่วยให้ผู้เรียนมีความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์ และส่งเสริมให้ผู้เรียนมีความสามารถในการอ่าน การคิดเชิงวิเคราะห์และสังเคราะห์ และถ้าจัดให้ผู้เรียนได้ฝึกการทำงานร่วมกันเป็นกลุ่มก็จะช่วยพัฒนาทักษะการอยู่ร่วมกันทางสังคมได้ดีขึ้นอีกด้วย

งานวิจัยที่เกี่ยวข้อง

ชวลิต ด้วงเหมือน (2561) กล่าวไว้ว่า ทักษะการแก้โจทย์ปัญหาคณิตศาสตร์ หมายถึง ความสามารถในการทำความเข้าใจโจทย์ปัญหาในการแก้โจทย์ปัญหา โดยใช้กระบวนการทางคณิตศาสตร์ในการแก้โจทย์ปัญหาลักษณะต่าง ๆ รวมถึงการวางแผนหาคำตอบ เพื่อให้ได้มาซึ่งคำตอบที่ถูกต้อง

โสภาวดี ทาประเสริฐ (2561) ได้ศึกษาผลการพัฒนาทักษะการแก้โจทย์ปัญหาทางคณิตศาสตร์โดยใช้กระบวนการแก้ปัญหาด้วยเทคนิค KWDL ของนักเรียนชั้นประถมศึกษาปีที่ 2 ผลการวิจัยพบว่า ผลสัมฤทธิ์ทางการเรียนของนักเรียนที่ได้รับการจัดการเรียนรู้ด้วยเทคนิค KWDL มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียนร้อยละ 60 ทักษะการแก้ปัญหาทางคณิตศาสตร์โดยการใช้กระบวนการแก้ปัญหาด้วยเทคนิค KWDL อยู่ในระดับต่ำกว่าร้อยละ 60 นักเรียนมีความพึงพอใจต่อการเรียนในระดับพึงพอใจมาก

ปรียา สิถิระบุตร (2562) ได้ศึกษาการพัฒนาทักษะการแก้โจทย์ปัญหาเรื่องการคูณ การหาร สำหรับนักเรียนชั้นประถมศึกษาปีที่ 3 ด้วยการจัดการเรียนรู้โดยใช้เทคนิค KWDL ร่วมกับการวาดรูปบาร์ ผลการวิจัยพบว่า 1) การเปรียบเทียบทักษะการแก้โจทย์ปัญหา เรื่องการคูณ การหาร ของนักเรียนชั้นประถมศึกษาปีที่ 3 ที่เรียนรู้ตามขั้นตอนการจัดการเรียนรู้โดยใช้เทคนิค KWDL ร่วมกับการวาดรูปบาร์หลังเรียนสูงกว่าก่อนเรียน โดยมีคะแนนเฉลี่ยก่อนเรียนและหลังเรียนเท่ากับ 9.02 และ 21.94 ตามลำดับ และมีผลการพัฒนาเป็น 12.92

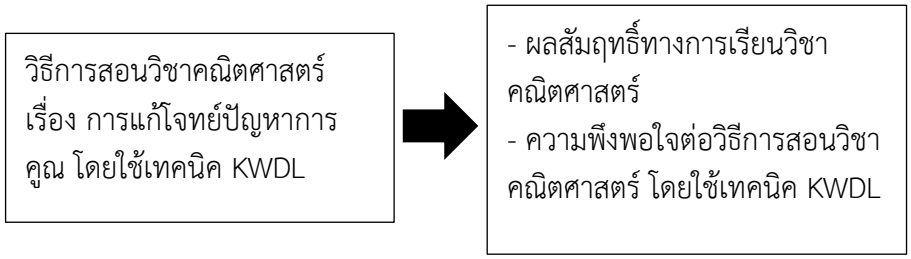
คิดเป็นร้อยละ 40.97 2) ประสิทธิภาพของแผนการจัดการเรียนรู้เพื่อพัฒนาทักษะการแก้โจทย์ปัญหา เรื่อง การคูณ การหาร สำหรับนักเรียนชั้นประถมศึกษาปีที่ 3 โดยใช้เทคนิค KWDL ร่วมกับการวาดรูปบาร์ เท่ากับ 76.40/78.12 ซึ่งสูงกว่าเกณฑ์ที่กำหนดไว้คือ 75/75

ชญาณิศา เป็งจันทร์ (2563) ศึกษาเทคนิค KWDL เพื่อพัฒนาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ในนักเรียนชั้นประถมศึกษาปีที่ 6 โดยพบว่าแผนการเรียนรู้มีประสิทธิภาพสูงกว่าเกณฑ์อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 ผลสัมฤทธิ์หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และนักเรียนมีความพึงพอใจต่อการเรียนในระดับสูงอย่างมีนัยสำคัญทางสถิติที่ระดับ .01 สรุปได้ว่าเทคนิค KWDL ช่วยพัฒนาความสามารถในการแก้โจทย์ปัญหาและสร้างเจตคติที่ดีต่อวิชาคณิตศาสตร์

จุฑาวัช ศรีพันลา (2563) ได้ศึกษาค้นคว้าการศึกษาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ เรื่อง การบวกและการลบ ชั้นประถมศึกษาปีที่ 3 โดยใช้การจัดการเรียนรู้เทคนิค KWDL กับการเรียนรู้แบบปกติ ผลการวิจัยพบว่า 1) ประสิทธิภาพการจัดการเรียนรู้โดยใช้เทคนิค KWDL เรื่องการบวก และการลบชั้นประถมศึกษาปีที่ 3 เท่ากับ 78.38/77.61 ซึ่งเป็นไปตามเกณฑ์ที่กำหนดไว้ 2) ค่าศึกษาดัชนีประสิทธิผลการเรียนรู้ของนักเรียนชั้นประถมศึกษาปีที่ 3 ที่เรียนโดยใช้การจัดการเรียนรู้เทคนิค KWDL เท่ากับ 0.6746 หรือคิดเป็นร้อยละ 67.46

กรอบแนวคิด

การพัฒนาผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ เรื่อง การแก้โจทย์ปัญหาการคูณ โดยใช้เทคนิค KWDL นักเรียนชั้นประถมศึกษาปีที่ 3 โดยมีกรอบแนวคิดดังภาพที่ 1



ภาพที่ 1 กรอบแนวคิดงานวิจัย

วิธีดำเนินการวิจัย

รูปแบบการวิจัยการวิจัยครั้งนี้

การวิจัยครั้งนี้เป็นการวิจัยเชิงทดลอง (Experimental Research) แบบมีกลุ่มเป้าหมาย 1 กลุ่ม และมีการทดสอบก่อนและหลังทดลอง (One group pretest - posttest design)

กลุ่มเป้าหมาย

กลุ่มเป้าหมายการวิจัย นักเรียนระดับชั้นประถมศึกษาปีที่ 3 โรงเรียนชาตรีวิทยา ตำบลหาดใหญ่ อำเภอหาดใหญ่ จังหวัดสงขลา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 1 ห้อง จำนวน 17 คน

เครื่องมือที่ใช้ในการวิจัย

1. แผนการจัดการเรียนรู้โดยใช้เทคนิค KWDL เรื่อง การแก้โจทย์ปัญหาการคูณของนักเรียนชั้นประถมศึกษาปีที่ 3 จำนวน 8 แผน ระยะเวลา 8 ชั่วโมง โดยไม่รวมเวลาที่ใช้ในการทำแบบทดสอบ โดยผู้วิจัยได้ศึกษา และวิเคราะห์เนื้อหา เรื่อง การคูณ กลุ่มสาระการเรียนรู้คณิตศาสตร์ ชั้นประถมศึกษาปีที่ 3 ตาม

หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 (ฉบับปรับปรุง 2560) คู่มือครูกลุ่มสาระการเรียนรู้คณิตศาสตร์ ชั้นประถมศึกษาปีที่ 3 และทฤษฎี หลักการ รูปแบบการสอน และเทคนิค KWDL เพื่อกำหนดจุดประสงค์การเรียนรู้ เนื้อหาสาระ กิจกรรมการเรียนรู้ สื่อการเรียนการสอน และการวัดผลและประเมินผลให้สอดคล้องและเหมาะสมกับนักเรียน โดยมีองค์ประกอบตามที่ สมาน เอกพิมพ์ (2560) สรุปไว้ดังนี้

1. กลุ่มสาระการเรียนรู้ หน่วยที่สอน
2. สาระสำคัญ
3. ตัวชี้วัด
4. จุดประสงค์การเรียนรู้
5. สาระการเรียนรู้
6. กิจกรรมการเรียนรู้
7. สื่อการเรียนรู้
8. การวัดและประเมินผลการเรียนรู้
9. บันทึกหลังการสอน

2. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาการคูณ แบบปรนัย 4 ตัวเลือก จำนวน 20 ข้อ โดยผู้วิจัยได้ศึกษาเนื้อหา ตัวชี้วัด และสาระการเรียนรู้ระดับชั้นประถม ศึกษาปีที่ 3 จากหลักสูตรสถานศึกษาโรงเรียนชาตรีวิทยา ให้สอดคล้องกับวัตถุประสงค์ตามมาตรฐานและตัวชี้วัดที่กำหนดไว้

3. แบบสอบถามความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 3 ที่มีต่อการเรียนโดยใช้เทคนิค KWDL เรื่อง การแก้โจทย์ปัญหาการคูณ โดยผู้วิจัยได้ศึกษา วิเคราะห์ เอกสาร แนวคิด ทฤษฎี และวิธีสร้างแบบสอบถามเพื่อวัดความพึงพอใจ เพื่อกำหนดกรอบแนวคิดในการสร้างแบบสอบถามความพึงพอใจเป็นแบบมาตราส่วนประมาณค่า (Rating Scale) 5 ระดับ สร้างแบบสอบถามความพึงพอใจของนักเรียน ชนิดมาตรส่วนประมาณค่า (RaingScale) 5 ระดับ (บุญชม ศรีสะอาด, 2554) โดยมีเกณฑ์การให้คะแนนและเกณฑ์การแปลความหมาย ดังนี้

เกณฑ์การให้คะแนน

มีความพึงพอใจมากที่สุด	กำหนดให้ 5 คะแนน
มีความพึงพอใจมาก	กำหนดให้ 4 คะแนน
มีความพึงพอใจปานกลาง	กำหนดให้ 3 คะแนน
มีความพึงพอใจน้อย	กำหนดให้ 2 คะแนน
มีความพึงพอใจน้อยที่สุด	กำหนดให้ 1 คะแนน

เกณฑ์การแปลความหมาย

ค่าเฉลี่ย 4.51 - 5.00	หมายถึง	มีความพึงพอใจอยู่ในระดับมากที่สุด
ค่าเฉลี่ย 3.51 - 4.50	หมายถึง	มีความพึงพอใจอยู่ในระดับมาก
ค่าเฉลี่ย 2.51 - 3.50	หมายถึง	มีความพึงพอใจอยู่ในระดับปานกลาง
ค่าเฉลี่ย 1.51 - 2.50	หมายถึง	มีความพึงพอใจอยู่ในระดับน้อย
ค่าเฉลี่ย 1.00 - 1.50	หมายถึง	มีความพึงพอใจอยู่ในระดับน้อยที่สุด

ผลการหาคุณภาพ

1. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาหารคูณ โดยใช้เทคนิค KWDL ผ่านการตรวจสอบจากผู้เชี่ยวชาญ จำนวน 3 คน มีค่า IOC 0.67 – 1.00 และค่าความเชื่อมั่น เท่ากับ 0.76 แบบสอบถามความพึงพอใจที่มีต่อวิธีการจัดการเรียนรู้ผ่านการทำงาน ผ่านการตรวจสอบ จากผู้เชี่ยวชาญ จำนวน 3 คน มีค่า IOC 0.67 – 1.00 และค่าความเชื่อมั่น เท่ากับ 0.76

การเก็บรวบรวมข้อมูล

1. อธิบายนักเรียนที่เป็นกลุ่มเป้าหมายให้มีความรู้ความเข้าใจเกี่ยวกับการจัดการเรียนรู้ด้วยเทคนิค KWDL เรื่องการแก้โจทย์ปัญหาการคูณ
2. ทำการทดสอบก่อนเรียน (Pre-Test) กับนักเรียนด้วยแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน
3. ดำเนินการจัดกิจกรรมการเรียนรู้ด้วยเทคนิค KWDL เรื่องการแก้โจทย์ปัญหาการคูณ จำนวน 8 คาบ
4. ทำการทดสอบหลังเรียน (Post-Test) กับนักเรียนกลุ่มเป้าหมาย คือ นักเรียนชั้นประถมศึกษาปีที่ 3 โรงเรียนชาตรีวิทยา ตำบลหาดใหญ่ อำเภอหาดใหญ่ จังหวัดสงขลา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 17 คน ด้วยแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน
5. สอบถามความพึงพอใจ โดยให้นักเรียนทำแบบสอบถามความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 3 ที่มีต่อการจัดการเรียนรู้ด้วยเทคนิค KWDL เรื่อง การแก้โจทย์ปัญหาการคูณ
6. ตรวจแบบทดสอบผลสัมฤทธิ์ทางการเรียนและแบบทดสอบระหว่างเรียน และนำผลที่ได้มาวิเคราะห์ข้อมูลทางสถิติเพื่อทดสอบสมมติฐาน

การวิเคราะห์ข้อมูล

สถิติที่ใช้ในการวิเคราะห์ข้อมูล

1. ค่าเฉลี่ย และค่าส่วนเบี่ยงเบนมาตรฐาน นำข้อมูลจากแบบสอบถามไปวิเคราะห์ผ่านโปรแกรมสำเร็จรูป เพื่อคำนวณหาค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน และแปลความหมายของค่าเฉลี่ยความพึงพอใจ โดยใช้เกณฑ์ ดังนี้

ค่าเฉลี่ย 4.51 – 5.00	หมายถึง	มีความพึงพอใจระดับมากที่สุด
ค่าเฉลี่ย 3.51 – 4.50	หมายถึง	มีความพึงพอใจระดับมาก
ค่าเฉลี่ย 2.51 – 3.50	หมายถึง	มีความพึงพอใจระดับปานกลาง
ค่าเฉลี่ย 1.51 – 2.50	หมายถึง	มีความพึงพอใจระดับน้อย
ค่าเฉลี่ย 1.00 – 1.50	หมายถึง	มีความพึงพอใจระดับน้อยที่สุด

2. การเปรียบเทียบค่าเฉลี่ย 2 กลุ่มสัมพันธ์ โดยใช้สถิติ Wilcoxon Signed Ranks Test

ผลการวิจัย

การวิจัยเรื่อง การพัฒนาผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ เรื่อง การแก้โจทย์ปัญหาการคูณ โดยใช้เทคนิค KWDL นักเรียนชั้นประถมศึกษาปีที่ 3 ผู้วิจัยได้นำเสนอผลการวิจัยออกเป็น 2 ตอน ตามวัตถุประสงค์ของการวิจัยดังนี้

ตอนที่ 1 เพื่อเปรียบเทียบผลสัมฤทธิ์ก่อนเรียนกับหลังเรียนวิชาคณิตศาสตร์ เรื่อง โจทย์ปัญหาการคูณ โดยใช้เทคนิค KWDL นักเรียนชั้นประถมศึกษาปีที่ 3

ตารางที่ 1 แสดงการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างก่อนกับหลังเรียน วิชาคณิตศาสตร์ เรื่อง การแก้โจทย์ปัญหาการคูณ นักเรียนชั้นประถมศึกษาปีที่ 3

ผลสัมฤทธิ์ทางการเรียน วิชาคณิตศาสตร์	$\bar{X}$	S.D.	Z	Asymp Sig.
ก่อนเรียน	6.88	3.08	3.64**	.001
หลังเรียน	15.65	2.42		

จากตารางที่ 1 พบว่า ผลสัมฤทธิ์ก่อนเรียน ได้คะแนนเฉลี่ย 6.88 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 3.08 ผลสัมฤทธิ์หลังเรียนได้คะแนนเฉลี่ย 15.65 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 2.42 ค่า z เท่ากับ 3.64 แสดงว่านักเรียนชั้นประถมศึกษาปีที่ 3 ที่เรียนด้วยเทคนิค KWDL มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ .01

ตารางที่ 2 แสดงค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐานความพึงพอใจของนักเรียนที่มีต่อการเรียนทั้งหมด

รายการประเมิน	$\bar{X}$	S.D.	แปลผล
ด้านเนื้อหา	4.55	0.50	มากที่สุด
ด้านกิจกรรม	4.55	0.50	มากที่สุด
ภาพรวม	**4.55**	**0.50**	**มากที่สุด**

จากตารางที่ 2 พบว่านักเรียนมีความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 3 ที่มีต่อการเรียนโดยเทคนิค KWDL เรื่อง การแก้โจทย์ปัญหาการคูณ อยู่ในระดับ มากที่สุด ($\bar{x}$ = 4.55, S.D. = 0.5) พบว่าความพึงพอใจทั้ง 2 ด้านอยู่ในระดับมากที่สุดทั้ง 2 ด้าน โดย ด้านเนื้อหาและด้านกิจกรรม ($\bar{x}$ = 4.55, S.D. = 0.50)

ตอนที่ 2 ผลการศึกษาความพึงพอใจของนักเรียนที่มีต่อการเรียนด้วยเทคนิค KWDL วิชาคณิตศาสตร์ เรื่อง การแก้โจทย์ปัญหาการคูณ นักเรียนชั้นประถมศึกษาปีที่ 3

ตารางที่ 3 แสดงค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานความพึงพอใจของนักเรียนที่มีต่อการเรียน ด้านเนื้อหา มีดังนี้

รายการประเมิน	$\bar{X}$	S.D.	แปลผล
1. ความเข้าใจในเนื้อหาการเรียนรู้เกี่ยวกับการคูณ	4.41	0.51	มาก
2. ความเหมาะสมของเนื้อหากับระดับชั้นของนักเรียน	4.65	0.49	มากที่สุด
3. ความชัดเจนของตัวอย่างและวิธีการแก้โจทย์ปัญหาการคูณ	4.65	0.49	มากที่สุด
4. ความน่าสนใจของเนื้อหาที่ใช้ในการเรียน	4.41	0.51	มาก
5. ความเข้าใจในเนื้อหาการเรียนรู้เกี่ยวกับการคูณ	4.65	0.49	มากที่สุด
ภาพรวมด้านเนื้อหา	**4.55**	**0.50**	**มากที่สุด**

จากตารางที่ 3 พบว่า ด้านเนื้อหามีความความพึงพอใจอยู่ในระดับมากที่สุด ($\bar{x}$ = 4.55, S.D. = 0.50) เมื่อพิจารณาประเด็นเรียงลำดับจากมากไปน้อย คือ ความเหมาะสมของเนื้อหากับระดับชั้นของนักเรียน ความชัดเจนของตัวอย่างและวิธีการแก้โจทย์ปัญหาการคูณ ความเข้าใจในเนื้อหาการเรียนรู้เกี่ยวกับการคูณ มีความ

พึงพอใจอยู่ในระดับมากที่สุด ($\bar{x}$ = 4.65, S.D. = 0.49) ความเข้าใจในเนื้อหาการเรียนรู้เกี่ยวกับการคูณ ความน่าสนใจของเนื้อหาที่ใช้ในการเรียน ($\bar{x}$ = 4.41, S.D. = 0.51)

ตารางที่ 4 แสดงค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานความพึงพอใจของนักเรียนที่มีต่อการเรียน ด้านกิจกรรม มีดังนี้

รายการประเมิน	$\bar{X}$	**S.D.**	**แปลผล**
1. กิจกรรมมีความเหมาะสมของเทคนิค KWDL	4.65	0.49	มากที่สุด
2. กิจกรรมเสริมสร้างความรู้	4.65	0.49	มากที่สุด
3. นักเรียนมีส่วนร่วมในการเรียน	4.47	0.51	มาก
4. ความสนใจของนักเรียนต่อวิธีการเรียนรู้แบบ KWDL	4.53	0.51	มากที่สุด
5. ความเหมาะสมของเทคนิค KWDL ในการช่วยให้เข้าใจการคูณ	4.44	0.51	มาก
ภาพรวมด้านกิจกรรม	**4.55**	**0.50**	**มากที่สุด**

จากตารางที่ 4 พบว่า ด้านกิจกรรมมีความความพึงพอใจอยู่ในระดับมากที่สุด ($\bar{x}$ = 4.55, S.D. = 0.50) เมื่อพิจารณาประเด็นเรียงลำดับจากมากไปน้อย คือ กิจกรรมมีความเหมาะสมของเทคนิค KWDL กิจกรรมเสริมสร้างความรู้ มีความพึงพอใจอยู่ในระดับมากที่สุด ($\bar{x}$ = 4.65, S.D. = 0.49) ความสนใจของนักเรียนต่อวิธีการเรียนรู้แบบ KWDL ($\bar{x}$ = 4.53, S.D. = 0.51) นักเรียนมีส่วนร่วมในการเรียน ($\bar{x}$ = 4.47, S.D. = 0.51)

สรุปและอภิปรายผล

1. ผลการเปรียบเทียบผลสัมฤทธิ์ก่อนเรียนกับหลังเรียน คณิตศาสตร์ เรื่อง การแก้โจทย์ปัญหาการคูณ โดยใช้เทคนิค KWDL นักเรียนชั้นประถมศึกษาปีที่ 3 มีผลสัมฤทธิ์หลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 ทั้งนี้มาจากการเรียนโดยใช้เทคนิค KWDL ช่วยพัฒนาความสามารถทางคณิตศาสตร์ให้นักเรียนคิดอย่างรอบคอบและวางแผนอย่างเป็นระบบขึ้น เกิดแนวคิดใหม่สามารถถ่ายทอดออกมาได้อย่างชัดเจนขึ้น ซึ่งสอดคล้องกับสมมติฐานการวิจัยที่ตั้งไว้ เนื่องมาจากนักเรียนได้ทำกิจกรรมการเรียนรู้โดยใช้เทคนิค KWDL ทำให้ผู้เรียนได้พัฒนาสติปัญญา พัฒนาทักษะและความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์ที่ช่วยให้เกิดผลสะท้อนหลายรูปแบบทางคณิตศาสตร์ เนื่องมาจากการเรียนรู้ด้วยแผนการจัดกิจกรรมการเรียนรู้ ตามแนวคิด KWDL เป็นกระบวนการคิดอย่างเป็นระบบที่ช่วยให้ผู้เรียนเข้าใจและแก้โจทย์ปัญหาการคูณได้ง่ายขึ้น ช่วยให้ผู้เรียนระบุ ข้อมูลที่โจทย์ให้มา ช่วยให้ผู้เรียนตั้งคำถามหรือเป้าหมายของโจทย์ ว่าต้องการหาคำตอบอะไร ผู้เรียนสามารถลงมือแก้โจทย์ โดยใช้ความรู้เรื่องการคูณ เช่น ใช้สมการหรือการวาดภาพ รวมถึงช่วยให้ผู้เรียน สรุปความเข้าใจ และถอดบทเรียนจากการแก้โจทย์ เพื่อใช้ในสถานการณ์อื่น ๆ ต่อไป ทำให้การเรียนรู้เรื่องการคูณมีประสิทธิภาพและเกิดความเข้าใจเชิงลึกมากขึ้น ซึ่งสอดคล้องกับ โอเกิล (Ogle 1986 , อ้างถึงใน วัชรา เล่าเรียนดี, 2554) ได้เสนอเทคนิค KWDL ในการสอนที่ต้องอาศัยทักษะการอ่านเป็นพื้นฐาน นั่นคือ นักเรียนต้องมีความสามารถในการอ่านก่อนจึงจะสามารถพัฒนาทักษะการอ่านให้มีคุณภาพมากขึ้น การดำเนินการตามลำดับขั้นตอน KWDL จะช่วยชี้นำการคิดแนวทางในการอ่านและหาคำตอบของคำถามสำคัญต่าง ๆ ยังสามารถนำมาใช้ในการเรียนรู้ความต้องการเร้าใจของ

นักเรียน และนำมาใช้ในการสอนคณิตศาสตร์ในระยะต่อมา เนื่องจากการคิดคำตอบโจทย์ปัญหานั้นนักเรียนจะต้องอ่านโจทย์ให้เข้าใจและวิเคราะห์โจทย์ก่อนจึงจะสามารถคิดคำนวณ 4 ได้ เทคนิค KWDL ช่วยให้นักเรียนสามารถนำไปประยุกต์ใช้ในสถานการณ์ต่าง ๆ ในชีวิตประจำวันได้

2. ผลการศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 3 ที่มีต่อการพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่องการแก้โจทย์ปัญหา โดยใช้เทคนิค KWDL ทั้งด้านเนื้อหาและด้านกิจกรรมอยู่ในระดับมากที่สุด ทั้งนี้กิจกรรมมีความเหมาะสมของเทคนิค KWDL กิจกรรมเสริมสร้างความรู้ ความสนใจของนักเรียนต่อวิธีการเรียนรู้แบบ KWDL นักเรียนมีส่วนร่วมในการเรียน ความเหมาะสมของเทคนิค KWDL ในการช่วยให้เข้าใจการคูณ ซึ่งสอดคล้อง ประกาศิต อานุภาพแสนยากร (2556) ได้กล่าวว่า ความรู้สึกของผู้เรียนมีความสำคัญต่อการเรียนรู้มาก เพราะความรู้สึกและเจตคติ ของผู้เรียนมีอิทธิพลต่อกระบวนการเรียนรู้ของผู้เรียน การเรียนรู้จะเกิดขึ้นอย่างมีประสิทธิภาพ ถ้าผู้เรียนมีแรงจูงใจ มีทัศนคติที่ดีต่อการเรียนรู้ในสิ่งนั้น บรรยากาศของการเรียนรู้จึงเป็นสิ่งสำคัญ และสอดคล้องกับงานวิจัยของ นฤมล ทิพย์พินิจ (2560) ได้ศึกษาผลสัมฤทธิ์ทางการเรียน เรื่อง การแก้โจทย์ปัญหาการบวก ลบ คูณ หาร ระคน โดยใช้แบบฝึกทักษะคณิตศาสตร์เทคนิค KWDL ของนักเรียนชั้นประถมศึกษาปีที่ 3 โรงเรียนบ้านสามัคคีธรรม จำนวน 30 คน พบว่า ความพึงพอใจต่อการเรียนโดยใช้แบบฝึกทักษะคณิตศาสตร์โดยใช้เทคนิค KWDL ภาพรวมอยู่ในระดับมากที่สุด

ข้อเสนอแนะในการนำไปใช้

ข้อเสนอแนะ

1. การจัดการเรียนรู้ด้วยเทคนิค KWDL ควรทบทวนความรู้พื้นฐานของนักเรียนในการจัดการเรียนรู้ด้วย เลือกใช้สื่อ/แหล่งการเรียนรู้ ให้เหมาะสมกับสถานการณ์เพื่อให้การจัดการเรียนรู้เกิดประสิทธิภาพสูงสุด

2. ครูควรเสนอตัวอย่างการวิเคราะห์โจทย์ปัญหาด้วยเทคนิค KWDL ที่หลากหลายพร้อมกับการพัฒนาทักษะด้านการอ่าน และการเขียน เพื่อให้นักเรียนได้ฝึกวิเคราะห์โจทย์ปัญหา และสามารถแก้โจทย์ปัญหาได้ด้วยตนเอง

3. ครูควรกระตุ้นให้นักเรียนอ่าน และวิเคราะห์โจทย์ปัญหาอย่างสม่ำเสมอ รวมถึงส่งเสริมให้นักเรียนกล้าแสดงออกโดยการตอบคำถาม การอภิปราย หรือนำเสนอการแก้โจทย์ปัญหาให้กับเพื่อนในชั้นเรียน

4. ควรเพิ่มความน่าสนใจของเนื้อหาที่ใช้ในการเรียน

ข้อเสนอแนะการศึกษาครั้งต่อไป

1. ควรจัดทำแผนการจัดการเรียนรู้คณิตศาสตร์โดยการจัดการเรียนรู้ด้วยเทคนิค KWDL สำหรับหน่วยการเรียนรู้อื่น ๆ หรือในระดับชั้นอื่น ๆ เพิ่มขึ้นเพื่อให้ผลสัมฤทธิ์ทางการเรียนของนักเรียนสูงขึ้น

2. ควรศึกษาเพิ่มเติมเกี่ยวกับการจัดการเรียนรู้ด้วยเทคนิค KWDL ร่วมกับวิธีการจัดการเรียนรู้รูปแบบอื่น ๆ ที่ส่งผลให้นักเรียนสามารถแก้โจทย์ปัญหาได้ดียิ่งขึ้น

เอกสารอ้างอิง

จุฑาวัชร ศรีพันลำ. (2563). การศึกษาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ เรื่อง การบวกและการลบชั้นประถมศึกษาปีที่ 3 โดยการจัดการเรียนรู้เทคนิค KWDL กับการเรียนรู้แบบปกติ (วิทยานิพนธ์ครุศาสตรมหาบัณฑิต). มหาวิทยาลัยราชภัฏมหาสารคาม, มหาสารคาม.

ชญาณิศา เป็งจันทร์. (2563). การจัดการเรียนรู้โดยใช้เทคนิค KWDL เพื่อพัฒนาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์เรื่อง โจทย์ปัญหาของนักเรียนชั้นประถมศึกษาปีที่ 6 (วิทยานิพนธ์ครุศาสตร

มหาบัณฑิต). มหาวิทยาลัยราชภัฏเชียงราย, เชียงราย.

ชวลิต ด้วงเหมือน. (2561). ผลการจัดการเรียนรู้วิชาคณิตศาสตร์เรื่อง โจทย์ปัญหาการ บวกลบ คูณ หาร ระคน ด้วยเทคนิคKWDL ร่วมกับการใช้แผนภาพที่มีต่อผลสัมฤทธิ์ทางการเรียนและทักษะการแก้โจทย์ปัญหาคณิตศาสตร์สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 (วิทยานิพนธ์วิทยาศาสตรมหาบัณฑิต). มหาวิทยาลัยบูรพา, ชลบุรี.

ฐิติรัตน์ ฤทธิ์สมบูรณ์. (2549). การพัฒนาผลการเรียนรู้ เรื่อง การแก้โจทย์ปัญหาคณิตศาสตร์ ของนักเรียนชั้นประถมศึกษาปีที่ 5 ที่สอนด้วยวิธีสอนแบบร่วมมือกันเรียนรู้เทคนิคกลุ่มช่วยเหลือเป็นรายบุคคลร่วมกับเทคนิค KWDL (วิทยานิพนธ์ครุศาสตรมหาบัณฑิต). มหาวิทยาลัยศิลปากร, กรุงเทพฯ.

นฤมล ทิพย์พินิจ. (2560). การศึกษาผลสัมฤทธิ์ทางการเรียน เรื่องการแก้โจทย์ปัญหาการบวก ลบ คูณ หาร ระคน โดย ใช้แบบฝึกทักษะคณิตศาสตร์ เทคนิค KWDL ของนักเรียนชั้นประถมศึกษาปีที่ 3 โรงเรียนบ้านสามัคคีธรรม จังหวัดนครศรีธรรมราช (วิทยานิพนธ์ครุศาสตรมหาบัณฑิต). มหาวิทยาลัยราชภัฏสุราษฎร์ธานี, สุราษฎร์ธานี.

บุญชม ศรีสะอาด. (2554). การวิจัยเบื้องต้น (พิมพ์ครั้งที่ 9). กรุงเทพฯ : สุรีวิทยาส์น.

ประกาศิต อานุภาพแสนยากร. (2556). การจัดการเรียนรู้. มหาสารคาม : มหาวิทยาลัยราชภัฏมหาสารคาม.

ปรียา สิถิระบุตร. (2562). การพัฒนาทักษะการแก้โจทย์ปัญหา เรื่อง การคูณ การหาร สำหรับนักเรียนชั้นประถมศึกษาปีที่ 3 ด้วยการจัดการเรียนรู้โดยใช้เทคนิค KWDL ร่วมกับการวาดรูปบาร์. (วิทยานิพนธ์ครุศาสตรมหาบัณฑิต). มหาวิทยาลัยราชภัฏอุบลราชธานี, อุบลราชธานี.

เพ็ญนิตย์ เมตตา. (2553). การพัฒนาทักษะการแก้โจทย์ปัญหาคณิตศาสตร์โดยการสอนด้วยเทคนิค KWDL สำหรับนักเรียนชั้นประถมศึกษาปีที่ 6 โรงเรียนบ้านหนองหว้าเอน จังหวัดนครราชสีมา (การศึกษาค้นคว้าอิสระศึกษาศาสตรมหาบัณฑิต). มหาวิทยาลัยสุโขทัยธรรมาธิราช, นนทบุรี.

รุจิอร รักใหม่. (2557). การศึกษาความสามารถในการแก้โจทย์ปัญหาทางคณิตศาสตร์ เรื่อง ลำดับ และอนุกรมโดยใช้เทคนิค KWDL สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 6 โรงเรียนสตรีพัทลุง จังหวัดพัทลุง (วิทยานิพนธ์วิทยาศาตรมหาบัณฑิต). มหาวิทยาลัยบูรพา, ชลบุรี.

โรงเรียนชาตรีวิทยา. (2567). รายงานผลสัมฤทธิ์การทดสอบ National Test (NT) ประจำปี2567 สงขลา เขต 2. สงขลา

วัชรา เล่าเรียนดี. (2554). เทคนิคและยุธวิธีพัฒนาการคิดการจัดการเรียนรู้ที่เน้นผู้เรียนเป็นสำคัญ (พิมพ์ครั้งที่ 8). นครปฐม : มหาวิทยาลัยศิลปากร.

สุกัญญา บุญน้อย. (2561). ได้ศึกษาการเปรียบเทียบผลการเรียนแบบร่วมมือเทคนิคKWDL กับการจัดการเรียนรู้ตามแนว สสวท. ที่มีต่อความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 2 (วิทยานิพนธ์วิทยาศาสตรมหาบัณฑิต). มหาวิทยาลัยบูรพา, ชลบุรี.

สมาน เอกพิมพ์. (2560). การจัดการเรียนรู้ สิ่งแวดล้อมและการจัดการชั้นเรียนในศตวรรษที่ 21. มหาสารคาม : ตักศิลาการพิมพ์.

โสภาวดี ทาประเสริฐ. (2561). ผลการพัฒนาทักษะการแก้โจทย์ปัญหาทางคณิตศาสตร์ โดยใช้ทักษะกระบวนการแก้ปัญหาด้วยเทคนิค KWDL ของนักเรียนชั้นประถมศึกษาปีที่ 2 (วิทยานิพนธ์ครุศาสตรมหาบัณฑิต). มหาวิทยาลัยราชภัฏเชียงราย, เชียงราย.

การพัฒนาผลสัมฤทธิ์ทางการเรียนเรื่องการขายออนไลน์ โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติของนักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 สาขาวิชาการตลาด

The Development of Learning Achievement on Online Sales Using Active Learning Management for Second Year Vocational Certificate Students in Marketing Program

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนเรื่องการขายออนไลน์ก่อนเรียนและหลังเรียน ของนักเรียนระดับประกาศนียบัตรวิชาชีพชั้นปีที่ 2 สาขาวิชาการตลาด และเพื่อศึกษาความพึงพอใจในการเรียนโดยใช้ การจัดการเรียนรู้แบบลงมือปฏิบัติเรื่องการขายออนไลน์ กลุ่มตัวอย่างคือ นักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 สาขาวิชาการตลาด ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 12 คน โดยการสุ่มอย่างง่ายแบบจับสลาก เครื่องมือที่ใช้ในการวิจัยได้แก่ แผนการจัดการเรียนรู้ แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน และแบบประเมินความพึงพอใจ สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ค่าร้อยละ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน และ Wilcoxon Signed Ranks Test

ผลการวิจัยพบว่า นักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 มีผลสัมฤทธิ์ทางการเรียนเรื่องการขายออนไลน์ โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 โดยผลสัมฤทธิ์ทางการเรียนก่อนเรียนได้คะแนนเฉลี่ย 11.67 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 2.02 ผลสัมฤทธิ์หลังเรียนได้คะแนนเฉลี่ย 16.25 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 1.14 ค่า z เท่ากับ 3.08 แสดงว่านักเรียนประกาศนียบัตรวิชาชีพปีที่ 2 มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ .01และนักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 มีความพึงพอใจในการเรียนเรื่องการขายออนไลน์ โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติ อยู่ในระดับมาก

คำสำคัญ: ผลสัมฤทธิ์ทางการเรียน, การขายออนไลน์, การจัดการเรียนรู้แบบลงมือปฏิบัติ

Abstract

This research aims to compare the learning achievement in online selling before and after instruction among second-year vocational certificate students majoring in Marketing. It also aims to study the students' satisfaction with learning through hands-on learning management in the topic of online selling. The sample group consisted of 12 second-year vocational certificate students majoring in Marketing in the second semester of the academic year 2024, selected using simple random sampling by drawing lots. The research instruments included a learning management plan, an achievement test, and a satisfaction questionnaire. The statistics used for data analysis were percentage, mean, standard deviation, and the Wilcoxon Signed Ranks Test.

The research findings revealed that the second-year vocational certificate students had significantly higher learning achievement in online selling after participating in hands-on learning management compared to before the instruction, with statistical significance at the .01 level. The pre-instruction achievement score had a mean of 11.67 and a standard deviation of 2.02, while the post-instruction achievement score had a mean of 16.25 and a standard deviation of 1.14. The z-value was 3.08, indicating that the students' post-instruction learning achievement was significantly higher than their pre-instruction achievement at the .01 level. Furthermore, the students' satisfaction with learning about online selling through hands-on learning management was at a high level.

Keywords: learning achievement, Online Sales, Active Learning Management

บทนำ

ปัจจุบันไทยมีผู้ใช้งาน Internet 63.2 ล้านคน หรือคิดเป็น 88% ของประชากรทั้งหมด และมีผู้ใช้งาน Social Media 49.1 ล้านคน หรือคิดเป็น 68.3% ของประชากรทั้งหมด โดยชาว Gen Y เป็นกลุ่มที่มีการใช้งาน Internet และ Social Media สูงสุด ขณะที่ชาว Baby Boom เป็นกลุ่มที่มีจำนวนผู้ใช้งานเพิ่มขึ้นอย่างมีนัยสำคัญและจะกลายเป็นหนึ่งในผู้ใช้ Social Media กลุ่มหลักที่สำคัญต่อตลาด E-Commerce ธุรกิจต่าง ๆ ให้ความสนใจและหันมาทำการตลาดผ่านช่องทางออนไลน์มากขึ้น โดยมีอย่างน้อย 2 แพลตฟอร์มเพื่อใช้ทำการตลาดกับผู้บริโภคและส่วนใหญ่เลือกใช้ Facebook เป็นช่องทางหลัก แต่เมื่อพิจารณาระหว่างความสนใจของผู้บริโภคและการเลือกใช้แพลตฟอร์มของแต่ละธุรกิจ พบว่าในแต่ละแพลตฟอร์มยังมีช่องว่างให้ผู้ประกอบการเข้าไปทำตลาดกับผู้บริโภคได้อีกมาก การเข้าถึง Internet, Social Media และ Smart Phone บวกกับพฤติกรรมการซื้อสินค้า/บริการ ผ่านช่องทางออนไลน์ของคนไทยที่ได้รับความนิยมต่อเนื่อง ทำให้มูลค่าตลาด E-Commerce ของไทยมีโอกาสเติบโตต่อเนื่องเฉลี่ยปีละ 9.6% ขึ้นไปอยู่ที่ 6.77-7.47 แสนล้านบาท ในระหว่างปี 2567-2568 โดยกลุ่มสินค้าที่คนไทยหันมาซื้อผ่านตลาด E-Commerce มากขึ้น พบว่าแพลตฟอร์มยอดนิยมของคนไทยยังคงเป็น Facebook และ Line ที่มีสัดส่วนการใช้งานในปี 2567 สูงถึง 91.5% และ 90.5% ของผู้ใช้งาน Internet (วีระยา ทองเสือ, 2567)

การขายออนไลน์ (E-Commerce) ได้กลายเป็นช่องทางสำคัญในการขับเคลื่อนการขายสินค้าในยุคดิจิทัล เนื่องจากความสะดวกสบายที่มอบให้กับผู้บริโภคและโอกาสในการเข้าถึงตลาดที่กว้างขึ้น

สำหรับผู้ประกอบการ จากข้อมูลของสำนักงานพัฒนาธุรกรรมทางอิเล็กทรอนิกส์ (ETDA) พบว่า มูลค่า E-Commerce ในประเทศไทยเพิ่มขึ้นอย่างต่อเนื่องทุกปี และคาดว่าจะเติบโตอย่างก้าวกระโดดในอนาคต นับเป็นช่องทางที่มีความสำคัญเป็นอย่างมากในการขับเคลื่อนการขายสินค้า ในยุคดิจิทัลอีคอมเมิร์ซ (E-commerce) หรือการพาณิชย์อิเล็กทรอนิกส์ คือ การซื้อขายสินค้าหรือบริการผ่านทางอินเทอร์เน็ต ที่ไม่จำเป็นต้องมีการติดต่อกันโดยตรงระหว่างผู้ซื้อกับผู้ขาย หรือที่เรียกติดปากกันคือ การขายของออนไลน์ และมีแนวโน้มขยายตัวขึ้นอย่างต่อเนื่อง รวมถึงเป็นช่องทางใหม่สำหรับผู้ประกอบการรายใหญ่และรายย่อย ซึ่งถือเป็นช่องทางหนึ่งที่ช่วยสร้างโอกาสในการขยายช่องทางการค้าขายให้ผู้ประกอบการได้มากยิ่งขึ้น และเป็นตัวช่วยหนึ่งในการเข้าถึงผู้บริโภคได้ง่ายและตรงกลุ่มเป้าหมาย ซึ่งมีทั้งบนแพลตฟอร์มเว็บไซต์ตัวกลางขายของออนไลน์ เช่น Facebook, Line, Shopee, Lazada, TikTok หรือจัดทำเว็บไซต์เป็นของตัวเอง มีไอเดีย ขายของออนไลน์ทั้งการขายสินค้าหรือให้บริการได้หลากหลายรูปแบบ เป็นวิธีที่ดีในการสร้างแบรนด์ให้เป็นที่รู้จัก เพราะปัจจุบันสังคมออนไลน์ถือเป็นสื่อหลักที่ช่วยในการโฆษณาและประชาสัมพันธ์ได้อย่างดีเยี่ยม ได้รับความนิยมอย่างแพร่หลาย ดังนั้นจึงถือเป็นอีกช่องทางหนึ่งในการช่วยขยายแบรนด์ ซึ่งช่วยเพิ่มฐานลูกค้าและขยายฐานธุรกิจออกไป เลือกวางแผนการค้าขายได้แบบระยะยาวทำเป็นอาชีพหลักเพื่อสร้างการค้าขายที่มั่นคงได้ในอนาคต (เรือนทิพภา วงษ์ศิริ, 2559)

จากประสบการณ์การสอนที่ผ่านมาพบว่า นักเรียนส่วนใหญ่ขาดความรู้ การคิด และไม่มีทักษะในการลงมือปฏิบัติจริง เห็นได้จากการมอบหมายชิ้นงานโดยการสร้างช่องทางการขายผ่านแพลตฟอร์มออนไลน์พบว่า นักเรียนไม่สามารถสร้างช่องทางการขายผ่านแพลตฟอร์มออนไลน์ได้อย่างสมบูรณ์ ซึ่งการสอนแบบทฤษฎีมีข้อจำกัด ทำให้นักศึกษาไม่สามารถจำขั้นตอนการปฏิบัติได้ทั้งหมด ส่งผลต่อการเรียนรู้และการขายออนไลน์ เป็นวิชาสำหรับนักเรียนประกาศนียบัตรปีที่ 2 สาขาวิชาการตลาด โดยนักเรียนไม่มีความรู้พื้นฐานของการขายออนไลน์และไม่สามารถลงมือปฏิบัติจริงได้ ซึ่งในการที่ธุรกิจจะประสบความสำเร็จได้นั่นมีสิ่งสำคัญคือ ผู้บริโภค ธุรกิจจึงมีแข่งขันกันอย่างมากในด้านความคิดสร้างสรรค์และเทคนิคการขายที่น่าสนใจ เพื่อตอบสนองความต้องการให้ผู้บริโภคให้ได้มากที่สุด รวมถึงการหาช่องทางการขายออนไลน์จากช่องทางต่าง ๆ ให้เข้าถึงกลุ่มลูกค้าเป้าหมาย จึงมีการนำวิธีการให้นักเรียนลงมือทดลองสร้างช่องทางการขายออนไลน์ขึ้นมาเสมือนจริง ตามกระบวนการ Learning by Doing และสอบวัดผลหลังปฏิบัติจริง เพื่อให้นักเรียนมีความรู้และทักษะในการขายออนไลน์ได้ชัดเจน การออกแบบชุดการสอนให้เหมาะสมกับความสามารถและความแตกต่างของผู้เรียน เพื่อเพิ่มประสิทธิภาพในการเรียนรู้และพัฒนาทักษะของนักเรียนและมุ่งไปสู่นักการตลาดที่มีคุณภาพในอนาคต

การเรียนการสอนแบบ Active Learning Management เป็นแนวคิดการเรียนการสอนที่เชื่อว่าการเรียนรู้ผ่านการลงมือปฏิบัติ จะทำให้ผู้เรียนได้ฝึกฝนทักษะต่าง ๆ ตลอดจนเกิดความเชื่อมั่นในตนเอง ส่งผลให้ผู้เรียนเกิดความรู้สึกใฝ่เรียนตามไปด้วย โดยการเรียนการสอนแบบ Active Learning Management ผู้สอนหรือครูอาจารย์จะต้องลดการให้ความรู้กับผู้เรียนโดยตรง และเปลี่ยนมาเป็นการสนับสนุนหรือส่งเสริมให้ผู้เรียนลงมือปฏิบัติ ศึกษา หรือค้นคว้าสิ่งที่ผู้เรียนสนใจด้วยตนเอง เพื่อให้เกิดความกระตือรือร้นและสามารถเพิ่มพูนทักษะต่าง ๆ ได้มากยิ่งขึ้น การเรียนการสอนของวิชาชีพ ลักษณะวิชาส่วนใหญ่เป็นทั้งภาคทฤษฎี ภาคปฏิบัติและมีการฝึกปฏิบัติจริง อาจารย์ผู้สอนต้องมีบทบาทสำคัญอย่างมากในการถ่ายทอดความรู้ให้ผู้เรียนเข้าใจและสามารถปฏิบัติได้จริงมีคุณธรรม จริยธรรม มีความพร้อมทั้งสติปัญญาที่จะแก้ไขปัญหา และสามารถปรับตัวให้กับสถานการณ์ที่เปลี่ยนแปลงอย่างรวดเร็ว

ได้อย่างเหมาะสมกับสภาพของสังคม การเมือง เทคโนโลยี เศรษฐกิจและสิ่งแวดล้อม ที่มุ่งเน้นให้ผู้เรียนมีความรู้ความสามารถในการใช้กระบวนการเทคโนโลยีและการจัดการที่เหมาะสมกับความต้องการของสถานประกอบการ เพื่อให้สามารถออกไปประกอบอาชีพที่สอดคล้องกับการพัฒนาเศรษฐกิจและสังคมของประเทศ (โกมล ไพศาล, 2554)

ดังนั้น ผู้วิจัยจึงมีความสนใจที่จะพัฒนาผลสัมฤทธิ์ทางการเรียนเรื่องการขายออนไลน์ โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติของนักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 สาขาวิชาการตลาด โดยใช้กระบวนการสอน Active Learning Management ซึ่งหน่วยการเรียนรู้ดังกล่าวเป็นหน่วยการเรียนที่ผู้เรียนสามารถจะฝึกทักษะด้านการการขายออนไลน์ และความคิดสร้างสรรค์ในการขาย ให้สอดคล้องกับผู้บริโภคในปัจจุบัน ซึ่งสามารถประยุกต์ใช้ในชีวิตและสังคมและเป็นส่วนหนึ่งที่ทำให้นักเรียนประสบความสำเร็จ ในด้านการเรียนและการดำเนินชีวิตในอนาคตต่อไปได้

วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนเรื่องการขายออนไลน์ ของนักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 สาขาวิชาการตลาด ที่เรียนด้วยการจัดการเรียนรู้แบบลงมือปฏิบัติก่อนเรียนกับหลังเรียน
2. เพื่อศึกษาความพึงพอใจในการเรียนโดยใช้การเรียนรู้แบบลงมือปฏิบัติ เรื่องการขายออนไลน์ของนักเรียน ระดับประกาศนียบัตรวิชาชีพชั้นปีที่ 2 สาขาวิชาการตลาด
3. การพัฒนาชุดการสอนแบบออนไลน์ที่ผู้วิจัยนำมาเป็นเครื่องมือการเรียนรู้

สมมติฐานการวิจัย

ผลสัมฤทธิ์การเรียนเรื่องการขายออนไลน์ โดยใช้การเรียนรู้แบบลงมือปฏิบัติ เรื่องการขายออนไลน์โดยใช้การเรียนรู้แบบลงมือปฏิบัติหลังเรียนสูงกว่าก่อนเรียน

แนวคิด ทฤษฎี กรอบแนวคิด

สถาพร พฤฑฒิกุล (2558) การจัดการเรียนรู้แบบลงมือปฏิบัติ มุ่งเน้นไปที่แนวคิดและกระบวนการจัดการเรียนรู้ที่เน้นผู้เรียนเป็นสำคัญ (Learner-Centered Approach) เป็นกระบวนการจัดการเรียนรู้ตามแนวคิดการสร้างสรรค์ทางปัญญา (Constructivism) ที่เน้นกระบวนการเรียนรู้มากกว่าเนื้อหาวิชา เพื่อช่วยให้ผู้เรียนสามารถเชื่องโยงความรู้ หรือสร้างความรู้ให้เกิดขึ้นในตนเอง ด้วยการลงมือปฏิบัติจริงผ่านสื่อ หรือกิจกรรมการเรียน ที่มีครูผู้สอนเป็นแนะนำ กระตุ้น หรืออำนวยความสะดวก ให้ผู้เรียนเกิดการเรียนรู้ขึ้นโดยกระบวนการคิดขั้นสูง กล่าวคือ ผู้เรียนมีการวิเคราะห์ สังเคราะห์ และการประเมินค่าจากสิ่งที่ได้รับจากกิจกรรมการเรียนรู้ ทำให้การเรียนรู้เป็นไปอย่างมีความหมายและนำไปใช้ในสถานการณ์อื่น ๆ ได้อย่างมีประสิทธิภาพ

นนทลี พรธาดาวิทย์ (2559) การจัดการเรียนรู้แบบลงมือปฏิบัติ เป็นวิธีการที่ผู้สอนสร้างสิ่งแวดล้อมในการเรียนรู้ให้ผู้เรียน โดยผู้เรียนทำกิจกรรมในระหว่างเวลาเรียน ครูต้องเป็นผู้รู้และเชี่ยวชาญในเนื้อหาที่ทันสมัย รู้กระบวนการที่จะพัฒนาวิธีการเรียนรู้และใช้วิธีการ เพื่อที่จะถ่ายทอดเนื้อหาสร้างมาตรฐานการเรียนรู้และสิ่งแวดล้อมในชั้นเรียน เป็นผู้ให้คำแนะนำอำนวยความสะดวกในชั้นเรียน ให้ผู้เรียนเกิดการเรียนรู้ตลอดชีวิต และมีการสะท้อนผลการสอนเพื่อปรับปรุงการจัดการเรียนรู้

สุนิสา ตรงจิตร์ (2559) ตลาดกลางพาณิชย์อิเล็กทรอนิกส์ Electronics Marketplace (E-Marketplace) หรือการซื้อขายออนไลน์ เป็นเว็ปไซต์สื่อกลางการติดต่อซื้อ-ขาย แหล่งข้อมูลขนาดใหญ่ในการรวบรวมข้อมูลผู้ซื้อ-ผู้ขาย สินค้าและบริการ ธุรกิจ ร้านค้า จำนวนมาก โดยเปิดให้ผู้ซื้อ-ผู้ขายเข้ามาทำการติดต่อซื้อ-ขาย รูปแบบใหม่ที่ปรับเปลี่ยนกระบวนการทางการค้า และตอบสนองต่อพฤติกรรมของผู้บริโภคที่เปลี่ยนแปลงไป ทำให้กิจกรรมทางการตลาดกระบวนการซื้อ-ขาย สะดวก รวดเร็ว และมีประสิทธิภาพมากยิ่งขึ้น รวมถึงตอบสนองพฤติกรรมผู้บริโภค ณ ปัจจุบันด้วยการนำเสนอสินค้า และบริการผ่านช่องทางออนไลน์ โดยการใช้เว็ปไซต์ตลาดกลางพาณิชย์เป็นเครื่องมือในการทำการตลาดนั้น ก่อให้เกิดผลดีมากมายแก่ทั้งผู้ซื้อและผู้ขาย

สำนักงานพัฒนาธุรกรรมอิเล็กทรอนิกส์ (2561) พาณิชย์อิเล็กทรอนิกส์ หรืออีคอมเมิร์ซ เป็นการทำธุรกรรมซื้อขาย หรือแลกเปลี่ยนสินค้าและบริการบนอินเทอร์เน็ต บนเว็บไซต์หรือแอปพลิเคชันเป็นสื่อในการนำเสนอ รวมถึงการสื่อสารกันระหว่างผู้ซื้อและผู้ขาย ทำให้ผู้เข้าใช้บริการได้ทุกที่ สามารถเข้าถึงร้านได้สะดวกและตลอด 24 ชม.

จิรายุทธิ์ อ่อนศรี (2564) การจัดการเรียนรู้แบบลงมือปฏิบัติ เป็นกระบวนการจัดการเรียนรู้ที่ผู้เรียนได้ลงมือกระทำและได้ใช้กระบวนการคิดเกี่ยวกับสิ่งที่เขาได้กระทำลงไป เป็นการจัดกิจกรรมการเรียนรู้ภายใต้สมมติฐานพื้นฐาน 2 ประการคือ 1) การเรียนรู้เป็นความพยายามโดยธรรมชาติของมนุษย์ 2) แต่ละบุคคลมีแนวทางในการเรียนรู้ที่แตกต่างกัน โดยผู้เรียนจะถูกเปลี่ยนบทบาทจากผู้รับความรู้ ไปสู่การมีส่วนร่วมในการสร้างองค์ความรู้

สรุปได้ว่า การเรียนรู้จากการปฏิบัติ เป็นกระบวนการเรียนรู้การทำงานจากการปฏิบัติจริง ที่ผ่านการแลกเปลี่ยนความรู้ ความสามารถและประสบการณ์ รวมกันคิดวิเคราะห์ วางแผน และออกแบบ เพื่อแก้ไขปัญหา ก่อให้เกิดการพัฒนาทักษะความสามารถต่อยอดสู่การสร้างความรู้ และอาจเกิดนวัตกรรมได้

ตลาดกลางพาณิชย์อิเล็กทรอนิกส์ Electronics Marketplace (E-Marketplace) หรือการขายออนไลน์ คือตลาดกลางรวบรวมสินค้าและร้านค้าจำนวนมาก เพื่อเป็นสื่อกลางในการซื้อ-ขายสินค้าระหว่างกัน โดยรูปแบบของตลาดกลางพาณิชย์อิเล็กทรอนิกส์จะเป็นการบริการในรูปแบบของเว็ปไซต์ที่เปิดให้บริการโดยสามารถนำข้อมูลธุรกิจและข้อมูลสินค้าไปใส่ไว้ในตลาดกลางพาณิชย์อิเล็กทรอนิกส์เหล่านั้น ได้ในรูปแบบของการสร้างเว็ปไซต์สินค้า

งานวิจัยที่เกี่ยวข้อง

สุณิสา ตรงจิตร์ (2559) ได้ศึกษาปัจจัยที่มีอิทธิพลต่อการตัดสินใจซื้อสินค้าออนไลน์ ผ่านช่องทางตลาดกลางพาณิชย์อิเล็กทรอนิกส์ (E-Marketplace) ผลการศึกษาพบว่า ความสำคัญของแต่ละปัจจัยที่มีอิทธิพล และส่งผลกระทบต่อความคาดหวังของลูกค้าได้ประกอบไปด้วย 8 ปัจจัย โดยเรียงความภักดีในตราสินค้า, ปัจจัยด้านความหลากหลายของผลิตภัณฑ์และราคา, ปัจจัยด้านการส่งเสริมการตลาด และการให้ข้อมูลข่าวสารโปรโมชัน, ปัจจัยด้านการรักษาความเป็นส่วนตัวและการให้บริการส่วนบุคคล, ปัจจัยการรับรู้ถึงแบรนด์ และปัจจัยด้านสิทธิประโยชน์ของสินค้าและการต่อรองราคา ตามลำดับ สำหรับปัจจัยส่วนบุคคลมีเพียงปัจจัยเดียว คือ การศึกษาที่ส่งผลต่อการตัดสินใจซื้อสินค้าผ่านช่องทางตลาดกลางพาณิชย์อิเล็กทรอนิกส์

จุฑาทิพย์ แก่นสิงห์ (2560) ได้ทำการศึกษาเรื่อง ส่วนประสมการตลาดบริการที่มีความสัมพันธ์กับพฤติกรรมการซื้อสินค้าผ่านแอปพลิเคชัน Shopee TH ของผู้บริโภคในเขตกรุงเทพมหานคร พบว่า ผู้ตอบแบบสอบถามส่วนใหญ่เป็นเพศหญิง มีอายุระหว่าง 21 - 25 ปี สถานภาพโสด, หย่าร้าง, หม้าย และ

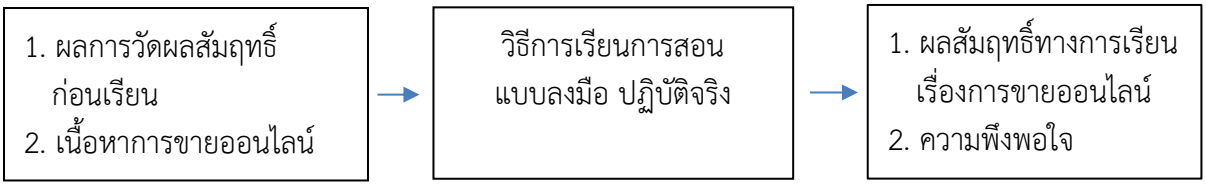
แยกกันอยู่ มีระดับการศึกษาระดับปริญญาตรี เป็นนักเรียน, นิสิต และนักศึกษา มีรายได้ต่อเดือนต่ำกว่าหรือเท่ากับ 10,000 บาท ผู้ตอบแบบสอบถามมีความถี่ในการซื้อสินค้าผ่านแอปพลิเคชัน Shopee TH เฉลี่ย 454.73 บาทต่อครั้ง

สุริยะ หาญพิชัย (2562) ได้ศึกษาการพัฒนาผลสัมฤทธิ์ทางการเรียนในรายวิชาท้องถิ่นศึกษา โดยใช้การเรียนรู้แบบลงมือทำ ผลการศึกษาพบว่า นักศึกษามีผลสัมฤทธิ์ทางการเรียนในรายวิชาท้องถิ่นศึกษาโดยใช้การเรียนรู้แบบลงมือทำหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และความพึงพอใจของนักศึกษาที่มีต่อการเรียนในรายวิชาท้องถิ่นศึกษา โดยใช้การเรียนรู้แบบลงมือทำโดยรวมอยู่ในระดับมากที่สุด เมื่อพิจารณารายด้านพบว่า ด้านที่มีค่ามากที่สุดคือความพึงพอใจด้านประโยชน์ที่ได้รับ รองลงมาคือ ด้านบรรยากาศการเรียน ด้านกิจกรรมการเรียน และด้านเนื้อหา

รักษ์ศิกา ณ เชียงใหม่ (2566) ได้ทำการศึกษาเรื่อง การพัฒนาผลสัมฤทธิ์ทางการเรียนจากการลงมือปฏิบัติจริง เรื่องการปลูกผักปลอดสารพิษของนักเรียนชั้นประถมศึกษาปีที่ 6 โรงเรียนบ้านสันกำแพง จังหวัดเชียงใหม่ ผลการวิจัยพบว่า นักเรียนระดับชั้นประถมศึกษาปีที่ 6 มีผลสัมฤทธิ์ทางการเรียนจากการจัดการเรียนรู้แบบลงมือปฏิบัติจริงหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

กรอบแนวคิดการวิจัย

ในการวิจัยในครั้งนี้ ผู้วิจัยได้สรุปทฤษฎีและงานวิจัยเกี่ยวข้องกับผลสัมฤทธิ์ทางการเรียนเรื่องการขายออนไลน์ โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติ ของนักเรียนประกาศนียบัตรวิชาชีพชั้นปีที่ 2 สาขาวิชาการตลาด ในการวิจัยเป็นแผนภาพกรอบแนวคิดในการวิจัย ดังนี้



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

ประชากรในการวิจัย

นักเรียนระดับชั้นประกาศนียบัตรวิชาชีพ (ปวช.) สาขาวิชาการตลาด วิทยาลัยการอาชีพหลวงประธานราษฎร์นิกร นักเรียน จำนวน 2 ห้อง จำนวน 55 คน

กลุ่มตัวอย่างที่ใช้การวิจัย

กลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้ เป็นนักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 สาขาการตลาด จำนวน 1 ห้องเรียน รวม 12 คน วิทยาลัยการอาชีพหลวงประธานราษฎร์นิกร ภาคเรียนที่ 2 ปีการศึกษา 2567 ซึ่งได้มาโดยการสุ่มอย่างง่าย (Simple Random Sampling) แบบจับสลาก

ผลการหาคุณภาพเครื่องมือ

1. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่อง การขายออนไลน์ ด้วยเนื้อหาการเรียนรู้ที่ประกอบด้วย ก่อนเรียน และหลังเรียน เป็นแบบทดสอบชุดเดียวกัน ภาพการออกแบบรูปภาพสำหรับการขาย, การออกแบบเนื้อหา (Content) ทางการตลาด, การนำเนื้อหา (Content) มาประยุกต์ใช้, การเลือก

แพลตฟอร์มที่เหมาะสมกับเนื้อหา (Content), การวิเคราะห์เนื้อหา (Content) ร่วมกันภายในชั้นเรียน ผ่านการตรวจสอบจากผู้เชี่ยวชาญ 3 คน มีค่า IOC 0.67 – 1.00

2. แบบทดสอบความพึงพอใจที่มีต่อวิธีการจัดการเรียนรู้แบบลงมือปฏิบัติ เรื่อง การขายออนไลน์ โดยกำหนดคะแนนความพึงพอใจที่มีต่อวิธีการจัดการเรียนรู้แบบลงมือปฏิบัติ ดังนี้

ระดับน้อยที่สุด	กำหนดให้ 1 คะแนน
ระดับน้อย	กำหนดให้ 2 คะแนน
ระดับปานกลาง	กำหนดให้ 3 คะแนน
ระดับมาก	กำหนดให้ 4 คะแนน
ระดับมากที่สุด	กำหนดให้ 5 คะแนน

แบบสอบถามความพึงพอใจที่มีต่อวิธีการจัดการเรียนรู้แบบลงมือปฏิบัติ ผ่านการตรวจสอบจากผู้เชี่ยวชาญ 3 คนมีค่า IOC 0.67 – 1.00

การเก็บรวบรวมข้อมูล

1. ทดสอบด้วยแบบวัดผลทดสอบก่อนเรียน (Pre-Test) เรื่องการขายออนไลน์ แบบปรนัย 4 ตัวเลือก จำนวน 20 ข้อ

2. สอนโดยใช้ใบงานร่วมกับการลงมือปฏิบัติ เรื่องการขายออนไลน์ เป็นระยะเวลา 12 ชั่วโมง

3. แบบวัดผลทดสอบหลังเรียน (Post-Test) แบบปรนัย 4 ตัวเลือก จำนวน 20 ข้อ ใช้ข้อสอบชุดเดียวกันกับก่อนเรียนสลับข้อคำถาม ร่วมกับการนำเสนอผลงานหน้าชั้นเรียนเรื่องการขายออนไลน์

4. แบบสอบถามความพึงพอใจต่อการเรียน เรื่อง การขายออนไลน์ โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติ

สถิติที่ใช้ในการวิเคราะห์ข้อมูล

1. ร้อยละ (Percentage)
2. ค่าเฉลี่ย (Arithmetic Mean)
3. ส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation : S.D.)
4. สถิติที่ใช้เปรียบเทียบค่าเฉลี่ย t-test 2 กลุ่มสัมพันธ์ โดยใช้สถิติ Wilcoxon Signed Ranks Test

การวิเคราะห์ข้อมูล

1. ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน นำข้อมูลจากแบบสอบถามไปวิเคราะห์ผ่านโปรแกรมสำเร็จรูป เพื่อคำนวณหา ค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน และนำข้อมูลมาแปลความหมายของค่าเฉลี่ยความพึงพอใจโดยใช้เกณฑ์ดังนี้

ค่าเฉลี่ย 4.51 – 5.00	แปลความได้ว่า	มีความพึงพอใจระดับมากที่สุด
ค่าเฉลี่ย 3.51 – 4.50	แปลความได้ว่า	มีความพึงพอใจระดับมาก
ค่าเฉลี่ย 2.51 – 3.50	แปลความได้ว่า	มีความพึงพอใจระดับปานกลาง
ค่าเฉลี่ย 1.51 – 2.50	แปลความได้ว่า	มีความพึงพอใจระดับน้อย
ค่าเฉลี่ย 1.00 – 1.50	แปลความได้ว่า	มีความพึงพอใจระดับน้อยที่สุด

2. การเปรียบเทียบค่าเฉลี่ย 2 กลุ่มสัมพันธ์ โดยใช้สถิติ Wilcoxon Signed Ranks Test

ผลการวิจัย

การวิจัยเรื่องการพัฒนาผลสัมฤทธิ์ทางการเรียนเรื่องการขายออนไลน์ โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติของนักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 สาขาวิชาการตลาด ผู้วิจัยได้นำเสนอผลการวิจัยออกเป็น 3 ตอน ตามวัตถุประสงค์ของการวิจัยดังนี้

ตอนที่ 1 วิเคราะห์เปรียบเทียบผลสัมฤทธิ์เรื่องเรื่องการขายออนไลน์ โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติของนักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 สาขาวิชาการตลาด

ตารางที่ 1 แสดงการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนก่อนและหลังเรียนเรื่องการขายออนไลน์ โดยใช้การเรียนรู้แบบลงมือปฏิบัติของนักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 สาขาวิชาการตลาด

ผลสัมฤทธิ์ทางการเรียนภาษาอังกฤษ	$\bar{X}$	S.D.	Z	Asymp. Sig.
ก่อนเรียน	11.67	2.02	3.08**	.002
หลังเรียน	16.25	1.14		

จากตารางที่ 1 พบว่า ผลสัมฤทธิ์ทางการเรียนก่อนเรียนได้คะแนนเฉลี่ย 11.67 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 2.02 ผลสัมฤทธิ์หลังเรียนได้คะแนนเฉลี่ย 16.25 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 1.14 ค่า z เท่ากับ 3.08 แสดงว่านักเรียนประกาศนียบัตรวิชาชีพปีที่ 2 มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ .01

ตอนที่ 2 แสดงผลการประเมินความพึงพอใจในการพัฒนาผลสัมฤทธิ์ทางการเรียนเรื่องการขายออนไลน์โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติของนักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 สาขาวิชาการตลาด

ตารางที่ 2 แสดงค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานความพึงพอใจที่มีต่อแบบสอบถามความพึงพอใจเรื่องการขายออนไลน์แบบลงมือปฏิบัติ ด้านการเรียนรู้ที่เน้นผู้เรียนเป็นสำคัญ

รายการประเมิน	$\bar{X}$	S.D.	แปลผล
1. แลกเปลี่ยนการเรียนรู้โดยวิธีที่หลากหลาย	4.67	0.62	มากที่สุด
2. มีโอกาสค้นหาคำตอบสิ่งที่สนใจด้วยตนเอง	4.50	0.65	มาก
3. ฝึกการสร้างสรรค์ความรู้ด้วยตนเอง	4.54	0.63	มากที่สุด
4. มีโอกาสคิด/วางแผนนำความรู้ไปใช้ประโยชน์	4.17	0.69	มาก
ภาพรวม	**4.47**	**0.65**	**มากที่สุด**

จากตารางที่ 2 พบว่า นักเรียนมีผลสัมฤทธิ์ทางการเรียนเรื่องการขายออนไลน์โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติ ด้านการเรียนรู้ที่เน้นผู้เรียนเป็นสำคัญ ในระดับมากที่สุด ($\bar{X}$ = 4.67, S.D. = 0.62) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อย คือ แลกเปลี่ยนการเรียนรู้โดยวิธีที่หลากหลาย ($\bar{X}$ = 4.67, S.D. = 0.62) ฝึกการสร้างสรรค์ความรู้ด้วยตนเอง ($\bar{X}$ = 4.54, S.D. = 0.63) มีโอกาสค้นหาคำตอบสิ่งที่สนใจด้วยตนเอง ($\bar{X}$ = 4.50, S.D. = 0.65) และมีโอกาสคิด/วางแผนนำความรู้ไปใช้ประโยชน์ ($\bar{X}$ = 4.17, S.D. = 0.69)

ตารางที่ 3 แสดงค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานความพึงพอใจที่มีต่อแบบสอบถามความพึงพอใจเรื่องการขายออนไลน์แบบลงมือปฏิบัติ ด้านกระบวนการเรียนรู้

รายการประเมิน	$\bar{X}$	S.D.	แปลผล
1. มีโอกาสในการลงมือปฏิบัติ/แลกเปลี่ยนความคิดในระหว่างเรียน	4.83	0.37	มากที่สุด
2. เรียนรู้ร่วมกันกับเพื่อนในชั้นเรียน	4.42	0.76	มาก
3. ผู้สอนและเพื่อนในชั้นเรียนเอาใจใส่ช่วยเหลือกันเสมอ	4.75	0.43	มากที่สุด
4. ได้แสดงความคิดเห็น/ซักถามในชั้นเรียน	4.17	0.80	มาก
5. ร่วมกิจกรรมในการเรียนทุกกิจกรรม	4.00	0.82	มาก
ภาพรวม	**4.43**	**0.64**	**มากที่สุด**

จากตารางที่ 3 พบว่า นักเรียนมีความพึงพอใจต่อผลสัมฤทธิ์ทางการเรียนเรื่องการขายออนไลน์โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติ ด้านกระบวนการเรียนรู้ ในระดับมากที่สุด ($\bar{X}$ = 4.83, S.D. = 0.37) เมื่อพิจารณาเป็นประเด็นเรียงลำดับจากมากไปน้อย คือ มีโอกาสในการลงมือปฏิบัติ/แลกเปลี่ยนความคิดในระหว่างเรียน ($\bar{X}$ = 4.83, S.D. = 0.37) ผู้สอนและเพื่อนในชั้นเรียนเอาใจใส่ช่วยเหลือกันเสมอ ($\bar{X}$ = 4.75, S.D. = 0.43) เรียนรู้ร่วมกันกับเพื่อนในชั้นเรียน ($\bar{X}$ = 4.17, S.D. = 0.80) ได้แสดงความคิดเห็น/ซักถามในชั้นเรียน ($\bar{X}$ = 4.17, S.D. = 0.80) และร่วมกิจกรรมในการเรียนทุกกิจกรรม ($\bar{X}$ = 4.00, S.D. = 0.82)

ตารางที่ 4 แสดงค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานความพึงพอใจที่มีต่อแบบสอบถามความพึงพอใจเรื่องการขายออนไลน์แบบลงมือปฏิบัติ

รายการประเมิน	$\bar{X}$	S.D.	แปลผล
1. ด้านการเรียนรู้ที่เน้นผู้เรียนเป็นสำคัญ	4.56	0.52	มากที่สุด
2. ด้านกระบวนการเรียนรู้	4.54	0.61	มากที่สุด
ภาพรวม	**4.55**	**0.57**	**มากที่สุด**

จากตารางที่ 4 พบว่า การประเมินความพึงพอใจของนักเรียนระดับประกาศนียบัตรวิชาชีพชั้นปีที่ 2 ที่มีต่อการเรียน เรื่องการขายออนไลน์โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติ ทั้งหมด 2 ด้าน มีค่าเฉลี่ยในภาพรวมอยู่ในระดับมากที่สุด ($\bar{X}$ = 4.55, S.D. = 0.57) ซึ่งมีรายละเอียดแต่ละด้านดังนี้ ด้านการเรียนรู้ที่เน้นผู้เรียนเป็นสำคัญมีความพึงพอใจอยู่ในระดับมากที่สุด ($\bar{X}$ = 4.56, S.D. = 0.52) และด้านกระบวนการเรียนรู้มีความพึงพอใจอยู่ในระดับมากที่สุด ($\bar{X}$ = 4.54, S.D. = 0.61)

สรุปและอภิปรายผล

1. ผลการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนก่อนและหลังเรียน โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติ เรื่องการขายออนไลน์ โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติ นักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 สาขาวิชาการตลาด โดยมีผลสัมฤทธิ์หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .01 โดยผลสัมฤทธิ์ทางการเรียนก่อนเรียนได้คะแนนเฉลี่ย 11.67 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 2.02 ผลสัมฤทธิ์หลังเรียนได้คะแนนเฉลี่ย 16.25 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 1.14 ค่า z เท่ากับ 3.08

แสดงว่านักเรียนประกาศนียบัตรวิชาชีพปีที่ 2 มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ .01 สาเหตุเนื่องจากให้นักเรียน ได้ลงมือปฏิบัติจริงเรื่องการขายออนไลน์ และมีการประเมินความพึงพอใจที่มีต่อการจัดการเรียนรู้แบบลงมือปฏิบัติ ซึ่งผลการศึกษาสอดคล้องกับงานวิจัยของ วิภาวดี สิงสีทา (2561) ศึกษาการเปรียบเทียบผลสัมฤทธิ์ทางการเรียน ระหว่างก่อนเรียนและหลังเรียนที่ได้รับการทดสอบย่อยทุกสัปดาห์กับการทดสอบย่อยเมื่อจบหน่วยเรียน วิชาการบัญชีบริษัท จำกัด ของนักศึกษาประกาศนียบัตรวิชาชีพ (ปวช.3) ชั้นปีที่ 3 วิทยาลัยเทคโนโลยีอรรถวิทย์ พาณิชยการ ผลการวิจัยพบว่า ผลสัมฤทธิ์ระหว่างก่อนเรียนและหลังเรียนวิชาการบัญชีบริษัท จำกัด ของนักศึกษาระดับประกาศนียบัตรวิชาชีพชั้นปีที่ 3 สาขาวิชาการบัญชี วิทยาลัยเทคโนโลยีอรรถวิทย์พาณิชยการนั้นแตกต่างกัน โดยที่ค่าเฉลี่ยผลสัมฤทธิ์หลังเรียนรายวิชาการบัญชีบริษัท จำกัด 9.03 มีค่าเฉลี่ยสูงกว่า ผลสัมฤทธิ์ก่อนเรียน 7.38

2. ผลการศึกษาความพึงพอใจของนักเรียนชั้นประกาศนียบัตรวิชาชีพปีที่ 2 ที่มีต่อการพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่องการขายออนไลน์ โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติ โดยรวมอยู่ในระดับมากที่สุด โดยใช้การจัดการเรียนรู้แบบลงมือปฏิบัติ ทั้งหมด 2 ด้าน มีค่าเฉลี่ยในภาพรวมอยู่ในระดับมากที่สุด ($\bar{X}$ = 4.55, S.D. = 0.57) ซึ่งมีรายละเอียดแต่ละด้านดังนี้ ด้านการเรียนรู้ที่เน้นผู้เรียนเป็นสำคัญมีความพึงพอใจอยู่ในระดับมากที่สุด ($\bar{X}$ = 4.56, S.D. = 0.52) และด้านกระบวนการเรียนรู้มีความพึงพอใจอยู่ในระดับมากที่สุด ($\bar{X}$ = 4.54, S.D. = 0.61) เมื่อพิจารณาเป็นรายด้านพบว่า ด้านการเรียนรู้ ที่เน้นผู้เรียนเป็นสำคัญมีความพึงพอใจ อยู่ในระดับมากที่สุด รองลงมา ด้านกระบวนการเรียนรู้ มีความพึงพอใจอยู่ในระดับมากที่สุด ตามลำดับ ซึ่งผลการศึกษาสอดคล้องกับงานวิจัยของ ดวงพร เฟื่องฟู (2560) ได้ทำการวิจัยศึกษา การพัฒนาชุดกิจกรรมการอ่านจับใจความ โดยใช้เทคนิค 5W1H เพื่อส่งเสริมการอ่าน กลุ่มสาระการเรียนรู้วิชาภาษาไทย ของนักเรียนชั้นประถมศึกษาปีที่ 6 ความพึงพอใจของนักเรียนที่มีต่อชุดกิจกรรม การอ่านจับใจความ โดยใช้เทคนิค 5W1H ภาพรวมอยู่ในระดับมาก และยังสอดคล้องกับแนวคิดทฤษฎีของ อรรถพร คาคม (2546) กล่าวว่า ความพึงพอใจ หมายถึง ทัศนคติหรือระดับความพึงพอใจของบุคคลต่อกิจกรรมต่าง ๆ งานวิจัยนี้มีวัตถุประสงค์เพื่อ 1) เพื่อศึกษาความพึงพอใจการจัดการเรียนรู้โดยใช้การเรียนรู้แบบลงมือปฏิบัติ เรื่องการขายออนไลน์ของนักเรียน ระดับประกาศนียบัตรวิชาชีพชั้นปีที่ 2 สาขาวิชาการตลาด 2) เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนเรื่องการขายออนไลน์ ของนักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 สาขาการตลาด ที่เรียนด้วยการจัดการเรียนรู้แบบลงมือปฏิบัติก่อนเรียนกับหลังเรียน มีค่าเฉลี่ยเท่ากับ 11.67 และ 16.25 โดยคะแนนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01

ข้อเสนอแนะ

1. ข้อเสนอแนะสำหรับการนำผลวิจัยไปใช้

1.1 ครูผู้สอนสามารถนำการเรียนรู้แบบลงมือปฏิบัติเรื่องการขายออนไลน์ ไปใช้พัฒนาผลสัมฤทธิ์ทางการเรียนวิชาการขายออนไลน์ ของนักเรียนระดับประกาศนียบัตรวิชาชีพปีที่ 2 ระดับชั้นอื่นในโรงเรียนได้เช่นเดียวกัน

1.2 ครูผู้สอนควรมีความเข้าใจพื้นฐานต่อนักเรียนรายบุคคล เพราะแต่ละคนมีพื้นฐานที่แตกต่างกันในด้านของการสื่อสารและการแสดงออก ดังนั้นครูผู้สอนจึงควรเลือกใช้เทคนิค รูปแบบการสอนเนื้อหาหรือบทความ ที่มีความยากง่ายเหมาะสมกับระดับชั้นเรียนและศักยภาพของผู้เรียน

2. ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

2.1 ควรศึกษาเปรียบเทียบสมรรถนะการพัฒนาผลสัมฤทธิ์ทางการเรียนของนักเรียน ก่อนเรียนกับหลังเรียนเพื่อนำมาวิเคราะห์ว่าผลหลังการใช้ของทั้งสองมีความแตกต่างกันอย่างไร

2.2 ควรมีการนำการพัฒนาผลสัมฤทธิ์ทางการเรียน โดยใช้รูปแบบการลงมือปฏิบัติไปใช้ศึกษาในรายวิชาอื่น

เอกสารอ้างอิง

จิรายุทธิ์ อ่อนศรี. (2564). การจัดการเรียนรู้แบบลงมือปฏิบัติ เป็นกระบวนการจัดการเรียนรู้ที่ผู้เรียนได้ลงมือกระทำและได้ใช้กระบวนการคิดเกี่ยวกับสิ่งที่เขาได้กระทำลงไป. สืบค้นเมื่อ 30 มกราคม 2568 จาก http://www.nwm.ac.th/nwm/wpcontent/uploads/2018/07/

จุฑาทิพย์ แก่นสิงห์ (2560). ส่วนประสมการตลาดบริการที่มีความสัมพันธ์กับพฤติกรรมการซื้อสินค้าผ่านแอปพลิเคชัน Shopee TH ของผู้บริโภคในเขตกรุงเทพมหานคร. (ปริญญานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยศรีนครินทรวิโรฒ, กรุงเทพฯ.

ดวงพร เฟื่องฟู (2560) การพัฒนา ชุดกิจกรรมการอ่านจับใจความ โดยใช้เทคนิค 5W1H เพื่อส่งเสริมการอ่าน กลุ่มสาระการเรียนรู้วิชาภาษาไทย ของนักเรียนชั้นประถมศึกษาปีที่ 6 โรงเรียนสาธิตคริสเตียนวิทยา ความพึงพอใจของนักเรียนที่มีต่อชุดกิจกรรม การอ่านจับใจความ โดยใช้เทคนิค 5W1H นักศึกษาหลักสูตร (วิทยานิพนธ์ศึกษาศาสตรมหาบัณฑิต) สาขาหลักสูตรและการสอน วิทยาลัยครุศาสตร์. มหาวิทยาลัยธุรกิจบัณฑิตย์, กรุงเทพฯ.

นนทลี พรธาดาวิทย์ (2559). การจัดการเรียนรู้แบบลงมือปฏิบัติ เป็นวิธีการที่ผู้สอนสร้างสิ่งแวดล้อมในการเรียนรู้ให้ผู้เรียน. กรุงเทพฯ: ทริป เพิ้ลเอ็ดดูเคชั่น.

รักษ์ศิกา ณ เชียงใหม่ (2566). การพัฒนาผลสัมฤทธิ์ทางการเรียนจากการลงมือปฏิบัติจริงเรื่องการปลูกผักปลอดสารพิษ ของนักเรียนชั้นประถมศึกษาปีที่ 6 โรงเรียนบ้านสันกำแพง. คณะเทคโนโลยีการเกษตร. มหาวิทยาลัยราชภัฏเชียงใหม่, จังหวัดเชียงใหม่

เรือนทิพภา วงษ์ศิริ. (2559). การขายออนไลน์ (E-Commerce): การศึกษาและวิจัยเรื่อง การขายสินค้าออนไลน์ในปัจจุบันและนวัตกรรมใหม่ล่าสุดจากบริษัท บัซซี่บีส์ จำกัด (ปริญญาวิทยาศาสตร์บัณฑิต) สาขาวิชาเทคโนโลยีสารสนเทศทางธุรกิจ คณะเทคโนโลยีสารสนเทศ. สถาบันเทคโนโลยีไทย-ญี่ปุ่น, กรุงเทพฯ.

วิภาวดี สิงสีทา. (2561). การเปรียบเทียบผลสัมฤทธิ์ทางการเรียน ระหว่างก่อนและหลังเรียน วิชาการบัญชีบริษัท จำกัด ของนักศึกษาประกาศนียบัตรวิชาชีพ (ปวช.3) ชั้นปีที่ 3 วิทยาลัยเทคโนโลยีอรรถวิทย์พณิชยการ. รายงานการวิจัยฉบับนี้เป็นส่วนหนึ่งของการพัฒนาทางการศึกษา กรุงเทพฯ: วิทยาลัยเทคโนโลยีอรรถวิทย์พณิชยการ.

วีระยา ทองเสือ. (2567). แพลตฟอร์มยอดนิยมของคนไทยยังคงเป็น Facebook และ Line ที่มีสัดส่วนการใช้ งานในปี 2567. สืบค้นเมื่อ 31 มกราคม 2568 จาก https://www.facebook.com/brandageonline/posts/pfbid02CSTmxv3sGFp3qhpNBf4PLDLCiAVurPzCeFvGJHww6bgnRwWzVTMfZAeJPGgnmiKul

สถาพร พฤฑฒิกุล. (2558). การจัดการเรียนรู้แบบลงมือปฏิบัติ มุ่งเน้นไปที่แนวคิดและกระบวนการจัดการเรียนรู้ที่เน้นผู้เรียนเป็นสำคัญ คณะเทคโนโลยีการเกษตร. มหาวิทยาลัยบูรพาวิทยาเขตสระแก้ว, สระแก้ว.

สุณิสา ตรงจิตร์ (2559). ปัจจัยที่มีอิทธิพลต่อการตัดสินใจซื้อสินค้าออนไลน์ ผ่านช่องทางตลาดกลางพาณิชย์อิเล็กทรอนิกส์ (E-Marketplace). (บริหารธุรกิจมหาบัณฑิต คณะพาณิชยศาสตร์และการบัญชี). มหาวิทยาลัยธรรมศาสตร์, กรุงเทพฯ.

สุริยะ หาญพิชัย (2562). ได้ศึกษาการพัฒนาผลสัมฤทธิ์ทางการเรียนในรายวิชาท้องถิ่นศึกษาโดยใช้การเรียนรู้แบบลงมือทำ. วารสารวิชาการและวิจัยสังคมศาสตร์, 4(1), 15-26.

สำนักงานพัฒนาธุรกรรมอิเล็กทรอนิกส์. (2561). พาณิชย์อิเล็กทรอนิกส์ หรืออีคอมเมิร์ซ เป็นการทำธุรกรรมซื้อขาย หรือแลกเปลี่ยนสินค้าและบริการบนอินเทอร์เน็ต. สืบค้นเมื่อ 31 มกราคม 2568 จาก https://www.etda.or.th/th/Useful-Resource/terminology/%E0%B8%AB%E0%B8%A1%E0%B8%A7%E0%B8%94%E0%B8%AB%E0%B8%A1-E/252.aspx

อาภากุญช์ กมลฉ่ำ (2563). ประสบการณ์ลูกค้าออนไลน์ในการซื้อสินค้าแบรนด์หรูผ่านช่องทางตลาดกลางพาณิชย์อิเล็กทรอนิกส์ (E-MARKETPLACE). (วิทยาศาสตรมหาบัณฑิต) การบริหารการตลาด สาขาวิชาการบริหารการตลาด คณะพาณิชยศาสตร์และการบัญชี). มหาวิทยาลัยธรรมศาสตร์, กรุงเทพฯ.

อรรถพร คาคม. (2546). การให้บริการสินเชื่อของธนาคารอาคารสงเคราะห์: ศึกษาจากความคิดเห็นของผู้ใช้บริการฝ่ายกิจการสาขากรุงเทพและปริมณฑล (วิทยานิพนธ์ศิลปศาสตรมหาบัณฑิต สาขาวิชารัฐศาสตร์ บัณฑิตวิทยาลัย). มหาวิทยาลัยเกษตรศาสตร์, กรุงเทพฯ.

การใช้เกมคำศัพท์เพื่อพัฒนาการเรียนรู้คำศัพท์เทคนิคทางจุลชีววิทยาของนักศึกษา ระดับปริญญาตรี มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย วิทยาเขตนครศรีธรรมราช พื้นที่ทุ่งใหญ่

Using Word Game to Enhance Learning of Technical Terms in Microbiology Class, Rajamangala University of Technology Srivijaya, Nakhon Si Thammarat campus, Thungyai area

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อ 1) เปรียบเทียบผลการเรียนรู้คำศัพท์เทคนิคของนักศึกษาที่ได้รับการสอนโดยใช้เกมคำศัพท์เทคนิค และ 2) ศึกษาความพึงพอใจต่อการเรียนโดยใช้เกมคำศัพท์เทคนิคประกอบการสอนวิชาจุลชีววิทยาทั่วไป ของนักศึกษาปีการศึกษา 2562 มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย วิทยาเขตนครศรีธรรมราช พื้นที่ทุ่งใหญ่ จำนวน 47 คน เครื่องมือที่ใช้ในการวิจัย ได้แก่ 1) แผนการสอน 2) แบบทดสอบความรู้ความสามารถการอ่านออกเสียงคำศัพท์เทคนิค และ 3) แบบประเมินความพึงพอใจ

ผลการวิจัยพบว่า 1) นักศึกษาที่ได้รับการสอนโดยใช้เกมคำศัพท์เทคนิคทั้ง 47 คน มีคะแนนผ่านเกณฑ์ร้อยละ 70 คิดเป็นร้อยละ 100 มีผลการสอบก่อนเรียนมีค่าเฉลี่ยเท่ากับร้อยละ 50 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 22.75 และหลังเรียนมีค่าเฉลี่ยเท่ากับร้อยละ 92.13 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 8.32 เมื่อทดสอบด้วยสถิติ Paired t-test นักศึกษามีความรู้สูงกว่าก่อนเรียนอย่างมีนัยสำคัญที่ระดับ 0.05 (t=15.21, sig 0.00) และ 2) นักศึกษามีความพึงพอใจต่อการเรียนโดยใช้เกมคำศัพท์เทคนิคมากที่สุดโดยมีค่าเฉลี่ยเท่ากับ 4.69 และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.41

คำสำคัญ: เกมคำศัพท์อ่านออกเสียงทางจุลชีววิทยา, เพิ่มความสามารถ, การอ่านออกเสียง, ศัพท์เทคนิค

Abstract

The objectives of this research were to 1) compare the result of Technical Terms by using games, 2) investigate satisfaction level of General Microbiology's students towards pronunciation of Technical Terms by using games. Samples were 47 students from General Microbiology Class of the academic year 2019 at Rajamangala University of Technology Srivijaya, Nakhon Si Thammarat campus, Thungyai area. Instruments were 1) lesson plans, 2) the pronunciation test and 3) the questionnaire on student's satisfaction.

The findings revealed that 1) all 47 students (100%) passed the criterion score at 70%. The average pronunciation pretest score were 50%, S.D. 22.75 and the average pronunciation posttest score were 92.13% , S.D. 8.32. When comparing those scores by using paired sample t-test, the students' posttest average scores were significantly higher than their pretest average scores at 0.05 level. And 2) the students' satisfaction towards pronunciation games learning were generally at highest level (Mean = 4.69, S.D. = 0.41).

Keywords: Technical Terms in Microbiology Pronunciation Game, Boost, Pronunciation, Technical Terms

บทนำ

ยุทธศาสตร์ชาติ เป็นเป้าหมายสำหรับการพัฒนาประเทศอย่างยั่งยืน โดยยึดหลักธรรมาภิบาลเพื่อใช้เป็นกรอบในการจัดทำแผนต่าง ๆ ให้สอดคล้องและบูรณาการกัน เพื่อให้ผลักดันไปสู่เป้าหมาย ในยุทธศาสตร์ชาติ 20 ปี พ.ศ. 2561 - 2580 เป็นแผนการพัฒนาประเทศที่กำหนดกรอบและแนวทางการพัฒนาให้หน่วยงานของรัฐทุกภาคส่วนต้องทำตาม เพื่อให้บรรลุวิสัยทัศน์ประเทศไทยที่ว่า "ประเทศไทยมีความมั่นคง มั่งคั่ง ยั่งยืน เป็นประเทศที่พัฒนาแล้ว ด้วยการพัฒนาตามหลักปรัชญาของเศรษฐกิจพอเพียง" ประกอบด้วย 6 ยุทธศาสตร์ ซึ่งยุทธศาสตร์ชาติด้านการพัฒนาและเสริมสร้างศักยภาพทรัพยากรมนุษย์ก็เป็นยุทธศาสตร์ที่สำคัญ เนื่องด้วยทรัพยากรมนุษย์เป็นปัจจัยหลักในการยกระดับการพัฒนาประเทศในทุกมิติไปสู่เป้าหมาย จึงจำเป็นต้องมีการวางรากฐานการพัฒนาทรัพยากรมนุษย์ของประเทศอย่างเป็นระบบ ให้เป็นทรัพยากรมนุษย์ที่ดี เก่ง และมีคุณภาพ พร้อมขับเคลื่อนการพัฒนาประเทศไปข้างหน้าได้อย่างเต็มศักยภาพ ซึ่งทักษะที่จำเป็นในศตวรรษที่ 21 มีทักษะสื่อสารภาษาอังกฤษและภาษาที่ 3 และอนุรักษ์ภาษาท้องถิ่น มีนิสัยรักการเรียนรู้ และการพัฒนาตนเองอย่างต่อเนื่อง การเรียนรู้ที่ตอบสนองต่อการเปลี่ยนแปลงในศตวรรษที่ 21 มีการออกแบบระบบการเรียนรู้ใหม่ การเปลี่ยนบทบาทครู การเพิ่มประสิทธิภาพระบบบริหารจัดการศึกษา และการพัฒนาระบบการเรียนรู้ตลอดชีวิต (สำนักงานเลขานุการคณะกรรมการยุทธศาสตร์ชาติ, 2561)

การจัดการเรียนการสอนในปัจจุบันอาจจะยังไม่สามารถตอบยุทธศาสตร์ชาติได้ จากสถิติพื้นฐานผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐาน (O-NET) ชั้นเทียบเท่า ม.6 ประจำปีการศึกษา 2567 คะแนนเฉลี่ยวิชาภาษาไทย สังคมศึกษา ศาสนาและวัฒนธรรม ภาษาอังกฤษ คณิตศาสตร์ และวิทยาศาสตร์ เท่ากับร้อยละ 50.69 41.42 22.70 29.64 และ 27.40 ตามลำดับ (สถาบันทดสอบทางการศึกษาแห่งชาติ, 2568) ผลคะแนนที่ได้ต่ำมากอาจจะต้องมีการพัฒนารูปแบบการจัดการเรียนการสอนเพิ่มจากที่ใช้อยู่ในปัจจุบัน

บทบาทประการหนึ่งของครูที่พัฒนาเพื่อให้ทันต่อการเปลี่ยนแปลงโดยการปรับกระบวนการสอนในรูปแบบต่างๆ เพื่อให้ผู้เรียนบรรลุวัตถุประสงค์ ธมนพัชร์ นิธิกิจโภคินกุล, เชษฐ์ ศิริสวัสดิ์ และนพมณี เชื้อวัชรินทร์ (2562) จัดการเรียนรู้โดยใช้เกมเป็นฐานต่อความเข้าใจทางวิทยาศาสตร์ วิชาชีววิทยา เรื่อง การถ่ายทอดลักษณะทางพันธุกรรม ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 จากการสังเกตพฤติกรรมพบว่า นักเรียนมีความสนใจและมีความเข้าใจระดับมาก ชนัตถ์ พูนเดช และธนิตา เลิศพรกุลรัตน์ (2563) ได้ศึกษาการใช้นวัตกรรมการเรียนรู้ด้วยแนวคิดเกมมิฟิเคชัน ผลการศึกษาพบว่า นักเรียนในกลุ่มทดลองมีค่าระดับความชื่นชอบวิชาที่เรียนและความผูกพันที่มีต่อการเรียนที่สูงขึ้นและสูงกว่านักเรียนในกลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ นอกจากนั้นนักเรียนในกลุ่มทดลองมีพฤติกรรมการเรียนที่ตั้งใจฟัง มีสมาธิ มีส่วนร่วมในชั้นเรียน

นงนุช บริเอก (2565) ศึกษาการพัฒนาทักษะกระบวนการทางวิทยาศาสตร์และผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 3 โรงเรียนบ้านปากอูน (ปากอูนผดุงวิทย์) สำนักงานเขตพื้นที่การศึกษาประถมศึกษานครพนม เขต 2 เรื่อง ชีวิตของมนุษย์และสัตว์ โดยการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม นักเรียนมีทักษะกระบวนการทางวิทยาศาสตร์ของนักเรียนหลังเรียนสูงกว่าก่อนเรียน ผลสัมฤทธิ์ทางการเรียนของนักเรียนหลังเรียนสูงกว่าก่อนเรียน และมีความพึงพอใจต่อการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม อยู่ในระดับมากที่สุด

ชุติมา แซ่เฮ้ง, ทวีศักดิ์ จินดานุรักษ์ และดวงเดือน สุวรรณจินดา (2566) จัดการเรียนรู้แบบสืบเสาะร่วมกับเกมวิทยาศาสตร์ เรื่อง แรงไฟฟ้าและพลังงานไฟฟ้า สำหรับนักเรียนชั้นประถมศึกษาปีที่ 6 โรงเรียนบ้านหนองประดู่ จังหวัดชลบุรี นักเรียนมีผลสัมฤทธิ์ทางการเรียน และมีทักษะกระบวนการทางวิทยาศาสตร์สูงกว่าก่อนเรียน

ในการจัดการเรียนการสอนวิชาจุลชีววิทยาประกอบด้วยภาคบรรยาย และภาคปฏิบัติ โดยมีเนื้อหาที่เป็นวิทยาศาสตร์ซึ่งมีรายละเอียดและมีคำศัพท์เทคนิคที่เป็นภาษาอังกฤษจำนวนมาก จากการจัดการเรียนการสอนมาเป็นมากกว่า 20 ปี ได้พยายามปรับวิธีการสอนอย่างต่อเนื่อง เพื่อให้เกิดประสิทธิภาพต่อผู้เรียน แต่พบปัญหาที่เกิดขึ้นซ้ำ ๆ คือ นักศึกษาส่วนใหญ่ยังขาดความมั่นใจในการอ่านออกเสียงคำศัพท์เทคนิคที่เป็นภาษาอังกฤษส่งผลให้นักศึกษาจดจำคำศัพท์ได้ยาก และจากการสังเกตยังพบว่า นักศึกษาที่กล้าอ่านออกเสียงจะจำคำศัพท์ได้มากกว่า และมีผลสัมฤทธิ์ทางการเรียนสูงกว่านักศึกษาที่ไม่กล้าอ่านออกเสียง

ผู้วิจัยสนใจที่จะนำเทคโนโลยีมาประยุกต์ใช้ในการส่งเสริมการเรียนรู้ของผู้เรียน โดยการสร้างเกมให้ผู้เรียนได้ฝึกฝนการอ่านออกเสียงคำศัพท์เทคนิคให้เกิดความเพลิดเพลิน ตื่นเต้น เข้าใจในบทเรียน และสามารถนำสิ่งที่ได้เรียนรู้ไปปรับใช้ในการเรียนการสอนวิชาอื่น ๆ ได้อย่างมีประสิทธิภาพในอนาคต

วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบผลการเรียนรู้คำศัพท์เทคนิคของนักศึกษาที่ได้รับการสอนโดยใช้เกมคำศัพท์เทคนิค
2. เพื่อศึกษาความพึงพอใจของนักศึกษาต่อวิธีการใช้เกมคำศัพท์เทคนิคประกอบการสอนวิชาจุลชีววิทยาทั่วไป

แนวคิด ทฤษฎี กรอบแนวคิด

ในการจัดการเรียนการสอนเพื่อให้ผู้เรียนได้รับความรู้บรรลุตามวัตถุประสงค์ ซึ่งมีหลายวิธี แต่ละวิธีมีข้อดี ข้อเสีย และข้อจำกัดแตกต่างกัน ทิศนา แขมมณี (2546) ได้เสนอวิธีสอนไว้ทั้งสิ้น 14 วิธี ได้แก่ วิธีสอนโดยการบรรยาย (Lecture)วิธีสอนโดยใช้การสาธิต (Demonstration) วิธีสอนโดยใช้การทดลอง (Experiment) วิธีสอนโดยใช้การนิรนัย (Deduction) วิธีสอนโดยใช้การอุปนัย (Induction) วิธีสอนโดยใช้การไปทัศนศึกษา (Field Trip) วิธีสอนโดยการอภิปรายกลุ่มย่อย (Small Group Discussion) วิธีสอนโดยการแสดงละคร (Dramatization) วิธีสอนโดยใช้การแสดงบทบาทสมมติ (Role Playing) วิธีสอนโดยการใช้กรณีตัวอย่าง (Case) วิธีสอนโดยใช้เกม (Game) วิธีสอนโดยใช้สถานการณ์จำลอง (Simulation) วิธีสอนโดยใช้ศูนย์การเรียน (Learning Center) และวิธีสอนโดยใช้บทเรียนแบบโปรแกรม (Programmed Instruction)

วิธีสอนโดยใช้เกม (Game) เป็นวิธีสอนที่สร้างความสนุกสนานให้ผู้เรียน กระตุ้นให้เกิดการเรียนรู้ ทำให้การเรียนรู้นั้นมีความหมาย และมีความคงทน ผู้สอนต้องมีความเข้าใจเกี่ยวกับการสร้าง และการใช้เกม การเตรียมการ รวมถึงต้องมีทักษะในการอภิปรายที่มีประสิทธิภาพจะช่วยส่งเสริมให้การสอนวิธีนี้ได้ผลดี วิธีการสอนโดยการใช้เกมประกอบด้วย 4 ขั้นตอน คือ (1) การเลือกและนำเสนอเกม (2) การชี้แจงวิธีการเล่น และกติกาการเล่น (3) การเล่นเกม (4) การอภิปรายหลังการเล่น เป็นวิธีสอนที่ผู้เรียนมีส่วนร่วมมากเกิดการเรียนรู้ และอยู่คงทน ผู้สอนจะไม่เหนื่อยมากขณะสอน แต่ต้องเตรียมการมากก่อนการสอน ผู้สอนต้องมีทักษะในการอภิปรายผลหลังการเรียนเพื่อสรุปผลการเรียนรู้ตามวัตถุประสงค์ เกมคำศัพท์เป็นการนำคำศัพท์มานำเสนอในรูปแบบของเกม

ศัพท์เทคนิค (Technical Term) ตามพจนานุกรม Cambridge Learner's Dictionary ของมหาวิทยาลัยเคมบริดจ์ (Patrick Gillard, 2001) หมายถึง คำศัพท์เฉพาะวิชาหรือศัพท์บัญญัติทางวิชาการ คำศัพท์ที่กำหนดขึ้นเพื่อใช้เป็นมาตรฐานในการเขียนเอกสารของทางราชการ และการเรียนการสอน ผู้ออกศัพท์บัญญัติในปัจจุบัน คือ ราชบัณฑิตยสถาน ศัพท์บัญญัติภาษาไทยที่ใช้มักจะมาจากภาษาอังกฤษ ศัพท์บัญญัติจะแบ่งออกเป็นหมวดหมู่ต่าง ๆ เช่น วิทยาศาสตร์ คอมพิวเตอร์ แพทยศาสตร์ รัฐศาสตร์ เป็นต้น การเรียนวิชาจุลชีววิทยาประกอบด้วยคำศัพท์เทคนิคจำนวนมาก ผู้เรียนจึงมักพบปัญหาในการอ่าน การจดจำ

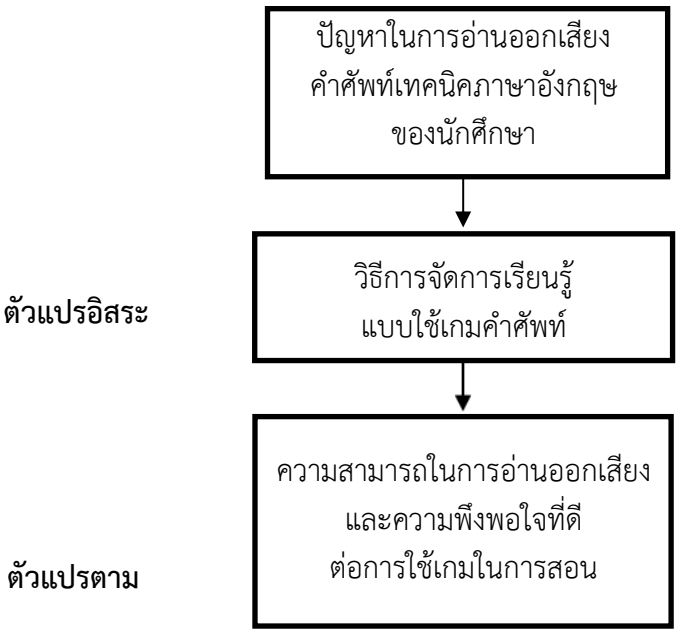
การอ่านออกเสียง (Pronunciation) ตามพจนานุกรม Cambridge Learner's Dictionary ของมหาวิทยาลัยเคมบริดจ์ (Patrick Gillard, 2001) นิยามความหมายของการอ่านออกเสียงว่า หมายถึง วิธีเปล่งเสียงคำใด หรือเสียงใดในภาษาใดภาษาหนึ่ง หรืออาจจะหมายถึงวิธีที่บุคคลใดบุคคลหนึ่งเปล่งเสียงของคำในภาษาหนึ่งออกมา

ภูมิ หุราพันธุ์ (2530 อ้างถึงใน สาริณี สุวรรณพันธุ์, 2553, น.30-31) ให้ความหมายของการออกเสียง (Pronunciation) ว่าเป็นการผสมเสียงเป็นคำ และการผสมคำเป็นประโยค โดยมีหลักการปฏิบัติ 4 ประการ ดังนี้ 1) การออกเสียงแต่ละเสียงในภาษาอังกฤษให้ถูกต้อง 2) การผสมเสียงเข้าเป็นคำ 3) การลงเสียงหนักให้ตรงตามพยัญชนะในคำ 4) ใช้จังหวะหนักเบา สูงต่ำ ให้ถูกต้อง

แนวคิดเพื่อพัฒนานักศึกษาให้สามารถจดจำคำศัพท์เทคนิคในวิชาจุลชีววิทยาโดยการเรียนโดยใช้เกมจะทำให้นักศึกษามีผลลัพธ์ดังนี้

1. นักศึกษามีความมั่นใจในการอ่านออกเสียงคำศัพท์เทคนิคเป็นภาษาอังกฤษในระดับมากหลังการเรียนโดยใช้เกมคำศัพท์

2. นักศึกษามีความพึงพอใจต่อวิธีการใช้เกมคำศัพท์ประกอบการสอนในระดับมาก



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

1. ประชากรและกลุ่มตัวอย่างในการวิจัย

ประชากร คือ นักศึกษาระดับปริญญาตรีที่เรียนวิชาจุลชีววิทยาทั่วไป มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย วิทยาเขตนครศรีธรรมราช พื้นทุ่งใหญ่ ภาคการศึกษาที่ 2 ปีการศึกษา 2562 จำนวน 47 คน และกลุ่มตัวอย่างในการวิจัยโดยการสุ่มแบบเจาะจง (Purposive Sampling) จำนวน 47 คน ดำเนินการวิจัยเป็นเชิงทดลองแบบ One - group pretest – posttest design ซึ่งเป็นการทดลองแบบกลุ่มเดียวโดยมีการสังเกตการณ์ก่อนและหลังการทดลอง

2. เครื่องมือที่ใช้ในการวิจัย ประกอบด้วย

2.1 แผนการสอนโดยใช้เกมคำศัพท์ประกอบการสอนจำนวน 3 แผน ใช้เวลาในการจัดกิจกรรมแผนละ 1 ชั่วโมง รวม 3 ชั่วโมง โดยครอบคลุมเนื้อหาหน่วยเรียนเรื่อง ชนิดของจุลินทรีย์ การวัดการเจริญของจุลินทรีย์ อิมมูโนวิทยา โดยใช้เกมบิงโก เกมจับคู่ และเกมกระซิบ ตามลำดับ หาคุณภาพของเครื่องมือโดยการตรวจสอบความตรงของเนื้อหาจากผู้เชี่ยวชาญ 3 ท่าน พบว่า มีค่าระหว่าง 0.67 - 1.00

2.2 แบบทดสอบวัดผลสัมฤทธิ์จากการอ่านออกเสียงคำศัพท์เทคนิค หาคุณภาพของเครื่องมือโดยการตรวจสอบความตรงของเนื้อหาจากผู้เชี่ยวชาญ 3 ท่าน พบว่า มีค่าระหว่าง 0.67 - 1.00

2.3 แบบวัดความพึงพอใจของผู้เรียนที่มีต่อการเรียนรู้โดยการใช้เกมคำศัพท์เทคนิค หาคุณภาพของเครื่องมือโดยการตรวจสอบความตรงของเนื้อหาจากผู้เชี่ยวชาญ 3 ท่าน พบว่า มีค่าระหว่าง 0.67 - 1.00

3. การสร้างเครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล

การสร้างเครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลดำเนินการดังนี้

3.1 แผนการสอนการอ่านออกเสียงคำศัพท์เทคนิคโดยการใช้เกมคำศัพท์เทคนิค จำนวน 3 แผนการสอน

3.1.1 ศึกษารายละเอียดจุดมุ่งหมาย เนื้อหา จากมคอ.3 รายวิชาจุลชีววิทยาทั่วไป รหัส 02-241-003 คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย

3.1.2 ศึกษาแนวคิด ทฤษฎี งานวิจัยเกี่ยวกับการเรียนการสอนโดยใช้เกมคำศัพท์เทคนิค

3.1.3 ดำเนินการสร้างแผนการสอนการออกเสียงคำศัพท์เทคนิคโดยใช้เกมคำศัพท์เทคนิค จำนวน 3 แผน ประกอบด้วยเกมจำนวน 3 เกม ดังนี้ แผนการจัดการเรียนรู้ที่ 1 การออกเสียงคำศัพท์เทคนิคเกี่ยวกับชนิดของจุลินทรีย์ แผนการจัดการเรียนรู้ที่ 2 การออกเสียงคำศัพท์เทคนิคเกี่ยวกับการวัดการเจริญของจุลินทรีย์ และแผนการจัดการเรียนรู้ที่ 3 การออกเสียงคำศัพท์เทคนิคเกี่ยวกับอิมมูโนวิทยา

3.2 ดำเนินการสร้างแบบทดสอบวัดผลสัมฤทธิ์ก่อนและหลังการเรียนรู้การออกเสียงคำศัพท์เทคนิคโดยใช้เกมคำศัพท์เทคนิค

3.3 ดำเนินการสร้างแบบวัดความพึงพอใจต่อการออกเสียงคำศัพท์เทคนิคผ่านการเรียนรู้โดยการใช้เกมคำศัพท์เทคนิค ดังนี้

3.3.1 ศึกษาตำรา เอกสาร วารสาร และงานวิจัย ที่เกี่ยวข้องกับแบบสอบถามความพึงพอใจ

3.3.2 ศึกษาขั้นตอนการสร้างแบบสอบถามความพึงพอใจ

3.3.3 สร้างแบบวัดความพึงพอใจต่อการออกเสียงคำศัพท์เทคนิคผ่านการเรียนรู้โดยการใช้เกมคำศัพท์เทคนิค ซึ่งเป็นแบบวัดความพึงพอใจประเภท Rating Scale จำนวน 12 ข้อ แบบวัดนี้ใช้มาตราส่วนประมาณค่า 5 ระดับ มีเกณฑ์การวัดดังต่อไปนี้

ข้อความแสดงความคิดเห็นทางบวก:	มากที่สุด	ให้	5	คะแนน
	มาก	ให้	4	คะแนน
	ปานกลาง	ให้	3	คะแนน
	น้อย	ให้	2	คะแนน
	น้อยที่สุด	ให้	1	คะแนน

สำหรับเกณฑ์ในการแปลค่าคะแนนของแบบวัดทัศนคตินั้น ได้เลือกใช้เกณฑ์ของ สุจิตรา พลภาณุมาศ (2543) ซึ่งมีรายละเอียดดังนี้

คะแนน	1.00 – 1.49	หมายถึง	มีทัศนคติที่ไม่ดีมาก
คะแนน	1.50 – 2.49	หมายถึง	มีทัศนคติที่ไม่ดี
คะแนน	2.50 – 3.49	หมายถึง	มีทัศนคติในระดับเป็นกลาง
คะแนน	3.50 – 4.49	หมายถึง	มีทัศนคติที่ดี
คะแนน	4.50 – 5.00	หมายถึง	มีทัศนคติที่ดีมาก

3.4 เสนอแผนการสอน แบบทดสอบวัดผลสัมฤทธิ์ก่อนและหลังการเรียนรู้ และแบบวัดความพึงพอใจต่อการออกเสียงคำศัพท์เทคนิคผ่านการเรียนรู้โดยการใช้เกมคำศัพท์เทคนิคต่อผู้เชี่ยวชาญ 3 ท่าน เพื่อพิจารณาตรวจสอบความเที่ยงตรงของเนื้อหา

3.5 วิธีการเก็บรวบรวมข้อมูล

3.5.1 ชี้แจงจุดประสงค์และขั้นตอนการเรียนรู้ให้นักศึกษาทราบ

3.5.2 ทดสอบผลสัมฤทธิ์ก่อนการเรียนรู้การออกเสียงคำศัพท์เทคนิคโดยใช้เกมคำศัพท์เทคนิค

3.5.3 ดำเนินการสอนตามแผนการสอนที่จัดทำขึ้น ประกอบด้วยเกมคำศัพท์เทคนิค จำนวน 3 เกม

3.5.4 ทดสอบผลสัมฤทธิ์หลังการเรียนรู้การออกเสียงคำศัพท์เทคนิคโดยใช้เกมคำศัพท์เทคนิค ซึ่งแบบทดสอบชุดเดียวกันกับแบบทดสอบก่อนเรียน

3.5.5 แจกแบบวัดความพึงพอใจต่อการออกเสียงคำศัพท์เทคนิคผ่านการเรียนรู้โดยการใช้เกมคำศัพท์เทคนิคให้นักศึกษาทำการประเมิน

3.5.6 เก็บรวบรวมข้อมูลนำไปประมวลผล วิเคราะห์ สรุป และอภิปรายผล

3.6 การวิเคราะห์ข้อมูล

3.6.1 การวิเคราะห์แบบทดสอบวัดผลสัมฤทธิ์การอ่านออกเสียงคำศัพท์เทคนิค ใช้ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานในการวิเคราะห์ข้อมูล โดยเปรียบเทียบค่าเฉลี่ย (Mean) และส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation) ของคะแนนของนักศึกษาที่ได้จากการทำแบบทดสอบวัดผลสัมฤทธิ์การอ่านออกเสียงคำศัพท์เทคนิคก่อนและหลังการใช้เกมคำศัพท์เทคนิค และการวิเคราะห์ความแตกต่างของความสามารถในการเรียนรู้ผ่านเกมคำศัพท์ก่อนเรียนและหลังเรียน โดยการวิเคราะห์ Paired t-test

3.6.2 การวิเคราะห์แบบวัดความพึงพอใจของผู้เรียนที่มีต่อการใช้เกมคำศัพท์เทคนิค ใช้ค่าเฉลี่ย (Mean) และส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation) ในการวิเคราะห์ข้อมูล โดยนำค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานของคะแนนของนักศึกษาที่ได้จากการทำแบบวัดทัศนคติของผู้เรียนที่มีต่อการใช้เกมคำศัพท์เทคนิค ทำการวิเคราะห์ด้วยโปรแกรมไมโครซอฟท์เอกซ์เซล

ผลการวิจัย

การวิจัยเรื่อง การใช้เกมคำศัพท์เพื่อพัฒนาการเรียนรู้คำศัพท์เทคนิคทางจุลชีววิทยาของนักศึกษาระดับปริญญาตรี มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย วิทยาเขตนครศรีธรรมราช พื้นที่ทุ่งใหญ่ มีวัตถุประสงค์เพื่อ (1) เปรียบเทียบผลการเรียนรู้คำศัพท์เทคนิคของนักศึกษาที่ได้รับการสอนโดยใช้เกมคำศัพท์เทคนิค (2) ศึกษาความพึงพอใจของนักศึกษาต่อวิธีการใช้เกมคำศัพท์เทคนิคประกอบการสอนวิชาจุลชีววิทยาทั่วไป ได้ทดลองทำการสอนกับนักศึกษาระดับปริญญาตรี มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย วิทยาเขตนครศรีธรรมราช พื้นที่ทุ่งใหญ่ ที่เรียนวิชาจุลชีววิทยาทั่วไป ภาคการศึกษาที่ 2 ปีการศึกษา 2562 จำนวน 47 คน เครื่องมือที่ใช้ในการวิจัยนี้ได้แก่ (1) แผนการสอนอ่านออกเสียงศัพท์เทคนิคทางจุลชีววิทยาโดยการใช้เกมคำศัพท์เทคนิค (2) แบบทดสอบวัดผลสัมฤทธิ์ก่อนและหลังการเรียนรู้การออกเสียงการออกเสียงคำศัพท์เทคนิคโดยใช้เกมคำศัพท์เทคนิค (3) แบบวัดความพึงพอใจต่อการเรียนรู้โดยการใช้เกมคำศัพท์เทคนิค

1. ผลการเรียนรู้คำศัพท์เทคนิคของนักศึกษาที่ได้รับการสอนโดยใช้เกมคำศัพท์เทคนิค

นักศึกษาที่เรียนวิชาจุลชีววิทยาทั่วไปผ่านการเรียนรู้โดยใช้เกมคำศัพท์เทคนิคจำนวน 47 คน เพศชายจำนวน 19 คน เพศหญิงจำนวน 28 คน คิดเป็นร้อยละ 40.4 และ 59.6 ตามลำดับ อายุระหว่าง 19-23 ปี คิดเป็นร้อยละ 10.6 14.9 14.9 51.1 และ 8.5 ตามลำดับ ดังแสดงในตารางที่ 1 นักศึกษาได้คะแนนสอบหลังเรียนไม่ต่ำกว่าร้อยละ 70 ผ่านเกณฑ์จำนวน 47 คน คิดเป็นร้อยละ 100 ดังแสดงในตารางที่ 2

ตารางที่ 1 จำนวนและร้อยละของข้อมูลทั่วไปของนักศึกษาผู้เรียน

สถานภาพของนักศึกษาผู้เรียน	จำนวน(คน)	คิดเป็นร้อยละ
1. เพศ		
ชาย	19	40.4
หญิง	28	59.6
รวม	47	100.0
2. อายุ		
19 ปี	5	10.6
20 ปี	7	14.9
21 ปี	7	14.9
22 ปี	24	51.1
23 ปี	4	8.5
รวม	47	100.0

ตารางที่ 2 ผลสอบก่อนเรียนและหลังเรียนผ่านการเรียนรู้โดยเกมคำศัพท์

คนที่	ทดสอบก่อนเรียน		ทดสอบหลังเรียน		ผ่านเกณฑ์
	คะแนน	ร้อยละ	คะแนน	ร้อยละ	ไม่ต่ำกว่าร้อยละ 70
1	8	80	10	100	ผ่าน
2	5	50	10	100	ผ่าน
3	2	20	8	80	ผ่าน
4	3	30	9	90	ผ่าน
5	9	90	10	100	ผ่าน
6	2	20	7	70	ผ่าน
7	2	20	9	90	ผ่าน
8	4	40	10	100	ผ่าน
9	7	70	10	100	ผ่าน
10	2	20	8	80	ผ่าน
11	6	60	10	100	ผ่าน
12	5	50	9	90	ผ่าน
13	5	50	9	90	ผ่าน

คนที่	ทดสอบก่อนเรียน		ทดสอบหลังเรียน		ผ่านเกณฑ์
	คะแนน	ร้อยละ	คะแนน	ร้อยละ	ไม่ต่ำกว่าร้อยละ 70
14	7	70	10	100	ผ่าน
15	4	40	9	90	ผ่าน
16	10	100	10	100	ผ่าน
17	3	30	9	90	ผ่าน
18	5	50	9	90	ผ่าน
19	5	50	10	100	ผ่าน
20	2	20	9	90	ผ่าน
21	9	90	10	100	ผ่าน
22	1	10	8	80	ผ่าน
23	4	40	10	100	ผ่าน
24	6	60	10	100	ผ่าน
25	9	90	10	100	ผ่าน
26	5	50	8	80	ผ่าน
27	5	50	9	90	ผ่าน
28	9	90	10	100	ผ่าน
29	2	20	8	80	ผ่าน
30	4	40	8	80	ผ่าน
31	6	60	10	100	ผ่าน
32	6	60	9	90	ผ่าน
33	5	50	9	90	ผ่าน
34	3	30	8	80	ผ่าน
35	2	20	9	90	ผ่าน
36	9	90	10	100	ผ่าน
37	3	30	9	90	ผ่าน
38	3	30	10	100	ผ่าน
39	5	50	10	100	ผ่าน
40	6	60	9	90	ผ่าน
41	6	60	8	80	ผ่าน
42	4	40	9	90	ผ่าน
43	5	50	10	100	ผ่าน
44	7	70	10	100	ผ่าน
45	5	50	9	90	ผ่าน
46	6	60	8	80	ผ่าน
47	4	40	10	100	ผ่าน

นักศึกษาที่เรียนวิชาจุลชีววิทยาทั่วไปผ่านการเรียนรู้โดยใช้เกมคำศัพท์เทคนิคจำนวน 47 คน มีผลการเรียนรู้ในการทำแบบทดสอบก่อนเรียนมีค่าเฉลี่ย ($\bar{X}$) เท่ากับร้อยละ 50.00 มีค่าเบี่ยงเบนมาตรฐาน(S.D.) เท่ากับ 22.75 และหลังเรียนมีค่าเฉลี่ย ($\bar{X}$) เท่ากับร้อยละ 92.13 มีค่าเบี่ยงเบนมาตรฐาน (S.D.) เท่ากับ 8.32 เมื่อทดสอบด้วยสถิติ paired t-test พบว่านักศึกษามีความรู้เกี่ยวกับศัพท์เทคนิคสูงกว่าก่อนเรียนอย่างมีนัยสำคัญที่ระดับ 0.05 ดังแสดงในตารางที่ 3

ตารางที่ 3 เปรียบเทียบผลการเรียนรู้คำศัพท์เทคนิคของนักศึกษาจากการเรียนโดยใช้เกมคำศัพท์

ความรู้ความสามารถการอ่านออกเสียงคำศัพท์	n	$\bar{X}$	S.D.	$\bar{D}$	t	Sig(2-tailed)
ก่อนเรียน	47	50.00	22.75	42.13	15.21*	0.00
หลังเรียน	47	92.13	8.32			

*มีนัยสำคัญทางสถิติที่ระดับ 0.05

2. ความพึงพอใจของนักศึกษาที่มีต่อการเรียนรู้โดยใช้เกมคำศัพท์เทคนิค

จากแบบวัดความพึงพอใจของผู้เรียนที่มีต่อการเรียนรู้ผ่านการใช้เกมคำศัพท์เทคนิค พบว่า ภาพรวมผู้เรียนมีความพึงพอใจอยู่ในระดับมากที่สุด ($\bar{X}$ = 4.69, S.D. = 0.41) และเมื่อพิจารณาในด้านผู้สอนพบว่า นักศึกษามีความพึงพอใจในความเป็นกันเอง ให้คำแนะนำ และรับฟังความคิดเห็นของผู้เรียนมากที่สุด ($\bar{X}$ = 4.87, S.D. = 0.34) ส่วนในด้านวิธีการสอน และกิจกรรมการเรียนการสอน พบว่านักศึกษามีความพึงพอใจต่อการจัดกิจกรรมการเรียนรู้ที่ให้ผู้เรียนมีส่วนร่วมในกิจกรรมมากที่สุด ($\bar{X}$ = 5.0, S.D. = 0.00) ดังตารางที่ 4 และภาพที่ 2

ตารางที่ 4 ความพึงพอใจต่อการอ่านออกเสียงคำศัพท์เทคนิคโดยการเรียนรู้ผ่านเกมคำศัพท์

คำถาม	$\bar{X}$	S.D.	แปลผล
ด้านผู้สอน	4.72	0.38	มากที่สุด
1. ผู้สอนมีการเตรียมการสอนล่วงหน้า	4.36	0.48	มาก
2. ผู้สอนมีความรู้ในเนื้อหาวิชาที่สอนเป็นอย่างดี	4.81	0.36	มากที่สุด
3. ผู้สอนมีความสามารถในการถ่ายทอดความรู้ ช่วยให้เกิดการเรียนรู้ในเนื้อหาวิชา	4.85	0.36	มากที่สุด
4. ผู้สอนมีความเป็นกันเอง ให้คำแนะนำ และรับฟังความคิดเห็นของผู้เรียน	4.87	0.34	มากที่สุด
ด้านวิธีการสอน และกิจกรรมการเรียนการสอน	4.67	0.42	มากที่สุด
1. มีการสร้างความรู้ความเข้าใจเกี่ยวกับวัตถุประสงค์และเป้าหมายของการเรียน	4.91	0.28	มากที่สุด
2. มีการจัดกิจกรรมการเรียนรู้ที่ให้ผู้เรียนมีส่วนร่วมในกิจกรรม	5	0.00	มากที่สุด
3. มีการใช้สื่อ หรือนวัตกรรมการสอนเพื่อส่งเสริมการเรียนรู้ให้แก่ผู้เรียนอย่างเหมาะสม	4.83	0.36	มากที่สุด
4. มีกิจกรรมการเรียนการสอนหลากหลายเหมาะสมกับเนื้อหาวิชาที่เรียน	4.85	0.38	มากที่สุด
5. มีความสามารถในการจดจำชื่อของจุลินทรีย์จากเกมจับคู่	4.64	0.48	มากที่สุด
6. มีความสามารถในการจดจำคำศัพท์เทคนิคเกี่ยวกับการวัดการเจริญของจุลินทรีย์จากเกมบิงโก	4.40	0.80	มากที่สุด
7. มีความสามารถในการจดจำคำศัพท์เทคนิคเกี่ยวกับอิมมูโนวิทยาจากเกมกระซิบ	4.59	0.58	มากที่สุด
8. มีความกล้าในการออกเสียงคำศัพท์เทคนิค	4.17	0.48	มาก
ภาพรวมโดยเฉลี่ย	**4.69**	**0.41**	มากที่สุด

สรุปและอภิปรายผล

การจัดการสอนโดยใช้เกมคำศัพท์เพื่อพัฒนาการเรียนรู้คำศัพท์เทคนิคทางจุลชีววิทยาของนักศึกษาระดับปริญญาตรี มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย วิทยาเขตนครศรีธรรมราช พื้นที่ทุ่งใหญ่ พบว่า นักศึกษาที่ได้รับการสอนโดยใช้เกมคำศัพท์เทคนิค มีผลการเรียนรู้ดีขึ้นร้อยละ 100 โดยก่อนเรียนมีค่าเฉลี่ย ($\bar{X}$) เท่ากับร้อยละ 50 ค่าเบี่ยงเบนมาตรฐาน (S.D.) เท่ากับ 22.75 และหลังเรียนมีค่าเฉลี่ย ($\bar{X}$) เท่ากับร้อยละ 92.13 ค่าเบี่ยงเบนมาตรฐาน (S.D.) เท่ากับ 8.32 เมื่อทดสอบด้วยสถิติ Paired t-test พบว่า นักศึกษามีความรู้คำศัพท์เทคนิคหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญที่ระดับ 0.05 ซึ่งสอดคล้องกับงานวิจัยของ พรรณราย บรรเทากุล (2565) ทำการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างก่อนเรียนและหลังเรียนโดยใช้กิจกรรมการเรียนรู้แบบวัฏจักรการเรียนรู้แบบ 5 ขั้น ร่วมกับเทคนิคเกมมิฟิเคชั่น รายวิชาวิทยาศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 พบว่า นักเรียนมีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญ และสอดคล้องกับงานวิจัยของ จุฑารัตน์ จันทร์งิ้ว (2566) ทำการพัฒนากิจกรรมการเรียนรู้โดยใช้เกมเป็นฐานร่วมกับ Micro: bit เพื่อส่งเสริมทักษะการคิดเชิงคำนวณ สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 1 โรงเรียนป่าไม้อุทิศ 4 สำนักงานเขตพื้นที่การศึกษาประถมศึกษาตาก เขต 2 หลังใช้เกมนักเรียนมีทักษะความคิดเชิงคำนวณหลังเรียนด้วยกิจกรรมการเรียนรู้โดยใช้เกมเป็นฐานร่วมกับ Micro: bit สูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

ความพึงพอใจของนักศึกษาต่อวิธีการใช้เกมคำศัพท์เทคนิคประกอบการสอนวิชาจุลชีววิทยา ผู้เรียนมีความพึงพอใจอยู่ในระดับมากที่สุด ($\bar{X}$ = 4.69, S.D. = 0.41) ผู้เรียนมีความสนใจ มีความสนุกในการเรียนมาก ผ่อนคลาย และเกิดผลสัมฤทธิ์ทางการเรียนดีมาก ผู้เรียนมีความชอบที่จัดการเรียนโดยใช้เกม ผลการวิจัยที่ได้มีความสอดคล้องผลการศึกษาของ ธัญยมัย สีแนน, เยาวลักษณ์ ฉัตรกวินกานต์ และศุภมาส ผกากาศ (2562) ได้ศึกษาปัญหาและแนวทางในการพัฒนาเกมคำศัพท์ภาษาอังกฤษ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนบ้านช่องแคบ อำเภอช่องแคบ จังหวัดตาก พบว่า นักเรียนไม่ค่อยมีความรู้ความเข้าใจในภาษาอังกฤษเท่าที่ควร จึงพัฒนาเกมคำศัพท์ภาษาอังกฤษเพื่อเป็นเครื่องมือในการพัฒนา ซึ่งนักเรียนมีความพึงพอใจในระดับความพึงพอใจมาก และ พิชามญชุ์ ศรีสวัสดิ์, อัญกรณ์ สูญกรรมรัตน์, คณิตา นุราภักดิ์ และพล เหลืองรังสี (2566) ศึกษาการพัฒนาแบบฝึกจดจำคำศัพท์ภาษาอังกฤษแบบคำคล้องจอง ของนักเรียนระดับชั้นประถมศึกษาปีที่ 4 ได้นำเกมมาใช้ในการพัฒนาผู้เรียนทางภาษา ทำให้ผู้เรียนมีทัศนคติที่ดี มีความผ่อนคลาย ส่งผลให้มีความจดจำและออกเสียงคำศัพท์ได้ดีขึ้น

ข้อเสนอแนะ

1. ผู้สอนต้องจัดเตรียมแผนการสอนให้เหมาะสมกับเนื้อหา เลือกใช้เกมที่ผู้เรียนจะใช้เวลาร่วมกันระดับความยากง่ายเหมาะสมกับพื้นฐานของผู้เรียน

2. ก่อนเริ่มการเรียนการสอนควรอธิบายให้ผู้เรียนเข้าใจถึงวัตถุประสงค์ของการเรียน อธิบายขั้นตอน วิธีการเรียน อย่างกระชับ ไม่ควรใช้เวลานานเกินไป

3. ในการจัดกิจกรรมกลุ่มควรให้มีการสับเปลี่ยนกลุ่มใหม่เมื่อมีการเปลี่ยนเกม เพื่อป้องกันความเบื่อหน่ายของผู้เรียน และควรจัดกลุ่มผู้เรียนตามความเหมาะสมเพื่อให้ผู้เรียนทุกคนได้มีโอกาสในการทำกิจกรรม

4. ผู้สอนต้องดูแล ควบคุมชั้นเรียนให้ทั่วถึง และเข้าไปช่วยแก้ปัญหาที่อาจจะเกิดขึ้นระหว่างการทำกิจกรรมโดยทันที

เอกสารอ้างอิง

จุฑารัตน์ จันทร์งิ้ว. (2566). การพัฒนากิจกรรมการเรียนรู้โดยใช้เกมเป็นฐานร่วมกับ Micro: bit เพื่อส่งเสริมทักษะการคิดเชิงคำนวณ สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 1. การศึกษามหาบัณฑิต (สาขาวิชาหลักสูตรและการสอน). พิษณุโลก: มหาวิทยาลัยนเรศวร.

ชนัตถ์ พูนเดช และธนิตา เลิศพรกุลรัตน. (2563). การศึกษานวัตกรรมการเรียนรู้ด้วยแนวคิดเกมมิฟิเคชัน. วารสารศึกษาศาสตร์ มหาวิทยาลัยนเรศวร, 22(2), 84-97.

ชุติมา แซ่เฮ้ง ทวีศักดิ์ จินดานุรักษ์ และดวงเดือน สุวรรณจินดา. (2566). ผลการจัดการเรียนรู้แบบสืบเสาะร่วมกับเกมวิทยาศาสตร์ที่มีต่อผลสัมฤทธิ์ทางการเรียน และทักษะกระบวนการทางวิทยาศาสตร์ เรื่อง แรงไฟฟ้าและพลังงานไฟฟ้า สำหรับนักเรียนชั้นประถมศึกษาปีที่ 6 โรงเรียนบ้านหนองประดู่ จังหวัดชลบุรี. วารสารวไลยอลงกรณ์ปริทัศน์, 13(3), 84-97.

ทิศนา แขมมณี. (2546). 14 วิธีสอนสำหรับครูมืออาชีพ (พิมพ์ครั้งที่ 4). กรุงเทพฯ :สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

ธมนพัชร์ นิธิกิจโภคินกุล, เชษฐ์ ศิริสวัสดิ์ และนพมณี เชื้อวัชรินทร์. (2562). การศึกษาผลการจัดการเรียนรู้โดยใช้เกมเป็นฐานต่อความเข้าใจทางวิทยาศาสตร์ วิชาชีววิทยา เรื่อง การถ่ายทอดลักษณะทางพันธุกรรม ของนักเรียนชั้นมัธยมศึกษาปีที่ 4. ศึกษาศาสตร์สาร มหาวิทยาลัยเชียงใหม่, 3(3), 1-13.

ธัญยมัย สีแนน, เยาวลักษณ์ ฉัตรกวินกานต์ และศุภมาส ผกากาศ. (2562). การพัฒนาเกมคำศัพท์ภาษาอังกฤษ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4. วารสารราชพฤกษ์, 18(3), 776-782.

นงนุช บริเอก. (2565). การพัฒนาทักษะกระบวนการทางวิทยาศาสตร์และผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 3 เรื่อง ชีวิตของมนุษย์และสัตว์ โดยการจัดการเรียนรู้เทคนิค STAD ร่วมกับเกม. ครุศาสตรมหาบัณฑิต (สาขาวิชาการสอนวิทยาศาสตร์). สกลนคร: มหาวิทยาลัยราชภัฏสกลนคร.

พรรณราย บรรเทากุล. (2565). การพัฒนากิจกรรมการเรียนรู้ วิชาวิทยาศาสตร์ เรื่อง โลกและการเปลี่ยนแปลง โดยใช้กิจกรรมการเรียนรู้แบบวัฏจักรการเรียนรู้แบบ 5 ขั้น ร่วมกับ เทคนิคเกมมิฟิเคชั่น สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 2. การศึกษามหาบัณฑิต (สาขาวิชาหลักสูตรและการสอน). มหาสารคาม: มหาวิทยาลัยมหาสารคาม.

พิชามญชุ์ ศรีสวัสดิ์, อัญกรณ์ สูญกรรมรัตน์, คณิตา นุราภักดิ์ และพล เหลืองรังสี. (2566). การพัฒนาผลสัมฤทธิ์ในการจดจำคำศัพท์ภาษาอังกฤษ โดยใช้แบบฝึกจดจำคำศัพท์แบบคำคล้องจองของนักเรียนชั้นประถมศึกษาปีที่ 4. การประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ครั้งที่ 14. สงขลา: มหาวิทยาลัยหาดใหญ่.

สถาบันทดสอบทางการศึกษาแห่งชาติ. (2568). สถิติพื้นฐานผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐาน (O-NET) ชั้นเทียบเท่า ม.6 ประจำปีการศึกษา 2567. สืบค้นเมื่อ 9 เมษายน 2568, จาก https://www.niets.or.th/th/

สาริณี สุวรรณพันธุ์. (2553). การใช้กิจกรรมเพลงเพื่อส่งเสริมการออกเสียง ความรู้ทางด้านคำศัพท์และไวยากรณ์ภาษาอังกฤษ ของนักเรียนชั้นประถมศึกษาปีที่ 5. ศึกษาศาสตร์มหาบัณฑิต (สาขาวิชาการสอนภาษาอังกฤษ) บัณฑิตวิทยาลัย. เชียงใหม่: มหาวิทยาลัยเชียงใหม่.

สุจิตรา พลภาณุมาศ. (2543). ทัศนคติต่อวิชาบังคับพื้นฐานภาษาอังกฤษของนักศึกษา. ศึกษาศาสตร์มหาบัณฑิต (สาขาวิชาจิตวิทยาการศึกษาและการแนะแนว). คณะวิจิตรศิลป์ บัณฑิตวิทยาลัย. เชียงใหม่: มหาวิทยาลัยเชียงใหม่.

สำนักงานเลขานุการคณะกรรมการยุทธศาสตร์ชาติ. (2561). ยุทธศาสตร์ชาติ พ.ศ.2561-2580. กรุงเทพฯ. สืบค้นเมื่อ 9 เมษายน 2568, จาก https://www.mhesi.go.th/.

Patrick Gillard. (2001). Cambridge Learner's Dictionary. United Kingdom: Cambridge University Press.

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การพัฒนาทักษะการอ่านจับใจความสำคัญ ด้วยชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเทศบาล ๑ (สังขวิทย์) จังหวัดตรัง

Developing reading comprehension skills with a set of exercises titled "Secret Mission of Readers: Breaking Through Key Points" in conjunction with the SQ4R teaching technique for Mathayom 2 students at Thesaban 1 School (Sangkhawit), Trang Province

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อหาค่าประสิทธิภาพของชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ให้มีประสิทธิภาพตามเกณฑ์ 80/80 และเพื่อเปรียบเทียบผลสัมฤทธิ์ของนักเรียนระหว่างก่อนเรียน - หลังเรียน โดยใช้ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเทศบาล ๑ (สังขวิทย์) จังหวัดตรัง เครื่องมือที่ใช้ในการวิจัย ได้แก่ 1. แผนการจัดการเรียนรู้กลุ่มสาระการเรียนรู้ภาษาไทยโดยใช้เทคนิคการสอนแบบ SQ4R จำนวน 7 แผน รวม 7 ชั่วโมง 2. ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” จำนวน 1 เล่ม 3. ชุดแบบฝึกทักษะ ได้แก่ ชุดที่ 1 เรื่อง การอ่านจับใจความสำคัญจากนิทาน ชุดที่ 2 เรื่อง การอ่านจับใจความสำคัญจากข่าว ชุดที่ 3 เรื่อง การอ่านจับใจความสำคัญจากบทความ 3. แบบทดสอบวัดผลสัมฤทธิ์การอ่านจับใจความสำคัญก่อน-หลังเรียน โดยใช้ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ซึ่งเป็นแบบทดสอบปรนัยชนิดเลือกตอบ 4 ตัวเลือก จำนวน 20 ข้อ 1 ฉบับ กำหนดการให้ค่าคะแนน คือ ตอบถูกได้ 1 คะแนน ตอบผิดหรือไม่ตอบได้ 0 คะแนน (ข้อสอบเป็นชุดเดียว) การวิเคราะห์ข้อมูลและสถิติที่ใช้ในการหาประสิทธิภาพของชุดแบบ

ฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ใช้สูตร E1/E2 การเปรียบเทียบผลสัมฤทธิ์ทางการอ่านจับใจความสำคัญ ร่วมกับเทคนิคการสอนแบบ SQ4R โดยใช้สูตร t-test แบบ dependent การหาค่าเฉลี่ย ($\overline{X}$) และส่วนเบี่ยงเบนมาตรฐาน (S.D) ของแบบทดสอบวัดผลสัมฤทธิ์การอ่านจับใจความสำคัญ ร่วมกับเทคนิคการสอนแบบ SQ4R

ผลการวิจัยพบว่า

1. ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 มีประสิทธิภาพเท่ากับ 82.89/84.47 ซึ่งสูงกว่าเกณฑ์ 80/80

2. ผลสัมฤทธิ์ทางการเรียนของนักเรียนที่เรียนรู้โดยใช้แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนก่อนเรียน-หลังเรียน (ข้อสอบชุดเดียวกัน) เป็นแบบทดสอบปรนัยชนิดเลือกตอบ 4 ตัวเลือก จำนวน 20 ข้อ 1 ฉบับ ข้อละ 1 คะแนน รวม 20 คะแนน คะแนนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

คำสำคัญ : ชุดแบบฝึกทักษะ , การอ่านจับใจความสำคัญ , เทคนิคการสอนแบบ SQ4R

Abstract

This research aimed to find the efficiency of a set of skill training books, “Secret Mission of the Reader, Breaking through the Main Idea”, combined with the SQ4R teaching technique to achieve the efficiency according to the criterion of 80/80 and to compare the students’ achievement before and after learning by using the set of skill training books, “Secret Mission of the Reader, Breaking through the Main Idea”, combined with the SQ4R teaching technique for Mathayom 2 students at Thesaban 1 School (Sangkhawit), Trang Province. The research instruments used in the research were: 1. 7 lesson plans for the Thai language subject group using the SQ4R teaching technique, totaling 7 hours; 2. A set of skill training books, “Secret Mission of the Reader, Breaking through the Main Idea”, 1 book, and 3 sets of skill training books: Set 1: Reading for main ideas from stories; Set 2: Reading for main ideas from news; and Set 3: Reading for main ideas from articles; 3. A test to measure reading comprehension before and after learning, using the set of skill training books, “Secret Mission of the Reader.” “Passing through the main points” in combination with the SQ4R teaching technique, which is a 20-question, 4-choice multiple-choice test, 1 copy. The scoring is as follows: 1 point for a correct answer and 0 points for an incorrect answer or no answer. (The test is a single set) Data analysis and statistics used to find the efficiency of the skill training set, “Secret Mission of Readers Passing through the Main Points” in combination with the SQ4R teaching technique used the E1/E2 formula. A comparison of the results of reading comprehension achievement in combination with the SQ4R teaching technique used the dependent t-test formula. Calculating the mean ($\overline{X}$) and standard deviation (S.D) of the Reading Comprehension Achievement Test in combination with the SQ4R teaching technique.

The findings were as follows

1. The skill training set, “Secret Mission of the Reader, Breaking through the Key Points”, together with the SQ4R teaching technique for Mathayom 2 students, has an efficiency of 82.89/84.47, which is higher than the 80/80 criterion.

2. The academic achievement of students who learned by using the pre-test and post-test (the same set of questions) as a 20-question, 4-choice multiple choice test, 1 copy, 1 point per question, totaling 20 points. The post-test score was significantly higher than the pre-test score at the .05 level.

Keywords : Skill practice set , Reading comprehension , SQ4R teaching technique

บทนำ

การอ่านมีความสำคัญต่อชีวิตมนุษย์ตั้งแต่เล็กจนโตมีความสำคัญต่อการพัฒนาอาชีพและการศึกษาการอ่านเป็นหัวใจในการเรียนการสอนที่จะพัฒนาความรู้ความสามารถอยู่ตลอดเวลา เพราะจะเป็นส่วนสำคัญที่ทำให้ผู้อ่านทำความเข้าใจกับเนื้อหาและวัตถุประสงค์ได้ แต่ถ้าอ่านไม่สม่ำเสมอผล ที่ตามมา คือ ผู้อ่านต้องใช้เวลาอ่านมากกว่าปกติและจับใจความสำคัญได้ไม่ครบถ้วน นอกจากนี้ยังมีความสำคัญในการถ่ายทอดสิ่งที่อ่านให้ผู้อื่นได้รับรู้ได้ตรงประเด็น จุฬารัตน์ อินทร์อุดม (2561, น. 2)

กระทรวงศึกษาธิการ (2559, น. 56) กล่าวว่าการอ่านจับใจความ คือ การอ่านเพื่อสรุปใจความสำคัญ ผู้อ่านต้องมีสมาธิในการอ่านและอ่านอย่างรอบคอบและผู้อ่านจะต้องทำความเข้าใจเรื่องที่อ่านต้องอ่านหลาย ๆ เที่ยว แล้วตั้งคำถามเกี่ยวกับเรื่องที่อ่านว่า ใคร ทำอะไร ที่ไหน เมื่อใด อย่างไร แล้วตอบคำถามเหล่านั้นแต่เพียงสั้น ๆ แต่ให้ได้ใจความชัดเจน จากนั้นนำมาเรียบเรียงให้เป็นประโยคหรือข้อความสั้น ๆ ซึ่งสอดคล้องกับ ชุติมา ยอดตา (2561, น. 2) ที่กล่าวว่าการอ่านจับใจความสำคัญเป็นทักษะพื้นฐานสำหรับการอ่านในระดับชั้นที่สูงขึ้น เพราะถ้าหากนักเรียนไม่สามารถจับใจความสำคัญได้ก็จะทำให้ไม่เข้าใจเรื่องที่อ่านได้ เพราะการอ่านจับใจความสามารถช่วยให้ผู้อ่านเข้าใจถึงแก่นเรื่องที่อ่านได้อย่างถูกต้องและสำหรับผู้เรียนในรายวิชาต่าง ๆ ทุกสาขาวิชาจำเป็นอย่างยิ่งที่ต้องใช้ทักษะการอ่านจับใจความเพื่อใช้เป็นเครื่องมือในการแสวงหาความรู้และประสบการณ์ต่าง ๆ ดังนั้นผู้เรียนที่ขาดทักษะในการอ่านจับใจความก็จะไม่สามารถสรุปสาระสำคัญของเรื่องที่อ่านได้ ดังที่ วิมลรัตน์ สุนทรโรจน์ (2561, น. 111) ให้ความหมายของชุดฝึกว่า ชุดฝึกหรือชุดฝึกเสริมทักษะเป็นสื่อการเรียนประเภทหนึ่งที่เป็นส่วนเพิ่มเติมหรือเสริม สำหรับให้นักเรียนฝึกปฏิบัติเพื่อให้เกิดความรู้ ความเข้าใจและทักษะเพิ่มขึ้น ส่วนใหญ่หนังสือเรียนจะมีชุดฝึกหัดอยู่ท้ายบทเรียนในบางวิชาชุดฝึกปฏิบัติ ซึ่งสอดคล้องกับทักษิณ คุณพิภาค (2561, น. 29) ได้ให้ความหมายไว้ว่า แบบฝึกทักษะ หมายถึง สื่อที่สร้างขึ้นเพื่อใช้ฝึกทักษะในด้านต่าง ๆ ให้แก่ผู้เรียนเป็นการทบทวนและฝึกทักษะเพิ่มเติมหลังจากที่ได้เรียนเนื้อหาไปแล้วเพื่อให้ผู้เรียนมีความรู้ ความเข้าใจในบทเรียนสามารถปฏิบัติจนเกิดความชำนาญและนำไปใช้ในชีวิตประจำวัน

ดังนั้นจากการศึกษาผู้วิจัยได้มีโอกาสออกฝึกประสบการณ์วิชาชีพและได้ปฏิบัติการสอนในสถานศึกษา ผู้วิจัยเห็นว่าจากการจัดกิจกรรมการเรียนการสอน กลุ่มสาระการเรียนรู้ภาษาไทย ชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเทศบาล ๑ (สังขวิทย์) สังกัดเทศบาลนครตรัง จังหวัดตรัง นักเรียนบางส่วนยังขาดความรู้พื้นฐานในเรื่องของการอ่านจับใจความสำคัญ นักเรียนไม่สามารถสรุปประเด็นสำคัญของเรื่องที่

อ่านได้หรืออ่านแล้วนักเรียนไม่สามารถนำความรู้จากเรื่องที่อ่านมาคิดวิเคราะห์ ตีความ แยกแยะประเด็นสำคัญได้ สาเหตุเนื่องมาจากนักเรียนส่วนใหญ่ไม่มีนิสัยรักการอ่าน

ผู้วิจัยในฐานะครูผู้สอนวิชาภาษาไทย จึงสนใจนำชุดแบบฝึกทักษะการอ่านจับใจความสำคัญ เข้ามามีบทบาทสำคัญในการจัดกิจกรรมการเรียนการสอน เพื่อช่วยพัฒนาผลสัมฤทธิ์ทางการเรียนของนักศึกษาให้ดีขึ้น และจากการสำรวจปัญหาด้านการอ่านจับใจความสำคัญของนักเรียน ชั้นมัธยมศึกษาปีที่ 2 พบว่าในรายวิชาภาษาภาษาไทย จากที่ได้มีการสำรวจให้นักเรียนแบบสอบถาม ประเมินนิสัยรักการอ่านของนักเรียน พบว่า ในหนึ่งเดือนนักเรียนอ่านอ่านหนังสือ 1 - 2 ครั้ง หรือแทบไม่อ่านเลย จากนักเรียนทั้งหมด 19 คน คิดเป็นร้อยละ 40 โดยสรุปแล้วนักเรียนที่ไม่อ่านหนังสือ ประมาณ 7 - 8 คน ซึ่งเกินครึ่งห้อง ซึ่งสรุปได้ว่านักเรียนไม่มีนิสัยรักการอ่าน และจากที่ได้ทดลองให้ทำแบบฝึกทักษะก่อนเรียนเรื่องการอ่านจับใจความสำคัญ ผลปรากฏว่านักเรียนส่วนใหญ่ไม่สามารถจับใจความสำคัญได้

จากปัญหาและความสำคัญดังกล่าว ผู้วิจัยจึงได้การนำชุดแบบฝึกทักษะการอ่านจับใจความสำคัญร่วมกับเทคนิคการสอนแบบ SQ4R จัดการเรียนการเรียนการสอนระดับชั้นมัธยมศึกษาปีที่ 2 การจัดทำแผนการจัดการเรียนรู้โดยใช้แบบฝึกทักษะการอ่านร่วมกับเทคนิคการสอนแบบ SQ4R สาระการเรียนรู้ภาษาไทย ชั้นมัธยมศึกษาปีที่ 2 เข้ามาร่วมใช้ในชุดกิจกรรมแบบฝึกทักษะการอ่านเพื่อกระตุ้นให้ผู้เรียนเกิดทักษะในการอ่านจับใจความให้นักเรียนมีความเข้าใจในเรื่องที่อ่านมากขึ้น การอ่านจับใจความสำคัญเป็นหนึ่งในทักษะที่สำคัญในการพัฒนาการเรียนรู้ของนักเรียน โดยเฉพาะอย่างยิ่งในระดับมัธยมศึกษาที่การเรียนการสอนต้องการให้ผู้เรียนสามารถสรุปประเด็นสำคัญจากบทความ หนังสือและเนื้อหาวิชาการต่าง ๆ ได้ การที่นักเรียนไม่สามารถจับใจความสำคัญได้อย่างมีประสิทธิภาพอาจส่งผลกระทบต่อผลสัมฤทธิ์ทางการเรียน เนื่องจากทักษะนี้เชื่อมโยงกับการทำความเข้าใจเนื้อหาวิชาต่าง ๆ การเขียนและการคิดวิเคราะห์

แนวทางการแก้ไขปัญหา การจัดทำแบบฝึกทักษะการอ่านจับใจความสำคัญและจัดทำแผนจัดการจัดการเรียนรู้แบบ SQ4R ผู้วิจัยนำเสนอประเด็นใหม่หรือเนื้อหาใหม่โดยอาจนำเสนอด้วยสื่อชุดแบบฝึกทักษะการอ่านจับใจความสำคัญที่น่าสนใจเพื่อให้กิจกรรมการเรียนการสอนมีความน่าสนใจ ร่วมด้วยเพราะเทคนิคการสอนแบบ SQ4R จะช่วยปรับปรุงและพัฒนาความสามารถในการอ่านของผู้เรียนภาษาไทยให้มีประสิทธิภาพดียิ่งขึ้น เพราะเป็นวิธีที่ยึดผู้เรียนเป็นศูนย์กลางและยังเป็นวิธีที่ช่วยกระตุ้นให้ผู้เรียนเกิดการเรียนรู้จากการทำแบบฝึกตอบคำถามหลังจากอ่านเนื้อหาจบ มีการจดบันทึก การเล่าถึงเรื่องที่อ่าน ซึ่งเป็นปัจจัยเสริมให้ผู้เรียนเกิดความรู้ความเข้าใจจากเรื่องที่อ่านสามารถนำความรู้ที่ได้มาปรับใช้ในชีวิตประจำวัน พร้อมทั้งฝึกฝนทักษะการเขียนสรุปใจความสำคัญจากเรื่องที่อ่านได้ นอกจากนั้นการทบทวนในสิ่งที่อ่านก็ช่วยส่งเสริมให้ผู้เรียนเป็นผู้ที่รู้จักคิดอย่างมีวิจารณญาณ นักเรียนทุกคนจะได้อ่านโดยใช้ชุดแบบฝึกทักษะการอ่านจับใจความสำคัญและจะมีแบบฝึกหลังการอ่านโดยตอบคำถามจากชุดแบบฝึกทักษะ นักเรียนที่มีผลการอ่านดีขึ้นหรือทำแบบฝึกหลังการอ่านได้ถูกต้อง ได้คะแนนอยู่ในระดับดีขึ้นจะได้คะแนนพิเศษเป็นรางวัลเพื่อเสริมแรงทางบวกให้กับนักเรียน

วัตถุประสงค์ของการวิจัย

1. เพื่อหาค่าประสิทธิภาพของชุดแบบฝึกทักษะการอ่าน เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ให้ประสิทธิภาพตามเกณฑ์ 80/80

2. เพื่อเปรียบเทียบผลสัมฤทธิ์ของนักเรียนระหว่างก่อนเรียน - หลังเรียน โดยใช้ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเทศบาล ๑ (สังขวิทย์) จังหวัดตรัง

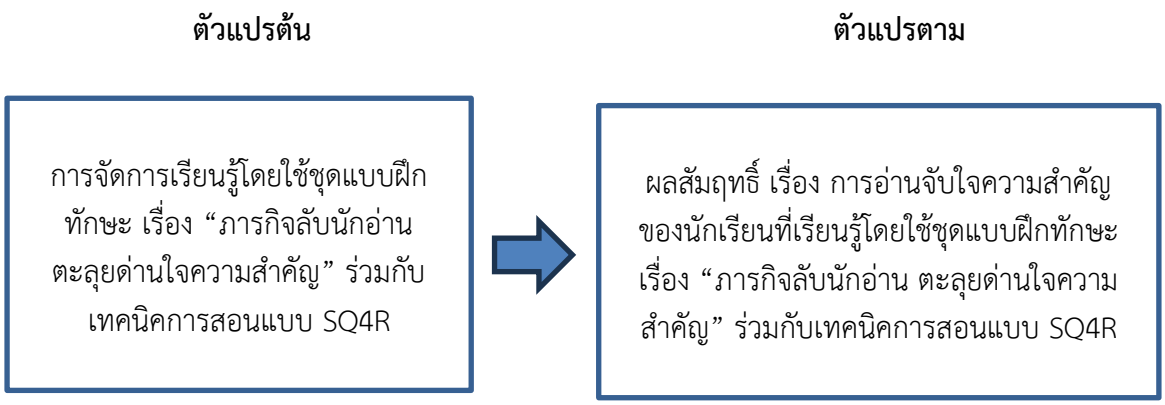
สมมติฐานของการวิจัย

1.ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ที่สร้างขึ้นมีประสิทธิภาพตามเกณฑ์ 80/80

2. หลังการจัดการเรียนรู้นักเรียนที่เรียนรู้ด้วยชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 2 มีผลสัมฤทธิ์ในการอ่านจับใจความสำคัญหลังเรียนสูงกว่าก่อนการจัดการเรียนรู้

กรอบแนวคิดการวิจัย

การพัฒนาทักษะการอ่านจับใจความสำคัญ ด้วยชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเทศบาล ๑ (สังขวิทย์) จังหวัดตรัง ซึ่งผู้วิจัยได้กำหนดกรอบแนวคิดไว้ดังนี้



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

การวิจัย เรื่อง การพัฒนาทักษะการอ่านจับใจความสำคัญ ด้วยชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเทศบาล ๑ (สังขวิทย์) จังหวัดตรัง มีวัตถุประสงค์การวิจัย 2 ประการ คือ เพื่อหาค่าประสิทธิภาพของชุดแบบฝึกทักษะการอ่าน เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ให้ประสิทธิภาพตามเกณฑ์ 80/80 และเพื่อเปรียบเทียบผลสัมฤทธิ์ของนักเรียนระหว่างก่อนเรียน-หลังเรียน โดยใช้ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ซึ่งมีวิธีการดำเนินวิจัยดังต่อไปนี้

ประชากรและกลุ่มตัวอย่าง

ประชากร คือ นักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเทศบาล ๑ (สังขวิทย์) ปีการศึกษา 2567 จำนวน 3 ห้องเรียน รวม 92 คน

กลุ่มตัวอย่าง คือ นักเรียนชั้นมัธยมศึกษาปีที่ 2/4 โรงเรียนเทศบาล ๑ (สังขวิทย์) ปีการศึกษา 2567 จำนวน 19 คน ซึ่งได้มาวิธีการสุ่มตัวอย่างแบบกลุ่ม (Cluster Random Sampling)

เครื่องมือที่ใช้ในการวิจัย ได้แก่

1. แผนการจัดการเรียนรู้กลุ่มสาระการเรียนรู้ภาษาไทยโดยใช้เทคนิคการสอนแบบ SQ4R จำนวน 7 แผน รวม 7 ชั่วโมง

แผนชั่วโมงที่ 1 จำนวน 1 ชั่วโมง เรื่อง ความรู้เบื้องต้นเกี่ยวกับการอ่านจับใจความสำคัญ
แผนชั่วโมงที่ 2-3 จำนวน 2 ชั่วโมง เรื่อง การอ่านจับใจความสำคัญจากนิทาน
แผนชั่วโมงที่ 4-5 จำนวน 2 ชั่วโมง เรื่อง การอ่านจับใจความสำคัญจากข่าว
แผนชั่วโมงที่ 6-7 จำนวน 2 ชั่วโมง เรื่อง การอ่านจับใจความสำคัญจากบทความ

2. ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” จำนวน 1 เล่ม 3 ชุด แบบฝึกทักษะ ได้แก่

ชุดที่ 1 เรื่อง การอ่านจับใจความสำคัญจากนิทาน
ชุดที่ 2 เรื่อง การอ่านจับใจความสำคัญจากข่าว
ชุดที่ 3 เรื่อง การอ่านจับใจความสำคัญจากบทความ

3. แบบทดสอบวัดผลสัมฤทธิ์การอ่านจับใจความสำคัญก่อน-หลังด้วยชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ซึ่งเป็นแบบทดสอบปรนัย ชนิดเลือกตอบ 4 ตัวเลือก จำนวน 20 ข้อ 1 ฉบับ กำหนดการให้ค่าคะแนน คือ ตอบถูกได้ 1 คะแนน ตอบผิดหรือ ไม่ตอบได้ 0 คะแนน (ข้อสอบเป็นชุดเดียว)

ผลการวิจัย

ผู้วิจัยได้นำเสนอผลการวิจัยตามวัตถุประสงค์ของการวิจัย ดังรายละเอียดต่อไปนี้

ตารางที่ 1 ผลการหาประสิทธิภาพการใช้ชุดแบบฝึกทักษะการอ่าน เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเทศบาล ๑ (สังขวิทย์)

รายการ	คะแนนเต็ม	คะแนนรวม	คะแนนเฉลี่ย	ร้อยละ	เกณฑ์มาตรฐาน	E_1 / E_2
คะแนนระหว่างเรียน	1140	945	49.74	82.89	80	82.89
คะแนนสอบหลังเรียน	380	321	16.89	84.47	80	84.47

จากตาราง 1 แสดงว่า คะแนนจากการทุดแบบฝึกทักษะการอ่านจับใจความสำคัญ มีค่าเฉลี่ยร้อยละ 82.89 และคะแนนที่ได้จากการทำแบบทดสอบหลังเรียน มีค่าเฉลี่ยร้อยละ 84.47 ซึ่งพบว่าประสิทธิภาพชุดกิจกรรมการเรียนรู้แบบ SQ4R ภายในกลุ่มสาระการเรียนรู้ มีค่าเป็น 82.89/84.47

ตารางที่ 2 ผลการเปรียบเทียบผลสัมฤทธิ์ของนักเรียนระหว่างก่อนเรียน-หลังเรียน โดยใช้ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ของนักเรียนชั้นมัธยมศึกษาปีที่ 2

ระยะการจัดการเรียนรู้	Mean	Std.Deviation	df	t-test	P-values
ก่อนเรียน	8.68	1.00	18	-29.10	.000
หลังเรียน	17.11	1.24			

จากตารางที่ 2 ผลการเปรียบเทียบการอ่านจับใจความสำคัญของนักเรียนก่อน-หลังการได้รับการจัดการเรียนโดยใช้ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R พบว่า คะแนนเฉลี่ยก่อนเรียน มีค่าเฉลี่ยเท่ากับ 8.68 มีส่วนเบี่ยงเบนมาตรฐานเท่ากับ 1.00 และคะแนนเฉลี่ยหลังเรียนเท่ากับ 17.11 มีส่วนเบี่ยงเบนมาตรฐานเท่ากับ 1.24 และจากการวิเคราะห์หาค่าเพื่อเปรียบเทียบคะแนนก่อนเรียน-หลังเรียนของนักเรียนที่เรียนโดยใช้วิธีสอนแบบ S04R ร่วมกับร่วมกับชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ปราฏว่าทักษะการอ่านจับใจความสำคัญหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

สรุปและอภิปรายผล

จากการวิจัย เรื่อง การพัฒนาทักษะการอ่านจับใจความสำคัญ ด้วยชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเทศบาล ๑ (สังขวิทย์) จังหวัดตรัง สามารถอภิปรายผลได้ดังต่อไปนี้

1. ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ที่ผู้วิจัยสร้างขึ้น จำนวน 1 เล่ม 3 ชุดแบบฝึกทักษะ ได้แก่ แบบฝึกทักษะชุดที่ 1 เรื่อง การอ่านจับใจความสำคัญจากนิทาน แบบฝึกทักษะชุดที่ 2 เรื่อง การอ่านจับใจความสำคัญจากข่าว แบบฝึกทักษะชุดที่ 3 เรื่อง การอ่านจับใจความสำคัญจากบทความ มีประสิทธิภาพ 82.89/84.47 หมายถึงนักเรียนได้คะแนนเฉลี่ยจากการทำชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ระหว่างการเรียน ทั้ง 3 ชุดแบบฝึกทักษะ คิดเป็นร้อยละ 49.74 และได้ค่าเฉลี่ยจากการทำแบบทดสอบวัดผลสัมฤทธิ์การอ่านจับใจความสำคัญก่อน-หลังด้วยชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R คิดเป็นร้อยละ 84.47 แสดงว่าการจัดการเรียนรู้เพื่อพัฒนาทักษะการอ่านจับใจความสำคัญ ชั้นมัธยมศึกษาปีที่ 2 โดยใช้ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R ที่ผู้วิจัยสร้างขึ้นมีประสิทธิภาพสูงกว่าเกณฑ์มาตรฐาน 80/80 ที่ตั้งไว้ อาจเนื่องมาจากการจัดการเรียนรู้โดยใช้ชุดแบบฝึกทักษะที่ผู้วิจัยได้ศึกษาวิธีการและขั้นตอนการสร้างชุดแบบฝึกทักษะ ได้ผ่าน

การตรวจ แนะนำ แก้ไขข้อบกพร่องและประเมินความถูกต้องเหมาะสมจากผู้เชี่ยวชาญ ผ่านการทดลองใช้เพื่อปรับปรุงแก้ไขให้สมบูรณ์ก่อนนำไปใช้จริงกับกลุ่มตัวอย่าง ซึ่งการทำชุดแบบฝึกทักษะช่วยให้นักเรียนสามารถอ่านจับใจความได้ดีขึ้น เพราะชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ได้มีการเรียงลำดับของเนื้อหาจากง่ายไปยาก เนื้อหาของชุดแบบฝึกทักษะจะเป็นเนื้อหาที่นักเรียนสามารถนำความรู้ ข้อคิดมาปรับใช้ในชีวิตประจำวันได้ และนักเรียนมีความเข้าใจในเนื้อหาได้ดีขึ้น มีความสนุกสนาน เพลินเพลิน และมีความกระตือรือร้นในการเรียน เพราะระหว่างการจัดการเรียนรู้ได้มีเกมกิจกรรมให้นักเรียนได้ทำร่วมกับการใช้ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” และหากนักเรียนคนไหนสามารถทำชุดแบบฝึกทักษะได้คะแนนเต็มในแต่ละชุดจะมีการบวกคะแนนเพิ่มให้ครั้งละ 1 คะแนน เพื่อเป็นการเสริมแรงให้กับนักเรียน ผู้วิจัยได้สร้างชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ชั้นมัธยมศึกษาปีที่ 2 ตามแนวทางการสร้างแบบฝึกทักษะที่จัดไว้อย่างเป็นระบบ โดยเริ่มศึกษาตั้งแต่เอกสาร แนวคิด ทฤษฎี และงานวิจัยที่เกี่ยวข้อง เพื่อนำมาสร้างแบบชุดฝึกทักษะและดำเนินการสร้างตามหลักการสร้างแบบฝึกทักษะที่ดี ซึ่งสอดคล้องกับกาญจนา แจ้งตรง (2560, น. 29) กล่าวถึงลักษณะชุดฝึกทักษะที่ดีไว้ว่า ชุดฝึกที่ดีและมีประสิทธิภาพช่วยทำให้นักเรียนประสบผลสำเร็จในการฝึกทักษะ เปรียบเสมือนผู้ช่วยคนสำคัญทำให้ครูประหยัดเวลาและแรงงานทำให้ผู้เรียนพัฒนาตนเองตามความสามารถมีความมั่นใจในการเรียน ช่วยลดความตึงเครียดเกิดความสนุกสนานในขณะเรียน และสอดคล้องกับสุจินดา พัชรภิญโญ (2558, น.57) ได้กล่าวถึงลักษณะชุดฝึกที่ดีไว้ว่า ชุดฝึกจะต้องเรียงลำดับจากง่ายไปหายาก มีคำสั่ง และคำอธิบายชัดเจน มีเนื้อหารูปแบบ ที่น่าสนใจซึ่งจะต้องอาศัยหลักจิตวิทยา เพื่อไม่ให้นักเรียนเบื่อหน่ายในการเรียนและนักเรียนสามารถนำสิ่งที่เรียนไปใช้ประโยชน์ได้จริงในชีวิตประจำวัน ซึ่งชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 2 ที่ผู้วิจัยสร้างขึ้นเป็นชุดแบบฝึกทักษะที่ใช้ร่วมกับแผนการจัดการเรียนรู้โดยใช้เทคนิคการสอนแบบ SQ4R ได้มีการนำเกมกิจกรรมต่าง ๆ มาปรับใช้ให้สอดคล้องเชื่อมโยงกับเนื้อหาที่สอน ซึ่งประกอบด้วยเกมกิจกรรมมากมาย เช่น กิจกรรม “เกมภาพเล่าเรื่อง” โดยให้นักเรียนดูภาพที่เกี่ยวข้องกับนิทาน แล้วตั้งคำถามกระตุ้นให้นักเรียนคาดเดาเนื้อเรื่องหรือแนวคิดสำคัญของนิทาน เพื่อเป็นการตั้งคำถามกระตุ้นความคิด ความสนใจและสร้างความกระตือรือร้นในการเรียน กิจกรรม “เกมระเบิดเวลา” โดยมีตัวแทนนักเรียนสามคนออกมายืนหน้าชั้นเรียนและให้เพื่อนที่นั่งร่วมกันใบ้คำศัพท์ที่อยู่หน้าจอ กติกา คือ ห้ามพูดคำศัพท์นั้นออกมาตรง ๆ แต่ให้ใช้วิธีการใบ้ยังไงก็ได้ให้เพื่อนตอบถูก ถ้าหากตอบถูกหมดทุกคำถามจะบวกคะแนนพิเศษให้ฟรีทั้งห้องคนละ 1 คะแนน เพื่อเป็นการเสริมแรงให้กับนักเรียนและยังเรียกสติ สมาธิ สร้างความกระตือรือร้นในการเรียน และกิจกรรมเต้นบริหารสมองก่อนเข้าสู่บทเรียน Brain Gym เพลง ตบมือ ตบตัก ตบไหล่ ฯลฯ เป็นการถ่ายทอดเนื้อหาสาระในลักษณะของกิจกรรมที่แตกต่างกันออกไป เพื่อที่นักเรียนจะได้ไม่เกิดความเบื่อหน่ายระหว่างเรียน โดยถือว่าสื่อหรือกิจกรรมต่าง ๆ มีประโยชน์และคุณค่าแตกต่างกัน

2. ผลสัมฤทธิ์ทางการเรียนของนักเรียนหลังเรียนโดยใช้ชุดแบบฝึกทักษะ เรื่อง “ภารกิจลับนักอ่าน ตะลุยด่านใจความสำคัญ” ร่วมกับเทคนิคการสอนแบบ SQ4R สูงกว่าก่อนเรียน เป็นไปตามสมมติฐานข้อ 2 ทั้งนี้เนื่องจากผู้วิจัยได้จัดทำการจัดการเรียนรู้ร่วมกับเทคนิคการสอนแบบ SQ4R สามารถช่วยให้ความสามารถในการอ่านจับใจความสำคัญ วิชาภาษาไทยของนักเรียนสูงขึ้น ซึ่งสอดคล้องกับธิดา บู่สามสาย (2559, น. 78) ได้วิจัยเรื่องการพัฒนาทักษะการอ่านจับใจความ ด้วยเทคนิคการเรียนรู้แบบ SQ4R โดยใช้ข้อมูลท้องถิ่นจังหวัดกาญจนบุรี ของนักเรียนชั้นประถมศึกษาปีที่ 5 ผลการวิจัยพบว่า

ก่อนเรียน มีค่าเฉลี่ย ($\bar{x}$= 14.72) และส่วนเบี่ยงเบนมาตรฐาน (S.D. = 4.16) และหลังเรียน มีค่าเฉลี่ย ($\bar{x}$ = 25.25) และส่วนเบี่ยงเบนมาตรฐาน (S.D. = 2.94) โดยหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ.05 และสอดคล้องกับจินตนา มั่นคง (2560) ได้ศึกษาเรื่องพัฒนากิจกรรมการเรียนรู้ ด้วยวิธีการสอนอ่านแบบ SQ4R ร่วมกับเทคนิคแผนผังความคิด เพื่อส่งเสริมความสามารถในการอ่าน เชิงวิเคราะห์สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 2 โดยมีวัตถุประสงค์เพื่อสร้างและหาดัชนีประสิทธิผลของกิจกรรมการเรียนรู้ด้วยวิธีการสอนแบบ SQ4R ร่วมกับเทคนิคแผนผังความคิด เพื่อส่งเสริมความสามารถในการอ่านเชิงวิเคราะห์ สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 2 เพื่อเปรียบเทียบ ความสามารถในการอ่านเชิงวิเคราะห์ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 หลังเรียนกับเกณฑ์ร้อยละ 70 และเพื่อศึกษาความพึงพอใจกิจกรรมการเรียนรู้ด้วยวิธีการสอนอ่านแบบ SQ4R ร่วมกับเทคนิค แผนผังความคิด กลุ่มตัวอย่างที่ใช้ในการวิจัย คือ นักเรียนชั้นมัธยมศึกษาปีที่ 2/1 โรงเรียนหนองตูมวิทยา ปีการศึกษา 2559 อำเภอกงไกรลาศ จังหวัดสุโขทัย จำนวน 30 คน มาจากการเลือกแบบเจาะจง เครื่องมือที่ใช้ในการวิจัย คือ กิจกรรมการเรียนรู้ และแบบประเมินความเหมาะสมของกิจกรรมการเรียนรู้ด้วยวิธีการสอนแบบ SQ4R ร่วมกับเทคนิคแผนผังความคิด เพื่อส่งเสริมความสามารถในการ อ่านเชิงวิเคราะห์ สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 2 วิเคราะห์ข้อมูลโดยใช้ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และค่าสถิติ t-test แบบ One sample test

ข้อเสนอแนะ

ข้อเสนอแนะในการวิจัย

1. การจัดกิจกรรมการเรียนรู้โดยชุดแบบทักษะการอ่านจับใจความสำคัญร่วมกับเทคนิคการสอนแบบ SQ4R ผู้สอนควรเลือกเนื้อหาการอ่านจับใจความสำคัญที่มีเนื้อหาสอดคล้องกับผู้เรียนสามารถนำไปประยุกต์ใช้ได้ในชีวิตประจำวัน

2. ก่อนการจัดกิจกรรมการเรียนรู้ ผู้สอนควรอธิบายขั้นตอนการจัดการเรียนรู้โดยใช้ชุดแบบฝึกทักษะการอ่านจับใจความสำคัญร่วมกับเทคนิคการสอนแบบ SQ4R อย่างละเอียดในแผนการจัดการเรียนรู้แรก เพราะผู้เรียนอาจยังไม่คุ้นเคยกับรูปแบบการจัดการเรียนรู้ดังกล่าว แต่เมื่อผู้เรียนเกิดความเข้าใจแล้ว ในแผนการจัดการเรียนรู้ต่อไป ผู้เรียนจะสามารถทำได้เองโดยมีผู้สอนเป็นผู้แนะนำ

3. การจัดการเรียนรู้โดยใช้ชุดแบบฝึกทักษะการอ่านร่วมกับเทคนิคการสอนแบบ SQ4R ในขั้นตั้งคำถาม (Question) ผู้สอนอาจมีส่วนร่วมช่วย ผู้เรียนตั้งคำถามเพื่อเป็นการกระตุ้นให้ผู้เรียนได้ฝึกการคิดวิเคราะห์มากขึ้น

4. ผู้สอนควรสร้างบรรยากาศในห้องเรียนให้เป็นบรรยากาศที่ท้าทายด้วยการส่งเสริมให้ผู้เรียนแสดงความคิดเห็นได้อย่างอิสระและในระหว่างการจัดกิจกรรมการเรียนรู้ควรมีการเสริมแรงทางบวกผ่านสีหน้า คำพูด หรือนำสื่อต่าง ๆ ที่เรียกความสนใจเพื่อกระตุ้นให้ผู้เรียนได้มีสมาธิและรู้สึกกระตือรือร้นมีความพยายามที่จะทำกิจกรรมในแต่ละขั้นตอน

ข้อเสนอแนะในการวิจัยครั้งต่อไป

1. ควรศึกษาวิจัยเกี่ยวกับการนำการจัดการเรียนรู้ด้วยชุดแบบฝึกทักษะร่วมกับเทคนิคการสอนแบบ SQ4R ไปพัฒนาทักษะอื่นในรายวิชาภาษาไทย เช่น การอ่านเพื่อวิเคราะห์วิจารณ์ การอ่านอย่างมีวิจารณญาณ เป็นต้น

2. การวิจัยครั้งนี้ใช้แบบแผนการวิจัยแบบกลุ่มเดียวสอบก่อนและสอบหลัง ดังนั้นในการวิจัยครั้งต่อไป ควรมีการเปรียบเทียบการจัดการเรียนรู้โดยใช้แบบฝึกทักษะการคิดวิเคราะห์ร่วมกับเทคนิคการสอนแบบ SQ4R กับวิธีสอนทักษะการคิดวิเคราะห์ตามแนวคิดอื่น ๆ เช่น วิธีสอนโดยใช้เกม วิธีการสอนแบบ 5W1H เป็นต้น

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2559). หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพฯ: โรงพิมพ์ คุรุสภาลาดพร้าว.

กาญจนา แจ้งตรง. (2560). ผลการจัดกิจกรรมการเรียนรู้ภาษาไทยเรื่องการผันวรรณยุกต์โดยใช้การใช้แบบฝึกทักษะชั้นประถมศึกษาปีที่5. การศึกษาค้นคว้าอิสระการศึกษามหาบัณฑิตสาขาหลักสูตรและการสอน มหาวิทยาลัยมหาสารคาม.

จินตนา มั่นคง. (2560). การพัฒนากิจกรรมการเรียนรู้ด้วยวิธีการสอนอ่านแบบบ SQ4R ร่วมกับ เทคนิคแผนผังความคิด เพื่อส่งเสริมความสามารถในการอ่านเชิงวิเคราะห์สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 2. การค้นคว้าอิสระ กศ.ม., มหาวิทยาลัยนเรศวร.

จุฬารัตน์ อินทร์อุดม. (2561). การพัฒนาความสามารถในการอ่านจับใจความสำคัญของนักเรียนชั้นมัธยมศึกษาปีที่ 1 โดยใช้เทคนิค SQ4R ร่วมกับพลังคำถาม. วิทยานิพนธ์ศึกษาศาสตรมหาบัณฑิต, สาขาวิชาการสอนภาษาไทย, บัณฑิตวิทยาลัย, มหาวิทยาลัยศิลปากร

ชุติมา ยอดตา. (2561). การพัฒนาการจัดการเรียนรู้แบบ SQ4R เพื่อเสริมสร้างความสามารถการอ่านจับใจความของนักเรียนชั้นมัธยมศึกษาปีที่ 1. วิทยานิพนธ์ครุศาสตรมหาบัณฑิต สาขาวิชาหลักสูตรและการเรียนการสอน. มหาสารคาม: มหาวิทยาลัยราชภัฏมหาสารคาม.

ทักษิณ คุณพิภาค. (2561). การพัฒนาแบบฝึกทักษะการอ่านและการเขียนสะกดคำภาษาไทยโดยใช้การเรียนรู้แบบร่วมมือร่วมกับเทคนิคแผนผังความคิด ที่ส่งผลต่อทักษะการอ่านและการเขียนสะกดคำ ความพึงพอใจต่อการเรียนและผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 2. วิทยานิพนธ์ครุศาสตรมหาบัณฑิต สาขาวิชาการวิจัยและพัฒนาการศึกษา มหาวิทยาลัยราชภัฏสกลนคร.

ธิดา บู่สามสาย. (2559). “การพัฒนาทักษะการอ่านจับใจความ ด้วยเทคนิคการเรียนรู้แบบ SQ4R โดยใช้ข้อมูลท้องถิ่นจังหวัดกาญจนบุรี ของนักเรียนชั้นประถมศึกษาปีที่ 5.” วิทยานิพนธ์ปริญญาศึกษาศาสตรมหาบัณฑิต สาขาวิชาการสอนภาษาไทย บัณฑิตวิทยาลัย มหาวิทยาลัยศิลปากร.

วิมลรัตน์ สุนทรโรจน์. (2561). นวัตกรรมตามแนวคิดแบบ Back ward Desing. ภาควิชาหลักสูตรและการสอน คณะศึกษาศาสตร์ มหาวิทยาลัยมหาสารคาม.

สุจินดา พัชรภิญโญ. (2558). ชุดการสอนซ่อมเสริมคณิตศาสตร์ เรื่อง โจทย์ปัญหาระบบสมการเชิงเส้นสองตัวแปรสำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 3. สารนิพนธ์การศึกษามหาบัณฑิตสาขาวิชาการมัธยมศึกษา บัณฑิตวิทยาลัย มหาวิทยาลัยศรีนครินทรวิโรฒประสานมิตร.

การพัฒนาสมรรถนะความเป็นครูตามมาตรฐานวิชาชีพครูโดยการจัดการเรียนรู้ตามหลักสูตรบูรณาการหลักปรัชญาของเศรษฐกิจพอเพียงของนักศึกษาสาขาการศึกษาปฐมวัย ชั้นปีที่ 4 คณะศึกษาศาสตร์ มหาวิทยาลัยราชธานี

Development of Teacher Competencies Based on Professional Standards Through Integrated Sufficiency Economy Philosophy Curriculum for 4th Year Early Childhood Education Students, Faculty of Education, Ratchathani University

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาและพัฒนาสมรรถนะความเป็นครูตามมาตรฐานวิชาชีพครูโดยใช้หลักสูตรที่บูรณาการหลักปรัชญาของเศรษฐกิจพอเพียง (SEP) สำหรับนักศึกษาสาขาการศึกษาปฐมวัย คณะศึกษาศาสตร์ มหาวิทยาลัยราชธานี โดยมีวัตถุประสงค์เฉพาะ ได้แก่ 1) เพื่อศึกษาแนวทางการพัฒนาสมรรถนะที่ส่งเสริมการบูรณาการหลักปรัชญาของเศรษฐกิจพอเพียงสำหรับนักศึกษาครู 2) เพื่อสร้างและทดลองใช้หลักสูตรการพัฒนาสมรรถนะความเป็นครูที่บูรณาการหลักปรัชญาของเศรษฐกิจพอเพียง และ 3) เพื่อประเมินผลลัพธ์ในการพัฒนาสมรรถนะความเป็นครูตามมาตรฐานวิชาชีพ

การวิจัยนี้ใช้ระเบียบวิธีวิจัยแบบการวิจัยกึ่งทดลอง (Quasi-Experimental Research) เป็นการวิจัยเชิงปริมาณที่คล้ายการทดลองจริง แต่ไม่มีการสุ่มตัวอย่างเข้ากลุ่ม กลุ่มประชากรเป็นนักศึกษาสาขาการศึกษาปฐมวัย จำนวน 2 ห้อง ทั้งหมด 120 คน โดยการสุ่มแบบใช้การเลือกกลุ่มตัวอย่างแบบเจาะจง (Purposive Sampling) โดยคัดเลือกกลุ่มที่มีลักษณะใกล้เคียงกัน กลุ่มตัวอย่างเป็นนักศึกษาสาขาการศึกษาปฐมวัย ชั้นปีที่ 4 ห้องที่ 2 จำนวน 40 คน แบ่งเป็นกลุ่มทดลองและกลุ่มควบคุมกลุ่มละ 20 คน เครื่องมือที่ใช้ ได้แก่ 1) หลักสูตรพัฒนาสมรรถนะครูแบบบูรณาการ SEP 2) แบบทดสอบความรู้เกี่ยวกับ SEP 3) แบบประเมินสมรรถนะครู และ 4) แบบสังเกตพฤติกรรมการสอน การวิเคราะห์ข้อมูลใช้การวิเคราะห์เนื้อหาและสถิติพื้นฐาน (ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และ t-test)

ผลการวิจัยพบว่า 1) กิจกรรมในการพัฒนาสมรรถนะความเป็นครูที่สำคัญในการบูรณาการ SEP ประกอบด้วย 3 ด้าน ได้แก่ ด้านการจัดการเรียนรู้ ด้านความสัมพันธ์กับผู้ปกครองและชุมชน และด้านจรรยาบรรณวิชาชีพ 2) หลักสูตรพัฒนาสมรรถนะที่สร้างขึ้นมีองค์ประกอบหลัก ได้แก่ วัตถุประสงค์ เนื้อหาสาระ กิจกรรมการเรียนรู้ และการวัดผล โดยมีระยะเวลา 36 ชั่วโมง ซึ่งส่งผลให้กลุ่มทดลองมีคะแนนความรู้และสมรรถนะเพิ่มขึ้นอย่างมีนัยสำคัญที่ระดับ .05 และ 3) ประสิทธิผลของหลักสูตรพบว่ากลุ่มทดลองมีความสามารถในการออกแบบหน่วยการเรียนรู้ที่บูรณาการ SEP สูงกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติที่ระดับ .05โดย ด้านจรรยาบรรณวิชาชีพมีค่าลี่ยสูงสุด ($\bar{x}$ = 4.82)ตามด้วยด้านความสัมพันธ์กับผู้ปกครองและชุมชนมีค่าเฉลี่ย ($\bar{x}$ = 3.82) และค่าเฉลี่ยสมรรถนะด้านการจัดการเรียนรู้ ($\bar{x}$ = 4.59) เป็นอันดับสุดท้าย ทั้งนี้ ผลการสังเกตพฤติกรรมการสอนสะท้อนว่านักศึกษากลุ่มทดลองสามารถแสดงพฤติกรรมการสอนที่สะท้อนการบูรณาการ SEP ได้ในระดับดีถึงดีมาก

การวิจัยนี้ชี้ให้เห็นว่า หลักสูตรพัฒนาสมรรถนะความเป็นครูที่บูรณาการหลักปรัชญาของเศรษฐกิจพอเพียงมีประสิทธิผลในการพัฒนาสมรรถนะความเป็นครู โดยแนะนำให้บูรณาการหลักสูตรนี้ในหลักสูตรการศึกษาปฐมวัยของคณะศึกษาศาสตร์ เพื่อส่งเสริมให้นักศึกษามีทักษะในการบูรณาการ SEP กับการเรียนการสอนจริง และขยายผลสู่การพัฒนาสื่อการสอนและเครือข่ายชุมชน

คำสำคัญ: สมรรถนะความเป็นครู, หลักปรัชญาของเศรษฐกิจพอเพียง, การบูรณาการหลักสูตร, นักศึกษาครูสาขาการศึกษาปฐมวัย, มาตรฐานวิชาชีพครู

Abstract

This research aims to study and develop teacher competencies based on professional teaching standards by using a curriculum integrated with the Sufficiency Economy Philosophy (SEP) for early childhood education students in the Faculty of Education at Ratchathani University. The specific objectives are: 1) to study the components of competencies that promote the integration of SEP for teacher stud ents, 2) to develop and trial a teacher competency development curriculum integrated with SEP, and 3) to evaluate the effectiveness of the curriculum in developing teacher competencies according to professional standards.

This research employs a mixed-method approach, combining qualitative and quantitative research methods. The experimental design used is the Randomized Control Group Pretest-Posttest Design. The sample consists of 40 fourth-year early childhood education students, divided into experimental and control groups of 20 students each. The research tools include: 1) an SEP-integrated teacher competency development curriculum, 2) a knowledge test on SEP, 3) a teacher competency assessment form, and 4) a teaching behavior observation form. Data analysis involves content analysis and basic statistics (mean, standard deviation, and t-test).

The research findings reveal that: 1) the key teacher competencies for integrating SEP consist of three aspects: learning management, relationships with parents and the community, and professional ethics; 2) the developed competency curriculum includes

key components such as objectives, content, learning activities, and assessment, with a duration of 36 hours. The experimental group showed a significant increase in knowledge and competency scores at the .05 level; and 3) the effectiveness of the curriculum indicates that the experimental group demonstrated a significantly higher ability to design SEP-integrated learning units compared to the control group at the .05 level. The highest average competency score was in learning management ($\bar{x}$ = 4.35), followed by professional ethics ($\bar{x}$ = 4.18), and relationships with parents and the community ($\bar{x}$ = 3.92). Additionally, teaching behavior observations reflected that the experimental group students exhibited teaching behaviors integrating SEP at a good to very good level.

This research highlights that the teacher competency development curriculum integrated with SEP is effective in enhancing teacher competencies. It is recommended to integrate this curriculum into the early childhood education program in the Faculty of Education to promote students' skills in integrating SEP into actual teaching practices and to extend its impact to the development of teaching materials and community networks.

Keywords: Teacher Competencies, Sufficiency Economy Philosophy, Curriculum Integration, Early Childhood Education Teacher Students, Professional Teaching Standards

บทนำ

การพัฒนาสมรรถนะความเป็นครูตามมาตรฐานวิชาชีพครูเป็นหัวใจสำคัญในการยกระดับคุณภาพการศึกษา โดยเฉพาะในบริบทการศึกษาปฐมวัยที่ครูต้องมีทักษะการจัดการเรียนรู้ที่สอดคล้องกับพัฒนาการเด็ก ตลอดจนปลูกฝังคุณลักษณะอันพึงประสงค์ตามหลักปรัชญาของเศรษฐกิจพอเพียง (SEP) งานวิจัยของ ธนวัฒน์ สุขสวัสดิ์ (2563) ชี้ให้เห็นว่าการบูรณาการ SEP ในหลักสูตรพัฒนาครูส่งผลต่อทักษะการออกแบบกิจกรรมการเรียนรู้ที่ส่งเสริมความพอประมาณและความรับผิดชอบต่อสังคม ขณะที่ UNESCO (2019) เน้นย้ำว่าการศึกษาที่ยั่งยืนต้องเชื่อมโยงกับปรัชญาท้องถิ่น เพื่อสร้างครูที่มีความตระหนักในบทบาทต่อชุมชนและสิ่งแวดล้อม นอกจากนี้ Srisuk (2015) ยังเสนอว่าการพัฒนาจิตสำนึกสาธารณะผ่าน SEP ช่วยให้ครูเห็นคุณค่าของการทำงานร่วมกับชุมชน อย่างไรก็ตาม การบูรณาการ SEP ในการผลิตครูการศึกษาปฐมวัยยังขาดกรอบการดำเนินงานที่ชัดเจน ทั้งในด้านเนื้อหาและวิธีการจัดการเรียนรู้ โดยเฉพาะการขาดแบบจำลองการเรียนรู้ที่ผสมผสาน SEP กับทักษะเฉพาะทางปฐมวัย เช่น การใช้สื่อการสอนที่เหมาะสมกับวัย และการประเมินผลเชิงพัฒนาการ

สำหรับนักศึกษาสาขาการศึกษาปฐมวัย ชั้นปีที่ 4 คณะศึกษาศาสตร์ มหาวิทยาลัยราชธานี การพัฒนาสมรรถนะครูจำเป็นต้องสอดคล้องกับมาตรฐานวิชาชีพ 3 ด้าน ได้แก่ การจัดการเรียนรู้ ความสัมพันธ์กับผู้ปกครองและชุมชน และจรรยาบรรณวิชาชีพ โดยงานวิจัยของ สุภาพร ใจดี (2564) ระบุว่าการสร้างหลักสูตรที่บูรณาการ SEP ช่วยเสริมสมรรถนะด้านจรรยาบรรณผ่านกิจกรรมเชิงปฏิบัติ เช่น การใช้ทรัพยากรอย่างรู้คุณค่าและการสื่อสารกับชุมชน ขณะที่ Johnson and Lee (2020) ยกตัวอย่างการนำ SEP ไปใช้ในฟินแลนด์เพื่อพัฒนาครูที่คำนึงถึงความยั่งยืน และ ทิศนา แขมมณี (2559) เสนอว่า SEP ควรถูกแปลงเป็นแผนปฏิบัติการในห้องเรียนผ่านกิจกรรมที่ส่งเสริมการคิดวิเคราะห์และแก้ปัญหา เช่น โครงการ “แปลงผักพอเพียง” หรือ “ธนาคารความดี” และ วรฤทธิ์ ชาญวิทย์ (2561) การส่งเสริมให้

นักศึกษาเชื่อมโยงทฤษฎีกับบริบทจริง การวิจัยนี้จึงมุ่งเติมเต็มช่องว่างดังกล่าว โดยออกแบบหลักสูตรที่ผสมผสาน SEP เข้ากับการเรียนรู้เชิงประสบการณ์ เพื่อเตรียมครูปฐมวัยให้เป็นแบบอย่างของการดำเนินชีวิตพอเพียงและส่งต่อสู่สังคมที่ดี

ปรัชญาเศรษฐกิจพอเพียง (Sufficiency Economy Philosophy: SEP) ซึ่งพระบาทสมเด็จพระบรมชนกาธิเบศร มหาภูมิพลอดุลยเดชมหาราช บรมนาถบพิตร ทรงพระราชทานแก่ปวงชนชาวไทย ตั้งอยู่บนหลักการสำคัญ 3 ห่วง 2 เงื่อนไข ได้แก่ ความพอประมาณ ความมีเหตุผล และการมีภูมิคุ้มกัน พร้อมเงื่อนไขพื้นฐานคือ ความรู้และคุณธรรม แนวคิดนี้มุ่งสร้างสมดุลระหว่างการพัฒนาด้านเศรษฐกิจ สังคม และสิ่งแวดล้อม โดยเน้นการพึ่งพาตนเอง การใช้ทรัพยากรอย่างคุ้มค่า และการอยู่ร่วมกันอย่างเกื้อกูล หน่วยงานหลักที่ขับเคลื่อน SEP ได้แก่ สำนักงานคณะกรรมการพัฒนาการเศรษฐกิจและสังคมแห่งชาติ (สศช.) ที่บูรณาการ SEP เข้าในแผนพัฒนาเศรษฐกิจและสังคม มูลนิธิชัยพัฒนา ผ่านโครงการชุมชนพอเพียงและเกษตรทฤษฎีใหม่ สถาบันการศึกษา เช่น มหาวิทยาลัยเกษตรศาสตร์และมหิดล ที่วิจัยและพัฒนาหลักสูตรการศึกษาแบบยั่งยืน ร่วมกับกระทรวงศึกษาธิการ ที่ส่งเสริม “โรงเรียนพอเพียง” เพื่อปลูกฝังคุณธรรมในเยาวชนการประยุกต์ใช้ SEP ในภาคปฏิบัติปรากฏผลผ่านงานวิจัยหลากหลายสาขา เช่น ภาคเกษตรกรรม โดยธนวัฒน์ สุขสวัสดิ์ (2563) พบว่า เกษตรกรที่ใช้ SEP มีรายได้เพิ่มขึ้น 30% จากระบบเกษตรผสมผสาน ภาคการศึกษา สุภาพร ใจดี (2564) และวิไล จันทร์ประภา (2564) ชี้ว่านักศึกษาครูที่เรียนหลักสูตรบูรณาการ SEP มีจิตสำนึกสาธารณะสูงขึ้น 45% ภาคชุมชน วงศ์เทพ เมืองแก้ว (2565) ศึกษาชุมชนในเชียงใหม่ที่ลดปัญหาความยากจนได้ 25% ผ่านการจัดการทรัพยากรท้องถิ่น และ ภาคธุรกิจ Lee (2021) ระบุว่าองค์กรที่ใช้ SEP ลดต้นทุนการผลิต 15% พร้อมเสริมสร้างความสัมพันธ์กับชุมชน ตัวอย่างโครงการเด่น เช่น “ธนาคารต้นไม้” ที่ส่งเสริมการใช้ทรัพยากรอย่างยั่งยืน “กิจกรรมกระปุกออมสินพอเพียง” ในโรงเรียน และนโยบาย CSR ของบริษัทที่สอดคล้องกับ SEP ประโยชน์ของ SEP ครอบคลุมทั้งเศรษฐกิจ สังคม และสิ่งแวดล้อม โดยสร้างความมั่นคงทางรายดำ ลดความเหลื่อมล้ำ เสริมความสัมพันธ์ชุมชน และอนุรักษ์ทรัพยากรธรรมชาติ สำหรับทิศทางในอนาคตสอดคล้องกับ รัตนากร อัจฉรา (2563) และอรพรรณ จักรินทร์ (2562) เห็นว่า ควรขยาย SEP สู่พื้นที่ห่างไกล ศึกษาการผสานเทคโนโลยีสมัยใหม่ที่เป็นผลกระทบต่อชุมชน เช่น Smart Farming และสร้างเครือข่ายแลกเปลี่ยนความรู้ระหว่างประเทศเพื่อยกระดับการนำ SEP ไปใช้ให้เกิดผลเป็นรูปธรรมยิ่งขึ้น

จากการศึกษาสภาพปัญหาของนักศึกษาสาขาการศึกษาปฐมวัย ชั้นปีที่ 4 คณะศึกษาศาสตร์ มหาวิทยาลัยราชธานียังไม่ได้รับการพัฒนาสมรรถนะครูจำเป็นสำหรับการเป็นครูมืออาชีพให้งสอดคล้องกับมาตรฐานวิชาชีพ 3 ด้าน ได้แก่ การจัดการเรียนรู้ ความสัมพันธ์กับผู้ปกครองและชุมชน และจรรยาบรรณวิชาชีพ การประเมินสมรรถนะครูเน้นทฤษฎีมากกว่าการปฏิบัติการขาดทักษะการบูรณาการปรัชญาท้องถิ่น (SEP) กับมาตรฐานสากล ของ UNESCO (2019) และ สุภาพร ใจดี (2564) และการฝึกปฏิบัติการสอนไม่เชื่อมโยงกับบริบทชุมชนสอดคล้องกัยงานวิจัยของวงศ์เทพ เมืองแก้ว (2565) พบว่า 68% ของครูใหม่ไม่สามารถจัดกิจกรรมชุมชนสัมพันธ์ได้

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษากิจกรรมสำหรับใช้เป็นแนวทางการพัฒนาสมรรถนะที่ส่งเสริมการบูรณาการหลักปรัชญาของเศรษฐกิจพอเพียงสำหรับนักศึกษาครู

2. เพื่อสร้างและทดลองใช้หลักสูตรการพัฒนาสมรรถนะความเป็นครูที่บูรณาการหลักปรัชญาของเศรษฐกิจพอเพียง

3. เพื่อประเมินผลลัพธ์ในการพัฒนาสมรรถนะความเป็นครูตามมาตรฐานวิชาชีพ

การทบทวนวรรณกรรม

1. แนวคิดการพัฒนาสมรรถนะครูมืออาชีพ

การพัฒนาครูสู่ความเป็นครูมืออาชีพในศตวรรษที่ 21 ในยุคศตวรรษที่ 21 จ าเป็นอย่างยิ่งในการปฏิรูปการศึกษาที่เน้นทักษะ เพื่อนำไปสู่นวัตกรรมใหม่ ๆ ที่มีคุณภาพ การพัฒนาครูสู่ความเป็นครูมืออาชีพในศตวรรษที่ 21 ครูผู้สอนต้องปฏิบัติตนตามหลักจรรยาบรรณวิชาชีพ มีการศึกษาและติดตามแนวทางการจัดการศึกษาของชาติ ทั้งกฎหมาย นโยบายต่าง ๆ และหลักสูตรของทางกระทรวงศึกษาธิการตลอดจนหน่วยงานที่เกี่ยวข้องอยู่เสมอ เพื่อเป็นแนวทางในการปฏิบัติงานอย่างเหมาะสม มีการวิเคราะห์ผู้เรียนเป็นรายบุคคล เพื่อให้ทราบถึงอุปนิสัยใจคือ จุดเด่น และจุดที่ต้องพัฒนาของผู้เรียน จัดทำแผนการจัดการเรียนรู้ที่เน้นผู้เรียนเป็นสำคัญ เน้นทักษะการปฏิบัติเพื่อส่งเสริมให้ผู้เรียนเกิดความรู้ความเข้าใจและสามารถสร้างองค์ความรู้ได้ด้วยตัวเอง โดยครูทำหน้าที่เป็นโค้ชมากกว่าเป็นผู้ชี้นำในการเรียนการสอน จัดกิจกรรมการเรียนรู้แบบบูรณาการแต่ละกลุ่มสาระการเรียนรู้ในส่วนของเนื้อหาที่สัมพันธ์กัน เพื่อช่วยให้ผู้เรียนมีความคิดเชื่อมโยงและสามารถนำความรู้ไปใช้ได้ในชีวิตจริง เลือกใช้วิธีการวัดและประเมินผลการเรียนรู้อย่างหลากหลายตามสภาพที่เหมาะสมของผู้เรียน เพื่อให้ทราบถึงผลลัพธ์ที่ถูกต้องและแม่นยำ จัดกิจกรรมหรือโครงการพัฒนาผู้เรียนอย่างต่อเนื่อง มีการทำวิจัยในชั้นเรียนเพื่อใช้เป็นเครื่องมือในการส่งเสริมและแก้ไขปัญหาต่าง ๆ ของผู้เรียน ร่วมการพัฒนาสมรรถนะครูมืออาชีพเป็นกระบวนการสำคัญในการยกระดับคุณภาพการศึกษา โดยเฉพาะในสาขาการศึกษาปฐมวัย ซึ่งครูต้องมีความรู้ความสามารถทั้งด้านวิชาการและทักษะการจัดการเรียนรู้ที่เหมาะสมกับพัฒนาการของเด็กปฐมวัย แนวคิดการพัฒนาสมรรถนะครูมืออาชีพอ้างอิงจากทฤษฎีและงานวิจัยหลายด้าน ดังนั้นการพัฒนาสมรรถนะครูมืออาชีพมีรากฐานมาจากทฤษฎีการเรียนรู้ของผู้ใหญ่ (Adult Learning Theory) ของ Knowles (1984) ที่เน้นการเรียนรู้ผ่านประสบการณ์และการสะท้อนคิด (Reflective Practice) นอกจากนี้ยังอ้างอิงจากทฤษฎีการพัฒนาวิชาชีพครู (Teacher Professional Development) ของ Darling-Hammond (2006) ที่ชี้ให้เห็นความสำคัญของการฝึกปฏิบัติการสอน การวิจัยในชั้นเรียน และการพัฒนาตนเองอย่างต่อเนื่องแนวทางการพัฒนาสมรรถนะครูไว้หลากหลายมุมมอง ทั้งด้านการศึกษาการพัฒนาสมรรถนะครูผ่านการฝึกปฏิบัติการสอนในสถานศึกษา พบว่า การฝึกปฏิบัติช่วยพัฒนาทักษะการจัดการชั้นเรียนและการสื่อสารกับผู้เรียนเน้นการพัฒนาสมรรถนะครูผ่านการวิจัยในชั้นเรียนและการใช้ข้อมูลเพื่อปรับปรุงการสอน สุทธิวรรณ ตันติรังสี (2560) และศึกษาการพัฒนาสมรรถนะครูผ่านการอบรมเชิงปฏิบัติการ พบว่าการฝึกทักษะเฉพาะทางช่วยเพิ่มความมั่นใจในการสอนให้มีการพัฒนาสมรรถนะครูโดยใช้เทคโนโลยีเพื่อสนับสนุนการเรียนรู้ ชัยวัฒน์ สุทธิรัตน์ (2556) การพัฒนาสมรรถนะครูมืออาชีพควรเป็นกระบวนการต่อเนื่องที่ผสมผสานระหว่างการฝึกปฏิบัติการสอน การวิจัยในชั้นเรียน การใช้เทคโนโลยี และการสะท้อนคิด โดยต้องสอดคล้องกับมาตรฐานวิชาชีพครูและบริบทของสังคมไทย

การพัฒนาครูสู่ความเป็นครูมืออาชีพในศตวรรษที่ 21 ต้องมุ่งพัฒนาครูให้มีความรู้มี ความเชี่ยวชาญทางวิชาชีพ สามารถพัฒนาทักษะวิชาชีพของตนเองอย่างสม่ำเสมอ สามารถนำความรู้ไปประยุกต์ใช้ได้อย่างเหมาะสม มีทักษะใช้เทคโนโลยีเพื่อส่งเสริมการศึกษาได้ หลากหลายและเหมาะสมกับผู้เรียน ส่งเสริมการเรียนรู้ให้ผู้เรียนพัฒนาอย่างเต็มที่ตามศักยภาพ เน้นให้ผู้เรียนเปลี่ยนจากเป็นผู้รับกลายเป็นผู้พัฒนาและสร้างสรรค์สิ่งใหม่ จัดทำแผนการจัดการเรียนรู้ที่เน้นผู้เรียนเป็นสำคัญ เน้นจัดกิจกรรมการเรียนรู้แบบการบูรณาการ เพื่อช่วยให้ผู้เรียนมีความคิดเชื่อมโยงและสามารถนำความรู้ไปใช้ได้ในชีวิตจริง วัดและประเมินผลการเรียนรู้อย่างหลากหลายตามสภาพที่เหมาะสมของผู้เรียน ยึดมั่นในจรรยาบรรณวิชาชีพ ส่งเสริม และพัฒนาวิชาชีพในโรงเรียนร่วมกับบุคลากร ผู้บริหารและชุมชน มีมนุษยสัมพันธ์ดีกับบุคคลอื่น สามารถทำงานร่วมกับผู้อื่นได้ มุ่งปฏิบัติหน้าที่ด้วยจิตวิญญาณของความเป็นครูและพัฒนาตนเองอยู่สม่ำเสมอเพื่อพัฒนาศักยภาพของผู้เรียนอย่างแท้จริง

พระราชบัญญัติระเบียบข้าราชการครูและบุคลากรทางการศึกษา พ.ศ. 2547 ได้บัญญัติไว้ว่า “วิชาชีพ” หมายความถึง วิชาชีพครู วิชาชีพการบริหารการศึกษา และวิชาชีพบุคลากรทางการศึกษาอื่น การพัฒนาวิชาชีพเป็นสิ่งจำเป็นที่จะต้องกระทำอย่างเป็นระบบและต่อเนื่อง ด้วยรัฐธรรมนูญ แห่งราชอาณาจักรไทย พุทธศักราช 2540 ได้บัญญัติชัดเจนในมาตรา 81 เรื่องการพัฒนาการศึกษาและ การพัฒนาวิชาชีพครูและพระราชบัญญัติการศึกษาแห่งชาติ พุทธศักราช 2542 มาตรา 52 กำหนดให้กระทรวงศึกษาธิการส่งเสริมให้มีระบบกระบวนการผลิต การพัฒนาครู คณาจารย์ และบุคลากรทางการศึกษาให้มีคุณภาพและมาตรฐาน ที่เหมาะสมกับการเป็นวิชาชีพชั้นสูง ซึ่งต้องพัฒนาทั้งบุคลากรใหม่และบุคลากรประจำการ อย่างต่อเนื่อง ซึ่งแนวทางการพัฒนาครูดังกล่างผู้มีส่วนเกี่ยวข้องด้านการศึกษา ของกระทรวงศึกษาธิการได้ โดยคุรุสภาได้กำหนดแนวทางการพัฒนาครูให้สอดคลอ้งกับพระราชบัญญัติสภาครูและบุคลากรทางการศึกษา พ.ศ. 2546 กำหนดให้คุรุสภา เป็นสภาวิชาชีพ มีฐานะเป็นนิติบุคคลในกำกับของกระทรวงศึกษาธิการ มีอำนาจหน้าที่ตาม มาตรา 8 คือ กำหนดมาตรฐานวิชาชีพ ออกและเพิกถอนใบอนุญาต กำกับ ดูแลวิชาชีพและจรรยาบรรณของวิชาชีพรวมทั้งการพัฒนาวิชาชีพ กำหนดนโยบายและแผนพัฒนาวิชาชีพ ประสาน ส่งเสริมการศึกษาและการวิจัยเกี่ยวกับการประกอบอาชีพองค์การการศึกษา วิทยาศาสตร์และวัฒนธรรมแห่งสหประชาชาติ (UNESCO) ได้กล่าวถึงการพัฒนาวิชาชีพครูด้วยการเพิ่มพูนสถานภาพ กำลังใจ และความเป็นมืออาชีพให้แก่ครู ครูทุกคนควร 1) ได้รับการยกย่องและการตอบแทนที่เหมาะสม 2). มีโอกาสรับการอบรมพัฒนาและสนับสนุนในวิชาชีพ 3) ร่วมตัดสินใจในเรื่องที่จะกระทบต่อวิชาชีพและการสอน 4) เข้าใจความหลากหลายของวิธีการเรียนรู้และพัฒนาการทาง สังคมและสติปัญญาของนักเรียน 5) สร้างสภาพแวดล้อมที่กระตุ้นการเรียนรู้และการมีส่วนร่วมในการเรียนรู้ รับผิดชอบต่อวิชาชีพของตน รับผิดชอบต่อผู้เรียนและชุมชน

ประเทศไทยได้ดำเนินการปฏิรูปครูและบุคลากรทางการศึกษา โดยกำหนดให้มีกฎหมายที่เกี่ยวข้องเป็นแนวทางในการดำเนินการโดยเฉพาะพระราชบัญญัติสภาครูและบุคลากรทางการศึกษา พ.ศ. 2546 ได้กำหนดแนวทางการพัฒนาวิชาชีพทางการศึกษาโดยมีกลุ่มเป้าหมายการพัฒนาไว้ 4 กลุ่ม ได้แก่ 1) ครูประจำการ 2) ผู้บริหารสถานศึกษา 3) ผู้บริหารการศึกษา 4) บุคลากรทางการศึกษาอื่น ได้แก่ ศึกษานิเทศก์ กลุ่มเป้าหมาย 4 กลุ่มดังกล่าว ถือว่าเป็นผู้ประกอบวิชาชีพควบคุมตามมาตรา 43 แห่งพระราชบัญญัติดังกล่าว คุรุสภาจึงกำหนดการพัฒนาวิชาชีพทางการศึกษาไว้ คือ การวางระบ ระบบมาตรฐานและการควบคุมการประกอบอาชีพ ระบบใบอนุญาตประกอบวิชาชีพ ระบบการพัฒนาผู้ประกอบวิชาชีพทางการศึกษา และระบบการยกย่องและผดุงเกียรติผู้ประกอบวิชาชีพทางการศึกษา

2. หลักสูตรการพัฒนาวิชาชีพครู

หลักสูตรที่ออกแบบเพื่อการพัฒนาครู จะต้องเป็นการพัฒนาครูที่บูรณาการระหว่างเนื้อหา สาระ วิชา (Content knowledge) กับหลักวิชาชีพครู (Pedagogical knowledge) ที่จะต้องมุ่งพัฒนาสมรรถนะ ให้มี ความสามารถจัดการเรียนการสอน ตามสาระวิชาเฉพาะที่บูรณาการเนื้อหาสาระกับศาสตร์วิชาชีพครู (Pedagogical Content Knowledge: PCK) หรือมีการหลอมรวมเทคโนโลยีสารสนเทศเข้ากับการจัดการเรียน การสอนตามเนื้อหาสาระเฉพาะทาง (Technological Pedagogy Content Knowledge) และมีการนำเสนอกรณีศึกษา และ/หรือแนวทางให้ครูเกิดแนวคิด แรงบันดาลใจ นำไปพัฒนา ปรับปรุง เปลี่ยนแปลง กระบวนการ การเรียนการสอน และการปฏิบัติตามกระบวนการชุมชนการเรียนรู้วิชาชีพ (Professional Learning Community) หลักสูตรที่เสนอจะต้องระบุความเฉพาะเจาะจงตามลักษณะของหลักสูตร โดยการระบุระดับความลุ่มลึก ในหลักสูตรเพียง 1 ระดับเท่านั้น หลักสูตรระดับพื้นฐาน หลักสูตรระดับกลางหรือหลักสูตรสูง เพียงระดับใดระดับหนึ่งเท่านั้น หลักสูตรหนึ่งจะแสดงว่ามีความลุ่มลึกหลายระดับไม่ได้ ซึ่งผู้เสนอหลักสูตรต้องทeความเข้าใจกับ คำอธิบายระดับความลุ่มลึกของหลักสูตรให้เข้าใจ เพื่อให้ครูพิจารณาเลือกเข้ารับการพัฒนาตนเองในหลักสูตรต่าง ๆ ได้ตรงกับความต้องการของครู อย่างแท้จริง และหน่วยพัฒนาครูต้องพิจารณาขั้นตอนการพัฒนาหลักสูตร ซึ่งมี 8 ขั้นตอน ตามแนวคิดของฮิลดา ทาบา (Taba, 1962) ดังนี้

1. วินิจฉัยความต้องการ (diagnois of need) ผู้สร้างหลักสูตร ต้องสำรวจความ ต้องการจำเป็นของผู้เรียนและสังคม

2. การกำหนดวัตถุประสงค์การศึกษา (formulation of objectives) เมื่อไต้ความ ต้องการและความจำเป็นของผู้เรียนแล้วนำมากำหนดวัตถุประสงค์ให้สอดคล้องกัน

3. การลัดเลือกเนื้อหาสาระ (selection of content) การลัดเลือกเนื้อหาสาระที่มี ความสอดคล้องลับวัตถุประสงค์ มีความถูกต้อง เที่ยงตรง และมีความน่าเชื่อลือ

4. การจัดเรียงลำดับเนื้อหา (organization of content) การจัดเนื้อหาในหลักสูตรให้สอดคล้องลับลำดับการเรียนรู้ วุฒิภาวะ ความสามารถในการเรียนรู้ และความต้องการของผู้เรียน

5. การคัดเลือกประสบการณการเรียนรู้ (selection of learning experiences) เมื่อคัดเลือกเนื้อหาแล้ว นักพัฒนาหลักสูตรจะต้องสรรหาวิธีการจัดประสบการณ์การเรียนรู้ที่สัมพันธ์ ลับเนื้อหาและผู้เรียน

6. การจัดประสบการณการเรียนรู้ (organization of learning activities) เป็นการจัดเรียงลำดับประสบการณ์การเรียนรู้ จัดลำดับกิจกรรมการเรียนการสอน ให้สอดคล้องลับลักษณะ ของผู้เรียน

7. การประเมินผลและวิธการประเมนผล (evaluation and means of evaluation) นักพัฒนาหลักสูตร และครู จะเป็นผู้เลือกที่จะประเมินหลักสูตรว่าบรรลุตามวัตถุประสงค์ที่ กำหนดไว้หรือไม่ ทั้งครูและผู้เรียนควรจะร่วมกันกำหนดวิธีการประเมินผล

8. การตรวจสอบความเหมาะสมของหลักสูตร (checking for balance and sequence) เป็นการตรวจสอบว่ากรอบโครงร่างหลักสูตรมีความสอดคล้องเชื่อมโยงลันระหว่าง จุดประสงค์ เนื้อหา กิจกรรมการเรียนการสอน และการวัดผลประเมินผล

ซึ่งหลักสูตรเพื่อการพัฒนาครู และบุคลากรทางการศึกษาสายงานการสอนโดยระดับการพัฒนา ดังนี้

1. ระดับพื้นฐาน (Basic level) หมายถึง หลักสูตรที่นำเสนอประสบการณ์ และ/หรือ กิจกรรมขั้น เบื้องต้นหรือขั้นพื้นฐานสำหรับผู้เริ่มเรียนรู้เรื่องนั้น หรือผู้ที่ยังไม่เคยเรียนรู้เรื่องนั้น ๆ มาก่อน เป็นการจัดกิจกรรมเป็นการจัดกิจกรรมการเรียนรู้ที่ให้ทั้งเนื้อหาสาระ (Knowledge) ตั้งแต่หลักการ แนวคิด ประวัติความ เป็นมา พัฒนาการของเรื่องนั้น รวมถึงจะต้องมีกิจกรรมที่ให้ครูได้ฝึกทักษะปฏิบัติ (Skills) ที่จำเป็น และมีการสอดแทรกปลูกฝังคุณลักษณะที่เกี่ยวเนื่องกับความเป็นครูผนวกเข้าด้วยกัน (Attitude) โดยมีแนวการออกแบบ หลักสูตรที่มีลักษณะ ดังนี้ ข้อ 1 มีจำนวนชั่วโมงการอบรม ไม่น้อยกว่า 12 ชั่วโมง ข้อ 2 สาระในหลักสูตรน าเสนอเป็นการสร้างหรือทบทวนความรู้ ความเข้าใจ การวิเคราะห์ การสังเคราะห์ที่เป็นแนวคิดพื้นฐานเกี่ยวกับเรื่องนั้น ข้อ 3 สาระในหลักสูตรสร้างหรือทบทวนทักษะพื้นฐานที่เชื่อมโยงกับหลักการและทฤษฎี (Theory and Practice) ข้อ 4 สาระในหลักสูตรมีการฝึกปฏิบัติการบูรณาการการสอนเนื้อหาสาระเฉพาะ (Pedagogical Content Knowledge: PCK) หรือ การหลอมรวมเทคโนโลยีสารสนเทศเข้ากับการสอนเนื้อหาสาระเฉพาะ (Technological Pedagogical Content Knowledge: TPCK) ใช้ความรู้และทักษะนั้นเพื่อการเปลี่ยนแปลงการ เรียนการสอนหรือมุ่งเป้าที่การเรียนรู้ของนักเรียน ข้อ 5 สาระในหลักสูตรมีการให้ข้อมูล หรือสร้างแนวการปฏิบัติตนเพื่อความเป็นครูที่ดีตามจรรยาบรรณของวิชาชีพ

2. ระดับกลาง (Intermediate level) หมายถึง หลักสูตรที่นำเสนอประสบการณ์ และ/หรือกิจกรรม ขั้นพัฒนาสำหรับผู้ที่มีพื้นฐานในเรื่องนั้นมาก่อน มีความเข้าใจหลักการ กรอบแนวคิด ทักษะพื้นฐาน หรือผู้ที่เคยผ่านการพัฒนาในหลักสูตรระดับพื้นฐานมาก่อน เป็นการจัดกิจกรรมการเรียนรู้ที่ให้ทั้งเนื้อหาสาระ (Knowledge) ที่สูงกว่าระดับขั้นพื้นฐาน รวมถึงจะต้องมีกิจกรรมที่ให้ครูที่ได้ฝึกทักษะปฏิบัติ (Skills) ที่จำเป็นในระดับที่ต้องมีการใช้ทักษะและ/หรือกระบวนการที่ซับซ้อนมากขึ้น และมีการสอดแทรกปลูกฝังคุณลักษณะที่เกี่ยวเนื่องกับความเป็น ครูผนวกเข้าด้วยกัน (Attitude) สาระในหลักสูตรมีการฝึกปฏิบัติการบูรณาการการสอนเนื้อหาสาระเฉพาะ (Pedagogical Content Knowledge: PCK) หรือการหลอมรวมเทคโนโลยีสารสนเทศเข้ากับการสอนเนื้อหาสาระเฉพาะ (Technological Pedagogical Content Knowledge: TPCK)

3. ระดับสูง (Advanced level) หมายถึง หลักสูตรที่นำเสนอประสบการณ์ และ/หรือ กิจกรรมที่เป็นความก้าวหน้า ซับซ้อนหรือเป็นเรื่องเฉพาะทางที่ลุ่มลึก เป็นศาสตร์หรือวิชาเอกเฉพาะ และต้องใช้ทักษะ การเรียนรู้ ขั้นสูง มีการบูรณาการความรู้ หรือมีการออกแบบสร้างสรรค์หรือมีลักษณะของการวิจัย พัฒนา วิเคราะห์ วิจารณ์ ผู้ที่จะเข้ารับการพัฒนาในหลักสูตรนี้ จะต้องมีพื้นฐานหรือมีประสบการณ์ในเรื่องนั้นมากกว่าระดับพื้นฐาน และต้องมีทักษะที่เคยปฏิบัติ มีประสบการณ์เกี่ยวกับเรื่องนั้น ๆ มาพอสมควร หรือผู้ที่เคยผ่านการพัฒนาในหลักสูตร ระดับกลางมาก่อน เป็นการจัดกิจกรรมการเรียนรู้ที่ให้ทั้งเนื้อหาสาระ (Knowledge

3.หลักปรัชญาของเศรษฐกิจพอเพียง

การใช้ชีวิตตามหลักพอเพียงหรือชีวิตพอเพียง หากมีความเข้าใจถึงองค์ประกอบพื้นฐานของหลัก ปรัชญาของเศรษฐกิจพอเพียงอย่างถูกต้องและชัดเจนก็จะสามารถนำไปปรับใช้ได้ในสถานการณ์ต่าง ๆ เพื่อให้ เกิดประโยชน์และความสุขได้ ปรัชญาของเศรษฐกิจพอเพียง เป็นทั้งหลักคิดและแนวทางปฏิบัติตน โดยยึดหลัก 3 ประการ ควบคู่กับ 2 เงื่อนไขการปฏิบัติ ซึ่งมีรายละเอียดดังนี้

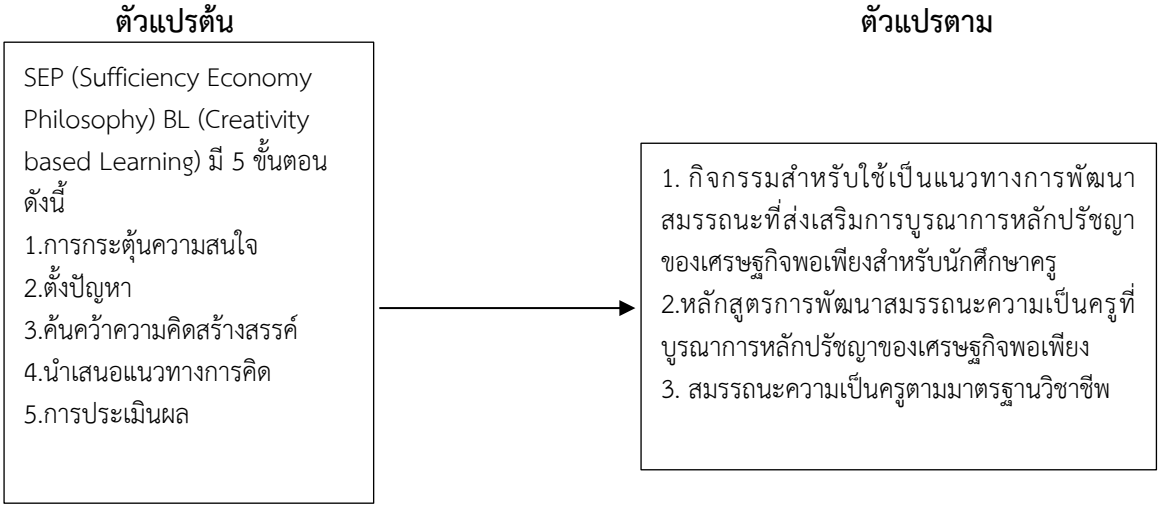
1) ความพอประมาณ หมายถึง ความพอดีที่ไม่น้อยเกินไปและไม่มากเกินไป โดยไม่เบียดเบียนตนเอง และผู้อื่น หลักของความพอประมาณ (พอดี) ประกอบด้วย 5 ประการ คือ (1) พอดีด้านจิตใจ คือ

ความเข้มแข็ง มีจิตสำนึกที่ดี เอื้ออาทร ประนีประนอม และนึกถึงประโยชน์ส่วนรวม (2) พอดีด้านสังคม คือช่วยเหลือเกื้อกูล รู้รักสามัคคี สร้างความเข้มแข็งให้ครอบครัวและชุมชน (3) พอดีด้านทรัพยากรธรรมชาติและสิ่งแวดล้อม คือ เลือกใช้ทรัพยากรที่มีอยู่ให้เกิดประโยชน์และความยั่งยืนสูงสุด จัดการอย่างฉลาดและรอบคอบ โดยต้องบริหาร จัดการให้เป็น รักษา ฟื้นฟู และพัฒนาทรัพยากร (4) พอดีด้านเทคโนโลยีคือ การรู้จักใช้เทคโนโลยีให้เหมาะสมต่อความต้องการและ สภาพแวดล้อม คัดสรรเทคโนโลยีที่จะใช้ให้เกิดประโยชน์จริง ๆ และ (5) พอดีด้านเศรษฐกิจ จำเป็นต้องมุ่งลดรายจ่ายก่อน รู้จักจัดการกับรายได้ที่มีอยู่ โดยยึดหลักพออยู่ พอกิน พอใช้

2) ความมีเหตุมีผล (Reasonableness) คือ การตัดสินใจเกี่ยวกับพฤติกรรมต่าง ๆ ที่มีความพอประมาณ ในมิติต่างๆจะต้องมีสติรอบรู้คิดถึงระยะยาวต้องมีเป้าหมายและวิธีการที่เหมาะสมมีความรู้ในการดำเนินการมีการพิจารณาจากเหตุปัจจัยและข้อมูลที่เกี่ยวข้อง ต้องเป็นการมองระยะยาว ตลอดจนต้องคำนึงถึงผลกระทบของการกระทำ และความเสี่ยง จะทำให้ความพอประมาณทั้งในปัจจุบันและอนาคต ความสำคัญของการมีเหตุผลอาจพิจารณาจากพระราชดำรัสนี้

3) การมีภูมิคุ้มกันในตัวดีพอสมควร (Self - immunity) พลวัตรในมิติต่างๆทำให้มีการเปลี่ยนแปลงในสภาวะต่างๆอย่างรวดเร็วขึ้น จึงต้องมีการเตรียมตัวพร้อมรับผลกระทบที่คาดว่าจะเกิดขึ้น จากการเปลี่ยนแปลงด้านต่างๆการกระทำสามารถสร้างภูมิคุ้มกันพร้อมรับการเปลี่ยนแปลงและการคุ้มกันจะทำให้มีความพอเพียงแม้เมื่อมีการเปลี่ยนแปลงถึงจะมีเหตุการณ์ที่แย่ที่สุดก็รับมือได้ทั้งนี้หากจะมีความพอเพียง เงื่อนไขการปฏิบัติ ตามปรัชญาเศรษฐกิจพอเพียงคือเงื่อนไขความรู้คู่คุณธรรม ได้แก่มี ความรอบรู้ รอบคอบ ระมัดระวังและเงื่อนไข คุณธรรมจำเป็นต้องมีความรู้อย่างถูกต้อง และต้องมีหลักการปฏิบัติที่ จะไม่ทำให้เกิดโทษต่อตนเองและผู้อื่น)

กรอบแนวคิดการวิจัย



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

การดำเนินการวิจัยเรื่อง การพัฒนารูปแบบการเรียนการสอนเพื่อพัฒนาการพัฒนาสมรรถนะวิชาชีพครูของนักศึกษาครู มหาวิทยาลัยราชธานี แบ่งออกเป็น 3 ระยะ คือ 1) การสังเคราะห์ร่างต้นฉบับ

ของรูปแบบการเรียนการสอน 2) การพัฒนารูปแบบการเรียนการสอน และ 3)การติดตามความสามารถในการใช้การพัฒนาสมรรถนะ

ตารางที่ 1 แสดงขั้นตอนหลักในกระบวนการวิจัย

การดำเนินงานวิจัย	ผลการดำเนินงานวิจัย
ระยะที่ 1การสังเคราะห์ร่างต้นฉบับของรูปแบบกิจกรรมการเรียนการสอนสำหรับใช้เป็นแนวทางการพัฒนาสมรรถนะที่ส่งเสริมการบูรณาการหลักปรัชญาของเศรษฐกิจพอเพียงสำหรับนักศึกษา	ระยะที่ 1 ได้รูปแบบกิจกรรมการเรียนการสอนสำหรับใช้เป็นแนวทางการพัฒนาสมรรถนะที่ส่งเสริมการบูรณาการหลักปรัชญาของเศรษฐกิจพอเพียงสำหรับนักศึกษาครู
ระยะที่ 2 สร้างหลักสูตรการพัฒนาสมรรนะครู 2.1 การทดสอบก่อนการจัดการเรียนการสอน 1) ทดสอบวัดความสามารถการพัฒนาสมรรถนะวิชาชีพครู 2) การประเมินลักษณะการการสอนครู 2.2 การวิจัยปฏิบัติการวงรอบที่ 1 1) การจัดการเรียนการสอนเรื่องความรู้พื้นฐานเกี่ยวกับพัฒนาสมรรถนะวิชาชีพ	ระยะที่ 2 การพัฒนารูปแบบการเรียนการสอน 2.1 ผลการทดสอบก่อนการจัดการเรียนการสอน 1)ผลการทดสอบวัดความสามารถในการพัฒนาสมรรถนะวิชาชีพครู 2) ผลการประเมินลักษณะสมรรถนะครู 2.2 การวิจัยปฏิบัติการสอนเกี่ยวกับความรู้พื้นฐานเกี่ยวกับการพัฒนาสมรรถนะวิชาชีพครูโดยการบูรณาการหลักปรัชญาเศรษฐกิจพอเพียง
ระยะที่ 3 สร้างเครื่องประเมินสมรรถนะครู 3 ด้าน	ระยะที่ 3ได้ผลการประเมินผลลัพธ์ในการพัฒนาสมรรถนะความเป็นครูตามมาตรฐานวิชาชีพ

ประชากรและกลุ่มตัวอย่าง

การวิจัยนี้ใช้ระเบียบวิธีวิจัยแบบการวิจัยกึ่งทดลอง (Quasi-Experimental Research) เป็นการวิจัยเชิงปริมาณที่คล้ายการทดลองจริง แต่ไม่มีการสุ่มตัวอย่างเข้ากลุ่ม กลุ่มประชากรเป็นนักศึกษาสาขาการศึกษาปฐมวัย2 ห้อง จำนวนทั้งหมด 120 คน โดยการสุ่มแบบ ใช้การเลือกกลุ่มตัวอย่างแบบเจาะจง (Purposive Sampling) โดยคัดเลือกกลุ่มที่มีลักษณะใกล้เคียงกัน กลุ่มตัวอย่างเป็นนักศึกษาสาขาการศึกษาปฐมวัย ชั้นปีที่ 4 ห้องที่ 2 จำนวน 40 คน แบ่งเป็นกลุ่มทดลองและกลุ่มควบคุมกลุ่มละ 20 คน เครื่องมือวิจัยที่ใช้ได้แก่ (1) หลักสูตรพัฒนาสมรรถนะครูแบบบูรณาการ SEP (2) แบบทดสอบความรู้เกี่ยวกับ SEP (3) แบบประเมินสมรรถนะครู และ (4) แบบสังเกตพฤติกรรมการสอน การวิเคราะห์ข้อมูลใช้การวิเคราะห์เนื้อหาและสถิติพื้นฐาน (ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน

เครื่องมือการวิจัย

1. แบบทดสอบความรู้ SEP- ตรวจความตรงเนื้อหา (Content Validity) โดยผู้เชี่ยวชาญ 5 ท่าน ได้ค่า IOC 0.6 หาความเที่ยงด้วย KR-20 ได้ค่า 0.82

2. แบบประเมินสมรรถนะครูใช้เกณฑ์ประเมินตาม Rubric 5 ระดับ (1 - 5 คะแนน)

3. แบบสังเกตการสอนใช้เกณฑ์ประเมินตาม Rubric 5 ระดับ (1 - 5 คะแนน)

การวิเคราะห์ข้อมูล

1. การหาค่า IOC ของแบบประเมินสมรรถนะครู 3 ด้าน โดยมีกระบวนการสำคัญในการตรวจสอบความตรงของเนื้อหาแต่ละข้อในเครื่องมือหรือแผนกับวัตถุประสงค์ที่ต้องการวัด โดยในงานวิจัยนี้มีการดำเนินการประเมิน IOC โดยนำแผนการจัดการเรียนรู้หรือแบบประเมินที่พัฒนาขึ้น เสนอให้ผู้เชี่ยวชาญ 3 ท่านขึ้นไป ตรวจสอบความสอดคล้องระหว่างเนื้อหาแต่ละข้อกับวัตถุประสงค์ของการวิจัย ให้ผู้เชี่ยวชาญแต่ละท่านจะให้คะแนนแต่ละข้อ ดังนี้

+1 หมายถึง สอดคล้องกับวัตถุประสงค์

0 หมายถึง ไม่แน่ใจ

-1 หมายถึง ไม่สอดคล้องกับวัตถุประสงค์

นำคะแนนที่ได้จากผู้เชี่ยวชาญแต่ละคนในแต่ละข้อ มาคำนวณค่า IOC ด้วยสูตร IOC = ∑ คะแนนที่ผู้เชี่ยวชาญให้จำนวนผู้เชี่ยวชาญ IOC = จำนวนผู้เชี่ยวชาญ ∑ คะแนนที่ผู้เชี่ยวชาญให้ข้อที่มีค่า IOC ตั้งแต่ 0.50 ขึ้นไป ถือว่ามีความสอดคล้องเหมาะสม สามารถนำไปใช้ได้หากต่ำกว่า 0.50 จะต้องปรับปรุงหรือพัฒนาใหม่ก่อนนำไปใช้จริง

2. การวิเคราะห์ค่าคะแนนเฉลี่ย ผลการทดสอบและการประเมินผลโดยการใช้ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน (SD) สถิติที่ใช้ในการวิเคราะห์ข้อมูลด้วยสถิติพื้นฐานที่ใช้ในการวิจัย มีค่าร้อยละ (Percentage) ค่าเฉลี่ย (Mean) ส่วนเบี่ยงเบนมาตรฐาน

ผลการวิจัย

รูปแบบกิจกรรมการเรียนการสอนสำหรับใช้เป็นแนวทางการพัฒนาสมรรถนะที่ส่งเสริมการบูรณาการหลักปรัชญาของเศรษฐกิจพอเพียงสำหรับนักศึกษาครู มี 4 กิจกรรม คือ 1) การทำงานเป็นทีม 2) การสื่อสาร 3) การใช้ปัญหาเป็นฐาน ซึ่งเป็นสมรรถนะสำคัญของความเป็นครู

การพัฒนาสมรรถนะความเป็นครูตามมาตรฐานวิชาชีพครูโดยการจัดการเรียนรู้ตามหลักสูตรบูรณาการหลักปรัชญาของเศรษฐกิจพอเพียงของนักศึกษาสาขาการศึกษาปฐมวัย ชั้นปีที่ 4 คณะศึกษาศาสตร์ มหาวิทยาลัยราชธานี ตามวัตถุประสงค์การวิจัยด้านการพัฒนาสม รรถนะที่ส่งเสริมการบูรณาการหลักปรัชญาของเศรษฐกิจพอเพียงของครู ซึ่งเป็นหลักสูตรการพัฒนาสมรรถนะที่ส่งเสริมการบูรณาการหลักปรัชญาของเศรษฐกิจพอเพียงของครู เป็นหลักสูตรที่ผู้วิจัยสร้างขึ้นเพื่อใช้ในการพัฒนาสมรรถนะครู 3 ด้าน คือ ด้านการมุ่งผลสัมฤทธิ์ในการปฏิบัติงานในการจัดการเรียนรู้และด้านการด้านความสัมพันธ์กับผู้ปกครองและชุมชนและ ด้านจรรยาบรรณวิชาชีพครู มีองค์ประกอบของหลักสูตร คือ หลักการ จุดมุ่งหมาย เนื้อหา กิจกรรมการฝึกอบรม สื่อการฝึกอบรม และการวัดและประเมินผล เป็นหลักสูตรที่เน้นผู้เข้ารับการอบรมเป็นสำคัญ โดยการลงมือปฏิบัติจริง สร้างความรู้และสรุปองค์ความรู้ด้วยตนเอง เน้นการปฏิบัติกิจกรรมด้วยกระบวนการกลุ่ม การแลกเปลี่ยนเรียนรู้ร่วมกัน เนื้อหาสาระ แบ่งเป็น 8 กิจกรรม ประกอบด้วยภาคทฤษฎี 15 ชั่วโมง ภาคปฏิบัติ 21 ชั่วโมง รวมเวลาตลอดหลักสูตร 36 ชั่วโมง ซึ่งองค์ประกอบของหลักสูตรการพัฒนาสมรรถนะความเป็นครู เป็นหลักสูตรที่ผู้วิจัยได้พัฒนา มีองค์ประกอบของหลักสูตรคือ หลักการ จุดมุ่งหมาย เนื้อหา กิจกรรมการฝึกอบรม สื่อการฝึกอบรม และการวัดและประเมินผล

ตารางที่ 2 ผลการประเมินสมรรถนะด้านการจัดการเรียนรู้

รายการ	ค่าเฉลี่ย	ส่วนเบี่ยงเบนมาตรฐาน	ร้อยละ
อ.นิเทศก์ (Teacher Supervisor)	4.56	0.188	91.2
ครูพี่เลี้ยง (Mentor Teacher)	4.59	0.273	91.8
ผู้บริหารฯ (School Administrator)	4.63	0.194	92.6
ผู้แทนฯ (Representative)	4.59	0.164	91.8
ภาพรวม	**4.59**	**0.20**	**91.8**

จากตารางที่ 2 ผลการวิจัยพบว่า โดยภาพรวม สมรรถนะด้านการจัดการเรียนรู้ของนักศึกษาอยู่ในระดับดีมาก (ร้อยละ 91.80) เมื่อพิจารณารายด้าน พบว่า ผู้บริหารสถานศึกษามีการประเมินสมรรถนะด้านนี้สูงที่สุด (ค่าเฉลี่ย 4.63, ร้อยละ 92.6) รองลงมาคือครูพี่เลี้ยงและผู้แทนฯ (ค่าเฉลี่ย 4.59, ร้อยละ 91.8) และอาจารย์นิเทศก์ (ค่าเฉลี่ย 4.56, ร้อยละ 91.2) ภาพรวม (ค่าเฉลี่ย = 4.59, SD = 0.20 ร้อยละ = 91.8) ซึ่งสะท้อนให้เห็นว่าทุกฝ่ายที่เกี่ยวข้องมีความเห็นสอดคล้องกันว่านักศึกษามีความสามารถในการจัดการเรียนรู้ได้ดี อย่างไรก็ตาม ค่าส่วนเบี่ยงเบนมาตรฐานที่ค่อนข้างต่ำแสดงให้เห็นว่าข้อมูลมีการกระจายตัวน้อยซึ่งอาจบ่งชี้ว่านักศึกษาส่วนใหญ่มีสมรรถนะด้านนี้อยู่ในระดับใกล้เคียงกัน

ตารางที่ 3 ผลการประเมินสมรรถนะด้านความสัมพันธ์กับผู้ปกครองและชุมชน

รายการ	ค่าเฉลี่ย	ส่วนเบี่ยงเบนมาตรฐาน	ร้อยละ
อ.นิเทศก์ (Teacher Supervisor)	3.78	0.164	75.6
ครูพี่เลี้ยง (Mentor Teacher)	3.81	0.171	76.2
ผู้บริหารฯ (School Administrator)	3.85	0.133	77
ผู้แทนฯ (Representative)	3.83	0.139	76.6
ภาพรวม	**3.82**	**0.15**	**76.35**

จากตารางที่ 3 ผลการวิจัยพบว่า สมรรถนะด้านความสัมพันธ์กับผู้ปกครองและชุมชนอยู่ในระดับดี (ร้อยละ 76.60) โดยผู้บริหารสถานศึกษาเป็นผู้ประเมินให้คะแนนเฉลี่ยสูงสุด (ค่าเฉลี่ย 3.85, ร้อยละ 77) รองลงมาคือผู้แทนฯ (ค่าเฉลี่ย 3.83, ร้อยละ 76.6) ครูพี่เลี้ยง (ค่าเฉลี่ย 3.81, ร้อยละ 76.2) และอาจารย์นิเทศก์ (ค่าเฉลี่ย 3.78, ร้อยละ 75.6) ภาพรวม(ค่าเฉลี่ย= 3.82, SD =0.15 ร้อยละ= 76.2) ซึ่งมีแนวโน้มคล้ายคลึงกับผลการประเมินสมรรถนะด้านการจัดการเรียนรู้ อย่างไรก็ตาม ค่าเฉลี่ยของสมรรถนะด้านนี้ค่อนข้างต่ำกว่าด้านอื่น ๆ อย่างเห็นได้ชัด และค่าส่วนเบี่ยงเบนมาตรฐานก็ยังอยู่ในระดับต่ำ ซึ่งอาจสะท้อนให้เห็นว่านักศึกษายังมีจุดที่ต้องพัฒนาเพิ่มเติมในด้านการสร้างความสัมพันธ์และทำงานร่วมกับผู้ปกครองและชุมชน

ตารางที่ 4 ผลการประเมินสมรรถนะด้านจรรยาบรรณวิชาชีพ

รายการ	ค่าเฉลี่ย	ส่วนเบี่ยงเบนมาตรฐาน	ร้อยละ
อ.นิเทศก์ (Teacher Supervisor)	4.79	0.178	95.8
ครูพี่เลี้ยง (Mentor Teacher)	4.83	0.204	96.6
ผู้บริหารฯ (School Administrator)	4.85	0.163	97
ผู้แทนฯ (Representative)	4.83	0.178	96.6
ภาพรวม	**4.83**	**0.18**	**96.5**

จากตารางที่ 4 ผลการวิจัยพบว่า พบว่า สมรรถนะด้านจรรยาบรรณวิชาชีพได้รับการประเมินในระดับดีเยี่ยม (ร้อยละ 96.49) โดยผู้บริหารสถานศึกษาให้คะแนนเฉลี่ยสูงสุด (ค่าเฉลี่ย 4.85, ร้อยละ 97) รองลงมาคือครูพี่เลี้ยงและผู้แทนฯ (ค่าเฉลี่ย 4.83, ร้อยละ = 96.6) และอาจารย์นิเทศก์ (ค่าเฉลี่ย 4.79, ร้อยละ 95.8) ภาพรวม(ค่าเฉลี่ย= 4.83, SD =0.18 ร้อยละ = 96.5) ซึ่งแสดงให้เห็นว่านักศึกษามีความตระหนักและยึดมั่นในจรรยาบรรณวิชาชีพเป็นอย่างดี ค่าเฉลี่ยที่สูงและค่าส่วนเบี่ยงเบนมาตรฐานที่ต่ำบ่งชี้ว่านักศึกษาส่วนใหญ่มีสมรรถนะด้านนี้อยู่ในระดับสูงและมีความสม่ำเสมอ

อภิปรายผลการวิจัย

การวิจัยนี้มีวัตถุประสงค์เพื่อพัฒนาสมรรถนะความเป็นครูตามมาตรฐานวิชาชีพครู โดยใช้หลักสูตรที่บูรณาการหลักปรัชญาของเศรษฐกิจพอเพียง (SEP) สำหรับนักศึกษาสาขาการศึกษาปฐมวัย คณะศึกษาศาสตร์ มหาวิทยาลัยราชธานี ผลการวิจัยพบว่ากิจกรรมในการพัฒนาสมรรถนะความเป็นครูที่สำคัญในการบูรณาการ SEP ประกอบด้วย 3 ด้าน ได้แก่ ด้านการจัดการเรียนรู้ ด้านความสัมพันธ์กับผู้ปกครองและชุมชน และด้านจรรยาบรรณวิชาชีพ สอดคล้องกับงานวิจัยของธนวัฒน์ สุขสวัสดิ์ (2563) ที่พบว่าการบูรณาการ SEP ในหลักสูตรพัฒนาครูส่งผลต่อทักษะการออกแบบกิจกรรมการเรียนรู้ที่ส่งเสริมความพอประมาณและความรับผิดชอบต่อสังคม นอกจากนี้ ผลการวิจัยยังสอดคล้องกับ UNESCO (2019) ที่เน้นย้ำว่าการศึกษาที่ยั่งยืนต้องเชื่อมโยงกับปรัชญาท้องถิ่น เพื่อสร้างครูที่มีความตระหนักในบทบาทต่อชุมชนและสิ่งแวดล้อม หลักสูตรพัฒนาสมรรถนะที่สร้างขึ้นมีองค์ประกอบหลัก ได้แก่ วัตถุประสงค์ เนื้อหาสาระ กิจกรรมการเรียนรู้ และการวัดผล โดยมีระยะเวลา 36 ชั่วโมง ซึ่งส่งผลให้กลุ่มทดลองมีคะแนนความรู้และสมรรถนะเพิ่มขึ้นอย่างมีนัยสำคัญที่ระดับ .05 สอดคล้องกับงานวิจัยของสุภาพร ใจดี (2564) ที่ระบุว่าการสร้างหลักสูตรที่บูรณาการ SEP ช่วยพัฒนาสมรรถนะด้านจรรยาบรรณผ่านกิจกรรมเชิงปฏิบัติ เช่น การใช้ทรัพยากรอย่างรู้คุณค่าและการสื่อสารกับชุมชน ผลลัพธ์ของการประเมินสมรรถนะที่ส่งเสริมความสามารถในการออกแบบหน่วยการเรียนรู้ที่บูรณาการ SEP สูงกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 โดยค่าเฉลี่ยสมรรถนะด้านจรรยาบรรณวิชาชีพ สูงที่สุด ($\bar{x}$ = 4.82)ตามด้วยด้านความสัมพันธ์กับผู้ปกครองและชุมชน ($\bar{x}$ = 3.92) และ) ด้านการจัดการเรียนรู้ ($\bar{x}$ = 4.35) ทั้งนี้ ผลการสังเกตพฤติกรรมการสอนสะท้อนว่านักศึกษากลุ่มทดลองสามารถแสดงพฤติกรรมการสอนที่สะท้อนการบูรณาการ SEP ได้ในระดับดีถึงดีมาก แสดงให้เห็นว่าหลักสูตรนี้สามารถนำไปใช้ในการพัฒนาสมรรถนะครูให้มีความสามารถในการบูรณาการ SEP ในการจัดการเรียนการสอนได้อย่างมีประสิทธิภาพ

ข้อเสนอแนะการวิจัย

ข้อเสนอแนะสำหรับการนำผลการวิจัยไปใช้

1. ปรับปรุงและพัฒนาหลักสูตรการออกแบบการสอน: นำผลการวิจัยที่บ่งชี้ว่าการบูรณาการปรัชญาเศรษฐกิจพอเพียง (SEP) มีผลกระทบเชิงบวกต่อทักษะการสอนและจรรยาบรรณวิชาชีพ มาปรับใช้ในการออกแบบหลักสูตรใหม่ให้ครอบคลุมทั้งด้านทฤษฎีและภาคปฏิบัติ โดยเฉพาะในส่วนของการวางแผนและบริหารจัดการชั้นเรียนที่เน้นการใช้ทรัพยากรอย่างพอประมาณและสร้างสรรค์

2. จัดอบรมและพัฒนาครูในด้านการออกแบบการสอนแบบ SEP: จัดโครงการอบรมหรือเวิร์คช็อปเฉพาะด้านการออกแบบการสอนที่บูรณาการ SEP ให้กับครู เพื่อให้เข้าใจและประยุกต์ใช้แนวทาง SEP ในการวางแผนการเรียนรู้ การจัดกิจกรรมในห้องเรียน และการใช้เครื่องมือเทคโนโลยีสารสนเทศในการสอน ซึ่งจะช่วยให้ครูสามารถนำแนวคิด “พอเพียง” มาปรับใช้ในการพลิกรูปแบบการจัดการเรียนการสอนให้เหมาะสมกับยุคสมัยได้อย่างมีประสิทธิภาพ.

ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

1. ศึกษาการออกแบบการสอนแบบเปรียบเทียบ: ควรออกแบบการวิจัยแบบเปรียบเทียบ (Comparative Design Research) เพื่อศึกษาความแตกต่างระหว่างการออกแบบการสอนที่บูรณาการ SEP กับแนวทางการออกแบบการสอนอื่น ๆ ในแง่ของประสิทธิผลของการเรียนรู้ ทั้งนี้โดยรวมถึงการประเมินความพึงพอใจและประสิทธิภาพของวิธีการสอนในแต่ละกลุ่ม ซึ่งจะช่วยให้สามารถสรุปองค์ประกอบสำคัญที่ควรคงไว้และเพิ่มเติมเพื่อให้หลักสูตรมีความสามารถในการตอบสนองต่อความเปลี่ยนแปลงในสถานการณ์จริง)

2. พัฒนาและทดสอบโมเดลการออกแบบการสอนที่บูรณาการ SEP: ใช้วิธีวิจัยแบบผสม (Mixed Methods) เพื่อพัฒนาและทดสอบโมเดลการออกแบบการสอนที่บูรณาการปรัชญาเศรษฐกิจพอเพียง โดยให้ความสำคัญกับการวิเคราะห์เชิงคุณภาพเกี่ยวกับปัจจัยที่ส่งผลต่อการออกแบบและการใช้เทคโนโลยีสารสนเทศร่วมกับ SEP ในการจัดการเรียนรู้

เอกสารอ้างอิง

ชัยวัฒน์ สุทธิรัตน์. (2556). การพัฒนาหลักสูตร ทฤษฎีสู่การปฏิบัติ. กรุงเทพฯ: วีพรินท์.

ทิศนา แขมมณี. (2559). การแปลงปรัชญาเศรษฐกิจพอเพียงเป็นแผนปฏิบัติการในห้องเรียน: แนวทางการจัดการเรียนรู้ตามหลักเศรษฐกิจพอเพียง. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

ธนวัฒน์ สุขสวัสดิ์. (2563). การบูรณาการปรัชญาเศรษฐกิจพอเพียงในหลักสูตรพัฒนาครู. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

ธนวัฒน์ สุขสวัสดิ์. (2563). การบูรณาการปรัชญาเศรษฐกิจพอเพียงในหลักสูตรพัฒนาครู. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

รัตนากร อัจฉรา. (2563). การวิจัยเชิงทดลอง: บทบาทของ SEP ในการพัฒนาครู. วารสารนวัตกรรมการศึกษา, 14(3), 103-119.

วงศ์เทพ เมืองแก้ว. (2565). การศึกษาชุมชนในเชียงใหม่กับการจัดการทรัพยากรท้องถิ่น. เชียงใหม่: ศูนย์วิจัยสังคมและวัฒนธรรม มหาวิทยาลัยเชียงใหม่.

วรฤทธิ์ ชาญวิทย์. (2561). การส่งเสริมปรัชญาเศรษฐกิจพอเพียงในหลักสูตรปฐมวัย. วารสารยุคใหม่การสอน, 7(2), 40-55.

วิไล จันทร์ประภา. (2564). การผสมผสาน SEP ในวิธีการสอนเพื่อพัฒนาบุคลากรทางการศึกษา. วารสารนวัตกรรมครู, 12(2), 65-80.

สุทธิวรรณ ตันติรังสี. (2560). การพัฒนาสมรรถนะครูผ่านการวิจัยในชั้นเรียน. กรุงเทพฯ: โรงพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย

สุภาพร ใจดี. (2564). การสร้างหลักสูตรบูรณาการปรัชญาเศรษฐกิจพอเพียงเพื่อเสริมสมรรถนะครู (วิทยานิพนธ์ปริญญาดุษฎีบัณฑิต). มหาวิทยาลัยศิลปากร, นครปฐม.

อรพรรณ จักรินทร์. (2562). ผลกระทบของ SEP ต่อวิธีการจัดการเรียนรู้ในโรงเรียน. วารสารพัฒนาการศึกษา, 10(3), 77-93.

Darling-Hammond, L. (2006). Teacher professional development: Key to student success.

Johnson, A. B., & Lee, C. D. (2020). Integrating sufficiency economy philosophy in teacher development programs. Journal of Educational Research, 15(3), 45-60.

Knowles, M. (1984). The adult learner: A neglected species (3rd ed.).

Lee, S. (2021). Sufficiency economy philosophy in business and community development.

Srisuk, K., et al. (2015). Public consciousness development through the sufficiency economy philosophy.

Taba, H. (1962). Curriculum Development: theory and Practice. New York: Harcourt, Brace& World.

UNESCO. (2019). Sustainable education and local philosophies. Retrieved 14 May 2025 From https://unesdoc.unesco.org/ark:/48223/pf0000261802le education and local philosophies

ผลการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD ต่อความสามารถในการแก้ปัญหาและผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ฯ ภูเก็ต

Study of problem-solving abilities and mathematics achievement for grade 10 students of Srinagarindra The Princess Mother School, Phuket using cooperative learning STAD technique.

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์ เพื่อศึกษาความสามารถในการแก้ปัญหาและผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 จากการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD กลุ่มเป้าหมายในการวิจัย คือ นักเรียนชั้นมัธยมศึกษาปีที่ 4/12 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ฯ ภูเก็ต ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 24 คน โดยใช้การเลือกแบบเจาะจง เครื่องมือที่ใช้ในการวิจัย ได้แก่ 1) แผนการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD 2) แบบทดสอบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์ 3) แบบวัดผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ สถิติที่ใช้ ได้แก่ ร้อยละ ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน

ผลการวิจัยพบว่า 1) ผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ของนักเรียน พบว่า นักเรียนมีคะแนนเฉลี่ยก่อนเรียน 6.88 คะแนน คิดเป็นร้อยละ 34.40 คะแนนเฉลี่ยหลังเรียน 13.79 คะแนน คิดเป็นร้อยละ 68.95 ซึ่งมีคะแนนเฉลี่ยหลังเรียนสูงกว่าก่อนเรียน 2) ความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียน พบว่า นักเรียนมีคะแนนความสามารถในการแก้ปัญหาทางคณิตศาสตร์ เฉลี่ย 2.36 คิดเป็นร้อยละ 78.86 อยู่ในระดับพอใช้

คำสำคัญ: ความสามารถในการแก้ปัญหาทางคณิตศาสตร์, ผลสัมฤทธิ์ทางการเรียน, การจัดการเรียนรู้แบบร่วมมือเทคนิค STAD

Abstract

The objective of this study was to examine the problem-solving ability and academic achievement in mathematics of Grade 10 students through the implementation of the Student Teams Achievement Divisions (STAD) cooperative learning technique. The target group consisted of 24 students from Grade 10 room 12 at Srinagarindrathe Princess Mother School, Phuket during the second semester of the 2024 academic year, selected through purposive sampling. The research instruments included 1) eight lesson plans based on the STAD cooperative learning technique, 2) a mathematical problem-solving ability test, and 3) a mathematics achievement test. The data were analyzed using percentage, mean, and standard deviation. The results of the research found that 1) The students' academic achievement in mathematics showed an improvement. The average pre-test score was 6.88 points, equivalent to 34.40%, while the average post-test score was 13.79 points, equivalent to 68.95%. This indicates that the post-test scores were higher than the pre-test scores. 2) The students' mathematical problem-solving ability had an average score of 2.36 points, equivalent to 78.86%, which was classified as a moderate level.

Keywords: Mathematical Problem-Solving Ability, Academic Achievement, STAD Cooperative Learning Technique

บทนำ

คณิตศาสตร์มีบทบาทสำคัญยิ่งต่อความสำเร็จในการเรียนรู้ในศตวรรษที่ 21 เนื่องจากคณิตศาสตร์ช่วยให้มนุษย์มีความคิดริเริ่มสร้างสรรค์ คิดอย่างมีเหตุผล เป็นระบบ มีแบบแผน สามารถวิเคราะห์ปัญหาหรือสถานการณ์ได้อย่างรอบคอบและถี่ถ้วน การศึกษาคณิตศาสตร์จึงจำเป็นต้องมีการพัฒนาอย่างต่อเนื่อง เพื่อให้ทันสมัยและสอดคล้องกับสภาพเศรษฐกิจ สังคม และความรู้ทางวิทยาศาสตร์และเทคโนโลยีที่เจริญก้าวหน้าอย่างรวดเร็วในยุคโลกาภิวัตน์ (กระทรวงศึกษาธิการ, 2560) คณิตศาสตร์เป็นวิชาที่เกี่ยวข้องกับกระบวนการคิดและการใช้เหตุผล โดยมีบทบาทสำคัญในการฝึกฝนให้ผู้เรียนคิดอย่างเป็นระบบ ทั้งยังเป็นเครื่องมือสำคัญสำหรับการเรียนรู้ และมีความสัมพันธ์อย่างลึกซึ้งกับชีวิตประจำวันจนไม่สามารถแยกออกจากกันได้ โดยเฉพาะอย่างยิ่ง ทักษะการแก้ปัญหาซึ่งถือเป็นหัวใจสำคัญของวิชาคณิตศาสตร์ การแก้ปัญหาทางคณิตศาสตร์ เป็นส่วนสำคัญของการเรียนกลุ่มสาระการเรียนรู้คณิตศาสตร์ และเป็นทักษะหลักในกระบวนการสอน การแก้ปัญหาคณิตศาสตร์ช่วยเพิ่มศักยภาพด้านการวิเคราะห์และช่วยให้ผู้เรียนเรียนรู้ข้อเท็จจริง ทักษะ ความคิดรวบยอด และหลักการต่าง ๆ ความสำเร็จในการแก้ปัญหาจะส่งเสริมคุณลักษณะที่ผู้เรียนต้องการ (Lester, 1977) ดังนั้น ในการจัดการเรียนการสอนครูจะต้องมุ่งเน้นให้ผู้เรียนรู้จักคิด รู้จักวิเคราะห์ และรู้จักแก้ปัญหา ซึ่งจะเป็นตัวบ่งชี้ได้ว่าผู้เรียนเกิดความเข้าใจในบทเรียนเป็นอย่างดีและสามารถนำไปประยุกต์ใช้ในการแก้ปัญหาต่างๆ ได้อย่างมีประสิทธิภาพ

อย่างไรก็ตามจากการศึกษาความสามารถทางการเรียนคณิตศาสตร์ของนักเรียนในช่วงหลายปีที่ผ่านมาพบว่านักเรียนยังคงประสบปัญหาทางการเรียนคณิตศาสตร์ดังเห็นได้จากผลการประเมินผลนักเรียนนานาชาติ ผลการประเมิน PISA 2022 ของประเทศไทย พบว่า นักเรียนไทยมีคะแนนเฉลี่ยด้านคณิตศาสตร์ 394 คะแนน ซึ่งมีคะแนนเฉลี่ยลดลงถึง 25 คะแนน ทั้งนี้ ผลการประเมินของประเทศไทยตั้งแต่ PISA 2000 จนถึง PISA 2022 พบว่า คะแนนเฉลี่ยด้านคณิตศาสตร์มีแนวโน้มจะลด (ศูนย์ดำเนินงาน PISA แห่งชาติ, 2565) ปัญหาดังกล่าวอาจเกิดจากการจัดการเรียนการสอนที่ไม่ตอบสนองต่อความต้องการของผู้เรียน กิจกรรมการเรียนรู้ที่จัดขึ้นไม่ได้ส่งเสริมความสามารถของผู้เรียนอย่างเต็มที่ กลวิธีการสอนที่ใช้ไม่สอดคล้องกับเนื้อหาวิชาที่กำลังศึกษา รวมถึงสื่อการเรียนรู้ที่ยังมีไม่เพียงพอ และการวัดผลและประเมินผลที่ไม่สามารถกระตุ้นให้ผู้เรียนพัฒนาศักยภาพของตนเองอย่างเต็มที่ได้ จึงเป็นหน้าที่สำคัญและเป็นความท้าทายของครูผู้สอนวิชาคณิตศาสตร์ที่จะต้องร่วมกันพัฒนาการจัดการเรียนรู้คณิตศาสตร์ให้ดีขึ้น สอดคล้องกับ (ศศิธร พงษ์โภคาและอุบลวรรณ ส่งเสริม, 2558) ได้ระบุว่า การเรียนรู้ผ่านนวัตกรรมวิธีสอนแบบต่างๆและกิจกรรมการเรียนรู้ที่หลากหลายเหมาะสมจะช่วยส่งเสริมพัฒนาให้นักเรียนสามารถเรียนรู้ได้ดียิ่งขึ้นและทำให้การจัดการเรียนรู้ของครูบรรลุตามเป้าหมายที่ได้ตั้งไว้ได้

จากการที่ผู้วิจัยได้ดำเนินการจัดการเรียนการสอนในวิชาคณิตศาสตร์ในสถานศึกษาพบว่า หนึ่งในทักษะและกระบวนการที่สำคัญในการเรียนคณิตศาสตร์คือ ความสามารถในการแก้ปัญหา ซึ่งครูผู้สอนทุกคนควรให้ความสำคัญและเน้นย้ำให้ผู้เรียนมีโอกาสฝึกฝนและปฏิบัติอย่างสม่ำเสมอ เพื่อส่งเสริมให้ผู้เรียนประสบความสำเร็จในการเรียนคณิตศาสตร์ได้อย่างมีประสิทธิภาพ อย่างไรก็ตามยังพบว่า ผู้เรียนส่วนใหญ่ยังมีความสามารถในการแก้ปัญหาทางคณิตศาสตร์ไม่ดีเท่าที่ควร เช่น การสับสนในการทำความเข้าใจโจทย์ปัญหา ไม่รู้ว่าจะเริ่มต้นจากขั้นตอนใดในการแก้ปัญหา ขาดความมั่นใจในขั้นตอนการแก้ปัญหา เลือกใช้กฎ สูตร หรือสมบัติทางคณิตศาสตร์ไม่ถูกต้อง รวมถึงเมื่อหาคำตอบได้แล้ว การสรุปผลคำตอบไม่สอดคล้องกับเงื่อนไขทั้งหมดที่โจทย์กำหนดมา ดังงานวิจัยของ Abakar (2010) ที่พบปัญหาว่านักเรียนไม่สามารถจดจำสูตรทางคณิตศาสตร์ได้ สับสนในเนื้อหาที่เรียน ไม่เข้าใจการใช้สูตรทางคณิตศาสตร์ และไม่สามารถประยุกต์การใช้สูตรทางคณิตศาสตร์ไปแก้ปัญหาในบริบทอื่น ๆ ได้ นอกจากนั้นงานวิจัยของพรทิพย์ โรจน์ศิรพิศาล (2567) ยังพบว่า ความยากลำบากในการเรียนคณิตศาสตร์ของนักเรียนมีสาเหตุจากหลายปัจจัยสำคัญ อาทิ ลักษณะเนื้อหาคณิตศาสตร์ที่มีความเป็นนามธรรมสูง วิธีการถ่ายทอดองค์ความรู้ที่ไม่สอดคล้องกับระดับพัฒนาการทางปัญญาของผู้เรียน และการขาดโอกาสในการฝึกฝนอย่างต่อเนื่อง ซึ่งปัจจัยเหล่านี้ส่งผลให้ผู้เรียนขาดความเข้าใจในเชิงลึกและไม่สามารถนำสูตรคณิตศาสตร์ไปประยุกต์ใช้ในบริบทที่หลากหลายได้อย่างมีประสิทธิภาพ

จากมาตรฐานการเรียนรู้ของหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 ครูมีหน้าที่ จัดการเรียนการสอนโดยให้ความสำคัญกับการจัดการเรียนที่เน้นผู้เรียนเป็นสำคัญ เน้นให้ผู้เรียนทุกคนได้มีโอกาสเรียนรู้และพัฒนาความสามารถของตนอย่างเต็มศักยภาพที่มีอยู่ โดยอาศัยความร่วมมือซึ่งกันและกันในห้องเรียน ผ่านกระบวนการเรียนรู้ที่เปิดโอกาสให้ผู้เรียนทุกคนได้มีส่วนร่วมและมีแรงจูงใจในการพัฒนาตนเอง (กระทรวงศึกษาธิการ, 2551) ซึ่งแนวทางการจัดการเรียนรู้ดังกล่าวรูปแบบหนึ่งก็คือการจัดการเรียนรู้แบบร่วมมือ (Cooperative Learning) ซึ่งแนวทางการจัดการเรียนรู้ดังกล่าวรูปแบบหนึ่งก็คือ การจัดการเรียนรู้แบบร่วมมือ (Cooperative Learning) เป็นกลวิธีการจัดการการเรียนรู้ที่มีประสิทธิภาพ และเหมาะสมกับบริบทการเรียนรู้ของผู้เรียนในทุกระดับชั้น และทุกเนื้อหาวิชา ซึ่งมีแบบแผนการจัดการเรียนรู้ที่เป็นลักษณะหรือแบบย่อยของกลุ่มร่วมมือที่ค่อนข้างหลากหลาย การจัดการเรียนรู้

ด้วยกลุ่มร่วมมือมีประโยชน์ และประสิทธิผลต่อผู้เรียน ทั้งผลการเรียนด้านผลสัมฤทธิ์ทางวิชาการ และความสามารถด้านการคิด คุณลักษณะอันพึงประสงค์ด้านเจตคติและนิสัยใฝ่เรียน รวมทั้งทักษะทางสังคมของผู้เรียน สนับสนุนช่วยให้เพื่อนได้เรียนรู้เพิ่มขึ้น โดยผ่านการเสริมแรงและการสนับสนุนของเพื่อน เมื่อสมาชิกในกลุ่มมีความสามารถในการคิดและเข้าใจสิ่งที่เรียนรู้ก็จะกระตุ้นและอธิบายคำตอบให้เพื่อนได้รับรู้เข้าใจไปพร้อมกันด้วย โดยเฉพาะการขยายความสามารถในการหยั่งรู้และความเข้าใจของตนเองเชื่อมโยงมุมมองความรู้ใหม่ไปยังเพื่อนคนอื่นในกลุ่มให้บรรลุผลตามไปด้วย (นิราศ จันทรจิตร, 2560) การจัดการเรียนรู้ที่มีประสิทธิภาพ ทำให้เกิดการแลกเปลี่ยนความรู้และสร้างความเข้าใจในเนื้อหาการเรียนและเกิดทักษะการทำงานร่วมกันมากยิ่งขึ้น ซึ่งจะส่งผลต่อผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ที่ดีขึ้น การเรียนแบบร่วมมือจัดว่าเป็นวิธีเรียนที่สามารถนำมาประยุกต์ใช้ให้เหมาะสมกับการเรียนการสอนที่มีคุณภาพได้ การจัดการเรียนรู้แบบร่วมมือมีอยู่หลากหลายรูปแบบ การจัดการเรียนรู้แบบร่วมมือ เทคนิค STAD (Student Teams Achievement Division) เป็นรูปแบบหนึ่งของการเรียนแบบร่วมมือที่จะช่วยให้นักเรียนได้ช่วยเหลือแลกเปลี่ยนเรียนรู้โดยให้ความสำคัญกับทั้งการรับผิดชอบรายบุคคลและรายกลุ่ม การจัดการเรียนรู้ แบบ STAD (Student Teams Achievement Divisions) ที่เน้นผู้เรียนเป็นศูนย์กลาง โดยมีการจัดการเรียนรู้ให้ผู้เรียนเรียนเป็นกลุ่มย่อย 3 – 6 คน สมาชิกมีความแตกต่างกันทางด้านความสามารถทางการเรียน คือ แบ่งกลุ่มนักเรียนที่เรียนเก่ง ปานกลาง และอ่อน ลักษณะเด่นของวิธีการสอนแบบร่วมมือ คือ เน้นเรื่องความร่วมมือร่วมแรงกันระหว่างสมาชิกกลุ่มในกลุ่มทุกคน กำหนดความสำเร็จของกลุ่มและหน้าที่ของบุคคลที่จะเรียนรู้กระบวนการแก้ปัญหาจากกิจกรรมต่าง ๆ ร่วมกัน การเรียนแบบนี้สมาชิกกลุ่มทุกคนจะต้องมีส่วนร่วมรับผิดชอบในการเรียนรู้สิ่งที่ครูสอนเพื่อช่วยเพื่อนที่อยู่ในกลุ่มเดียวกัน เพื่อจะได้รับความสำเร็จร่วมกัน (ทิศนา แขมมณี, 2545 : 38 อ้างถึงใน อรษา เกมกาเมน, 2559 : 15) โดยมีรายละเอียดขั้นตอนดังที่ Slavin (1995) กล่าวไว้ คือ 1) ขั้นนำเสนอบทเรียนต่อชั้นเรียน ผู้สอนเป็นผู้เสนอสิ่งที่นักเรียนต้องเรียนในเรื่องต่าง ๆ โดยใช้เทคนิคการเรียนการสอนที่มีความเหมาะสมตามลักษณะเนื้อหาในบทเรียน 2) การจัดกลุ่มนักเรียน แบ่งนักเรียนออกเป็น 4 - 5 คน กำหนดนักเรียนเข้ากลุ่มเพื่อให้ได้กลุ่มที่สมดุลกัน โดยแต่ละกลุ่มจะประกอบด้วยนักเรียนที่มีผลการเรียนอยู่ในระดับเก่ง ปานกลาง และอ่อน ซึ่งพิจารณาจากระดับผลการเรียนโดยเฉลี่ยของทุกกลุ่มจะต้องใกล้เคียงกัน 3) ทดสอบนักเรียนเป็นรายบุคคล จะทำการทดสอบหลังจากเรียนได้ 1 - 2 ครั้ง ครูผู้สอนจะทำการทดสอบนักเรียนเป็นรายบุคคล ไม่ให้ช่วยเหลือกันระหว่างทดสอบ 4) หาคะแนนความก้าวหน้าเป็นรายบุคคล สมาชิกในกลุ่มแต่ละกลุ่มจะทำคะแนนให้กลุ่มตัวเองบน พื้นฐานของคะแนนสอบในส่วนที่เกินกว่าฐานคะแนนของตนเอง 5) รางวัลของทีมกลุ่มที่ได้คะแนนเฉลี่ยตามเกณฑ์จะได้รับรางวัลในการให้รางวัลแก่กลุ่มแบ่งออกเป็น 3 ระดับ ขึ้นอยู่กับระดับคะแนนพัฒนาการเฉลี่ยของกลุ่มแต่ละกลุ่ม ซึ่งเป็นการจัดการเรียนรู้ที่เปิดโอกาสให้นักเรียนแต่ละคนแสดงศักยภาพของตนโดยไม่ต้องผ่านครูผู้สอน เช่น นักเรียนที่เรียนเก่งอธิบายให้กับนักเรียนอ่อนให้เข้าใจ ถือว่าเป็นการแสดงศักยภาพทางภาวะผู้นำของนักเรียนได้ด้วย เนื่องจากนักเรียนที่เรียนเก่งบางคนยังขาดความมั่นใจในตัวเอง

จากการศึกษางานวิจัยเกี่ยวกับการจัดการเรียนรู้วิชาคณิตศาสตร์จากการจัดการเรียนรู้แบบรู้มือ เทคนิค STAD พบว่า หลังจากที่ผู้สอนนำกระบวนการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD ไปใช้ในการจัดการเรียนรู้วิชาคณิตศาสตร์แล้ว นักเรียนมีผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์สูงขึ้น (วีระศักดิ์ เลิศโสภา, 2544; วิธิชัย พงษ์ประเสริฐ, 2562; กิรณา จิรโชติเดโช และเสรี คำอั่น, 2566) รวมทั้ง

ความสามารถในการแก้ปัญหาทางคณิตศาสตร์สูงขึ้น (วิภู มูลวงค์, 2559; ฤชามน ชนาเมธดิสกร, 2559; ปฏิภาณ ชาติวิวัฒนา, 2563)

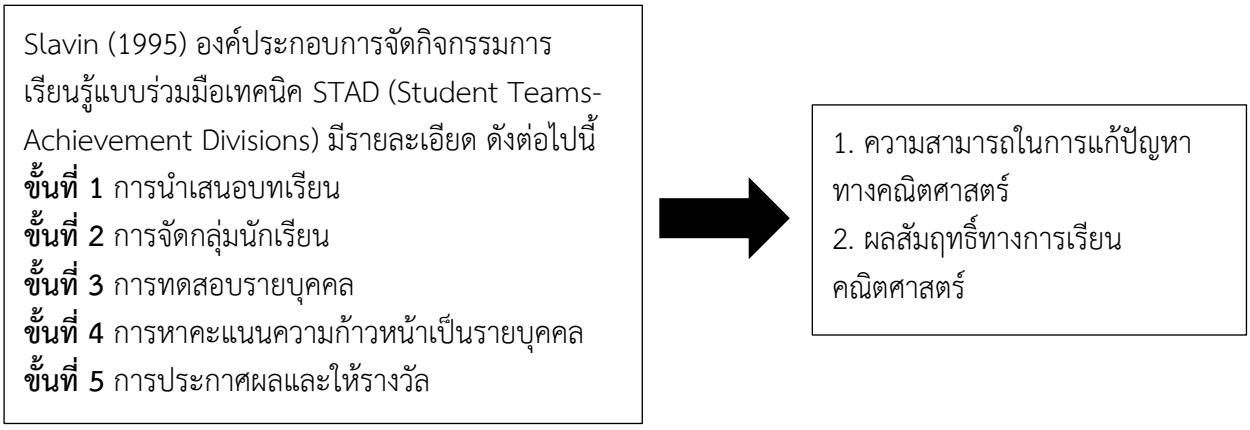
จากความเป็นมาและปัญหาที่พบดังกล่าว ทำให้ผู้วิจัยมีความต้องการที่จะนำการจัดการเรียนแบบร่วมมือแบบ STAD เพื่อนำมาจัดกิจกรรมการเรียนการสอนการแก้ปัญหาทางคณิตศาสตร์ให้ประสบผลสำเร็จและมีประสิทธิภาพมากยิ่งขึ้น โดยต้องการศึกษาว่าการเรียนแบบร่วมมือแบบ STAD ทำให้นักเรียนมีผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์หลังเรียนสูงกว่าก่อนเรียนหรือไม่อย่างไร และมีความสามารถในการแก้ปัญหาทางคณิตศาสตร์หลังเรียนสูงกว่าก่อนเรียนหรือไม่อย่างไร

วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนก่อนและหลังเรียนจากการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD ของนักเรียนชั้นมัธยมศึกษาปีที่ 4

2.เพื่อศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์จากการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD ของนักเรียนชั้นมัธยมศึกษาปีที่ 4

แนวคิด ทฤษฎี กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิดทางทฤษฎีที่ใช้ในการวิจัย

วิธีดำเนินการวิจัย

กลุ่มเป้าหมายในการวิจัย

กลุ่มเป้าหมายที่ใช้ในการวิจัยครั้งนี้ คือ นักเรียนชั้นมัธยมศึกษาปีที่ 4/12 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ ภูเก็ต ในพระราชูปถัมภ์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี ที่ศึกษาในภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 24 คน ได้มาโดยการเลือกแบบเจาะจง (Purposive Sampling) จากห้องเรียนที่ผู้วิจัยสอน สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ร้อยละ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน

เครื่องมือที่ใช้ในการวิจัย

1. แผนการจัดการเรียนรู้แบบร่วมมือแบบ STAD จำนวน 8 แผน แผนละ 1 คาบ คาบละ 50 นาที จำนวน 8 คาบ

2. แบบวัดผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ เรื่อง ความน่าจะเป็นของนักเรียนชั้นมัธยมศึกษาปีที่ 4 เป็นแบบปรนัย 4 ตัวเลือก จำนวน 20 ข้อ ที่ครอบคลุมมาตรฐานการเรียนรู้ ตัวชี้วัด เนื้อหาและจุดประสงค์การเรียนรู้

3. แบบทดสอบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์ เป็นแบบอิงเกณฑ์ชนิดอัตนัย จำนวน 3 ข้อ แสดงขั้นตอนการแก้ปัญหาทางคณิตศาสตร์

สร้างและการตรวจสอบคุณภาพ

1 แผนการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD

1.1 ศึกษาหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 หนังสือเรียน รายวิชาคณิตศาสตร์พื้นฐาน ชั้นมัธยมศึกษาปีที่ 4 ของสถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี กระทรวงศึกษาธิการ ตามมาตรฐานการเรียนรู้และตัวชี้วัด กลุ่มสาระการเรียนรู้คณิตศาสตร์ (ฉบับปรับปรุง 2560) เรื่อง ความน่าจะเป็น

1.2 ศึกษาเอกสารที่เกี่ยวข้องกับการเขียนแผนการจัดการเรียนรู้โดยใช้วิธีการจัดการ เรียนรู้แบบร่วมมือ เทคนิค STAD

1.3 พิจารณาแบ่งเนื้อหา เรื่อง ความน่าจะเป็น ระดับชั้นมัธยมศึกษาปีที่ 4 ออกเป็น 4 เรื่อง จำนวน 8 แผน ใช้เวลาในการจัดการเรียนรู้จำนวน 8 คาบ

1.4 จัดทำแผนการเรียนรู้ เรื่อง ความน่าจะเป็น สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 4 โดยวิธีการจัดการเรียนรู้แบบร่วมมือ เทคนิค STAD

1.5 นำแผนการจัดการเรียนรู้กลุ่มสาระการเรียนรู้คณิตศาสตร์ เรื่อง ความน่าจะเป็น สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 4 จากการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD จำนวน 8 แผน เสนอต่อผู้เชี่ยวชาญเพื่อตรวจสอบความถูกต้อง และทำการแก้ไขตามข้อเสนอแนะ

1.6 ได้แผนการจัดการเรียนรู้ เรื่อง ความน่าจะเป็น สำหรับนักเรียนชั้นมัธยมศึกษา ปีที่ 4 จากการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD ที่สมบูรณ์จำนวน 8 แผน

2. แบบวัดผลสัมฤทธิ์ทางการเรียน

2.1 ศึกษาหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 หนังสือเรียน รายวิชาคณิตศาสตร์พื้นฐาน ชั้นมัธยมศึกษาปีที่ 4 ของสถาบันส่งเสริมการสอนวิทยาศาสตร์และ เทคโนโลยี กระทรวงศึกษาธิการ ตามมาตรฐานการเรียนรู้และตัวชี้วัด กลุ่มสาระการเรียนรู้คณิตศาสตร์ (ฉบับปรับปรุง 2560)

2.2 ศึกษาเอกสารเกี่ยวกับการสร้างแบบวัดผลสัมฤทธิ์ทางการเรียน

2.3 วิเคราะห์มาตรฐานการเรียนรู้และตัวชี้วัด กลุ่มสาระการเรียนรู้ คณิตศาสตร์ (ฉบับปรับปรุง 2560) ตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551

2.4 สร้างแบบวัดผลสัมฤทธิ์ทางการเรียน เรื่อง ความน่าจะเป็น สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 4 แบบปรนัย 4 ตัวเลือก จำนวน 20 ข้อ

2.5 นำแบบวัดผลสัมฤทธิ์ทางการเรียน เสนอผู้เชี่ยวชาญเพื่อตรวจสอบความถูกต้อง และทำการแก้ไขตามข้อเสนอแนะ จำนวน 3 ท่าน

2.6 นำผลการพิจารณาของผู้เชี่ยวชาญทั้ง 3 ท่าน มาทำการวิเคราะห์เพื่อหาค่าดัชนี ความสอดคล้องเป็นรายข้อ (IOC) โดยคัดเลือกข้อสอบที่มีค่าดัชนีความสอดคล้องตั้งแต่ 0.5 ขึ้นไป

2.7 นำแบบวัดผลสัมฤทธิ์ทางการเรียนไปปรับปรุงแก้ไข

2.8 นำแบบวัดผลสัมฤทธิ์ทางการเรียน ที่ผ่านการหาประสิทธิภาพโดยผู้เชี่ยวชาญ จำนวน 20 ข้อ นำไปทดลองใช้กับนักเรียนชั้นมัธยมศึกษาปีที่ 4/12 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ จำนวน 24 คน

3. แบบทดสอบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์

3.1 ศึกษาวิธีการสร้างแบบทดสอบอัตนัยจากเอกสารและงานวิจัยที่เกี่ยวข้องกับการ สร้างแบบทดสอบความสามารถในการแก้ปัญหาทางคณิตศาสตร์

3.2 วิเคราะห์มาตรฐานการเรียนรู้และตัวชี้วัด กลุ่มสาระการเรียนรู้ คณิตศาสตร์ (ฉบับปรับปรุง 2560) ตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551

3.3 สร้างแบบทดสอบและเกณฑ์การวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์เป็นแบบทดสอบอัตนัย โดยการกำหนดสถานการณ์ปัญหาต่าง ๆ จำนวน 5 ข้อ เพื่อคัดเลือกมาเป็นเครื่องมือวิจัย 3 ข้อ

ตารางที่ 1 เกณฑ์การให้คะแนนความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของสถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี

รายการประเมิน	คะแนน	ระดับคุณภาพ	เกณฑ์การพิจารณา
1. ความเข้าใจปัญหา	3	ดี	เข้าใจปัญหาได้ถูกต้อง (3)
	2	พอใช้	เข้าใจปัญหาบางส่วนไม่ถูกต้อง (2)
	1	ปรับปรุง	เข้าใจปัญหาน้อยมากหรือไม่เข้าใจปัญหา (1)
2. การเลือกกลยุทธวิธีการแก้ปัญหา	3	ดี	เลือกวิธีการแก้ปัญหาได้เหมาะสมและเขียนประโยคคณิตศาสตร์ได้ถูกต้อง (3)
	2	พอใช้	เลือกวิธีการแก้ปัญหา ซึ่งอาจจะนำไปสู่คำตอบที่ถูก แต่ยังมีบางส่วนผิดโดยอาจ (2)
	1	ปรับปรุง	เขียนประโยคคณิตศาสตร์ไม่ถูกต้องเลือกวิธีการแก้ปัญหาส่วนใหญ่ไม่ถูกต้อง (1)
3. การใช้วิธีการแก้ปัญหา	3	ดี	นำวิธีการแก้ปัญหาไปใช้ได้ถูกต้อง (3)
	2	พอใช้	นำวิธีการแก้ปัญหาไปใช้ได้ถูกต้องเป็นบางครั้ง (2)
	1	ปรับปรุง	นำวิธีการแก้ปัญหาไปใช้ได้ไม่ถูกต้อง (1)
4. การสรุปคำตอบ	3	ดี	สรุปคำตอบได้ถูกต้องสมบูรณ์ (3)
	2	พอใช้	สรุปคำตอบที่ไม่สมบูรณ์หรือ ใช้สัญลักษณ์ไม่ถูกต้อง (2)
	1	ปรับปรุง	ไม่มีการสรุปคำตอบ (1)

ตารางที่ 2 เกณฑ์การแปลผลคะแนนความสามารถในการแก้ปัญหาทางคณิตศาสตร์ โดยแบ่งช่วงตามสัดส่วนของ ภาสพงศ์ ศรีวงศ์งาม (2550)

คะแนนเฉลี่ย	ระดับคุณภาพ
2.40 – 3.00	ดี
1.79 – 2.39	พอใช้
1.00 – 1.80	ปรับปรุง

3.4 นำแบบทดสอบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์ เสนอผู้เชี่ยวชาญเพื่อตรวจสอบความถูกต้อง และทำการแก้ไขตามข้อเสนอแนะ จำนวน 3 ท่าน

3.5 ผู้เชี่ยวชาญประเมินความสอดคล้องระหว่างข้อคำถามกับวัตถุประสงค์

3.6 นำผลการพิจารณาของผู้เชี่ยวชาญทั้ง 3 ท่าน มาทำการวิเคราะห์เพื่อหาค่าดัชนีความสอดคล้องเป็นรายข้อ (IOC) โดยคัดเลือกข้อสอบที่มีค่าดัชนีความสอดคล้องตั้งแต่ 0.5 ขึ้นไป

3.7 นำแบบทดสอบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์ไปปรับปรุงแก้ไข

3.8 เลือกแบบทดสอบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์ ที่ผ่านการหาประสิทธิภาพโดยผู้เชี่ยวชาญ จำนวน 3 ข้อ นำไปทดลองใช้กับนักเรียนชั้นมัธยมศึกษาปีที่ 4/12 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ จำนวน 24 คน

การเก็บรวบรวมข้อมูล

1. ขั้นก่อนการทดลอง

1.1 จัดทำแผนการจัดการเรียนรู้โดยใช้วิธีการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD เรื่อง ความน่าจะเป็น ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 รวมแผนการจัดการเรียนรู้ 8 แผน จำนวน 8 คาบ

1.2 จัดทำใบงาน เรื่อง ความน่าจะเป็น ระดับชั้นมัธยมศึกษาปีที่ 4 จำนวน 13 ใบงาน

1.3 จัดทำแบบวัดผลสัมฤทธิ์ทางการเรียน ก่อนเรียนและหลังเรียน เรื่อง ความน่าจะเป็น สำหรับ นักเรียนชั้นมัธยมศึกษาปีที่ 4 แบบปรนัย จำนวน 20 ข้อ

1.4 จัดหาแบบทดสอบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์ เป็นแบบอิงเกณฑ์ชนิด อัตนัยจำนวน 3 ข้อ แสดงขั้นตอนการแก้ปัญหาทางคณิตศาสตร์ เรื่องความน่าจะเป็น สำหรับนักเรียนชั้น มัธยมศึกษาปีที่ 4 จำนวน 3 ข้อ

2. ขั้นการทดลอง

2.1 ผู้วิจัยชี้แจงให้นักเรียนกลุ่มเป้าหมายรับรู้ถึงการจัดการเรียนการสอน รวมไปถึงจุดประสงค์ในครั้งนี้เพื่อให้นักเรียนปฏิบัติได้ถูกต้อง

2.2 ผู้วิจัยนำแบบวัดผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ เรื่องความน่าจะเป็น ให้นักเรียนที่เป็นกลุ่มเป้าหมายทำแบบทดสอบก่อนเรียน

2.3 ผู้วิจัยดำเนินการทดลองสอนกับกลุ่มเป้าหมาย การจัดการเรียนรู้แบบร่วมมือเทคนิค STAD เรื่อง ความน่าจะเป็น รวมแผนการเรียนรู้ 8 แผน จำนวน 8 คาบ

2.4 หลังจากดำเนินการจัดการเรียนรู้ครบถ้วนแล้ว จึงนำแบบวัดผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ และแบบทดสอบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์ ทดสอบนักเรียนกลุ่มเป้าหมาย

3. ขั้นหลังการทดลอง

3.1 ตรวจให้คะแนนแบบวัดผลสัมฤทธิ์ทางการเรียนหลังเรียนและแบบทดสอบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์ จากการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD เรื่อง ความน่าจะเป็น สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 4 ที่ผู้วิจัยได้สร้างขึ้น แล้วนำคะแนนที่ได้ไปวิเคราะห์หาค่าทางสถิติ

การวิเคราะห์ข้อมูล

การศึกษาวิจัยครั้งนี้เป็นวิจัยเชิงทดลอง ซึ่งดำเนินการทดลองโดยใช้แบบแผนการทดลองแบบกลุ่มเดียว ทดลองใช้แบบวัดผลสัมฤทธิ์ทางการเรียนก่อนเรียนโดยใช้วิธีการจัดการเรียนรู้แบบร่วมมือเทคนิค และทดลองใช้แบบวัดผลสัมฤทธิ์ทางการเรียนหลังเรียนโดยโดยใช้วิธีการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD และ STAD ซึ่งมีรูปแบบการวิจัย ดังต่อไปนี้

ตารางที่ 3 แบบแผนการวิจัย

ก่อนเรียน	ทดลอง	หลังเรียน
T_1	x	T_2

สัญลักษณ์ที่ใช้ในการทดลอง

T_1 แทน การทดสอบก่อนการจัดกระทำการทดลอง

T_2 แทน การทดสอบหลังการจัดกระทำการทดลอง

x แทน การจัดกระทำกลุ่มทดลอง

ผลการวิจัย

ตอนที่ 1 การศึกษาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์จากการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD

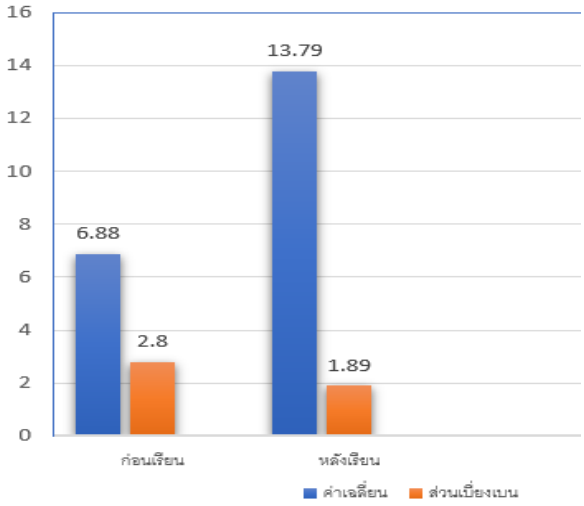
ก่อนจัดการเรียนรู้ผู้วิจัยให้นักเรียนทำแบบทดสอบก่อนเรียน โดยใช้แบบวัดผลสัมฤทธิ์ทางการเรียน และเมื่อนำแผนการจัดการเรียนรู้ไปใช้ดำเนินการจัดการเรียนรู้กับนักเรียนจำนวน 8 คาบ ผู้วิจัยได้ทำการทดสอบหลังเรียนโดยใช้แบบวัดผลสัมฤทธิ์ทางการเรียน เรื่อง ความน่าจะเป็น ได้ผลการทดสอบดังต่อไปนี้

ตารางที่ 4 การศึกษาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์จากการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD

ผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์	N (คน)	μ (คะแนนเต็ม 20 คะแนน)	ร้อยละของคะแนนเฉลี่ย	σ
ก่อนเรียน	24	6.88	34.40	2.80
หลังเรียน	24	13.79	68.95	1.89

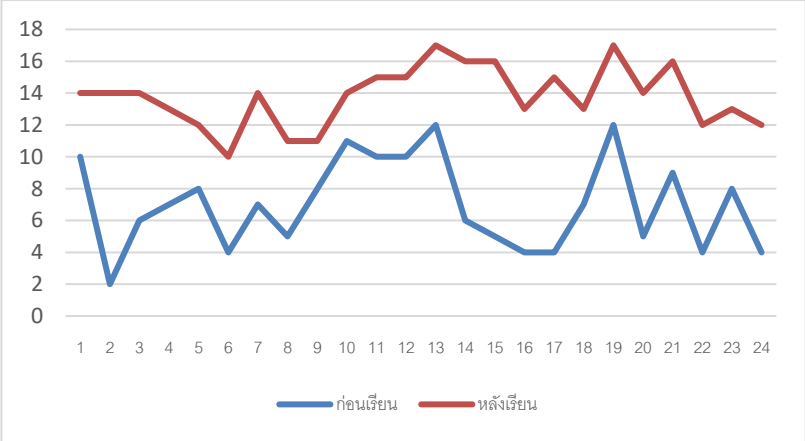
จากตารางที่ 4 แสดงให้เห็นว่า นักเรียนกลุ่มเป้าหมาย จำนวน 24 คน มีคะแนนผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ก่อนเรียนมีคะแนนเฉลี่ย 6.88 คิดเป็นร้อยละ 34.40 ส่วนเบี่ยงเบน

มาตรฐาน 2.80 คะแนนผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์หลังเรียนมีคะแนนเฉลี่ย 13.79 คิดเป็นร้อยละ 68.95 ส่วนเบี่ยงเบนมาตรฐาน 1.89



ภาพที่ 2 การศึกษาผลสัมฤทธิ์ทางการเรียน จากการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD

จากภาพที่ 2 พบว่าผลสัมฤทธิ์ทางการเรียนจากการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD สูงกว่าก่อนการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD



ภาพที่ 3 การเปรียบเทียบผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ก่อนเรียนและหลังเรียน ของนักเรียนรายบุคคล

จากภาพที่ 3 และ 4 พบว่าผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 มีผลสัมฤทธิ์ทางการเรียนหลังการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD สูงกว่าก่อนการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD มีนักเรียนจำนวน 24 คน

ตอนที่ 2 การศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์จากการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD

หลังจากใช้แผนการจัดการเรียนรู้ไปใช้ดำเนินการจัดการเรียนรู้กับนักเรียนจำนวน 8 คาบ ผู้วิจัยได้นำแบบทดสอบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์ เรื่อง ความน่าจะเป็น ทดลองสอบนักเรียนกลุ่มเป้าหมาย ได้ผลการทดสอบ ดังต่อไปนี้

ตารางที่ 5 การศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์จากการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD

รายการประเมิน	คะแนนเต็ม	μ คะแนนเฉลี่ย	ร้อยละของคะแนนเฉลี่ย	σ	ระดับความสามารถ
ความเข้าใจปัญหา	3	2.51	83.79	0.48	ดี
การเลือกวิธีการแก้ปัญหา	3	2.15	71.67	0.51	พอใช้
การใช้วิธีการแก้ปัญหา	3	2.35	78.33	0.53	พอใช้
การสรุปคำตอบ	3	2.45	81.67	0.57	ดี
เฉลี่ยรวม	**3**	**2.36**	**78.86**	**0.53**	**พอใช้**

จากตารางที่ 5 แสดงให้เห็นว่านักเรียนกลุ่มเป้าหมายจำนวน 24 คน มีคะแนนเฉลี่ยในด้านความเข้าใจปัญหา 2.51 คะแนน คิดเป็นร้อยละ 83.79 อยู่ในระดับดี มีคะแนนเฉลี่ยในด้านการเลือกวิธีการแก้ปัญหา 2.15 คะแนน คิดเป็นร้อยละ 71.67 อยู่ในระดับพอใช้ มีคะแนนเฉลี่ยในด้านการใช้วิธีการแก้ปัญหา 2.35 คะแนน คิดเป็นร้อยละ 78.33 อยู่ในระดับพอใช้ มีคะแนนเฉลี่ยด้านการสรุปคำตอบ 2.45 คะแนน คิดเป็นร้อยละ 81.67 ซึ่งอยู่ในระดับดี และมีคะแนนเฉลี่ยรวม 2.36 คะแนน คิดเป็นร้อยละ 78.86 อยู่ในระดับพอใช้

สรุปผลการวิจัย

1. ผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 เรื่อง ความน่าจะเป็น พบว่า คะแนนเต็ม 20 คะแนน นักเรียนมีคะแนนเฉลี่ยก่อนเรียน 6.88 คะแนน คิดเป็นร้อยละ 34.40 คะแนนเฉลี่ยหลังเรียน 13.79 คะแนน คิดเป็นร้อยละ 68.95 ซึ่งมีคะแนนเฉลี่ยหลังเรียนสูงกว่าก่อนเรียน และมีนักเรียนที่มีคะแนนหลังเรียนสูงกว่าก่อนเรียนจำนวน 24 คน จากนักเรียนทั้งหมด 24 คน

2. ความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 เรื่อง ความน่าจะเป็น พบว่า นักเรียนมีคะแนนเฉลี่ยด้านความเข้าใจปัญหามากที่สุด คือ 2.51 คะแนน คิดเป็นร้อยละ 83.79 อยู่ในระดับดี มีคะแนนเฉลี่ยด้านการสรุปคำตอบเป็นอันดับที่สอง คือ 2.45 คะแนน คิดเป็นร้อยละ 81.67 อยู่ในระดับดี มีคะแนนเฉลี่ยด้านการใช้วิธีการแก้ปัญหาเป็นอันดับที่สาม คือ 2.35 คะแนน คิดเป็นร้อยละ 78.33 อยู่ในระดับพอใช้ มีคะแนนเฉลี่ยด้านการเลือกวิธีการแก้ปัญหาน้อยที่สุด คือ 2.15 คะแนน คิดเป็นร้อยละ 71.67 อยู่ในระดับพอใช้ และมีคะแนนเฉลี่ยรวม 2.36 คิดเป็นร้อยละ 78.86 อยู่ในระดับพอใช้

การอภิปรายผล

จากผลการศึกษาในเรื่อง ความสามารถในการแก้ปัญหาและผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 จากการจัดการเรียนรู้แบบร่วมมือเทคนิค STAD พบว่า

1. ด้านผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์

จากผลการวิจัยครั้งนี้พบว่า นักเรียนที่เรียนด้วยการเรียนแบบร่วมมือแบบเทคนิค STAD นักเรียนมีผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์หลังเรียนสูงกว่าก่อนเรียน สรุปได้จากผลการทดสอบวัดผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นมัธยมศึกษาปีที่ 4 เรื่อง ความน่าจะเป็น ซึ่งนักเรียนมีคะแนนเฉลี่ยก่อนเรียน 6.88 คะแนน คิดเป็นร้อยละ 34.40 คะแนนเฉลี่ยหลังเรียน 13.79 คะแนน คิดเป็นร้อยละ 68.95 และมีคะแนนเฉลี่ยหลังเรียนสูงกว่าก่อนเรียน อีกทั้งนักเรียนแต่ละคนต้องมีความรับผลต่อผลงานและคะแนนสอบของตนเองมากขึ้น โดยคะแนนของแต่ละคนจะส่งผลต่อคะแนนรวมของทุกคนในกลุ่มซึ่งจะเป็นรางวัลหรือคะแนนพิเศษหลังจบบทเรียน ทั้งนี้อาจเป็นเพราะเหตุผลดังนี้

การจัดการเรียนรู้แบบร่วมมือแบบ STAD เป็นการจัดการเรียนการสอนโดยให้นักเรียนได้เรียนรู้ร่วมกันเป็นกลุ่มย่อย ซึ่งสมาชิกภายในกลุ่มมีความสามารถทางการเรียนที่แตกต่างกัน คือในกลุ่มจะมีสมาชิกที่เป็นนักเรียนที่เก่ง 1 คน ปานกลาง 2 คน และอ่อน 1 คน โดยที่สมาชิกทุกคนในกลุ่มจะมีหน้าที่รับผิดชอบงานของตนเองและงานของกลุ่ม ซึ่งการจัดการเรียนรู้เช่นนี้จะส่งเสริมให้ผู้เรียนรู้จักช่วยเหลือซึ่งกันและกันเพื่อให้เข้าใจบทเรียนและเกิดการเรียนรู้ร่วมกัน คนที่เก่งกว่าจะต้องช่วยเหลือคนที่อ่อนกว่า สมาชิกทุกคนจะต้องร่วมกันรับผิดชอบต่อการเรียนรู้ของเพื่อนสมาชิกทุกคนในกลุ่ม มีการแลกเปลี่ยนความคิดเห็น ให้กำลังใจกันและช่วยเหลือซึ่งกันและกัน ทำให้สมาชิกทุกคนในกลุ่มได้เรียนรู้เพื่อบรรลุตามวัตถุประสงค์ และคะแนนจากความสำเร็จของแต่ละคนจะเป็นความสำเร็จของกลุ่ม ทำให้สมาชิกทุกคนในกลุ่มร่วมมือกัน ช่วยเหลือซึ่งกันและกัน เพื่อให้คะแนนกลุ่มของตนเองสูงที่สุด สอดคล้องกับแนวคิดของสลาวิน (Slavin, 1987) กล่าวว่า การเรียนแบบร่วมมือเป็นการสอนที่ให้นักเรียนเป็นกลุ่มเล็ก ๆ สมาชิกในกลุ่มโดยทั่วไปมี 4 คน และมีความสามารถแตกต่างกัน เป็นนักเรียนที่เรียนเก่ง 1 คน ปานกลาง 2 คน และเรียนอ่อน 1 คน นักเรียนแต่ละคนในกลุ่มจะต้องช่วยเหลือเพื่อนที่อยู่ในกลุ่มเดียวกันในการเรียนหรือทำกิจกรรมต่าง ๆ สมาชิกกลุ่มจะได้รางวัลถ้ากลุ่มทำคะแนนเฉลี่ยได้ถึงเกณฑ์ที่ตั้งไว้ นอกจากนี้ยังสอดคลองกับงานวิจัยของ กิรณา จิรโชติเดโช และเสรี คำอั่น (2566) ที่ทำการศึกษาผลสัมฤทธิ์ทางการเรียนและเจตคติตอการเรียนคณิตศาสตรของนักเรียนชั้นมัธยมศึกษาปที่ 6 ที่ไดรับการจัดการเรียนรูแบบแบงกลุมผลสัมฤทธิ์ (STAD) รวมกับเทคนิค KWDL ผลการวิจัยพบวา ผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นมัธยมศึกษาปที่ 6 ที่ไดรับการจัดการเรียนรูแบบแบงกลุมผลสัมฤทธิ์ (STAD) รวมกับเทคนิค KWDL สูงกวาเกณฑที่กำหนดรอยละ 70 อยางมีนัยสำคัญทางสถิติที่ระดับ .05 หมายความวา คะแนนเฉลี่ยของนักเรียนทั้งหมดที่ได้จากการทำแบบวัดผลสัมฤทธิ์ทางการเรียนหลังเรียนเทากับ 14.80 คะแนน จากคะแนนเต็ม 20 คะแนน คิดเปนรอยละ 74 ซึ่งสูงกวาเกณฑที่กำหนดรอยละ 70 เนื่องจากการจัดการเรียนรูแบบแบงกลุมผลสัมฤทธิ์ (STAD) รวมกับเทคนิค KWDL เปนการจัดการเรียนรูที่เนนใหนักเรียนมีการชวยเหลือซึ่งกันและกันภายในกลุม มีการฝกทักษะกระบวนการคิดเปนขั้นตอน ชวยใหผลสัมฤทธิ์ทางการเรียนของนักเรียนสูงกวาเกณฑที่กำหนดรอยละ 70 อยางมีนัยสำคัญทางสถิติที่ระดับ .05 และวิธิชัย พงษ์ประเสริฐ (2562) ที่ศึกษาเรื่องผลการจัดกิจกรรมการเรียนรู้คณิตศาสตร์ตามแนวคิดของทฤษฎีคอนสตรัคติวิสต์ร่วมกับเทคนิค STAD เรื่อง เส้นขนาน ชั้นมัธยมศึกษาปีที่ 2 ผลการศึกษาพบว่าผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 เป็นไปตามสมมติฐานที่ตั้งไว้ ซึ่งอาจเป็นเพราะการเรียนแบบร่วมมือ มีการช่วยเหลือจากเพื่อน การมีพัฒนาการทางสังคมเพื่อให้เกิดทักษะการสื่อสาร ทักษะการทำงานร่วมกัน ทักษะการปฏิสัมพันธ์กัน ทักษะการแก้ปัญหา

ทักษะการคิดและแสวงหาความรู้เปิดโอกาสให้ผู้เรียนได้ฝึกฝนทักษะต่าง ๆ ที่จำเป็นในชีวิตประจำวันตรงกับคำกล่าวของ ทิศนา แขมมณี (2560)

2. ด้านความสามารถในการแก้ปัญหาทางคณิตศาสตร์

จากผลการวิจัยพบว่า นักเรียนที่เรียนด้วยการเรียนแบบร่วมมือแบบ STAD ความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 เรื่อง ความน่าจะเป็น พบว่า นักเรียนมีคะแนนเฉลี่ยด้านความเข้าใจปัญหา 2.51 คะแนน คิดเป็นร้อยละ 83.79 อยู่ในระดับดี มีคะแนนเฉลี่ยด้านการเลือกวิธีการแก้ปัญหา 2.15 คะแนน คิดเป็นร้อยละ 71.67 อยู่ในระดับพอใช้ มีคะแนนเฉลี่ยด้านการใช้วิธีการแก้ปัญหา 2.35 คะแนน คิดเป็นร้อยละ 78.33 อยู่ในระดับพอใช้ มีคะแนนเฉลี่ยด้านการสรุปคำตอบ 2.45 คะแนน คิดเป็นร้อยละ 81.67 อยู่ในระดับดี และมีคะแนนเฉลี่ยรวม 2.36 คิดเป็นร้อยละ 78.86 อยู่ในระดับพอใช้ อีกทั้งนักเรียนมีกระบวนการแก้ปัญหาที่ถูกต้องและแม่นยำมากขึ้น เนื่องด้วยนักเรียนมีการแก้ปัญหาร่วมกัน ตรวจสอบความสมเหตุสมผลร่วมกัน อภิปรายกันในกลุ่มให้เข้าใจตรงกัน เนื่องจากหน่วยการเรียนรู้เรื่องความน่าจะเป็น เป็นหน่วยการเรียนรู้ที่ตรวจสอบความสมเหตุสมผลได้ยาก การอภิปรายร่วมกันทำให้เห็นมุมมองแนวคิดของแต่ละคนและช่วยกันตรวจสอบความสมเหตุสมผล ทั้งนี้อาจเป็นเพราะเหตุผลดังนี้

การจัดการเรียนรู้แบบร่วมมือแบบ STAD เป็นวิธีการจัดการเรียนรู้ที่จัดการเรียนรู้ที่จัดให้นักเรียนเรียนกันเป็นกลุ่มคละความสามารถ เก่ง ปานกลางและอ่อน นักเรียนได้ช่วยเหลือกัน ได้พูดคุย อภิปรายและซักถามจนกระทั่งเกิดความเข้าใจอย่างชัดเจนเด็กเก่งสามารถช่วยเด็กปานกลางและเด็กอ่อน เด็กปานกลางสามารถดูแลเด็กอ่อนได้ ทำให้สามารถเรียนรู้ไปด้วยกันได้เพราะการเรียนรู้จากเพื่อนที่ใช้ภาษาใกล้เคียงกันทำให้เข้าใจดีกว่าการเรียนรู้จากครู รวมถึงความสำเร็จของกลุ่มขึ้นอยู่กับสมาชิกทุกคนในกลุ่ม ทำให้สมาชิกในกลุ่มทุกคนมีความกระตือรือร้น สามารถสร้างความเข้าใจในบทเรียนและทำคะแนนให้ได้มากที่สุดเพื่อความสำเร็จของกลุ่ม สอดคล้องกับแนวคิดของ Slavin (1995) ที่กล่าวว่าการทำงานกลุ่มถือว่าเป็นลักษณะสำคัญที่สุดของวิธี STAD โดยสมาชิกในกลุ่มต้องทำให้ดีที่สุดเพื่อกลุ่มของตนและกลุ่มก็จะต้องทำให้ดีที่สุดเช่นกันเพื่อช่วยเหลือสมาชิกแต่ละคนในกลุ่มนั้น ๆ สมาชิกในกลุ่มต้องมีการแลกเปลี่ยนเรียนรู้เพื่อให้เกิดความเข้าใจในเนื้อหาอย่างถ่องแท้ สอดคล้องกับงานวิจัยของ ปฏิภาณ ชาติวิวัฒนา (2563) ที่ทำการการศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์และผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ด้วยการจัดกิจกรรมการเรียนรู้แบบร่วมมือด้วยเทคนิคแบบ STAD ร่วมกับเทคนิค KWDL ของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ผลการวิจัยพบว่า ความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนหลังได้รับการจัดกิจกรรมการเรียนรู้แบบร่วมมือ ด้วยเทคนิคแบบ STAD ร่วมกับเทคนิค KWDL มีคะแนนเฉลี่ยเท่ากับ 32.92 คะแนน คิดเป็น ร้อยละ 82.3 และเมื่อทดสอบสมมติฐาน พบว่า คะแนนเฉลี่ยของความสามารถในการปัญหาทางคณิตศาสตร์ของนักเรียนหลังได้รับการจัดกิจกรรมการเรียนรู้แบบร่วมมือด้วยเทคนิค แบบ STAD ร่วมกับ เทคนิค KWDL สูงกว่า เกณฑ์ร้อยละ 70 อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และงานวิจัยของ วิภู มูลวงค์ (2559) ที่ศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ระหว่างการจัดการเรียนรู้โดย ใช้กรณีศึกษา โดยภาพรวมอยู่ในระดับดี ซึ่งนักเรียนมีความสามารถด้านการกำหนดปัญหาจากโจทย์สูงที่สุด และมีความสามารถด้านการแสดงขั้นตอนการแก้ปัญหาต่ำที่สุด

ทั้งนี้อาจเป็นเพราะว่าวิชาคณิตศาสตร์เป็นวิชาที่ครูผู้สอนสามารถกำหนดสถานการณ์ปัญหาที่เกิดขึ้นในชีวิตประจำวันได้อย่างชัดเจน และตามธรรรมชาติของวิชาคณิตศาสตร์เป็นวิชาที่เน้นให้ผู้เรียน

แก้ปัญหาทางคณิตศาสตร์เพื่อให้ได้คำตอบของโจทย์ที่กำหนดให้ โดยผู้เรียนต้องแก้ปัญหาโดยใช้ความรู้ ประสบการณ์ ทักษะพื้นฐานทางการคิดแก้ปัญหา การจัดบรรยากาศในชั้นเรียนของครูผู้สอน และระยะเวลาในการแก้ปัญหาที่เหมาะสมด้วย โดยครูผู้สอนจะต้องสอนทั้งความรู้และเสนอสถานการณ์ในชีวิตประจำวันที่ผู้เรียนสามารถมองเห็นได้ขัดเจน เน้นผู้เรียนเป็นสำคัญในการเรียนรู้ และเลือกวิธีการจัดการเรียนรู้ที่มีความเหมาะสมกับเนื้อหาสาระที่สอน ซึ่งสอดคล้องกับแนวคิดของนักวิชาการหลายคน อาทิ สิริพร ทิพย์คง (2536); ปรีชา เนาว์เย็นผล (2538) ที่กล่าวทำนองเดียวกันว่า ครูผู้สอนควรกำหนดปัญหาที่น่าสนใจ มีความหลากหลาย ให้อิสระแก่นักเรียนในการคิดหาวิธีแก้ปัญหา และส่งเสริมให้นักเรียนใช้วิธีการที่หลากหลายในการแก้ปัญหาเพื่อพัฒนาทักษะการคิดแก้ปัญหา

ข้อเสนอแนะ

1. ข้อเสนอแนะเพื่อนำผลการวิจัยไปใช้

1.1 ในการนำกิจกรรมการเรียนแบบร่วมมือแบบ STAD ครูผู้สอนควรศึกษาและทำความเข้าใจขั้นตอนในการจัดกิจกรรมการเรียนรู้ให้ชัดเจน เตรียมสื่อให้พร้อมสำหรับการจัดกิจกรรมการเรียนรู้ในแต่ละครั้ง และกำหนดระยะเวลาในการสอนให้มีความเหมาะสมไม่น้อยหรือมากจนเกินไป พร้อมทั้งควรมีการบันทึกหลังการสอนเพื่อให้ทราบปัญหาหรือสิ่งที่ต้องการแก้ไขเพื่อทำให้การจัดกิจกรรมเรียนรู้มีประสิทธิภาพมากยิ่งขึ้น

1.2 การนำกิจกรรมการเรียนแบบร่วมมือแบบ STAD ไปใช้ในการเรียนการสอนครูผู้สอนควรชี้แจงขั้นตอนการจัดกิจกรรมให้นักเรียนเข้าใจอย่างชัดเจน เพื่อให้นักเรียนสามารถปฏิบัติกิจกรรมการเรียนรู้ได้อย่างมีประสิทธิภาพ โดยในชั่วโมงที่ 1 - 2 อาจต้องใช้เวลาเพิ่มเติมในการทำให้นักเรียนคุ้นเคยกับรูปแบบการเรียนการสอนแบบ STAD ซึ่งจะช่วยลดปัญหาการดำเนินกิจกรรมที่ไม่เป็นไปตามแผนที่กำหนด

2. ข้อเสนอแนะสำหรับการทำวิจัยครั้งต่อไป

2.1 ควรศึกษาการจัดกิจกรรมการเรียนแบบร่วมมือเทคนิค STAD ในกลุ่มสาระการเรียนรู้คณิตศาสตร์และกลุ่มสาระอื่น ๆ ในระดับชั้นต่าง ๆ โดยปรับกิจกรรมให้เหมาะสมกับเนื้อหาและวัยของนักเรียน เพื่อประเมินว่าวิธีการสอนนี้มีประสิทธิภาพกับสาระการเรียนรู้และระดับชั้นใดบ้าง

2.2 ควรศึกษาผลของการจัดกิจกรรมการเรียนแบบร่วมมือเทคนิค STAD ต่อปัจจัยด้านอื่น ๆ เช่น ทักษะการสื่อสาร ความคงทนในการเรียนรู้ พฤติกรรมการทำงานกลุ่ม และเจตคติต่อกิจกรรมการเรียนรู้ เพื่อให้เข้าใจถึงผลกระทบที่ครอบคลุมมากขึ้น

2.3 ควรศึกษาเนื้อหาในการสอนร่วมกับการจัดการเรียนแบบร่วมมือเทคนิคเพื่อกำหนดระยะเวลาให้เหมาะไม่น้อยหรือมากเกินไป พร้อมทั้งควรมอบหมายงานในแต่ละกลุ่มให้แตกต่างกันออกไปเพื่อให้แต่นักเรียนแต่ละกลุ่มสนใจปัญหาของกลุ่มตัวเองมากขึ้น

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2551). หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพมหานคร: โรงพิมพ์ชุมนุมสหกรณ์การเกษตรแห่งประเทศไทยจำกัด.

กระทรวงศึกษาธิการ. (2560). ตัวชี้วัดและสาระการเรียนรู้แกนกลาง กลุ่มสาระการเรียนรู้คณิตศาสตร์ (ฉบับปรับปรุง พ.ศ. 2560). กรุงเทพมหานคร: โรงพิมพ์ชุมนุมสหกรณ์การเกษตรแห่งประเทศไทยจำกัด.

กิรณา จิรโชติเดโช และเสรี คำอั่น. (2566). การศึกษาผลสัมฤทธิ์ทางการเรียนและเจตคติต่อการเรียนคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 6 ที่ได้รับการจัดการเรียนรู้แบบแบ่งกลุ่มผลสัมฤทธิ์ STAD ร่วมกับเทคนิค KWDL. วารสารราชพฤกษ์, 21(3), 16–31.

ทิศนา แขมมณี. (2560). ศาสตร์การสอน: องค์ความรู้เพื่อจัดกระบวนการเรียนรู้ที่มีประสิทธิภาพ. กรุงเทพมหานคร: สำนักพิมพ์จุฬาลงกรณ์มหาวิทยาลัย.

นิราศ จันทรจิตร. (2560). การจัดการเรียนรู้ที่มีประสิทธิภาพ. มหาสารคาม: ตักสิลาการพิมพ์

ปฏิภาณ ชาติวิวัฒนา. (2563). การศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์และผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ด้วยการจัดกิจกรรมการเรียนรู้แบบร่วมมือด้วยเทคนิคแบบ STAD ร่วมกับเทคนิค KWDL ของนักเรียนชั้นมัธยมศึกษาปีที่ 3. วิทยานิพนธ์ปริญญามหาบัณฑิต มหาวิทยาลัยบูรพา, ชลบุรี.

ปรีชา เนาว์เย็นผล. (2538). ประมวลสาระชุดวิชาการวิจัยเทคโนโลยีและสื่อสารการศึกษา หน่วยที่ 6. กรุงเทพมหานคร: คณะศึกษาศาสตร์ มหาวิทยาลัยสุโขทัยธรรมาธิราช.

พรทิพย์ โรจน์ศิรพิศาล. (2567). ปัจจัยที่มีผลต่อความยุ่งยากในการเรียนรู้คณิตศาสตร์ของนักเรียนในระดับประถมศึกษาและมัธยมศึกษาตอนต้น. วารสารครุศาสตร์ มหาวิทยาลัยราชภัฏยะลา, 3(1), 80–90. https://so08.tci-thaijo.org/index.php/jeduyru/article/view/2667

ภาสพงศ์ ศรีวงศ์งาม. (2550). การวัดผลและประเมินผลการเรียนรู้. กรุงเทพมหานคร: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

ฤชามน ชนาเมธดิสกร. (2559). การเปรียบเทียบผลสัมฤทธิ์ทางการเรียน ความสามารถในการแก้ปัญหาทางคณิตศาสตร์ และเจตคติต่อคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 6 ระหว่างการจัดการเรียนรู้ โดยใช้กระบวนการแก้ปัญหาตามแนวคิดของ Polya ร่วมกับการเรียนรู้แบบร่วมมือโดยใช้เทคนิค STAD กับการจัดการเรียนรู้แบบปกติ. วิทยานิพนธ์ปริญญามหาบัณฑิต มหาวิทยาลัยบูรพา, ชลบุรี.

วิธิชัย พงษ์ประเสริฐ. (2562). การศึกษาผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ เรื่อง ระบบจำนวนเต็มของนักเรียนชั้นมัธยมศึกษาปีที่ 1 โรงเรียนสตรีวิทยา 2 โดยใช้รูปแบบการเรียนรู้แบบร่วมมือเทคนิค STAD. วิทยานิพนธ์ปริญญามหาบัณฑิต มหาวิทยาลัยรามคำแหง, กรุงเทพมหานคร.

วิภู มูลวงค์. (2559). การพัฒนาความสามารถในการแก้ปัญหาทางคณิตศาสตร์ ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ที่จัดการเรียนรู้โดยใช้กรณีศึกษา. วิทยานิพนธ์หลักสูตรปริญญาศึกษาศาสตรมหาบัณฑิต สาขาวิชาหลักสูตรและการนิเทศ ภาควิชาหลักสูตรและวิธีสอน บัณฑิตวิทยาลัย มหาวิทยาลัยศิลปากร, นครปฐม.

วีระศักดิ์ เลิศโสภา. (2544). ผลของการใช้เทคนิคการสอน KWDL ที่มีต่อผลสัมฤทธิ์ในการแก้โจทย์ปัญหาคณิตศาสตร์ ของนักเรียนชั้นประถมศึกษาปีที่ 4. วิทยานิพนธ์ปริญญามหาบัณฑิต จุฬาลงกรณ์มหาวิทยาลัย, กรุงเทพมหานคร.

ศศิธร พงษ์โภคา และอุบลวรรณ ส่งเสริม. (2558). การพัฒนาความสามารถในการคิดแก้ปัญหาของนักเรียนชั้นมัธยมศึกษาปีที่ 6 โดยการจัดการเรียนรู้ด้วยเทคนิคการแก้ปัญหาอนาคตร่วมกับแผนผังความคิด. วารสารมหาวิทยาลัยศิลปากร, 8(2), 1232–1236.

ศูนย์ดำเนินงาน PISA แห่งชาติ. (2565). ผลการประเมิน PISA 2565: บทสรุปสำหรับผู้บริหาร. สถาบัน

ส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี. สืบค้นเมื่อวันที่ 18 มกราคม 2568 จาก https://pisathailand.ipst.ac.th/pisa2022-summary-result

สิริพร ทิพย์คง. (2536). เอกสารคำสอนวิชาทฤษฎีการสอนและวิธีสอนคณิตศาสตร์. กรุงเทพมหานคร, คณะศึกษาศาสตร์ มหาวิทยาลัยเกษตรศาสตร์.

อรษา เกมกาแมน. (2554). ผลการเรียนรู้วิชาคณิตศาสตร์ เรื่อง โจทย์ปัญหาเศษส่วน ของนักเรียนชั้นประถมศึกษาปีที่ 6 โดยการจัดการเรียนรู้แบบร่วมมือกันแบบแบ่งกลุ่มผลสัมฤทธิ์ (STAD) ผสานกลวิธี STAR. วิทยานิพนธ์ปริญญามหาบัณฑิต สาขาวิชาการวิจัยและพัฒนาหลักสูตร คณะครุศาสตร์อุตสาหกรรม มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี, ปทุมธานี.

Abakar, K. (2010). Teachers and learners' perspectives on learning mathematics for at-risks students. Procedia Social and Behavioral Science, 8(C), 393–402.

Lester, F.K. (1977). Idea about problem solving in elementary school: Some education and psychological considerations. Columbia, Ohio: ERIC/ SEAC.

Slavin, R. E. (1987). Cooperative learning and cooperative school. Educational Leadership, 45(3), 7 – 13.

Slavin, R. E. (1995). Cooperative learning: Theory, research and practice (2nd ed.). Massachusetts: Simon and Schuster.

การศึกษาผลสัมฤทธิ์ทางการเรียนและความสามารถในการแก้ปัญหาทางคณิตศาสตร์จากการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 โรงเรียนภูเก็ตวิทยาลัย

A study of Learning Achievement and Mathematical Problem-Solving Ability through the 5E Inquiry-Based Learning Method of Mathayom 4 Phuket wittayalai School.

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาผลสัมฤทธิ์ทางการเรียนและความสามารถในการแก้ปัญหาทางคณิตศาสตร์จากการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) กลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้เป็นนักเรียนชั้นมัธยมศึกษาปีที่ 4/7 โรงเรียนภูเก็ตวิทยาลัย จำนวน 40 คน เครื่องมือที่ใช้ในการวิจัยประกอบด้วย 1) แผนการจัดการเรียนรู้ จำนวน 10 แผน 2) แบบวัดผลสัมฤทธิ์ทางการเรียน 3) แบบวัดความสามารถในการแก้ปัญหา สถิติที่ใช้ในการวิเคราะห์ ได้แก่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และ t-test

ผลการวิจัยพบว่า 1) ผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนจากการจัดการเรียนรู้ด้วยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) มีคะแนนเฉลี่ยก่อนการจัดการเรียนรู้ 19.66 คะแนน และมีคะแนนเฉลี่ยหลังการจัดการเรียนรู้ เท่ากับ 22.98 คะแนน เมื่อทดสอบค่า t-test สรุปได้ว่าคะแนนเฉลี่ยหลังการจัดการเรียนรู้สูงกว่าคะแนนเฉลี่ยก่อนการจัดการเรียนรู้ อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 2) ผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์จากการจัดการเรียนรู้ด้วยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) หลังการจัดการเรียนรู้ คิดเป็นร้อยละ 76.59 ซึ่งสูงกว่าเกณฑ์ร้อยละ 70 3) ความสามารถในการแก้ปัญหาทางคณิตศาสตร์จากการจัดการเรียนรู้ด้วยวิธีการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) พบว่า ผลของการประเมินความสามารถในการแก้ปัญหาทางคณิตศาสตร์ มีคะแนนเฉลี่ยเท่ากับ 5.21 คะแนน คิดเป็น 86.79 และสูงกว่าเกณฑ์ร้อยละ 70

คำสำคัญ : การจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E), ความสามารถในการแก้ปัญหาทางคณิตศาสตร์

Abstract

This research aimed to study students' academic achievement and mathematical problem-solving ability through the 5E Inquiry-Based Learning Model. The representative sample for this study consisted of 40 students from Mathayom 4/7 (Grade 10) at Phuket Wittayalai School. The research instruments included 1) Ten lesson plans based on the 5E instructional model 2) An academic achievement test and 3) A mathematical problem-solving ability test. The statistical methods used for data analysis were mean, percentage, t-test, and standard deviation.

The research findings were as follows 1) The students' academic achievement in mathematics after being taught through the 5E Inquiry-Based Learning Model showed an average pre-test score of 19.66 and a post-test score of 22.98. Based on the t-test results, the post-test scores were significantly higher than the pre-test scores at the 0.05 level of significance. 2) The academic achievement in mathematics after instruction using the 5E model was 76.59%, which was higher than the set criterion of 70%. 3) The students' mathematical problem-solving ability assessed after the 5E-based instruction yielded an average score of 5.21, equivalent to 86.79%, which was also above the 70% criterion.

Keywords: 5E Inquiry-Based Learning, Mathematical Problem-Solving Ability

บทนำ

ปัญหาการศึกษาของไทยได้หยั่งรากลึกเข้าไปในระดับโรงเรียน ระดับชั้นเรียนและระดับการเรียนรู้ของนักเรียนรายบุคคลและปัญหาดังกล่าวมีความสลับซับซ้อนจนมองเห็นทางแก้ปัญหาได้ยาก (ไมตรี อินทร์ประสิทธิ์, 2565) ด้วยชั้นเรียนไทยส่วนใหญ่บทบาทของครูจะเป็นผู้บรรยาย ผู้บอกและผู้สาธิตเนื้อหาทางด้านคณิตศาสตร์อันก่อให้เกิดการเรียนรู้ของนักเรียนที่มองเฉพาะผลลัพธ์ที่นักเรียนได้มาลำดับสุดท้าย ไม่ได้เน้นกระบวนการให้นักเรียนได้แสวงหาความรู้ได้ด้วยตนเอง ครูมีอำนาจและยึดว่าตนเองเป็นผู้รู้มากที่สุด กระบวนการเรียนรู้นักเรียนมีหน้าที่รับและปรับตัวให้สอดคล้องกับเนื้อหาความรู้และวิธีการของครู (วาสุกรี ใจจันทร์, ไมตรี อินทร์ประสิทธิ์, และสุลัดดา ลอยฟ้า , 2555). ด้วยการสอนของครูที่ถ่ายโยงเนื้อหา ความเข้าใจและทักษะต่าง ๆ ผ่านการบรรยายหรืออธิบายโดยปราศจากความเข้าใจ การสอนลักษณะนี้ก่อให้เกิดสภาวะอันตรายสำหรับการเรียนรู้ของนักเรียน (ไมตรี อินทร์ประสิทธิ์, 2547; Shulman, 1987 อ้างถึงใน สุดาทิพย์ หาญเชิงชัย, 2560)

แนวทางการจัดการเรียนการสอนจึงเข้ามามีบทบาทอย่างมากในการพัฒนานักเรียน ซึ่งแนวทางการสอนที่เน้นการแก้ปัญหา (Problem Solving Approach) เป็นแนวทางการสอนเนื้อหาและกระบวนการเพื่อเรียนรู้วิธีการเรียน อย่างเช่น ความคิดรวบยอด ทักษะทางคณิตศาสตร์ และทักษะกระบวนการทางคณิตศาสตร์ อย่างเช่น การคิด แนวคิดและค่านิยม นั่นหมายความว่าเป็นวิธีการที่ใช้เพื่อพัฒนาการคิดทางคณิตศาสตร์ โดยพัฒนานักเรียนให้เรียนรู้ด้วยตัวพวกเขาเอง (Isoda and Katagiri, 2012 อ้างถึงใน สุดาทิพย์ หาญเชิงชัย, 2565) การจัดการเรียนการสอนในรูปแบบต่างๆ จึงมีผลต่อนักเรียนโดยตรง หากการจัดการเรียนการสอนเอื้อให้นักเรียนเกิดการคิดทางคณิตศาสตร์ นักเรียนก็สามารถใช้เวลาในคาบเรียนในการพัฒนาการคิดของตนเองได้อย่างเต็มที่

หนึ่งในแนวทางที่สามารถฝึกฝนให้นักเรียนรู้จักการแก้ปัญหา สืบค้นหาความรู้ กระบวนการหรือแนวทางในการแก้ปัญหาของตนเองนั้น คือ การจัดการเรียนรู้แบบสืบเสาะหาความรู้ (5E) โดยการเรียนรู้แบบสืบเสาะหาความรู้ นั้นคือ การจัดกระบวนการเรียนรู้โดยให้ผู้เรียนค้นหาความจริง โดยการแสวงหาความรู้มุ่งส่งเสริมให้ผู้เรียนได้ฝึกคิดหาเหตุผลลงมือปฏิบัติสำรวจ ตรวจสอบ เน้นให้ผู้เรียนเป็นผู้สร้างความรู้ใหม่ สิ่งประดิษฐ์ใหม่ด้วยตนเอง ความรู้ที่ได้จะคงอยู่ในความทรงจำระยะยาว ครูไม่สามารถสร้างได้แต่ครูเป็นเพียงผู้จัดการให้เกิดประสบการณ์การเรียนรู้ (ศศิธร เวียงวะลัย, 2556) ซึ่งนั้นเป็นสิ่งที่ดีที่นักเรียนได้ค้นพบความจริงในเรื่องต่าง ๆ ด้วยตนเอง โดยผู้สอนช่วยอำนวยความสะดวกในการเรียนรู้ในด้านต่าง ๆ ให้แก่ผู้เรียนและมีการใช้คำถามที่มีความหมายเพื่อกระตุ้นให้นักเรียนสืบค้นหรือค้นหาคำตอบในประเด็นที่กำหนดจนนักเรียนเกิดความรู้และสามารถนำความรู้ไปใช้ได้ (ศิริวรรณ เอี่ยมประเสริฐ, 2563) จากที่กล่าวมาครูผู้สอนเป็นส่วนหนึ่งของการจัดประสบการณ์ให้แก่นักเรียน ซึ่งทุกครั้งที่ครูได้จัดประสบการณ์นั้น ๆ ให้กับนักเรียน ครูผู้สอนจะต้องคำนึงถึงประโยชน์สูงสุดแก่นักเรียน นั้นคือครูจะต้องค้นหากลยุทธ์หรือกลวิธีใหม่ ๆ เพื่อให้นักเรียนได้รับประโยชน์และส่งผลไปสู่เป้าหมายของการจัดประสบการณ์ได้ Good (1945) เทคนิคหรือกลวิธีอย่างหนึ่งในการจัดให้เกิดการเรียนรู้เนื้อหาบางอย่างของวิชาวิทยาศาสตร์ โดยกระตุ้นให้นักเรียนมีความอยากรู้อยากเห็น เสาะแสวงหาความรู้โดยการถามคำถามและพยายามค้นหาคำตอบให้พบด้วยตนเอง นอกจากนี้ยังให้แนวคิดของการสอนแบบสืบสอบหาความรู้ว่าเป็นวิธีการเรียนโดยการแก้ปัญหาจากกิจกรรมที่จัดขึ้น และใช้วิธีการทางวิทยาศาสตร์ในการทำกิจกรรมซึ่งปรากฏการณ์ใหม่ ๆ ที่นักเรียนเผชิญแต่ละครั้งจะเป็นตัวกระตุ้นการคิด การสังเกตเกี่ยวกับ สิ่งที่สรุปพาดพิงอย่างชัดเจน และประดิษฐ์ คิดค้น ตีความหมายภายใต้สภาพแวดล้อมที่เหมาะสมที่สุด รวมถึงใช้วิธีการอย่างชาญฉลาดในการทดสอบและสรุปได้อย่างมีเหตุผล กล่าวคือ กลวิธีการสอนเช่นนี้ เป็นการสอนที่นักเรียนเป็นศูนย์กลาง สร้างมโนทัศน์ด้วยตนเองและเป็นการพัฒนาความสามารถด้านต่าง ๆ ของนักเรียน เช่น ความสามารถทางวิธีการ ทักษะทางสังคม ความคิดสร้างสรรค์ ซึ่งต้องให้อิสระและให้นักเรียนมีโอกาสคิด เป็นการเรียนที่เน้นการทดลองเพื่อให้นักเรียนค้นพบด้วยตนเอง (Sund and Trowbridge, 1973)

จากที่กล่าวมาข้างต้น การศึกษาไทยประสบปัญหาที่ซับซ้อนและหลากหลาย ตั้งแต่ระดับโรงเรียน ชั้นเรียน ไปจนถึงการเรียนรู้ของนักเรียนรายบุคคล อันเกิดมาจากบทบาทของครูส่วนใหญ่เป็นการบรรยายบอกและสาธิตเนื้อหา ทำให้ผู้เรียนมองเฉพาะผลลัพธ์สุดท้าย โดยไม่เน้นกระบวนการเรีย นรู้ด้วยตนเอง ส่วนหนึ่งอาจเกิดมาจากการสอนที่ถ่ายทอดเนื้อหาโดยปราศจากความเข้าใจ ทำให้เกิดสภาวะอันตรายต่อการเรียนรู้ของผู้เรียน ถึงแม้จะเป็นเช่นนั้นระบบการจัดการเรียนการสอนในปัจจุบันก็ยังคงเน้นที่ผลสัมฤทธิ์ทางการเรียน โดยเฉพาะการทดสอบมากกว่ากระบวนการเรียนรู้ของนักเรียน เป้าหมายแรกของการสอนคณิตศาสตร์ คือ การทำให้นักเรียนเป็นผู้แก้ปัญหาด้วยตนเองนั้นก็เพราะว่าการแก้ปัญหาทางคณิตศาสตร์นั้น เป็นส่วนสำคัญในการดำเนินชีวิตประจำวันของแต่ละคน โดยการแก้ปัญหาทางคณิตศาสตร์คือความสามารถในการแก้ปัญหาและอุปสรรคต่างๆ ได้อย่างถูกต้องเหมาะสม ต้องใช้ความรู้ ความคิด และประสบการณ์เดิมที่ตนเคยพบเพื่อประกอบการตัดสินใจในการแก้ปัญหานั้นต่อไป ดังนั้น แนวทางการสอนที่เน้นการแก้ปัญหาจะช่วยพัฒนาการคิดทางคณิตศาสตร์ โดยให้นักเรียนเรียนรู้ด้วยตนเอง ซึ่งการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) เป็นการจัดการเรียนรู้ที่ส่งเสริมให้ผู้เรียนค้นหาความจริง ฝึกคิดหาเหตุผล ลงมือปฏิบัติและสร้างความรู้ใหม่ด้วยตนเอง โดยครูจะเป็นผู้จัดการประสบการณ์การเรียนรู้และใช้คำถามกระตุ้นให้นักเรียนสืบค้นหาคำตอบซึ่งเป็นการเรียนรู้โดยการแก้ปัญหาจากกิจกรรมที่ครูสร้าง

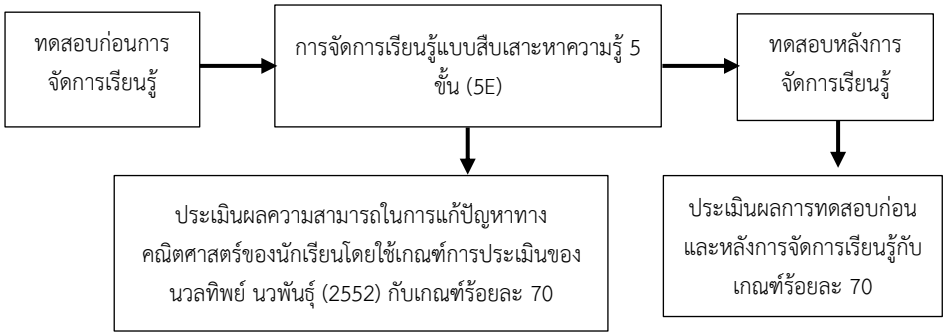
ขึ้นในชั้นเรียน เพราะฉะนั้นปัญหาการศึกษาไทยที่มีความซับซ้อนและต้องการการแก้ไขในหลาย ๆ ด้านนี้ การปรับเปลี่ยนวิธีการสอนที่เน้นผู้เรียนเป็นศูนย์กลาง ส่งเสริมการคิดวิเคราะห์และพัฒนาทักษะการแก้ปัญหานั้น จึงเป็นก้าวสำคัญในการยกระดับคุณภาพการศึกษาไทยและสร้างนักเรียนที่มีคุณภาพที่พร้อมเผชิญหน้าต่อการแก้ปัญหาในชีวิตประจำวันของตนเองต่อไป

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาผลสัมฤทธิ์ทางการเรียนจากการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) ของนักเรียนชั้นมัธยมศึกษาปีที่ 4
2. เพื่อศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์ จากการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) ของนักเรียนชั้นมัธยมศึกษาปีที่ 4

กรอบแนวคิดในการวิจัย

ในการวิจัยครั้งนี้ผู้วิจัยได้ศึกษาผลสัมฤทธิ์ทางการเรียนของนักเรียนและศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์ จากการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) โดยผู้วิจัยได้ดำเนินการวิจัยตามกรอบแนวคิดในการวิจัย ดังนี้



ภาพที่ 1 กรอบแนวคิดในการวิจัย

วิธีการดำเนินการวิจัย

ประชากรและกลุ่มตัวอย่าง

ประชากรเป็นนักเรียนชั้นมัธยมศึกษาปีที่ 4 จำนวน 15 ห้อง โดยแบ่งเป็นห้องเรียนโครงการจำนวน 6 ห้อง และห้องเรียนพหุปัญญา จำนวน 9 ห้อง โรงเรียนภูเก็ตวิทยาลัย อำเภอเมืองภูเก็ต จังหวัดภูเก็ต ภาคเรียนที่ 2 ปีการศึกษา 2567

กลุ่มตัวอย่างเป็นนักเรียนชั้นมัธยมศึกษาปีที่ 4/7 ซึ่งเป็นห้องเรียนพหุปัญญา จำนวน 40 คน แบ่งเป็นนักเรียนชาย 22 คน และนักเรียนหญิง 18 คน โรงเรียนภูเก็ตวิทยาลัย อำเภอเมืองภูเก็ต จังหวัดภูเก็ต ภาคเรียนที่ 2 ปีการศึกษา 2567 โดยนักเรียนกลุ่มตัวอย่างไม่เคยได้รับการจัดการเรียนการสอนด้วยวิธีการสืบเสาะหาความรู้ เรื่องฟังก์ชัน

เครื่องมือที่ใช้ในการวิจัย

1. แผนการจัดการเรียนรู้ที่ใช้การจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) จำนวน 10 แผนการจัดการเรียนรู้ ซึ่งผู้วิจัยและผู้ช่วยวิจัยร่วมกันออกแบบแผนการจัดการเรียนรู้ที่ใช้วิธีการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) เพื่อศึกษาผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์และศึกษาการความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 จากนั้นครูผู้สอนนำแผนการจัดการเรียนรู้ไปใช้จริงในชั้นเรียน หลังจากเสร็จสิ้นการสอน 5 แผนการจัดการเรียนรู้ ผู้วิจัยและผู้ช่วยวิจัยร่วมกันสะท้อนประเด็นต่างๆ ที่เกิดขึ้นในชั้นเรียนจริงตามที่ได้ร่วมกันวางแผนเอาไว้ จากนั้นหาแนวทางแก้ปัญหาร่วมกันและนำแนวทาง ข้อคิดต่าง ๆ ไปปรับปรุงและพัฒนาแผนการจัดการเรียนรู้อีก 5 แผนการจัดการเรียนรู้

2. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนในรายวิชาคณิตศาสตร์ เรื่อง ฟังก์ชัน ใช้แบบทดสอบเดียวกันทั้งก่อนการจัดการเรียนรู้และหลังจากการจัดการเรียนรู้ ซึ่งเป็นแบบทดสอบเป็นปรนัย ประเภทเลือกตอบ (Multiple choice) 4 ตัวเลือก จำนวน 30 ข้อ 30 คะแนน โดยผลการทดสอบการวัดผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ในการศึกษาผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ได้จากแบบทดสอบที่สร้างขึ้นที่ได้รับการพิจารณาความตรงตามเนื้อหาในการวัดโดยผู้เชี่ยวชาญหรือครูชำนาญการพิเศษ (คศ.3) จำนวน 40 ข้อ แต่นำไปใช้ในการสร้างแบบทดสอบวัดผลสัมฤทธิ์ฉบับจริง 30 ข้อ และแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนจะใช้ฉบับเดียวกันทั้งก่อนการจัดการเรียนรู้และหลังการจัดการเรียนรู้

3. แบบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์ เป็นแบบทดสอบเป็นอัตนัย เรื่อง ฟังก์ชัน จำนวน 2 ข้อละ 3 คะแนน รวม 6 คะแนน และใช้เกณฑ์การให้คะแนนตามกรอบแนวคิดของนวลทิพย์ นวพันธุ์ (2552) ซึ่งแบ่งออกเป็น 4 ด้านและการให้คะแนนดังนี้ ด้านที่ 1 ทำความเข้าใจปัญหาหรือวิเคราะห์ปัญหา คิดเป็น 1 คะแนน ด้านที่ 2 วางแผนแก้ปัญหา คิดเป็น 2 คะแนน ด้านที่ 3 ดำเนินการแก้ปัญหาและหาคำตอบ คิดเป็น 2 คะแนน และด้านที่ 4 ตรวจสอบกระบวนการแก้ปัญหาและคำตอบ คิดเป็น 1 คะแนน โดยแบบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์นี้จะถูกแทรกเข้าไปใช้ร่วมกับการจัดกิจกรรมการเรียนรู้ของนักเรียนโดยใช้การจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E)

การตรวจสอบคุณภาพของเครื่องมือ

นำแบบวัดผลสัมฤทธิ์ทางการเรียนและแบบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์ เรื่อง ฟังก์ชัน ให้ผู้เชี่ยวชาญ จำนวน 3 ท่าน ตรวจสอบลักษณะการใช้คำถามตัวเลือก ซึ่งต้องมีความสอดคล้องกับสิ่งที่ต้องการวัด ความถูกต้องทางด้านภาษาและความเที่ยงตรงด้านเนื้อหา โดยพิจารณาหาค่าดัชนีความสอดคล้องระหว่างข้อสอบหรือแบบวัดกับจุดประสงค์การเรียนรู้ (IOC)

การเก็บรวบรวมข้อมูล

1. **ทดสอบก่อนเรียน (Pretest)**

ผู้วิจัยทดสอบนักเรียนกลุ่มตัวอย่างโดยใช้แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ เรื่อง ฟังก์ชัน ที่ผ่านการตรวจสอบคุณภาพและปรับปรุงแก้ไข แล้วถูกจัดทำขึ้นเป็นฉบับจริง

2. **ดำเนินการสอน**

ดำเนินการสอนตามแผนการจัดการเรียนรู้ด้วยการจัดการเรียนการสอนแบบสืบเสาะหาความรู้ 5 ขั้น (5E) กับกลุ่มเป้าหมาย ใช้เวลาในการจัดการเรียนการสอนทั้งหมด 10 คาบเรียน โดยมีขั้นตอนของ

การจัดการเรียนรู้ด้วยวิธีการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) กับการแก้ปัญหาทางคณิตศาสตร์ ซึ่งประกอบไปด้วย 5 ขั้น

2.1 ขั้นสร้างความสนใจ (Engagement) ผู้วิจัยนำเสนอสถานการณ์เกี่ยวกับคณิตศาสตร์ โดยมีการใช้คำถามนำเพื่อกระตุ้นให้นักเรียนสนใจและการถามคำถามเพื่อให้นักเรียนเกิดความสงสัยในประเด็นของปัญหา ส่งเสริมให้นักเรียนเชื่อมโยงความรู้เดิมกับสถาณการณ์ที่ครูนำเสนอและนำความรู้เดิมมาเป็นพื้นฐานในการสร้างองค์ความรู้ใหม่

2.2 ขั้นสำรวจและค้นคว้า (Exploration) ในขั้นนี้สมาชิกในกลุ่มต้องร่วมกันศึกษา ลงมือปฏิบัติเพื่อดำเนินการสำรวจ ตรวจสอบเพื่อให้ได้มาซึ่งข้อมูลอย่างเพียงพอและร่วมกันสร้างข้อสรุปหรือองค์ความรู้ของกลุ่ม ซึ่งการที่นักเรียนสามารถสร้างองค์ความรู้ได้ด้วยตนเองผ่านกิจกรรมนั้นจะส่งผลให้นักเรียนเกิดความเข้าใจในการเรียนคณิตศาสตร์มากยิ่งขึ้น

2.3 ขั้นอธิบายและลงข้อสรุป (Explanation) ในขั้นนี้นักเรียนแต่ละกลุ่มออกมานำเสนอข้อสรุปหรือองค์ความรู้ของกลุ่มตนเองหน้าชั้นเรียน โดยนักเรียนจะได้อภิปรายแลกเปลี่ยนความรู้ระหว่างกลุ่มของตนเองและกลุ่มของเพื่อน เพื่อหาข้อสรุปหรือองค์ความรู้ที่ถูกต้องร่วมกัน

2.4 ขั้นขยายความรู้ (Elaboration) เป็นขั้นที่นักเรียนนำข้อสรุปหรือองค์ความรู้ที่ถูกต้องไปประยุกต์ใช้ในสถานการณ์ต่าง ๆ หรือสถานการณ์ที่ครูผู้สอนสมมติขึ้นเพื่อให้นักเรียนได้รับประสบการณ์เพิ่มเติมและสามารถนำองค์ความรู้ที่เกิดขึ้นมาใช้จริง

2.5 ขั้นประเมิน (Evaluation) เป็นขั้นที่นักเรียนได้รับการตรวจสอบความรู้ ผ่านการนำเสนอหน้าชั้นเรียนถึงวิธีและลำดับขั้นตอนการแก้ปัญหานั้น ๆ โดยครูเป็นผู้ใช้คำถามนำให้เกิดการอภิปรายวิพากษ์วิจารณ์ร่วมกันในชั้นเรียน โดยให้นักเรียนเปรียบเทียบวิธีการ แนวทางการดำเนินการแก้ปัญหาและคำตอบของแต่ละกลุ่มจนกระทั่งร่วมกันสรุปคำตอบที่ถูกต้อง

การจัดการเรียนรู้ได้ดำเนินการในช่วงวันที่ 1 มกราคม พ.ศ.2568 - 30 มกราคม พ.ศ.2568 โดยในแต่ละสัปดาห์จะมีระยะเวลาสอนสัปดาห์ละ 2 คาบ จำนวน 10 แผนการจัดการเรียนรู้ ซึ่งผู้วิจัยจะเป็นผู้ดำเนินการสอนด้วยตนเอง ในกรณีตรงกับช่วงวันหยุด และหากมีนักเรียนขาดเรียนครูจะนำใบงานที่มีให้นักเรียนทำหรือให้นักเรียนสรุปเนื้อหาที่เรียนในช่วงเวลาที่นักเรียนขาดเรียนในการทดแทน และในระหว่างที่ดำเนินการสอนในแต่ละคาบเรียนจะมีใบกิจกรรมให้นักเรียนได้ทำ อาจทำกันเป็นกลุ่มหรือเดี่ยวขึ้นอยู่กับแต่ละกิจกรรมและนำใบกิจกรรมนั้นไปใช้ในการประเมินความสามารถในการแก้ปัญหาของนักเรียนต่อไป

3.ทดสอบหลังเรียน (Posttest)

เมื่อสิ้นสุดการสอนตามกำหนดแล้วจึงทำการทดสอบหลังเรียน (Posttest) โดยผู้วิจัยทดสอบนักเรียนกลุ่มเป้าหมายด้วยแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ เรื่อง ฟังก์ชัน หลังเรียนฉบับเดียวกันที่ทดสอบก่อนเรียน

การวิเคราะห์ข้อมูล

การวิเคราะห์เพื่อศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์และเพื่อศึกษาผลสัมฤทธิ์ทางการเรียนในรายวิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ในชั้นเรียนคณิตศาสตร์ โดยมีการใช้สถิติในการวิเคราะห์ข้อมูล ได้แก่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และ t-test และได้ดำเนินการวิเคราะห์ข้อมูล ตามลำดับขั้นตอนดังนี้

1.วิเคราะห์ข้อมูลเพื่อการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 หลังการจัดการเรียนรู้ด้วยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) กับเกณฑ์ร้อยละ 70

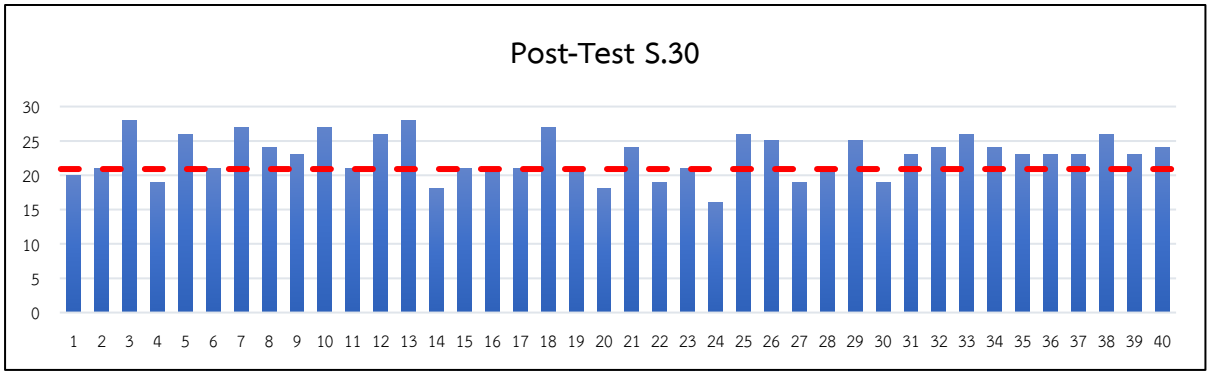
2.วิเคราะห์ข้อมูลเพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ก่อนและหลังการจัดการเรียนรู้ด้วยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) และเปรียบเทียบผลสัมฤทธิ์ทางการเรียนหลังการจัดการเรียนรู้กับเกณฑ์ร้อยละ 70

3.วิเคราะห์ข้อมูลเพื่อเปรียบเทียบผลการประเมินความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ที่ได้รับการจัดการเรียนรู้ด้วยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) กับเกณฑ์ร้อยละ 70

ผลการวิจัย

ตอนที่ 1 ผลของการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 หลังการจัดการเรียนรู้

ผลของการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 หลังการจัดการเรียนรู้ด้วยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) กับเกณฑ์ร้อยละ 70 พบว่า ผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนที่ได้รับการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) หลังการจัดการเรียนรู้ มีคะแนนเฉลี่ยเท่ากับ 22.98 ซึ่งคิดเป็นร้อยละ 76.69 และจำนวนนักเรียนที่ผ่านเกณฑ์ร้อยละ 70 จำนวน 32 คน เมื่อทดสอบสมมติฐานพบว่า คะแนนเฉลี่ยของผลสัมฤทธิ์ทางการเรียนหลังการจัดการเรียนรู้สูงกว่าร้อยละ 70 และจำนวนนักเรียนที่ผ่านเกณฑ์ร้อยละ 70 มีจำนวนเกินครึ่งของจำนวนนักเรียนทั้งหมด ซึ่งสามารถแสดงแผนภูมิดังนี้



ภาพที่ 2 ผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 หลังเรียน

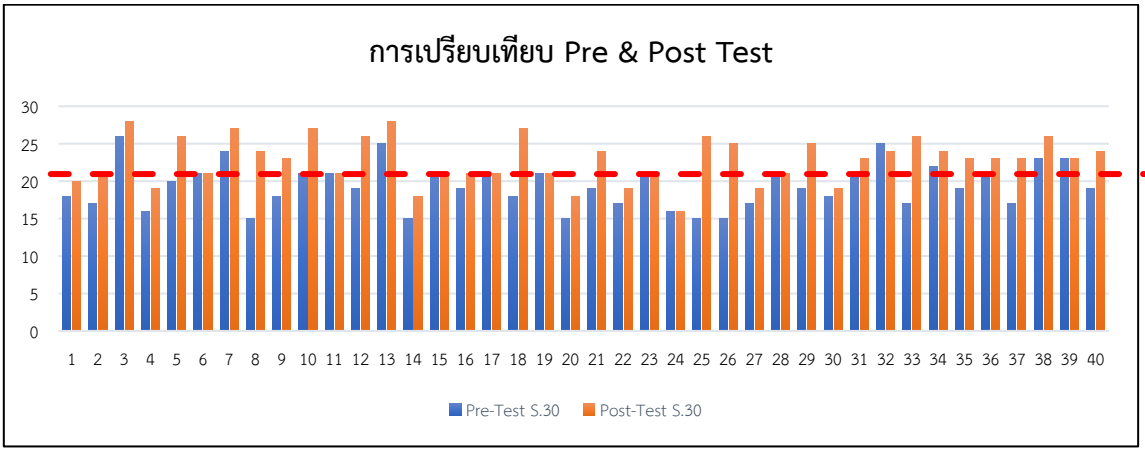
ตอนที่ 2 การเปรียบเทียบผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ก่อนและหลังการจัดการเรียนรู้

การเปรียบเทียบผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ก่อนและหลังการจัดการเรียนรู้ด้วยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) กับเกณฑ์ร้อยละ 70 ซึ่งสามารถแสดงได้ดังตารางต่อไปนี้

ตารางที่ 1 เปรียบเทียบผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ก่อนและหลังการจัดการเรียนรู้

กลุ่มเป้าหมาย	การทดสอบ	ค่าเฉลี่ย	S.D.	ร้อยละ	จำนวนนักเรียนที่ผ่านร้อยละ 70	Sig.
นักเรียนชั้นมัธยมศึกษาปีที่ 4/7 (ห้องพหุปัญญา)	Pre-test (ก่อนเรียน)	19.66	3.37	65.53	17 คน	6.803
	Post-test (หลังเรียน)	22.98	3.21	76.59	32 คน	

จากตารางที่ 1 พบว่า ผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนที่ได้รับการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) ก่อนและหลังการจัดการเรียนรู้ มีคะแนนเฉลี่ยแตกต่างกัน เมื่อทดสอบสมมติฐาน พบว่า คะแนนเฉลี่ยของผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนที่ได้รับการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) หลังการจัดการเรียนรู้สูงกว่าร้อยละ 70 และสูงกว่าคะแนนเฉลี่ยของผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนที่ได้รับการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) ก่อนการจัดการเรียนรู้ ซึ่งมีคะแนนเฉลี่ยแตกต่างกัน 3.32 คะแนน และมีความแตกต่างของคะแนนเฉลี่ยร้อยละ 11.06 และมีค่า t (เมื่อ $df = 30$, $a = .05$) ที่คำนวณได้เท่ากับ 6.803 แสดงว่านักเรียนมีผลสัมฤทธิ์ทางการเรียนหลังการจัดการเรียนรู้สูงกว่าก่อนการจัดการเรียนรู้ อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ซึ่งสามารถแสดงแผนภูมิและกราฟเส้นดังนี้



ภาพที่ 3 เปรียบเทียบผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ก่อนและหลังการจัดการเรียนรู้

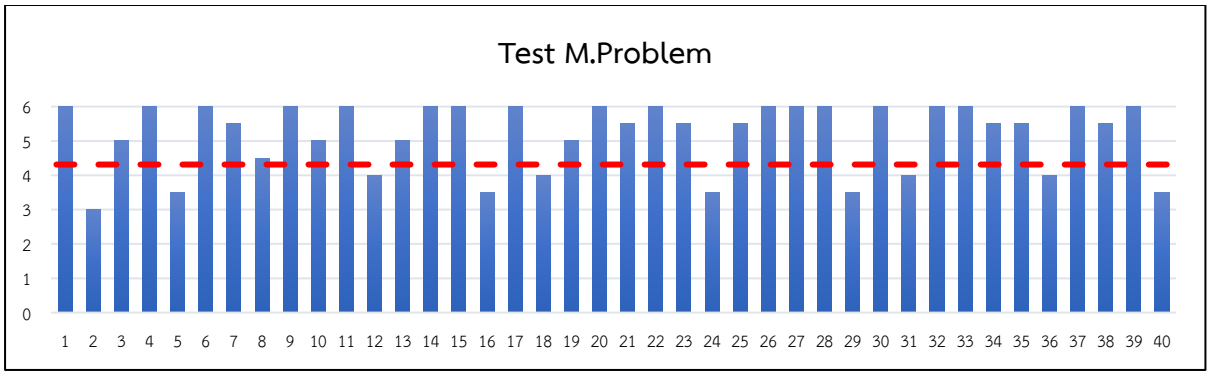
ตอนที่ 3 ผลของการประเมินความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4

ผลของการประเมินความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ที่ได้รับการจัดการเรียนรู้ด้วยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) โดยใช้เกณฑ์ในการประเมินซึ่งเป็นกรอบแนวคิดของนวลทิพย์ นวพันธุ์ (2552) ซึ่งสามารถแสดงได้ดังตารางต่อไปนี้

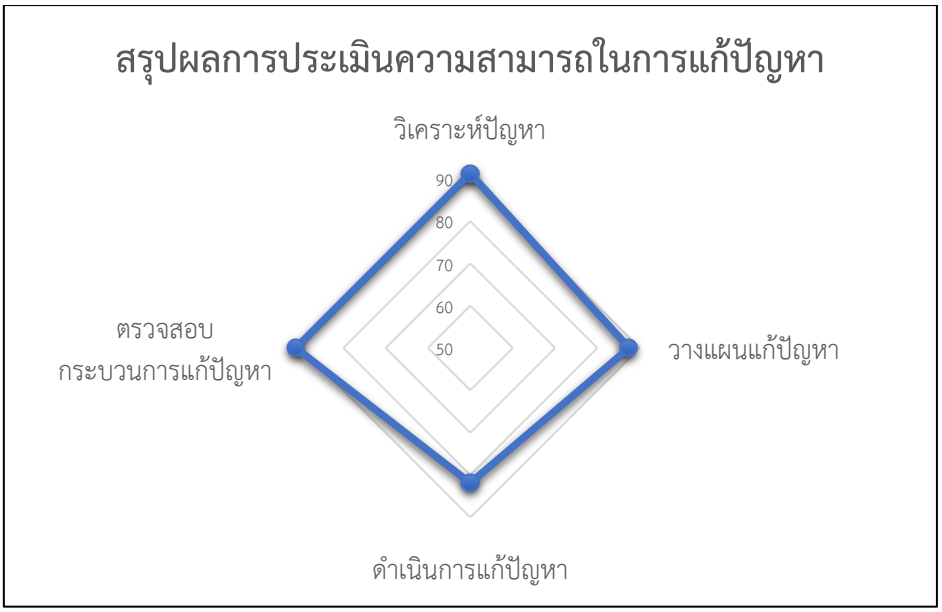
ตารางที่ 2 ผลของการประเมินความสามารถในการแก้ปัญหาทางคณิตศาสตร์

กลุ่มเป้าหมาย	ค่าเฉลี่ย	S.D.	คะแนนเต็ม	ร้อยละ	จำนวนนักเรียนที่ผ่านร้อยละ 70
นักเรียนชั้นมัธยมศึกษาปีที่ 4/7 (ห้องพหุปัญญา)	5.21	0.98	6 คะแนน	86.79	34 คน

จากตารางที่ 2 พบว่า ผลการประเมินความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนในวิชาคณิตศาสตร์ของนักเรียนที่ได้รับการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) มีคะแนนเฉลี่ยเท่ากับ 5.21 ซึ่งคิดเป็นร้อยละ 86.79 ซึ่งสูงกว่าเกณฑ์ที่ตั้งไว้ตามสมมติฐาน และมีจำนวนนักเรียนที่ผ่านเกณฑ์ร้อยละ 70 จำนวน 34 คน เมื่อทดสอบสมมติฐานพบว่า ผลการประเมินความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนในวิชาคณิตศาสตร์ของนักเรียนที่ได้รับการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) สูงกว่าร้อยละ 70 ซึ่งสามารถแสดงแผนภูมิแท่งและแผนภูมิเรดาร์ได้ดังนี้



ภาพที่ 4 ผลของการประเมินความสามารถในการแก้ปัญหาทางคณิตศาสตร์[1]



ภาพที่ 5 ผลของการประเมินความสามารถในการแก้ปัญหาทางคณิตศาสตร์[2]

สรุปผลการวิจัย

1) ผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนจากการจัดการเรียนรู้ด้วยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) มีคะแนนเฉลี่ยก่อนการจัดการเรียนรู้ 19.66 คะแนน และมีคะแนนเฉลี่ยหลังการจัดการเรียนรู้ เท่ากับ 22.98 คะแนน เมื่อทดสอบค่า t-test สรุปได้ว่าคะแนนเฉลี่ยหลังการจัดการเรียนรู้สูงกว่าคะแนนเฉลี่ยก่อนการจัดการเรียนรู้ อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

2) ผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์จากการจัดการเรียนรู้ด้วยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) หลังการจัดการเรียนรู้ คิดเป็นร้อยละ 76.59 ซึ่งสูงกว่าเกณฑ์ร้อยละ 70

3) ความสามารถในการแก้ปัญหาทางคณิตศาสตร์จากการจัดการเรียนรู้ด้วยวิธีการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) พบว่า ผลของการประเมินความสามารถในการแก้ปัญหาทางคณิตศาสตร์ มีคะแนนเฉลี่ยเท่ากับ 5.21 คะแนน คิดเป็น 86.79 และสูงกว่าเกณฑ์ร้อยละ 70

อภิปรายผล

1. ผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์

ในการวิจัยครั้งนี้ ผู้วิจัยได้วัดผลสัมฤทธิ์ทางการเรียนก่อนการจัดการเรียนรู้ หลังจากนั้นผู้วิจัยได้วางแผนนำแผนการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) เพื่อศึกษาว่าการจัดการเรียนเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) นั้นมีผลต่อผลสัมฤทธิ์ทางการเรียนตามสมมติฐานหรือไม่ และได้วัดผลสัมฤทธิ์ทางการเรียนหลังการจัดการเรียนรู้ โดยมีนักเรียนได้คะแนนมากกว่าร้อยละ 70 ของคะแนนเต็ม จำนวน 32 คน จากนักเรียนทั้งหมด 40 คน คิดเป็นร้อยละ 80 ของจำนวนนักเรียนทั้งหมด นักเรียนที่ได้จำนวนคะแนนสูงสุดอยู่ที่ 28 คะแนน และนักเรียนที่ได้จำนวนคะแนนต่ำสุดอยู่ที่ 16 คะแนน ซึ่งข้อมูลนี้ใช้ในการสนับสนุนว่าผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ของนักเรียนหลังการจัดการเรียนรู้สูงกว่าก่อนการจัดการเรียนรู้ อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ทั้งนี้อาจเป็นผลมาจากการจัดการเรียนรู้โดยใช้กระบวนการสืบเสาะหาความรู้ 5 ขั้น (5E) กับการแก้ปัญหาทางคณิตศาสตร์ที่จัดขึ้นให้กับนักเรียน เน้น

ให้นักเรียนรู้จักการวิเคราะห์เป็นขั้นตอน โดยในแต่ละขั้นตอนผู้เรียนจะได้ฝึกการคิดวิเคราะห์ การวางแผน และฝึกทักษะต่าง ๆ ที่จะนำมาใช้ในการแก้ปัญหา ซึ่งสอดคล้องกับหลักการสอนคณิตศาสตร์ดังที่ นพชัย ยอดโยม (2562) ได้ทำการวิจัย เรื่อง การศึกษาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ เรื่อง ความน่าจะเป็น โดยใช้กระบวนการแก้ปัญหาของโพลยาของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ผลการวิจัยพบว่านักเรียนชั้นมัธยมศึกษาปีที่ 3 มีผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ เรื่อง ความน่าจะเป็นหลังการจัดการเรียนรู้โดยใช้กระบวนการแก้ปัญหาของโพลยาสูงกว่าเกณฑ์ร้อยละ 70 อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และผลการวิจัยดังกล่าวยังสอดคล้องกับงานวิจัยของ สุนิษา เหลือถนอม (2551) ที่ศึกษาการพัฒนาการจัดกิจกรรมการเรียนรู้วิชาคณิตศาสตร์เรื่อง ความน่าจะเป็น ชั้นมัธยมศึกษาปีที่ 5 โดยใช้รูปแบบการสอนแบบสืบเสาะหาความรู้ (5E) พบว่า ผลการเปรียบเทียบความก้าวหน้าผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์หลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 นอกจากนี้ยังมี คัคนางค์ ทองน้อย (2552) ที่ศึกษาการพัฒนาแบบฝึกเสริมทักษะคณิตศาสตร์โดยใช้เทคนิคการจัดการเรียนรู้แบบ 5E เรื่อง อัตราส่วนและร้อยละ สาระการเรียนรู้คณิตศาสตร์ ชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเทศบาลบูรพาอุบล พบว่า ผู้เรียนมีความรู้เพิ่มขึ้นร้อยละ 70 พฤติกรรมการเรียนรู้ของนักเรียนโดยรวมอยู่ในระดับมากที่สุด และผลสัมฤทธิ์ทางการเรียนของนักเรียนระหว่างคะแนนสอบก่อนเรียนและหลังเรียน มีค่าแตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 คือ เมื่อนักเรียนได้รับการเรียนรู้ด้วยแบบฝึกเสริมทักษะคณิตศาสตร์โดยใช้เทคนิคการจัดการเรียนรู้แบบ 5E แล้วมีผลสัมฤทธิ์ทางการเรียนสูงขึ้น

2. ความสามารถในการแก้ปัญหาทางคณิตศาสตร์ในวิชาคณิตศาสตร์

ความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 4 หลังได้รับการจัดการเรียนรู้ด้วยวิธีการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) พบว่า ผลของการประเมินความสามารถในการแก้ปัญหาทางคณิตศาสตร์ มีคะแนนเฉลี่ยเท่ากับ 5.21 คะแนน คิดเป็นร้อยละ 86.79 และสูงกว่าเกณฑ์ร้อยละ 70 ซึ่งเป็นไปตามสมมติฐานของการวิจัยข้อที่ 2 ทั้งนี้อาจเนื่องมาจากขั้นตอนของการจัดการเรียนรู้ด้วยวิธีการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) กับการแก้ปัญหาทางคณิตศาสตร์ ซึ่งประกอบไปด้วย 5 ขั้นตอน ได้แก่ 1) ขั้นสร้างความสนใจ (Engagement) 2) ขั้นสำรวจและค้นคว้า (Exploration) 3) ขั้นอธิบายและลงข้อสรุป (Explanation) 4) ขั้นขยายความรู้ (Elaboration) 5) ขั้นประเมิน (Evaluation) ซึ่งช่วยส่งเสริมความสามารถในการแก้ปัญหาอันเนื่องมาจากในแต่ละขั้นครูผู้สอนได้ใช้ปัญหาเป็นสื่อในการจัดการเรียนรู้ให้นักเรียนได้มีโอกาสวิเคราะห์หาเหตุผลจนนำไปสู่การเกิดแนวคิดและองค์ความรู้ใหม่ ซึ่งสอดคล้องกับแนวทางการพัฒนาความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของบารูดี (Baroody, 1993 ; citing Schroeder & Lester, 1989; Stanic & Kilpatrick, 1989) ได้กล่าวว่า การสอนการแก้ปัญหามี 3 แนวทาง และหนึ่งในสามแนวทางที่นำมาใช้ในการจัดทำแผนการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) คือ แนวทางที่ 1 การสอนโดยใช้การแก้ปัญหา (Teaching via problem solving) แนวทางนี้จะใช้ปัญหาเป็นสื่อในการเรียนรู้แนวคิดใหม่ กล่าวคือ ใช้ปัญหาในการศึกษาเนื้อหาคณิตศาสตร์ โดยการแสดงความสัมพันธ์ เพราะทำให้นักเรียนมีโอกาสร่วมกันคิดวิเคราะห์หาเหตุผลแลกเปลี่ยนความคิดเห็นซึ่งกันและกัน ฝึกการเขียนและการนำเสนอผลการเรียนรู้อย่างเป็นระบบ ซึ่งที่ผ่านมานักเรียนไม่สามารถเขียนอธิบายความรู้ความเข้าใจของตนเองได้โดยเฉพาะอย่างยิ่งการอธิบายโดยใช้สัญลักษณ์ทางคณิตศาสตร์ อีกทั้งการใช้คำถามกระตุ้นให้นักเรียนคิดทำให้นักเรียนสามารถมองเห็นแนวทางที่จะค้นคว้าหาความรู้เกี่ยวกับประเด็นสำคัญต่าง ๆ หรือแนวทางในการแก้ปัญหาจนได้คำตอบ ถึงแม้บางครั้งคำตอบนั้นอาจไม่ถูกต้อง เพราะบางโจทย์ปัญหาอาจต้องใช้

ความรู้พื้นฐานทางคณิตศาสตร์ด้านอื่น ๆ ร่วมด้วย แต่อย่างไรก็ตามแนวการจัดการเรียนการสอนดังกล่าวสามารถทำให้นักเรียนมีวิธีการคิดอย่างมีระบบมากขึ้น ซึ่งถ้ามีโอกาสฝึกฝนอย่างต่อเนื่องจะทำให้สามารถทำความเข้าใจและแก้ปัญหากับสถานการณ์โจทย์ปัญหาอื่น ๆ ได้เป็นอย่างดี อีกทั้งยังสอดคล้องกับผลการวิจัยของ วารุณี บุญรอด (2556) พบว่า การจัดการเรียนรู้วิชาคณิตศาสตร์โดยใช้กระบวนการสืบเสาะหาความรู้ 5E ที่มีต่อผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์และความสามารถในการแก้ปัญหาทางคณิตศาสตร์สำหรับนักเรียนระดับชั้นมัธยมศึกษาตอนปลาย สังกัดสำนักงานส่งเสริมการศึกษานอกระบบและการศึกษาตามอัธยาศัย ส่งผลให้ผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์และความสามารถในการแก้ปัญหาทางคณิตศาสตร์สูงกว่านักเรียนที่ได้รับการจัดการเรียนรู้วิชาคณิตศาสตร์แบบปกติ อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

ข้อเสนอแนะ

1. ข้อเสนอแนะจากการวิจัย

1.1 ในระยะแรกของการจัดการเรียนรู้วิชาคณิตศาสตร์ โดยกระบวนการสืบเสาะหา ความรู้แบบ 5E นักเรียนจะไม่คุ้นเคยกับวิธีการสอน ผู้สอนต้องใช้เวลาส่วนหนึ่งในการ ทบทวนความรู้พื้นฐานทางคณิตศาสตร์ที่จำเป็นต่อเรื่องที่นำมาจัดการเรียนรู้

1.2 แผนการจัดการเรียนรู้วิชาคณิตศาสตร์โดยใช้กระบวนการสืบเสาะหาความรู้แบบ 5E สามารถนำไปประยุกต์ใช้กับวิชาคณิตศาสตร์ในหัวข้ออื่น ผู้วิจัยเชื่อว่าจะช่วยพัฒนาทักษะกระบวนการทางด้านคณิตศาสตร์ด้านอื่น ๆ นอกเหนือจากความสามารถในการแก้ปัญหาทางคณิตศาสตร์และนักเรียนยังสามารถนำทักษะเหล่านี้ไปใช้ในชีวิตประจำวันได้

2. ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

2.1 ควรมีการศึกษาวิจัยการนำแผนการจัดการเรียนรู้วิชาคณิตศาสตร์โดยใช้กระบวนการสืบเสาะหาความรู้แบบ 5E ไปใช้กับเนื้อหาอื่น ๆ ในวิชาคณิตศาสตร์สำหรับนักเรียนแต่ละระดับชั้น

2.2 ควรมีการวิจัยผลการจัดการเรียนรู้วิชาคณิตศาสตร์โดยใช้กระบวนการสืบเสาะหาความรู้แบบ 5E ที่มีต่อทักษะกระบวนการทางคณิตศาสตร์ด้านอื่น ๆ

2.3 ควรมีการศึกษาวิจัยการนำแผนการจัดการเรียนรู้วิชาคณิตศาสตร์โดยใช้กระบวนการสืบเสาะหาความรู้แบบ 5E ไปใช้ในวิชาอื่น ๆ เพื่อส่งเสริมการเรียนรู้ของนักเรียนได้หลากหลายสาขาวิชา

เอกสารอ้างอิง

คัคนางค์ ทองน้อย. (2552). การพัฒนาแบบฝึกเสริมทักษะคณิตศาสตร์โดยใช้เทคนิกการจัดการเรียนรู้แบบ 5E เรื่อง อัตราส่วนและร้อยละ สาระการเรียนรู้คณิตศาสตร์ ชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเทศบาลบูรพาอุบล. อุบลราชธานี : โรงเรียนเทศบาลบูรพา.

นพชัย ยอดโยม. (2562). การศึกษาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ เรื่อง ความน่าจะเป็น โดยใช้กระบวนการแก้ปัญหาของโพลยา ของนักเรียนชั้นมัธยมศึกษาปีที่ 3. ในการประชุมวิชาการระดับชาติครุศาสตร์ศึกษาครั้งที่ 2. พิษณุโลก : มหาวิทยาลัยราชภัฏพิบูลสงคราม.

นวลทิพย์ นวพันธุ์. (2552). ผลของการจัดกิจกรรมการเรียนรู้คณิตศาสตร์โดยเน้นการคิดแบบฮิวริสติกส์ที่มีต่อความคิดสร้างสรรค์ความสามารถในการตั้งและแก้ปัญหาทางคณิตศาสตร์ ของนักเรียนชั้นมัธยมศึกษาปีที่ 1. (ครุศาสตร์มหาบัณฑิต), จุฬาลงกรณ์มหาวิทยาลัย.

ไมตรี อินทร์ประสิทธิ์. (2547). การสอนโดยใช้วิธีการแบบเปิดในชั้นเรียนญี่ปุ่น. KKU Journal of Mathematics Education.

ไมตรี อินทร์ประสิทธิ์. (2565). กระบวนการแก้ปัญหาในคณิตศาสตร์ระดับโรงเรียน (พิมพ์ครั้งที่ 2). บริษัท ไอ-ปริ้นท์ ดีไซน์.

วารุณี บุญรอด. (2556). ผลการจัดการเรียนรู้วิชาคณิตศาสตร์ โดยใช้กระบวนการสืบเสาะหาความรู้ 5E ที่มีต่อผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์และความสามารถในการแก้ปัญหาทางคณิตศาสตร์สำหรับนักเรียนระดับชั้นมัธยมศึกษาตอนปลาย สังกัดสำนักงานส่งเสริมการศึกษานอกระบบและการศึกษาตามอัธยาศัย. วิทยานิพนธ์ปริญญามหาบัณฑิต (สาขาวิชาหลักสูตรและการสอน). มหาวิทยาลัยบูรพา.

วาสุกรี ใจจันทร์, ไมตรี อินทร์ประสิทธิ์ และสุลัดดา ลอยฟ้า. (2555). ลักษณะการเชื่อมโยงทางคณิตศาสตร์ของนักเรียนในชั้นเรียนคณิตศาสตร์ที่เน้นการแก้ปัญหา. วารสารวิจัย มข.

ศศิธร เวียงวะลัย. (2556). การจัดการเรียนรู้ Learning management. กรุงเทพฯ: โอ.เอส.พรินติ้งเฮ้าส์.

ศิริวรรณ เอี่ยมประเสริฐ (2563). ผลการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น ร่วมกับเทคนิคการใช้คำถามที่มีต่อผลสัมฤทธิ์ทางการเรียนและมโนทัศน์ในวิชาชีววิทยาของนักเรียนชั้นมัธยมศึกษาปีที่ 4 มหาวิทยาลัยบูรพา

สุดาทิพย์ หาญเชิงชัย. (2560). การพัฒนาความรู้ทางคณิตศาสตร์เพื่อการสอนของครูในชั้นเรียนที่ใช้การศึกษาชั้นเรียนและวิธีการแบบเปิด. มหาวิทยาลัยราชภัฏภูเก็ต.

สุดาทิพย์ หาญเชิงชัย. (2565). การพัฒนาสมรรถนะการปฏิบัติการสอนของครูคณิตศาสตร์และสมรรถนะทางคณิตศาสตร์ของนักเรียนด้วยการศึกษาชั้นเรียนและวิธีการแบบเปิด. มหาวิทยาลัยราชภัฏภูเก็ต.

สุนิษา เหลือถนอม. (2551). การพัฒนาการจัดกิจกรรมการเรียนรู้วิชาคณิตศาสตร์เรื่องความน่าจะเป็นชั้นมัธยมศึกษาปีที่ 5 โดยใช้รูปแบบการสอนแบบสืบเสาะหาความรู้ (5E). สุรินทร์: โรงเรียนสวายวิทยาคาร.

Baroody, A. J. (1993). Problem solving, reasoning, and communicating, K-8: Helping children think mathematically. New York: Merrill.

Good, C. V. (1945). Dictionary of education. New York: McGraw Hill Book, Co, Inc.

Schroeder, T. L. & Lester, F. K. (1989). Understanding mathematics via problem solving. In P.Trafton (Ed.), New directions for elementary school mathematics. Reston, VA: National Council of Teachers of Mathematics.

Stanic, G., & Kilpatrick, J. (1989). Historical perspectives on problem solving in the mathematics curriculum. The teaching and assessing of mathematical problem solving.

Sund, R. B., & Trowbridge, L. W. (1973). Teaching science by inquiry in the secondary school. Ohio: Charles E: Merrill Publishing Company.

ผลการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P ที่มีต่อทักษะการคิดสังเคราะห์ของเด็กปฐมวัย

The Result of the S4P Process of Ubon Ratchathani Local Food Activities on Early Childhood's Synthetic Thinking Skills.

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาระดับทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนและหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P และเปรียบเทียบทักษะการคิดสังเคราะห์ของเด็กปฐมวัยระหว่างก่อนและหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P กลุ่มตัวอย่างที่ใช้ในการวิจัย คือ เด็กอนุบาลชั้นปีที่ 3 โรงเรียนเทศบาล 2 หนองบัว จำนวน 40 คน ซึ่งได้มาโดยการสุ่มแบบกลุ่ม เครื่องมือที่ใช้ในการวิจัยมี 2 ชนิด ประกอบด้วย 1) แผนการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P จำนวน 6 แผน 2) แบบสังเกตทักษะการคิดสังเคราะห์ของเด็กปฐมวัย ค่าดัชนีความสอดคล้องระหว่างลักษณะพฤติกรรมกับจุดประสงค์ (IOC) .67-1.00 รูปแบบการทดลองเป็นแบบ One-Group Pretest Posttest Design สถิติที่ใช้ในการวิเคราะห์ข้อมูลคือ ความถี่ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน ส่วนการเปรียบทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนและหลังการจัดกิจกรรม วิเคราะห์ข้อมูลโดย t-test dependent samples

ผลการวิจัยพบว่า 1) ทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P อยู่ในระดับต่ำ ส่วนทักษะการคิดสังเคราะห์ของเด็กปฐมวัยหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P อยู่ในระดับสูง และ 2) ผลการเปรียบเทียบทักษะการคิดสังเคราะห์ของเด็กปฐมวัยหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P สูงกว่าก่อนการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P อย่างมีนัยสำคัญทางสถิติที่ระดับ .01

คำสำคัญ: ทักษะการคิดสังเคราะห์ของเด็กปฐมวัย, กิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานี, กระบวนการ S4P

Abstract

This research aimed to study the level of synthetic thinking skills of early childhood before and after participating in the Ubon Ratchathani local food cooking activities using the S4P process and to compare the synthetic thinking skills of early childhood before and after participating in the Ubon Ratchathani local food cooking activities using the S4P process. The sample group used in the research was 40 kindergarten 3 students at Tessaban 2 nongbua School, which were selected by cluster random sampling. There were two types of research instruments used: 1) 6 plans for organizing Ubon Ratchathani local food cooking activities using the S4P process, and 2) a form for observing the synthetic thinking skills of preschool children. The index of consistency between behavioral characteristics and objectives (IOC) was .67-1.00. The format of this experiment is One-Group Pretest Posttest Design. The statistics used for data analysis were frequency, mean, and standard deviation. The comparison of synthetic thinking skills of preschool children before and after the activities was analyzed by t-test dependent samples.

The research results showed that 1) the synthetic thinking skills of preschool children before participating in the Ubon Ratchathani local food cooking activities using the S4P process were at a low level. The synthetic thinking skills of preschool children after participating in the Ubon Ratchathani local food cooking activities with the S4P process were at a high level. 2) The results of the comparison of the synthetic thinking skills of preschool children after participating in the Ubon Ratchathani local food cooking activities with the S4P process were significantly higher than before the Ubon Ratchathani local food cooking activities with the S4P process at a statistical significance level of .01

Keywords: Early childhood's synthesis thinking skill, cooking activities, the S4P process

บทนำ

ในอดีตประเทศไทยมุ่งจัดการศึกษาที่สะท้อนจากความสำเร็จของผู้เรียนในด้านวิชาการเป็นหลัก จึงส่งผลให้ผู้เรียนเรียนรู้ด้วยวิธีการจดและจำความรู้ที่เรียนรู้ให้ได้มากที่สุดเท่าที่จะทำได้ จึงส่งผลให้ผู้เรียนซึ่งเป็นผลผลิตของการศึกษาที่คิดแคบ ขาดวิสัยทัศน์ ไม่ใฝ่รู้ เพราะในอดีตมีความเชื่อว่าความรู้อยู่กับคุณครูผู้สอนหรือผู้ถ่ายทอดความรู้นั้นแต่เพียงผู้เดียว ด้วยเหตุดังกล่าวจึงทำให้ประเทศไทยประสบปัญหาทางด้านสังคมสูงมาก เกิดความผุกร่อนทางด้านวัฒนธรรมและศีลธรรม ผู้เรียนซึ่งผลผลิตทางการศึกษาของประเทศขาดคุณภาพทั้งทางด้านความรู้ ความสามารถและทักษะในการคิดขั้นสูง (คณะกรรมการการศึกษาแห่งชาติ (2543) จึงเป็นผลให้ในเวลาต่อรัฐบาลไทยได้ตราพระราชบัญญัติการศึกษาแห่งชาติ พุทธศักราช 2542 หรือที่ผู้คนรู้จักกันโดยทั่วไปว่า “พรบ.การศึกษาแห่งชาติ 2542” เพื่อปฏิรูปการศึกษาของประเทศ โดยมุ่งหวังที่จะยกระดับ “คุณภาพผู้เรียน” ให้มีมาตรฐานเป็นที่ยอมรับของสังคมและเป็นกำลังสำคัญในการพัฒนาประเทศ การปฏิรูปการศึกษาในครั้งนี้คือการมุ่งพัฒนาผู้เรียนเป็นหลักที่ต้องการพัฒนาผู้เรียนให้เป็นมนุษย์ที่สมบูรณ์ ทั้งทางด้านร่างกาย อารมณ์ จิตใจ สังคม และสติปัญญา เพื่อให้

ผู้เรียนสมารถดำรงชีวิตอยู่ร่วมกันในสังคมได้อย่างมีความสุข สามารถรับมือกับภาวะวิกฤติของชีวิตที่จะต้องเผชิญกับปัญญาที่ถาโถมเข้ามากระทบกับชีวิตของตนได้เป็นอย่างดี (สำนักปฏิรูปทางการศึกษา (องค์การมหาชน). 2542)

การจัดการศึกษาในปัจจุบันตามความมุ่งหวังของ พรบ.การศึกษาแห่งชาติ จึงมุ่งเน้นการพัฒนาผู้เรียนให้มี “ทักษะพื้นฐาน” เพื่อให้สามารถดำรงชีวิตอยู่ได้อย่างมีความสุขและสามารถฝ่าฟันปัญหาอุปสรรคนานานับประการที่เกิดขึ้นได้ ทักษะพื้นฐานที่จำเป็นต่อการดำรงชีวิตในปัจจุบันเป็นทักษะที่มีความจำเป็นต่อผู้เรียนเป็นอย่างยิ่งเพราะว่าถ้าผู้เรียนมีทักษะพื้นฐานในการดำรงชีวิตที่ดีเพียงพอแล้วจะส่งผลให้ผู้เรียนเมื่อเติบโตขึ้นก็จะเป็นพลเมืองที่ดีของสังคมที่รู้จักการเสียสละ อดทน รอคอย สามารถแสดงบทบาทในการเป็นผู้นำ-ผู้ตามได้อย่างถูกต้องและเหมาะสม รวมทั้งสามารถจัดการกับอุปสรรคและปัญหาที่เกิดขึ้นได้ ทักษะพื้นฐานในการดำรงชีวิตที่ผู้เรียนจำเป็นจะต้องมีประกอบไปด้วย 1) ทักษะพื้นฐานที่จำเป็นต่อการเรียนรู้ในอนาคต ได้แก่ ทักษะการเรียนรู้ ทักษะการคิด และทักษะการสื่อสาร 2) ทักษะพื้นฐานในการอยู่ร่วมกันในสังคม ได้แก่ การควบคุมตนเองได้ ความรับผิดชอบ ระเบียบวินัยในตนเอง การช่วยเหลือคนอื่น การเสียสละและการมุ่งมั่นพัฒนา และ 3) ทักษะพื้นฐานที่จำเป็นต่อการทำงาน ได้แก่ ทักษะการทำงานร่วมกับผู้อื่นได้ ความขยัน ความอดทน การประหยัดอดออม รวมถึงทักษะการจัดการด้วย

จากผลการสะท้อนภาพลักษณ์ทางการศึกษาที่มีต่อการสร้างทักษะอันจำเป็นให้เกิดกับผู้เรียนทั้งจากผู้ปกครอง ครู ผู้บริหาร และสังคมอีกหลายภาคส่วน ซึ่งเป็นผู้เกี่ยวข้องกับการใช้ผู้สำเร็จการศึกษา รวมทั้งผลการประเมินคุณภาพสถานศึกษาขั้นพื้นฐานหลายแห่งในประเทศไทยแทบทุกสังกัดจากหน่วยงานที่มีมาตรฐานสูงในการประเมินผลการจัดการศึกษาของสถานศึกษา พบว่า การพัฒนาศักยภาพที่จำเป็นอย่างยิ่งยวดสำหรับผู้เรียนก็คือ ทักษะการคิดสังเคราะห์ของผู้เรียน ทั้งนี้ทักษะการคิดสังเคราะห์จะทำให้ผู้เรียนมีจุดมุ่งหมายในการคิด ส่งผลให้การคิดเป็นระบบที่คมชัดและมีความเป็นระเบียบ ทำให้ได้ข้อมูลที่จำเป็นครบถ้วนกว้างไกล ทำให้สามารถนำสิ่งที่คนอื่นเคยคิดหรือปฏิบัติมาใช้ประโยชน์ได้โดยดูจากเรื่องเดียวกันจากหลายแห่งทั้งที่เกี่ยวข้องกันโดยตรงและโดยทางอ้อม ทำให้ไม่เกิดข้อผิดพลาดในการตัดสินใจ อันเนื่องมาจากการขาดความคิดที่ครบถ้วนจากข้อจำกัดในด้านความจำของมนุษย์ที่ไม่สามารถสะสมข้อมูลได้อย่างเพียงพอ สอดคล้องกับผลการวิจัยของจันทรวิมิล ศุโกศล (2566) ที่พบว่าเด็กปฐมวัยเกิดทักษะการคิดสังเคราะห์ภายหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอีสาน จังหวัดอุบลราชธานี รวมทั้งสอดคล้องกับผลงานวิจัยของนนทชนนปภพ ปาลินทรและอำไพ สวัสดิราช (2567) ที่พบว่าทักษะการคิดสังเคราะห์ของเด็กปฐมวัยสามารถพัฒนาให้เกิดขึ้นได้เป็นอย่างดีจากกิจกรรมประกอบอาหารด้วยกระบวนการ PICC ที่เปิดโอกาสให้เด็กปฐมวัยได้ลงมือวางแผน (Plan) แสวงหาหาข้อมูล (Inquiry) จัดข้อมูล (Classification) และสรุปผล (Conclusion) ด้วยตนเอง ทั้งนี้ผลของการคิดสังเคราะห์จะส่งผลให้ผู้เรียนสามารถประดิษฐ์สิ่งของเครื่องใช้และอุปกรณ์ต่างๆ ตามความต้องการของตนเองได้ตลอดเวลา ซึ่งเป็น “การสร้างสรรค์สิ่งใหม่” และสามารถคิดค้นแนวคิดใหม่ในประเด็นต่างๆ ตามจุดประสงค์ที่ตั้งเอาไว้แล้วถือว่าเป็น “การสร้างแนวคิดใหม่” ซึ่งทั้งการสร้างสรรค์สิ่งใหม่และสร้างแนวคิดใหม่ล้วนเป็นผลจากการคิดสังเคราะห์ที่สะท้อนให้เห็นว่าจะต้องแสวงหาสิ่งใหม่ๆ อยู่ตลอดเวลา และจะต้องเปลี่ยนแปลงหรือทำอะไรที่แตกต่างจากที่คุ้นเคย ซึ่งเป็นไปตามแนวคิดทฤษฎีของพีอาเจท์และไวก็อตสกี้ (นนทชนนปภพ ปาลินทร, 2554) ที่เห็นว่ากระบวนการทางปัญญาของเด็กปฐมวัยเกิดจากการมีปฏิสัมพันธ์กับสังคม วัฒนธรรม ซึ่งเป็นสิ่งแวดล้อมที่อยู่รอบตัวเด็กที่มีอิทธิพลที่ดียิ่งต่อทักษะการคิดสังเคราะห์อันเป็นผลมาจากภาวะสมดุลของข้อมูลที่ได้รับจากสิ่งแวดล้อมภายนอกกับข้อมูลที่มีอยู่แล้วใน

สมองจนเกิดเป็นพัฒนาการทางปัญญาในที่สุด ทั้งนี้ เด็กปฐมวัยจะได้รับรู้ข้อมูลต่างๆ จากการปฏิสัมพันธ์กับบุคคลและสิ่งแวดล้อมโดยมีภาษาเป็นเครื่องมือ ความรู้ของเด็กปฐมวัยจึงเกิดจากการที่เด็กปฐมวัยได้รับการส่งเสริมให้ปฏิบัติ ค้นคว้า แสวงหาความรู้ด้วยตนเอง ทั้งนี้เกรียงศักดิ์ เจริญวงศ์ศักดิ์ (2549) ได้กล่าวไว้ว่า “ถ้ามนุษย์คนใดรู้จักแสวงหาข้อมูลหรือประสบการณ์ที่มากพอก็จะทำให้บุคคลนั้นสามารถคิดสังเคราะห์ได้” เพราะว่าการคิดสังเคราะห์ในแต่ละครั้งจำเป็นต้องพึ่งพิงข้อมูลหรือประสบการณ์จำนวนมาก ถ้าหากคนใดมีทักษะการคิดสังเคราะห์จะทำให้บุคคลนั้นมีเหตุผลและสามารถดึงประเด็นที่เกี่ยวข้องจากแหล่งข้อมูลมาเชื่อมโยงได้อย่างเหมาะสมและตรงตามวัตถุประสงค์ ทั้งนี้สอดคล้องกับแนวคิดของเพเพิร์ท (นนทชนนปภพ ปาลินทร, 2554) เห็นว่าเมื่อเด็กปฐมวัยได้นำความรู้ความคิดของตนเองไปลงมือปฏิบัติประกอบอาหารพื้นบ้านอุบลราชธานีตามกระบวนการ S4P จะสามารถทำให้ความรู้ ความคิดเห็นของเด็กปฐมวัยมีความเป็นรูปธรรมที่ชัดเจน มีความคงทนไม่ลืมง่าย ทำให้เด็กปฐมวัยสามารถพัฒนาทักษะการคิดสังเคราะห์ ซึ่งเป็นองค์ประกอบสำคัญในการสร้างความรู้ด้วยตนเองของเด็กปฐมวัยได้อย่างลึกซึ้ง ดังนั้นการจัดกิจกรรมการเรียนรู้ที่ส่งเสริมให้ผู้เรียนเกิดทักษะการคิดสังเคราะห์ได้ กิจกรรมเรียนรู้นั้นจะต้องเป็นกิจกรรมที่ผู้เรียนได้ลงมือปฏิบัติด้วยตนเอง โดยการวางแผนทำกิจกรรม การปฏิบัติกิจกรรมตามแผนที่วางไว้ สิ่งเหล่านี้สะท้อนให้เห็นจากพฤติกรรมที่ผู้เรียนสามารถจัดระบบการทำกิจกรรมและจัดระบบคนในการทำกิจกรรมได้ ซึ่งเป็นลักษณะสำคัญอย่างหนึ่งของการจัดกิจกรรมการเรียนรู้สำหรับส่งเสริมให้ผู้เรียนเกิดทักษะการคิดสังเคราะห์

ด้วยเหตุผลดังกล่าวผู้วิจัยจึงได้จัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P ในการพัฒนาทักษะการคิดสังเคราะห์ของเด็กปฐมวัย ทั้งนี้ในขณะที่เด็กปฐมวัยทำกิจกรรมประกอบอาหารก็จะได้รับการกระตุ้น (Stimulus) โดยจะใช้กระบวนการตั้งคำถามเพื่อให้ผู้เรียนได้นำไปคิดต่อและเกิดขั้นตอนต่อไป ผู้เรียนได้วางแผน (Planning) ผู้เรียนจะได้กำหนดเรื่อง กำหนดเนื้อหาในการเรียนรู้ ได้นำเสนอประสบการณ์เดิมที่เกี่ยวกับเรื่องและเนื้อหาที่จะเรียนรู้ ได้ตั้งคำถามเพื่อค้นหาคำตอบ ได้กำหนดวิธีการและแนวปฏิบัติสำหรับการเรียนรู้ การลงมือปฏิบัติ (Practice) เป็นขั้นตอนที่ผู้เรียนจะได้ปฏิบัติตามที่ได้ร่วมกันวางแผนตั้งแต่ต้น ขั้นตอนนี้ถือว่าเป็นกระบวนการในการค้นหาและรวบรวมความรู้จากแหล่งเรียนรู้ ผู้รู้ โดยการสังเกต สนทนา ซักถามและบันทึกข้อมูลด้วยวิธีการที่หลากหลาย สร้างผลงานจากการเรียนรู้ (Product) เป็นขั้นตอนที่ผู้เรียนจะได้นำความรู้ที่ได้จากการการค้นหาและรวบรวมความรู้จากแหล่งเรียนรู้ต่าง ๆ หรือจากผู้รู้ที่หลากหลาย ด้วยการสังเกต สนทนา ซักถามพร้อมกับบันทึกข้อมูล แล้วผู้เรียนนำความรู้เหล่านั้นมาสร้างเป็นผลงานในรูปแบบต่าง ๆ เช่น การประดิษฐ์ การวาดภาพ หรือการประกอบอาหาร สุดท้ายคือ การนำเสนอผลงาน (Present) โดยการเล่าหรือบรรยายเกี่ยวกับผลงานของตนเองให้คนอื่นเข้าใจ ซึ่งจะส่งผลให้เด็กปฐมวัยเกิดทักษะการคิดสังเคราะห์ตามที่ต้องการได้ กระบวนการสุดท้ายนี้จัดว่าเป็นกระบวนการสะท้อนและแลกเปลี่ยนความรู้ที่เกิดจากการเรียนรู้ ทำให้ผู้เรียนเกิดความรู้ ความเข้าใจเกี่ยวกับเนื้อหาสาระความรู้ที่ได้โดยการเรียบเรียงให้เป็นระบบแล้วนำความรู้ไปสร้างผลงาน

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนและหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P
2. เพื่อเปรียบเทียบทักษะการคิดสังเคราะห์เด็กปฐมวัยก่อนและหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P

สมมติฐานการวิจัย

ทักษะการคิดสังเคราะห์เด็กปฐมวัยหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P สูงกว่าก่อนได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P

แนวคิดและทฤษฎีที่เกี่ยวข้อง

1. ทฤษฎีพัฒนาการทางสติปัญญาของพีอาเจท์

พีอาเจท์ (Jean Piaget) เห็นว่าเด็กปฐมวัยพัฒนาการทางสติปัญญาของเด็กปฐมวัยเกิดจากกระบวนการทำงานของสมองที่ปฏิสัมพันธ์กับสิ่งแวดล้อมที่อยู่รอบตัวที่อยู่ในภาวะสมดุล กระบวนการปรับเพื่อให้เกิดความสมดุลของสมองเกิดจากการดูดซึมข้อมูลจากภายนอกเข้าไปรวมกับข้อมูลที่มีอยู่แล้วในสมองจนเกิดความรู้ ดังนั้นความรู้ของเด็กปฐมวัยจึงเกิดจากการรับรู้จากการปฏิสัมพันธ์กับบุคคลและสิ่งแวดล้อมโดยมีภาษาเป็นเครื่องมือ ความรู้ของเด็กปฐมวัยจึงเกิดจากการที่เด็กปฐมวัยได้รับการส่งเสริมให้ปฏิบัติ ค้นคว้า แสวงหาความรู้ด้วยตนเอง เด็กวัยนี้มีความเข้าใจสัญลักษณ์แทนสิ่งที่รู้จักคิดในใจ แต่การใช้ภาษายังยึดตนเองเป็นศูนย์กลาง คำพูดของเด็กแต่ละคนจะมีความหมายเฉพาะตนและไม่สามารถเข้าใจความคิดของคนอื่นได้ เพราะระดับพัฒนาการทางสติปัญญาของเด็กปฐมวัยอายุ 5-6 ปี อยู่ในระดับก่อนปฏิบัติการคิด (Preoperational period) ซึ่งจะต้องเรียนรู้จากการสัมผัสจับต้องสิ่งที่เป็นรูปธรรมเท่านั้น ดังนั้นเด็กควรได้ลงมือกระทำ เล่น สำรวจสิ่งแวดล้อมรอบตัวและได้สัมผัสสิ่งที่เป็นรูปธรรม

2. ทฤษฎีประวัติศาสตร์สังคมของไวก็อตสกี้

ไวก็อตสกี้ (Lev Semyonovich Vygotsky) เชื่อว่าเด็กปฐมวัยสามารถสร้างความรู้ได้ด้วยตนเอง โดยการมีปฏิสัมพันธ์ทางสังคมและวัฒนธรรมซึ่งจะทำให้การคิดของเด็กปฐมวัยมีความซับซ้อนมากขึ้น การมีปฏิสัมพันธ์ทางสังคมและวัฒนธรรมดังกล่าวมีอิทธิพลต่อการสร้างความรู้ของเด็กปฐมวัยมาตั้งแต่เกิด โดยเฉพาะการแลกเปลี่ยนความคิดเห็นกับผู้ใหญ่หรือเพื่อนที่มีประสบการณ์มากกว่าหรือการมีปฏิสัมพันธ์กับเพื่อน ๆ ในขณะเล่น (Cooperative Play) จะทำให้เด็กได้เรียนรู้การสร้างกฎระเบียบ วางแผน การแบ่งบทบาทหน้าที่ภายในกลุ่ม ซึ่งเป็นผลมาจากการกระทำ การอธิบายหรือบอกความคิดของตนเอง ส่งผลให้ระดับสติปัญญาของเด็กปฐมวัยสูงขึ้น การสร้างความรู้ของเด็กปฐมวัยตามแนวคิดของไวก็อตสกี้จะเกิดได้ก็ต่อเมื่อเด็กมีปฏิสัมพันธ์ทางสังคมกับผู้ใหญ่ เช่น พ่อ แม่ ครูหรือเพื่อนๆ ที่มีประสบการณ์มากกว่า โดยเฉพาะเมื่อเด็กไม่สามารถคิดแก้ปัญหาได้ (Zone of Proximal Development) เด็กก็จำเป็นต้องได้รับการช่วยเหลือจากบุคคลเหล่านี้อย่างเหมาะสมเพื่อส่งเสริมให้เด็กสามารถแก้ปัญหาได้ด้วยตนเอง บทบาทของครูในชั้นเรียนตามแนวคิดของไวก็อตสกี้ จึงทำหน้าที่เป็นผู้ให้คำแนะนำ การช่วยเตือนความจำ การกระตุ้นให้คิด การแบ่งปัญหาที่สลับซับซ้อนให้ง่ายขึ้นและการให้ตัวอย่าง โดยครูจะเป็นเพียงผู้สนับสนุนหรืออำนวยความสะดวกในการเรียนรู้ให้กับเด็กเท่านั้นไม่ใช่ผู้ให้คำตอบ

3. ทฤษฎีพัฒนาการทางสติปัญญาของบรูเนอร์

บรูเนอร์ (Jerome S. Bruner) เชื่อว่าการสร้างความรู้ของเด็กปฐมวัยเกิดจากการเห็นและการสัมผัส ดังนั้นสิ่งที่เด็กเห็นและได้สัมผัส จึงจำเป็นต้องเป็นของจริง เพราะเด็กวัยนี้มีความเข้าใจที่แคบมักจะมองอยู่แง่เดียวและไม่สามารถเห็นแง่อื่นแม้ว่าจะมีของแสดงอยู่ต่อหน้า อย่างไรก็ตามบรูเนอร์เชื่อว่าเด็กในวัยนี้สามารถใช้ภาษาในการสื่อสารและเข้าใจความหมายของสัญลักษณ์ เด็กวัยนี้จึงมีความเข้าใจความคิดพื้นฐานทางคณิตศาสตร์ วิทยาศาสตร์ มานุษยวิทยาและสังคมศาสตร์บางอย่างได้ ถ้าข้อมูลเกี่ยวกับวิชา

เหล่านี้ถูกส่งเข้าไปในสมองและสมองจะเปลี่ยนแปลงข้อมูลเหล่านี้ให้เป็นหมวดหมู่ (Organization) เพื่อถูกนำไปใช้ในการแก้ปัญหา ดังนั้นความสามารถในการสร้างความรู้ของเด็กปฐมวัยจึงขึ้นอยู่กับการจัดสิ่งแวดล้อมที่ส่งเสริมการเรียนรู้โดยการเปิดโอกาสให้เด็กปฐมวัยได้มีปฏิสัมพันธ์กับสิ่งแวดล้อม การมีสื่อประกอบการเรียนการสอนเพราะเด็กในวัยนี้จะเรียนรู้จากสิ่งที่เห็น สิ่งที่ได้ลงมือปฏิบัติและการสื่อความหมายของเด็กซึ่งเป็นสิ่งที่แสดงให้เห็นถึงพัฒนาการทางสติปัญญาของเด็ก

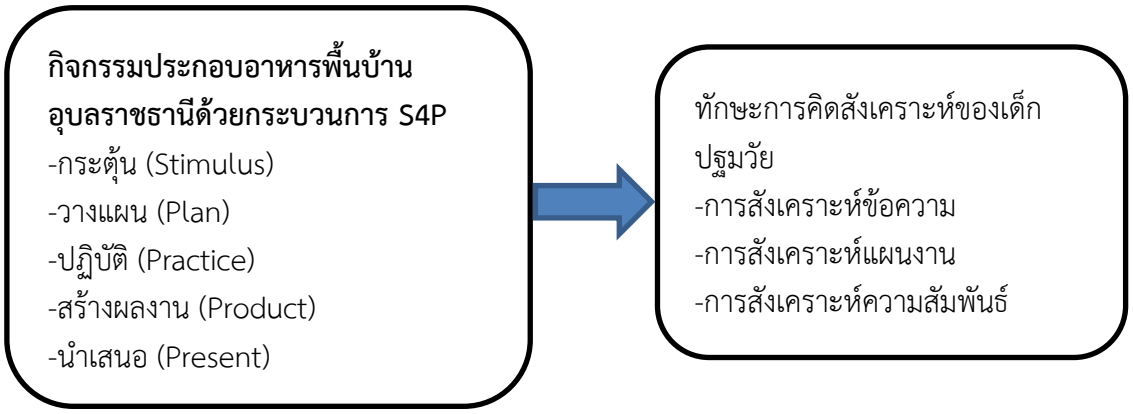
4. ทฤษฎีการสร้างความรู้โดยการสร้างชิ้นงานของเพเพิร์ท

เพเพิร์ท (Seymour Papert) ทฤษฎีการสร้างความรู้โดยการสร้างชิ้นงานเชื่อว่าการปฏิบัติจริงจะทำให้ผู้เรียนสามารถสร้างความรู้ด้วยตนเองอย่างลึกซึ้งได้ ทฤษฎีการสร้างความรู้โดยการสร้างชิ้นงานมีแนวคิดว่าเด็กสามารถสร้างความรู้โดยการมีปฏิสัมพันธ์กับสิ่งแวดล้อมภายนอก ทฤษฎีการสร้างความรู้โดยการสร้างชิ้นงานของเพเพิร์ทเชื่อว่าหากผู้เรียนได้นำความคิดของตนเองไปสร้างผลงานจะช่วยให้ความคิดเห็นนั้นเป็นรูปธรรมที่ชัดเจนมีความคงทนไม่ลืมง่าย หลักการจัดการเรียนรู้สำหรับเด็กปฐมวัยตามทฤษฎีการสร้างความรู้โดยการสร้างชิ้นงานประกอบ การมีสภาพแวดล้อมในการเรียนรู้ที่ดีโดยเฉพาะการมีทางเลือก (Choice) การที่เด็กมีโอกาสได้เลือกว่าจะสร้างอะไรได้มากเท่าใด เด็กจะมีความเต็มใจและมีส่วนร่วมในการทำงานนั้น การมีความหลากหลาย (Diversity) หมายถึง การที่บุคคลมีทักษะที่แตกต่างกันตั้งแต่ความรู้น้อยจนความรู้มาก ในบางครั้งอาจมีผู้เรียนที่มีอายุแตกต่างกันในชั้นเรียนคนที่มีประสบการณ์มากกว่าก็จะเกิดทักษะและความรู้เพิ่มขึ้นจากการช่วยเหลือคนอื่น การมีวิธีการสร้างชิ้นงานที่หลากหลาย เด็กควรมีโอกาสเลือกวิธีการสร้างผลงานที่เป็นแบบฉบับเฉพาะตัวเองและความเป็นกันเอง (Congeniality) มีความเป็นมิตรและให้เวลาอย่างเพียงพอในการทำงาน การพูดคุยและดูผลงานของคนอื่น การใช้เทคโนโลยีและสื่อการเรียนรู้ที่มีศักยภาพสูง เพื่อส่งเสริมให้เด็กได้สร้างผลงานด้วยตนเอง ถ้าหากว่าไม่มีสื่อที่ทันสมัยและศักยภาพสูงก็สามารถใช้สื่อธรรมชาติและวัสดุทางศิลปะหรือของเหลือใช้ทดแทนได้ การมีบรรยากาศในการเรียนรู้ที่ดี ได้แก่ บรรยากาศที่เป็นมิตรอบอุ่น ปลอดภัย สบายใจและผู้เรียนได้เลือกตามความสนใจ ทำให้ผู้เรียนมีแรงจูงใจในการคิดและเรียนรู้ต่อไป นอกจากนี้ควรส่งเสริมให้ผู้เรียนได้มีความสัมพันธ์กับบุคคลอื่นที่มีความสนใจทำอะไรคล้ายๆ กัน จะทำให้ผู้เรียนเกิดการสร้างความรู้ได้เต็มที่ เกิดความอบอุ่นสนิทสนมมีความรักและเอาใจใส่กันและกัน การคำนึงถึงความแตกต่างระหว่างบุคคล (Different Individual) เด็กแต่ละคนมีความแตกต่างกันในแต่ละด้าน การจัดการเรียนรู้จึงควรมีความเหมาะสมกับพัฒนาการของเด็กแต่ละคนด้วย

จากการศึกษาเกี่ยวกับทฤษฎีที่กล่าวถึงวิธีการเรียนรู้และวิธีการส่งเสริมการเรียนรู้ของเด็กปฐมวัย พบว่า ทฤษฎีพัฒนาทางสติปัญญาของพีอาเจท์ (Piaget) มีความเชื่อว่ากระบวนการคิดเกิดจากการสัมผัสจากสิ่งแวดล้อมจากสังเกต ซักถาม สนทนา พูดคุยหรือพยายามค้นหาวิธีการต่างๆ หรืออาจใช้กระบวนการทางสังคมเข้ามาช่วยจนสามารถสร้างความเข้าใจได้ ทฤษฎีพัฒนาการทางสติปัญญาของบรูเนอร์ (Bruner) เชื่อว่าความสามารถในการคิดของเด็กเกิดจากการค้นพบหรือการแก้ปัญหา โดยเฉพาะเด็กปฐมวัย 5-6 ปี สามารถเข้าใจความคิดพื้นฐานทางคณิตศาสตร์และวิทยาศาสตร์ เพื่อนำความรู้ไปใช้แก้ปัญหาและคิดหาเหตุผลโดยใช้วิธีตรรกวิทยา การประดิษฐ์และการสร้างผลงาน และการนำเสนอผลงานของตนเอง ทฤษฎีประวัติศาสตร์สังคมของไวก็อตสกี้ (Vygotsky) เชื่อว่าการเรียนรู้และพัฒนาการเป็นผลมาจากการมีปฏิสัมพันธ์ระหว่างกันในสังคมกับคนอื่น ๆ ส่งผลให้เด็กสามารถสร้างความรู้ได้ระดับปัญญาเบื้องต้นและปัญญาขั้นสูงที่มีความสัมพันธ์กันอย่างเป็นกระบวนการ และทฤษฎีการสร้างความรู้โดยการสร้างชิ้นงานของเพเพิร์ท (Papert) ที่เชื่อว่าเด็กปฐมวัยอายุ 5-6 ปี สามารถวางแผนซึ่งเกิดจากการ

สร้างกฎระเบียบเพื่อการอยู่ร่วมกันในสังคม โดยเฉพาะการเล่นและทำกิจกรรมร่วมกัน ทำให้เด็กได้วางแผน แบ่งหน้าที่ภายในกลุ่ม โดยการแลกเปลี่ยนความคิดเห็นระหว่างกัน ทำให้เด็กได้คิด ตัดสินใจ ซึ่งการเรียนรู้ของเด็กวัยนี้เกิดขึ้นเมื่อเด็กมีปฏิสัมพันธ์ทางสังคม เช่น การสนทนาแลกเปลี่ยนประสบการณ์จะทำให้เด็กมีประสบการณ์และวุฒิภาวะเพิ่มขึ้น พัฒนาการของความคิดก็สลับซับซ้อนมากขึ้นเช่นกัน ทำให้เด็กเกิดความคิดรวบยอดและเข้าใจสัญลักษณ์ต่างๆ จนสามารถสื่อสารความคิดของตนเองได้

กรอบแนวคิดการวิจัย



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

ประชากรและกลุ่มตัวอย่าง

ประชากร คือ เด็กอนุบาลปีที่ 3 โรงเรียนในสังกัดเทศบาลเมืองอุบลราชธานี จำนวน 9 ห้อง จำนวน 340 คน

กลุ่มตัวอย่าง คือ เด็กอนุบาลปีที่ 3 โรงเรียนเทศบาล 2 หนองบัว จำนวน 30 คน ซึ่งได้มาด้วยการสุ่มกลุ่มตัวอย่างด้วยการสุ่มอย่างง่าย โดยใช้ห้องเรียนเป็นหน่วยสุ่ม

เครื่องมือที่ใช้ในการวิจัยและการหาคุณภาพ

1. แผนการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P จำนวน 6 แผน โดยการศึกษาจากหลักสูตรการศึกษาปฐมวัย พุทธศักราช 2560 สำหรับเด็กอายุ 3-5 ปี ของกระทรวงศึกษาธิการ และเลือกเนื้อหาในการจัดกิจกรรม ได้แก่ เรื่องแกงอ่อมพุงปลาเผาะ ก๋วยจั๊บอุบล ยำข้าวปุ้น ยำหัวปลี ขนมหวานวุ้นตาล และข้าวต้มมัดไส้หมู สร้างแผนการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P ซึ่งมีรายละเอียดโครงสร้างประกอบด้วย วัตถุประสงค์ เนื้อหา ลำดับขั้นในการดำเนินกิจกรรม สื่อการเรียนการสอน และการประเมินผล โดยหาคุณภาพของแผนการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P โดยผู้เชี่ยวชาญ จำนวน 3 ท่าน ได้ค่า IOA (Index Objective Appropriate Index) ระหว่าง 4.00 ถึง 4.56 ได้ค่า TOA (Total Objective Appropriate Index) เท่ากับ 4.31

2. แบบสังเกตทักษะการคิดสังเคราะห์ของเด็กปฐมวัย ผู้วิจัยนำแบบสังเกตทักษะการคิดสังเคราะห์สร้างขึ้นไปให้ผู้เชี่ยวชาญ จำนวน 3 ท่าน ประเมินคุณภาพ ซึ่งได้ค่าดัชนีความสอดคล้อง IOC (Index of Item objective consequence) ระหว่าง .67 ถึง 1.00 แล้วนำแบบสังเกตทักษะการคิดสังเคราะห์ของเด็กปฐมวัยไปทดลองใช้กับเด็กอนุบาลชั้นปีที่ 3 ในสถานศึกษาขั้นพื้นฐาน สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาอุบลราชธานี เขต 1 ที่ไม่ใช่กลุ่มตัวอย่าง จำนวน 38 คน แล้วนำคะแนนที่ได้มาวิเคราะห์ความเชื่อมั่น โดยวิธีการหาค่าสัมประสิทธิ์อัลฟาของครอนบาค (Cronbach's alpha coefficient) เท่ากับ 0.92

วิธีดำเนินการทดลอง

การวิจัยครั้งนี้ได้ดำเนินการทดลองในภาคเรียนที่ 1 ปีการศึกษา 2567 ทำการทดลองเป็นเวลา 8 สัปดาห์ละ 3 วัน ได้แก่ วันอังคาร วันพุธ วันพฤหัสบดี วันละ 30-45 นาที รวมเวลาทดลองทั้งสิ้น 18 ครั้ง ในช่วงเวลา 09.00 – 09.45 น. โดยมีลำดับขั้นตอนดังนี้

1. ทดสอบทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P โดยแบบทดสอบทักษะการคิดสังเคราะห์ของเด็กปฐมวัย
2. ดำเนินการจัดกิจกรรมประกอบอาหารเป็นเวลา 8 สัปดาห์ สัปดาห์ละ 3 วัน
3. ทดสอบทักษะการคิดสังเคราะห์ของเด็กปฐมวัยหลังการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P โดยแบบทดสอบทักษะการคิดสังเคราะห์ของเด็กปฐมวัย

ผลการวิจัย

ตอนที่ 1 วิเคราะห์ระดับทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนและหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P

ผลการวิเคราะห์ระดับทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนและหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P โดยหาค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน

ทักษะการคิดสังเคราะห์	n	k	ก่อนจัดกิจกรรมฯ			หลังจัดกิจกรรมฯ		
			$\overline{X}$	S.D.	ระดับ	$\overline{X}$	S.D.	ระดับ
การสังเคราะห์ข้อความ	30	12	6.60	1.06	ปานกลาง	8.36	0.88	สูง
การสังเคราะห์แผนงาน	30	9	3.43	1.04	ปานกลาง	5.86	0.93	ปานกลาง
การสังเคราะห์ความสัมพันธ์	30	9	3.90	0.71	ปานกลาง	6.13	0.77	ปานกลาง
โดยรวม	**30**	**30**	**13.93**	**1.72**	**ปานกลาง**	**20.3**	**1.44**	**สูง**

ผลดังตารางที่ 1

ตารางที่ 1 ระดับทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนและหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P

ระดับทักษะการคิดสังเคราะห์ของเด็กปฐมวัยโดยรวมก่อนได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P อยู่ในระดับปานกลาง เมื่อพิจารณารายองค์ประกอบพบว่าทุกองค์ประกอบอยู่ในระดับปานกลาง

ส่วนทักษะการคิดสังเคราะห์ของเด็กปฐมวัยโดยรวมหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P อยู่ในระดับสูง เมื่อพิจารณารายองค์ประกอบพบว่าองค์ประกอบด้านสังเคราะห์ข้อความอยู่ในระดับสูง ส่วนองค์ประกอบด้านสังเคราะห์แผนงานและองค์ประกอบด้านสังเคราะห์ความสัมพันธ์อยู่ในระดับปานกลาง

ตอนที่ 2 เปรียบเทียบทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนและหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P

ผลการเปรียบเทียบทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนและหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P ดังตารางที่ 2

ตารางที่ 2 เปรียบเทียบทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนและหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P

ทักษะการจัดการ	n	k	ก่อนจัดกิจกรรม		หลังจัดกิจกรรม		D	t	p	แปลผล
			X	S.D.	X	S.D.				
การสังเคราะห์ข้อความ	30	12	6.60	1.06	8.36	0.88	1.76	7.00**	.000	มีนัยสำคัญ
การสังเคราะห์แผนงาน	30	9	3.43	1.04	5.86	0.93	2.43	9.54**	.000	มีนัยสำคัญ
การสังเคราะห์ความสัมพันธ์	30	9	3.90	0.71	6.13	0.77	2.23	11.66**	.000	มีนัยสำคัญ
โดยรวม	**30**	**30**	**13.93**	**1.72**	**20.30**	**1.44**	**6.37**	**15.55****	**.000**	มีนัยสำคัญ

ผลการเปรียบเทียบทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนและหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P โดยรวม มีความแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01

เมื่อเปรียบเทียบทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนและหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P รายองค์ประกอบพบว่า ทุกองค์ประกอบทั้งด้านการสังเคราะห์ข้อความ ด้านการสังเคราะห์แผนงาน และด้านการสังเคราะห์ความสัมพันธ์ มีความแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 เช่นเดียวกัน

อภิปรายผล

ผลการวิจัยเรื่อง ผลการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P ที่มีต่อทักษะการคิดสังเคราะห์ของเด็กปฐมวัย สรุปได้ดังนี้

1. ทักษะการคิดสังเคราะห์ของเด็กปฐมวัยก่อนได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P โดยรวมอยู่ในระดับปานกลาง เพราะเด็กกลุ่มตัวอย่างเดิมนั้นได้รับการ

จัดกิจกรรมที่ไม่ได้ลงมือปฏิบัติด้วยตนเองและไม่ได้กระตุ้นทักษะการคิดเท่าที่ควร จึงส่งผลให้การคิดสังเคราะห์ (Synthesis-type Thinking) ของเด็กปฐมวัยอยู่ในระดับปานกลาง ทั้งนี้ทักษะการคิดสังเคราะห์จึงเป็นการหลอมรวมหรือผสมกลมกลืนกันขององค์ประกอบต่าง ๆ จนได้ลักษณะใหม่หรือคุณสมบัติใหม่ที่สามารถนำไปใช้ประโยชน์ได้ ผลผลิตที่เกิดขึ้นจึงมีทั้งการรวบรวมหรือหลอมรวมเนื้อหาสาระส่วนย่อย ๆ ของสิ่งต่าง ๆ เข้าไว้ด้วยกันจนเกิดเป็นสิ่งใหม่ทั้งที่ไม่เห็นส่วนย่อยเดิม เช่น ยาเม็ด ยาน้ำ น้ำปลา เป็นต้น และการรวบรวมหรือหลอมรวมเนื้อหาสาระส่วนย่อย ๆ ของสิ่งต่าง ๆ เข้าไว้ด้วยกันจนเกิดเป็นสิ่งใหม่ที่ยังเห็นส่วนย่อยเดิมอยู่ เช่น ผัดผักรวมมิตร ขนมกระยาสารท เป็นต้น (เกรียงศักดิ์ เจริญวงศ์ศักดิ์. 2549 ; สุวิทย์ มูลคำ. 2547) ภายหลังเด็กปฐมวัยได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P ที่เด็กปฐมวัยจะได้การกระตุ้น (Stimulus) โดยคำถามเพื่อให้ผู้เรียนได้นำไปคิดต่อและเกิดขั้นตอนต่อไป วางแผน (Planning) โดยการกำหนดเรื่อง กำหนดเนื้อหาในการเรียนรู้ ได้นำเสนอประสบการณ์เดิมที่เกี่ยวกับเรื่องและเนื้อหาที่จะเรียนรู้ ได้ตั้งคำถามเพื่อค้นหาคำตอบได้กำหนดวิธีการและแนวปฏิบัติสำหรับการเรียนรู้ การลงมือปฏิบัติ (Practice) เป็นขั้นตอนที่ผู้เรียนจะได้ปฏิบัติตามที่ได้ร่วมกันวางแผนตั้งแต่ต้น ขั้นตอนนี้ถือว่าเป็นกระบวนการในการค้นหาและรวบรวมความรู้จากแหล่งเรียนรู้ ผู้รู้ โดยการสังเกต สนทนา ซักถามและบันทึกข้อมูลด้วยวิธีการที่หลากหลาย สร้างผลงานจากการเรียนรู้ (Product) เป็นขั้นตอนที่ผู้เรียนจะได้นำความรู้ที่ได้จากการการค้นหาและรวบรวมความรู้จากแหล่งเรียนรู้ต่าง ๆ หรือจากผู้รู้ที่หลากหลาย ด้วยการสังเกต สนทนา ซักถามพร้อมกับบันทึกข้อมูล แล้วผู้เรียนนำความรู้เหล่านั้นมาสร้างเป็นผลงานในรูปแบบต่าง ๆ เช่น การประดิษฐ์ การวาดภาพหรือการประกอบอาหาร สุดท้ายคือ การนำเสนอผลงาน (Present) โดยการเล่าหรือบรรยายเกี่ยวกับผลงานของตนเองให้คนอื่นเข้าใจ ซึ่งจะส่งผลให้เด็กปฐมวัยเกิดทักษะการคิดสังเคราะห์ตามที่ต้องการได้ จึงเป็นผลให้เด็กปฐมวัยเกิดทักษะการคิดสังเคราะห์โดยรวมอยู่ในระดับสูงได้ในที่สุด

2. ทักษะการคิดสังเคราะห์ของเด็กปฐมวัยหลังได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P มีค่าเฉลี่ยสูงกว่าก่อนการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 ซึ่งสอดคล้องกับสมมติฐานที่ตั้งไว้ ที่เป็นเช่นนี้ก็เพราะเหตุที่ว่าเด็กปฐมวัยชั้นปีที่ 3 ที่ได้รับการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P ได้วางแผนการจัดกิจกรรมได้แสวงหาแหล่งข้อมูลพร้อมกับได้ค้นคว้าสอบถามข้อมูลที่จำเป็นในการประกอบอาหาร ได้เลือกวิธีการและเครื่องมือในการเก็บรวบรวมข้อมูล ได้จำแนกแยกแยะข้อมูลที่จำเป็นและไม่จำเป็นต้องใช้ ได้ลงมือปฏิบัติตามแผนที่วางไว้ และได้นำเสนอข้อมูลที่ได้จากการประกอบอาหาร เป็นการจัดกิจกรรมที่มุ่งให้ผู้เรียนเกิดทักษะอันสำคัญโดยเฉพาะทักษะการคิดสังเคราะห์ ซึ่งเป็นไปตามแนวคิดทฤษฎีของเพเพิร์ทที่เห็นว่า การที่เด็กได้นำความรู้ความเข้าใจของตนที่เป็นผลมาจากการเรียนรู้จากสิ่งแวดล้อม บุคคล สถานที่ต่าง ๆ รอบตัวมาสร้างเป็นผลงานในรูปแบบต่าง ๆ จะส่งผลให้เด็กปฐมวัยเกิดความรู้ความเข้าใจอย่างเป็นรูปธรรมที่ชัดเจนมีความคงทนไม่ลืมง่าย ซึ่งเป็นผลมาจากการเรียนรู้จากการลงมือปฏิบัติด้วยตนเอง สอดคล้องกับแนวคิดของพีอาเจท์และบรูเนอร์ที่เห็นว่าทักษะทางปัญญาหรือทักษะการคิดสังเคราะห์ของเด็กปฐมวัยเกิดจากการที่เด็กได้เห็น ได้สัมผัสจากการลงมือปฏิบัติจริง โดยการใช้ความคิด แสวงความรู้ ความคิดเห็น และได้ลงมือปฏิบัติด้วยตนเอง จึงกล่าวได้ว่าการจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P สามารถพัฒนาทักษะคิดสังเคราะห์ได้เป็นอย่างดี เป็นเพราะว่าการประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P เด็กปฐมวัยได้วางแผน ได้กำหนดเรื่องและเนื้อหาในการเรียนรู้ ได้นำเสนอประสบการณ์เดิมของตน

ได้ฝึกตั้งคำถามในการค้นหาและรวบรวมคำตอบ ได้กำหนดวิธีการและแนวปฏิบัติสำหรับการเรียนรู้ การลงมือปฏิบัติร่วมกัน ตั้งแต่วางแผนเพื่อการเรียนรู้ วางแผนค้นหาและรวบรวมความรู้จากแหล่งเรียนรู้ ผู้รู้ โดยการสังเกต สนทนา ซักถามและบันทึกข้อมูลด้วยวิธีการที่หลากหลาย ได้สร้างผลงานจากการเรียนรู้ ซึ่งเป็นการนำความรู้ที่ได้จากการค้นหาและรวบรวมความรู้จากแหล่งเรียนรู้ต่าง ๆ หรือจากผู้รู้ที่หลากหลายจากการสังเกต สนทนา ซักถามพร้อมกับบันทึกข้อมูล แล้วผู้เรียนนำความรู้เหล่านั้นมาสร้างเป็นผลงานในรูปแบบต่าง ๆ เช่น การประดิษฐ์ การวาดภาพ หรือการประกอบอาหาร สุดท้ายคือ การนำเสนอผลงานที่เกิดจากการปฏิบัติโดยการเล่าเรื่อง บรรยายหรือแสดงผลงานที่สร้างขึ้นเพื่อให้ผู้อื่นเข้าใจ ซึ่งสอดคล้องกับผลการวิจัยของ นนทชนนปภพ ปาลินทร และอำไพ สวัสดิราช (2567) ที่ศึกษาทักษะการคิดสังเคราะห์ของเด็กปฐมวัยจากการจัดกิจกรรมประกอบอาหารด้วยกระบวนการ PICC และผลงานวิจัยของจันทรวิมล สุภโกศล (2566) ที่ได้ศึกษาทักษะการคิดสังเคราะห์ของเด็กปฐมวัยจากการจัดกิจกรรมประกอบอาหารพื้นบ้านอีสานจังหวัดอุบลราชธานีที่ส่งเสริมให้ได้วางแผนในการศึกษาหาองค์ความรู้เกี่ยวกับอาหารที่ต้องการลงมือปฏิบัติ รวมไปถึงการแสวงหาคำตอบหรือองค์ความรู้จากแหล่งข้อมูลต่างๆ แล้วนำข้อมูลที่ได้มาวิเคราะห์ถึงความจำเป็นและความต้องการในการใช้ข้อมูลที่แสวงหามาได้ แล้วจึงลงมือปฏิบัติในการประกอบอาหารในที่สุด จะเห็นว่าการที่เด็กปฐมวัยได้ลงมือปฏิบัติด้วยตนเองในกิจกรรมต่าง ๆ ล้วนแต่เป็นผลให้เด็กปฐมวัยเกิดการพัฒนาทักษะทางปัญญาโดยเฉพาะทักษะการคิดสังเคราะห์ได้อย่างชัดเจน

กล่าวโดยสรุปได้ว่า การจัดกิจกรรมประกอบอาหารพื้นบ้านอุบลราชธานีด้วยกระบวนการ S4P สามารถพัฒนาทักษะการคิดสังเคราะห์ของเด็กปฐมวัยได้อย่างน่าพอใจ

ข้อเสนอแนะ

ในระหว่างการทำกิจกรรม ควรสร้างบรรยากาศความเป็นกันเองกับเด็กอนุบาลเกิดความรู้สึกไว้วางใจและความปลอดภัย ซึ่งจะเป็นผลให้เด็กกล้าลงมือกระทำ กล้าคิด กล้าซักถาม กล้าแสดงความคิดเห็น กล้านำเสนอข้อมูลได้ด้วยตนเอง ครูควรทำหน้าที่เป็นเพียงผู้อำนวยการเรียนรู้ การลงมือ ปฏิบัติด้วยตนเองอันจะเป็นผลให้เด็กเกิดทักษะการจัดการตามที่ตั้งจุดประสงค์ไว้

เอกสารอ้างอิง

เกรียงศักดิ์ เจริญวงศ์ศักดิ์. (2549). การคิดเชิงสังเคราะห์. พิมพ์ครั้งที่ 3. ซัคเซสมีเดีย

คณะกรรมการการศึกษาแห่งชาติ. (2543). ปฏิรูปการเรียนรู้ ผู้เรียนสำคัญที่สุด. พิมพ์ดี

จันทรวิมล สุภโกศล. (2566). ผลการจัดกิจกรรมการประกอบอาหารพื้นบ้านอีสานจังหวัดอุบลราชธานีที่มีต่อทักษะการคิดสังเคราะห์ของเด็กปฐมวัย. (สารนิพนธ์ปริญญาศึกษาศาสตรมหาบัณฑิต, มหาวิทยาลัยราชธานี)

นนทชนนปภพ ปาลินทร. (2554). การพัฒนารูปแบบการสอนแบบ PICC เพื่อส่งเสริมทักษะการสร้างความรู้ของเด็กปฐมวัย. (ปริญญานิพนธ์การศึกษาดุษฎีบัณฑิต, มหาวิทยาลัยศรีนครินทรวิโรฒ)

นนทชนนปภพ ปาลินทร และอำไพ สวัสดิราช. (2567). ผลการจัดกิจกรรมประกอบอาหารด้วยกระบวนการ PICC ที่มีต่อทักษะการคิดสังเคราะห์ของเด็กปฐมวัย. วารสาร มจร. ปริทรรศน์ :6 (1)

สุวิทย์ มูลคำ. (2547). กลยุทธ์การสอนคิดสังเคราะห์. ห้างหุ้นส่วนจำกัดภาพพิมพ์

สำนักปฏิรูปทางการศึกษา (องค์การมหาชน). (2542). พระราชบัญญัติการศึกษาแห่งชาติ พุทธศักราช 2542. พริกหวานกราฟฟิค

การวิจัยในชั้นเรียน: การพัฒนาทักษะการอ่านโน้ตระบบโดเคลื่อนที่ด้วยแบบฝึก Move Do Flow ของนิสิตกลุ่มเครื่องมือเอกขับร้อง ชั้นปีที่ 3 สาขาวิชาดุริยางคศาสตร์ คณะศิลปกรรมศาสตร์ มหาวิทยาลัยทักษิณ

Classroom Research: The Development of Movable-Do Sight Reading Skills through the "Move Do Flow" Exercises among Third-Year Voice Major Students in the Music Program, Faculty of Fine and Applied Arts, Thaksin University.

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บทคัดย่อ

การอ่านโน้ตเป็นทักษะสำคัญสำหรับนิสิตที่ศึกษาดนตรีตะวันตก สำหรับการใช้ระบบโดเคลื่อนที่ช่วยให้ผู้เรียนเข้าใจการเปลี่ยนบันไดเสียง ซึ่งเป็นทักษะจำเป็นโดยเฉพาะสำหรับผู้ฝึกด้านการร้องเพลง ควรฝึกฝนให้แม่นยำ บทความวิจัยฉบับนี้นำเสนอผลการศึกษาวิจัยในชั้นเรียนเกี่ยวกับการพัฒนาทักษะการอ่านโน้ตด้วยระบบโดเคลื่อนที่ด้วยแบบฝึก Move Do Flow กลุ่มตัวอย่าง คือ นิสิตกลุ่มเครื่องมือเอกขับร้อง สาขาวิชาดุริยางคศาสตร์ ชั้นปีที่ 3 คณะศิลปกรรมศาสตร์ มหาวิทยาลัยทักษิณที่ลงทะเบียนเรียนในรายวิชาทักษะดนตรี 6 รหัสวิชา 0604346 ภาคเรียนที่ 2/2567 จำนวน 7 คน วัตถุประสงค์ในการวิจัย คือ (1) เพื่อเปรียบเทียบทักษะการอ่านโน้ตระบบโดเคลื่อนที่ของนิสิตเครื่องมือเอกขับร้องชั้นปีที่ 3 สาขาวิชาดุริยางคศาสตร์ คณะศิลปกรรมศาสตร์ มหาวิทยาลัยทักษิณ ระหว่างก่อนและหลังใช้แบบฝึก Move Do Flow (2) เพื่อศึกษาความพึงพอใจต่อบทฝึก Move Do Flow ของนิสิตเครื่องมือเอกขับร้อง ชั้นปีที่ 3 สาขาวิชาดุริยางคศาสตร์ คณะศิลปกรรมศาสตร์ มหาวิทยาลัยทักษิณ เครื่องมือที่ใช้ในการวิจัย คือ (1) บทฝึก Move Do Flow จำนวน 5 บทฝึก และ (2) แบบประเมินความพึงพอใจของผู้เรียน ผลการวิจัย คือ (1) ผลการพัฒนาทักษะการอ่านโน้ตด้วยระบบโดเคลื่อนที่ด้วยแบบฝึก Move Do Flow พบว่า นิสิตมีทักษะการอ่านโน้ตระบบโดเคลื่อนที่สูงกว่าก่อนเรียน (2) นิสิตมีระดับความพึงพอใจต่อบทฝึก Move Do Flow อยู่ในระดับมาก ($\bar{X}$ = 4.22, S.D. = 0.78)

คำสำคัญ: การวิจัยในชั้นเรียน, ทักษะการอ่านโน้ต, ระบบโดเคลื่อนที่, บทฝึกมูฟโดโฟลว์

Abstract

Sight reading skills are essential for students studying Western music. The movable-do system helps learners comprehend changes in musical scales, which is particularly important for vocal majors who need to practice this skill with precision. This research article presents the findings of a study conducted in the classroom that focused on the development of movable-do sight-reading skills through the "Move Do Flow" exercises. The sample group included seven third-year voice major students from the Music Program at the Faculty of Fine and Applied Arts, Thaksin University. These students were enrolled in the course Music Practicum (0604346) during the second semester of the 1/2025 academic year. The objectives of this research were: (1) to enhance the sight-reading skills of third-year vocal music students in the Music program at Thaksin University using the Move Do Flow exercises, and (2) to assess the satisfaction levels of these students after participating in the exercises. The research instrument was (1) The Move Do Flow Exercise is about 5 lessons, and (2) a questionnaire of satisfaction. The research results indicated: 1) the post-test scores after the Move Do Flow exercises were higher than the pre-test scores, and (2) the learners' satisfaction was rated at a high level ($\bar{X}$ = 4.22, S.D. = 0.78).

Keywords: Classroom Research, Sight-Reading Skills, Moveable Do, Move Do Flow Exercise

บทนำ

การอ่านโน้ตด้วยระบบโดเคลื่อนที่เป็นเครื่องมือสำคัญที่ช่วยพัฒนาทักษะการอ่านโน้ต และการรับรู้ทางดนตรีของผู้เรียน โดยเฉพาะในด้านการฝึกฝนโสตทักษะตลอดจนการเข้าใจโครงสร้างทางบันไดเสียง โดยเฉพาะผู้เรียนดนตรีในระดับอุดมศึกษาจำเป็นต้องทำความเข้าใจการเปลี่ยนแปลงของบันไดเสียงให้ครบถ้วน เพื่อที่จะสามารถปฏิบัติเครื่องดนตรีหรือขับร้องบทเพลงได้อย่างถูกต้องแม่นยำและตรงตามบันไดเสียงในบทเพลงต่าง ๆ สำหรับผู้เรียนเครื่องมือเอกขับร้องมักพบเจอกับบทเพลงที่หลากหลายอยู่เสมอ ซึ่งบางโอกาสต้นฉบับของบทเพลงเหล่านั้นอาจจะมีกุญแจเสียง (Key Signature) ที่สูงกว่าหรือต่ำกว่าธรรมชาติเสียงของผู้ฝึก หรือเปลี่ยนคีย์เพลงอยู่บ่อยครั้งผู้ฝึกจำเป็นต้องอาศัยทักษะและความชำนาญในการปรับเปลี่ยนคีย์เพลง

จากการจัดการเรียนการสอนในรายวิชาทักษะดนตรี 5 ของนิสิตชั้นปีที่ 3 ภาคเรียนที่ 1 ปีการศึกษา 2567 ผู้วิจัยใช้แบบฝึกทั่วไปซึ่งอาจมีระดับความยากที่ไม่เหมาะสมกับผู้เรียน จึงทำให้นิสิตในรายวิชานี้ขาดทักษะความสามารถด้านการอ่านโน้ตด้วยระบบโดเคลื่อนที่ ปัญหาหลักที่พบมีดังนี้ (1) นิสิตขาดความคล่องแคล่วในการอ่านโน้ตด้วยระบบโดเคลื่อนที่ (2) นิสิตไม่สามารถปฏิบัติการขับร้องแบบฝึกได้อย่างต่อเนื่อง (3) นิสิตบางรายไม่สามารถอ่านโน้ตให้ถูกต้องตามหลักวิธีการ (4) นิสิตขาดความแม่นยำในการปรับเปลี่ยนบันไดเสียงและพบข้อผิดพลาดจำนวนมาก จากปัญหาในการจัดการเรียนการสอนทำให้ผู้วิจัยนำแบบฝึก “Move Do Flow” มาใช้กับนิสิตในรายวิชาทักษะดนตรี 6 ของนิสิตชั้นปีที่ 3 ภาคเรียนที่ 2 ปีการศึกษา 2567 ซึ่งเป็นผู้เรียนกลุ่มเดียวกันกับรายวิชาทักษะดนตรี 5 ของภาคเรียนที่ 1

“Move Do Flow” เป็นนวัตกรรมแบบฝึกทางดนตรีที่ผู้วิจัยได้ประพันธ์ขึ้นเพื่อเป็นสื่อเสริมทักษะการอ่านโน้ตในรายวิชาโสตทักษะและการอ่านโน้ต และใช้ในการเรียนการสอนวิชาอื่น ๆ ที่มีการฝึกปฏิบัติอ่านโน้ต สำหรับแบบฝึก “Move Do Flow” นั้น ได้รับแรงบันดาลใจมาจากเพลงพื้นบ้านภาคใต้ ประกอบด้วย 5 บทฝึก ดังนี้ *(1) ลำนำร้องเรือ อยู่ในกุญแจเสียง A minor(2) เงาหนังตะลุง อยู่ในกุญแจเสียง F Major (3) โนราร่ำลึก อยู่ในกุญแจเสียง E minor (4) อีแอ่นกล่อมลูก อยู่ในกุญแจเสียง D Major และ (5) ลมทะเลรองเง็ง อยู่ในกุญแจเสียง D minor*

ดังนั้น เพื่อพัฒนาทักษะการอ่านโน้ตระบบโดเคลื่อนที่ให้กับนิสิตที่จะสามารถช่วยสร้างความทักษะในการขับร้องบทเพลง ตลอดจนพัฒนาทักษะการขับร้อง การฟังและการจดจำเสียง และทักษะทางดนตรี (Musicianship) ผู้วิจัยจึงนำบทฝึกข้างต้นมาใช้ในการจัดการเรียนการสอน เพื่อแก้ไขปัญหาด้านการอ่านโน้ตด้วยระบบโดเคลื่อนที่ของนิสิต จนกระทั่งสามารถปฏิบัติการขับร้องได้อย่างคล่องแคล่ว ทั้งนี้เพื่อให้เกิดประโยชน์สูงสุดแก่นิสิต ผู้วิจัยจะศึกษาความพึงพอใจของนิสิตเพื่อนำผลมาปรับปรุงแก้ไขการจัดการเรียนการสอนให้ดียิ่งขึ้นในอนาคต

วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบทักษะการอ่านโน้ตระบบโดเคลื่อนที่ของนิสิตเครื่องมือเอกขับร้องชั้นปีที่ 3 สาขาวิชาดุริยางคศาสตร์ คณะศิลปกรรมศาสตร์ มหาวิทยาลัยทักษิณ ระหว่างก่อนและหลังใช้แบบฝึก Move Do Flow
2. เพื่อศึกษาความพึงพอใจต่อบทฝึก Move Do Flow ของนิสิตเครื่องมือเอกขับร้อง ชั้นปีที่ 3 สาขาวิชาดุริยางคศาสตร์ คณะศิลปกรรมศาสตร์ มหาวิทยาลัยทักษิณ

แนวคิด ทฤษฎี กรอบแนวคิด

การวิจัยเชิงปฏิบัติการในชั้นเรียน

Kemmis & McTaggart (1988) การวิจัยเชิงปฏิบัติการในชั้นเรียนเป็นกระบวนการที่ผู้สอนใช้เพื่อปรับปรุงการเรียนการสอน โดยมีเป้าหมายหลัก คือ การแก้ไขปัญหาที่เกิดขึ้นระหว่างการเรียนรู้ของนักเรียน ตลอดจนพัฒนาวิธีการสอนให้มีประสิทธิภาพมากขึ้น การวิจัยลักษณะนี้เน้นการนำผลไปใช้ได้จริงและรวดเร็ว เพื่อให้สามารถปรับปรุงการเรียนรู้ได้อย่างทันท่วงที เนื่องจากการเรียนการสอนเป็นกระบวนการที่เปลี่ยนแปลงตลอดเวลา ผู้สอนจึงต้องสังเกต วิเคราะห์ และหาวิธีการใหม่ ในการช่วยให้นักเรียนเข้าใจเนื้อหาได้ดีขึ้น การวิจัยเชิงปฏิบัติการในชั้นเรียน จึงเป็นวิธีที่ช่วยให้ครูสามารถพัฒนาแนวทางการสอนได้อย่างต่อเนื่อง อีกทั้งยังเปิดโอกาสให้ครูและเพื่อนร่วมงานแลกเปลี่ยนความคิดเห็น วิเคราะห์ปัญหาร่วมกัน และร่วมกันพัฒนาคุณภาพการศึกษา ประโยชน์สำคัญของการวิจัยในลักษณะนี้ คือ การทำให้การเรียนการสอนมีประสิทธิภาพยิ่งขึ้น ส่งผลให้ผู้เรียนมีพัฒนาการทางการเรียน ที่ดีขึ้น นอกจากนี้ยังช่วยส่งเสริมวัฒนธรรมการเรียนรู้ภายในโรงเรียน ทำให้ครูมีโอกาสพัฒนาตนเองผ่านการสะท้อนผลการปฏิบัติงานและการแลกเปลี่ยนเรียนรู้กับผู้อื่น ดังนั้น การวิจัยเชิงปฏิบัติการในชั้นเรียนจึงเป็นแนวทางที่สำคัญในการยกระดับคุณภาพการศึกษาทั้งสำหรับครูและนักเรียน

ขั้นตอนในการดำเนินการวิจัยเชิงปฏิบัติการในชั้นเรียน

- ขั้นที่ 1 ขั้นการวางแผน (plan) คือ แนวทางปฏิบัติซึ่งตั้งความคาดหวังไว้เป็นการมองไปในอนาคตข้างหน้า การกำหนดแผนทั่วไปต้องมีความยืดหยุ่น เพื่อที่จะสามารถปรับให้เข้ากับความเปลี่ยนแปลงและความขัดแย้งที่อาจเกิดขึ้นได้ กิจกรรมที่เลือกเข้ามากำหนด ในการวางแผนต้องได้รับความร่วมมือในการอภิปรายเพื่อให้เกิดการวิเคราะห์และปรับปรุง การกำหนดแผนงานที่จะสามารถปฏิบัติได้จริงในสภาพการณ์ที่เป็นอยู่

- ขั้นที่ 2 ขั้นการปฏิบัติ (act) การปฏิบัติจะดำเนินตามแผนที่ได้วางแผนไว้อย่างมีเหตุผลและมีการควบคุมอย่างสมบูรณ์ แต่การปฏิบัติจากแนวทางที่วางไว้มีโอกาสพลิกผันแปรตามสถานการณ์และบุคคล แผนที่วางไว้สำหรับการปฏิบัติจะต้องสามารถปรับแก้ไขได้ และสามารถปรับปรุงไปได้เรื่อย ๆ ตามผลการตัดสินเกี่ยวกับการกระทำนั้น ๆ

- ขั้นที่ 3 การสังเกต (observe) ทำหน้าที่เก็บบันทึกข้อมูลเกี่ยวกับผลที่ได้จากการปฏิบัติงานมีรายงานหลักฐานที่มาจากวิจารณญาณ การสังเกตอย่างรอบคอบและระมัดระวังเป็นสิ่งจำเป็น เนื่องจากการปฏิบัตินั้นจะมีข้อจำกัด ข้อขัดแย้งของสภาพความเป็นจริง ข้อขัดแย้งทั้งหมดเหล่านี้ไม่ค่อยชัดเจนและไม่มีทางคาดการณ์ไว้ล่วงหน้า ข้อมูลที่ได้จากการสังเกตจะต้องมาจากการมองหลายแง่หลายมุมในทุก ๆ ด้าน ผู้วิจัยเชิงปฏิบัติการต้องรายงานผลการสังเกตกระบวนการของการปฏิบัติและผลของการปฏิบัติสังเกตสถานการณ์ของข้อขัดข้องของการปฏิบัติเพื่อให้เกิดการเปลี่ยนแปลงแผนการดำเนินงาน

- ขั้นที่ 4 การสะท้อน (reflect) การสะท้อนทำให้หวนคิดถึงการกระทำตามที่ได้บันทึกไว้จากการสังเกตและการเก็บข้อมูลอื่น ๆ เป็นการประเมินอย่างหนึ่ง ซึ่งผู้วิจัยเชิงปฏิบัติการจะต้องตัดสินใจจากประสบการณ์ของตนว่า ผลของการปฏิบัตินั้นเป็นสิ่งที่ต้องตามประสงค์หรือไม่ และสามารถให้ข้อแนะนำในการปฏิบัติต่อไป นอกจากนั้นการสะท้อนยังหมายถึงการสำรวจข้อมูลเบื้องต้นก่อนที่จะดำเนินการจริงอีกด้วย การสะท้อนข้อมูลนี้จะช่วยในการวางแผนการดำเนินการในขั้นต่อไป ที่จะเป็นไปได้สำหรับกลุ่ม และสำหรับแต่ละบุคคลด้วย

ทฤษฎีที่เกี่ยวกับวิธีการอ่านโน้ตดนตรีสากล

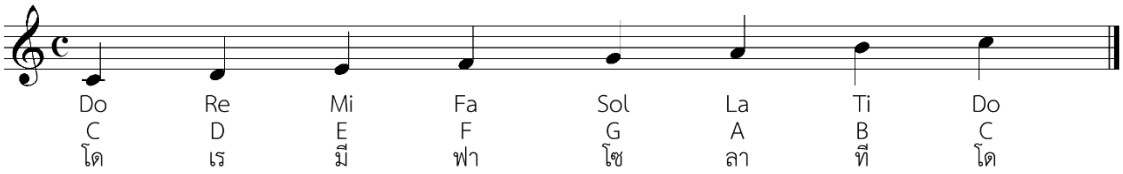
ทฤษฎีที่เกี่ยวข้องกับวิธีการการอ่านโน้ตดนตรีสากลนั้น ณรุทธ์ สุทธจิตต์ (2555) กล่าวว่า การอ่านโน้ตด้วยหลักการของโคดายนั้นมีหลากหลายทั้งการอ่านสัญญาณมือ (Hand Signal) และการใช้สัญลักษณ์จังหวะ สำหรับการใช้ระบบเรียกชื่อตัวโน้ตด้วยภาษาละติน คือ โด เร มี ฟา โซ ลา ที โดยให้ตัวโน้ตโทนิค คือ ตัวโด ในบันไดเสียงเมเจอร์ และลาในบันไดเสียงไมเนอร์ เคลื่อนที่ไปตามบันไดเสียงต่าง ๆ และเรียกชื่อตัวโน้ตโดยใช้อักษรโรมัน คือ A B C D E F G แทน ลา ที โด เร มี ฟา โซ ควบคู่ไปด้วยกัน เพื่อให้ผู้เรียนจดจำเสียงได้ การอ่านโน้ตมีหลากหลายรูปแบบแต่ที่นิยมใช้ในการเรียนการสอนระดับอุดมศึกษาแบ่งออกเป็น 2 วิธีการ ได้แก่ การอ่านโน้ตแบบระดับโดคงที่ (Fixed Do) การอ่านโน้ตแบบโดเคลื่อนที่ (Moveable Do) โดยมีรายละเอียดดังนี้

1. การอ่านโน้ตแบบระบบโดคงที่ (Fixed Do) เป็นวิธีการอ่านโน้ตที่ใช้กันโดยทั่วไปโดยเฉพาะการปฏิบัติเครื่องดนตรี มีวิธีการอ่านออกเสียงเป็น โด(Do) เร(Re) มี(Mi) ฟา(Fa) โซ(Sol) ลา(La) ที(Ti) แบบไม่มีการปรับเปลี่ยนตำแหน่งและระดับเสียงโน้ต โดยเสียงโน้ตจะมีค่าคงที่และอ่านออกเสียงตามตัวโน้ตในบันไดเสียงนั้น ๆ ซึ่งแตกต่างจาก Movable Do ที่ “โด” สามารถเปลี่ยนตำแหน่งไปตามโทนิค (Tonic) ของบันไดเสียง ดังตารางที่ 1 วิธีการอ่านโน้ตแบบระบบโดคงที่

ตารางที่ 1 วิธีการอ่านโน้ตแบบระบบโดคงที่

เสียงโน้ต	ตัวอักษร	วิธีการอ่าน
Do	C	โด
Re	D	เร
Mi	E	มี
Fa	F	ฟา
Sol	G	โซ
La	A	ลา
Ti	B	ที

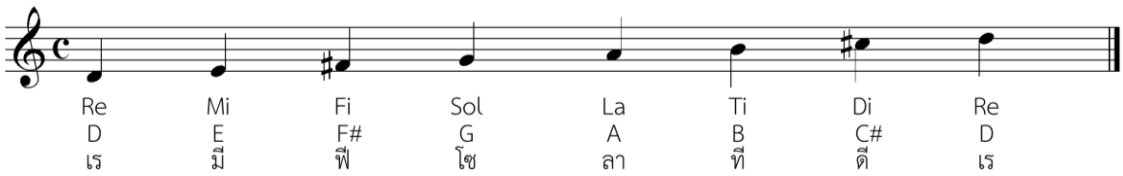
บันไดเสียง C Major



ภาพที่ 1 ตัวอย่างการอ่านโน้ตด้วยระบบโดคงที่ในบันไดเสียง C Major

เมื่อบันไดเสียงใดก็ตามที่มีโน้ตเสียงชาร์ปหรือโน้ตเสียงแฟลตอยู่ด้วยในบันไดเสียง หากอ่านโน้ตด้วยระบบโดคงที่ ผู้ฝึกจะต้องออกเสียงโน้ตชาร์ปหรือแฟลตนั้นให้ถูกต้องตามวิธีการด้วย นั่นคือ ถ้าเป็นโน้ตชาร์ปให้เปลี่ยนเป็นเสียง i หรือ อี และ ถ้าเป็นโน้ตแฟลตให้เปลี่ยนเป็นเสียง e หรือ เอ ตามระบบบันไดเสียงโครมาติก ยกตัวอย่าง เสียงโน้ต F# อ่านว่า ฟี เสียงโน้ต C# อ่านว่า ดี ดังภาพที่ 2 ตัวอย่างการอ่านโน้ตด้วยระบบโดคงที่ในบันไดเสียง D Major

บันไดเสียง D Major

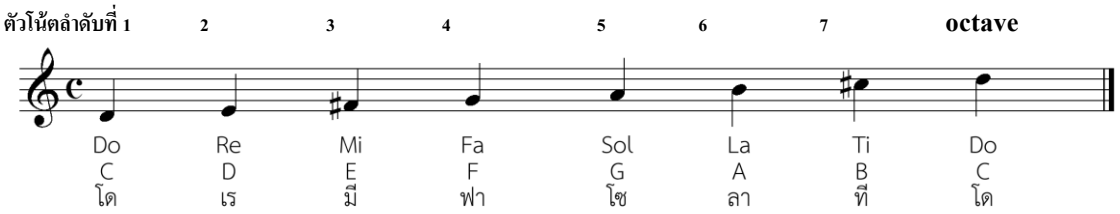


ภาพที่ 2 ตัวอย่างการอ่านโน้ตด้วยระบบโดคงที่ในบันไดเสียง D Major

2. การอ่านโน้ตด้วยระบบโดเคลื่อนที่ (Moveable Do) จะยึดวิธีการอ่านโน้ตจากบันไดเสียงเมเจอร์ 7 เสียงเป็นหลัก ได้แก่ Do Re Mi Fa Sol La Ti โดยที่โน้ตเสียงโดจะเป็นโน้ตโทนิค (Tonic) กล่าวคือตัวโน้ตลำดับที่ 1 ของบันไดเสียงให้อ่านออกเสียงเป็น “โด” จากนั้นตัวโน้ตลำดับที่ 2 ของบันไดเสียงให้อ่านออกเสียงเป็น “เร” ซึ่งเสียงโน้ตลำดับต่อจากนั้นจะแปรเปลี่ยนตามบันไดเสียงเมเจอร์นั่นคือ Do Re Mi Fa Sol La ทั้งนี้ เมื่อผู้ฝึกอ่านโน้ตด้วยระบบโดเคลื่อนที่แล้วไม่จำเป็นต้องออกเสียงโน้ตชาร์ปหรือแฟลตอีกต่อไป

ตารางที่ 2 วิธีการอ่านโน้ตด้วยระบบโดเคลื่อนที่

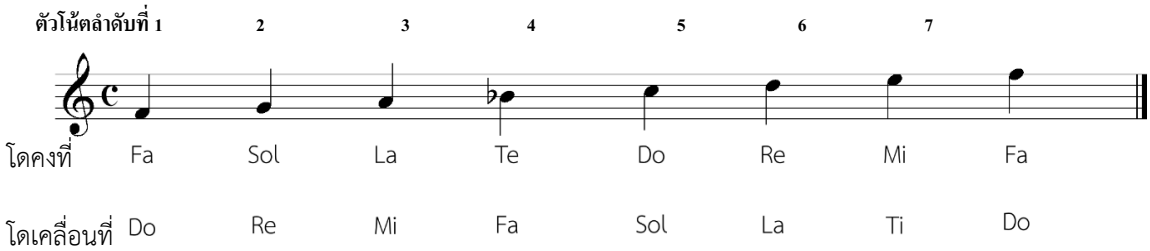
ลำดับของตัวโน้ต	วิธีการอ่าน	
ตัวโน้ตลำดับที่ 1 ของบันไดเสียง	Do	โด
ตัวโน้ตลำดับที่ 2 ของบันไดเสียง	Re	เร
ตัวโน้ตลำดับที่ 3 ของบันไดเสียง	Mi	มี
ตัวโน้ตลำดับที่ 4 ของบันไดเสียง	Fa	ฟา
ตัวโน้ตลำดับที่ 5 ของบันไดเสียง	Sol	โซ
ตัวโน้ตลำดับที่ 6 ของบันไดเสียง	La	ลา
ตัวโน้ตลำดับที่ 7 ของบันไดเสียง	Ti	ที



ภาพที่ 3 ตัวอย่างการอ่านโน้ตด้วยระบบโดเคลื่อนที่ในบันไดเสียง D Major

จากภาพที่ 3 แสดงตัวอย่างการอ่านโน้ตด้วยระบบโดเคลื่อนที่ในบันไดเสียง D Major ซึ่งสามารถอธิบายวิธีการอ่านโน้ตในบันไดเสียงด้วยระบบโดเคลื่อนที่ได้ดังนี้

โน้ต D เป็นตัวโน้ตลำดับที่ 1 ของบันไดเสียง อ่านออกเสียงว่า “โด”
โน้ต E เป็นตัวโน้ตลำดับที่ 2 ของบันไดเสียง อ่านออกเสียงว่า “เร”
โน้ต F# เป็นตัวโน้ตลำดับที่ 3 ของบันไดเสียง อ่านออกเสียงว่า “มี”
โน้ต G เป็นตัวโน้ตลำดับที่ 4 ของบันไดเสียง อ่านออกเสียงว่า “ฟา”
โน้ต A เป็นตัวโน้ตลำดับที่ 5 ของบันไดเสียง อ่านออกเสียงว่า “โซ”
โน้ต B เป็นตัวโน้ตลำดับที่ 6 ของบันไดเสียง อ่านออกเสียงว่า “ลา”
โน้ต C# เป็นตัวโน้ตลำดับที่ 7 ของบันไดเสียง อ่านออกเสียงว่า “ที”



ภาพที่ 4 เปรียบเทียบวิธีการอ่านโน้ตด้วยระบบโดคงที่กับระบบโดเคลื่อนที่ ในบันไดเสียง F Major

จากภาพที่ 4 แสดงตัวอย่างการอ่านโน้ตด้วยระบบโดคงที่กับระบบโดเคลื่อนที่ ในบันไดเสียง F Major ซึ่งสามารถอธิบายวิธีการอ่านโน้ตในบันไดเสียงด้วยระบบโดเคลื่อนที่ได้ดังนี้

โน้ต F เป็นตัวโน้ตลำดับที่ 1 ของบันไดเสียง อ่านออกเสียงว่า “โด”
โน้ต G เป็นตัวโน้ตลำดับที่ 2 ของบันไดเสียง อ่านออกเสียงว่า “เร”
โน้ต A เป็นตัวโน้ตลำดับที่ 3 ของบันไดเสียง อ่านออกเสียงว่า “มี”
โน้ต Bb เป็นตัวโน้ตลำดับที่ 4 ของบันไดเสียง อ่านออกเสียงว่า “ฟา”
โน้ต C เป็นตัวโน้ตลำดับที่ 5 ของบันไดเสียง อ่านออกเสียงว่า “โซ”
โน้ต D เป็นตัวโน้ตลำดับที่ 6 ของบันไดเสียง อ่านออกเสียงว่า “ลา”
โน้ต E เป็นตัวโน้ตลำดับที่ 7 ของบันไดเสียง อ่านออกเสียงว่า “ที”

ถ้าเป็นบันไดเสียงไมเนอร์นั้นเมื่อผู้ฝึกอ่านโน้ตด้วยระบบโดเคลื่อนที่ให้ผู้ฝึกยึดวิธีการอ่านโน้ตจากบันไดเสียงเนเจอรัลไมเนอร์เป็นหลัก ได้แก่ La Ti Do Re Mi Fa Sol La โดยที่โน้ตเสียงลาจะเป็นโน้ตโทนิค กล่าวคือตัวโน้ตลำดับที่ 1 ของบันไดเสียงไมเนอร์นั้นให้อ่านออกเสียงเป็น “ลา” จากนั้นตัวโน้ตลำดับที่ 2 ของบันไดเสียงให้อ่านออกเสียงเป็น “ที” ซึ่งเสียงโน้ตลำดับต่อจากนั้นจะแปรเปลี่ยนตามบันไดเสียงไมเนอร์ นั่นคือ La Ti Do Re Mi Fa Sol La ดังภาพที่ 5 ตัวอย่างการอ่านโน้ตด้วยระบบโดเคลื่อนที่ในบันไดเสียง B ไมเนอร์



ภาพที่ 5 ตัวอย่างการอ่านโน้ตด้วยระบบโดเคลื่อนที่ในบันไดเสียง B เนเจอรัลไมเนอร์

จากภาพที่ 5 ตัวอย่างการอ่านโน้ตด้วยระบบโดเคลื่อนที่ในบันไดเสียง B เนเจอรัลไมเนอร์สามารถอธิบายวิธีการอ่านโน้ตด้วยระบบโดเคลื่อนที่ได้ดังนี้

โน้ต B เป็นตัวโน้ตลำดับที่ 1 ของบันไดเสียง อ่านออกเสียงว่า “ลา”
โน้ต C# เป็นตัวโน้ตลำดับที่ 2 ของบันไดเสียง อ่านออกเสียงว่า “ที”
โน้ต D เป็นตัวโน้ตลำดับที่ 3 ของบันไดเสียง อ่านออกเสียงว่า “โด”
โน้ต E เป็นตัวโน้ตลำดับที่ 4 ของบันไดเสียง อ่านออกเสียงว่า “เร”
โน้ต F# เป็นตัวโน้ตลำดับที่ 5 ของบันไดเสียง อ่านออกเสียงว่า “มี”
โน้ต G เป็นตัวโน้ตลำดับที่ 6 ของบันไดเสียง อ่านออกเสียงว่า “ฟา”
โน้ต A เป็นตัวโน้ตลำดับที่ 7 ของบันไดเสียง อ่านออกเสียงว่า “โซ”

การอ่านโน้ตแบบระบบโดคงที่และระบบโดเคลื่อนที่ นั้นเป็นทักษะพื้นฐานของนิสิตระดับปริญญาตรีที่ควรอ่านโน้ตด้วยความคล่องแคล่วแม่นยำเพื่อจะสามารถนำทักษะดังกล่าวไปใช้บรรเลงกับเครื่องดนตรีของตนเองและฝึกฝนการอ่านโน้ตในสัดส่วนที่ซับซ้อนมากขึ้นในอนาคต

งานวิจัยที่เกี่ยวข้อง

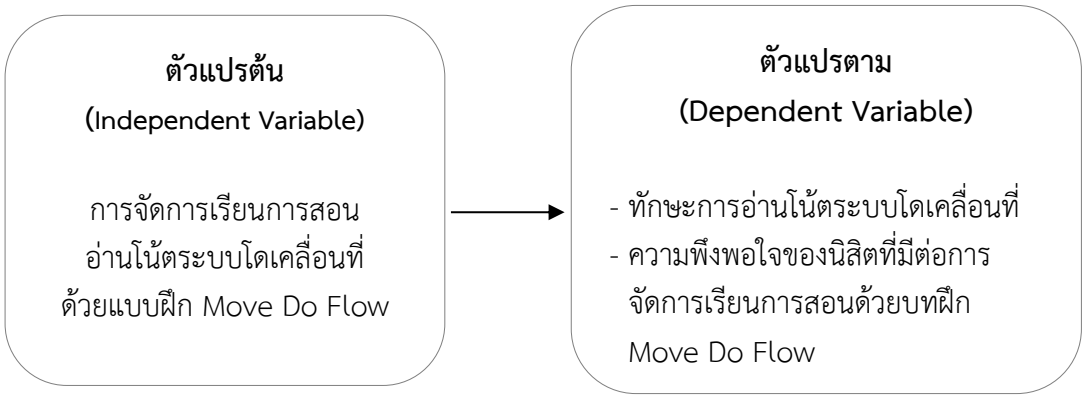
การฝึกร้องแบบ Movable Do นั้นสามารถช่วยแก้ปัญหาการร้องโน้ตเพี้ยน ดังที่ แก้วกาญจน์ ชื่นเป็นนิจ และดวงใจ ทิวทอง (2559) ได้กล่าวไว้ว่าระหว่างการฝึกซ้อมการแสดงคอนเสิร์ตนั้น มักพบปัญหาเรื่องระดับเสียง (Pitch) ไม่แม่นยำเท่าที่ควรทำให้เกิดการติดขัดการในสื่อสารอารมณ์เพลง ซึ่งการร้องชื่อโน้ตตามบันไดเสียงลงไปด้วยระบบ Move Do ของกุญแจเสียงนั้น ๆ จากส่วนของจุดที่มีโน้ตโครมาติกมากและร้องเร็วพร้อมกับการเล่นเปียโนจะทำให้การร้องนั้นดีขึ้นเรื่อย ๆ

เกียรติรัตน์ หุ่นสุวรรณ (2565) การพัฒนาทักษะการบรรเลงซออู้โดยใช้แบบฝึกต้นเพลงฉิ่งของนักศึกษาชั้นปีที่ 1 สาขาวิชาดนตรีศึกษา คณะมนุษยศาสตร์และสังคมศาสตร์ มหาวิทยาลัยราชภัฏเทพสตรี พบว่า ผลการพัฒนาทักษะการบรรเลงซออู้ให้มีคุณภาพโดยใช้แบบฝึกเพลงต้นเพลงฉิ่งหลังเรียนสูงกว่าก่อนเรียน และนักศึกษามีความพึงพอใจต่อการจัดการเรียนการสอนด้วยแบบฝึกเพลงต้นเพลงฉิ่งอยู่ในระดับมากที่สุด

ฉัตรวลี ทองคำ (2557) ศึกษาประสิทธิผลการเล่นไวโอลินระดับพื้นฐานด้วยวิธีการร้องโน้ตสากลแบบโดเคลื่อนที่ พบว่า เมื่อผู้สอนให้ผู้ฝึกได้ร้องโน้ตด้วยวิธีการโดย้ายที่ก่อนที่จะทำการบรรเลงไวโอลิน ทำให้ผู้ฝึกสามารถเล่นบทเพลงได้ตามกำหนดและถูกต้องมากที่สุด คิดเป็นร้อยละ 70 ของจำนวนผู้เรียนที่เรียนจากแบบฝึกหัดการร้องโน้ตสากลที่สร้างขึ้น

กรอบแนวคิดการวิจัย

ผู้วิจัยได้นำแบบฝึก Move Do Flow มาเป็นบทฝึกเพื่อพัฒนาทักษะการอ่านโน้ตระบบโดเคลื่อนที่ให้กับนิสิตชั้นปีที่ 3 เครื่องมือเอกขับร้อง โดยใช้แนวทางการจัดการเรียนการสอนตามกรอบแนวคิดการวิจัย ดังนี้



ภาพที่ 6 กรอบแนวคิดในการวิจัย

วิธีดำเนินการวิจัย

1.ประชากร

1.1 ประชากรที่ใช้ในการวิจัย ได้แก่ นิสิตกลุ่มเครื่องมือเอกขับร้อง สาขาวิชาดุริยางคศาสตร์ คณะศิลปกรรมศาสตร์ มหาวิทยาลัยทักษิณ จำนวน 40 คน

1.2 กลุ่มตัวอย่างที่ใช้ในการวิจัย ได้แก่ นิสิตกลุ่มเครื่องมือเอกขับร้อง สาขาวิชาดุริยางคศาสตร์ ชั้นปีที่ 3 คณะศิลปกรรมศาสตร์ มหาวิทยาลัยทักษิณ ที่ลงทะเบียนเรียนในรายวิชาทักษะดนตรี 6 รหัสวิชา

0604346 ภาคเรียนที่ 2/2567 จำนวน 7 คน

2. เครื่องมือที่ใช้ในการวิจัย

2.1 แบบฝึก Move Do Flow มีจำนวน 5 บทฝึก นำไปใช้สำหรับการพัฒนาทักษะการอ่านโน้ตด้วยระบบโดเคลื่อนที่ของนิสิตเครื่องมือเอกขับร้อง ในรายวิชาทักษะดนตรี 6 รหัสวิชา 0604346 โดยใช้เวลาฝึกทั้งหมด 5 ครั้ง ครั้งละ 2 ชั่วโมง รวมทั้งสิ้น 10 ชั่วโมง และมีการเก็บคะแนนก่อนนำไปใช้และหลังนำไปใช้เป็นจำนวนทั้งสิ้น 50 คะแนน ผู้วิจัยได้ให้ผู้เชี่ยวชาญตรวจสอบวิธีการคำนวณหาค่าดัชนีความสอดคล้อง (ICO) ผลที่ได้คือ 0.69 ซึ่งเป็นไปตามเกณฑ์ที่กำหนดไว้ คือ ค่าดัชนีความสอดคล้องมากกว่าหรือเท่ากับ 0.60 ให้คงไว้ หากมีค่าต่ำกว่า 0.50 แสดงว่าจะต้องแก้ไขหรือปรับปรุง จากนั้นผู้วิจัยนำไปหาค่าประสิทธิภาพโดยใช้สูตร (E1/E2) ตามขั้นตอนของกฤษมันต์ วัฒนาณรงค์ (2538) ผู้วิจัยนำแบบฝึกไปทดลองกับกลุ่มนิสิตที่มีคุณสมบัติใกล้เคียงกับกลุ่มเป้าหมาย โดยแบ่งเป็น 3 ขั้นตอน คือ 1.การทดลองเดี่ยวกับนิสิต 2.การทดลองกลุ่ม โดยแบ่งกลุ่มละ 5 คน จำนวน 3 กลุ่ม เพื่อฝึกปฏิบัติการขับร้องร่วมกัน 3. นำไปใช้กับนิสิต จำนวน 7 คน เพื่อฝึกปฏิบัติการขับร้องและนำเสนอการขับร้องในห้องเรียนดนตรี นำผลที่ได้และปัญหาที่ได้มาปรับปรุงแก้ไข ซึ่งจากการใช้แบบฝึก Move Do Flow พบว่า ผู้เรียนมีผลคะแนนที่ได้จากการประเมินระหว่างเรียน คิดเป็นร้อยละ 71.20/76.30 สูงกว่าเกณฑ์ที่ผู้วิจัยได้กำหนดไว้

2.2 แบบประเมินความพึงพอใจต่อการเรียนรู้จากการสอนอ่านโน้ตระบบโดเคลื่อนที่ ด้วยบทฝึก Move Do Flow ของนิสิตกลุ่มเครื่องมือเอกขับร้อง ชั้นปีที่ 3 สาขาวิชาดุริยางคศาสตร์ คณะศิลปกรรมศาสตร์ มหาวิทยาลัยทักษิณ ในรายวิชาทักษะดนตรี 6 รหัสวิชา 0604346 ภาคเรียนที่ 2/2567 เป็นแบบมาตราส่วนประมาณค่า (Rating Scale) มี 5 ระดับ ได้แก่ มากที่สุด มาก ปานกลาง น้อย และน้อยที่สุด วัดประเมินใน 3 ด้าน คือ ด้านความพึงพอใจด้านเนื้อหา ด้านกิจกรรมการเรียนการสอน และด้านความพึงพอใจในการวัดและประเมิน โดยผู้เชี่ยวชาญตรวจสอบด้วยวิธีการหาค่าดัชนีความสอดคล้อง ได้ค่าระหว่าง 0.67–1.00 แล้วนำไปทดลองก่อนนำไปใช้กับกลุ่มตัวอย่าง จำนวน 10 คน เพื่อค่าความเชื่อมั่นทั้งฉบับมีค่าเท่ากับ 0.78

3. การเก็บรวบรวมข้อมูล

3.1 ขั้นก่อนการทดลอง

- ชี้แจงและทำความเข้าใจแก่นิสิตเกี่ยวกับรายละเอียดต่าง ๆ รวมถึงชี้แจงการนำบทฝึก Move Do Flow มาใช้พัฒนาทักษะการอ่านโน้ตในชั้นเรียน
- ทดสอบก่อนเรียนเพื่อประเมินความรู้ความเข้าใจด้านการปฏิบัติอ่านโน้ตด้วยระบบโดเคลื่อนที่ จำนวน 30 คำถาม
- ทบทวนองค์ความรู้ของนิสิต เกี่ยวกับทฤษฎีดนตรีและหลักการปฏิบัติทักษะการอ่านโน้ตก่อนเข้าเนื้อหาบทเรียน
- บรรยายพร้อมสาธิตวิธีการปฏิบัติการอ่านโน้ตด้วยระบบโดเคลื่อนที่ พร้อมให้นิสิตปฏิบัติตามผู้สอน
- ประเมินความเข้าใจและสังเกตพฤติกรรมของนิสิต ด้วยการซักถามรายบุคคลและให้นิสิตสาธิตการร้องโน้ตจากโจทย์ที่ผู้สอนกำหนดไว้

3.2 ขั้นทดลอง

จากขั้นก่อนการทดลองผู้สอนได้ทำการทดสอบก่อนเรียน ทบทวนความรู้ด้านทฤษฎีดนตรีและหลักการปฏิบัติทักษะการอ่านโน้ต ตลอดจนการบรรยาย สาธิตวิธีการปฏิบัติการอ่านโน้ตด้วย

ระบบโดเคลื่อนที่ และประเมินความเข้าใจและสังเกตพฤติกรรมของนิสิตเรียบร้อยแล้วสำหรับวิชาทักษะดนตรี 6 มีระยะเวลาการเรียนการสอน จำนวน 4 ชั่วโมง โดยชั่วโมงที่ 1 ถึง ชั่วโมงที่ 2 ผู้สอนกำหนดให้เป็นการปฏิบัติบทฝึก และชั่วโมงที่ 3 - ชั่วโมงที่ 4 ให้ผู้เรียนฝึกขับร้องบทเพลง สำหรับขั้นทดลอง ผู้สอนกำหนดการใช้บทฝึก Move Do Flow ทั้งหมด 5 บทฝึก ตามลำดับดังนี้

บทฝึกลำดับที่ 1 ลำนำร้องเรือ อยู่ในกุญแจเสียง A minor
บทฝึกลำดับที่ 2 เงาหนังตะลุง อยู่ในกุญแจเสียง F Major
บทฝึกลำดับที่ 3 โนราร่ำลึก อยู่ในกุญแจเสียง E minor
บทฝึกลำดับที่ 4 อีแอ่นกล่อมลูก อยู่ในกุญแจเสียง D Major
บทฝึกลำดับที่ 5 ลมทะเลรองเง็ง อยู่ในกุญแจเสียง D minor

นำบทฝึก Move Do Flow มาใช้กับนิสิตคาบเรียนละ 1 บทฝึก รวมทั้งหมด 5 ครั้ง แต่ละคาบเรียนมีกระบวนการเรียนการสอน ดังนี้

1. ขั้นนำเข้าสู่บทเรียน

- กระตุ้นให้ผู้เรียนเห็นความสำคัญของการฝึกปฏิบัติการร้องโน้ต พร้อมทั้งทบทวนเนื้อหาการอ่านโน้ตด้วยระบบโดเคลื่อนที่เพื่อให้นิสิตสามารถเชื่อมโยงความเข้าใจไปสู่การใช้บทฝึก Move Do Flow

2. ขั้นสอนและฝึกปฏิบัติการ

- แต่ละบทฝึกนั้นผู้วิจัยจะทำการบรรยายพร้อมสาธิตวิธีการขับร้องพร้อมให้นิสิตปฏิบัติตาม

- ประเมินความเข้าใจและสังเกตพฤติกรรมของนิสิต โดยการซักถามรายบุคคลพร้อมให้นิสิตสาธิตการร้องโน้ตอีกครั้งเพื่อประเมินความเข้าใจและสังเกตพฤติกรรม

- มอบหมายความรับผิดชอบให้นิสิตฝึกซ้อมและทบทวนความเข้าใจด้วยตนเองโดยใช้เวลาในคาบเรียนจำนวน 30 นาที ระหว่างการฝึกซ้อมนั้นผู้วิจัยจะสังเกตพฤติกรรม หากนิสิตเกิดความสงสัยหรือต้องการคำแนะนำเพิ่มเติม ผู้วิจัยจะช่วยแนะนำและอธิบายเพิ่มเติมจนกว่านิสิตจะสามารถปฏิบัติได้อย่างเข้าใจและเพื่อให้นิสิตมีพัฒนาการดีขึ้น

3. ขั้นสรุป

- ผู้วิจัยตรวจสอบความเข้าใจ และความสามารถในการปฏิบัติการขับร้องโน้ตด้วยระบบโดเคลื่อนที่โดยให้นิสิตขับร้องบทฝึกหน้าชั้นเรียน แล้วให้ข้อมูลย้อนกลับเพื่อการปรับปรุง หากนิสิตยังไม่สามารถปฏิบัติบทฝึกได้อย่างคล่องแคล่ว ผู้วิจัยจะทำการเสริมแรงเชิงบวกให้แก่นิสิตเพื่อสร้างกำลังใจพร้อมให้เพื่อนร่วมชั้นเรียนช่วยกันเสริมแรงด้วย

- หลังจากการเรียนและปฏิบัติบทฝึกในชั้นเรียนแล้ว ผู้วิจัยได้มอบหมายความรับผิดชอบให้นิสิตได้ฝึกซ้อมบทฝึกในระหว่างสัปดาห์ โดยให้นิสิตบันทึกคลิปวิดีโอการฝึกซ้อมแล้วนำส่งผู้วิจัยผ่านกลุ่มไลน์ หากพบว่านิสิตมีข้อผิดพลาดผู้วิจัยจะทำการให้ข้อมูลย้อนกลับเพื่อการปรับปรุง

3.3 ขั้นหลังการทดลอง

- เมื่อเรียนบทฝึกครบทั้งหมดแล้ว ผู้สอนจะทำการทดสอบความรู้ความเข้าใจด้านการปฏิบัติอ่านโน้ตด้วยระบบโดเคลื่อนที่ จำนวน 30 คำถาม และให้นิสิตตอบแบบประเมินความพึงพอใจ

- เขียนรายงานวิจัยในชั้นเรียน

4. การวิเคราะห์ข้อมูล

4.1 คะแนนที่ได้จากการพัฒนาทักษะการอ่านโน้ตด้วยระบบโดเคลื่อนที่ นำมาหาค่าเฉลี่ย ($\bar{x}$) และค่าส่วนเบี่ยงเบนมาตรฐาน (S.D)

4.2 คะแนนที่ได้จากความพึงพอใจของนิสิตที่มีต่อแบบฝึกนำมาค่าคะแนนเฉลี่ย ($\bar{x}$) และค่าส่วนเบี่ยงเบนมาตรฐาน (S.D)

เกณฑ์ที่ใช้ในการแปลผลผู้วิจัยใช้เกณฑ์ของสมศักดิ์ ภู่วิภาดาวรรธน์ (2554)

ค่าเฉลี่ย 4.51 – 5.00 หมายถึง อยู่ในระดับมากที่สุด
ค่าเฉลี่ย 3.51 – 4.50 หมายถึง อยู่ในระดับมาก
ค่าเฉลี่ย 2.51 – 3.50 หมายถึง อยู่ในระดับปานกลาง
ค่าเฉลี่ย 1.51 – 2.50 หมายถึง อยู่ในระดับน้อย
ค่าเฉลี่ย 1.00 – 1.50 หมายถึง อยู่ในระดับน้อยที่สุด

ผลการวิจัย

1. ผลการพัฒนาทักษะการอ่านโน้ตระบบโดเคลื่อนที่ของนิสิตเครื่องมือเอกขับร้อง ชั้นปีที่ 3 สาขาวิชาดุริยางคศาสตร์ คณะศิลปกรรมศาสตร์ มหาวิทยาลัยทักษิณ ด้วยแบบฝึก Move Do Flow

ตารางที่ 3 ผลการพัฒนาทักษะการอ่านโน้ตระบบโดเคลื่อนที่โดยใช้แบบฝึก Move Do Flow

การทดสอบ	ข้อคำถาม	คะแนนเต็ม	ค่าเฉลี่ย ($\bar{x}$)	ส่วนเบี่ยงเบนมาตรฐาน
ก่อนเรียน	30	80	65.30	2.60
หลังเรียน	30	80	76.21	2.63

จากตารางที่ 3 พบว่า นิสิตมีผลการทดสอบก่อนเรียน มีค่าเฉลี่ยเท่ากับ 65.30 ส่วนเบี่ยงเบนมาตรฐาน 2.60 และมีการทดสอบหลังเรียน มีค่าเฉลี่ยเท่ากับ 76.21 ส่วนเบี่ยงเบนมาตรฐาน 2.63 ดังนั้นจึงสรุปได้ว่า นิสิตมีทักษะการอ่านโน้ตระบบโดเคลื่อนที่สูงกว่าก่อนเรียน

2. ผลการศึกษาความพึงพอใจของนิสิตเครื่องมือเอกขับร้อง ชั้นปีที่ 3 สาขาวิชาดุริยางคศาสตร์ คณะศิลปกรรมศาสตร์ มหาวิทยาลัยทักษิณ หลังจากใช้แบบฝึก Move Do Flow

ตารางที่ 4 ผลการศึกษาความพึงพอใจของนิสิตหลังจากใช้แบบฝึก Move Do Flow

ข้อ	ข้อคำถาม	ระดับความพึงพอใจ		
		ค่าเฉลี่ย ($\bar{x}$)	S.D.	แปลความ
1	การเรียนด้วยแบบฝึก Move Do Flow สามารถทำให้สามารถพัฒนาทักษะการอ่านโน้ตระบบโดเคลื่อนที่	4.27	0.75	มาก
2	เนื้อหาบทฝึกสามารถสื่อความหมายให้นิสิตเข้าใจการอ่านโน้ตระบบโดเคลื่อนที่ได้ดี	4.18	0.94	มาก
3	การเรียนด้วยแบบฝึก Move Do Flow ช่วยให้นิสิตสามารถเข้าใจวิธีการอ่านโน้ตระบบโดเคลื่อนได้มาก	4.55	0.66	มากที่สุด

	ยิ่งขึ้น			
4	ความยาวของบทฝึกมีความเหมาะสมและช่วยสร้างความเพลิดเพลินให้กับนิสิตได้ดี	3.82	0.72	มาก
5	ปริมาณของบทฝึกเหมาะสมกับเวลาเรียน	4.18	0.57	มาก
6	ความยากง่ายของบทฝึกเหมาะสมกับระดับของนิสิต	3.64	0.98	มาก
7	นิสิตสามารถนำความรู้ที่ได้จากบทฝึกไปประยุกต์ใช้ได้จริง	4.00	0.63	มาก
8	ผู้สอนสามารถถ่ายทอดความรู้ ตลอดจนการส่งเสริมให้นิสิตมีส่วนร่วมในการแสดงความคิดเห็น	4.64	0.94	มากที่สุด
9	การวัดและประเมินผลมีความเหมาะสมตามวัตถุประสงค์ในการเรียน	4.45	0.76	มาก
10	ความพึงพอใจโดยรวมต่อบทฝึก Move Do Flow	4.45	0.86	มาก
	เฉลี่ย	**4.22**	**0.78**	**มาก**

จากตารางที่ 4 พบว่า ความพึงพอใจของนิสิตที่เรียนด้วยบทฝึก Move Do Flow อยู่ในระดับมาก ($\bar{X}$ = 4.22, S.D. = 0.78) ภาพรวมความพึงพอใจของนิสิตที่มีต่อบทฝึก Move Do Flow อยู่ในระดับมาก ($\bar{X}$ = 4.45, S.D. = 0.86) ทั้งนี้ข้อคำถามที่มีค่าเฉลี่ยมากที่สุด ได้แก่ ด้านความสามารถในการถ่ายทอดความรู้ตลอดจนการส่งเสริมให้นิสิตมีส่วนร่วมในการแสดงความคิดเห็น อยู่ในระดับมากที่สุด ($\bar{X}$ = 4.64, S.D. = 0.94) รองลงมา คือ ด้านการเรียนด้วยแบบฝึก Move Do Flow ช่วยให้นิสิตสามารถเข้าใจวิธีการอ่านโน้ตระบบโดเคลื่อนได้มากยิ่งขึ้น อยู่ในระดับมากที่สุด ($\bar{X}$ = 4.55, S.D. = 0.66) การวัดและประเมินผลมีความเหมาะสมตามวัตถุประสงค์ในการเรียน อยู่ในระดับมาก ($\bar{X}$ = 4.45, S.D. = 0.76) ตามลำดับ ส่วนข้อคำถามที่มีค่าเฉลี่ยน้อยที่สุด ได้แก่ ความยากง่ายของบทฝึกเหมาะสมกับระดับของนิสิต อยู่ในระดับมาก ($\bar{X}$ = 3.64, S.D. = 0.98)

อภิปรายผล

ผลการวิจัยจากทดลองใช้แบบฝึก Move Do Flow กับนิสิตเครื่องมือเอกขับร้อง ชั้นปีที่ 3 สาขาวิชาดุริยางคศาสตร์ คณะศิลปกรรมศาสตร์ มหาวิทยาลัยทักษิณ สามารถอภิปรายผลได้ดังนี้

1. ผลการวิจัยพบว่าแบบฝึกที่พัฒนาขึ้นมีประสิทธิภาพเป็นไปตามเกณฑ์มาตรฐาน โดยมีค่าประสิทธิภาพ 71.20/76.30 ซึ่งสูงกว่าเกณฑ์ที่กำหนด (70/70) สะท้อนให้เห็นว่าแบบฝึกนี้สามารถช่วยพัฒนาทักษะการอ่านโน้ตระบบโดเคลื่อนที่ให้กับนิสิตเอกขับร้องได้ดี ปัจจัยอย่างหนึ่งที่ส่งผลต่อการพัฒนาทักษะของนิสิตเกิดจากการออกแบบบทฝึกที่คำนึงถึงลักษณะเฉพาะของนิสิตเอกขับร้อง ซึ่งอาจไม่ได้มีทักษะการอ่านโน้ตที่คล่องแคล่วเท่ากับนิสิตที่เรียนเครื่องดนตรีอื่น โดยกำหนดอัตราจังหวะ สัดส่วนของโน้ต เสียงโน้ต โดยเฉพาะการเลือกบันไดเสียงที่ไม่ยากจนเกินไปและเอื้อต่อการพัฒนาและฝึกฝนการร้องเพลงอย่างเป็นระบบ ช่วยให้นิสิตสามารถเรียนรู้และพัฒนาทักษะได้อย่างเป็นขั้นเป็นตอน เมื่อนำไปใช้จริงพบว่า นิสิตมีพัฒนาการที่ดีขึ้นในทุกบทเรียน คะแนนของนิสิตเพิ่มขึ้นอย่างต่อเนื่อง สะท้อนให้เห็นว่าแบบฝึกนี้ไม่เพียงแต่ช่วยเสริมสร้างความสามารถในการร้องเพลงเท่านั้น แต่ยังช่วยให้นิสิตเกิดความมั่นใจและมี

แรงจูงใจในการเรียนรู้มากขึ้น นอกจากนี้ ผลการวิจัยยังสอดคล้องกับแนวคิดทางดนตรีศึกษา ซึ่งระบุว่า การเรียนรู้ดนตรีที่มีโครงสร้างชัดเจนและเหมาะสมกับนิสิตสามารถช่วยพัฒนาทักษะได้อย่างมีประสิทธิภาพ การใช้แบบฝึกที่ออกแบบมา โดยเฉพาะสำหรับนิสิตเอกขับร้องช่วยลดอุปสรรคด้านการอ่านโน้ต และส่งเสริมการเรียนรู้ที่เป็นธรรมชาติ สอดคล้องกับ Willems(1977) ที่ได้กล่าวว่า การฝึกฝนผ่านแบบฝึกที่มีโครงสร้างจะช่วยให้การเรียนรู้เป็นไปอย่างมีประสิทธิภาพ ตลอดจนการเรียนรู้แบบค่อยเป็นค่อยไป เมื่อนิสิตได้ใช้บทฝึกอย่างต่อเนื่องจะเกิดการสั่งสมทักษะทั้งด้านโสตทักษะ ทักษะการจดจำเสียง และทักษะด้านอื่นที่สามารถเกิดขึ้นได้ตลอดเวลาในขณะฝึกฝนอยู่นั้น จะส่งผลให้พัฒนาการด้านการร้องเพลงที่ดีขึ้นอย่างต่อเนื่องด้วยเช่นกัน สอดคล้องกับ แก้วกาญจน์ ชื่นเป็นนิจ และดวงใจ ทิวทอง (2559) เป็นการวิจัยเกี่ยวกับการแสดงขับร้องที่มุ่งพัฒนาทักษะการขับร้องเพลง การตีความ และการแก้ไขปัญหาต่าง ๆ ระหว่างการฝึกซ้อม จากการวิจัยข้างต้นพบว่า มีการแก้ไขปัญหาการร้องเพี้ยนโดยการร้อง Solfege โดยร้องชื่อโน้ตตามบันไดเสียงด้วยระบบ Moveable - Do คือร้องโน้ตอิงตามกุญแจเสียงที่เกิดขึ้นโดยตัวโดเป็นโทนิคของกุญแจเสียง สอดคล้องกับการวิจัยครั้งนี้ ที่นอกเหนือจากการพัฒนาทักษะการอ่านโน้ตระบบโดเคลื่อนที่แล้ว ผู้วิจัยยังต้องการให้นิสิตสามารถพัฒนาทักษะการร้องเพลงให้ตรงตามเสียงโน้ตอย่างถูกต้องด้วย

แม้ว่าผลการวิจัยจะแสดงให้เห็นว่าแบบฝึกมีประสิทธิภาพสูงกว่าเกณฑ์ที่กำหนด แต่ยังมีปัจจัยที่อาจต้องพิจารณาเพิ่มเติม เช่น ความแตกต่างของระดับพื้นฐานทางดนตรีของนิสิตแต่ละคน ระยะเวลาที่ใช้ในการฝึกซ้อมของนิสิต และปัจจัยด้านอารมณ์และแรงจูงใจที่ส่งผลต่อการพัฒนาทักษะ ในอนาคต อาจมีการปรับปรุงแบบฝึกให้มีความยืดหยุ่น หรือเพิ่มเทคนิคการฝึกที่หลากหลายที่สามารถช่วยเพิ่มประสิทธิภาพในการเรียนรู้ให้ดียิ่งขึ้น

2. ผลการวิจัยพบว่าความพึงพอใจของนิสิตที่เรียนด้วยบทฝึก Move Do Flow อยู่ในระดับมาก ($\bar{X}$ = 4.22, S.D. = 0.78) ด้านที่นิสิตมีความพึงพอใจมากที่สุด คือ ด้านความสามารถในการถ่ายทอดความรู้ตลอดจนการส่งเสริมให้นิสิตมีส่วนร่วมในการแสดงความคิดเห็น อยู่ในระดับมากที่สุด ($\bar{X}$ = 4.64, S.D. = 0.94) จากผลการวิจัยชี้ให้เห็นถึงความมีประสิทธิภาพของแบบฝึกในการถ่ายทอดความรู้และส่งเสริมให้นิสิตมีส่วนร่วมในการแสดงความคิดเห็นแสดงให้เห็นว่าการเรียนรู้ด้วยแบบฝึก Move Do Flow ไม่ได้เป็นเพียงการฝึกฝนทักษะด้านการร้องเพลงเท่านั้น แต่ยังช่วยให้นิสิตสามารถเข้าใจแนวคิดของดนตรีอย่างลึกซึ้งและกล้าแสดงความคิดเห็นเกี่ยวกับกระบวนการเรียนรู้ของตนเอง ช่วยให้พวกเขาสามารถเชื่อมโยงความรู้ทางทฤษฎีเข้ากับการปฏิบัติจริง ทั้งนี้ การที่ผู้สอนสามารถถ่ายทอดความรู้ได้อย่างชัดเจนและกระตุ้นให้นิสิตมีส่วนร่วมอาจเป็นผลมาจากแบบฝึกที่มีลำดับขั้นตอนที่ชัดเจน ต่อมาในด้านความพึงพอใจของนิสิตเกี่ยวกับการเรียนด้วยแบบฝึก Move Do Flow ช่วยให้นิสิตสามารถเข้าใจวิธีการอ่านโน้ตระบบโดเคลื่อนได้มากยิ่งขึ้น อยู่ในระดับมากที่สุด ($\bar{X}$ = 4.55, S.D. = 0.66) จากค่าเบี่ยงเบนมาตรฐานบ่งบอกว่านิสิตส่วนใหญ่มีความคิดเห็นไปในทิศทางเดียวกัน ซึ่งหมายความว่า แบบฝึกนี้สามารถช่วยให้นิสิตส่วนใหญ่เข้าใจการอ่านโน้ตได้ดีขึ้นจริง สอดคล้องกับ เปรื่อง กุมุท (2537) ได้กล่าวถึงปัจจัยการทำให้ผู้เรียนประสบผลสำเร็จหรือบรรลุถึงวัตถุประสงค์การเรียนรู้นั้นควรให้ความสนใจเกี่ยวกับ กระบวนการวางแผนอย่างเป็นขั้นตอน ตลอดจนการจัดเตรียมเครื่องมือ สื่อการสอน อุปกรณ์ให้เพียบพร้อมเพราะสื่อการสอนแต่ละชนิดนั้นย่อมมีส่วนช่วยเหลือให้ผู้เรียนสามารถบรรลุวัตถุประสงค์ของรายวิชาได้ นอกจากนี้ ความพึงพอใจในด้านปริมาณของบทฝึกเหมาะสมกับเวลาเรียน นิสิตมีความพึงพอใจอยู่ในระดับมาก ($\bar{X}$ = 4.18, S.D. = 0.57) แสดงให้เห็นว่าการออกแบบให้มีปริมาณและความยาวที่เหมาะสมกับกรอบเวลาใน

การเรียนรู้ทำให้นิสิตสามารถฝึกฝนได้อย่างมีประสิทธิภาพ โดยไม่รู้สึกว่าบทฝึกมากหรือน้อยจนเกินไป นิสิตสามารถฝึกฝนได้อย่างต่อเนื่องโดยไม่รู้สึกเหนื่อยล้า สอดคล้องกับธวัชชัย พิชัยยันต์ (2565) ศึกษาเกี่ยวกับความพึงพอใจของผู้เรียนที่มีต่อการสอนทฤษฎีดนตรีตามแนวคิดการสอนแบบโคดาย ความว่า ชุดการสอนที่ดีนั้นควรสามารถทำให้ผู้เรียนเกิดความเข้าใจได้ในระยะเวลาสั้น ๆ ซึ่งการสอนด้วยวิธีการแบบโคดาย จะมุ่งเน้นให้ผู้เรียนอ่านโน้ตสากลด้วยระบบซอลฟา หรือ การ Move Do เช่นเดียวกับบทฝึก Move Do Flow ที่ผู้วิจัยได้สร้างขึ้น แสดงให้เห็นว่าการอ่านโน้ตด้วยวิธีการ Move Do เป็นทักษะที่จำเป็นมากสำหรับผู้ฝึกทักษะทางดนตรี นอกจากจะช่วยพัฒนาทักษะการอ่านโน้ต การร้องเพลงได้แล้วยังส่งผลต่อการเพิ่มพูนความรู้ทางด้านทฤษฎีดนตรีตะวันตกอีกด้วย

ข้อเสนอแนะ

ข้อเสนอแนะจากการวิจัย

1. จัดเตรียมบทฝึกเพิ่มเติมเพื่อให้นิสิตสามารถนำไปฝึกฝนนอกเวลาเรียนจะช่วยเสริมสร้างและพัฒนาทักษะการอ่านโน้ตได้อย่างต่อเนื่อง

2. สนับสนุนให้นิสิตประยุกต์ใช้แบบฝึกเชื่อมโยงไปยังบทเพลงต่าง ๆ เพื่อพัฒนาความสามารถด้านการขับร้องอย่างมืออาชีพ

ข้อเสนอแนะในการวิจัยครั้งถัดไป

1.จากผลการวิจัยแสดงให้เห็นนิสิตมีความพึงพอใจอยู่ในระดับมาก อย่างไรก็ตาม ผู้สอนควรประเมินทักษะความสามารถของนิสิตก่อนเสมอโดยไม่ยึดติดกับแบบฝึกชุดนี้ ควรปรับปรุงหรือพัฒนาบทฝึกชุดใหม่เพื่อให้มีความเหมาะสมกับนิสิต

2. สามารถนำบทฝึก Move Do Flow ไปใช้ร่วมกับวิชาอื่นเพื่อให้นิสิตเกิดการเชื่อมโยงและเข้าใจเนื้อหาได้อย่างลึกซึ้ง

เอกสารอ้างอิง

กฤษมันต์ วัฒนาณรงค์. (2538). สื่อประสมในเทคโนโลยีเทคนิคศึกษา. กรุงเทพฯ: สถาบันเทคโนโลยีพระจอมเกล้าพระนครเหนือ.

เกียรติรัตน์ หุ่นสุวรรณ. (2565). การพัฒนาทักษะการบรรเลงซออู้โดยใช้แบบฝึกต้นเพลงฉิ่งของนักศึกษาชั้นปีที่ 1 สาขาวิชาดนตรีศึกษา คณะมนุษยศาสตร์และสังคมศาสตร์ มหาวิทยาลัยราชภัฏเทพสตรี. วารสารวิชาการคณะมนุษยศาสตร์และสังคมศาสตร์ มหาวิทยาลัยราชภัฏเทพสตรี, 13(1), 99–112. https://so01.tci-thaijo.org/index.php/truhusocjo/article/view/250504

แก้วกาญจน์ ชื่นเป็นนิจ และดวงใจ ทิวทอง. (2559). การแสดงขับร้องเดี่ยวโดย แก้วกาญจน์ ชื่นเป็นนิจ [วิทยานิพนธ์ศิลปกรรมศาสตรมหาบัณฑิต, จุฬาลงกรณ์มหาวิทยาลัย]. คลังปัญญาจุฬาฯ. https://doi.org/10.58837/CHULA.THE.2016.363

ฉัตรวลี ทองคำ. (2557). การศึกษาประสิทธิผลการเล่นไวโอลินระดับพื้นฐาน ด้วยวิธีการร้องโน้ตสากลแบบโดย้ายที่. วารสารสังคมศาสตร์วิชาการ, 7(1), 85-95.

ณรุทธ์ สุทธจิตต์. (2555). ดนตรีศึกษา: หลักการและสาระสำคัญ (พิมพ์ครั้งที่ 9 ฉบับปรับปรุงแก้ไข). สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

ธวัชชัย พิชัยยันต์. (2565). การศึกษาผลสัมฤทธิ์ทางการเรียนและความพึงพอใจด้วยชุดการสอน

ดนตรีสากลตามแนวคิดการสอนแบบโคดายของนักเรียนระดับชั้นประกาศนียบัตรวิชาชีพปีที่ 2 วิทยาลัยนาฏศิลปะจันทบุรี [ปริญญานิพนธ์ศิลปกรรมศาสตร์, มหาวิทยาลัยศรีนครินทรวิโรฒ]. DSpace JSPUI. http://ir-ithesis.swu.ac.th/dspace/handle/123456789/2516

เปรื่อง กุมุท. (2537). ประมวลสาระวิชาเทคโนโลยีและสื่อสารการสอน. กรุงเทพฯ: มหาวิทยาลัยสุโขทัยธรรมาธิราช.

สมศักดิ์ ภู่วิภาดาวรรธน์. (2554). การยึดผู้เรียนเป็นศูนย์กลางและการประเมินตามสภาพจริง. กรุงเทพฯ: ดวงกลมพับลิชชิ่ง.

Kemmis, S., & McTaggart, R. (1988). The action research planner. Deakin University Press.

Willems, E. (1977). L'éducation musicale: Principes et applications. Pro Musica.

การศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์และผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ภูเก็ต จังหวัดภูเก็ต ที่ได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E)

The Study of Mathematical Problem-Solving Ability and Learning Achievement of Grade 8 Students at Srinagarindra The Princess Mother School, Phuket through the 5E Inquiry-Based Learning Model

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บทคัดย่อ

บทความวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาความสามารถแก้ปัญหาทางคณิตศาสตร์และผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ ภูเก็ต จังหวัดภูเก็ต ที่ได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E)

กลุ่มเป้าหมายที่เป็นนักเรียนชั้นมัธยมศึกษาปีที่ 2 ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 37 คน โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ ภูเก็ต จังหวัดภูเก็ต ได้มาโดยการเลือกแบบเจาะจง (Purposive Sampling) โดยคัดเลือกจากห้องเรียนที่ผู้วิจัยทำการสอน เครื่องมือที่ใช้ในการวิจัย ได้แก่ 1. แผนการเรียนรู้ด้วยรูปแบบสืบเสาะหาความรู้ (5E) 2. แบบวัดความสามารถแก้ปัญหาทางคณิตศาสตร์ และ 3. แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ร้อยละ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน

ผลการวิจัยพบว่า 1. ความสามารถแก้ปัญหาทางคณิตศาสตร์ของนักเรียนหลังได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E) อยู่ในระดับดี 2. ผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์หลังได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E) สูงกว่าก่อนเรียนตั้งแต่ร้อยละ 60 ขึ้นไป และ 3. นักเรียนจำนวน 37 คน คิดเป็นร้อยละ 75.68 และมีผลสัมฤทธิ์ทางการเรียนหลังเรียนมากกว่าร้อยละ 60 สูงกว่าเกณฑ์

คำสำคัญ: การเรียนรู้แบบสืบเสาะหาความรู้ (5E), ความสามารถแก้ปัญหาทางคณิตศาสตร์, ผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์

Abstract

This research study aimed to investigate the mathematical problem-solving abilities and academic achievement in mathematics of Grade 8 students at Srinagarindra The Princess Mother School, Phuket, who received inquiry-based learning (5E).

The target group consisted of Grade 8 students in the second semester of the academic year 2567 (2024), with a total of 37 students selected through purposive sampling from the classes taught by the researcher. The research instruments used included: 1. a learning plan based on the inquiry-based learning (5E) model, 2. an instrument for measuring mathematical problem-solving abilities, and 3. a test for assessing academic achievement; the data were analyzed using descriptive statistics such as percentage, mean, and standard deviation.

The research findings indicated that 1. the students' mathematical problem-solving abilities were at a good level after receiving inquiry-based learning (5E), 2. the academic achievement in mathematics following the inquiry-based learning (5E) exceeded pre-instruction levels by at least 60%, and 3. out of the 37 students, 75.68% achieved post-instruction scores exceeding the 60% criterion.

Keywords: 5E Inquiry-Based Learning Model, Mathematical Problem-Solving Ability and Learning Achievement

บทนำ

วิชาคณิตศาสตร์เป็นวิชามีความสำคัญเป็นอย่างมากในการพัฒนาความคิดของมนุษย์ เพราะวิชาคณิตศาสตร์นี้ทำให้มนุษย์มีความสามารถในการคิดอย่างมีเหตุผล สร้างสรรค์คิดเป็นระบบ และคิดอย่างมีระเบียบแบบแผน สามารถวิเคราะห์สถานการณ์ได้อย่างละเอียดถี่ถ้วนและรอบคอบ ช่วยในการวางแผน การคาดการณ์การตัดสินใจในการแก้ปัญหา และสามารถนำไปใช้ในชีวิตจริงได้อย่างถูกต้องและเหมาะสม อีกทั้งวิชาคณิตศาสตร์ยังเป็นหัวใจสำคัญในการศึกษาทางด้านวิทยาศาสตร์เทคโนโลยีและศาสตร์อื่น ๆ ดังนั้นวิชาคณิตศาสตร์จึงมีประโยชน์ต่อการดำเนินชีวิต ช่วยพัฒนาคุณภาพชีวิตให้ดีขึ้น และสามารถอยู่ร่วมกับผู้อื่นได้อย่างมีความสุข (คณะกรรมการการศึกษาขั้นพื้นฐาน, 2560) การเรียนการสอนส่วนใหญ่เป็นการเรียนการสอนที่ยังคงเน้นการบรรยาย โดยที่ครูเป็นผู้ถ่ายทอดเนื้อหาความรู้ให้แก่นักเรียน แต่นักเรียนไม่ได้มีการลงมือปฏิบัติด้วยตนเอง ส่งผลให้นักเรียนไม่ได้เกิดกระบวนการเรียนรู้ การฝึกการให้เหตุผลของตนเอง ทำให้นักเรียนไม่ได้เกิดการให้เหตุผลทางคณิตศาสตร์ ไม่ได้สะสมประสบการณ์ในการฝึกการแก้ปัญหาด้วยตัวเอง (กฤตยา ยมนา และ ดุจเดือน ไชยพิชิต, 2565)

หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 (ฉบับปรับปรุง พ.ศ. 2560) กำหนดให้กลุ่มสาระการเรียนรู้คณิตศาสตร์เป็นกลุ่มสาระการเรียนรู้ หนึ่งในกลุ่มทักษะที่เป็นเครื่องมือการเรียนรู้และมุ่งให้เยาวชนทุกคนได้เรียนรู้หนึ่งในกลุ่มทักษะที่เป็นเครื่องมือการเรียนรู้และมุ่งให้เยาวชนทุกคนได้เรียนรู้ในรายวิชาคณิตศาสตร์อย่างต่อเนื่องตามศักยภาพ โดยกำหนดสาระหลักที่จำเป็นสำหรับนักเรียนทุกคน ดังนี้ คือ จำนวนและการดำเนินการ การวัด เรขาคณิต พีชคณิต การวิเคราะห์ข้อมูลและความน่าจะเป็น ตลอดจนทักษะกระบวนการทางคณิตศาสตร์ ดังนั้นในการสอนกลุ่มสาระการเรียนรู้คณิตศาสตร์ จึงมี

จุดประสงค์เพื่อให้นักเรียนได้พัฒนาความสามารถในการคำนวณนำไปใช้เป็นเครื่องมือการเรียนรู้สิ่งต่าง ๆ และในการดำรงชีวิตให้มีคุณภาพจึงต้องปลูกฝังให้นักเรียนมีความรู้ความเข้าใจคณิตศาสตร์พื้นฐาน และทักษะในการคิดคำนวณรู้จักคิดอย่างมีเหตุผล รู้คุณค่าของคณิตศาสตร์และเจตคติที่ดีต่อคณิตศาสตร์ และสามารถนำประสบการณ์ที่ได้จากการเรียนรู้คณิตศาสตร์ ไปใช้ในการเรียนรู้สิ่งต่าง ๆ และแก้ปัญหาในชีวิตประจำวันได้ (กระทรวงศึกษาธิการ, 2552)

ทักษะการแก้ปัญหาเป็นทักษะที่มีความสำคัญทักษะ หนึ่งสำหรับมนุษย์ เพราะในชีวิตประจำวันมนุษย์เราต้องพบ กับปัญหาและอุปสรรคมากมาย โดยเฉพาะอย่างยิ่งในสังคม ยุคปัจจุบันความเจริญก้าวหน้าทางวิทยาศาสตร์และเทคโนโลยี ทำให้สภาพแวดล้อมและสังคมเปลี่ยนแปลงไป เป็นสังคมที่เต็มไปด้วยการแข่งขันการต่อสู่ตลอดเวลา ผู้ใดที่สามารถแก้ปัญหาได้ย่อมดำรงชีวิตอยู่ในสังคมได้อย่างมีความสุข และประสบผลสำเร็จดีกว่าผู้ที่ไม่มีทักษะในการแก้ปัญหา การแก้ปัญหาเป็นความสามารถขั้นพื้นฐานของมนุษย์ มนุษย์ ต้องใช้ความสามารถในการคิดแก้ปัญหาอยู่ตลอดเวลา เพื่อสามารถใช้ปรับตัวอยู่ในสังคมได้ การแก้ปัญหาทำให้เกิดการ ค้นพบความรู้ใหม่และการแก้ปัญหาเป็นความสามารถที่ ต้องปลูกฝังให้เกิดขึ้นในตัวนักเรียน ทักษะการแก้ปัญหา จึงเป็นทักษะ/กระบวนการหนึ่งที่ผู้เรียนควรจะเรียนรู้ ฝึกฝน และพัฒนาให้เกิดทักษะขึ้นในตัวผู้เรียน การเรียนการแก้ปัญหาทางคณิตศาสตร์จะช่วยให้ผู้เรียนมีแนวคิดที่หลากหลาย มีนิสัยกระตือรือร้นไม่ย่อท้อและมีความมั่นใจในการแก้ปัญหา ที่เผชิญอยู่ทั้งภายในและภายนอกห้องเรียน ตลอดจนเป็นทักษะพื้นฐานที่ผู้เรียนสามารถนำติดตัวไปใช้แก้ปัญหาในชีวิตประจำวันได้นานตลอดชีวิต (สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี, 2550)

คนทั่วไปพูดถึงคณิตศาสตร์ ทุกคนมักคิดในกรอบเสมอว่า คณิตศาสตร์เป็นวิชาที่เกี่ยวกับการคำนวณและตัวเลข ซึ่งเป็นความหมายของคณิตศาสตร์ที่แคบอย่างมาก แต่แท้จริงแล้วคณิตศาสตร์ยังเกี่ยวข้องกับกระบวนการคิดอย่างเป็นระบบ การให้เหตุผล ความคิดริเริ่มที่สร้างสรรค์ และคณิตศาสตร์ยังเป็นวิชาพื้นฐานที่สำคัญในการศึกษาวิทยาการต่าง ๆ หลายสาขา เช่น วิศวกรรมศาสตร์ วิทยาศาสตร์ เศรษฐศาสตร์ ล้วนต้องอาศัยวิชาคณิตศาสตร์เป็นพื้นฐาน คณิตศาสตร์ยังคงมีบทบาทสำคัญมากต่อการพัฒนาความคิดของมนุษย์ ทำให้มนุษย์มีความคิดสร้างสรรค์ คิดอย่างมีเหตุผล เป็นระบบ มีแบบแผน สามารถวิเคราะห์ปัญหา หรือสถานการณ์ได้อย่างถี่ถ้วนรอบคอบ ช่วยคาดการณ์ วางแผน ตัดสินใจแก้ปัญหาและนำไปใช้ในชีวิตประจำวันได้อย่างถูกต้องเหมาะสม คณิตศาสตร์จึงมีประโยชน์ต่อการดำเนินชีวิต (สำนักงานวิชาการและมาตรฐานการศึกษา, 2551)

ในปัจจุบันการจัดการเรียนการสอนวิชาคณิตศาสตร์ในประเทศไทยยังคงเผชิญกับความท้าทายหลายประการ โดยเฉพาะในด้านการพัฒนาทักษะการคิดวิเคราะห์และการแก้ปัญหาของผู้เรียน ตามรายงานผลการประเมินจากสำนักงานเลขาธิการสภาการศึกษา (2564) พบว่า แม้การเข้าถึงการศึกษาของนักเรียนไทยจะสูงขึ้น แต่คุณภาพของการเรียนรู้ในกลุ่มสาระคณิตศาสตร์ยังคงเป็นปัญหาที่ต้องได้รับการแก้ไข นักเรียนจำนวนมากมีผลสัมฤทธิ์ทางการเรียนอยู่ในระดับต่ำ และขาดทักษะในการคิดวิเคราะห์และการประยุกต์ใช้แนวคิดทางคณิตศาสตร์ในชีวิตจริง (สำนักงานเลขาธิการสภาการศึกษา, 2564)

นอกจากนี้ รายงานผลการประเมินระดับชาติ (NT) และการประเมินระดับนานาชาติอย่าง PISA (OECD, 2022) ชี้ให้เห็นว่า ทักษะในการแก้ปัญหาที่เกี่ยวข้องกับคณิตศาสตร์ของนักเรียนไทยยังอยู่ในระดับต่ำ โดยเฉพาะทักษะในการแก้ปัญหาซับซ้อน การตีความข้อมูล และการคิดเชิงตรรกะ ซึ่งเป็นทักษะพื้นฐานที่จำเป็นสำหรับการเรียนรู้ในวิชาคณิตศาสตร์ การขาดทักษะเหล่านี้ทำให้นักเรียนไม่สามารถ

วางแผนและหาวิธีแก้ปัญหาด้วยตนเองได้อย่างมีระบบ (OECD, 2022) ส่งผลให้วิธีการเรียนการสอนที่มุ่งเน้นให้ผู้เรียนได้ลงมือปฏิบัติและพัฒนาทักษะ การคิดอย่างมีเหตุผลกลายเป็นเรื่องที่จำเป็นอย่างยิ่ง

รูปแบบการจัดการเรียนรู้ตามแนวทาง 5E Learning Model ซึ่งประกอบด้วยขั้นตอน Engage, Explore, Explain, Elaborate และ Evaluate เป็นกระบวนการเรียนรู้ที่มุ่งเน้นให้ผู้เรียนมีส่วนร่วมในการเรียนรู้และได้ลงมือปฏิบัติ ซึ่งสามารถช่วยพัฒนาทักษะการคิดวิเคราะห์และการแก้ปัญหาของนักเรียนได้อย่างยั่งยืน (สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี, 2546; ณัฐนันท์ จุยคำวงศ์, 2560) การใช้รูปแบบ 5E ในการเรียนการสอนคณิตศาสตร์ จึงเป็นการส่งเสริมให้นักเรียนเกิดการเรียนรู้เชิงลึกและสามารถเชื่อมโยงความรู้จากการเรียนไปใช้ในชีวิตประจำวันได้

ดังนั้น ผู้วิจัยจึงเห็นความสำคัญของการพัฒนารูปแบบการเรียนรู้ที่สามารถเสริมสร้างทักษะการคิดแก้ปัญหาทางคณิตศาสตร์ให้กับนักเรียนในนักเรียนชั้นมัธยมศึกษาปีที่ 2/1 จำนวน 37 คน โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ ภูเก็ต ในพระราชูปถัมภ์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี โดยเลือกใช้รูปแบบ 5E เพื่อให้ผู้เรียนสามารถพัฒนาทักษะการคิดวิเคราะห์ การแก้ปัญหา และการใช้เหตุผลในการเรียนคณิตศาสตร์ได้อย่างมีประสิทธิภาพ และสอดคล้องกับความต้องการของหลักสูตรการศึกษาของประเทศไทยในปัจจุบัน

วัตถุประสงค์ของการวิจัย

เพื่อศึกษาความสามารถแก้ปัญหาทางคณิตศาสตร์ และผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ ภูเก็ต ในพระราชูปถัมภ์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี ที่ได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E)

แนวคิด ทฤษฎี

1. แนวคิดเกี่ยวกับความสามารถในการแก้ปัญหาทางคณิตศาสตร์

1.1 ความหมายของความสามารถในการแก้ปัญหาคณิตศาสตร์

วัชรา เล่าเรียนดี (2548) และ สุวารี คงมั่น (2545) ได้ให้ความหมายของ ความสามารถในการแก้ปัญหาทางคณิตศาสตร์ไว้สอดคล้องกับ Polya (1957) และ Gagné (1970) คือกระบวนการที่ต้องอาศัยความรู้ ความคิด การสังเกต ประสบการณ์เดิม ของแต่ละบุคคลที่มีความความเข้าใจในเนื้อหาทางคณิตศาสตร์และนำความรู้ที่ได้เรียนรู้ไปประยุกต์ใช้ใน สถานการณ์ที่แตกต่างจากเดิม โดยอาศัยหลักการที่มีความเกี่ยวข้องกันตั้งแต่สองประเภทขึ้นไปและการใช้หลักการนั้นประสมประสานกันจนเป็นความสามารถชนิดใหม่ที่เรียกว่า ความสามารถด้าน การคิดแก้ปัญหา ซึ่งต้องอาศัยทักษะการคิดวิเคราะห์ สังเคราะห์ การคาดคะเนเหตุผล รวมทั้งทักษะการเข้าใจกับปัญหา คิดหาทางแก้ปัญหาที่เป็นไปได้หลายแนวทาง ทบทวนวิธีการแก้ปัญหาและประเมินผลแนวทางการแก้ปัญหาให้บรรลุจุดมุ่งหมายที่ต้องการ

2. แนวคิดเกี่ยวกับผลสัมฤทธิ์ทางการเรียน

2.1 ความหมายของผลสัมฤทธิ์ทางการเรียน

ศิริชัย กาญจนวาสี (2552) ได้ให้ความหมายของผลสัมฤทธิ์ทางการเรียนว่า หมายถึง ผลการเรียนรู้ ปริมาณหรือคุณภาพของความรู้ ความสามารถ พฤติกรรมที่เปลี่ยนแปลง ไปในทิศทางที่พึงประสงค์ตามจุดมุ่งหมายอันเป็นผลมาจากการที่ผู้เรียนเกิดการเรียนรู้จาก ประสบการณ์การเรียนการสอนที่ผู้สอนจัดขึ้น

สมพร เชื้อพันธ์ (2547) สรุปว่า ผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ หมายถึงความสามารถความสำเร็จและสมรรถภาพด้านต่าง ๆ ของผู้เรียนที่ได้จากการเรียนรู้อันเป็นผลมาจากการเรียนการสอน การฝึกฝนหรือประสบการณ์ของแต่ละบุคคลซึ่งสามารถวัดได้จากการทดสอบด้วยวิธีการต่าง ๆ

3. วิธีการสอนด้วยการสอนแบบสืบเสาะหาความรู้ 5E

3.1 ความหมายของวิธีการสอนแบบสืบเสาะหาความรู้ 5E

วีณา ประชากูล และ ประสาท เนืองเฉลิม (2553) ได้ให้ความหมายของการเรียนรู้แบบสืบเสาะหาความรู้ คือ กระบวนการเรียนรู้ที่เน้นการพัฒนาความสามารถในการแก้ปัญหา ด้วยวิธีการการฝึกให้ผู้เรียนศึกษาค้นคว้าหาความรู้ โดยผู้สอนมีบทบาทในการตั้งถามเพื่อกระตุ้นให้นักเรียนได้ใช้กระบวนการทางความคิด หาเหตุผลจนค้นพบความรู้หรือแนวทางแก้ไขปัญหาที่ถูกต้อง

ชญาภา เผือกคล้าย (2565) ได้ให้ความหมายของการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5E คือ เป็นการจัดการเรียนรู้ที่เน้นผู้เรียนเป็นศูนย์กลาง ผู้เรียนค้นพบความรู้ด้วยตนเอง ฝึกให้นักเรียนได้พัฒนาความคิดและค้นคว้าด้วยตนเองจึงทำให้นักเรียนมีความอยากเรียนรู้อยู่ตลอดเวลา อีกทั้งยังฝึกให้นักเรียนทำ งานร่วมกับผู้อื่นได้อย่างมีประสิทธิภาพและยังรู้จักการ ประเมินการทำงานของตนเองเพื่อนำผลที่ได้ไปปรับปรุงและพัฒนาตนเองให้ดีขึ้น

กรอบแนวคิด

จากการจัดการเรียนแบบสืบเสาะหาความรู้ (5E) ได้แก่ 5 ขั้นดังนี้
ขั้นที่ 1. สร้างความสนใจ
2. สำรวจและค้นหา
3. อธิบายและลงข้อสรุป
4. ขยายความรู้
5. ประเมินความรู้

→

1. ความสามารถในการแก้ปัญหาทางคณิตศาสตร์
2. ผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์

วิธีดำเนินการวิจัย

กลุ่มเป้าหมายในการวิจัย

กลุ่มเป้าหมายที่ใช้ในการวิจัยครั้งนี้ คือ นักเรียนชั้นมัธยมศึกษาปีที่ 2/1 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ ภูเก็ต ในพระราชูปถัมภ์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี ที่ศึกษาในภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 37 คน ได้มาโดยการเลือกแบบเจาะจง (Purposive Sampling) จากห้องเรียนที่ผู้วิจัยสอน สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ร้อยละ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน

สร้างและการตรวจสอบคุณภาพ

1. แผนการจัดการเรียนรู้

แผนการจัดการเรียนรู้โดยใช้เทคนิคสอนแบบสืบเสาะหาความรู้ 5E เรื่อง เส้นขนานรวมแผนการจัดการเรียนรู้ 8 แผน จำนวน 8 ชั่วโมง ผู้วิจัยได้ดำเนินการตามขั้นตอนต่อไปนี้

1.1 ศึกษาหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 หนังสือเรียนายวิชาคณิตศาสตร์พื้นฐาน ชั้นมัธยมศึกษาปีที่ 2 เล่ม 2 ของสถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี กระทรวงศึกษาธิการ ตามมาตรฐานการเรียนรู้และตัวชี้วัดกลุ่มสาระการเรียนรู้คณิตศาสตร์ (ฉบับปรับปรุง 2560) เรื่อง เส้นขนาน

1.2 ศึกษาเอกสารที่เกี่ยวข้องกับการเขียนแผนการจัดการเรียนรู้ โดยใช้เทคนิคการสอนแบบสืบเสาะหาความรู้ 5E

1.3 พิจารณาแบ่งเนื้อหาเรื่อง เส้นขนาน ออกเป็น 4 เรื่อง จำนวน 8 แผน ใช้เวลาในการจัดการเรียนรู้จำนวน 8 ชั่วโมง

1.4 แผนการจัดการเรียนรู้ที่สอนตามขั้นตอนของการจัดการเรียนรู้ โดยใช้เทคนิคการจัดการเรียนรู้โดยใช้เทคนิคการสอนแบบสืบเสาะหาความรู้ 5E มีขั้นตอนการเรียน ดังนี้

1.4.1 ขั้นที่ 1 ขั้นสร้างความสนใจ (Engagement) คือ ขั้นการนำเข้าสู่บทเรียนหรือเรื่องที่สนใจ ซึ่งอาจเกิดขึ้นเองจากความสงสัยหรืออาจเริ่มจากความสนใจของตัวเองหรือเกิดจากการ อภิปรายภายในกลุ่ม

1.4.2 ขั้นที่ 2 ขั้นสำรวจและค้นหา (Exploration) คือ ขั้นการวางแผนกำหนดแนวทางการสำรวจตรวจสอบ ตั้งสมมติฐานกำหนดทางเลือกที่เป็นไปได้ ลงมือปฏิบัติเพื่ออเก็บรวบรวม ข้อมูลข้อสนเทศหรือปรากฏการณ์ต่าง ๆ

1.4.3 ขั้นที่ 3 ขั้นอธิบายและลงข้อสรุป (Explanation) คือ ขั้นการนำข้อมูล ข้อสนเทศที่ได้มาวิเคราะห์ แปลผล สรุปผล และนำเสนอผลที่ได้ในรูปแบบต่าง ๆ

1.4.4 ขั้นที่ 4 ขั้นขยายความรู้ (Elaboration) คือ ขั้นการนำความรู้ที่สร้างขึ้นไปเชื่อมโยงกับความรู้เดิมหรือแนวคิดที่ได้ค้นคว้าเพิ่มเติม หรือนำแบบจำลอง หรือข้อสรุปที่ได้ไปใช้อธิบายสถานการณ์หรือเหตุการณ์อื่น ๆ

1.4.5 ขั้นที่ 5 ขั้นประเมินความรู้ (Evaluation) คือ ขั้นการประเมินการเรียนรู้ด้วยกระบวนการต่าง ๆ ว่านักเรียนมีความรู้อะไรบ้าง อย่างไร มากน้อยเพียงใด

1.5 นำเสนอและปรับปรุงแผนการจัดการเรียนรู้

1.6 นำไปใช้จัดการเรียนการสอน

2. แบบวัดความสามารถแก้ปัญหาทางคณิตศาสตร์

แบบวัดความสามารถแก้ปัญหาทางคณิตศาสตร์ เรื่อง เส้นขนาน มีขั้นตอนการสร้างดังต่อไปนี้

2.1 ศึกษาการสร้างแบบวัดความสามารแก้ปัญหาทางคณิตศาสตร์

2.2 สร้างแบบวัดความสามารถแก้ปัญหาทางคณิตศาสตร์เป็นแบบอัตนัย 2 ข้อรายละเอียดการให้คะแนน คือแต่ละข้อแบ่งเป็น 4 ขั้นตอน ตามเกณฑ์ดังนี้ (อ้างอิงเกณฑ์ตาม กาญจนา การสมทรัพย์, 2561)

ตารางที่ 1 เกณฑ์การให้คะแนนแบบวัดความสามารถแก้ปัญหาทางคณิตศาสตร์

ประเด็นการประเมิน	คะแนน		
	3	2	1
1. การทำความเข้าใจปัญหา	เข้าใจปัญหาได้ถูกต้อง	เข้าใจปัญหาบางส่วนไม่ถูกต้อง	เข้าใจปัญหาน้อยมากหรือไม่ถูกต้อง
2. การวางแผน	เลือกวิธีการแก้ปัญหาได้เหมาะสม	เลือกวิธีการแก้ปัญหาซึ่งอาจนำไปสู่คำตอบที่ถูกแต่ยังมีบางส่วนที่ผิด	เลือกวิธีการส่วนใหญ่ ไม่ถูกต้อง

ตารางที่ 1 (ต่อ)

ประเด็นการประเมิน	คะแนน		
	3	2	1
3. การดำเนินการตามแผน	นำวิธีการแก้ปัญหาไปใช้ได้ถูกต้อง	นำวิธีการแก้ปัญหาไปใช้ได้ถูกต้องเป็นบางครั้ง	นำวิธีการแก้ปัญหา ไปใช้ไม่ถูกต้อง
4. การตรวจสอบ	ตรวจคำตอบได้ถูกต้องและสรุปได้ตรง ประเด็น	ตรวจคำตอบได้ถูกต้องและสรุปได้บางประเด็น	ตรวจคำตอบได้ เป็นบางส่วนหรือไม่ได้ เลย

2.3 นำแบบความสามารถแก้ปัญหาทางคณิตศาสตร์ เรื่อง เส้นขนาน ไปให้ผู้เชี่ยวชาญ 3 ท่าน

2.4 นำแบบวัดความสามารถแก้ปัญหาทางคณิตศาสตร์ ไปแก้ไขและปรับปรุง

2.5 นำแบบวัดความสามารแก้ปัญหาทางคณิตศาสตร์ ไปเก็บข้อมูลกับกลุ่มเป้าหมาย

ผู้วิจัยนำคะแนนที่ได้จากการทำแบบทดสอบวัดความสามารถในการปัญหาคณิตศาสตร์เป็นอัตนัย จำนวน 1 ข้อ มาวิเคราะห์หาระดับความสามารถแก้ปัญหาคณิตศาสตร์หลังการจัดการเรียนรู้ตาม แนวคิดของโพลยา โดยวิเคราะห์เกณฑ์จากคะแนนสอบหลังเรียนแล้วนำคะแนนเฉลี่ยคิดเป็นร้อยละเทียบจากเกณฑ์การตัดสินผลการเรียนกลุ่มสาระการเรียนรู้คณิตศาสตร์ตามหลักสูตรแกนกลาง พุทธศักราช 2551

3. แบบวัดผลสัมฤทธิ์ทางการเรียน

3.1 ศึกษาหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 หนังสือเรียนรายวิชาคณิตศาสตร์พื้นฐาน ชั้นมัธยมศึกษาปีที่ 2 เล่ม 2 ของสถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี กระทรวงศึกษาธิการ ตามมาตรฐานการเรียนรู้และตัวชี้วัด

3.2 ศึกษาเอกสารเกี่ยวกับการสร้างแบบวัดผลสัมฤทธิ์ทางการเรียน

3.3 วิเคราะห์ตัวชี้วัดตามมาตรฐานการเรียนรู้และตัวชี้วัด กลุ่มสาระการเรียนรู้คณิตศาสตร์ (ฉบับปรับปรุง 2560) ตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551

3.4 สร้างแบบวัดผลสัมฤทธิ์ทางการเรียนเรื่อง เส้นขนาน แบบปรนัย 4 ตัวเลือก จำนวน 20 ข้อ

3.5 นำแบบวัดผลสัมฤทธิ์ทางการเรียนเรื่อง เส้นขนาน ไปให้ผู้เชี่ยวชาญ จำนวน 3 ท่าน เป็นการตรวจสอบลักษณะการใช้คำถาม ตัวเลือก ซึ่งต้องมีความสอดคล้องกับพฤติกรรมที่ต้องการวัดความถูกต้องทางด้านภาษา และความเที่ยงตรงด้านเนื้อหา โดยพิจารณาหาค่าดัชนีความสอดคล้องระหว่างข้อสอบกับจุดประสงค์การเรียนรู้ (IOC) โดยจะนำผลการพิจารณาของผู้เชี่ยวชาญทั้ง 3 ท่าน มาทำการ

วิเคราะห์เพื่อหาค่าดัชนีความสอดคล้องเป็นรายข้อ (IOC) โดยคัดเลือกข้อสอบที่มีค่าดัชนีความสอดคล้องระหว่าง 0.67 – 1.00

3.6 นำแบบวัดผลสัมฤทธิ์ทางการเรียนไปปรับปรุงแก้ไข

3.7 นำแบบวัดผลสัมฤทธิ์ทางการเรียนไปเก็บข้อมูลกับกลุ่มเป้าหมาย

ขั้นเก็บรวบรวมข้อมูล

1. ทดสอบนักเรียนโดยใช้แบบวัดผลสัมฤทธิ์ทางการเรียนที่ผู้วิจัยได้สร้างขึ้นทดสอบกลุ่มเป้าหมาย

2. ดำเนินการสอนโดยผู้วิจัยใช้แผนการเรียนรู้ โดยใช้วิธีการจัดการเรียนการสอนด้วยเทคนิคการสอนแบบสืบเสาะหาความรู้ 5E เรื่อง เส้นขนาน รวมแผนการจัดการเรียนรู้ 8 แผน จำนวน 8 ชั่วโมง ในการสอน

3. เมื่อดำเนินการสอนครบตามแผนการเรียนรู้ จึงวัดผลสัมฤทธิ์ทางการเรียนและวัดความสามารถแก้ปัญหาทางคณิตศาสตร์ โดยใช้แบบวัดผลสัมฤทธิ์ทางการเรียนและแบบวัดความสามารถแก้ปัญหาทางคณิตศาสตร์ที่ผู้วิจัยได้สร้างขึ้น ทดสอบกับกลุ่มเป้าหมาย

4. ตรวจสอบการให้คะแนนแบบวัดผลสัมฤทธิ์ทางการเรียนและคะแนนแบบวัดความสามารถแก้ปัญหาทางคณิตศาสตร์ จึงนำผลคะแนนจากการตรวจสอบแบบวัดผลสัมฤทธิ์ทางการเรียน และแบบวัดความสามารถแก้ปัญหาทางคณิตศาสตร์ ที่ผู้วิจัยได้สร้างขึ้น เพื่อนำคะแนนที่ได้ไปวิเคราะห์หาค่าทางสถิติที่ได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E)

ผลการวิจัย

ตอนที่ 1 ผลการวิเคราะห์ความสามารถแก้ปัญหาทางคณิตศาสตร์ ที่ได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E)

หลังจากใช้แผนการจัดการเรียนรู้ไปใช้ดำเนินการจัดการเรียนรู้กับนักเรียนจำนวน 8 ชั่วโมงแล้ว ผู้วิจัยได้ทำการทดสอบความสามารถแก้ปัญหาทางคณิตศาสตร์กับนักเรียน ดังนี้

ตารางที่ 2 ผลการวิเคราะห์ความสามารถแก้ปัญหาทางคณิตศาสตร์ ที่ได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E)

ความสามารถในการแก้ปัญหาคณิตศาสตร์	คะแนนเต็ม	μ คะแนนเฉลี่ย	ร้อยละของคะแนนเฉลี่ย	σ	ระดับความสามารถ
การทำความเข้าใจ	3	2.59	87	0.50	ดีเยี่ยม
การวางแผน	3	2.57	86	0.60	ดีเยี่ยม
การดำเนินการตามแผน	3	2.48	82	0.60	ดีเยี่ยม
การตรวจสอบ	3	2.35	77	0.59	ดีมาก
เฉลี่ย	3	2.50	83	0.57	ดีเยี่ยม



ภาพที่ 2 ความสามารถในการแก้ปัญหาทางคณิตศาสตร์หลังเรียน

ความสามารถแก้ปัญหาทางคณิตศาสตร์หลังเรียน ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 มีคะแนนเฉลี่ย เท่ากับ 2.50 พบว่า ความสามารถแก้ปัญหาทางคณิตศาสตร์ของนักเรียน ที่ได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E) อยู่ในระดับความสามารถดีเยี่ยม มีค่าเฉลี่ยเท่ากับ 2.50

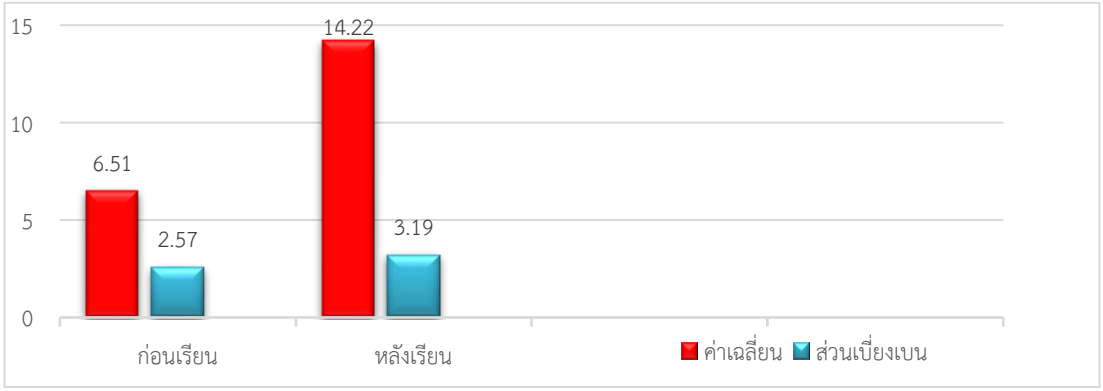
ตอนที่ 2 ผลการศึกษาผลสัมฤทธิ์ทางการเรียน ที่ได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E)

ก่อนจัดการเรียนรู้ผู้วิจัยให้ผู้เรียนทำแบบทดสอบก่อนเรียน โดยใช้แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน และเมื่อนำแผนการเรียนรู้ไปใช้ดำเนินการจัดการเรียนรู้กับนักเรียนจำนวน 8 ชั่วโมงแล้ว ผู้วิจัยได้ทำการทดสอบหลังเรียนโดยใช้แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนเรื่อง เส้นขนาน ซึ่งเป็นฉบับเดียวกันกับแบบทดสอบก่อนเรียนเป็นแบบทดสอบแบบปรนัย 4 ตัวเลือก จำนวน 20 ข้อ คะแนนเต็ม 20 คะแนน และเพิ่มแบบทดสอบอัตนัยหลังเรียนจำนวน 2 ข้อ 20 คะแนน ได้ผลการทดสอบดังนี้

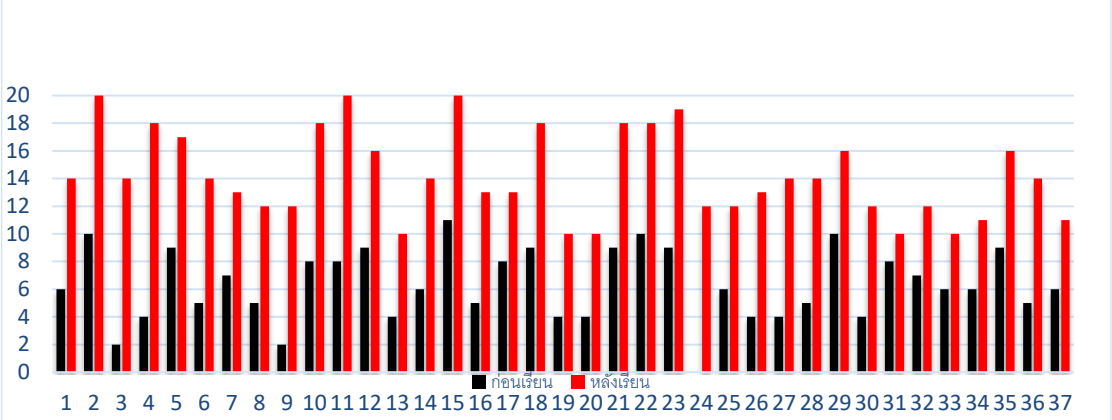
ตารางที่ 3 ผลการวิเคราะห์เปรียบเทียบผลสัมฤทธิ์ทางการเรียน ที่ได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E)

ผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์	N (คน)	μ (20 คะแนน)	σ
ก่อนเรียน	37	6.51	2.57
หลังเรียน	37	14.22	3.19

จากตารางที่ 3 พบว่า แสดงให้เห็นว่านักเรียนกลุ่มเป้าหมาย จำนวน 37 คน มีคะแนนผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ก่อนเรียนมีคะแนนเฉลี่ย 6.51 ส่วนเบี่ยงเบนมาตรฐาน 2.57 คะแนนผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์หลังเรียนมีคะแนนเฉลี่ย 14.22 ส่วนเบี่ยงเบนมาตรฐาน 3.19



ภาพที่ 2 การเปรียบเทียบผลสัมฤทธิ์จากการจัดการเรียนรู้โดยใช้เทคนิคการเรียนรู้แบบสืบเสาะหาความรู้ (5E)



ภาพที่ 3 การเปรียบเทียบผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ก่อนเรียนและหลังเรียนของนักเรียนรายบุคคล

จากภาพที่ 3 พบว่า ผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 หลังได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E) สูงกว่าก่อนหลังได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E) ซึ่งนักเรียนจำนวน 37 คน คิดเป็นร้อยละ 75.68 มีผลสัมฤทธิ์หลังเรียนตั้งแต่ 12 คะเนนร้อยละ 60 ได้แก่เลขที่ 1, 2, 3, 4, 5, 6, 7, 9 ,10, 11, 12, 14, 15, 16, 17, 18, 21, 22, 23, 25, 26, 27, 28, 29, 30, 32, 35 และ 36

สรุปผลการวิจัย

การวิจัยเรื่อง การศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์และผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ภูเก็ต จังหวัดภูเก็ต หลังได้รับการจัดการเรียนรู้แบบสืบเสาะหาความรู้ มีผลการวิจัยดังนี้

1. ผลสัมฤทธิ์ทางการเรียนก่อนเรียนมีค่าคะแนนเฉลี่ย 6.51 ส่วนเบี่ยงเบนมาตรฐาน 2.57 และหลังเรียนมีค่าคะแนนเฉลี่ย 14.22 ส่วนเบี่ยงเบนมาตรฐาน 3.19 พบว่า ผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์หลังได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E) สูงกว่าก่อนหลังได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E)

2. ความสามารถให้แก้ปัญหาทางคณิตศาสตร์ เรื่อง เส้นขนาน ของนักเรียนหลังได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E) พบว่า ความสามารถในการให้แก้ปัญหาของนักเรียนอยู่ในระดับดี มีค่าคะแนนเฉลี่ย 2.50 ส่วนเบี่ยงเบนมาตรฐาน 0.57 และพบว่า นักเรียนส่วนใหญ่มีความสามารถในการแก้ปัญหาคือตอบคำถามถูกต้องทั้งหมด มีการอ้างอิงหรือใช้ทฤษฎีหรือนิยาม ดังนั้นนักเรียนมีความสามารถในการแก้ปัญหาทางคณิตศาสตร์ในระดับดีเยี่ยม

3. ผลสัมฤทธิ์ทางการเรียนหลังเรียนรู้โดยใช้โดยใช้การจัดการเรียนรู้โดยวิธีการสอนแบบ สืบเสาะหาความรู้ 5E มีนักเรียนจำนวน 37 คน คิดเป็นร้อยละ 75.68 มีผลสัมฤทธิ์ทางการเรียนหลังเรียนตั้งแต่ 12 คะแนนขึ้นไปหรือ ร้อยละ 60

เพื่อศึกษาความสามารถแก้ปัญหาทางคณิตศาสตร์และผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ ภูเก็ต จังหวัดภูเก็ต ที่ได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E)

อภิปรายผลการวิจัย

ผลการวิจัยการศึกษาความสามารถแก้ปัญหาทางคณิตศาสตร์และผลสัมฤทธิ์ทางการเรียน ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเฉลิมพระเกียรติสมเด็จพระศรีนครินทร์ภูเก็ต จังหวัดภูเก็ต ได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E) สามารถนำสู่การอภิปรายผล ได้ดังนี้

1. ผลการศึกษาความสามารถแก้ปัญหาทางคณิตศาสตร์ ของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ก่อนหลังได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E) พบว่า ความสามารถแก้ปัญหาของนักเรียนอยู่ในระดับดีมาก ซึ่งเป็นไปตามสมมติฐานที่กล่าวว่า นักเรียนที่ได้จากการจัดการเรียนรู้โดยการสอนแบบสืบเสาะหาความรู้ 5E มีความสามารถแก้ปัญหาทางคณิตศาสตร์อยู่ในระดับดี ทั้งนี้อาจเนื่องมาจากการจัดการเรียนรู้ด้วยการสอนแบบสืบเสาะหาความรู้ 5E ช่วยพัฒนาความสามารถในการแก้ปัญหาทางคณิตศาสตร์ เห็นได้จากการที่นักเรียนทำโจทย์เส้นขนาน ตามขั้นตอน ซึ่งสอดคล้องกับงานวิจัย วิทิต มูลวงค์ และ ศิวพร มามาตร (2565) การวิจัยครั้งนี้มีจุดมุ่งหมายการวิจัยเพื่อเปรียบเทียบ ผลคะแนนการวัดทักษะการแก้ปัญหาทางคณิตศาสตร์และเปรียบเทียบผลการ เรียนรู้วิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ก่อนและหลังเรียนด้วยรูปแบบการเรียนการสอนแบบสืบเสาะหาความรู้ 5E ผลการวิจัยสรุปได้ดังนี้ 1) ผลคะแนนการวัดทักษะการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 3 หลังเรียนด้วยรูปแบบการเรียนการสอน แบบสืบเสาะหาความรู้ 5E สูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ .05 2) ผลการเรียนรู้วิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่3 หลังเรียนด้วยรูปแบบการเรียนการสอนแบบสืบเสาะหาความรู้ 5E สูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ .05

2. ผลการศึกษาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์จากการจัดการเรียนรู้ โดยวิธีการสอนแบบสืบเสาะหาความรู้ 5E พบว่า ผลสัมฤทธิ์ทางการเรียนก่อนหลังได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E) สูงกว่าก่อนก่อนได้รับการเรียนรู้แบบสืบเสาะหาความรู้ (5E) ทั้งนี้อาจเป็นเพราะการจัดการเรียนรู้โดยวิธีการสอนแบบ สืบเสาะหาความรู้ 5E เป็นการจัดการเรียนรู้ที่เป็นลำดับขั้นตอนเน้นให้นักเรียนสร้างความรู้และนำความรู้ไปใช้ด้วยตนเอง อีกทั้งยังเน้นการตรวจสอบข้อผิดพลาดจากการเรียนรู้ของนักเรียนให้ข้อมูลป้อนกลับแก่นักเรียน เพื่อให้นักเรียนได้ปรับแก้ข้อผิดพลาด และสนับสนุนให้นักเรียนเกิดความรอบรู้จากเรื่องที่เรียน ซึ่งสอดคล้องกับผลการวิจัยของ ศศิธร โมลาม, คมสัน ตรีไพบูลย์ และวิมลรัตน์ จตุรานนท์ (2561) ความสามารถในการแก้ปัญหาทางคณิตศาสตร์ผลสัมฤทธิ์ทางการเรียนและเจตคติ

ต่อวิชา คณิตศาสตร์นักเรียนชั้นมัธยมศึกษาปีที่ 1 ที่เรียนโดยรูปแบบสืบเสาะหาความรู้ 5Es ร่วมกับกระบวนการแก้ปัญหาของโพลยา ผลวิจัยพบว่า 1) ความสามารถในการแก้ปัญหาทางคณิตศาสตร์ เรื่อง สมการเชิงเส้นตัวแปรเดียวของนักเรียนชั้นมัธยมศึกษาปีที่ 1 ที่เรียนโดยรูปแบบสืบเสาะหาความรู้ 5Es ร่วมกับกระบวนการแก้ปัญหาของโพลยาสูงกว่าเกณฑ์ ร้อยละ 70 2) ผลสัมฤทธิ์ทาง การเรียนคณิตศาสตร์ เรื่อง สมการเชิงเส้นตัวแปรเดียวของนักเรียนชั้นมัธยมศึกษาปีที่ 1 ที่เรียนโดยรูปแบบสืบเสาะหาความรู้ 5Es ร่วมกับกระบวนการแก้ปัญหาของโพลยา สูงกว่าเกณฑ์ร้อยละ 70 3) นักเรียนมีเจตคติที่ดีต่อวิชาคณิตศาสตร์รวมของทุกด้านอยู่ในระดับมาก และ 4) นักเรียนมีความคงทนในการเรียนรู้ โดยการทดสอบหลังการเรียนรู้และการทดสอบหลังการเรียนจำนวน 14 วัน ผลการทดสอบไม่แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

จะเห็นได้ว่าการจัดการเรียนรู้แบบสืบเสาะหาความรู้ (5E) ทำให้คะแนนหลังจากการจัดการเรียนรู้สูงกว่าก่อนการจัดการเรียนรู้ โดยประกอบด้วยขั้นตอนที่สำคัญดังนี้

1. ขั้นสร้างความสนใจ (Engagement) เป็นการนำเข้าสู่บทเรียนหรือเรื่องที่น่าสนใจ ซึ่งอาจเกิดขึ้นเองจากความสงสัย หรืออาจเริ่มจากความสนใจของตัวนักเรียนเองหรือเกิดจากการอภิปรายในกลุ่มเรื่อง ที่น่าสนใจอาจมาจากเหตุการณ์สำคัญที่กำลังเกิดขึ้นอยู่ในช่วงเวลานั้นหรือเป็นเรื่องที่เชื่อมโยงจากความรู้เดิมที่ เพิ่งเรียนมาแล้ว เป็นตัวกระตุ้นให้นักเรียนสร้างคำถามกำหนดประเด็นที่จะศึกษา

2. ขั้นสำรวจและค้นหา (Exploration) เมื่อทำความเข้าใจในประเด็นหรือคำถามที่สนใจจะศึกษาอย่างถ่องแท้แล้ว ก็มีการวางแผนกำหนดแนวทางการสำรวจตรวจสอบ ตั้งสมมติฐานกำหนดทางเลือกที่เป็นไปได้ ลงมือปฏิบัติเพื่อเก็บรวบรวมข้อมูล ข้อสนเทศหรือปรากฏการณ์ต่าง ๆ วิธีการตรวจสอบอาจทำได้หลายวิธี เช่น ทำการทดลอง ทำกิจกรรมภาคสนาม การใช้คอมพิวเตอร์เพื่อช่วยสร้างสถานการณ์จำลอง (Simulation) การศึกษาหาข้อมูลจากเอกสารอ้างอิงหรือแหล่งข้อมูลต่าง ๆ เพื่อให้ได้มาซึ่งข้อมูลอย่างเพียงพอที่จะใช้ในขั้นต่อไป

3. ขั้นอธิบายและลงข้อสรุป (Explanation) เมื่อได้ข้อมูลอย่างเพียงพอจากการสำรวจตรวจสอบแล้วจึงนำข้อมูล ข้อสนเทศที่ได้มาวิเคราะห์ แปลผล สรุปผลและนำเสนอผลที่ได้ในรูปต่าง ๆ

4. ขั้นขยายความรู้ (Elaboration) เป็นการนำความรู้ที่สร้างขึ้นไปเชื่อมโยงกับความรู้เดิมหรือแนวคิดที่ได้ค้นคว้าเพิ่มเติม หรือนำแบบจำลองหรือข้อสรุปที่ได้ไปใช้อธิบายสถานการณ์หรือเหตุการณ์อื่น ๆ ทำให้เกิดความรู้กว้างขวางขึ้น

5. ขั้นประเมิน (Evaluation) เป็นการประเมินการเรียนรู้ด้วยกระบวนการต่าง ๆ ว่านักเรียนมีความรู้อะไรบ้าง อย่างไร และมากน้อยเพียงใด จากขั้นนี้จะนำไปสู่การนำความรู้ไปประยุกต์ใช้ในเรื่องอื่น ๆ เช่น การให้ทำแบบฝึกหัดเพิ่มจากขั้นตอนในการจัดกิจกรรมการเรียนรู้โดยวิธี สืบเสาะหาความรู้ 5E

ข้อเสนอแนะ

1 ควรมีการศึกษาเปรียบเทียบผลสัมฤทธิ์ทางการเรียนของการจัดการเรียนรู้โดยวิธีการสอนแบบสืบเสาะหาความรู้ 5E กับวิธีการสอนแบบอื่น

2 ควรมีการศึกษาวิจัยกับตัวแปรตามอื่น ๆ กับการจัดการเรียนรู้โดยวิธีการสอนแบบ สืบเสาะหาความรู้ 5E เช่น ความพึงพอใจหรือเจตคติต่อการเรียนวิชาคณิตศาสตร์ ความสามารถในการแก้ปัญหาทางคณิตศาสตร์ เป็นต้น

เอกสารอ้างอิง

กฤตยา ยมนา และ ดุจเดือน ไชยพิชิต. (2565). การพัฒนาความสามารถการให้เหตุผลทางคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 4 โดยการจัดการเรียนรู้แบบเปิดร่วมกับการเรียนรู้แบบร่วมมือเทคนิค STAD. วารสาร มจร อุบลปริทรรศน์, 7(2), 1295-1303.

กาญจนา การสมทรัพย์. (2561). การพัฒนารูปแบบการจัดการเรียนรู้เพื่อเสริมสร้างความสามารถในการแก้ปัญหาทาง คณิตศาสตร์ของนักเรียนระดับมัธยมศึกษาตอนต้น (วิทยานิพนธ์ครุศาสตรมหาบัณฑิต), มหาวิทยาลัยบูรพา, ชลบุรี.

กระทรวงศึกษาธิการ. (2552). หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพฯ : สำนักวิชาการและมาตรฐานการศึกษา สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน.

คณะกรรมการการศึกษาขั้นพื้นฐาน. (2560). หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 (ฉบับปรับปรุง พ.ศ. 2560). กรุงเทพฯ : สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน.

ชญาภา เผือกคล้าย. (2565). ผลของการจัดการเรียนรู้คณิตศาสตร์แบบสืบเสาะหาความรู้ (5E) ผ่านสถานการณ์ในชีวิตจริงที่มีต่อการให้เหตุผลทางคณิตศาสตร์ตามกรอบการประเมินของ PISA (วิทยานิพนธ์ปริญญานิพนธ์). มหาวิทยาลัยศรีนครินทรวิโรฒ, กรุงเทพฯ

ณัฐนันท์ จุยคำวงศ์. (2560). การใช้รูปแบบ 5E ในการเรียนการสอนคณิตศาสตร์. กรุงเทพฯ : สำนักพิมพ์มหาวิทยาลัยธรรมศาสตร์.

วีณา ประชากูล และประสาท เนืองเฉลิม. (2553). รูปแบบการเรียนการสอน (พิมพ์ครั้งที่ 1). มหาสารคาม : สำนักพิมพ์มหาวิทยาลัยมหาสารคาม.

วัชรา เล่าเรียนดี. (2548). การพัฒนากระบวนการคิด. กรุงเทพฯ : สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

วิทิต มูลวงค์ และ ศิวพร มามาตร. (2565). การพัฒนาทักษะการแก้ปัญหาและผลการเรียนรู้วิชาคณิตศาสตร์ ของนักเรียนชั้นมัธยมศึกษาปีที่ 3 โดยใช้รูปแบบการเรียนการสอนแบบ 5E. วารสารวิชาการ มหาวิทยาลัยราชภัฏเพชรบุรี, 11(3), 60-67.

ศศิธร โมลาม, คมสัน ตรีไพบูลย์ และวิมลรัตน์ จตุรานนท์. (2561). ความสามารถในการแก้ปัญหาทางคณิตศาสตร์ ผลสัมฤทธิ์ทางการเรียน และเจตคติต่อวิชาคณิตศาสตร์ของนักเรียนชั้นมัธยมศึกษาปีที่ 1 ที่เรียนโดยรูปแบบสืบเสาะหาความรู้ 5Es ร่วมกับกระบวนการแก้ปัญหาของโพลยา. นครราชสีมา : มหาวิทยาลัยราชภัฏนครราชสีมา.

ศิริชัย กาญจนวาสี. (2552). การวิจัยและประเมินผลการศึกษา. กรุงเทพฯ : สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

สุวารี คงมั่น. (2545). การพัฒนาความสามารถในการแก้โจทย์ปัญหาทางคณิตศาสตร์โดยใช้เทคนิคการแก้ปัญหาของโพลยา. (วิทยานิพนธ์ครุศาสตรมหาบัณฑิต). มหาวิทยาลัยศิลปากร, กรุงเทพฯ.

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี. (2550). ทักษะ/กระบวนการทางคณิตศาสตร์. กรุงเทพฯ : สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี.

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี. (2546). รูปแบบการจัดการเรียนรู้ตามแนวทาง 5E Learning Model. กรุงเทพฯ : สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี.

สมพร เชื้อพันธ์. (2547). การพัฒนาการเรียนรู้โดยใช้กระบวนการกลุ่มร่วมมือแบบ STAD. กรุงเทพฯ: บริษัท พัฒนาคุณภาพวิชาการ (พว.).

สำนักงานวิชาการและมาตรฐานการศึกษา. (2551). มาตรฐานการศึกษาและการพัฒนาหลักสูตรการเรียนการสอนคณิตศาสตร์. กรุงเทพฯ : กระทรวงศึกษาธิการ.

สำนักงานเลขาธิการสภาการศึกษา. (2564). รายงานผลการประเมินการศึกษาในประเทศไทย. กรุงเทพฯ : สำนักงานเลขาธิการสภาการศึกษา.

Gagné, R. M. (1970). The conditions of learning (2nd ed.). New York : Holt, Rinehart and Winston.

Ministry of Education. (2009). Basic core courses. Bangkok : Ministry of Education.

OECD. (2022). PISA 2022 results: Problem solving and digital literacy. Organisation for Economic Co-operation and Development.

Polya, G. (1957). How to solve it: A new aspect of mathematical method (2nd ed.). Princeton University Press.

การพัฒนาผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน โดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบ สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 3 โรงเรียนหาดใหญ่วิทยาลัย 2 จังหวัดสงขลา

Development of Learning achievement in the subject of Thai language usage: Complex sentences using the Jigsaw technique teaching method combined with Quiz for Mathayom 3 students at Hatyaiwittayalai 2 School, Songkhla Province

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บทคัดย่อ

การวิจัยครั้งมีวัตถุประสงค์เพื่อเปรียบเทียบ 1) ผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน ระหว่างก่อนและหลังเรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบ 2) ผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน ระหว่างวิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบและวิธีการสอนแบบปกติ กลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้ ได้แก่ นักเรียนชั้นมัธยมศึกษาปีที่ 3 โรงเรียนหาดใหญ่วิทยาลัย 2 จังหวัดสงขลา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 2 ห้องเรียน ที่ได้จากการสุ่มตัวอย่างแบบอาศัยหลักความน่าจะเป็น (Probability Sampling) โดยการสุ่มตัวอย่างแบบกลุ่ม (Cluster Random Sampling) ห้องทดลอง นักเรียนชั้นมัธยมศึกษาปีที่ 3/9 จำนวน 28 คน และห้องควบคุม นักเรียนชั้นมัธยมศึกษาปีที่ 3 /14 จำนวน 22 คน รวมทั้งสิ้น จำนวน 50 คน เครื่องมือที่ใช้ในการวิจัยครั้งนี้ แผนการจัดการเรียนรู้ แบ่งเป็น 2 แผน แผนละ 3 คาบ ได้แก่ แผนการจัดการเรียนรู้แบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบฝึกทักษะและแผนการจัดการเรียนรู้แบบปกติ เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล ได้แก่ แผนการจัดการเรียนรู้ แบบทดสอบเรื่องประโยคซับซ้อน แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน ก่อนเรียนและหลังเรียน เป็นแบบปรนัย 4 ตัวเลือก จำนวน 20 ข้อ 1 ชุด สอบก่อนเรียนและหลังเรียน กำหนดการให้ค่าคะแนน คือ ตอบถูกได้ 1 คะแนน ตอบผิดหรือไม่ตอบ ได้ 0 คะแนน (ข้อสอบเป็นชุดเดียว) และสถิติที่ใช้ในการวิเคราะห์ข้อมูล คือ คือ ค่าความเที่ยงตรงเชิงเนื้อหา (IOC) ค่าความยากง่ายของข้อสอบ ค่าอำนาจจำแนก ความความเชื่อมั่น ค่าเฉลี่ย

($\overline{X}$) ค่าเบี่ยงเบนมาตรฐาน (S.D.) การทดสอบ (test) แบบ Independent ของแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน โดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบ

ผลการวิจัยพบว่า

1) นักเรียนที่เรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบมีผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน หลังเรียนสูงกว่าก่อนเรียนแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01

2) นักเรียนที่เรียนโดยใช้วิธีสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบมีผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน หลังเรียนสูงกว่า นักเรียนที่เรียนแบบปกติแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

คำสำคัญ : วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw), แบบทดสอบ, ผลสัมฤทธิ์, ประโยคซับซ้อน

Abstract

This research aimed to compare 1) the academic achievement in the topic of Thai language principles on Complex sentences before and after learning using the Jigsaw technique with Quiz, and 2) the academic achievement in the topic of Thai language principles on Complex sentences between the Jigsaw technique with Quiz and the conventional teaching method. The samples used in this research were Mathayom 3 students of Hatyai Wittayalai 2 School, Songkhla Province, the second semester of the academic year 2024, 2 classrooms, selected by probability sampling using group randomization. The experimental room consisted of 28 Mathayom 3/9 students, and the control room consisted of 22 Mathayom 3/14 students, totaling 50 students. The instruments used in this research were 2 learning plans, each with 3 periods: the Jigsaw technique learning plan with Quiz, and the conventional learning plan. The tools used for data collection included the learning plan. Skill practice on complex sentences, achievement test on the subject of Thai language usage principles on complex sentences before and after studying, 4-choice, 20 questions, and statistics used for data analysis are: content validity (IOC), test difficulty, discrimination power, reliability, mean, standard deviation (S.D.), dependent T-test. The results of the research found that 1) Students who studied using the Jigsaw technique teaching method with skill practice had higher achievement in the subject of Thai language usage principles on complex sentences after studying than before studying, with a statistical difference of 01. 2) Students who studied using the Jigsaw technique teaching method with Quiz had higher achievement in the subject of Thai language usage principles on complex sentences after studying than students who studied in the normal method, with a statistical difference of .05

The findings were as follows

1) Students who studied using the Jigsaw technique teaching method with Quiz had higher achievement in the subject of Thai language usage principles, the topic of complex sentences, after studying than before studying with a statistical difference of .01.

2) Students who studied using the Jigsaw technique teaching method with Quiz had higher achievement in the subject of Thai language usage principles, the topic of complex sentences, after studying than students who studied in the normal method with a statistical difference of .05.

Keywords: Jigsaw teaching method, Quiz, achievement, complex sentences.

บทนำ

กระทรวงศึกษาธิการกำหนดให้มีวิชาภาษาไทยในหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน 2551 เป็นวิชาบังคับตั้งแต่ระดับชั้นประถมศึกษา มัธยมศึกษาตอนต้นจนถึงระดับชั้นมัธยมศึกษาตอนปลาย โดยกำหนดสาระและมาตรฐานการเรียนรู้ไว้ จำนวน 5 สาระ ได้แก่ สาระที่ 1 การอ่าน สาระที่ 2 การเขียน สาระที่ 3 การฟัง การดู และการพูด สาระที่ 4 หลักการใช้ภาษาไทย และสาระที่ 5 วรรณคดีและวรรณกรรม สาระหลักการใช้ภาษาไทยกำหนดให้นักเรียน "ศึกษาธรรมชาติและกฎเกณฑ์ของภาษาไทย การใช้ภาษาให้ถูกต้องเหมาะสมกับโอกาสและบุคคล การแต่งบทประพันธ์ประเภทต่างๆ และอิทธิพลของภาษาต่างประเทศในภาษาไทย" (สำนักงานการศึกษาขั้นพื้นฐาน, 2551) นักเรียนจึงจำเป็นต้องได้รับการจัดการเรียนรู้ตามสาระที่ 4 หลักการใช้ภาษาไทย เพราะหลักการใช้ภาษาไทยมีความสำคัญกับการเรียนภาษาไทยแม้ว่ากระทรวงศึกษาธิการจะให้ความสำคัญกับการเรียนโดยเฉพาะหลักการใช้ภาษาไทย แต่จากประสบการณ์พบว่านักเรียนยังมีผลการเรียนที่ไม่น่าพอใจ เมื่อพิจารณาคะแนนเฉลี่ยของผลการทดสอบทางการศึกษาระดับชาติ (O-NET) ของนักเรียนระดับชั้นมัธยมศึกษาปีที่ 3 โรงเรียนหาดใหญ่วิทยาลัย 2 สังกัดสำนักงานเขตพื้นที่การศึกษามัธยมศึกษาสงขลา สตูล ปีการศึกษา 2566 ซึ่งแยกตามมาตรฐานการเรียนรู้ พบว่า มาตรฐานการเรียนรู้ที่ 4.1 เข้าใจธรรมชาติของภาษาและหลักภาษาไทย การเปลี่ยนแปลงของภาษาและพลังของภาษา ภูมิปัญญาทางภาษา และรักษาภาษาไทยไว้เป็นสมบัติของชาติ มีคะแนนเฉลี่ยในระดับโรงเรียน 39.25 ระดับจังหวัด 40.85 ระดับสังกัด 41.64 และมีคะแนนเฉลี่ยในระดับประเทศ 41.22 ซึ่งต่ำกว่าเกณฑ์มาตรฐาน ร้อยละ 50 ผู้วิจัยได้ค้นหาปัญหาและสาเหตุ พบว่า เนื้อหาสาระที่เกิดปัญหาในการสอนมากที่สุด คือ เรื่องหลักการใช้ภาษา ซึ่งเกิดจากหลายสาเหตุประกอบกัน ได้แก่ เนื้อหาที่มีกฎเกณฑ์ เป็นแบบแผนต้องอาศัยความแม่นยำในเนื้อหา ซึ่งเป็นเรื่องยากสำหรับครูที่ไม่มีวิธีการสอนหรือสื่อการสอนที่หลากหลายก็ย่อมจะทำให้การเรียนการสอนหลักภาษาไม่น่าสนใจ นอกจากนี้ เนื้อหาสาระเรื่องหลักการใช้ภาษาไทยของระดับชั้นมัธยมศึกษาปีที่ 3 ที่เกิดปัญหาในการสอนมากที่สุด ได้แก่ เรื่องประโยคซับซ้อน ผลการเรียนรู้นั้นมีการกำหนดให้นักเรียนระดับชั้นมัธยมศึกษาปีที่ 3 ประโยคซับซ้อนแบ่งออกเป็น 3 องค์ประกอบ 1) ประโยคความเดียวที่ซับซ้อน 2) ประโยคความรวมที่ซับซ้อน 3) ประโยคความซ้อนที่ซับซ้อน ซึ่งนักเรียนต้องมีพื้นฐานความรู้เรื่องชนิดของประโยค ตามที่ตัวชี้วัดและสาระการเรียนรู้แกนกลางระบุไว้ แต่เนื่องจากนักเรียนยังไม่เข้าใจเรื่องการของประโยคซับซ้อน จึงส่งผลต่อผลการทดสอบทางการศึกษาระดับชาติ (O-NET) ของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ที่ไม่น่าพึงพอใจ นอกจากหลักการใช้ภาษามีเนื้อหายากและมากแล้ว สาเหตุสำคัญที่ทำให้นักเรียนไม่เข้าใจเนื้อหาเรื่องประโยค

ซับซ้อนนั้น มาจากการเลือกสื่อที่ใช้ประกอบการสอนอีกประการหนึ่งด้วย ผู้วิจัยเล็งเห็นความสำคัญในการพัฒนาหลักการใช้ภาษาไทยของนักเรียนระดับชั้นมัธยมศึกษาปีที่ 3 เพื่อพัฒนาด้านความรู้ ทักษะ จึงยกรูปแบบฝึกทักษะ ที่เห็นว่ามีความเหมาะสมและน่าจะช่วยให้ผู้เรียนเกิดการเรียนรู้ที่บรรลุได้ตรงตามวัตถุประสงค์

สภาพปัญหาจากการจัดการเรียนรู้

รายงานผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐาน (O-NET) วิชาภาษาไทยของนักเรียนชั้นมัธยมศึกษาปีที่ 3 โรงเรียนหาดใหญ่วิทยาลัย 2 จังหวัดสงขลา ปีการศึกษา 2566 (เข้ารับการทดสอบจำนวน 530 คน) มีคะแนนเฉลี่ย 54.25 โดยที่คะแนนเฉลี่ยของสาระที่ 4 หลักการใช้ภาษาไทย ยังไม่ผ่านเกณฑ์ กล่าวคือ มีคะแนนเฉลี่ย 39.25 ซึ่งต่ำกว่าคะแนนของระดับประเทศ 41.22 (สำนักงานทดสอบทางการศึกษาแห่งชาติ. 2566 : ออนไลน์) ผู้วิจัยพบว่า สาระหลักการใช้ภาษาไทย ตัวชี้วัด เรื่อง วิเคราะห์โครงสร้างประโยคซับซ้อน พบว่าผู้เรียนยังไม่สามารถวิเคราะห์โครงสร้างของประโยคที่ซับซ้อนได้ เนื่องจากประโยคที่ซับซ้อนได้แบ่งออกเป็น 3 ประโยค ดังนี้ 1.ประโยคความเดียวที่ซับซ้อน 2.ประโยครวมที่ซับซ้อน 3.ประโยคซ้อนที่ซับซ้อน โดยนักเรียนเกิดความสับสนประโยคความรวมที่ซับซ้อนและประโยคความซ้อนที่ซับซ้อน ประโยคความรวมที่ซับซ้อน แบ่งออกเป็น 3 ลักษณะ 1.ประโยคความรวมที่ซับซ้อนมีส่วนย่อยเป็นประโยคความรวมด้วยกัน 2.ประโยคความรวมที่ซับซ้อนมีส่วนย่อยเป็นประโยคความซ้อน 3.ประโยคความรวมที่ซับซ้อนมีส่วนย่อยเป็นประโยคซับซ้อน จะเห็นได้ว่าประโยคความรวมของแต่ละประโยคอยู่มากกว่า 2 ประโยค โดยมีประโยคใหญ่ และมีประโยคย่อยด้วย และประโยคความซ้อนที่ซับซ้อน แบ่งออกเป็น 3 ลักษณะ 1.ประโยคหลักหรือประโยคย่อยที่มีคำหรือกลุ่มคำมาขยาย 2.ประโยคความซ้อนที่มีส่วนย่อยเป็นประโยคความรวม 3.ประโยคความซ้อนที่มีส่วนย่อยเป็นประโยคความซ้อน ผู้วิจัยพบว่าผู้เรียนสับสนโครงสร้างประโยค การจำแนกส่วนย่อยของแต่ละประโยค และผู้เรียนไม่สามารถบอกได้ว่าประโยคนี้ คือ ประโยคความซ้อนชนิดใด

แบบทดสอบ ที่ช่วยเสริมสร้างให้ผู้เรียนเกิดการกระตุ้นความสนใจให้น่าเรียนมากยิ่งขึ้น รวมทั้งเนื้อหาของแบบทดสอบจะช่วยให้ผู้เรียนสามารถทบทวน ฝึกฝนให้เกิดชำนาญได้ ซึ่งจะช่วยให้ผู้เรียนเกิดความเข้าใจและสามารถนำไปใช้ได้ แบบทดสอบ เรื่องประโยคซับซ้อน ที่แบ่งส่วนย่อย ของแบบทดสอบเรื่องประโยคซับซ้อน เป็น 3 ประโยค 1.ประโยคความเดียวที่ซับซ้อน ซึ่งมีรายละเอียดของประโยคความเดียวที่ซับซ้อน 2 ลักษณะ ได้แก่ 1.ประโยคความเดียวที่ซับซ้อนในภาคประธาน 2.ประโยคความเดียวที่ซับซ้อนในภาคแสดง 2.ประโยคความรวมที่ซับซ้อน แบ่งเป็น ประโยคความรวมที่ซับซ้อนซึ่งมีส่วนย่อยเป็นประโยคความรวมด้วยกัน 2.ประโยคความรวมที่ซับซ้อนซึ่งมีส่วนย่อยเป็นประโยคความซ้อน 3.ประโยคความรวมที่ซับซ้อนซึ่งมีส่วนย่อยเป็นประโยคซับซ้อน และ 3.ประโยคความซ้อนที่ซับซ้อน แบ่งเป็น 3 ลักษณะ 1.ประโยคหลักหรือประโยคย่อยที่มีคำหรือกลุ่มคำมาขยาย 2.ประโยคความซ้อนที่มีส่วนย่อยเป็นประโยคความรวม 3.ประโยคความซ้อนที่มีส่วนย่อยเป็นประโยคความซ้อน

การจัดการเรียนรู้โดยใช้รูปแบบจิ๊กซอร์ (Jigsaw) สามารถนำมาปรับใช้ร่วมกับแบบฝึกทดสอบเรื่อง ประโยคซับซ้อน สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 3 ได้ สุวิทย์ มูลคำ (2551) ได้กล่าวว่า การจัดการเรียนรู้โดยใช้เทคนิคจิ๊กซอว์ เป็นการจัดกระบวนการเรียนรู้ที่ใช้แนวคิดการต่อภาพ โดยแบ่งผู้เรียนเป็นสองกลุ่ม ทุกกลุ่มจะได้รับมอบหมายให้ทำกิจกรรมเดียวกัน ผู้สอนจะแบ่งเนื้อหาของเรื่องที่จะให้ผู้เรียนออกเป็นหัวข้อย่อยเท่ากับจำนวนสมาชิกแต่ละกลุ่ม และมอบหมายให้ผู้เรียนแต่ละกลุ่มศึกษา

ค้นคว้าคนละหัวข้อซึ่งผู้เรียนแต่ละคนจะเป็นผู้เชี่ยวชาญเฉพาะเรื่องที่ตนเองได้รับมอบหมายให้ศึกษาจากกลุ่ม สมาชิกต่างกลุ่มที่ได้รับมอบหมายในหัวข้อเดียวกันจะทำการศึกษาค้นคว้าร่วมกัน จากนั้นผู้เรียนแต่ละคนจะกลับเข้ากลุ่มเดิมของตนเพื่อทำหน้าที่เป็นผู้อธิบายความรู้ เนื้อหาสาระที่คนศึกษาให้เพื่อนร่วมกลุ่มฟัง เพื่อให้เพื่อนสมาชิกทั้งกลุ่มได้รู้เนื้อหาสาระครบทุกหัวข้อย่อยและเกิดจากการเรียนรู้เนื้อหาสาระทั้งกลุ่ม

วัตถุประสงค์ของการวิจัย

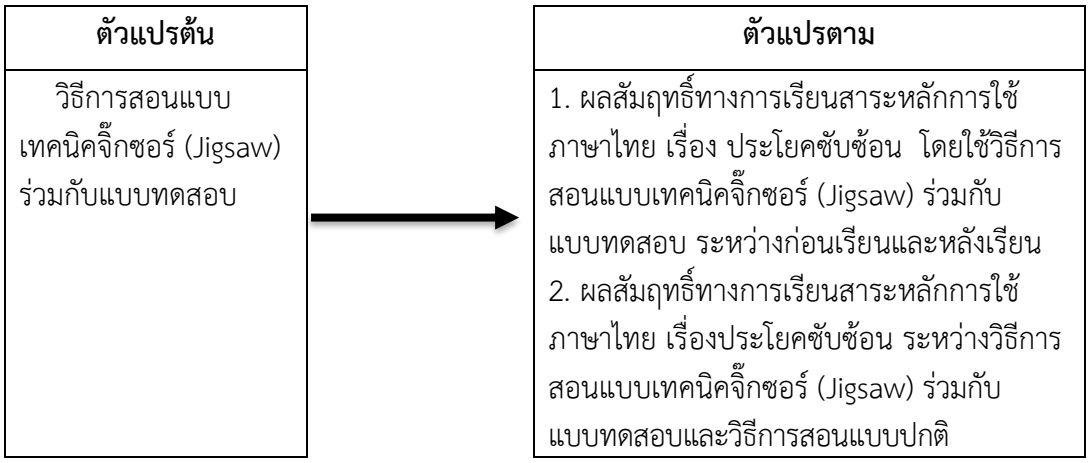
1. เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน โดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบระหว่างก่อนเรียนและหลังเรียน
2. เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่องประโยคซับซ้อน ระหว่างวิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบและวิธีการสอนแบบปกติ

สมมติฐานของการวิจัย

1. ผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน โดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบหลังเรียนสูงกว่าก่อนเรียน
2. ผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน โดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบสูงกว่าวิธีการสอนแบบปกติ

กรอบแนวคิดการวิจัย

การพัฒนาผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน โดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบ สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 3 โรงเรียนหาดใหญ่วิทยาลัย 2 จังหวัดสงขลา ซึ่งผู้วิจัยได้กำหนดกรอบแนวคิดการวิจัยไว้ดังนี้



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีการดำเนินการวิจัย

การวิจัย เรื่อง การพัฒนาผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน โดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบสำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 3 โรงเรียนหาดใหญ่วิทยาลัย 2 จังหวัดสงขลา ซึ่งมีวิธีการดำเนินวิจัยดังต่อไปนี้

ประชากรและกลุ่มตัวอย่าง

ประชากร คือ นักเรียนระดับชั้นมัธยมศึกษาปีที่ 3 ภาคเรียนที่ 2 ปีการศึกษา 2567 โรงเรียนหาดใหญ่วิทยาลัย 2 จังหวัดสงขลา มีนักเรียน 14 ห้องเรียน จำนวน 568 คน

กลุ่มตัวอย่าง

นักเรียนระดับชั้นมัธยมศึกษาปีที่ 3/9 จำนวน 28 คน เป็นห้องทดลอง และ3/14 จำนวน 22 คน เป็นห้องควบคุม รวมทั้งสิ้นจำนวน 50 คน ที่ได้โดยการสุ่มตัวอย่างแบบกลุ่ม (Cluster Random Sampling)

เครื่องมือที่ใช้ในการวิจัย ได้แก่

1) แผนการจัดการเรียนรู้ แบ่งเป็น 2 แผน แผนละ 3 คาบ

แผนที่ 1 แผนการจัดการเรียนรู้โดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (jigsaw) ร่วมกับแบบทดสอบ

แผนที่ 2 แผนการจัดการเรียนรู้วิธีการสอนแบบปกติ

ขั้นตอนการสร้างแผนการสอน

1. ศึกษาสภาพและปัญหาที่เกิดขึ้นในชั้นเรียนจากการจัดการเรียนการสอนของครูเสงี่ยม บุบผะโก ครูผู้สอนรายวิชาภาษาไทย หลักการใช้ภาษาไทย ของนักเรียนระดับชั้นมัธยมศึกษาปีที่ 3 ภาคเรียนที่ 1 ปีการศึกษา 2567 โรงเรียนหาดใหญ่วิทยาลัย 2 จังหวัดสงขลา เพื่อนำมาวิเคราะห์และใช้เป็นประเด็นในการทำวิจัย

2. วิเคราะห์หลักสูตรการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 เนื้อหารายวิชาภาษาไทย หลักการใช้ภาษาไทย จากหนังสือหลักการใช้ภาษาไทย ชั้นมัธยมศึกษาปีที่ 3 เล่มที่ 2 บทที่ 2 เรื่องประโยคซับซ้อน เพื่อกำหนดแผนการสอน จำนวน 2 แผนการเรียนรู้ ดังนี้

แผนการจัดการเรียนรู้แบบปกติ 5E หรือ ‘‘Active Learning’’

แผนการจัดการเรียนรู้แบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบฝึกทักษะ ประกอบด้วย

1. เรื่องประโยคเดียวที่ซับซ้อน
2. เรื่องประโยครวมที่ซับซ้อน
3. เรื่องประโยคซ้อนที่ซับซ้อน

3. นำแผนการจัดการเรียนรู้ เรื่องประโยคซับซ้อน ที่ผู้วิจัยสร้างขึ้นให้อาจารย์ที่ปรึกษา พิจารณาความเหมาะสมของแผนการจัดการเรียนรู้ ตรวจสอบความถูกต้องของเนื้อหาสาระ กิจกรรมการเรียนการสอน การวัดผลประเมินผล ให้ข้อเสนอแนะและปรับปรุงแก้ไขตามข้อแนะนำของอาจารย์ที่ปรึกษา

4. นำแผนการจัดการเรียนรู้เสนอผู้เชี่ยวชาญ จำนวน 3 คน เพื่อตรวจสอบความสอดคล้องขององค์ประกอบต่าง ๆ ในแผนการจัดการเรียนรู้ด้านภาษาและความเที่ยงตรงของเนื้อหา (Content validity) จุดประสงค์การเรียนรู้ กิจกรรมการเรียน การสอน การวัดผลประเมินผล ความชัดเจนความถูกต้องเหมาะสม ของภาษาที่ใช้และนำข้อมูลที่รวบรวมจากความคิดเห็นของผู้เชี่ยวชาญมาคำนวณหาค่าดัชนีความสอดกล้อง (IOC) โดยใช้ดัชนีความสอดดคล้อง (Index of ttem Objective Congruence) (Rovinelli & Hambleton, 1977,p.49-60 อ้างถึงใน วีระยุทธ พรพจน์ธนมาศ. (2565)) โดยผู้เชี่ยวชาญให้คะแนนความคิดเห็นในการพิจารณา ดังนี้

+1 หมายถึง แน่ใจว่าแผนการจัดการเรียนรู้มีความสอดคล้องกับตัวชี้วัด

0 หมายถึง ไม่แน่ใจว่าแผนจัดการเรียนรู้มีความสอดคล้องกับตัวชี้วัด

-1 หมายถึง แน่ใจว่าแผนการจัดการเรียนรู้มีความสอดคล้องกับตัวชี้วัดเกณฑ์ค่า IOC มีค่าเท่ากับ 0.5 ขึ้นไป

5. นำแผนการจัดการเรียนรู้ เรื่องประโยคซับซ้อน ไปปรับปรุงแก้ไขตามคำแนะนำของผู้เชี่ยวชาญ และนำแผนการจัดการเรียนรู้ไปใช้ในการดำเนินการวิจัยต่อไป

2) แบบทดสอบ เรื่อง ประโยคซับซ้อน แบบฝึกทักษะเพื่อพัฒนาผลสัมฤทธิ์ทางการเรียนชั้นมัธยมศึกษาปีที่ 3 แบบทดสอบจำนวน 3 เรื่อง ประกอบด้วย

1. ประโยคความเดียวที่ซับซ้อน แบ่งเป็น 2 ลักษณะ ได้แก่ 1) ประโยคความเดียวที่ซับซ้อนในภาคประธาน 2) ประโยคความเดียวที่ซับซ้อนในภาคแสดง

2. ประโยคความรวมที่ซับซ้อน แบ่งเป็น 3 ลักษณะ ได้แก่ 1) ประโยคความรวมที่ซับซ้อนซึ่งมีส่วนย่อยเป็นประโยคความรวมด้วยกัน 2) ประโยคความรวมที่ซับซ้อนซึ่งมีส่วนย่อยเป็นประโยคความซ้อน 3.ประโยคความรวมที่ซับซ้อนซึ่งมีส่วนย่อยเป็นประโยคซับซ้อน

3. ประโยคความซ้อนที่ซับซ้อน แบ่งเป็น 3 ลักษณะ 1) ประโยคหลักหรือประโยคย่อยที่มีคำหรือกลุ่มคำมาขยาย 2) ประโยคความซ้อนที่มีส่วนย่อยเป็นประโยคความรวม 3) ประโยคความซ้อนที่มีส่วนย่อยเป็นประโยคความซ้อน

3) แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่องประโยคซับซ้อน ระหว่างวิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบก่อนเรียน และแบบทดสอบหลังเรียน แบบปรนัย เลือกตอบ 4 ตัวเลือก จำนวน 20 ข้อ (แบบทดสอบที่ใช้ในการทดสอบเป็นข้อสอบชุดเดียวกัน)

ขั้นตอนการสร้างแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนรายวิชาภาษาไทยเรื่องประโยคซับซ้อน แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนรายวิชาภาษาไทย หลักการใช้ภาษาไทย เรื่องประโยคซับซ้อน ชั้นมัธยมศึกษาปีที่ 3 เป็นแบบปรนัยชนิดเลือกตอบ 4 ตัวเลือก ก ข ค ง จำนวน 20 ข้อ ได้ทำการสร้างตามลำดับขั้นตอนดังนี้

1. ศึกษาสภาพและปัญหาที่เกิดขึ้นในชั้นเรียนจากการจัดการเรียนการสอนของครูเสงี่ยม บุบผะโก ครูผู้สอนรายวิชาภาษาไทย หลักการใช้ภาษาไทย ของนักเรียนระดับชั้นมัธยมศึกษาปีที่ 3 ภาคเรียนที่ 1 ปีการศึกษา 2567 โรงเรียนหาดใหญ่วิทยาลัย 2 จังหวัดสงขลา เพื่อนำมาวิเคราะห์และใช้เป็นประเด็นในการทำวิจัย

2. วิเคราะห์หลักสูตรการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 เนื้อหารายวิชาภาษาไทย หลักการใช้ภาษาไทย จากหนังสือหลักการใช้ภาษาไทย ชั้นมัธยมศึกษาปีที่ 3 เล่มที่ 2 หน่วยการเรียนรู้ที่ 2 เรื่องประโยคซับซ้อน

3. นำผลการวิเคราะห์เนื้อหามาลงมือสร้างเป็น Blueprint เพื่อกำหนดสัดส่วนข้อสอบ นำผลการวิเคราะห์ไปสร้างเป็นแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนรายวิชาภาษาไทย หลักการใช้ภาษาไทย เรื่องประโยคซับซ้อน โดยใช้เป็นรูปแบบปรนัย (objective) แบบเลือกตอบ (multiple choice) 4 ตัวเลือก ก ข ค ง จำนวน 20 ข้อ

4. นำแบบทดสอบวัดผลสัมฤทธิ์วัดผลสัมฤทธิ์ทางการเรียนรายวิชาภาษาไทย หลักการใช้ภาษาไทย เรื่องประโยคซับซ้อน ที่สร้างขึ้นเสนอผู้เชี่ยวชาญ จำนวน 3 ท่าน โดยทั้ง 3 ท่าน เป็นผู้เชี่ยวชาญทางด้านเนื้อหาและมีประสบการณ์สอนเป็นผู้ตรวจสอบความเที่ยงตรงของเนื้อหา (Content) โดยใช้ค่าดัชนีความสอดคล้องระหว่างข้อคำถามและวัตถุประสงค์ (Index of Concurrence IOC)

5. พิจารณาเลือกข้อคำถามที่มีค่าดัชนีความสอดคล้องตั้งแต่ 0.5 ขึ้นไป จำนวน 20 ข้อสร้างเป็นแบบทดสอบวัดผลสัมฤทธิ์ ส่วนข้อคำถามที่มีค่าดัชนีความสอดคล้องต่ำกว่า 0.5 ทำการปรับปรุงแก้ไขหรือตัดออกตามคำแนะนำของผู้เชี่ยวชาญ

6. นำแบบทดสอบวัดผลสัมฤทธิ์ที่จัดพิมพ์สมบูรณ์แล้วไปใช้ในการเก็บรวมรวมข้อมูล

7. กระดาษคำตอบที่ได้จากการทดสอบแล้วมาตรวจคะแนน โดยให้ข้อถูกได้ 1 คะแนน ข้อผิดหรือไม่ตอบหรือตอบเกิน 1 ข้อ ได้ 0 คะแนน หลังจากตรวจกระดาษคำตอบและรวบรวมคะแนนแล้วนำมาวิเคราะห์หาคุณภาพของแบบทดสอบ

8. วิเคราะห์การหาค่าความยากง่าย (P) เป็นรายข้อ โดยคัดเลือกข้อสอบที่มีค่าความยากง่าย (P) ตั้งแต่ 0.2- 0.8 ค่าอำนาจจำแนก (r) โดยข้อสอบที่ดีควรมีค่าอำนาจจำแนก (r) ตั้งแต่ 0.2 - 1.0

9. คำนวณหาค่าความเชื่อมั่น (r) ของแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน โดยใช้สูตร KR-20 (Kuder-Richardson)

10. นำแบบทดสอบวัดผลสัมฤทธิ์ที่จัดพิมพ์สมบูรณ์แล้วไปใช้ในการเก็บรวมรวมข้อมูล โดยทำการทดสอบวัดผลสัมฤทธิ์ก่อนเรียน ของนักเรียนทั้ง 2 กลุ่ม เพื่อเก็บคะแนนไปใช้ในการเปรียบเทียบทางสถิติ

11. ทดลองจัดการเรียนการสอนในชั้นเรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (jigsaw) ร่วมกับแบบฝึกทักษะ สำหรับกลุ่มทดลอง 1 ห้อง จำนวน 28 คน และจัดการเรียนการสอนในชั้นเรียนโดยใช้วิธีสอนตามรูปแบบปกติสำหรับกลุ่มควบคุม 1 ห้อง จำนวน 22 คน โดยใช้เวลาในการทดลองสอน จำนวน 2 คาบ

12. แบบทดสอบวัดผลสัมฤทธิ์ที่จัดพิมพ์สมบูรณ์แล้วมาใช้ในการเก็บรวมรวมข้อมูล โดยทำการทดสอบวัดผลสัมฤทธิ์หลังเรียน ของนักเรียนทั้ง 2 กลุ่ม เพื่อเก็บคะแนนไปใช้ในการเปรียบเทียบทางสถิติ

13. นำข้อมูลที่ได้จากการเก็บรวบรวมข้อมูลมาวิเคราะห์โดยใช้โปรแกรมสำเร็จรูปทางสถิติ

ผลการวิจัย

ผู้วิจัยได้นำเสนอผลการวิจัยตามวัตถุประสงค์ของการวิจัย ดังรายละเอียดต่อไปนี้

ตารางที่ 1 ผลการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน โดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบก่อนเรียนและหลังเรียน ของนักเรียนโรงเรียนหาดใหญ่วิทยาลัย 2 จังหวัดสงขลา ชั้นมัธยมศึกษาปีที่ 3/9 จำนวน 28 คน โดยใช้วิธีการหาค่าทีแบบ (t-test) แบบ Independent

วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw)	n	$\bar{x}$	S.D.	t-test	df	P-values
ก่อนเรียน	28	0.60	0.49	6.46	27	.000
หลังเรียน	22	1.82	0.47	20.26		

จากตาราง 1 แสดงว่า คะแนนเฉลี่ยก่อนเรียนของนักเรียนที่เรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบก่อนเรียน มีค่าเฉลี่ยเท่ากับ 0.60 มีส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.49 และคะแนนเฉลี่ยหลังเรียนของนักเรียนที่เรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบ มีค่าเฉลี่ยเท่ากับ 1.82 มีส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.47 จากการวิเคราะห์ค่าทีเพื่อเปรียบเทียบคะแนนก่อนเรียนและหลังเรียนของนักเรียนที่เรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบฝึกทักษะ ปรากฏว่า ผลสัมฤทธิ์ทางการเรียนหลังเรียนของนักเรียนที่เรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01

ตารางที่ 2 ผลการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่องประโยคซับซ้อน ระหว่างวิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบ และวิธีการสอนแบบปกติ ของนักเรียนโรงเรียนหาดใหญ่วิทยาลัย 2 จังหวัดสงขลา ชั้นมัธยมศึกษาปีที่ 3/9 เป็นห้องทดลอง และ3/14 เป็นห้องควบคุม โดยใช้วิธีการหาค่าทีแบบ (t-test) แบบ Independent

วิธีการสอน	n	$\bar{x}$	S.D.	df	t-test	p-values
วิธีการสอนแบบแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบ	28	1.82	0.47	48	1.97	.004
วิธีการสอนแบบปกติ	22	1.50	0.67	36.37	1.89	

จากตารางที่ 2 แสดงว่า คะแนนเฉลี่ยหลังเรียนของนักเรียนที่เรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบ มีค่าเฉลี่ยเท่ากับ 1.82 มีส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.47 และนักเรียนที่เรียนแบบปกติ มีค่าคะแนนเฉลี่ยเท่ากับ 1.50 มีส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.67 และจากการวิเคราะห์ค่าทีเพื่อเปรียบเทียบคะแนนหลังเรียนของนักเรียนทั้งสองกลุ่ม ปรากฏว่า นักเรียนที่เรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบฝึกทักษะ มีผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่องประโยคซับซ้อน สูงกว่านักเรียนที่เรียนแบบปกติ อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

สรุปและอภิปรายผล

การศึกษาค้นคว้าครั้งนี้เป็นงานวิจัยเชิงทดลอง เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่องประโยคซับซ้อน โดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (jigsaw) ร่วมกับแบบฝึกทักษะระหว่างก่อนเรียนและหลังเรียน เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่องประโยคซับซ้อน ระหว่างวิธีการสอนโดยใช้เทคนิคจิ๊กซอร์ร่วมกับแบบทดสอบและวิธีการสอนแบบปกติของนักเรียนระดับชั้นมัธยมศึกษาปีที่ 3 ภาคเรียนที่ 2 ปีการศึกษา 2567 โรงเรียนหาดใหญ่วิทยาลัย 2 จังหวัดสงขลา โดยมีนักเรียนชั้นมัธยมศึกษาปีที่ 3/9 เป็นห้องทดลอง และ3/14 เป็นห้องควบคุม สามารถอภิปรายผลได้ดังต่อไปนี้

1. การเปรียบเทียบผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน ระหว่างก่อนเรียนและหลังเรียน โดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบ ผลการวิจัยพบว่า นักเรียนที่เรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบมีผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่อง ประโยคซับซ้อน มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 กล่าวคือ นักเรียนที่เรียนด้วยวิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบก่อนเรียน มีค่าเฉลี่ยเท่ากับ 0.60 มีส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.49 คะแนนเฉลี่ยหลังเรียนของนักเรียนที่เรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบมีค่าเฉลี่ยเท่ากับ 1.82 มีส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.47 อาจเนื่องมาจากผลจากวิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบที่เน้นให้ผู้เรียนเกิดกระบวนการเรียนรู้แบบกลุ่ม ร่วมกันคิดค้นหาคำตอบแลกเปลี่ยนองค์ความรู้ซึ่งกันและกัน ตัวผู้เรียนได้รับองค์ความรู้ เกิดการคิดวิเคราะห์ กล้าแสดงความคิดเห็น จากกระบวนการกลุ่มเพื่อนำองค์ความรู้ไปใช้ในการปรับเปลี่ยนเจตคติและพฤติกรรมของตนเอง ซึ่งวิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบสำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 3 โรงเรียนหาดใหญ่วิทยาลัย 2 จังหวัดสงขลา ผู้วิจัยได้นำเนื้อหาสาระสำคัญ เรื่องประโยคซับซ้อน โดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) แบ่งผู้เรียนออกเป็น 2 กลุ่ม เป็นการเปลี่ยนกลุ่มผู้เรียนกลุ่มบ้าน (Home Group) ไปยังกลุ่มผู้เชี่ยวชาญ (Expert Group) และคละความสามารถของผู้เรียน (ต่ำ-กลาง-สูง) เข้าด้วยกัน กลุ่มผู้เรียนกลุ่มบ้าน (Home Group) แต่ละกลุ่มมีจำนวน 9-10 คน และกลุ่มผู้เชี่ยวชาญ (Expert Group) มีผู้เรียนจำนวน 3-4 คน และแบบทดสอบที่ครูผู้สอนได้หมอบหมายให้ เมื่อผู้เรียนคิดค้นหาคำตอบจนครบแล้ว ครูผู้สอนให้ผู้เรียนกลับมายังกลุ่มบ้าน (Home Group) เหมือนเดิม เพื่อนำองค์ความรู้ที่ได้จากลุ่มผู้เชี่ยวชาญ (Expert Group) มาวิเคราะห์กันในกลุ่มบ้าน (Home Group) เพื่อนำเสนอองค์ความรู้แลกเปลี่ยนกันในกลุ่มอีกครั้ง ผู้วิจัยพบว่า ผู้เรียนเกิดการพัฒนาผลสัมฤทธิ์ทางการเรียน เรื่องประโยคซับซ้อน ดีขึ้นอย่างเห็นได้ชัดเจน จากการใช้แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนก่อนเรียนและหลังเรียน จึงทำให้ผู้เรียนที่เกิดการเรียนรู้ร่วมกันเป็นกลุ่มเกิดการเรียนรู้ที่หลากหลายแลกเปลี่ยนความรู้กันได้ดี ซึ่งสอดคล้องกับความคิดของสุวิทย์ มูลคำ และ อรทัย มูลคำ (2545) ที่กล่าวว่า การจัดการเรียนรู้ โดยใช้เทคนิคจิ๊กซอร์เป็นการจัดกระบวนการเรียนรู้ที่ใช้แนวคิดการต่อภาพ โดยแบ่งผู้เรียนเป็นกลุ่ม ทุกกลุ่มจะได้รับมอบหมายให้ทำกิจกรรมเดียวกัน ผู้สอนจะแบ่งเนื้อหาของเรื่องที่จะให้เรียนรู้ออกเป็นหัวข้อย่อยเท่ากับจำนวนสมาชิกแต่ละกลุ่ม และมอบหมายให้ผู้เรียนแต่ละกลุ่มศึกษาค้นคว้าคนละหัวข้อ รูปแบบของการจัดการเรียนรู้แบบจิ๊กซอร์ (Jigsaw) ดังนี้ 1) ขั้นเตรียมสื่อการสอน เป็นขั้นของการแบ่งเนื้อหาในแต่ละหัวข้อ และกลุ่มผู้เชี่ยวชาญแต่ละคน สร้างใบความรู้และแบบทดสอบย่อยหรือเอกสารประเมินอื่นๆ 2) ขั้นการแบ่งกลุ่ม การแบ่งผู้เรียนออกเป็นกลุ่มๆ กลุ่มบ้าน (Home Group) โดยวิธีการเลือกหมายเลขประจำตัวหรือนำเสนอหัวข้อที่จะต้องศึกษา 3) ขั้นของการเปลี่ยนกลุ่มไปยังกลุ่มผู้เชี่ยวชาญ เป็นการเปลี่ยนกลุ่มผู้เรียนจากกลุ่มบ้าน (Home Group) ไปยังกลุ่มผู้เชี่ยวชาญ (Expert Group) 4) ขั้นรายงาน ผู้เรียนต้องกลับมายังกลุ่มบ้าน (Home Group) เพื่อรายงานผล 5) ขั้นการวัดและการประเมินผล ประเมินผู้เรียนทั้งระหว่างทำกิจกรรมและหลังจากจบกิจกรรม ผู้วิจัยได้สังเกตพฤติกรรมผู้เรียนในระหว่างการจัดการเรียนรู้ด้วยวิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ผู้เรียนแต่ละกลุ่ม เกิดการคิดวิเคราะห์ และเปลี่ยนองค์ความรู้ แสดงความคิดเห็นร่วมกัน มีการอภิปรายผลถึงหลักการตอบ ผู้เรียนได้ใช้ศักยภาพของแต่ละคนทั้งในด้านความคิด การกระทำและความรู้สึกมาแลกเปลี่ยนความคิดและประสบการณ์ซึ่งกันและกัน ซึ่งสอดคล้อง

กับ วัชรา เล่าเรียนดี (2553 : 156) ซึ่งกล่าวว่า วิธีสอนแบบร่วมมือกันเรียนรู้เป็นกระบวนการที่นักเรียนที่มีความสามารถต่างกันมารวมกันเป็นกลุ่มเล็ก ๆ ทำงานร่วมกัน เพื่อให้บรรลุเป้าหมายเดียวกัน โดยที่การเรียนรู้แบบร่วมมือกัน จะต้องประกอบด้วยลักษณะสำคัญ คือ 1) การพึ่งพาอาศัยกัน 2) การมีปฏิสัมพันธ์ที่ดีต่อกันอย่างใกล้ชิด 3) ความรับผิดชอบต่อการทำงานกลุ่มต่อตนเองและต่อสมาชิกกลุ่ม 4) การใช้ทักษะทางสังคม และ 5) การใช้ทักษะกระบวนการกลุ่ม การใช้แบบทดสอบร่วมกับวิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) แบบทดสอบ 3 ชุด ประกอบด้วย 1) ประโยคสามัญที่ซับซ้อน 2) ประโยครวมที่ซับซ้อน 3) ประโยคซ้อนที่ซับซ้อน ชุดแบบทดสอบเรื่องประโยคซับซ้อน เป็นแบบทดสอบสาระหลักการใช้ภาษาไทย ซึ่งนักเรียนระดับชั้นมัธยมศึกษาปีที่ 3 ต้องมีพื้นฐานความรู้เรื่องชนิดของประโยค ตามที่ตัวชี้วัดและสาระการเรียนรู้แกนกลางระบุไว้ ผู้วิจัย จึงยกรูปแบบทดสอบที่เห็นว่ามีความเหมาะสมและน่าจะช่วยให้ผู้เรียนเกิดการเรียนรู้ที่บรรลุได้ตรงตามวัตถุประสงค์ของผู้เรียน ทำให้เกิดการใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบซึ่งสอดคล้องกับถวัลย์ มาศจรัล (2546) ได้ให้ความหมายไว้ว่า แบบฝึกหัด หมายถึง กิจกรรมพัฒนาทักษะเรียนรู้ที่ให้ผู้เรียนเกิดการเรียนรู้ได้อย่างเหมาะสม มีความหลากหลาย และปริมาณเพียงพอที่สามารถตรวจสอบและพัฒนาทักษะกระบวนการคิด กระบวนการเรียนรู้ สามารถนำผู้เรียนสู่การสรุปความคิดรวบยอดและหลักการสำคัญของสาระการเรียนรู้รวมทั้งทำให้ผู้เรียนสามารถตรวจสอบความเข้าใจในบทเรียนด้วยตนเองได้ ซึ่งสอดคล้องกับ อิสรีย์ น้อยมิ่ง (2557) ได้ศึกษาเรื่อง การสร้างคำในภาษาไทยของนักเรียนชั้นมัธยมศึกษาปีที่ 1 ที่จัดการเรียนรู้ด้วยเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับบทเรียนคอมพิวเตอร์มัลติมีเดีย ซึ่งผลการวิจัยพบว่า คะแนนสัมฤทธิ์ทางการเรียน เรื่อง การสร้างคำในภาษาไทย ผลการศึกษาพบว่า ที่จัดการเรียนรู้ด้วยเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับบทเรียนคอมพิวเตอร์มัลติมีเดีย หลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

2. เปรียบเทียบผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่องประโยคซับซ้อน ระหว่างวิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบและวิธีการสอนแบบปกติ ผลการวิจัยพบว่า นักเรียนที่เรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบมีผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่องประโยคซับซ้อน สูงกว่านักเรียนที่เรียนแบบปกติ อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 เป็นไปสมมุติฐานข้อที่ 2 ที่ผู้วิจัยได้กำหนดไว้ ทั้งนี้เนื่องจากผู้วิจัยได้แบ่งวิธีการสอนออกเป็น 2 วิธีการสอน และ 2 แผนการจัดการเรียนรู้ โดยมีวิธีการสอนแบบปกติ หมายถึง โรงเรียนหาดใหญ่วิทยาลัย 2 ได้ใช้แผนการจัดการเรียนรู้โดยวิธีการสอน 5E หรือ Active Learning เป็นกระบวนการสอนที่เน้นให้ผู้เรียนเกิดการเรียนรู้ด้วยตนเอง โดยครูผู้สอนจะลดบทบาทการถ่ายทอดองค์ความรู้ลดเพื่อให้ผู้เรียนเกิดการเรียนรู้ปฏิสัมพันธ์ซึ่งกันและกันด้วยตนเอง ซึ่งสอดคล้องกับไชยยศ เรืองสุวรรณ (2553) ได้อธิบายถึงลักษณะของกระบวนการเรียนรู้แบบ Active Learning ไว้อย่างน่าสนใจดังนี้ 1) การเรียนรู้แบบ Active Learning เป็นการเรียนการสอนที่พัฒนาศักยภาพทางสมอง ได้แก่ การคิด การแก้ปัญหา การนำความรู้ไปประยุกต์ใช้ 2) เป็นการเรียนการสอนที่เปิดโอกาสให้ผู้เรียนมีส่วนร่วมในการเรียนรู้ 3) ผู้เรียนสร้างองค์ความรู้และจัดระบบการเรียนรู้ด้วยตนเอง 4) ผู้เรียนมีส่วนร่วมในการเรียนการสอน มีการสร้างองค์ความรู้ การสร้างปฏิสัมพันธ์ร่วมกัน และร่วมมือกันมากกว่าการแข่งขัน 5) ผู้เรียนได้เรียนรู้ความรับผิดชอบร่วมกัน การมีวินัยในการทำงาน และการแบ่งหน้าที่ความรับผิดชอบ 6) เป็นกระบวนการสร้างสถานการณ์ให้ผู้เรียนอ่าน พูด ฟัง คิด 7) เป็นกิจกรรมการเรียนการสอนเน้นทักษะการคิดขั้นสูง 8) เป็นกิจกรรมที่เปิดโอกาสให้ผู้เรียนบูรณาการข้อมูล ข่าวสาร, สารสนเทศ และหลักการสู่การสร้างความคิดรวบยอด 9) ผู้สอนจะเป็นผู้อำนวยความสะดวกในการจัดการเรียนรู้

เพื่อให้ผู้เรียนเป็นผู้ปฏิบัติด้วยตนเอง 10) ความรู้เกิดจากประสบการณ์ การสร้างองค์ความรู้และการสรุปทบทวนของผู้เรียน

การเปรียบเทียบผลสัมฤทธิ์ทางการเรียนระหว่างวิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) และวิธีการสอนแบบปกติ ผู้วิจัยเล็งเห็นความสำคัญของผลสัมฤทธิ์ทางการเรียน สาระหลักการใช้ภาษาไทย เรื่องประโยคซับซ้อน สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 3 จึงสร้างแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่องประโยคซับซ้อน แบบปรนัย จำนวน 20 ข้อ 4 ตัวเลือก เลือกตอบ ก ข ค ง เลือกตอบข้อที่ถูกต้องเพียงตัวเลือกเดียว โดยให้คะแนนเป็นตอบถูก +1 ตอบผิดและไม่ตอบได้ 0 แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่องประโยคซับซ้อน สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 3 ใช้แบบแผนการทดลองกึ่งการทดลอง (Quasi-Experimental Design) ผู้เรียนห้องทดลองและห้องควบคุม ใช้ข้อสอบชุดเดียวกันเก็บคะแนนสอบก่อนเรียนและหลังเรียน โดยชุดแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน เรื่องประโยคซับซ้อน ผู้วิจัยได้ศึกษาขั้นตอนการสร้างแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนรายวิชาภาษาไทย เรื่องประโยคซับซ้อน คะแนนเฉลี่ยหลังเรียนของนักเรียนที่เรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบทดสอบ มีค่าเฉลี่ยเท่ากับ 1.82 มีส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.47 และนักเรียนที่เรียนแบบปกติมีค่าคะแนนเฉลี่ยเท่ากับ 1.50 มีส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.67 และจากการวิเคราะห์ค่าทีเพื่อเปรียบเทียบคะแนนหลังเรียนของนักเรียนทั้งสองกลุ่ม ปรากฏว่า นักเรียนที่เรียนโดยใช้วิธีการสอนแบบเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบฝึกทักษะ มีผลสัมฤทธิ์ทางการเรียนสาระหลักการใช้ภาษาไทย เรื่องประโยคซับซ้อน สูงกว่านักเรียนที่เรียนแบบปกติ อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

ข้อเสนอแนะ

1. ข้อเสนอแนะในการนำผลการวิจัยไปใช้

1.1 เนื่องด้วยในตอนจัดกิจกรรมการเรียนรู้พบเจอปัญหาเรื่องการขาดความพร้อมในลักษณะของห้องเรียนสิ่งอำนวยความสะดวกต่างๆ ดังนั้น ครูผู้สอนจำเป็นต้องทบทวนขั้นตอนการจัดกิจกรรมสิ่งที่จำเป็นต้องใช้และจัดเตรียมไว้ก่อนเพื่อความสะดวกและเพื่อแก้ปัญหาได้

1.2 เนื่องด้วยขั้นตอนการจัดกิจกรรมการเรียนรู้ด้วยเทคนิคจิ๊กซอร์ (Jigsaw) จำเป็นต้องมีกลุ่มในการจำแนกเป็น 2 กลุ่ม คือ กลุ่มบ้านของเรา (Home Group) และกลุ่มผู้เชี่ยวชาญ (expert group) ทำให้ใช้เวลาค่อนข้างเยอะ และผู้เรียนอาจเกิดความสับสนในชั้นเรียน รวมไปถึงการแบ่งกลุ่มเป็นกลุ่มผู้เชี่ยวชาญ (expert group) จำเป็นต้องใช้พื้นที่เยอะในการจัดกิจกรรม ดังนั้น ครูผู้สอน จำเป็นต้องอธิบายการจัดการเรียนรู้ให้ละเอียดและกำหนดเวลาในการทำกิจกรรมอย่างชัดเจน รวมไปถึงครูผู้สอนอาจจะต้องกำหนดพื้นที่ในการแบ่งกลุ่มเป็นกลุ่มผู้เชี่ยวชาญ (expert group) ให้แต่ละกลุ่มด้วย

2. ข้อเสนอแนะในการทำวิจัยครั้งต่อไป

2.1 เนื่องจากผู้วิจัยไม่สามารถศึกษาวิธีการจัดกิจกรรมการเรียนรู้ด้วยเทคนิคจิ๊กซอร์ (Jigsaw) ในด้านต่างๆ แต่ศึกษาผลสัมฤทธิ์ทางการเรียนเท่านั้น ดังนั้นควรจะมีการศึกษาผลการใช้การจัดการเรียนรู้ด้วยเทคนิคจิ๊กซอร์ (Jigsaw) ในด้านอื่นๆ เช่น ด้านความรู้ความสามารถในรายวิชาต่างๆ ด้านความสามารถในการประยุกต์ใช้ในชีวิตประจำวัน

2.2 เนื่องจากผู้วิจัยใช้วิธีการจัดกิจกรรมการเรียนรู้ด้วยเทคนิคจิ๊กซอร์ (Jigsaw) ในรูปแบบกระบวนการกลุ่มในการค้นคว้าหาความรู้โดยการทำแบบทดสอบเพียงเท่านั้น ดังนั้นควรจะมีการบูรณาการเกมส์ความคิดสร้างสรรค์เข้ามาด้วย เพื่อให้ผู้เรียนเกิดความสนุกและตื่นเต้นมากยิ่งขึ้น

2.3 เนื่องจากผู้วิจัยใช้วิธีการจัดกิจกรรมการเรียนรู้ด้วยเทคนิคจิ๊กซอร์ (Jigsaw) ร่วมกับแบบฝึกทดสอบ จำนวน 3 คาบ ทำให้นักเรียนบางส่วนมีความรู้เพิ่มขึ้นในเรื่องประโยคซับซ้อน แต่ยังไม่สามารถวิเคราะห์โครงสร้างประโยคซับซ้อนได้ถึงขั้นนำไปใช้ ดังนั้น ควรจะมีการจัดการเรียนรู้ที่มีจำนวนคาบเรียนมากกว่า 3 คาบ

เอกสารอ้างอิง

จีรวรรณ สรบุญทอง. (2563). การศึกษาผลสัมฤทธิ์ทางการเรียนวรรณคดีไทยและทักษะการร่วมมือของนักเรียนชั้นมัธยมศึกษาปีที่ 1 ที่จัดการเรียนรู้โดยใช้เทคนิคจิ๊กซอว์ 3 ร่วมกับการใช้คำถามพัฒนาการคิด. กรุงเทพฯ : มหาวิทยาลัยศิลปากร.

ไชยยศ เรืองสุวรรณ. (2553). Active Learning. ข่าวสารวิชาการคณะเภสัชศาสตร์ มหาวิทยาลัยเชียงใหม่. สืบค้นเมื่อ 7 พฤษภาคม 2568.

ถวัลย์ มาศจรัส. (2546). นวัตกรรมการศึกษาชุด แบบฝึกหัด – แบบฝึกทักษะ เพื่อพัฒนา ผู้เรียนและการจัดทำผลงานทางวิชาการอาจารย์3 และบุคลากรทางการศึกษา (ครูชำนาญการครูเชี่ยวชาญ และครูเชี่ยวชาญพิเศษ). กรุงเทพฯ : สำนักพิมพ์ธารอักษร.

วัชรา เล่าเรียนดี. (2553). การนิเทศการสอน สาขาหลักสูตรและการนิเทศ. นครปฐม : โรงพิมพ์

วีระยุทธ พรพจน์ธนมาศ. (2565). การศึกษาเปรียบเทียบการตรวจสอบความเที่ยงตรงเชิงเนื้อหาของเครื่องมือวิจัยด้วยเทคนิค IOC, CVR และ CVI. รังสิตสารสนเทศ ปีที่ 28 ฉบับที่ 1 มกราคม – มิถุนายน 2565. มหาวิทยาลัยศิลปากร.

สุวิทย์ มูลคำ. (2551). ครบเครื่องเรื่องคิด. (พิมพ์ครั้งที่ 9). กรุงเทพฯ : ภาพพิมพ์.

สุวิทย์ มูลคำ และอรทัย มูลคำ. (2545). 21 วิธีจัดการเรียนรู้เพื่อพัฒนากระบวนการคิด. กรุงเทพฯ : ภาพพิมพ์.

สำนักงานการศึกษาขั้นพื้นฐาน. (2551). สืบค้นจาก www.academic.obec.go.th สืบค้นเมื่อ 7 พฤษภาคม 2568.

สำนักงานทดสอบทางการศึกษา กรมวิชาการ. (2566). ผลการวิเคราะห์ผลการทดสอบ O-NET ชั้น ม.3 ปีการศึกษา 2566. จาก www.niets.or.th สืบค้นเมื่อ 30 มีนาคม 2568.

อิสรีย์ น้อยมิ่ง. (2557). การศึกษาผลสัมฤทธิ์การเรียน เรื่อง การสร้างคำในภาษาไทยของนักเรียนชั้นมัธยมศึกษาปีที่ 1 ที่จัดการเรียนรู้ด้วยเทคนิคจิ๊กซอว์ ร่วมกับบทเรียนคอมพิวเตอร์มัลติมีเดีย. (วิทยานิพนธ์ศึกษาศาสตรมหาบัณฑิต สาขาวิชาหลักสูตรและวิธีสอน). บัณฑิตวิทยาลัย : มหาวิทยาลัยศิลปากร.

Rovinelli, R. J. & Hambleton, R. K. (1977). On the use of content specialists in the assessment of criterion-referenced test item validity. Tijdschrift voor Onderwijsresearch, 2 (2).

การศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์และผลสัมฤทธิ์ทางการศึกษาเรื่องร้อยละ โดยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) ของนักเรียนชั้นประถมศึกษาปีที่ 5 โรงเรียน อบจ.บ้านนาบอน

A Study of Mathematical Problem-Solving Ability and Learning Achievement on the Topic of Percentage through the 5E Inquiry-Based Learning Model of Grade 5 Students at Baan Nabon Provincial Administrative Organization School

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์ 1. เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 5 โรงเรียน อบจ.บ้านนาบอน จากการจัดการเรียนการสอนแบบสืบเสาะหาความรู้ 5 ขั้น (5E) ระหว่างก่อนเรียนกับหลังเรียน 2. เพื่อศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนของนักเรียนชั้นประถมศึกษาปีที่ 5 โรงเรียน อบจ.บ้านนาบอน จากการจัดการเรียนการสอนแบบสืบเสาะหาความรู้ 5 ขั้น (5E) โดยมีกลุ่มตัวอย่างที่ใช้ในการทำวิจัยครั้งนี้ คือ นักเรียนชั้นประถมศึกษาปีที่ 5/4 โรงเรียน อบจ.บ้านนาบอน ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 28 คน โดยใช้วิธีการเลือกแบบเจาะจง เครื่องมือที่ใช้ในการวิจัย ได้แก่ แผนการจัดการเรียนรู้ แบบวัดผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ และแบบวัดความสามารถทางการเรียนคณิตศาสตร์ ผลการวิจัยพบว่า ผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 5/4 หลังการจัดการเรียนรู้โดยใช้รูปแบบสืบเสาะหาความรู้ 5 ขั้น (5E) มีผลสัมฤทธิ์หลังเรียนสูงกว่าก่อนเรียน และความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียน หลังการจัดการเรียนการสอนแบบสืบเสาะหา ความรู้ 5 ขั้น (5E) ได้แก่ ขั้นที่ 1 ขั้นทำความเข้าใจ อยู่ในระดับดีเยี่ยม ขั้นที่ 2 ขั้นวางแผนแก้ปัญหา อยู่ในระดับดีเยี่ยม ขั้นที่ 3 ขั้นดำเนินการตามแผน อยู่ในระดับดีมาก และขั้นที่ 4 ขั้นตรวจสอบผล อยู่ในระดับดี

คำสำคัญ: ความสามารถในการแก้ปัญหาทางคณิตศาสตร์, ผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์, การจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E)

Abstract

This research aimed to: 1. Compare the academic achievement of Grade 5 students at Baan Nabhon Provincial Administrative Organization School before and after learning through the 5E inquiry-based instructional model. 2. Study the mathematical problem-solving abilities of Grade 5 students at Baan Nabhon Provincial Administrative Organization School through the 5E inquiry-based instructional model. The representative sample for this research consisted of 28 Grade 5/4 students from Baan Nabhon Provincial Administrative Organization School in the second semester of the 2024 academic year, selected using purposive sampling. The research instruments included: a lesson plan based on the 5E instructional model, a mathematics achievement test, and a mathematics problem-solving ability test. The research findings revealed that the students' post-learning mathematics achievement was significantly higher than their pre-learning achievement after being taught using the 5E inquiry-based model. Additionally, their mathematical problem-solving abilities improved across the following areas: Step 1: Understanding the problem – Excellent Step 2: Planning the solution – Excellent Step 3: Carrying out the plan – Very good Step 4: Looking back (checking the result) – Good

Keywords: Mathematical Problem-Solving Ability, Mathematics Learning Achievement,5E Inquiry-Based Learning model

บทนำ

การศึกษามีบทบาทและมีความสำคัญอย่างยิ่งต่อการพัฒนาประเทศ และเป็นหัวใจสำคัญของการพัฒนามนุษย์ให้เป็นบุคคลที่มีความรู้ เพราะความสามารถและศักยภาพในการผลิตของแต่ละประเทศขึ้นอยู่กับองค์ความรู้ของคนในชาติ ประเทศที่พลเมืองมีการศึกษาดีย่อมได้เปรียบในการแข่งขันเสมอไม่ว่าจะเป็นด้านเกษตรกรรมหรืออุตสาหกรรม หากคนได้รับการพัฒนาจากการได้รับการศึกษาที่ดีที่สุด คนจะเป็นปัจจัยชี้ขาดความสำเร็จของการพัฒนาประเทศทุกด้าน (อารุง จันทวานิช และไพบูลย์ แจ่มพงษ์, 2542, หน้า 2) และพระราชบัญญัติการศึกษาแห่งชาติ พ.ศ. 2562 มีความมุ่งหมายที่จะพัฒนาคนไทยให้มีความรู้และทักษะด้านคณิตศาสตร์ วิทยาศาสตร์และเทคโนโลยี แนวทางในการจัดการศึกษาเพื่อให้บรรลุเป้าหมายดังกล่าวระบุในหมวด 4 มาตรา 22 คือ "การจัดการศึกษาต้องยึดหลักว่าผู้เรียนทุกคนมีความสามารถเรียนรู้และพัฒนาตนเองได้ และถือว่าผู้เรียนมีความสำคัญที่สุด กระบวนการการจัดการศึกษาต้องส่งเสริมให้ผู้เรียนสามารถพัฒนาตนเองได้ตามธรรมชาติและเต็มศักยภาพ" และในมาตรา 24 ระบุว่า "การจัดเนื้อหาสาระและกิจกรรมการเรียนรู้ต้องให้สอดคล้องกับความสนใจและความถนัดของผู้เรียน โดยคำนึงถึงความแตกต่างระหว่างบุคคล" (กระทรวงศึกษาธิการ, 2546) ดังนั้นการพัฒนาประเทศนั้นทรัพยากรที่สำคัญอย่างยิ่งในการพัฒนาประเทศคือ คนที่มีคุณภาพ การศึกษาจึงมีบทบาทสำคัญในการพัฒนาคุณภาพคน สามารถเตรียมคนให้เป็นผู้ที่มีความสามารถในการแข่งขัน รู้จักการคิดวิเคราะห์ ให้เหตุผล เชิงวิทยาศาสตร์ รักการเรียนรู้และสามารถเรียนรู้ด้วยตนเอง ด้วยเหตุนี้จึงจำเป็นอย่างยิ่งที่จะต้องเปิดโอกาสให้ทุกคนคิดเป็น ทำเป็น มีเหตุผล มีความคิดริเริ่มสร้างสรรค์ สามารถเรียนรู้ได้ตลอดชีวิต รู้เท่า

ทันโลกเพื่อพร้อมรับการเปลี่ยนแปลง สามารถ สั่งสมทุนทางปัญญา เพื่อพัฒนาตนเองและสังคม (สำนักงานคณะกรรมการการศึกษาแห่งชาติ, 2545)

การศึกษาเป็นกระบวนการที่สำคัญในการพัฒนาคนให้มีคุณภาพ ซึ่งหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 นั้นมุ่งพัฒนาผู้เรียนทุกคนซึ่งเป็นกำลังของชาติให้เป็นมนุษย์ที่มีความสมดุลทั้งด้านร่างกาย ความรู้ คุณธรรม มีจิตสำนึกในความเป็นพลเมืองไทยและพลโลก ยึดมั่นในการปกครองตามระบอบประชาธิปไตยอันมีพระมหากษัตริย์ทรงเป็นประมุข มีความรู้ และทักษะพื้นฐาน รวมทั้งเจตคติที่จำเป็นต่อการศึกษาต่อในระดับที่สูงขึ้น การประกอบอาชีพ และการศึกษาตลอดชีวิต โดยมุ่งเน้นผู้เรียนเป็นสำคัญบนพื้นฐานความเชื่อว่าทุกคนสามารถเรียนรู้และพัฒนาตนเองได้เต็มตามศักยภาพ รวมทั้งมุ่งพัฒนาผู้เรียนให้มีคุณภาพตามมาตรฐานการเรียนรู้ ซึ่งพัฒนาผู้เรียนให้บรรลุมาตรฐานการเรียนรู้ที่กำหนดนั้น จะช่วยให้ผู้เรียนเกิดสมรรถนะสำคัญ 5 ประการ ได้แก่ 1) ความสามารถในการสื่อสาร 2) ความสามารถในการคิด 3) ความสามารถในการแก้ปัญหา 4) ความสามารถในการใช้ทักษะชีวิต และ 5) ความสามารถในการใช้เทคโนโลยี (กระทรวงศึกษาธิการ. 2552, หน้า 1-41)

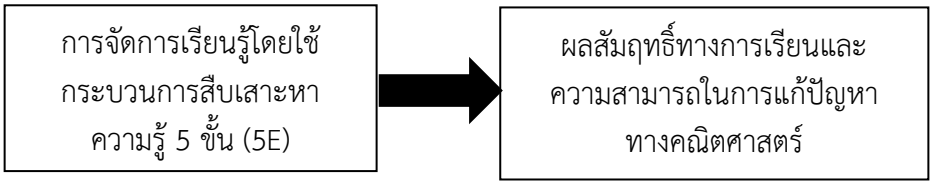
กระบวนการสืบเสาะหาความรู้ เป็นกระบวนการจัดการเรียนรู้แบบหนึ่งที่เน้นผู้เรียนเป็นสำคัญ (The Institute for the Promotion of Teaching Science and Technology, 2003a, p.219) มุ่งส่งเสริมให้ผู้เรียนได้รู้จักศึกษาค้นคว้าหาความรู้ คิดค้น แก้ปัญหา และหาคำตอบจากปัญหาโดยใช้วิธีการหรือกระบวนการที่เป็นระบบเพื่อให้ได้คำตอบที่มีเหตุผล กระบวนการสืบเสาะหาความรู้ มีพื้นฐานมาจากทฤษฎีคอนสตักติวิซึม (Constructivism) ซึ่งทฤษฎีนี้ได้ให้ความสำคัญกับความรู้เดิมของผู้เรียนเพื่อประยุกต์เข้ากับความรู้ใหม่ที่ได้รับแล้วสร้างเป็นองค์ความรู้ (The Institute for the Promotion of Teaching Science and Technology, 2003b, p.220; Karplus, 1977, p.174) ได้เสนอวัฏจักรการเรียนรู้ในการจัดการเรียนการสอนที่เน้นผู้เรียนเป็นศูนย์กลาง เพื่อกระตุ้นให้ผู้เรียนมีความสนใจเรียนในวิชาวิทยาศาสตร์และช่วยลดความเบื่อหน่ายในห้องเรียน และจากงานวิจัย ปี ค.ศ.1977 ของ Cambell พบว่า การใช้วัฏจักรการเรียนรู้ทำให้ผลสัมฤทธิ์ทางการเรียนของผู้เรียนสูงกว่าวิธีแบบดั้งเดิม และส่งผลให้ผู้เรียนมีความสามารถในการแก้ปัญหาสูงขึ้น (Lawson, 1995, pp. 423-424) นอกจากนี้ยังพบงานวิจัยของ Leardphop (2000, p.121) ซึ่งได้กล่าวว่า การจัดการเรียนการสอนตามวัฏจักรการเรียนรู้นั้นเป็นการจัดการเรียนการสอนที่มุ่งเน้นผู้เรียนเป็นผู้คิดและได้เป็นผู้ลงมือปฏิบัติเอง ส่งผลให้ผู้เรียนเกิดการเรียนรู้อย่างมีประสิทธิภาพ สามารถที่จะพัฒนากระบวนการคิด การแก้ปัญหา และสามารถนำไปใช้ประโยชน์ได้ ในเวลาต่อมาสถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี ได้เสนอวิธีการสอนด้วยวัฏจักรการสืบเสาะหาความรู้ 5 ขั้น (5E) เพื่อนำมาใช้ในการพัฒนาหลักสูตรวิทยาศาสตร์ ซึ่งกระบวนการจัดการเรียนรู้นี้ช่วยให้ผู้เรียนมีส่วนร่วมในกิจกรรมการเรียนรู้ตลอดเวลา โดยมีครูเป็นผู้กำกับและเป็นผู้กระตุ้นให้ผู้เรียนคิดและเรียนรู้ด้วยตนเอง ประกอบด้วยขั้นตอนดังนี้ 1) ขั้นสร้างความสนใจ (Engagement) 2) ขั้นสำรวจและค้นหา (Exploration) 3) ขั้นอธิบายและลงข้อสรุป (Explanation) 4) ขั้นขยายความรู้ (Elaboration) และ 5) ขั้นประเมินผล (Evaluation) ดังนั้นกระบวนการสืบเสาะหาความรู้ จึงเป็นกระบวนการที่ช่วยให้ผู้เรียนเกิดการเรียนรู้ทั้งเนื้อหา หลักการ และทฤษฎี ตลอดจนได้ลงมือปฏิบัติด้วยตนเอง (The Institute for the Promotion of Teaching Science and Technology, 2003b, pp. 219-220)

จากการศึกษาข้อมูล วิเคราะห์สภาพปัญหาและแนวทางการแก้ไขปัญหาดังกล่าวข้างต้น ผู้วิจัยจึงมีความสนใจในการส่งเสริมทักษะการแก้ปัญหาทางคณิตศาสตร์โดยใช้กิจกรรมการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) ซึ่งเป็นสิ่งจำเป็นในการที่จะเรียนรู้สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 ในเรื่องร้อยละ รวมถึงการแก้โจทย์ปัญหาจึงเป็นหน่วยการเรียนรู้ที่เหมาะสมสำหรับการพัฒนาความสามารถในการแก้ปัญหา ทางคณิตศาสตร์ ซึ่งจะทำให้นักเรียนมีทักษะในการแก้ปัญหา มีผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์สูงขึ้น และมีเจตคติที่ดีต่อการเรียนวิชาคณิตศาสตร์เพิ่มขึ้น

วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนจากการจัดการเรียนรู้โดยใช้กระบวนการสืบเสาะหาความรู้ 5 ขั้น (5E)
2. เพื่อศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์จากการจัดการเรียนรู้โดยใช้กระบวนการสืบเสาะหาความรู้ 5 ขั้น (5E)

แนวคิด ทฤษฎี กรอบแนวคิดการวิจัย



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

1. ประชากรและกลุ่มตัวอย่าง

1.1 ประชากรใช้ในการวิจัยครั้งนี้ คือ นักเรียนชั้นประถมศึกษาปีที่ 5 โรงเรียน อบจ.บ้านนาบอน จำนวน 145 คน ที่กำลังศึกษาในภาคเรียนที่ 2 ปีการศึกษา 2567

1.2 กลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้ คือ นักเรียนชั้นประถมศึกษาปีที่ 5/4 โรงเรียน อบจ.บ้านนาบอน จำนวน 28 คน โดยใช้วิธีการสุ่มแบบเจาะจง

2. รูปแบบการวิจัย

การวิจัย เรื่อง การศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์และผลสัมฤทธิ์ทางการศึกษาโดยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) ของนักเรียนชั้นประถมศึกษาปีที่ 5/4 โรงเรียนอบจ.บ้านนาบอน เป็นการวิจัยเชิงปริมาณ โดยผู้วิจัยได้ใช้แบบแผนการวิจัยการทดลองโดยใช้แบบทดสอบก่อนเรียนและหลังเรียนกับนักเรียนกลุ่มเดียว (One Group Pretest- Posttest Design) และศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียน

3. เครื่องมือที่ใช้ในการวิจัย

เครื่องมือที่ใช้ในการรวบรวมข้อมูลและเครื่องมือที่ใช้ในการวิจัย ประกอบด้วย

3.1 แผนการจัดการเรียนการสอน เรื่อง ร้อยละ ระดับชั้นประถมศึกษาปีที่ 5 โดยใช้การจัดการเรียนการสอนแบบสืบเสาะหาความรู้ 5 ขั้น (5E) ประกอบด้วย แผนการจัดการเรียนรู้ จำนวน 15 แผน

3.2 แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ เรื่อง ร้อยละ ระดับชั้น ประถมศึกษาปีที่ 5 ซึ่งเป็นแบบปรนัยชนิดเลือกตอบ 4 ตัวเลือก จำนวน 20 ข้อ

3.3 แบบทดสอบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์ เรื่อง ร้อยละ ระดับชั้นประถมศึกษาปีที่ 5 เป็นแบบทดสอบอัตนัยจำนวน 1 ข้อ รายละเอียดการให้คะแนน แบ่งเป็น 4 ขั้นตอน ตามเกณฑ์ ดังนี้ (กาญจนา การสมทรัพย์ , สุวรรณา จุ้ยทอง และอุษา คงทอง., 2561)

ตารางที่ 1 เกณฑ์การให้คะแนนแบบวัดความสามารถในการแก้ปัญหาทางคณิตศาสตร์

รายการประเมิน	เกณฑ์การให้คะแนน		
	3 คะแนน	2 คะแนน	1 คะแนน
1) การทำความเข้าใจปัญหา	เข้าใจปัญหาได้ถูกต้อง	เข้าใจปัญหาบางส่วนไม่ถูกต้อง	เข้าใจปัญหาน้อยมากหรือไม่ถูกต้อง
2) การวางแผน	เลือกวิธีในการแก้ปัญหาได้อย่างเหมาะสม	เลือกวิธีในการแก้ปัญหาซึ่งอาจนำไปสู่คำตอบที่ถูกแต่ยังมีบางส่วนที่ผิด	เลือกวิธีในการแก้ปัญหาส่วนใหญ่ไม่ถูกต้อง
3) การดำเนินการตามแผน	นำวิธีการแก้ปัญหาไปใช้ได้ถูกต้อง	นำวิธีการแก้ปัญหาไปใช้ได้ถูกต้องเป็นบางครั้ง	นำวิธีการแก้ปัญหาไปใช้ได้ไม่ถูกต้อง
4) การตรวจสอบ	ตรวจคำตอบได้ถูกต้องและสรุปได้ตรงประเด็น	ตรวจคำตอบได้ถูกต้องและสรุปได้บางประเด็น	ตรวจคำตอบได้เป็นบางส่วนหรือไม่ได้เลย

ผู้วิจัยนำคะแนนที่ได้จากการทำแบบทดสอบวัดความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์มาวิเคราะห์หาระดับความสามารถในการแก้โจทย์ปัญหาคณิตศาสตร์หลังการจัดการเรียนรู้โดยวิเคราะห์เกณฑ์จากคะแนนสอบหลังเรียนแล้วนำคะแนนเฉลี่ย คิดเป็นร้อยละเทียบจากเกณฑ์การตัดสินผลการเรียนกลุ่มสาระการเรียนรู้คณิตศาสตร์ตามหลักสูตรแกนกลาง พุทธศักราช 2551 ซึ่งแบ่งเกณฑ์ออกเป็น 8 ระดับ คือ

คะแนนร้อยละ 80 - 100 อยู่ในระดับดีเยี่ยม
คะแนนร้อยละ 76 - 79 อยู่ในระดับดีมาก
คะแนนร้อยละ 70 - 75 อยู่ในระดับดี
คะแนนร้อยละ 65 - 69 อยู่ในระดับค่อนข้างดี
คะแนนร้อยละ 60 - 64 อยู่ในระดับปานกลาง
คะแนนร้อยละ 55 - 59 อยู่ในระดับพอใช้
คะแนนร้อยละ 50 - 54 อยู่ในระดับผ่านเกณฑ์
คะแนนร้อยละ 0 – 49 อยู่ในระดับต่ำกว่าเกณฑ์

3.4 การเก็บรวบรวมข้อมูล

3.4.1 แผนการจัดการเรียนการสอนโดยใช้การจัดการเรียนการสอนแบบสืบเสาะหาความรู้ 5 ขั้น (5E)

3.4.2 ทดสอบวัดผลสัมฤทธิ์ก่อนเรียน เรื่อง ร้อยละ ชั้นประถมศึกษาปีที่ 5

3.4.3 นำแผนการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) เรื่อง ร้อยละ ไปใช้กับกลุ่มตัวอย่าง

3.4.4 ทดสอบวัดผลสัมฤทธิ์หลังเรียน เรื่อง ร้อยละ ชั้นประถมศึกษาปีที่ 5

3.4.5 รวบรวมข้อมูลทั้งหมดไปทำการวิเคราะห์ข้อมูล

ผลการวิจัย

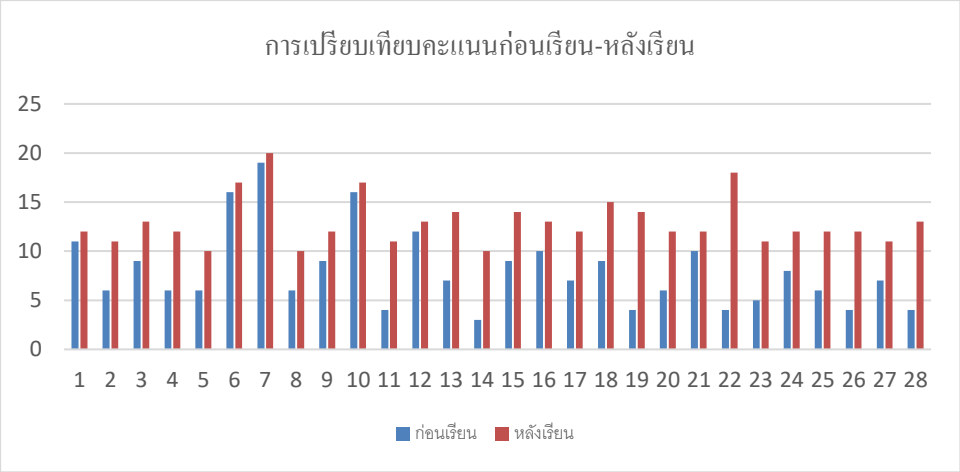
ตอนที่ 1 ผลการศึกษาผลสัมฤทธิ์ทางการเรียน โดยการจัดการเรียนการสอนแบบสืบเสาะหาความรู้ 5 ขั้น (5E)

ก่อนจัดการเรียนรู้ผู้วิจัยให้นักเรียนทำแบบทดสอบก่อนเรียน โดยใช้แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนและเมื่อนำแผนการจัดการเรียนรู้ไปใช้ดำเนินการจัดการเรียนรู้กับนักเรียน จำนวน 17 ชั่วโมง แล้วผู้วิจัยได้ทำการทดสอบหลังเรียนโดยใช้แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน ซึ่งเป็นฉบับเดียวกันกับแบบทดสอบก่อนเรียน ซึ่งได้ผลการทดสอบดังนี้

ตารางที่ 2 ผลการศึกษาผลสัมฤทธิ์ทางการเรียน โดยการจัดการเรียนการสอนแบบสืบเสาะหาความรู้ 5 ขั้น (5E)

ผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์	n (คน)	คะแนนเต็ม	ค่าเฉลี่ย	S.D.	ร้อยละของคะแนนที่เพิ่มขึ้น
ก่อนเรียน	28	20	8.04	3.98	31.43
หลังเรียน	28	20	14.32	2.29	

จากตารางที่ 2 พบว่า คะแนนเฉลี่ยของการทดสอบก่อนเรียนเท่ากับ 8.04 คะแนน และคะแนนเฉลี่ยหลังเรียนเท่ากับ 14.32 คะแนน ซึ่งมีคะแนนเฉลี่ยหลังเรียนสูงกว่าก่อนเรียนเท่ากับ 6.28 คะแนน และนักเรียนทุกคนมีคะแนนสูงขึ้นกว่าเดิมโดยมีคะแนนความก้าวหน้าเมื่อเทียบระหว่างคะแนนก่อนเรียนกับคะแนนหลังเรียนคิดเป็นร้อยละ 31.43 และมีส่วนเบี่ยงเบนมาตรฐานที่ลดลง ซึ่งสามารถแสดงแผนภูมิดังนี้



ภาพที่ 2 เปรียบเทียบผลสัมฤทธิ์ทางการเรียนในวิชาคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนและหลังการจัดการเรียนรู้

ตอนที่ 2 ผลการศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์ โดยการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E)

หลังจากใช้แผนการจัดการเรียนรู้ จำนวน 17 ชั่วโมงแล้ว ผู้วิจัยได้ทำการทดสอบความสามารถในการแก้ปัญหาทางคณิตศาสตร์กับนักเรียน โดยมีผลการศึกษาดังนี้

ตารางที่ 3 ผลการศึกษาความสามารถในการแก้ปัญหาทางคณิตศาสตร์ โดยการจัดการเรียนการสอนแบบสืบเสาะหาความรู้ 5 ขั้น (5E)

ความสามารถในการแก้ปัญหาคณิตศาสตร์	จำนวนนักเรียน	คะแนนเต็ม	ค่าเฉลี่ย	ร้อยละของคะแนนเฉลี่ย	S.D.	จำนวนนักเรียนที่ผ่านเกณฑ์		ระดับความสามารถ
						จำนวน (คน)	ร้อยละ	
1) ขั้นทำความเข้าใจปัญหา	28	3	2.71	90.33	0.60	26	92.86	ดีเยี่ยม
2) ขั้นวางแผนแก้ปัญหา	28	3	2.50	83.33	0.69	27	96.43	ดีเยี่ยม
3) ขั้นดำเนินการตามแผน	28	3	2.36	78.67	0.62	25	85.29	ดีมาก
4) การตรวจสอบผล	28	3	2.21	73.67	0.88	21	75.00	ดี
เฉลี่ยรวม	**28**	**12**	**9.78**	**81.50**	**0.70**	**25**	**87.40**	**ดีเยี่ยม**

จากตารางที่ 3 แสดงให้เห็นว่านักเรียนกลุ่มตัวอย่าง จำนวน 28 คน มีคะแนนเฉลี่ยในขั้นทำความเข้าใจปัญหา 2.71 คะแนน คิดเป็นร้อยละ 90.33 อยู่ในระดับดีเยี่ยม มีคะแนนเฉลี่ยในขั้นวางแผนแก้ปัญหา 2.50 คะแนน คิดเป็นร้อยละ 83.33 อยู่ ในระดับดีเยี่ยม มีคะแนนเฉลี่ยในขั้นดำเนินการตามแผน 2.36 คะแนน คิดเป็นร้อยละ 78.67 อยู่ในระดับดีมาก มีคะแนนเฉลี่ยขั้นตรวจสอบผล 2.21 คะแนน คิดเป็นร้อยละ 75.00 ซึ่งอยู่ในระดับดี เมื่อเปรียบเทียบคะแนนเฉลี่ยความสามารถในการแก้โจทย์ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนและหลังที่ได้รับการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) พบว่าคะแนนเฉลี่ยความสามารถในการแก้โจทย์ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 5 สูงกว่าก่อนเรียน

สรุปและอภิปรายผล

ผลสัมฤทธิ์ทางการเรียน เรื่อง ร้อยละ โดยการจัดการเรียนการสอนแบบสืบเสาะหาความรู้ 5 ขั้น (5E) สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5/4 จำนวน 28 คน มีผลการเรียนรู้ก่อนเรียนโดยเฉลี่ยเท่ากับ 8.04 คะแนน ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 3.98 คะแนน และมีผลการเรียนรู้หลังเรียนโดยเฉลี่ยเท่ากับ 14.32 คะแนน ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 2.29 คะแนน แสดงว่าคะแนนเฉลี่ยหลังการจัดการเรียนการสอนแบบสืบเสาะหาความรู้ 5 ขั้น (5E) สูงกว่าก่อนการจัดการเรียนรู้

คะแนนความสามารถในการแก้ปัญหาทางคณิตศาสตร์ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 ตามแผน 25 คน คิดเป็นร้อยละ 87.40 อยู่ในระดับดีมาก มีจำนวนนักเรียนที่ผ่านเกณฑ์ในขั้นตรวจสอบผล จำนวน 28 คน จากผลการวิเคราะห์แนวคิดของนักเรียน พบว่า มีจำนวนนักเรียนที่ผ่านเกณฑ์ในขั้นทำความเข้าใจ 26 คน คิดเป็นร้อยละ 92.86 อยู่ในระดับดีเยี่ยม มีจำนวนนักเรียนที่ผ่านเกณฑ์ในขั้นวางแผนแก้ปัญหา 27 คน คิดเป็นร้อยละ 96.43 อยู่ในระดับดีเยี่ยม มีจำนวนนักเรียนที่ผ่านเกณฑ์ในขั้นดำเนินการ 21 คน คิดเป็นร้อยละ 75.00 ซึ่งอยู่ในระดับดี เมื่อเปรียบเทียบคะแนนเฉลี่ยความสามารถในการแก้โจทย์ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนและหลังที่ได้รับการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) พบว่าคะแนนเฉลี่ยความสามารถในการแก้โจทย์ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 5 สูงกว่าก่อนเรียน

ข้อเสนอแนะ

1. ข้อเสนอแนะจากการวิจัย

1.1 ในระยะแรกของการจัดการเรียนรู้วิชาคณิตศาสตร์ โดยกระบวนการสืบเสาะหาความรู้แบบ 5 ขั้น (5E) นักเรียนจะไม่คุ้นเคยกับวิธีการสอนที่ให้นักเรียนได้ร่วมกันวิเคราะห์สถานการณ์หรือความรู้ผ่านกิจกรรมการเรียนรู้ต่าง ๆ รวมทั้งร่วมกันสรุปและนำเสนอผลการอภิปราย ผู้สอนต้องใช้เวลาส่วนหนึ่งในการทบทวนความรู้พื้นฐานทางคณิตศาสตร์ที่จำเป็นต่อเรื่องที่นำมาจัดการเรียนรู้ ดังนั้นผู้สอนอาจต้องแก้ไขปัญหาเหล่านี้เพิ่มเติมระหว่างจัดการเรียนการสอน เช่น ทำใบความรู้ หรือข้อมูลที่เกี่ยวข้องให้นักเรียนไปศึกษาล่วงหน้านอกเวลาเรียนหรือเพิ่มเวลาในการจัดการเรียนรู้ในแต่ละแผนการจัดการเรียนรู้เพื่อให้เวลากับการทบทวนความรู้พื้นฐานทางคณิตศาสตร์บางส่วน

1.2 แผนการจัดการเรียนรู้วิชาคณิตศาสตร์โดยใช้กระบวนการสืบเสาะหาความรู้แบบ 5 ขั้น (5E) นั้น เน้นให้นักเรียนสามารถสรุปองค์ความรู้ได้ด้วยตนเองและสามารถถ่ายทอดความรู้ ความเข้าใจผ่านการนำเสนอด้วยรูปแบบต่าง ๆ ซึ่งถ้าพัฒนารูปแบบการจัดการเรียนรู้ดังกล่าว ไปประยุกต์ใช้กับวิชา

คณิตศาสตร์ในหัวข้ออื่น ผู้วิจัยเชื่อว่าจะช่วยพัฒนาทักษะกระบวนการทางด้านคณิตศาสตร์ด้านอื่น ๆ นอกเหนือจากความสามารถในการแก้ปัญหาทางคณิตศาสตร์ และนักเรียนยังสามารถนำทักษะเหล่านี้ไปใช้ในชีวิตประจำวันได้

2. ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

2.1 ควรมีการศึกษาวิจัยการนำแผนการจัดการเรียนรู้วิชาคณิตศาสตร์โดยใช้กระบวนการสืบเสาะหาความรู้แบบ 5 ขั้น (5E) ไปใช้กับเนื้อหาอื่นๆ ในวิชาคณิตศาสตร์สำหรับนักเรียนชั้นประถมศึกษา ปีที่ 5

2.2 ควรมีการวิจัยผลการจัดการเรียนรู้วิชาคณิตศาสตร์โดยใช้กระบวนการสืบเสาะหาความรู้แบบ 5 ขั้น (5E) ที่มีต่อทักษะกระบวนการทางคณิตศาสตร์ด้านอื่นๆ

2.3 ควรมีการศึกษาวิจัยการนำแผนการจัดการเรียนรู้วิชาคณิตศาสตร์โดยใช้กระบวนการสืบเสาะหาความรู้แบบ 5 ขั้น (5E) ไปใช้ในวิชาอื่น ๆ เพื่อส่งเสริมการเรียนรู้ของนักเรียนชั้นประถมศึกษาปีที่ 5

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2546). พระราชบัญญัติระเบียบบริหารราชการกระทรวงศึกษาธิการ พ.ศ. 2546 และ กฎกระทรวงแบ่งราชการ. โรงพิมพ์องค์กรรับส่งสินค้าและพัสดุภัณฑ์ (ร.ส.พ), 17.

กระทรวงศึกษาธิการ. (2552). หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพฯ: คุรุสภาลาดพร้าว.

กระทรวงศึกษาธิการ. (2560). ตัวชี้วัดและสาระการเรียนรู้แกนกลาง กลุ่มสาระการเรียนรู้คณิตศาสตร์ (ฉบับปรับปรุง พ.ศ. 2560) ตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพฯ: โรงพิมพ์ชุมนุมสหกรณ์การเกษตรแห่งประเทศไทย.

กาญจนา การสมทรัพย์ สุวรรณา จุ้ยทอง และอุษา คงทอง. (2561). การศึกษาความสามารถในการแก้โจทย์ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 3 ที่ได้รับการจัดการเรียนรู้รูปแบบซิปปาร่วมกับกระบวนการแก้ปัญหาของโพลยา. Valaya Alongkorn Review, 8(2), 129-139.

สำนักงานคณะกรรมการการศึกษาแห่งชาติ. (2545). พระราชบัญญัติการศึกษาแห่งชาติ พ.ศ. 2542 และที่แก้ไขเพิ่มเติม (ฉบับที่ 2) พ.ศ. 2545. กรุงเทพมหานคร: บริษัท พริกหวานกราฟฟิค จำกัด.

อารุง จันทวานิช และไพบูลย์ แจ่มพงษ์. (2542) “การศึกษา : แนวทางการพัฒนาคุณภาพการศึกษา. วารสารวิชาการ. 2(9) (กันยายน 2542) : 2-12.

Karplus, R. (1977). Science teaching and the development of reasoning. Journal of Research in Science Teaching, 14(2), 169-175.

Lawson, A. E., & Anton, E. (1995). Science teaching and development of thinking. Belmout Califonia: Wadsworth Publishing.

Leardphop, W. (2000). A comparison of learning achievement using learning cycle model of the institute for the promotion of teaching science and technology and the pattern of integration between the learning cycle with the institute for the promotion of teaching science and technology (Master thesis). Bangkok: Srinakharinwirot University.

Mertler, C. A. (2001). Using performance assessment in your classroom. Unpublished manuscript, Bowling Green State University.

The Institute for the Promotion of Teaching Science and Technology. (2003a). The study of Science-Mathematic. Bangkok: The Institute for the Promotion of Teaching Science and Technology.

การพัฒนาความสามารถในการแก้ปัญหาทางคณิตศาสตร์และผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 5 ตามกรอบแนวคิดของโพลยา โดยการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน

The Development of Mathematical Problem-Solving Ability and Mathematics Learning Achievement of Grade 5 Students Based on Polya's Framework through Active Learning Using the 5-Step GPAS Model.

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อพัฒนาความสามารถในการแก้ปัญหาทางคณิตศาสตร์ รวมทั้งเปรียบเทียบผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์และศึกษาความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน กลุ่มตัวอย่างเป็นนักเรียนชั้นประถมศึกษาปีที่ 5/2 ปีการศึกษา 2567 จำนวน 31 คน โรงเรียนเทศบาลบ้านสามกอง จังหวัดภูเก็ต เครื่องมือที่ใช้ในการวิจัยครั้งนี้ ได้แก่ แผนการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน แบบวัดผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ แบบประเมินความพึงพอใจของนักเรียน และเก็บรวบรวมผลงานของนักเรียนเพื่อนำมาวิเคราะห์ข้อมูลตามกรอบแนวคิดของ NCTM (2009) และมีสถิติที่ใช้ในการวิเคราะห์ข้อมูลที่ได้จากแบบทดสอบ ได้แก่ ร้อยละ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน

ผลวิจัยพบว่า การแก้ปัญหาทางคณิตศาสตร์ของนักเรียนในชั้นเรียนที่จัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน 1) นักเรียนมีการแก้ปัญหาทางคณิตศาสตร์หลังใช้การจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน ดีขึ้น และมีการแก้ปัญหาตามกรอบแนวคิดของโพลยาครบทั้งสี่ขั้นตอน คือ ขั้นตอนที่ 1 ขั้นทำความเข้าใจปัญหา ขั้นตอนที่ 2 ขั้นวางแผนแก้ปัญหา ตอนที่ 3 ขั้นดำเนินการตามแผน ขั้นตอนที่ 4 ขั้นตรวจสอบ 2) ผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ของนักเรียนหลังเรียนสูงกว่าก่อนเรียน และ3) นักเรียนมีความพึงพอใจต่อการเรียนวิชาคณิตศาสตร์อยู่ในระดับมาก

คำสำคัญ: เรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน กระบวนการแก้ปัญหาของโพลยา การแก้ปัญหาทางคณิตศาสตร์

Abstract

This research aimed to: develop mathematical problem-solving abilities, compare mathematics learning achievement, and examine student satisfaction toward active learning using the 5-step GPAS model. The Sample group consisted of 31 Grade 5/2 students in the 2024 academic year at Ban Samkong Municipal School, Phuket Province. The research instruments included: lesson plans based on the 5-step GPAS active learning model, a mathematics achievement test, a student satisfaction questionnaire, and student work samples collected for analysis based on the NCTM (2009) framework. The statistical tools used to analyze the test data were percentage, mean and standard deviation.

The findings revealed that: (1) Students' mathematical problem-solving abilities improved after implementing the 5-step GPAS active learning model. Their problem-solving process followed all four steps of Polya's framework: (1) understanding the problem, (2) devising a plan, (3) carrying out the plan, and (4) looking back. (2) Students' mathematics learning achievement after the learning activities was higher than before. (3) Students reported a high level of satisfaction with learning mathematics through this instructional model.

Keywords: Active Learning GPAS 5 STEPs, Polya's Problem-Solving Process, Mathematical Problem Solving

ความเป็นมาและความสำคัญของปัญหา

การศึกษาคือเครื่องมือสำคัญในการพัฒนาคนและสังคม กล่าวคือการศึกษาจะพัฒนาคนให้มีคุณลักษณะตามที่สังคมต้องการ เพื่อให้คนเป็นปัจจัยในการพัฒนาสังคมต่อไป ดังนั้นการศึกษาจึงต้องแสดงบทบาทให้สอดคล้องกับการเปลี่ยนแปลงของสังคมโดยรวม ปัจจุบันสังคมโลก และสังคมไทยได้ก้าวเข้าสู่ศตวรรษที่ 21 อันเป็นยุคที่มีความสลับซับซ้อน และมีการเปลี่ยนแปลงอย่างรวดเร็ว ทำให้การศึกษาของไทยถึงเวลาปรับเปลี่ยนอีกครั้งหนึ่ง เพื่อให้การศึกษาสามารถสร้างผลผลิตได้สอดคล้องกับความต้องการ และบริบทของสังคมได้อย่างมีคุณภาพ (อดุลย์ วังศรีคูณ, 2557 อ้างถึงใน ไพรัช เจริญตรีเพชร, 2565)

คณิตศาสตร์มีบทบาทสำคัญยิ่งต่อความสำเร็จในการเรียนรู้ในศตวรรษที่ 21 เนื่องจากคณิตศาสตร์ช่วยให้มนุษย์มีความคิดริเริ่มสร้างสรรค์ คิดอย่างมีเหตุผล เป็นระบบ มีแบบแผน สามารถวิเคราะห์ปัญหาหรือสถานการณ์ได้อย่างรอบคอบและถี่ถ้วน ช่วยให้คาดการณ์ วางแผน ตัดสินใจแก้ปัญหาได้อย่างถูกต้องเหมาะสม และสามารถนำไปใช้ในชีวิตจริงได้อย่างมีประสิทธิภาพ นอกจากนี้คณิตศาสตร์ยังเป็นเครื่องมือในการศึกษาด้านวิทยาศาสตร์ เทคโนโลยี และศาสตร์อื่น ๆ อันเป็นรากฐานในการพัฒนาทรัพยากรบุคคลของชาติให้มีคุณภาพและพัฒนาเศรษฐกิจของประเทศให้ทัดเทียมกับนานาชาติ การศึกษาคณิตศาสตร์จึงจำเป็นต้องมีการพัฒนาอย่างต่อเนื่อง เพื่อให้ทันสมัย และสอดคล้องกับสภาพเศรษฐกิจ สังคม และความรู้ทางวิทยาศาสตร์และเทคโนโลยีที่เจริญก้าวหน้า อย่างรวดเร็วในยุคโลกาภิวัฒน์ (กระทรวงศึกษาธิการ, 2560)

จากการจัดการเรียนรู้ในรายวิชาคณิตศาสตร์ พบว่านักเรียนส่วนใหญ่ยังขาดทักษะในการแก้โจทย์ปัญหาเชิงวิเคราะห์ โดยเฉพาะในเรื่องของร้อยละ ซึ่งเป็นหัวข้อที่ต้องอาศัยความเข้าใจทั้งเชิงคำนวณและการตีความปัญหา สอดคล้องกับผลการประเมินของสำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน (สพฐ.) ที่รายงานว่านักเรียนระดับประถมศึกษามีคะแนนเฉลี่ยวิชาคณิตศาสตร์ในส่วนของการแก้ปัญหาต่ำกว่าระดับเกณฑ์ (สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน, 2565)

นอกจากนี้ จากการศึกษาของ สมชาย นิลพัฒน์ (2563) ; ณัฐวดี ศิลปศักดิ์ขจร (2564) พบว่าการจัดการเรียนรู้เชิงรุกที่เน้นกระบวนการมีส่วนร่วม เช่น แนวทาง GPAS 5 STEPs ส่งผลต่อการพัฒนาทักษะการคิดวิเคราะห์และการแก้ปัญหาของผู้เรียนอย่างมีนัยสำคัญ โดยเฉพาะเมื่อนำมาประยุกต์ในเนื้อหาที่ซับซ้อนอย่างเรื่อง “โจทย์ปัญหาร้อยละ” ซึ่งเป็นเนื้อหาที่มักพบว่านักเรียนมีความเข้าใจคลาดเคลื่อน ดังนั้น ผู้วิจัยจึงเห็นความจำเป็นในการศึกษาผลของการจัดการเรียนรู้ด้วยแนวทาง GPAS 5 STEPs เพื่อพัฒนาผลสัมฤทธิ์ทางการเรียน และความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียน

เนื่องจากการเรียนรู้ตามกระบวนการเชิงรุกแบบ GPAS 5 ขั้นตอน เป็นการสอนโดยใช้การเรียนรู้เชิงรุก มุ่งให้ผู้เรียนลงมือปฏิบัติ สร้างความรู้ด้วยตนเอง และส่งเสริมให้ผู้เรียนมีส่วนร่วมในชั้นเรียน ผ่านกระบวนการคิดขั้นสูงเชิงระบบ 5 ขั้น (GPAS 5 STEPs) เป็นการจัดกิจกรรมที่เน้นทักษะการคิดโดยเฉพาะการคิดวิเคราะห์ เปิดโอกาสให้ผู้เรียนได้ซักถาม อภิปรายในชั้นเรียน โดยใช้คำถามกระตุ้นให้ผู้เรียนเกิดการคิดตลอดเวลา และการประเมินเพื่อการเรียนรู้ เป็นการประเมินที่สะท้อนให้ผู้เรียนได้ทราบจุดอ่อน จุดแข็งของตนเอง เพื่อนำไปปรับปรุงและแก้ไขให้ดีขึ้น กระบวนการคิดขั้นสูงเชิงระบบ (GPAS 5 STEPs) มี 5 ขั้นตอน คือ ขั้นที่ 1 รวบรวมข้อมูล (Gathering) ขั้นที่ 2 คิดวิเคราะห์และสรุปความรู้ (Processing) ขั้นที่ 3 ปฏิบัติและสรุปความรู้หลังการปฏิบัติ (Applying and Constructing the Knowledge) ขั้นที่ 4 สื่อสารและนำเสนอ (Applying the Communication Skill) ขั้นที่ 5 ประเมินเพื่อเพิ่มคุณค่า (Self-Regulating) (สถาบันพัฒนาคุณภาพวิชาการ, 2561)

นอกจากวิธีการจัดการเรียนรู้ที่ส่งเสริมให้นักเรียนได้พัฒนาความสามารถในการแก้ปัญหาแล้วนั้น กระบวนการแก้ปัญหาก็มีส่วนสำคัญอย่างยิ่งที่จะสามารถพัฒนาผู้เรียนให้มีแนวทางหรือวิธีการคิดกระบวนการแก้ปัญหาของโพลยา (Polya) เป็นกระบวนการในการพัฒนาความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียน กระบวนการแก้ปัญหาถือว่ามีความสำคัญสำหรับกระบวนการแก้ปัญหาทางคณิตศาสตร์ที่ส่งผลต่อทักษะการแก้ปัญหาให้สูงขึ้น ซึ่งเป็นที่ยอมรับและนำมาใช้กันอย่างแพร่หลาย ได้แก่ กระบวนการแก้ปัญหาตามแนวคิดของโพลยา มี 4 ขั้นตอนดังนี้ ขั้นที่ 1 ขั้นทำความเข้าใจปัญหาเป็นการคิดเกี่ยวกับปัญหาและตัดสินว่าอะไรที่ต้องการค้นหา โดยผู้เรียนต้องทำความเข้าใจปัญหาและระบุส่วนที่สำคัญของปัญหาหรือเป็นการสำรวจว่าในปัญหามีคำ หรือวลี หรือประโยคย่อย ๆ อะไรบ้าง มีความหมายอย่างไร แล้วจำแนกเป็นส่วน ๆ ว่าโจทย์กำหนดอะไรให้ สิ่งที่ต้องการหาคืออะไร ข้อมูลที่กำหนดให้มีเงื่อนไขอย่างไรบ้าง ขั้นที่ 2 ขั้นวางแผนแก้ปัญหา เป็นการค้นหาความเชื่อมโยงหรือความสัมพันธ์ระหว่างข้อมูล และตัวไม่รู้ค่า นำความสัมพันธ์ที่ได้มาผสมผสานกับประสบการณ์ กำหนดแนวทางหรือแผนในการแก้ปัญหาหรือเป็นขั้นการวิเคราะห์รายละเอียดและหาความเชื่อมโยงระหว่างข้อมูลที่กำหนดกับสิ่งที่ต้องการหาโดยใช้บทนิยาม สมบัติ และทฤษฎีบทต่าง ๆ ที่ได้เรียนรู้มาก่อนแล้ว ในการพิจารณาอาจใช้วิธีการต่าง ๆ เพื่อช่วยให้ได้ข้อสรุปที่สามารถดำเนินการแก้ปัญหาและหาคำตอบได้ ขั้นที่ 3 ขั้นดำเนินการตามแผน เป็นการลงมือปฏิบัติตามแผนหรือแนวทางที่วางไว้ อาจตรวจสอบความเป็นไปได้ของแผน

เพิ่มเติมรายละเอียด แล้วลงมือปฏิบัติจนได้ความสำเร็จ ถ้าไม่สำเร็จต้องค้นหาและทำการแก้ปัญหาจนสามารถแก้ปัญหาได้ และขั้นที่ 4 ขั้นตรวจสอบผล เป็นการมองย้อนกลับไปยังคำตอบที่ได้มา เริ่มจากการตรวจสอบความถูกต้อง ความสมเหตุสมผลของคำตอบและยุทธวิธีแก้ปัญหาที่ใช้ มีคำตอบหรือยุทธวิธีอื่นในการแก้ปัญหานี้อีกหรือไม่ (วิรัชดา เลิศรมยานันท์, 2562)

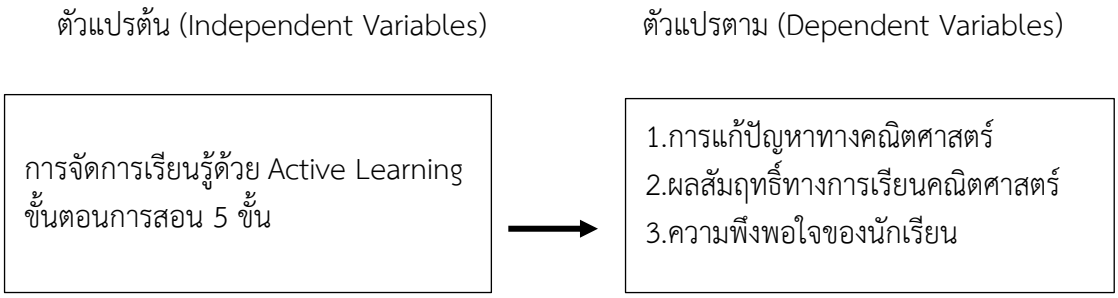
จากความสำคัญและเหตุผลดังกล่าว ผู้วิจัยจึงมีความสนใจที่จะทำการศึกษาว่า การนำการจัดการเรียนรู้โดยใช้เชิงรุกแบบ GPAS 5 ขั้นตอนและกระบวนการแก้โจทย์ปัญหาของโพลยามาใช้ในการจัดกิจกรรมการเรียนการสอน กลุ่มสาระการเรียนรู้คณิตศาสตร์กับนักเรียนชั้นประถมศึกษาปีที่ 5 เพื่อพัฒนาความสามารถในการแก้ปัญหาทางคณิตศาสตร์และเพื่อพัฒนาผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์โดยใช้เชิงรุกแบบ GPAS 5 ขั้นตอน และกระบวนการแก้ปัญหาของโพลยา เรื่อง โจทย์ปัญหาร้อยละ เพื่อจะนำไปสู่การแก้ไขปัญหาการเรียนรู้วิชาคณิตศาสตร์ได้อย่างมีประสิทธิภาพ ให้นักเรียนสามารถนำไปใช้ในชีวิตประจำวัน และเป็นพื้นฐานในการเรียนรู้ วิชาคณิตศาสตร์ต่อไปได้ในอนาคต

วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ของนักเรียน เรื่อง โจทย์ปัญหาร้อยละ ก่อนและหลังได้รับการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน

2.ความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน

กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิดของการวิจัย

วิธีดำเนินการวิจัย

1. ประชากรและกลุ่มตัวอย่าง

ประชากรในการวิจัยครั้งนี้ ได้แก่ นักเรียนระดับชั้นประถมศึกษาปีที่ 5 โรงเรียนเทศบาลบ้านสามกอง(ขุนวิเศษนุกูลกิจอุทิศ) ภาคเรียนที่ 2 ปีการศึกษา 2567 ซึ่งมีจำนวนทั้งหมด 63 คน แบ่งออกเป็น 2 ห้องเรียน

กลุ่มตัวอย่างในการวิจัยครั้งนี้ คือ นักเรียนชั้นประถมศึกษาปีที่ 5/2 โรงเรียนเทศบาลบ้านสามกอง(ขุนวิเศษนุกูลกิจอุทิศ) ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวนทั้งหมด 31 คน ได้มาโดยการเจาะจง (Purposive Sampling) จากทั้งหมด 2 ห้องเรียน แล้วสุ่มเลือกมาเพียง 1 ห้องเรียน เพื่อใช้เป็นกลุ่มตัวอย่างในการทดลอง

2. รูปแบบการวิจัย

การวิจัยครั้งนี้เป็นวิจัยในชั้นเรียนที่ใช้ระเบียบวิจัยเชิงทดลอง เพื่อพัฒนาความสามารถในการแก้ปัญหาของนักเรียนโดยการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน

3. เครื่องมือที่ใช้ในการวิจัย

3.1 เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลเชิงทดลอง ได้แก่ 1) แผนการจัดการเรียนรู้ เป็นแผนที่ผู้วิจัยและผู้เชี่ยวชาญร่วมกันเขียนแผนขึ้นโดยมีลำดับขั้นตอนการสอนตามขั้นตอนของเชิงรุกแบบ GPAS 5 ขั้นตอนซึ่งยึดตามหลักสูตรของสถานศึกษาของโรงเรียนเทศบาลบ้านสามกอง หน่วยการเรียนรู้ที่ 5 เรื่อง โจทย์ปัญหาร้อยละ จำนวน 10 แผน เวลา 10 ชั่วโมง 2) แบบสังเกตพฤติกรรมของนักเรียนเป็นแบบสังเกตพฤติกรรมคำพูดและวิธีการคิดของนักเรียนในขณะที่ดำเนินกิจกรรมการแก้ปัญหาทางคณิตศาสตร์

3.2 เครื่องมือที่ใช้เก็บข้อมูลเชิงปริมาณ ได้แก่ 1) แบบวัดผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ก่อนและหลังเรียนของนักเรียนชั้นประถมศึกษาปีที่ 5 แบบปรนัยเลือกตอบ 4 ตัวเลือก จำนวน 20 ข้อ 2) แบบประเมินความพึงพอใจของนักเรียน และ3)วิเคราะห์ขั้นตอนกระบวนการแก้ปัญหาของโพลยา 4 ขั้นตอน ขั้นที่ 1 ทำความเข้าใจโจทย์ (Understanding the problem) ขั้นที่ 2 วางแผนแก้ปัญหา (Devising a plan) ขั้นที่ 3 ปฏิบัติตามแผน (Carrying out the plan) ขั้นที่ 4 ตรวจสอบ (Looking back) เพื่อสร้างประเด็นที่จะนำมาใช้ในแบบสังเกต โดยกำหนดกรอบพฤติกรรมที่จะทำการสังเกตเพื่อทำให้ทราบถึงการแก้ปัญหาตามกระบวนการแก้ปัญหาของโพลยาในการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน ดังตารางที่ 1

ตารางที่ 1 แสดงกรอบการประเมินพฤติกรรมการแก้ปัญหาตามกรอบแนวคิดของโพลยา (Polya)

กระบวนการแก้ปัญหาตามแนวคิดของโพลยา(Polya)	**พฤติกรรมที่สังเกต/ เกณฑ์การให้คะแนน**		
	3 (ดี)	**2 (พอใช้)**	**1 (ปรับปรุง)**
ขั้นที่ 1 ทำความเข้าใจโจทย์	ระบุปัญหาได้ถูกต้อง ชัดเจน สอดคล้องกับโจทย์ปัญหาที่กำหนดให้	สามารถระบุปัญหาได้ แต่ไม่ชัดเจน	ไม่สามารถระบุปัญหาได้
ขั้นที่ 2 วางแผนแก้ปัญหา	เสนอวิธีการแก้ปัญหา และวางแผนแก้ปัญหาได้เหมาะสม	เสนอวิธีการแก้ปัญหา และวางแผนแก้ปัญหาได้ แต่ไม่สอดคล้องกับโจทย์ปัญหา	ไม่สามารถระบุวิธีการ/วางแผนแก้ปัญหาได้
ขั้นที่ 3 ปฏิบัติตามแผน	ลงมือปฏิบัติการตามแผนที่วางไว้ได้ และได้คำตอบจากการแก้ปัญหาที่เหมาะสม	ลงมือปฏิบัติการตามแผนที่วางไว้ได้ แต่ไม่สามารถหาคำตอบจากโจทย์ปัญหาได้	ไม่สามารถลงมือปฏิบัติการตามแผนที่วางไว้ได้ และไม่สามารถหาคำตอบจากโจทย์ปัญหาได้
ขั้นที่ 4 ตรวจสอบ	สามารถตรวจสอบคำตอบได้ และมีความสมเหตุสมผลของคำตอบ	สามารถตรวจสอบคำตอบได้ แต่ไม่มีความสมเหตุสมผลของคำตอบ	ไม่สามารถตรวจสอบคำตอบได้

4. ข้อมูลวิจัยที่นำมาวิเคราะห์

ผู้วิจัยนำข้อมูลที่ได้จากการเก็บรวบรวมจากเครื่องมือที่ใช้ในการวิจัยมาวิเคราะห์ข้อมูล โดยดำเนินการวิเคราะห์ข้อมูลดังนี้

4.1 ข้อมูลจากผลงานของนักเรียน เป็นงานเขียนที่นักเรียนแต่ละคนได้บันทึกในขณะที่ลงมือแก้ปัญหาทางคณิตศาสตร์เกี่ยวกับวิธีการหาคำตอบ และเหตุผลประกอบการอธิบายวิธีการหาคำตอบของแต่ละคน เพื่อใช้ในการประเมินการแก้ปัญหาทางคณิตศาสตร์ของนักเรียน

4.2 ข้อมูลจากแบบสังเกตพฤติกรรมการแก้ปัญหาของนักเรียน เป็นรายละเอียดเกี่ยวกับพฤติกรรมคำพูด และวิธีการคิดของนักเรียนขณะที่ดำเนินกิจกรรมการแก้ปัญหาทางคณิตศาสตร์ โดยการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน ที่แสดงออกถึงการแก้ปัญหาตามกรอบแนวคิดของโพลยา (Polya) ซึ่งใช้เป็นข้อมูลประกอบการถอดข้อความเสียงจากเครื่องบันทึกวีดีทัศน์ และกล้องบันทึกภาพนิ่ง เพื่อศึกษาพัฒนาการแก้ปัญหาทางคณิตศาสตร์ของนักเรียน

4.3 ข้อมูลที่ได้จากวีดีทัศน์ เป็นข้อมูลที่ได้จากการบันทึกวีดีทัศน์ตามขั้นตอนของ การจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน ผู้วิจัยจะถอดวิธีการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนในชั้นเรียนจริง เพื่อใช้พัฒนาการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนในชั้นเรียนคณิตศาสตร์ด้วยการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน

4.4 ข้อมูลที่ได้จากแบบทดสอบวัดผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ของนักเรียน ก่อนและหลังการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน

4.5 ข้อมูลที่ได้จากแบบวัดความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน

5. การเก็บรวบรวมข้อมูล

ผู้วิจัยได้ทำการเก็บรวบรวมข้อมูลด้วยตนเองในภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 10 ชั่วโมง ผู้วิจัยได้วางแผนการจัดการเรียนรู้และกำหนดขั้นตอนการสอน ซึ่งผู้วิจัยทำหน้าที่ครูผู้สอน และเป็นผู้บันทึกวีดีทัศน์ในระหว่างการดำเนินการตามขั้นตอนที่พัฒนาความสามารถในการ แก้ปัญหาของนักเรียน ผู้วิจัยได้วางแผนสำหรับการเก็บรวบรวมข้อมูลไว้ดังต่อไปนี้

ขั้นที่ 1 เตรียมความพร้อมก่อนการเก็บรวบรวมข้อมูล โดยผู้วิจัยวางแผนการเก็บรวบรวมข้อมูลโดยใช้กล้องวิดีโอในการบันทึกวิดีโอในชั้นเรียนคณิตศาสตร์ระหว่างการดำเนินการตามขั้นตอนของ การจัดการเรียนรู้ หลังจากที่ผู้วิจัยกำหนดพื้นที่วิจัย โดยการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน ด้วยการลงมือปฏิบัติจริงในโรงเรียน จากการดำเนินงานตามกระบวนการศึกษาชั้นเรียนและวิธีการเชิงรุกแบบ GPAS 5 ขั้นตอน

ขั้นตอนที่ 2 การดำเนินการเก็บรวบรวมข้อมูล โดยผู้วิจัยได้ดำเนินการใช้การศึกษาชั้นเรียนและวิธีการการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน เพื่อพัฒนาความสามารถในการแก้ปัญหาทางคณิตศาสตร์ของนักเรียน ผู้วิจัยทำการบันทึกวิดีทัศน์ก่อนจะเริ่มการเรียนการสอน ตลอดจนสิ้นสุดการเรียนการสอน และเพื่อบันทึกพฤติกรรมการพูดคุย อากัปกิริยาบท ท่าทางและสีหน้าของนักเรียนที่แสดงออกในระหว่างที่นักเรียนแก้ปัญหาทางคณิตศาสตร์

ขั้นตอนที่ 3 การดำเนินหลังการเก็บรวบรวมข้อมูล โดยผู้วิจัยให้นักเรียนทำการทดสอบ (post – test) แบบทดสอบวัดความสามารถในการแก้ปัญหา เรื่อง โจทย์ปัญหาร้อยละ และวัดความพึงพอใจต่อการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน แล้วเก็บรวบรวมผลการทดสอบและข้อมูลต่าง ๆ วิเคราะห์ด้วยวิธีทางสถิติ

6. การวิเคราะห์ข้อมูล

6.1 นักเรียนสามารถแสดงพฤติกรรมด้าน ขั้นวางแผนแก้ปัญหา และ ขั้นปฏิบัติตามแผน ได้สูงสุด โดยปรากฏในกิจกรรมทั้งหมด 10 กิจกรรม คิดเป็นร้อยละ 100% ของกิจกรรมทั้งหมด

6.2 ความสามารถใน ขั้นทำความเข้าใจปัญหา พบใน 6 จาก 10 กิจกรรม คิดเป็นร้อยละ 60%

6.3 ความสามารถใน ขั้นตรวจสอบคำตอบ ปรากฏใน 3 จาก 10 กิจกรรม คิดเป็นร้อยละ 30%

ตารางที่ 2 สรุปผลความสามารถในการแก้ปัญหาทางคณิตศาสตร์ตั้งแต่แผนการจัดการเรียนรู้ที่ 1-10 เมื่อพิจารณาค่าเฉลี่ยของความสามารถในการแก้ปัญหาในแต่ละขั้น พบว่า:

ขั้นตอนของการแก้ปัญหา	ค่าเฉลี่ย ($\bar{X}$)	ส่วนเบี่ยงเบนมาตรฐาน (S.D.)
ทำความเข้าใจ	3.85	0.56
วางแผนแก้ปัญหา	4.32	0.48
ปฏิบัติตามแผน	4.25	0.51
ตรวจสอบ	3.47	0.62

จากตารางที่ 2 ผลการวิเคราะห์ พบว่า นักเรียนมีพัฒนาการทางทักษะการคิดวิเคราะห์และการแก้ปัญหา โดยเฉพาะในด้านการวางแผนและการปฏิบัติตามแผนอย่างต่อเนื่อง ทั้งนี้ เป็นผลมาจากกระบวนการเรียนรู้เชิงรุกแบบ GPAS 5 STEPs ที่เน้นการลงมือปฏิบัติจริง มีการตั้งคำถาม และการเรียนรู้แบบมีส่วนร่วมทุกขั้นตอน

ตารางที่ 3 ผลการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 5/2 ก่อนและหลังได้รับการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน โจทย์ปัญหาร้อยละ

แบบทดสอบ	n	คะแนนเต็ม	ค่าเฉลี่ย	ร้อยละ	ส่วนเบี่ยงเบนมาตรฐาน	ระดับผลสัมฤทธิ์
ก่อนเรียน	31	20	5.58	27.90	1.64	ต่ำกว่าเกณฑ์ขั้นต่ำ
หลังเรียน	31	20	14.25	71.25	2.83	ค่อนข้างดี

จากตารางที่ 3 ผลการเปรียบเทียบความสามารถในการแก้ปัญหาของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนและหลังจากได้รับการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน เรื่อง โจทย์ปัญหาร้อยละ พบว่า นักเรียนมีคะแนนเฉลี่ยก่อนทำแบบวัดเท่ากับ 5.58 คิดเป็นร้อยละ 27.90 ส่วนเบี่ยงเบนมาตรฐาน 1.64 และมีค่าเฉลี่ยหลังทำแบบวัดเท่ากับ 14.25 คิดเป็นร้อยละ 71.25 ส่วนเบี่ยงเบนมาตรฐาน 2.83 เมื่อพิจารณาเกณฑ์การให้คะแนนความสามารถในการแก้ปัญหา พบว่าเกณฑ์การประเมินผลรวม (คะแนนเต็ม 20 คะแนน) นักเรียนได้คะแนนสูงสุดได้แก่ 19 18 17 16 และ 15 คะแนน ตามลำดับ แสดงว่านักเรียนมี

ความสามารถในการแก้ปัญหาอยู่ในระดับค่อนข้างดี และได้คะแนนต่ำสุด ได้แก่ 10 11 12 13 และ 14 คะแนน ตามลำดับ แสดงว่านักเรียนมีความสามารถในการแก้ปัญหาอยู่ในระดับต่ำกว่าเกณฑ์

ตารางที่ 4 ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และระดับความพึงพอใจที่ได้รับการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน

รายการประเมินความพึงพอใจ	ค่าเฉลี่ย	ส่วนเบี่ยงเบนมาตรฐาน	ระดับความพึงพอใจ
1. ความน่าสนใจของกิจกรรมในแต่ละขั้นตอนของ GPAS	4.35	0.65	มาก
2. ความชัดเจนของกระบวนการเรียนรู้ในแต่ละขั้น	4.18	0.73	มาก
3. การมีส่วนร่วมของนักเรียนในกิจกรรม	4.27	0.68	มาก
4. การส่งเสริมการคิดวิเคราะห์ผ่านกิจกรรม	4.22	0.81	มาก
5. ความเข้าใจเนื้อหาวิชาจากการเรียนรู้แบบ GPAS	4.10	0.83	มาก
6. การทำงานกลุ่ม/แลกเปลี่ยนความคิดเห็นกับเพื่อน	4.25	0.71	มาก
7. ความมั่นใจในการตอบคำถามและนำเสนอผลงาน	4.08	0.79	มาก
ค่าเฉลี่ยรวม	**4.21**	**0.79**	**มาก**

จากตารางที่ 4 พบว่า นักเรียนมีความพึงพอใจต่อการจัดการเรียนรู้แบบ GPAS 5 ขั้นตอน ในทุกด้านอยู่ในระดับ “มาก” โดยประเด็นที่ได้รับค่าเฉลี่ยสูงสุด คือ “ความน่าสนใจของกิจกรรมในแต่ละขั้นตอนของ GPAS” (ค่าเฉลี่ย = 4.35) สะท้อนให้เห็นว่ารูปแบบกิจกรรมช่วยดึงดูดความสนใจและกระตุ้นให้นักเรียนมีส่วนร่วมได้เป็นอย่างดี ประเด็นที่ได้รับคะแนนเฉลี่ยน้อยที่สุด คือ “ความมั่นใจในการตอบคำถามและนำเสนอผลงาน” (ค่าเฉลี่ย = 4.08) ซึ่งถึงแม้จะยังอยู่ในระดับมาก แต่ควรเป็นจุดที่ครูสามารถส่งเสริมเพิ่มเติม โดยการสร้างบรรยากาศที่ปลอดภัยในการแสดงความคิดเห็นและนำเสนอหน้าชั้นเรียน

ผลการวิจัย

ผลการวิจัยพบว่า (1) นักเรียนสามารถพัฒนาการแก้ปัญหาทางคณิตศาสตร์ได้อย่างชัดเจน โดยสอดคล้องกับกรอบแนวคิดของ โพลยา (Polya) ที่แบ่งเป็น 4 ขั้นตอน ดังนี้: ขั้นที่ 1: ทำความเข้าใจปัญหา ปรากฏใน 6 จาก 10 กิจกรรม คิดเป็น 60% ขั้นที่ 2: วางแผนแก้ปัญหา ปรากฏในกิจกรรมทั้งหมด 100% ขั้นที่ 3: ปฏิบัติตามแผน ปรากฏในกิจกรรมทั้งหมด 100% ขั้นที่ 4: ตรวจสอบคำตอบ ปรากฏใน 3 จาก 10 กิจกรรม คิดเป็น 30% 2) ผลสัมฤทธิ์ทางการเรียนวิชาคณิตศาสตร์ของนักเรียนหลังเรียนสูงกว่าก่อนเรียน และ3) นักเรียนมีความพึงพอใจต่อการเรียนวิชาคณิตศาสตร์อยู่ในระดับมาก

สรุปและอภิปรายผล

ผลการวิเคราะห์การพัฒนาการแก้ปัญหาทางคณิตศาสตร์ เรื่อง โจทย์ปัญหาร้อยละ ของนักเรียนชั้นประถมศึกษาปีที่ 5 ในชั้นเรียนที่จัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน พบว่า นักเรียนมีการพัฒนาแก้ปัญหาทางคณิตศาสตร์หลังจากการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน ดีขึ้น โดยมีการแก้ปัญหาครบทั้ง 4 ขั้นตอนตามกรอบแนวคิดของโพลยา ดังนี้ 1) ขั้นตอนที่ 1 ขั้นทำความเข้าใจปัญหา มีการวิเคราะห์ อธิบายเขียน พูดและวาดภาพเพื่อแสดงแนวคิดหรือวิธีการในการแก้ปัญหาด้วยตนเอง 2) ขั้นตอนที่ 2 ขั้นวางแผนแก้ปัญหา สามารถสร้างสมมุติฐาน และใช้กระบวนการโดยผ่านการดู/จ้อง ใช้เครื่องมือ/ยุทธวิธีก่อนหน้าเพื่อใช้ในการแก้ปัญหา และวางแผนการแก้ปัญหาออกมาให้อยู่ในรูปที่ง่ายต่อความเข้าใจ เช่น ภาพ กราฟ เป็นต้น 3) ขั้นตอนที่ 3 ขั้นดำเนินการตามแผน สามารถดำเนินการตามแผนที่ได้วางไว้ และคำนวณออกมาได้โดยมีการนำความรู้จากบทเรียนก่อนหน้ามาปรับใช้กับบทใหม่ ๆ 4) ขั้นตอนที่ 4 ขั้นตรวจสอบ สามารถพิจารณาความสมเหตุสมผลของคำตอบที่ได้จากการแก้ปัญหาของตัวเองและตรวจสอบข้อสรุป โดยพฤติกรรมของนักเรียนที่เปลี่ยนแปลงมากที่สุดจากการใช้วิธีการสอนแบบเชิงรุกแบบ GPAS 5 ขั้นตอน คือ นักเรียนได้ร่วมกิจกรรมกลุ่ม นักเรียนมีโอกาสพูด อ่าน เขียน และแลกเปลี่ยนเรียนรู้ ร่วมกับสมาชิกในกลุ่ม ซึ่งการแบ่งกลุ่มแต่ละครั้งเป็นการแบ่งกลุ่มคละความสามารถ นักเรียนจึงได้แลกเปลี่ยนแนวคิดและได้เรียนรู้แนวทางหรือรูปแบบที่แปลกใหม่สำหรับใช้ในการแก้โจทย์ปัญหาทางคณิตศาสตร์ และอภิปรายร่วมกัน

จากผลการวิจัยดังกล่าวสอดคล้องกับแนวทางในการส่งเสริมความสามารถในการแก้ปัญหาของสถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี (The institute for the Promotion of Teaching Science and Technology (IPST), 2551, p.180) ที่กล่าวว่าผู้สอนควรเปิดโอกาสให้นักเรียนได้คิดอธิบายในสิ่งที่ตนคิด และนำเสนอแนวคิดของตนอย่างอิสระอาจเริ่มต้นจากการให้นักเรียนเติมคำตอบเพียงคำตอบเดียว เติมคำตอบสั้น ๆ แล้วจึงเติมคำตอบเป็นข้อความหรือประโยค และเมื่อนักเรียนคุ้นเคยกับการได้คิด อธิบายในสิ่งที่ตนเองคิดและนำเสนอแนวคิดของตนแล้ว ครูควรให้ลงมือปฏิบัติแก้ปัญหาเป็นกลุ่มเพราะการแก้ปัญหาเป็นกลุ่มจะช่วยให้นักเรียนได้มีโอกาสฝึกทักษะการคิด การให้เหตุผล การสื่อสาร การสื่อความหมายทางคณิตศาสตร์และการนำเสนอร่วมกับเพื่อนสมาชิกในกลุ่มด้วย

ผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์ของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนและหลังได้รับการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน เรื่อง โจทย์ปัญหาร้อยละ มีผลสัมฤทธิ์ทางการเรียนคณิตศาสตร์หลังเรียนสูงกว่าก่อนเรียนมีคะแนนเฉลี่ย 5.58 ของคะแนนเต็ม 20 คะแนน คิดเป็นร้อยละของคะแนนก่อนเรียนเท่ากับ 27.90 และมีคะแนนเฉลี่ยหลังเรียนเท่ากับ 14.25 ของคะแนนเต็ม 20 คะแนน คิดเป็นค่าเฉลี่ยร้อยละของคะแนนหลังเรียนเท่ากับ 71.25 จากผลการวิจัยดังกล่าวสอดคล้องกับ จิตรลดา ชัยสงค์ (2562) ที่พบว่า การจัดการเรียนรู้โดยใช้แนวทาง GPAS 5 STEPs ส่งผลให้ผู้เรียนสามารถพัฒนาความเข้าใจเชิงลึกในบทเรียน และสามารถประยุกต์ใช้ทักษะการคิดแก้ปัญหาในสถานการณ์ใหม่ได้อย่างเหมาะสม รวมทั้งงานวิจัยของ สุชาติ พิมพ์ทอง (2564) ที่รายงานว่า นักเรียนที่เรียนผ่านกระบวนการเรียนรู้เชิงรุกแบบมีขั้นตอนชัดเจน จะมีผลสัมฤทธิ์ทางการเรียนเพิ่มขึ้นอย่างมีนัยสำคัญเมื่อเปรียบเทียบกับการเรียนแบบเดิม

จากการศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 5 ต่อการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน ผลการศึกษาความพึงพอใจต่อการจัดการเรียนรู้ของนักเรียนชั้นประถมศึกษาปีที่ 5 หลังได้รับการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน ผู้เรียนมีความพึงพอใจต่อการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน อยู่ในระดับมาก มีคะแนนเฉลี่ยเท่ากับ 4.21 ทั้งนี้อาจเนื่องมาจากการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน เป็นรูปแบบการเรียนรู้ที่เน้นนักเรียนเป็นศูนย์กลาง จากผลการวิจัยดังกล่าวสอดคล้องกับงานวิจัยของพิชัย โชคอธิกุล และ ชุติมา วิมลสุวรรณ (2561) งานวิจัยนี้มุ่งเน้นการสำรวจความพึงพอใจของนักศึกษาในกิจกรรมการเรียนการสอนที่ใช้หลักการ Active Learning โดยการทำการศึกษากลุ่มนักศึกษาในคณะต่าง ๆ ผลการศึกษาพบว่า นักศึกษามีความพึงพอใจสูงต่อการใช้ Active Learning เนื่องจากช่วยให้สามารถเข้าใจเนื้อหาได้ลึกซึ้งยิ่งขึ้น รวมถึงช่วยพัฒนาทักษะการคิดวิเคราะห์และการทำงานร่วมกับผู้อื่นได้ดีขึ้น

ข้อเสนอแนะ

1. ครูผู้สอนควรทราบพื้นฐานความรู้ของผู้เรียนก่อนการจัดการเรียนรู้ รวมถึงพื้นฐานในด้านอื่น ๆ เพื่อวางแผนการจัดการเรียนรู้ให้แก่ผู้เรียนให้สอดคล้องกับความต้องการของผู้เรียน และพัฒนาผู้เรียนให้เต็มที่ตามศักยภาพที่ตนมีมากที่สุด

2. การจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน ควรจัดในชั้นเรียนที่นักเรียนมีการเรียนเชิงรุกแบบ GPAS 5 ขั้นตอน อย่างสม่ำเสมอ เพื่อให้ชั้นเรียนเป็นไปได้อย่างราบรื่น และนักเรียนมีความคุ้นเคยกับ การจัดการเรียนการสอนเชิงรุกแบบ GPAS 5 ขั้นตอน ทำให้นักเรียนกล้าที่จะแสดงความคิดเห็น เสนอแนวคิดต่าง ๆ ของตนเองได้

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2560). คณิตศาสตร์กับการศึกษาในศตวรรษที่ 21. สำนักวิชาการและมาตรฐานการศึกษา.

จิตรลดา ชัยสงค์. (2562). ผลของการจัดการเรียนรู้โดยใช้แนวทาง GPAS 5 STEPs ที่มีต่อการพัฒนาทักษะการคิดและการแก้ปัญหาของผู้เรียน (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยราชภัฏเชียงใหม่.

ณัฐวดี ศิลปศักดิ์ขจร (2564). การพัฒนาการเรียนรู้โดยใช้แนวทาง GPAS 5 STEPs เพื่อส่งเสริมการแก้ปัญหาทางคณิตศาสตร์ของนักเรียนชั้นประถมศึกษา. วิทยานิพนธ์ปริญญามหาบัณฑิต, มหาวิทยาลัยศรีนครินทรวิโรฒ.

พิชัย โชคอธิกุล, และ ชุติมา วิมลสุวรรณ. (2561). การสำรวจความพึงพอใจของนักศึกษาที่มีต่อกิจกรรมการเรียนการสอนตามหลักการ Active Learning. รายงานการวิจัย, มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี.

ไพรัช เจริญตรีเพชร. (2565). การจัดการเรียนรู้เชิงรุก (Active Learning) เพื่อเสริมสร้างทักษะการเรียนรู้วิชาคณิตศาสตร์ ระดับมัธยมศึกษา ในศตวรรษที่ 21. โรงเรียนสาธิต มหาวิทยาลัยศรีนครินทรวิโรฒประสานมิตร (ฝ่ายมัธยม). https://ir.swu.ac.th/jspui/handle/123456789/27980

วิรัชดา เลิศรมยานันท์. (2562). ทักษะกระบวนการทางคณิตศาสตร์. ออนไลน์ สืบค้นเมื่อ 25 ตุลาคม 2567. แหล่งที่มา : www.mcpswis.mcp.ac.th/html_edu/cgibin/mcp/main_php/print_informed.php?id_count_inform=17210

สถาบันพัฒนาคุณภาพวิชาการ. (2561). การจัดการเรียนรู้ตามกระบวนการคิดขั้นสูงเชิงระบบ GPAS 5 STEPs. สถาบันพัฒนาคุณภาพวิชาการ (พว.).วิรัชดา เลิศรมยานันท์. (2562). ทักษะกระบวนการทางคณิตศาสตร์. สืบค้นเมื่อ 28 ตุลาคม 256, แหล่งที่มา www.mcpswis.mcp.ac.th/html_edu/cgibin/mcp/main_php/print_informed.php?id_count_inform=17210

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี. (2551). การส่งเสริมการคิดวิเคราะห์และการแก้ปัญหาผ่านกระบวนการเรียนรู้ (หน้า 180). สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี.

สมชาย นิลพัฒน์. (2563). ผลของการจัดการเรียนรู้เชิงรุกแบบ GPAS 5 ขั้นตอน ที่มีต่อผลสัมฤทธิ์ทางการเรียนและทักษะการคิดวิเคราะห์ของนักเรียนระดับประถมศึกษา (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยราชภัฏเชียงใหม่.

สุชาติ พิมพ์ทอง. (2564). ผลของการจัดการเรียนรู้เชิงรุกแบบมีขั้นตอนชัดเจนต่อผลสัมฤทธิ์ทางการเรียนของนักเรียนระดับประถมศึกษา (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยราชภัฏมหาสารคาม.

สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน. (2565). รายงานผลการประเมินคุณภาพผู้เรียน (NT) ระดับชั้นประถมศึกษาปีที่ 3 ปีการศึกษา 2565. กรุงเทพฯ: สำนักทดสอบทางการศึกษา สพฐ.

การพัฒนาแบบฝึกทักษะ “วังพญาพาเพลิน” โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนา การอ่านออกเสียงคำควบกล้ำ ของนักเรียนชั้นประถมศึกษาปีที่ 4

The Development of 'Wang Phaya Pa Ploen' Instructional Exercises through the Phonics Approach to Enhance Consonant Cluster Pronunciation Proficiency among Primary Grade 4 Students

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บทคัดย่อ

บทความนี้มีวัตถุประสงค์เพื่อสร้างและหาประสิทธิภาพแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำตามเกณฑ์ 80/80 เพื่อเปรียบเทียบทักษะการออกเสียงคำควบกล้ำ โดยใช้แบบฝึกทักษะวังพญาพาเพลินร่วมกับวิธีการสอนแบบโฟนิกส์เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ก่อนเรียนและหลังเรียน และเพื่อศึกษาความพึงพอใจที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดนใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ กลุ่มตัวอย่างที่ใช้ในงานวิจัย คือนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนบ้านวังพญา จำนวน 18 คน โดยวิธีการสุ่มแบบกลุ่มโดยใช้โรงเรียนเป็นหน่วยในการสุ่ม เครื่องมือที่ใช้ในการวิจัยครั้งนี้ ได้แก่ แบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ แบบวัดทักษะการอ่านออกเสียงคำควบกล้ำก่อนเรียนและหลังเรียนหลังการใช้แบบฝึกทักษะวังพญาพาเพลินร่วมกับวิธีการสอนแบบโฟนิกส์จำนวน 30 ข้อ และแบบสอบถามความพึงพอใจของนักเรียนที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ สถิติที่ใช้ในการวิจัย ได้แก่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน การทดสอบค่า Z (the Wilcoxon Matched Pairs Signed-Ranks Test) และการใช้ค่า E_1 และ E_2 หาค่าประสิทธิภาพของเครื่องมือ

ผลการวิจัยพบว่า แบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 มีประสิทธิภาพเท่ากับ 83.89/81.29 ซึ่งสูงกว่าเกณฑ์ 80/80 ที่กำหนดไว้ ผลการเปรียบเทียบทักษะการออกเสียงคำควบกล้ำ โดยใช้แบบฝึกทักษะวังพญาพาเพลินโดยใช้วิธีการสอนแบบโฟนิกส์ หลังใช้แบบฝึกสูงกว่าก่อนใช้แบบฝึกอย่างมีนัยสำคัญทางสถิติที่ .05 และความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 4 ที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดนใช้วิธีการสอนแบบโฟนิกส์ ภาพรวมอยู่ในระดับมากที่สุด

คำสำคัญ: แบบฝึกทักษะวังพญาพาเพลิน, วิธีการสอนแบบโฟนิกส์, การอ่านออกเสียงคำควบกล้ำ

Abstract

This study aimed to (1) develop and determine the effectiveness of the "Wang Phaya Pa Ploen" instructional exercises using the phonics teaching approach to enhance consonant cluster pronunciation based on the 80/80 criterion; (2) compare students' pronunciation proficiency of consonant clusters before and after using the exercises; and (3) examine students' satisfaction with the instructional exercises. The target group consisted of 18 Grade 4 students from Ban Wang Phaya School, selected through cluster sampling using the school as the sampling unit. The research instruments included: (1) the "Wang Phaya Pa Ploen" instructional exercises based on the phonics method; (2) a 30-item pretest and posttest on consonant cluster pronunciation proficiency administered before and after the intervention; and (3) a student satisfaction questionnaire regarding the exercises. Data were analyzed using percentage, mean, standard deviation, the Wilcoxon Matched Pairs Signed-Ranks Test, and the E_1/E_2 efficiency index.

The results indicated that the exercises had an efficiency of 83.89/81.29, which exceeded the predetermined 80/80 criterion. A statistically significant improvement at the .05 level was found in students' consonant cluster pronunciation after using the exercises. Furthermore, the overall student satisfaction with the "Wang Phaya Pa Ploen" exercises employing the phonics teaching method was at the highest level.

Keywords: Wang Phaya Pa Ploen instructional exercises, phonics teaching method, consonant cluster pronunciation

บทนำ

การอ่านเป็นทักษะที่สำคัญยิ่งของการสื่อสารเพื่อการสร้างความเข้าใจการแสวงหาข้อมูลและที่สำคัญการอ่านเป็นเครื่องมือในการพัฒนาทักษะเพื่อการเรียนรู้ตลอดชีวิตและการสร้างสังคมแห่งการเรียนรู้ที่ยั่งยืน การอ่านเป็นทักษะที่จำเป็นต้องได้รับการพัฒนาไปพร้อมพร้อมกับการฟัง การดู การพูดและการเขียนอย่างเป็นขั้นตอนและต่อเนื่องตามพัฒนาการและความพร้อมของนักเรียนเป็นรายบุคคล ทั้งนี้เพื่อให้ผู้เรียนมีทักษะการอ่านที่ดีสามารถอ่านในใจและอ่านออกเสียงได้ถูกต้องชัดเจน โดยเฉพาะคำที่ควบตัว ร ล ว ซึ่งเป็นสิ่งสำคัญมากในการเรียนรู้ที่จะต้องฝึกฝนให้เกิดความชำนาญในการจัดการเรียนรู้ระดับชั้นประถมศึกษาพบว่า ความสามารถในการอ่านออกเสียงคำควบกล้ำวิชาภาษาไทยของนักเรียนมีคะแนนเฉลี่ยอยู่ในระดับค่อนข้างต่ำ สมรรถภาพที่มีปัญหา ได้แก่ ทักษะการอ่านและการเขียน ซึ่งปัญหาที่พบคือ การออกเสียงพยัญชนะ สระและคำควบกล้ำไม่ชัดเจน

จากการที่ผู้วิจัยได้สำรวจสภาพปัญหาในชั้นเรียนของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนในเครือข่ายพญางาม ปีการศึกษา 2566 ผู้วิจัยได้สอบถามครูผู้สอนภาษาไทยในระดับชั้นประถมศึกษาปีที่ 4 ถึงปัญหาการอ่านออกเสียงพบว่า มีปัญหาในการอ่านออกเสียงคำควบกล้ำ นักเรียนไม่สามารถอ่านออกเสียงคำควบกล้ำได้อย่างถูกต้อง หากออกเสียงผิดจะกลายเป็นคำอื่นทันที อีกทั้งเรื่องการเว้นวรรค ระดับเสียงสูงต่ำ การออกเสียงวรรณยุกต์เพี้ยน เป็นเหตุให้นักเรียนขาดทักษะในการอ่านออกเสียงคำควบกล้ำ ซึ่งสาเหตุของปัญหาดังกล่าวมาจากนักเรียนขาดการได้รับการฝึกอ่านออกเสียงคำควบกล้ำ ขาดสื่อ

การสอนที่น่าสนใจ และขาดตัวอย่างการอ่านที่ถูกต้องเพื่อจะนำมาเป็นแนวทางในการฝึกฝน จึงไม่สามารถเรียนรู้ได้ด้วยตนเอง ขาดการทราบข้อดี ข้อบกพร่องของการอ่านออกเสียง และไม่มีแรงจูงใจในการเรียนรู้ ผู้วิจัยเห็นว่านักเรียนที่ไม่สามารถอ่านออกเสียงได้นั้น ต้องได้รับการแก้ไข เพราะไม่เป็นไปตามที่ตัวชี้วัดที่กำหนด อาจส่งผลกระทบต่อนักเรียน กล่าวคือ เมื่อนักเรียนการอ่านไม่ถูกต้อง จะส่งผลกระทบให้ทั้งการพูด การเขียนไม่ถูกต้องตามไปด้วย นำไปสู่ผลสัมฤทธิ์ทางการศึกษาวิชาภาษาไทยและวิชาอื่น ๆ แย่ลง ทั้งในระดับโรงเรียน เครือข่ายจนตลอดไปถึงระดับประเทศ

ตารางที่ 1 รายงานผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐาน (O-NET) ชั้นประถมศึกษาปีที่ 6 ของเครือข่ายพญางาม

โรงเรียน	ภาษาไทย	เฉลี่ย	ผลต่าง/เขต	ผลต่าง/สพฐ.	ผลต่าง/ประเทศ
บ้านไม้แก่น	36.00	29.04	-7.08	-10.98	-13.09
บ้านเกียรติ	53.66	35.33	-0.79	-4.69	-6.80
บ้านวังพญา	54.75	37.59	1.47	-2.43	-4.54
บ้านอูเป๊าะ	31.07	27.18	-8.94	-12.84	-14.95
บ้านโต๊ะปาแก๊ะ	42.36	30.95	-5.17	-9.07	-11.18
บ้านบูเกะจือฆา	39.55	30.29	-5.83	-9.73	-11.84

จากตารางจะเห็นได้ว่าคะแนนภาษาไทยของนักเรียนในเครือข่ายพญางามเป็นไปในทิศทางเดียวกัน คืออยู่ในเกณฑ์ที่ไม่ค่อยดี ส่งผลต่อคะแนนเฉลี่ย ผลต่างระดับเขต ผลต่างระดับสพฐ. และผลต่างระดับประเทศ

ผู้วิจัยจึงได้ศึกษาค้นคว้าวิธีการแก้ไขปัญหาดังกล่าว โดยมีหลากหลายวิธีที่น่าสนใจ ชุดฝึกทักษะเป็นหนึ่งสื่อการสอนที่ช่วยส่งเสริมให้นักเรียนเรียนรู้ได้อย่างเข้าใจ และได้ฝึกฝนเป็นขั้นตอนเพื่อเกิดความชำนาญ การใช้แบบฝึกทักษะ กลุ่มเป้าหมายส่วนใหญ่อยู่ในระดับการศึกษาขั้นต้น หรือในระดับประถมศึกษา เพราะพื้นฐานการเรียนภาษาไทยในระดับช่วงชั้นประถม จะเน้นการใช้แบบฝึกเพื่อให้ง่ายต่อการเรียนรู้ และตอบโจทย์การจัดการศึกษาที่นักเรียนสามารถทำแบบฝึกได้ จากผลการวิจัยจะเป็นได้ว่าผลสัมฤทธิ์หลังเรียนสูงขึ้นหลังจากได้ใช้ชุดฝึกทักษะในการประกอบการเรียนตามวัตถุประสงค์ที่วางไว้อย่างเห็นได้ชัด อีกทั้งยังมีการนำไปร่วมกับเทคนิคที่หลากหลาย เพิ่มความน่าสนใจให้ชั้นเรียน สอดคล้องกับวิมลรัตน์ สุนทรโรจน์ (2553) ได้กล่าวว่า การสอนที่ใช้เทคนิคที่หลากหลาย จะช่วยส่งเสริมการคิดของผู้เรียน และพัฒนาสมองทั้งสองซีกให้สมดุล เพื่อเป็นคนเก่ง ดี มีสุข โดยการสอนแบบเน้นผู้เรียนเป็นสำคัญ เป็นการให้ความสำคัญแก่นักเรียนให้มากขึ้น โดยการให้นักเรียนได้มีส่วนร่วมในการจัดการเรียนรู้ ส่งเสริมให้นักเรียนได้เกิด กระบวนการคิด การตัดสินใจ และลงมือปฏิบัติด้วยตนเอง

จากแนวคิดดังกล่าว ผู้วิจัยได้ศึกษาเอกสาร ตำรา และงานวิจัยต่าง ๆ พบว่า รูปแบบการเรียนการสอนที่สร้างเสริมและสามารถพัฒนาผลสัมฤทธิ์ทางการเรียนได้อย่างเหมาะสมในด้านของการอ่านออกเสียงคำควบกล้ำวิธีหนึ่ง คือ วิธีการสอนแบบโฟนิกส์ (Phonics Method) รุ่งอรุณ โรจน์รัตนาดำรงไชยศรี (2561) ได้อธิบายความหมายของวิธีการสอนแบบโฟนิกส์ว่า เป็นวิธีการสอนออกเสียงที่แสดงความสัมพันธ์ระหว่างเสียงและตัวอักษรโดยใช้การออกเสียงเป็นตัวกำหนดและให้ความสำคัญกับเสียงของตัวอักษรและการสะกดคำ ซึ่งเป็นจุดเริ่มต้นในกระบวนการสอนอ่านเบื้องต้น สรุปได้ว่า วิธีการสอนแบบโฟนิกส์เป็นการสอนระบบเสียงของตัวอักขระในภาษาที่มีกฎเกณฑ์อย่างชัดเจน โดยอักขระแต่ละตัวจะมี

เสียงเฉพาะตัว ซึ่งเป็นการสอนที่ทำให้นักเรียนได้ ถอดรหัสคำของตัวอักษรจากภาษาเขียนไปสู่เสียงพูด หากนักเรียนได้ฝึกฝนอย่างสม่ำเสมอจะสามารถแก้ปัญหาการอ่านออกเสียงและการสะกดคำของนักเรียนได้

จากที่ผู้วิจัยได้กล่าวมานั้นสรุปได้ว่า ในการแก้ไขปัญหาเกี่ยวกับทักษะต่าง ๆ ในด้านภาษานั้นมีหลากหลายวิธี ทั้งหมดนี้ล้วนแล้วแต่มีการใช้แบบฝึกทักษะเข้าไปมีส่วนร่วมในการแก้ไขปัญหา และยังเล็งเห็นว่าผู้ใช้วิธีการสอนแบบโฟนิกส์ในการแก้ปัญหาการอ่านออกเสียงคำควบกล้ำมีค่อนข้างน้อย จากผลการวิจัยทั้งในด้านการใช้แบบฝึกทักษะ และวิธีการสอนแบบโฟนิกส์ ผู้วิจัยเห็นข้อดีของการสร้างแบบฝึกทักษะโดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงควบกล้ำที่ตรงตามตัวชี้วัดตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน และยังส่งผลไปถึงการทดสอบความสามารถด้วยงานวิชาการ และคาดว่าการศึกษาครั้งนี้จะสามารถแก้ไขปัญหาของนักเรียนที่เกิดขึ้นได้ตรงประเด็น

วัตถุประสงค์ของการวิจัย

1. เพื่อสร้างและหาประสิทธิภาพแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 ตามเกณฑ์ 80/80
2. เพื่อเปรียบเทียบทักษะการออกเสียงคำควบกล้ำ โดยใช้แบบฝึกทักษะวังพญาพาเพลินโดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ก่อนเรียนและหลังเรียนของนักเรียนชั้นประถมศึกษาปีที่ 4
3. เพื่อศึกษาความพึงพอใจที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4

แนวคิด ทฤษฎี กรอบแนวคิด

การสร้างแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 ผู้วิจัยได้ศึกษาแนวคิด ทฤษฎี รวมถึงงานวิจัยต่าง ๆ ที่เกี่ยวข้องเพื่อเป็นแนวทางในการวิจัยครั้งนี้ กล่าวคือ การวิจัยครั้งนี้ใช้เนื้อหาตามหลักสูตรสถานศึกษา กลุ่มสาระการเรียนรู้ ภาษาไทย ชุดภาษาเพื่อชีวิต ชั้นประถมศึกษาปีที่ 4 หน่วยการเรียนรู้ที่ 6 คำควบกล้ำจำขึ้นใจ โดยอ้างอิงตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐานที่ได้กำหนดในหลักสูตรสถานศึกษาโรงเรียนบ้านวังพญา โดยมีวัตถุประสงค์ให้นักเรียนเรียนรู้เกี่ยวกับการอ่านออกเสียงคำควบกล้ำในระดับชั้นประถมศึกษาปีที่ 4

1. แบบฝึกทักษะ

แบบฝึกทักษะจึงเป็นเครื่องมือที่ช่วยพัฒนาทักษะในเรื่องการเรียนรู้ให้มากขึ้น โดยอาศัยการฝึกฝนหรือปฏิบัติด้วยตนเองของผู้เรียน สอดคล้องกับราชบัณฑิตยสถาน (2546) ได้ให้ความหมายของแบบฝึก คือ แบบฝึกหัดหรือชุดการสอนที่เป็นแบบฝึกหัดที่ใช้เป็นตัวอย่างปัญหาหรือคำสั่งที่ตั้งขึ้นให้นักเรียนตอบ

ลักษณะของแบบฝึกที่ดีควรสร้างเพื่อฝึกทักษะเฉพาะอย่าง คำนึงถึงความเหมาะสมกับวัยควรความชัดเจนทั้งคำสั่งและวิธีทำดังที่ บุญนำ เกษี (2556) ได้กล่าวว่า ลักษณะของแบบฝึกที่ดีควรสร้างเพื่อฝึกทักษะเฉพาะอย่าง คำนึงถึงความเหมาะสมกับวัย ความสามารถและพัฒนาการของผู้เรียน โดยใช้ภาษาที่ง่ายชัดเจน มีกิจกรรมหลายรูปแบบเพื่อเร้าความสนใจของผู้เรียน มีภาพประกอบ ฝึกตามขั้นเรียงจาก

ง่ายไปหายาก ใช้เวลาฝึกพอสมควรและมีการประเมินผลใช้แบบฝึก เพื่อให้ผู้เรียนได้ประเมินความสามารถของตนเอง

จากที่กล่าวมาพอสรุปได้ว่า แบบฝึกทักษะจึงเป็นเครื่องมือที่ช่วยพัฒนาทักษะในเรื่องการเรียนรู้ให้มากขึ้น โดยอาศัยการฝึกฝนหรือปฏิบัติด้วยตนเองของผู้เรียนการสร้างแบบฝึกทักษะจะต้องเป็นการเสริมทักษะพื้นฐานโดยกำหนดให้ผู้เรียนฝึกฝนเรียงลำดับจากง่ายไปยาก ปริมาณของเนื้อหาต้องเพียงพอที่สามารถตรวจสอบและพัฒนาทักษะ กระบวนการคิด กระบวนการเรียนรู้ของผู้เรียนที่เรียนไปแล้ว เพื่อนำไปใช้ในการแก้ปัญหาและผู้เรียนสามารถตรวจสอบความเข้าใจบทเรียนด้วยตนเองได้ อีกทั้งลักษณะของแบบฝึกที่ดีควรเป็นแบบฝึกสั้น ๆ ฝึกหลาย ๆ ครั้ง มีหลายรูปแบบ การฝึกควรฝึกเฉพาะเรื่องเดียว และควรเป็นสิ่งที่นักเรียนพบเห็นอยู่แล้วคำชี้แจงสั้น ๆ ใช้เวลาเหมาะสม เป็นเรื่องที่ท้าทายให้แสดงความสามารถ เมื่อผู้เรียนได้ฝึกแล้วก็สามารถพัฒนาตนเองได้ดี จึงจะนับว่าเป็นแบบฝึกที่ดีและมีประโยชน์

นอกจากการสร้างแบบฝึกต้องคำนึงถึงความแตกต่างระหว่างบุคคล แบบฝึกต้องมีหลาย ๆ รูปแบบสิ่งที่สำคัญเช่นเดียวกันคือ ส่วนประกอบของแบบฝึก เนื่องจากจะส่งผลให้การนำแบบฝึกไปใช้เกิดประโยชน์ได้สูงสุด สุวิทย์ มูลคำ และสุนันทา สุนทรประเสริฐ (2550) ได้กำหนดส่วนประกอบของแบบฝึกทักษะได้ดังนี้

1. คู่มือการใช้แบบฝึก เป็นเอกสารสำหรับประกอบการใช้แบบฝึกว่าใช้เพื่ออะไร และมีวิธีใช้อย่างไร เช่น ใช้เป็นงานสุดท้ายบทเรียน ใช้เป็นการบ้าน หรือใช้สอนซ่อมเสริม

2. แบบฝึกเป็นสื่อที่สร้างขึ้นเพื่อให้ผู้เรียนฝึกทักษะ เพื่อให้เกิดการเรียนรู้ที่ถาวรควรมีองค์ประกอบ

จากแนวคิดข้างต้นจะเห็นได้ว่าส่วนประกอบของแบบฝึกทักษะจะมี 2 องค์ประกอบหลัก คือ ส่วนของคู่มือที่เป็นเอกสารสำหรับประกอบการใช้แบบฝึกว่าใช้เพื่ออะไร และมีวิธีใช้อย่างไร และส่วนของแบบฝึก สื่อที่สร้างขึ้นเพื่อให้ผู้เรียนฝึกทักษะ เพื่อให้เกิดการเรียนรู้ที่ถาวร ซึ่งผู้วิจัยได้เล็งเห็นถึงความสำคัญของส่วนประกอบของแบบฝึกทักษะ จึงได้นำแนวคิดข้างต้นมาสังเคราะห์และนำมาใช้การพัฒนาแบบฝึกทักษะโดยใช้วิธีการสอนแบบโฟนิกส์เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ดังนี้ 1. ชื่อแบบฝึก 2. คำชี้แจง 3. จุดประสงค์การเรียนรู้ 4. คำแนะนำการใช้ชุดฝึก 5. เนื้อหา และ 6. แบบทดสอบก่อนและหลังเรียน นอกจากนี้ได้นำเอาหลักของ กระทรวงศึกษาธิการ (2559) ได้กล่าวถึงแนวทางการจัดการเรียนรู้การสอนสะกดคำที่มีอักษรควบควรแยกอธิบายคำที่มีอักษรควบกล้ำแท้ ที่มีพยัญชนะต้น ควบกับ ร ล ว ควบและคำควบกล้ำไม่แท้ เมื่อนักเรียนจดจำรูปและเสียง อักษรได้แล้ว นักเรียนสามารถเรียนรู้การอ่านและการเขียนไปพร้อมกันได้ แต่ครูควรสอนให้นักเรียนอ่านออกเสียงให้คล่องก่อนแล้วจึงเริ่มฝึกเขียนสะกดคำ การจัดการเรียนรู้ที่จะเริ่มจากการฝึกอ่านออกเสียงคำควบกล้ำแท้แล้วจึงฝึกอ่านคำควบกล้ำไม่แท้ และการฝึกอ่านออกเสียงคำควบกล้ำจะเริ่มจากคำควบกล้ำที่ควบ ร แล้วจึงไปฝึกอ่านคำควบ ล ว ตามลำดับ ซึ่งผู้วิจัยจึงนำแนวทางดังกล่าวไปใช้ในการจัดทำแบบฝึกทักษะ โดยใช้วิธีการสอนแบบโฟนิกส์เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ กล่าวคือ ในแต่ละบทของแบบฝึกทักษะจะเรียงจากคำควบ ร และควบ ล ว ตามลำดับ

2. วิธีการสอนแบบโฟนิกส์

การฝึกอ่านออกเสียงโดยใช้วิธีการสอนแบบโฟนิกส์จะเป็นการฝึกอ่านเสียงของตัวอักษร การเรียนรู้พยัญชนะ สระ วรรณยุกต์ การประสมคำ แล้วจึงสอนอ่านคำ รุ่งอรุณ โรจน์รัตนาดำรง ไชยศร

(2561) ได้นำแนวคิดวิธีสอนแบบโฟนิกส์ของ Lida M. Williams (1916) และ Vacca et al. (2003) มาปรับใช้ในกระบวนการจัดการเรียนรู้ร่วมกับการพัฒนาเครื่องมือแบบเรียนภาษาไทย โดยจำแนกออกเป็น 4 ขั้นตอนดังนี้ คือ ขั้นที่ 1 เรียนรู้เสียงตัวอักษร ขั้นที่ 2 ฝึกการสอนประสมเสียง ขั้นที่ 3 รู้จักการเทียบเคียง และ ขั้นที่ 4 หัดอ่านเขียนเข้าใจคำ แม้วิธีการสอนแบบโฟนิกส์จะเป็นแนวทางที่พัฒนามาจากการสอนภาษาอังกฤษ ซึ่งมีระบบเสียงและโครงสร้างคำแตกต่างจากภาษาไทยอย่างมาก แต่ในงานวิจัยนี้ผู้วิจัยได้มีการประยุกต์แนวคิดดังกล่าวให้สอดคล้องกับบริบทของภาษาไทย โดยเฉพาะในการพัฒนาทักษะการอ่านออกเสียงคำควบกล้ำของนักเรียน ผู้วิจัยจะนำแนวคิดของ รุ่งอรุณ โรจน์รัตนาดำรง ไชยศร (2561) มาสังเคราะห์กระบวนการในการจัดการเรียนรู้ด้วยวิธีการสอนโฟนิกส์ให้เหมาะสมกับการพัฒนาการอ่านออกเสียงคำควบกล้ำ ซึ่งมีทั้งหมด 4 ขั้นตอนดังนี้ 1. การวิเคราะห์เสียง 2. การเทียบเสียง 3. การสังเคราะห์เสียง และ 4. การอ่านออกเสียงคำควบกล้ำ

ขั้นที่ 1 การวิเคราะห์เสียง โดยครูอ่านออกเสียงให้นักเรียนฟังช้าและให้นักเรียนอ่านออกเสียงซ้ำตามครู เป็นการฝึกให้ผู้เรียนรู้จักเรียนรู้เชื่อมโยงเสียงและวิเคราะห์เสียงของตัวอักษรแต่ละตัว สามารถอ่านออกเสียงของตัวอักษรในคำแต่ละคำอย่างมีระบบ

ขั้นที่ 2 การเทียบเสียง โดยครูให้นักเรียนออกเสียงโดยการแจกลูกคำ ทำให้นักเรียนรู้จักวิเคราะห์ส่วนประกอบของคำ และเทียบเคียงการออกเสียงกับคำว่ามีหน่วยเสียงใดที่เหมือนกัน วิธีการนี้จะช่วยให้นักเรียนรู้จักการอ่านคำใหม่และช่วยในการสะกดคำไปพร้อมกัน

ขั้นที่ 3 การสังเคราะห์เสียง โดยครูเริ่มจากการสอนเสียงของตัวอักษรแต่ละตัว หลังจากนั้นจึงสอนการผสมเสียงกับตัวอักษรเพื่อให้ผู้อ่านสามารถอ่านออกเสียงได้

ขั้นที่ 4 การอ่านออกเสียงคำควบกล้ำ โดยครูฝึกให้นักเรียนอ่านโดยการนำเอาวิธีการวิเคราะห์การออกเสียงและวิธีการสังเคราะห์การออกเสียงมารวมกันและฝึกให้นักเรียนประยุกต์ใช้ตามระดับความสามารถของตน เน้นให้นักเรียนได้อ่านเนื้อหาที่หลากหลาย เช่น บทกลอน เรื่องเล่า เป็นต้น

3. การอ่านออกเสียงคำควบกล้ำ

คำควบกล้ำหมายถึง พยัญชนะที่ควบกับ ร ล ว ประสมสระเดียวกันออกเสียง ควบกล้ำเป็นพยางค์เดียว แบ่งออกเป็น 2 ชนิดคือ อักษรควบแท้ อักษรควบที่ออกเสียงพยัญชนะ 2 ตัวควบกล้ำกัน และอักษรควบไม่แท้ อักษรควบที่ออกเสียงพยัญชนะตัวหน้าเพียงตัวเดียวหรือออก เสียงเป็นอย่างอื่น ดังที่กรมวิชาการ กระทรวงศึกษาธิการ (2546) ได้ให้ความหมายของอักษรควบหรือ ตัวควบกล้ำไว้ดังนี้ “อักษรควบ หรือ ตัวควบกล้ำ” คือ พยัญชนะที่ควบกับ ร ล ว ประสมสระเดียวกันออกเสียงควบ กล้ำกันเป็นพยางค์เดียว

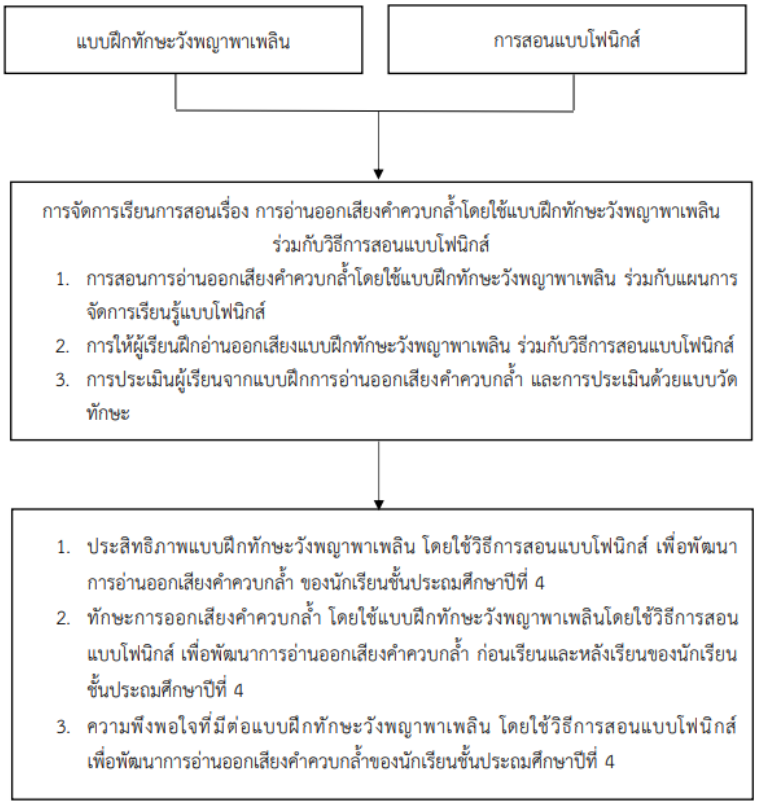
วิจิตรา เจือจันทน์ (2533) กล่าวว่า หลักทั่วไปในการอ่านออกเสียงมีดังต่อไปนี้

1. ความหมายถูกต้อง หมายถึง ผู้อ่านสามารถอ่านออกเสียงได้อย่างถูกต้อง ตามอักขรวิธีของไทยหรือ ของภาษาอื่นที่ไทยนำมาใช้ รวมทั้งการอ่านจะต้องศึกษาหลักการถูกต้องจากหนังสือ ตำราหลักภาษาไทย หมั่นสังเกตรวบรวมคำและคำอ่านที่ถูกต้องสม่ำเสมอ

2. ความชัดเจน หมายถึง ออกเสียงได้ชัดถ้อยชัดคำ ทั้งเสียงสระ ยัญชนะ วรรณยุกต์และคำควบกล้ำต้องอ่านให้ชัดเจนได้ยินทั่วถึง ไม่ดังหรือค่อยเกินไป

3. ความคล่องแคล่ว หมายถึง ความคล่องแคล่วในการอ่านออกเสียงได้อย่างต่อเนื่องไม่ติดขัดหรือเสียจังหวะ ความคล่องแคล่วนี้เกิดจากการฝึกฝนบ่อย ๆ และสม่ำเสมอ จนเกิดทักษะในการอ่านก็จะเกิดความคล่องแคล่วในการอ่าน

จะเห็นได้ว่าหลักทั่วไปในการอ่านออกเสียง แบ่งออกเป็น 3 ด้าน คือ 1) ความหมายถูกต้อง คือ การอ่านที่ถูกหลักการตามอักขรวิธีของไทย หรือ ของภาษาอื่นที่ไทยนำมาใช้ 2) ความชัดเจน คือ ออกเสียงได้ชัดถ้อยชัดคำ ทั้งเสียงสระพยัญชนะ วรรณยุกต์ และคำควบกล้ำ 3) ความคล่องแคล่ว คือ ความคล่องแคล่วในการอ่านออกเสียงได้อย่างต่อเนื่องไม่ติดขัด หรือเสียจังหวะ ผู้วิจัยจึงใช้หลักการดังกล่าวเป็นประเด็นที่ใช้ในการวัดทักษะการอ่านออกเสียงคำควบกล้ำ



ภาพที่ 1 กรอบแนวคิดในการทำวิจัย

วิธีดำเนินการวิจัย

การดำเนินการศึกษาค้นคว้าเรื่อง การพัฒนาแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ของนักเรียนชั้นประถมศึกษาปีที่ 4 ครั้งนี้ ผู้วิจัยได้ดำเนินการศึกษาตามขั้นตอน ดังนี้

1. ประชากร กลุ่มตัวอย่าง ตัวแปรที่ศึกษาและระยะเวลาในการวิจัย

ประชากร คือ นักเรียนชั้นประถมศึกษาปีที่ 4 ภาคเรียนที่ 2 ปีการศึกษา 2567 โรงเรียนเครือข่ายพญางาม สำนักงานเขตพื้นที่การศึกษาประถมศึกษายะลา เขต 1

กลุ่มตัวอย่าง คือ นักเรียนชั้นประถมศึกษาปีที่ 4 ภาคเรียนที่ 2 ปีการศึกษา 2567 โรงเรียนบ้านวังพญา จำนวนทั้งสิ้น 18 คน แบ่งเป็น เพศชาย 13 คน เพศหญิง 5 คน โดยวิธีการสุ่มแบบกลุ่ม โดยใช้โรงเรียนเป็นหน่วยสุ่ม

ตัวแปรที่ศึกษา

1. ตัวแปรอิสระ (Independent Variable) ได้แก่ แบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์

2. ตัวแปรตาม (Dependent Variable) ได้แก่ 1) ประสิทธิภาพของแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 2) ทักษะการออกเสียงคำควบกล้ำ ประกอบด้วย ความหมายถูกต้อง ความชัดเจน และความคล่องแคล่ว 3) ความพึงพอใจที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4

ระยะเวลาที่ใช้ในการวิจัย

การทดลองดำเนินการในภาคเรียนที่ 2 ปีการศึกษา 2567 ใช้เวลาทดลอง 11 คาบ คาบละ 1 ชั่วโมง รวม 11 ชั่วโมง

2. เครื่องมือการวิจัย

1. แบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 จำนวน 11 บท ร่วมกับแผนการจัดการเรียนรู้ 11 แผน

2. แบบทดสอบก่อนเรียนและหลังเรียน เรื่อง ทักษะการอ่านออกเสียงคำควบกล้ำ ในแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 จำนวน 30 ข้อ

3. แบบประเมินความพึงพอใจของนักเรียนที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4

3. วิธีดำเนินการเก็บรวบรวมข้อมูลและวิเคราะห์ข้อมูล

การวิจัยครั้งนี้เป็นการวิจัยเชิงทดลอง ใช้แบบแผนการวิจัยแบบ One Group Pre-test, Post-test Design คือ ทดสอบก่อนใช้และหลังใช้แบบฝึก โดยใช้แบบวัดทักษะการอ่านออกเสียงคำควบกล้ำชุดเดียวกัน โดยมีขั้นตอนการเก็บรวบรวมข้อมูลดังนี้

1. ทดสอบก่อนเรียน ผู้วิจัยทำการทดสอบวัดทักษะการอ่านออกเสียงคำควบกล้ำก่อนเรียนกับกลุ่มเป้าหมายก่อนการทดลอง โดยใช้แบบทดสอบทักษะการอ่านออกเสียงคำควบกล้ำ

2. ระหว่างการทดลอง ดำเนินการจัดการเรียนรู้โดยใช้แบบฝึกทักษะวังพญาพาเพลินร่วมกับวิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 ตามแผนการจัดการเรียนรู้ รวมทั้งสิ้น 11 ชั่วโมง พร้อมทำกิจกรรมตามแผนการจัดการเรียนรู้

3. ทดสอบหลังเรียน ผู้วิจัยทำการทดสอบวัดทักษะการอ่านออกเสียงคำควบกล้ำกับกลุ่มเป้าหมายหลังการทดลอง โดยใช้แบบทดสอบวัดทักษะการอ่านออกเสียงคำควบกล้ำชุดเดียวกันกับการทดสอบก่อนเรียน

4. ตรวจคะแนนและนำคะแนนจากการสอบทั้งสองครั้ง คือ การสอบก่อนการทดลองใช้แบบฝึกและการสอบหลังการทดลองใช้แบบฝึกของนักเรียนมาวิเคราะห์โดยใช้ The Wilcoxon Matched Pairs Signed-ranks Test for Dependent Samples

5. นักเรียนทั้ง 18 คนประเมินความพึงพอใจที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ

4. วิธีการวิเคราะห์ข้อมูลและสถิติที่ใช้ในการวิเคราะห์ข้อมูล

ผู้วิจัยนำข้อมูลที่ได้จากการจัดการเรียนการสอนโดยใช้แบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ที่ได้ทดลองกับนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนบ้านวังพญา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 18 คนไปวิเคราะห์ข้อมูล ดังนี้

1. หาค่าประสิทธิภาพของแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 ตามเกณฑ์ 80/80 ผู้วิจัยนำคะแนนที่นักเรียนทำแบบทดสอบหลังเรียนในแต่ละแบบฝึกมารวมกันแล้วหาค่าเฉลี่ยร้อยละ เพื่อหาค่าประสิทธิภาพของกระบวนการเรียนรู้ตามเกณฑ์มาตรฐาน 80 ตัวแรก และนำคะแนนที่นักเรียนทำการทดสอบหลังเรียนในแบบวัดทักษะการอ่านออกเสียงคำควบกล้ำโดยใช้วิธีการสอนแบบโฟนิกส์มาคำนวณหาค่าเฉลี่ยร้อยละ เพื่อหาค่าประสิทธิภาพของผลลัพธ์ตามเกณฑ์มาตรฐาน 80 ตัวหลัง โดยใช้สูตร E_1/E_2

2. การหาค่าสถิติเพื่อเปรียบเทียบทักษะการอ่านออกเสียงคำควบกล้ำ ระหว่างก่อนเรียนและหลังเรียน โดยใช้สูตร The Wilcoxon Matched Pairs Signed-ranks Test

3. วิเคราะห์ความพึงพอใจของนักเรียนที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ ด้วยค่าสถิติพื้นฐาน คือ ค่าเฉลี่ย และค่าส่วนเบี่ยงเบนมาตรฐาน

การวิเคราะห์ข้อมูลดังกล่าว ผู้วิจัยวิเคราะห์ข้อมูลด้วยโปรแกรมคอมพิวเตอร์โดยมีสถิติที่ใช้ในการวิเคราะห์ข้อมูล ดังนี้

1. สถิติพื้นฐาน ประกอบด้วย ร้อยละ (Percentage) ค่าคะแนนเฉลี่ย (Mean) และส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation)

2. สถิติหาคุณภาพเครื่องมือที่ใช้ในการศึกษา ประกอบด้วย ค่าความสอดคล้องระหว่างข้อสอบกับจุดประสงค์และเนื้อหาวิชา (IOC) ด้วยการพิจารณาของผู้เชี่ยวชาญ จำนวน 3 คน ได้แก่ ผู้เชี่ยวชาญด้านหลักสูตรและการสอน ผู้เชี่ยวชาญด้านวัดและประเมินผลและผู้เชี่ยวชาญด้านภาษาไทย ค่าความยากง่ายของแบบทดสอบ (p) การคำนวณหาค่าอำนาจจำแนก (r) ค่าความเชื่อมั่นของแบบวัดทักษะการอ่านออกเสียงคำควบกล้ำ โดยใช้สูตร KR–20 ของคูเดอร์ ริชาร์ดสัน (Kuder Richardson Methods) แบบสอบถามความพึงพอใจ หาค่าความเที่ยงตรง โดยหาค่าดัชนีความสอดคล้อง (IOC) หาค่าอำนาจจำแนก (r) และค่าความเชื่อมั่นโดยใช้สัมประสิทธิ์แอลฟาครอนบาค และหาค่าประสิทธิภาพของแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ โดยใช้สูตร E_1/E_2

3. สถิติวิเคราะห์ความแตกต่างระหว่างการทดสอบก่อนและหลังเรียนโดยใช้สูตร The Wilcoxon Matched Pairs Signed-ranks Test

ผลการวิจัย

1. การสร้างและหาประสิทธิภาพแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ของนักเรียนชั้นประถมศึกษาปีที่ 4

แบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ของนักเรียนชั้นประถมศึกษาปีที่ 4 ผู้วิจัยสร้างแบบฝึกทักษะวังพญาพาเพลิน โดยนำคำศัพท์คำควบกล้ำที่รวบรวมจากหนังสือภาษาพาที ชั้นประถมศึกษาปีที่ 4 และหนังสือวรรณคดีลำนำชั้นประถมศึกษาปีที่ 4 มาใช้ในการกำหนดขอบเขตเนื้อหาสำหรับสร้างแบบฝึก โดยแบ่งออกเป็น 11 บท

ดังนี้ บทที่ 1 คำควบ ปร บทที่ 2 คำควบ พร บทที่ 3 คำควบ ตร บทที่ 4 คำควบ กร บทที่ 5 คำควบ คร บทที่ 6 คำควบ ปล บทที่ 7 คำควบ พล บทที่ 8 คำควบ กล บทที่ 9 คำควบ คล บทที่ 10 คำควบ กว และ บทที่ 11 คำควบ คว ในแบบฝึกทักษะวังพญาพาเพลินในแบบฝึกมีองค์ประกอบ กล่าวคือ ชื่อแบบฝึก คำชี้แจง จุดประสงค์การเรียนรู้ คำแนะนำการใช้ชุดฝึก เนื้อหา และแบบทดสอบก่อนและหลังเรียน โดยผู้วิจัยสร้างแบบฝึกทักษะวังพญาพาเพลินเรียนร่วมกับวิธีการสอนแบบโฟนิกส์เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำเรียงลำดับจากง่ายไปยาก ซึ่งเรียงลำดับการฝึกตามแนวทางการจัดการเรียนรู้ การสอนสะกดคำที่มีอักษรควบของกระทรวงศึกษาธิการ 3 กลุ่มคือกลุ่มที่ 1 คำควบกล้ำควบ ร /ปร/ /พร/ /ตร/ /กร/ /คร/ กลุ่มที่ 2 คำควบกล้ำควบ ล /ปล/ /พล/ /กล/ /คล/ และกลุ่มที่ 3 คำควบกล้ำควบ ว /กว/ /คว/ ซึ่งได้นำทฤษฎีการสร้างแบบฝึกควบคู่วิธีการสอนแบบโฟนิกส์มาประยุกต์ใช้เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำให้สามารถอ่านได้ถูกต้อง

การฝึกอ่านออกเสียงคำควบกล้ำในแบบฝึกประกอบด้วย แบบทดสอบก่อนเรียน แบบทดสอบหลังเรียน และแบบฝึกทั้งหมด 5 แบบฝึก โดยเรียงลำดับการฝึกให้สอดคล้องตามขั้นตอนของการสอนภาษาแบบโฟนิกส์ ซึ่งมี 4 ขั้นตอน คือ ขั้นที่ 1 การวิเคราะห์เสียง ขั้นที่ 2 การเทียบเคียงในการออกเสียง ขั้นที่ 3 การสังเคราะห์การออกเสียง และขั้นที่ 4 การอ่านออกเสียงคำควบกล้ำ

การหาค่าประสิทธิภาพของแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 ตามเกณฑ์ 80/80 ผู้วิจัยนำคะแนนที่นักเรียนทำแบบทดสอบหลังเรียนในแต่ละแบบฝึกมารวมกันแล้วหาค่าเฉลี่ยร้อยละ เพื่อหาค่าประสิทธิภาพของกระบวนการเรียนรู้ตามเกณฑ์มาตรฐาน 80 ตัวแรก และนำคะแนนที่นักเรียนทำการทดสอบหลังเรียนในแบบวัดทักษะการอ่านออกเสียงคำควบกล้ำโดยใช้วิธีการสอนแบบโฟนิกส์มาคำนวณหาค่าเฉลี่ยร้อยละ เพื่อหาค่าประสิทธิภาพของผลลัพธ์ตามเกณฑ์มาตรฐาน 80 ตัวหลัง โดยใช้สูตร E_1/E_2 โดยดำเนินการดังนี้

คะแนนการทำแบบทดสอบหลังเรียนในแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ของกลุ่มตัวอย่าง และคะแนนการทำแบบทดสอบหลังเรียนในแบบวัดทักษะการอ่านออกเสียงคำควบกล้ำของกลุ่มตัวอย่าง จำนวน 18 คน จากนั้นนำมาหาค่าเฉลี่ยร้อยละของคะแนน เพื่อนำไปเปรียบเทียบกับเกณฑ์ประสิทธิภาพที่ตั้งไว้

ตารางที่ 2 ผลการวิเคราะห์ค่าประสิทธิภาพของแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ของนักเรียนชั้นประถมศึกษาปีที่ 4

คะแนนทักษะการอ่านออกเสียงคำควบกล้ำ	N	คะแนนรวม	คะแนนเฉลี่ย	ประสิทธิภาพ (E_1/ E_2)
แบบทดสอบหลังเรียน	18	1661	92.28	83.89
แบบวัดทักษะการอ่านออกเสียงคำควบกล้ำ	18	439	24.39	81.29

จากตารางที่ 2 พบว่า ผลการทดสอบหลังเรียนในแต่ละแบบฝึกมีคะแนนร้อยละ 83.89 (E_1 = 83.89) และแบบวัดทักษะการอ่านออกเสียงคำควบกล้ำมีคะแนนร้อยละ 81.29 (E_2 = 81.29) แสดงว่าแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 ที่สร้างขึ้นมีประสิทธิภาพ 83.89/81.29 ซึ่งสูงกว่าเกณฑ์ 80/80 และ

เป็นไปตามเป้าหมายที่กำหนด กล่าวคือผลการหาค่าประสิทธิภาพของแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 ตามเกณฑ์ 80/80

2. ผลการเปรียบเทียบทักษะการออกเสียงคำควบกล้ำ โดยใช้แบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 ก่อนเรียนและหลังเรียน

การเปรียบเทียบทักษะการออกเสียงคำควบกล้ำ โดยใช้แบบฝึกทักษะวังพญาพาเพลินโดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 ก่อนเรียนและหลังเรียน ไปทดสอบกับนักเรียนกลุ่มตัวอย่าง จำนวน 18 คน ปรากฏผลดังตารางที่

ตารางที่ 3 การเปรียบเทียบทักษะการออกเสียงคำควบกล้ำ โดยใช้แบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 ก่อนเรียน และหลังเรียน

คะแนน	N	ค่าเฉลี่ย	S.D.	Z	Sig.(2-tailed)
Pretest	18	15.11	8.47	3.728*	.000
Posttest	18	24.39	2.87		

* มีนัยสำคัญทางสถิติที่ระดับ .05

จากตารางที่ 3 การเปรียบเทียบทักษะการออกเสียงคำควบกล้ำ โดยใช้แบบฝึกทักษะวังพญาพาเพลินโดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 สรุปผลได้ว่า มีคะแนนเฉลี่ยก่อนเรียนเท่ากับ 15.11 ค่าเบี่ยงเบนมาตรฐานเท่ากับ 8.47 และมีคะแนนเฉลี่ยหลังเรียนเท่ากับ 24.39 ค่าเบี่ยงเบนมาตรฐานเท่ากับ 2.87 ซึ่งคะแนนทดสอบหลังเรียนมีค่ามากกว่าก่อนเรียนเท่ากับ 9.28 ค่า sig ที่คำนวณได้ มีค่า .000 มีค่าน้อยกว่าระดับนัยสำคัญที่กำหนด .05 คะแนนเฉลี่ยหลังจากเรียนรู้มีค่าเพิ่มมากขึ้นจากก่อนการเรียนรู้ อีกทั้งค่า Sig. < 0.05 ซึ่งหมายความว่าคะแนนก่อนเรียนและคะแนนหลังเรียน แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

3. ผลการศึกษาความพึงพอใจของนักเรียนที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ

การศึกษาความพึงพอใจของนักเรียนที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ไปสอบถามกับนักเรียนกลุ่มตัวอย่าง โดยผู้วิจัยได้นำแบบประเมินความพึงพอใจของนักเรียนที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ไปให้นักเรียนกลุ่มตัวอย่างจำนวน 18 คน ทำหลังสิ้นสุดการจัดการเรียนรู้ ปรากฏผลดังตารางที่ 4

ตารางที่ 4 ผลการวิเคราะห์ความพึงพอใจต่อแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์

ที่	รายการประเมิน	N	ค่าเฉลี่ย	S.D.	ระดับความพึงพอใจ
1	แบบฝึกมีขนาดตัวอักษรอ่านง่าย ชัดเจน	18	4.67	0.49	มากที่สุด
2	แบบฝึกมีภาพประกอบสวยงาม	18	4.67	0.49	มากที่สุด
3	นักเรียนได้รับความรู้จากการทำแบบฝึก	18	4.72	0.46	มากที่สุด
4	แบบฝึกมีรูปแบบที่หลากหลายและน่าสนใจ	18	4.78	0.43	มากที่สุด
5	นักเรียนรู้สึกสนุกเมื่อได้ทำแบบฝึก	18	4.89	0.32	มากที่สุด
6	แบบฝึกมีข้อแนะนำในการทำที่ชัดเจน	18	4.83	0.38	มากที่สุด
7	กิจกรรมในแบบฝึกช่วยให้นักเรียนได้ฝึกการอ่านออกเสียงอย่างถูกต้อง	18	4.67	0.49	มากที่สุด
8	แบบฝึกการอ่านออกเสียงทำให้นักเรียนตั้งใจเรียนเรื่องนี้มากขึ้น	18	4.89	0.32	มากที่สุด
9	นักเรียนได้เวลาในการทำแบบฝึกอย่างเพียงพอ	18	4.83	0.38	มากที่สุด
10	ฉันชอบเรียนภาษาไทยด้วยแบบฝึกที่ครูสอนเพราะเรียนสนุกและได้ฝึกปฏิบัติจริง	18	4.72	0.46	มากที่สุด
	เฉลี่ยโดยภาพรวม	**18**	**4.77**	**0.42**	**มากที่สุด**
	Valid N (listwise)	18			

จากตารางที่ 4 ผลการวิเคราะห์ความพึงพอใจของนักเรียนที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ไปให้นักเรียนกลุ่มตัวอย่างจำนวน 18 คน มีความพึงพอใจในภาพรวมอยู่ในระดับมากที่สุด โดยมีค่าเฉลี่ย 4.77 และจากตารางข้างต้นหากพิจารณาเป็นรายข้อ พบว่า นักเรียนมีความพึงพอใจในประเด็น นักเรียนรู้สึกสนุกเมื่อได้ทำแบบฝึก และแบบฝึกการอ่านออกเสียงทำให้นักเรียนตั้งใจเรียนเรื่องนี้มากขึ้น เป็นลำดับที่ 1 มีผลการประเมินอยู่ในระดับมากที่สุด ($\bar{x}$= 4.89, S.D.=0.32) ลำดับที่ 2 แบบฝึกมีข้อแนะนำในการทำที่ชัดเจน และนักเรียนได้เวลาในการทำแบบฝึกอย่างเพียงพอ มีผลการประเมินอยู่ในระดับมากที่สุด ($\bar{x}$= 4.83, S.D.=0.38) ลำดับที่ 3 คือ ประเด็นแบบฝึกมีรูปแบบที่หลากหลายและน่าสนใจ มีผลการประเมินอยู่ในระดับมากที่สุด ($\bar{x}$= 4.78, S.D.=0.43) ลำดับที่ 4 คือ นักเรียนได้รับความรู้จากการทำแบบฝึก และฉันชอบเรียนภาษาไทยด้วยแบบฝึกที่ครูสอนเพราะเรียนสนุกและได้ฝึกปฏิบัติจริง มีผลการประเมินอยู่ในระดับมากที่สุด ($\bar{x}$= 4.72, S.D.=0.46) และลำดับสุดท้ายคือประเด็น แบบฝึกมีขนาดตัวอักษรอ่านง่าย ชัดเจน แบบฝึกมีภาพประกอบสวยงาม และ กิจกรรมในแบบฝึกช่วยให้นักเรียนได้ฝึกการอ่านออกเสียงอย่างถูกต้อง มีผลการประเมินอยู่ในระดับมากที่สุด ($\bar{x}$= 4.67, S.D.=0.49)

สรุปและอภิปรายผล

ผลการพัฒนาแบบฝึกทักษะแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 สรุปและอภิปรายผล ได้ดังนี้

1. การสร้างและหาประสิทธิภาพแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์

เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ของนักเรียนชั้นประถมศึกษาปีที่ 4 โดยแบบฝึกที่ผู้วิจัยสร้างขึ้นมีประสิทธิภาพ 83.89/81.29 ซึ่งสูงกว่าเกณฑ์ 80/80 และเป็นไปตามเป้าหมายที่กำหนด แสดงให้เห็นว่าแบบฝึกทักษะที่ผ่านกระบวนการออกแบบอย่างมีระบบสามารถตอบสนองต่อปัญหาการอ่านออกเสียงของนักเรียนได้อย่างมีประสิทธิผล องค์ประกอบของแบบฝึกทักษะ ผู้วิจัยได้ดำเนินการสร้างแบบฝึกตามลำดับขั้นตอนตั้งแต่การศึกษาเอกสารและงานวิจัยที่เกี่ยวข้อง สำรวจปัญหาที่เกิดขึ้นและจำเป็นที่จะต้องช่วยแก้ไขสำหรับผู้เรียนที่มีปัญหา ศึกษา วิเคราะห์หลักสูตรและตัวชี้วัด จากนั้นจึงกำหนดจุดประสงค์ให้ชัดเจน องค์ประกอบสำคัญที่ส่งผลต่อประสิทธิภาพของแบบฝึก คือการออกแบบที่เป็นลำดับขั้นตามแนวทางของสุวิทย์ มูลคำ และสุนันทา สุนทรประเสริฐ (2550) ที่เน้นการเชื่อมโยงระหว่างวัตถุประสงค์ เนื้อหา และกิจกรรมการเรียนรู้ โดยมีการจัดทำคู่มือการใช้และจัดรูปแบบเนื้อหาภายในชุดฝึกอย่างเป็นระบบ อีกทั้ง กรองกาญจน์ อรุณรัตน์ (2541) ที่กล่าวว่า การพัฒนาสื่อการเรียนการสอนควรมีการทดสอบประสิทธิภาพและปรับปรุงก่อนนำไปใช้จริง เพื่อให้สามารถควบคุมตัวแปรที่อาจส่งผลกระทบต่อผลลัพธ์ได้ ซึ่งผู้วิจัยได้เล็งเห็นถึงความสำคัญดังกล่าว จึงได้นำแนวคิดข้างต้นมาสังเคราะห์และนำมาใช้การพัฒนาแบบฝึกทักษะโดยใช้วิธีการสอนแบบโฟนิกส์เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำดังนี้ ชื่อแบบฝึก คำชี้แจง จุดประสงค์การเรียนรู้ คำแนะนำการใช้ชุดฝึก เนื้อหา แบบทดสอบก่อนและหลังเรียน เมื่อสร้างแบบฝึกแล้วไปให้ผู้เชี่ยวชาญตรวจสอบความถูกต้อง เพื่อนำข้อมูลที่ได้และข้อเสนอแนะมาปรับปรุงแก้ไข

การสร้างและหาประสิทธิภาพแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ นอกจากการดำเนินการสร้างตามขั้นตอนและมีองค์ประกอบครบถ้วนแล้วนั้น สิ่งที่ช่วยเสริมให้แบบฝึกมีประสิทธิภาพอีกประการคือ การใช้วิธีการสอนแบบโฟนิกส์มาประยุกต์ใช้ ซึ่งเป็นวิธีการสอนที่เน้นความสัมพันธ์ระหว่างเสียงกับตัวอักษร และช่วยให้ผู้เรียนสามารถถอดรหัสเสียงจากตัวหนังสือได้อย่างเป็นระบบ ดังที่ รุ่งอรุณ โรจน์รัตนาดำรง ไชยศรี (2561) ให้ได้อธิบายว่าวิธีการสอนแบบโฟนิกส์เป็นวิธีการสอนออกเสียงที่แสดงความสัมพันธ์ระหว่างเสียงและตัวอักษรโดยใช้การออกเสียงเป็นตัวกำหนด และให้ความสำคัญกับเสียงของตัวอักษรและการสะกดคำ ซึ่งเป็นจุดเริ่มต้นในกระบวนการสอนอ่านเบื้องต้น แม้วิธีการสอนแบบโฟนิกส์จะเป็นแนวทางที่พัฒนามาจากการสอนภาษาอังกฤษ ซึ่งมีระบบเสียงและโครงสร้างคำแตกต่างจากภาษาไทยอย่างมาก แต่ในงานวิจัยนี้ ผู้วิจัยได้มีการประยุกต์แนวคิดดังกล่าวให้สอดคล้องกับบริบทของภาษาไทย โดยเฉพาะในการพัฒนาทักษะการอ่านออกเสียงคำควบกล้ำของนักเรียน การประยุกต์ที่สำคัญประการแรก คือ การออกแบบกิจกรรมที่เน้นการแยกแยะเสียงพยัญชนะต้นที่ควบกล้ำ โดยฝึกให้นักเรียนรู้จักจำแนกเสียงของพยัญชนะแต่ละตัวก่อนนำไปผสมเป็นคำ นอกจากนี้ยังมีการจัดลำดับกิจกรรมจากง่ายไปยากตามหลักโครงสร้างโฟนิกส์ โดยเริ่มจากการฟังเสียง การระบายสีคำ การจับคู่คำกับภาพ การแยกเสียงประกอบคำ ไปจนถึงการอ่านคำควบกล้ำในประโยคและเนื้อเรื่อง ซึ่งช่วยให้ผู้เรียนค่อย ๆ สร้างความเข้าใจต่อโครงสร้างเสียงอย่างเป็นระบบ และลดความคลาดเคลื่อนในการออกเสียง อีกหนึ่งการประยุกต์ที่สำคัญคือ การบูรณาการ อักขรวิธีของภาษาไทยเข้าไปในหลักการของโฟนิกส์ เช่น คำควบกล้ำที่มีวรรณยุกต์ร่วมด้วย ซึ่งเป็นลักษณะเฉพาะที่ไม่มีในภาษาอังกฤษ จึงต้องมีการออกแบบแบบฝึกเฉพาะที่ตอบสนองต่อโครงสร้างภาษาไทย ผู้วิจัยได้ออกแบบไปในแนวทางเดียวกับขั้นตอนของวิธีการสอนแบบโฟนิกส์ โดยผ่านการใช้แบบฝึกทักษะวังพญาพาเพลินซึ่งมี 4 ขั้นตอนดังนี้ การวิเคราะห์เสียง การเทียบเสียง การสังเคราะห์เสียง และการอ่านออกเสียงคำควบกล้ำ กล่าวคือเริ่มจากการฝึกการออกเสียงตัวอักษร การเรียนรู้พยัญชนะ สระ วรรณยุกต์ เรียนรู้การประสมคำ เช่น ให้นักเรียนจับคู่กับเพื่อนแล้วอ่านออกเสียงคำ ให้นักเรียนระบายสีคำที่อ่านออกเสียงในหน่วยเสียงที่ฝึก พร้อมแยก

ส่วนประกอบของคำ เป็นต้น หลังจากนั้นจึงฝึกในขั้นที่ยากขึ้นคือ สอนอ่านคำหรือเนื้อเรื่องให้นักเรียนได้ประยุกต์ใช้ตามความสามารถของตน โดยผู้วิจัยได้ออกแบบแบบฝึกให้นักเรียนได้อ่านเนื้อหาที่หลากหลาย เป็นต้น

อีกปัจจัยหนึ่งที่ทำให้แบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ มีประสิทธิภาพสูงกว่าเกณฑ์ที่กำหนด การปรับปรุงแบบฝึกตามข้อเสนอแนะจากผู้เชี่ยวชาญก่อนนำไปใช้จริง ช่วยให้แบบฝึกมีความเหมาะสมกับผู้เรียนมากยิ่งขึ้น และสามารถตอบโจทย์ทั้งด้านเนื้อหา เทคนิคการสอน และบริบทของห้องเรียนจริง ดังที่กรองกาญจน์ อรุณรัตน์ (2541) ได้กล่าวว่า ภายหลังจากที่นำชุดการสอน หรือ ชุดการเรียนไปทดลองเพื่อหาประสิทธิภาพนั้น ในกรณีที่ประสิทธิภาพของชุดการสอน หรือ ชุดการเรียนที่สร้างขึ้นไม่ถึงเกณฑ์ที่ตั้งไว้เนื่องจากมีตัวแปรที่ควบคุมไม่ได้ เช่น สภาพห้องเรียน ความพร้อมของนักเรียน บทบาทและความชำนาญในการใช้ชุดการสอนหรือชุดการเรียนของครูและของนักเรียน เป็นต้น ทำให้ผู้วิจัยได้สร้างแบบฝึกที่เป็นลำดับขั้นตอนรวมถึงการทดสอบประสิทธิภาพของแบบฝึกก่อนนำไปใช้จริง อีกทั้งยังคำนึงถึงตัวแปรที่ควบคุมไม่ได้จึงทำให้แบบฝึกทักษะวังพญาพาเพลิน สามารถนำไปใช้ในการจัดการเรียนการสอนได้ อีกทั้งเป็นประโยชน์ทางการสอนจริงตามเกณฑ์ที่ได้กำหนดไว้ เช่นเดียวกับ ทิฏฐา สุวรรณกิจ (2565) ที่ได้สร้างแบบฝึกการอ่านออกเสียงภาษาไทยมาตรฐานร่วมกับการสอนภาษาแบบโฟนิกส์สำหรับนักเรียนชั้นประถมศึกษาปีที่ 3 มีผลการทดลองพบว่า มีประสิทธิภาพ 89.77/82.22 ซึ่งสูงกว่าเกณฑ์ 80/80 จึงกล่าวได้ว่า แบบฝึกการอ่านมีประสิทธิภาพ และมีความเหมาะสมสามารถนำไปใช้พัฒนาทักษะการอ่านออกเสียงได้

2. ผลเปรียบเทียบทักษะการออกเสียงคำควบกล้ำ โดยใช้แบบฝึกทักษะวังพญาพาเพลินโดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 สรุปผลได้ว่า คะแนนทดสอบหลังเรียนมีค่ามากกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติ ซึ่งสะท้อนให้เห็นว่าแบบฝึกที่ออกแบบตามแนวคิดโฟนิกส์มีประสิทธิภาพในการพัฒนาทักษะการอ่านออกเสียงคำควบกล้ำได้อย่างแท้จริง อันเนื่องมาจากผู้วิจัยได้ดำเนินการสร้างแบบฝึก โดยกำหนดให้ผู้เรียนฝึกฝนเรียงลำดับจากง่ายไปยาก ปริมาณของเนื้อหาต้องเพียงพอที่สามารถตรวจสอบและพัฒนาทักษะ กระบวนการคิด กระบวนการเรียนรู้ของผู้เรียนที่เรียนไปแล้ว เพื่อนำไปใช้ในการแก้ปัญหาและผู้เรียนสามารถตรวจสอบความเข้าใจบทเรียนด้วยตนเองได้ ทำให้เกิดทักษะความรู้ ความเข้าใจ ความชำนาญในเนื้อหาที่ผู้เรียนได้เรียนไปแล้ว อีกทั้งยังมีการนำเรื่องที่อยู่รอบตัวผู้เรียนมาเป็นองค์ประกอบในแบบฝึก ซึ่งเป็นส่วนสำคัญที่ทำให้เด็กเกิดความสนใจ ดังที่ คณิศร ศรีประไพ (2555) ได้กล่าวว่า ลักษณะของแบบฝึกที่ดีควรเป็นแบบฝึกสั้น ๆ ฝึกหลาย ๆ ครั้ง มีรูปแบบการฝึกควรฝึกเฉพาะเรื่องเดียว และควรเป็นสิ่งที่ผู้เรียนพบเห็นอยู่แล้ว คำชี้แจงสั้น ๆ ใช้เวลาเหมาะสม เป็นเรื่องที่ท้าทายให้แสดงความสามารถ เมื่อผู้เรียนได้ฝึกแล้วก็สามารถพัฒนาตนเองได้ดีจึงจะนับว่าเป็นแบบฝึกที่ดีและมีประโยชน์ ดังนั้นลักษณะของแบบฝึกที่ผู้วิจัยสร้างขึ้นจึงเป็นแบบฝึกสั้น ๆ 11 บท แต่ละบทจะมีแบบฝึกย่อย 5 บทย่อย มีหลายรูปแบบ ทั้งการจับคู่ การแยกส่วนประกอบ การโยงเส้น สอดคล้องกับ สมพร ตอยยีบี (2554) ได้กล่าวไว้ว่า การสร้างแบบฝึกทักษะต้องมีหลักการและแนวทางต่าง ๆ ไม่ว่าจะเป็นการกำหนดแบบฝึกที่ชัดเจน แน่นอน และภาษาที่เข้าใจง่ายเหมาะสมกับวัย ควรมีความยากง่ายแตกต่าง และต้องมีหลายรูปแบบ เพื่อให้นักเรียนมีโอกาสในการใช้ภาษาอย่างมีประสิทธิภาพ และแบบฝึกนั้นมีประโยชน์ต่อการเรียนการสอนมากไม่ว่าจะเป็นด้านผู้เรียนทำให้เด็กเกิดความเข้าใจในบทเรียนมากยิ่งขึ้น และในด้านครูผู้สอนเกี่ยวกับเนื้อหาวิชาที่สอนและกิจกรรมเพื่อพัฒนาทักษะของนักเรียนให้มีประสิทธิภาพมากยิ่งขึ้น สอดคล้องกับ สุภัชฌาน์ ศรีเอี่ยม (2566) ได้

ศึกษาเรื่องความสามารถด้านการเขียนสระในภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 2 ที่ได้รับการจัดการเรียนรู้แบบเกมร่วมกับแบบฝึกทักษะการเขียนสระในภาษาไทย มีวัตถุประสงค์เพื่อเปรียบเทียบความสามารถด้านการเขียนสระในภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 2 ก่อนและหลังการจัดการเรียนรู้แบบเกมร่วมกับแบบฝึกทักษะการเขียนสระในภาษาไทย ผลการวิจัยสรุปได้ว่า ความสามารถด้านการเขียนสระในภาษาไทยของกลุ่มเป้าหมายหลังได้รับการจัดการเรียนรู้สูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

3. ผลการวิเคราะห์ความพึงพอใจของนักเรียนที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ไปให้นักเรียนกลุ่มตัวอย่างจำนวน 18 คน มีความพึงพอใจในภาพรวมอยู่ในระดับมากที่สุด โดยมีค่าเฉลี่ย 4.77 และค่าส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.42 ผู้เรียนเรียนรู้ได้อย่างมีประสิทธิภาพและสนุกไปกับการทำกิจกรรม สอดคล้องกับแนวคิดของกุศยา แสงเดช (2545) ที่กล่าวว่า แบบฝึกที่ดีสามารถทำให้ผู้เรียนได้ฝึกฝนจนบรรลุจุดหมายของการฝึก สอดคล้องกับแนวความคิดของกิตติพงษ์ แสงสุระ (2541) ได้กล่าวว่า ความพึงพอใจเป็นความรู้สึกที่มีต่อสิ่งใดสิ่งหนึ่ง ซึ่งเป็นได้ทั้งทางบวกและทางลบ ถ้าเมื่อใดที่สิ่งนั้นสามารถตอบสนองความต้องการหรือทำให้บรรลุจุดมุ่งหมายได้ก็จะเกิดความรู้สึกทางบวก เป็นความรู้สึกพึงพอใจและก็จะสร้างความสุขให้แก่บุคคลนั้น ๆ ได้แต่ในทางตรงข้าม ถ้าสิ่งใดสร้างความรู้สึกผิดหวังไม่บรรลุจุดมุ่งหมาย ก็จะทำให้เกิดความรู้สึกทางลบ เป็นความรู้สึกไม่พึงพอใจและไม่เป็นการสร้างความสุขแก่บุคคลนั้น ผู้วิจัยได้สังเกตพฤติกรรมการเรียนรู้ของนักเรียน พบว่า นักเรียนให้ความร่วมมือทั้งยังมีความสุขไปกับการเรียนรู้ และเมื่อนักเรียนสามารถทำกิจกรรมด้วยตนเองได้ถูกต้อง ครูจะให้คำชื่นชมยกย่องแก่นักเรียน เพื่อเป็นการเสริมแรงบวกให้กับนักเรียน

ผลการวิเคราะห์ความพึงพอใจของนักเรียนที่มีต่อแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ประเด็นที่มีค่าเฉลี่ยสูงสุดอันดับ 1 มีค่าเฉลี่ย 4.89 คือ นักเรียนรู้สึกสนุกเมื่อได้ทำแบบฝึก และแบบฝึกการอ่านออกเสียงทำให้นักเรียนตั้งใจเรียนเรื่องนี้มากขึ้น สะท้อนให้เห็นว่าแบบฝึกทักษะที่ออกแบบมีความเหมาะสมทั้งในด้านสาระการเรียนรู้และรูปแบบการนำเสนอ โดยเฉพาะเมื่อใช้แนวทางการสอนแบบโฟนิกส์ (Phonics Method) ซึ่งเน้นกระบวนการแยกเสียง ฝึกออกเสียงทีละพยัญชนะ ไปจนถึงการอ่านคำควบกล้ำอย่างเป็นระบบและต่อเนื่อง ช่วยให้นักเรียนรู้สึกว่าสนุก สามารถเรียนรู้ได้ด้วยตนเอง และเกิดความมั่นใจในการอ่านออกเสียง สอดคล้องกับ ฟิรฮานา อุปมา, อัสมาร์ วงศาชนัท, กัญจน์วฤน เลาหบุตร, พล เหลืองรังษี และเชษฎา ดำเกลี้ยง (2567) ได้ศึกษาเรื่องการพัฒนาทักษะการอ่านวิชาภาษาไทย เรื่องคำควบกล้ำแท้ โดยใช้แบบฝึกทักษะการอ่านของนักเรียนชั้นประถมศึกษาปีที่ 4 พบว่า นักเรียนชั้นประถมศึกษา ปีที่ 4 มีความพึงพอใจต่อแบบฝึกทักษะการอ่านคำควบกล้ำแท้ในระดับมาก โดยเฉพาะในด้านความน่าสนใจและความสะดวกในการใช้งานของผู้เรียน ผลการวิจัยชี้ให้เห็นว่า การใช้แบบฝึกทักษะที่ออกแบบมาอย่างเหมาะสมและน่าสนใจ สามารถกระตุ้นความสนใจและความตั้งใจเรียนของนักเรียนได้อย่างมีนัยสำคัญ

ข้อเสนอแนะในการนำผลการวิจัยไปใช้

จากผลการพัฒนาแบบฝึกทักษะแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำของนักเรียนชั้นประถมศึกษาปีที่ 4 ผู้วิจัยมีข้อเสนอแนะดังนี้

1. ควรพัฒนาการจัดการเรียนรู้โดยใช้วิธีการสอนแบบโฟนิกส์ที่เน้นการเชื่อมโยงภาษาไทยกับ

ชีวิตประจำวันในรายวิชาอื่น ๆ

2. ควรมีการศึกษาเกี่ยวกับตัวแปรอื่น ๆ นอกจากผลสัมฤทธิ์ทางการเรียนความพึงพอใจ เช่น ดัชนีประสิทธิผลความคงทนของประสิทธิภาพการเรียน ความคิดสร้างสรรค์ เป็นต้น

3. ผู้สนใจงานวิจัยนี้ สามารถนำผลการวิจัยไปพัฒนาและประยุกต์ใช้เพื่อจัดกิจกรรมการเรียนการสอนให้มีประสิทธิภาพยิ่งขึ้น

ข้อเสนอแนะสำหรับการทำวิจัยครั้งต่อไป

เพื่อเป็นประโยชน์สำหรับผู้ที่จะทำวิจัยเกี่ยวกับการพัฒนาแบบฝึกทักษะวังพญาพาเพลิน โดยใช้วิธีการสอนแบบโฟนิกส์ เพื่อพัฒนาการอ่านออกเสียงคำควบกล้ำ ผู้วิจัยมีข้อเสนอแนะดังนี้

1. ควรขยายกลุ่มตัวอย่างให้หลากหลายมากขึ้น ทั้งด้านจำนวนและภูมิหลัง เพื่อให้ผลวิจัยมีความครอบคลุมและทั่วไปได้มากขึ้น

2. ควรศึกษาเปรียบเทียบประสิทธิภาพของวิธีการสอนแบบโฟนิกส์กับวิธีการสอนอื่น ๆ เพื่อหาวิธีที่เหมาะสมที่สุดในบริบทต่าง ๆ

3. ควรติดตามผลระยะยาวของผู้เรียนหลังการใช้แบบฝึก เพื่อประเมินความคงทนของผลสัมฤทธิ์ทางการเรียน

เอกสารอ้างอิง

กิตติพงษ์ แสงสุระ. (2541). ความสัมพันธระหวางปัจจัยลักษณะองคการกับประสิทธิผลขององคการ. กรุงเทพฯ: สถาบันบัณฑิตพัฒนบริหารศาสตร.

กิตติพงษ์ แสงสุระ. (2541). สถิติสำหรับการวิจัยทางการศึกษา. กรุงเทพฯ: โรงพิมพ์จุฬาลงกรณ์มหาวิทยาลัย.

กุศยา แสงเดช. (2545). การวิจัยพัฒนานวัตกรรมทางการศึกษา. กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

กระทรวงศึกษาธิการ. (2559). หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2560. กรุงเทพฯ : โรงพิมพชุมนุมสหกรณการเกษตรแหงประเทศไทย.

กรมวิชาการ กระทรวงศึกษาธิการ. (2546). แนวทางการจัดกิจกรรมพัฒนาผู้เรียนตามหลักสูตรการศึกษาขั้นพื้นฐาน พุทธศักราช 2544. กรุงเทพฯ: กระทรวงศึกษาธิการ.

กรองกาญจน์ อรุณรัตน์. (2541). ชุดการเรียนการสอน. เชียงใหม่: ภาควิชาเทคโนโลยีทางการศึกษา มหาวิทยาลัยเชียงใหม.

คณิศร ศรีประไพ. (2555). การพัฒนาแบบฝึกทักษะการอ่านจับใจความภาษาไทยสำหรับนักเรียนชั้นประถมศึกษาปี ที่ 3 อำเภอเขาชะเมา จังหวัดระยอง. วิทยานิพนธ์การศึกษามหาบัญฑิต. ชลบุรี: มหาวิทยาลัยบูรพา.

ทิฏฐา สุวรรณกิจ. (2566). การสร้างแบบฝึกการอ่านออกเสียงภาษาไทยมาตรฐานร่วมกับการสอนภาษาแบบโฟนิกส์ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 3 โรงเรียนตำรวจตระเวนชายแดนบ้านสำนักเอาะ อำเภอสะบ้าย้อย จังหวัดสงขลา. วิทยานิพนธ์การศึกษามหาบัณฑิต. สงขลา: มหาวิทยาลัยทักษิณ.

บุญนำ เกษี. (2556). ระบบสมการเชิงเสนระดับ มัธยมศึกษาป ที่ 3 โรงเรียนพานทองสภาชนูปถัมภ์ (รายงานการวิจัย). ชลบุรี: มหาวิทยาลัยบูรพา.

ฟิรฮานา อุปมา, อัสมาร์ วงศาชนัท, กัญจน์วฤน เลาหบุตร, พล เหลืองรังษี และเชษฎา ดำเกลี้ยง. (2567, พฤษภาคม 17). การพัฒนาแบบฝึกทักษะการอ่านคำควบกล้ำแท้ วิชาภาษาไทย สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4. การประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ครั้งที่ 15 (หน้า 959–970). มหาวิทยาลัยหาดใหญ่, สงขลา.

ราชบัณฑิตยสถาน. (2546). พจนานุกรมฉบับราชบัณฑิตยสถาน พ.ศ. 2542. กรุงเทพฯ: นามมีบุ๊คส์พับลิเคชั่น

รุ่งอรุณ โรจน์รัตนาดำรง ไชยศร. (2561). การศึกษาปัญหาการเรียนอ่านเขียนของนักเรียนไทยและนักเรียนต่างด้าวและการแก้ปัญหาด้วยแบบเรียนที่พัฒนาตามแนววิธีสอนแบบโฟนิกส์ (รายงานการวิจัย). กรุงเทพฯ: มหาวิทยาลัยศรีนครินทรวิโรฒ.

วิจิตรา เจือจันทร์. (2533). ผลของการใช้เพลงในการฝึกอ่านออกเสียงตัวพยัญชนะ ร ล สำหรับนักเรียนชั้นประถมศึกษาปีที่ 2. กรุงเทพฯ: จุฬาลงกรณ์มหาวิทยาลัย

วิมลรัตน์ สุนทรโรจน์. (2553). นวัตกรรมตามแนวคิดแบบ Backward Design. . มหาสารคาม: ภาควิชาหลักสูตรและการสอน คณะศึกษาศาสตร์มหาวิทยาลัยมหาสารคาม.

สุภัชฌาน์ ศรีเอี่ยม. (2566). ความสามารถด้านการเขียนสระในภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 2 ที่ได้รับการจัดการเรียนรู้แบบเกมร่วมกับแบบฝึกทักษะการเขียนสระในภาษาไทย. วิทยานิพนธ์ ครุศาสตรมหาบัณฑิต. ปทุมธานี: มหาวิทยาลัยราชภัฏวไลยอลงกรณ์ ในพระบรมราชูปถัมภ์.

สุวิทย์ มูลคำ และสุนันทา สุนทรประเสริฐ. (2550). การพัฒนาผลงานทางวิชาการสู่การเลื่อนวิทยฐานะ. กรุงเทพฯ: อีเคบุ๊คส์.

สมพร ตอยยีบี. (2554). การพัฒนาแบบฝึกทักษะการเขียนเชิงสร้างสรรค์สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 1 โรงเรียนเซนต์เทเรซา หนองจอก. วิทยานิพนธ์การศึกษามหาบัณฑิต. กรุงเทพฯ : มหาวิทยาลัยศรีนครินทรวิโรฒ.

การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” เพื่อพัฒนาทักษะการอ่านและการเขียน ของนักเรียนชั้นประถม ศึกษาปีที่ 5

Cooperative Learning through CIRC Technique with Picture Books Based on Local Stories in a set of being Well – Rounded in Hatyai City in Order to Improve Reading and Writing in the Thai language of Primary 5 Students.

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์คือ 1) เพื่อพัฒนาหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” สำหรับการพัฒนาทักษะการอ่านและการเขียน ของนักเรียนชั้นประถมศึกษาปีที่ 5 ร่วมกับการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC 2) เพื่อเปรียบเทียบผลสัมฤทธิ์การอ่านและการเขียนก่อนและหลังเรียน โดยใช้การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” และ 3) เพื่อประเมินความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 5 หลังจากการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” ประชากรและกลุ่มตัวอย่างที่ใช้ในงานวิจัย คือ นักเรียนชั้นประถมศึกษาปีที่ 5/1 ที่เรียนในภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 32 คน โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) สังกัดเทศบาลนครหาดใหญ่ จังหวัดสงขลา โดยใช้วิธีเจาะจงห้องเรียน (Purposive Sampling) เครื่องมือที่ใช้ในการวิจัยครั้งนี้ ได้แก่ 1) แผนการจัดการเรียนรู้ 2) หนังสือภาพเรื่องราวท้องถิ่น ชุด รอบรู้เรื่อง เมืองหาดใหญ่ 3) แบบทดสอบวัดผลสัมฤทธิ์แบบทดสอบ ชนิดปรนัย 4 ตัวเลือก จำนวน 20 ข้อ และ 4) แบบสอบถาม ความพึงพอใจ สถิติที่ใช้ในการวิจัย ได้แก่ ค่าเฉลี่ย, ส่วนเบี่ยงเบนมาตรฐาน และสถิติทดสอบค่า t กรณีข้อมูลไม่เป็นอิสระต่อกัน (t–test แบบ Dependent)

ผลการวิจัยพบว่า 1) ผลการการวิเคราะห์คุณภาพของหนังสือเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” เพื่อพัฒนาทักษะการอ่านและการเขียน ของนักเรียนชั้นประถมศึกษาปีที่ 5 ได้รับการประเมินคุณภาพจากผู้ทรงคุณวุฒิทั้ง 3 ท่าน มีค่าเฉลี่ยโดยรวมมีความเหมาะสมในระดับมากที่สุด (ค่าเฉลี่ยเท่ากับ 4.72 คะแนนและค่าเบี่ยงเบนมาตรฐาน เท่ากับ 0.38 คะแนน) 2) นักเรียนชั้นประถมศึกษาปีที่ 5 หลังได้รับการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้

เรื่อง เมืองหาดใหญ่” มีผลสัมฤทธิ์การอ่านและการเขียน สูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .01 และ 3) นักเรียนมีความพึงพอใจต่อการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” ในระดับมากที่สุด

คำสำคัญ: เทคนิค CIRC, หนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่”, ทักษะการอ่านและการเขียน, ผลสัมฤทธิ์ทางการเรียนและความพึงพอใจ

Abstract

The aim of this research is 1) to improve picture books about local stories in a collection of the book “Rorbroorueng Muang Hatyai” (All-around of Hatyai City) in order to improve reading and writing of primary 5 students with Collaborative Learning through CIRC technique. 2) To compare the achievement of reading before and after learning through Collaborative Learning with CIRC technique and picture books in in a collection of the book “Rorbroorueng Muang Hatyai” (All-around of Hatyai City) 3) To evaluate the satisfaction of primary 5 students after using Collaborate Learning through CIRC technique with picture books in a collection of the book “Rorbroorueng Muang Hatyai” (All-around of Hatyai City). Population and sample being used in this research are 32 students of primary 5/1 class in the term 2 of the year in 2024 from Tessaban3 School (Sophonpittayakunarnusorn School) under Hatyai city municipality of Songkhla by using the way of Purposive Sampling. The tools being used in this research are 1) lesson plans 2) Picture books based on local stories in a collection of the book “ Rorbroorueng Muang Hatyai” (All-around of Hatyai City) 3) Measuring test on Achievement; 20 - 4 multiple choices questions 4) Satisfaction questionnaire. Statistics for research are Mean, Standard Deviation, and Test statistics. The value of t in case of the data is not dependent (Dependent t- test)

The result of the research found that 1) the quality analysis result of the books based on local stories in a collection of the book “ Rorbroorueng Muang Hatyai” (All-around of Hatyai City) in order to improve reading and writing of primary 5 students was evaluated the quality from three professionals being found that it was the most suitable overall average (average is 4.72 and standard deviation is 0.38) 2) After primary 5 students learnt from Collaborative Learning through CIRC technique with picture books based on local stories in a collection of the book “ Rorbroorueng Muang Hatyai” (All-around of Hatyai City) found that the achievement result of reading and writing higher than before learning .The statistical significance is 0.01. 3) Students were satisfied the most with Collaborative Learning through CIRC technique with picture books based on local stories in a collection of the book “Rorbroorueng Muang Hatyai” (All-around of Hatyai City)

Keywords: CIR technique, picture books about local stories in a collection of the book “Rorbroorueng Muang Hatyai” (All-around of Hatyai City),

writing and reading skill, learning achievement and satisfaction.

บทนำ

กลุ่มสาระการเรียนรู้ภาษาไทย โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) มุ่งเน้นผู้เรียนให้มีทักษะการฟัง พูด อ่านและเขียน ควบคู่กับการเสริมสร้างคุณธรรมจริยธรรม ตระหนักรักษ์สิ่งแวดล้อม ซึ่งนำไปสู่การแสวงหาความรู้ เพื่อพัฒนาตนเองให้สอดคล้องกับหลักปรัชญาของเศรษฐกิจพอเพียง พร้อมรับการเปลี่ยนแปลงของโลกในศตวรรษที่ 21 ซึ่งผู้วิจัยทราบปัญหาจากการจัดกิจกรรมการเรียนรู้ในกลุ่มสาระภาษาไทยของผู้เรียนระดับชั้นประถมศึกษาปีที่ 5 กล่าวคือ ผู้เรียนประสบปัญหาด้านการอ่านจับใจความจากเรื่องที่อ่าน ไม่ว่าจะเป็นการอ่านเนื้อเรื่องวรรณคดีและวรรณกรรม ทำให้นักเรียนเข้าใจได้ยาก เพราะเป็นเรื่องไกลตัว

การจัดทำหนังสือส่งเสริมการอ่านในรูปแบบสารคดีเป็นเครื่องมือสื่อถึง ความรู้ ความเข้าใจในหลากหลายลักษณะ เนื้อหาสาระส่วนใหญ่มุ่งเน้นให้ความรู้ด้านต่าง ๆ เช่น ด้านประวัติศาสตร์ ด้านสังคม ด้านเศรษฐกิจ และด้านวัฒนธรรม เป็นต้น การจัดทำหนังสือสารคดี ผู้วิจัยการออกแบบจัดทำหนังสือสารดีที่ประกอบด้วยภาพและเนื้อหาท้องถิ่นในย่านต่าง ๆ ที่สำคัญ ของอำเภอหาดใหญ่ เช่น ด้านการส่งเสริมเศรษฐกิจ การค้าและการท่องเที่ยว ด้านสังคม ด้านการพัฒนาทรัพยากรธรรมชาติและสิ่งแวดล้อม เป็นต้น สังเคราะห์รวบรวมอยู่ในหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” ให้มีกระบวนการเรียนรู้ที่มุ่งเน้นให้ผู้เรียนเกิดการเรียนรู้ร่วมกันเป็นกลุ่ม มีการวิเคราะห์กระบวนการกลุ่มและเรียนรู้ที่ดีต้องอาศัยทักษะทางสังคม เพื่อพัฒนาทักษะการอ่านและการเขียน

การจัดการเรียนรู้แบบร่วมมือ (Cooperative Learning) เป็นกระบวนการจัดการเรียนรู้ที่ผู้วิจัยได้นำมาใช้ คือ รูปแบบของเทคนิค CIRC (Cooperative Integrated Reading and Composition) เป็นวิธีการสอนที่น่าสนใจเพราะเป็นการสอนที่มุ่งเน้นให้ผู้เรียนพัฒนาการอ่านและการเขียน ซึ่งเป็นการอ่านเพื่อความเข้าใจ แล้วถ่ายทอดจากการอ่านที่ได้ออกมาเป็นรูปแบบการเขียนต่าง ๆ เช่น การเขียนเล่าเรื่อง การเขียนสรุปใจความสำคัญ เขียนแผนภาพโครงเรื่องและเขียนแผนภาพความคิด เป็นต้น โดยมีขั้นตอนที่สอดคล้องกับ อาภรณ์ ใจเที่ยง (2553) ที่ได้นำ “ขั้นตอนการจัดกระบวนการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC 5 ขั้นตอน ได้แก่ 1) ขั้นเตรียมการสอน 2) ขั้นสอน 3) ขั้นทำกิจกรรมกลุ่ม 4) ขั้นตรวจสอบผลงานและทดสอบ และ 5) ขั้นสรุปบทเรียนและประเมินผลการทำงานกลุ่ม”

จากข้อมูลที่กล่าวข้างต้น ผู้วิจัยจึงสนใจที่จะแก้ไขปัญหาของนักเรียนด้วยการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” เพื่อพัฒนาทักษะการอ่านและการเขียน ของนักเรียนชั้นประถมศึกษาปีที่ 5

วัตถุประสงค์ของการวิจัย

1. เพื่อพัฒนาหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” สำหรับการพัฒนาทักษะการอ่านและการเขียน ของนักเรียนชั้นประถมศึกษาปีที่ 5 ร่วมกับการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC

2. เพื่อเปรียบเทียบผลสัมฤทธิ์การอ่านและการเขียนก่อนเรียนและหลังเรียน โดยใช้การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่”

3. เพื่อประเมินความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 5 หลังจากการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่”

แนวคิดและทฤษฎี

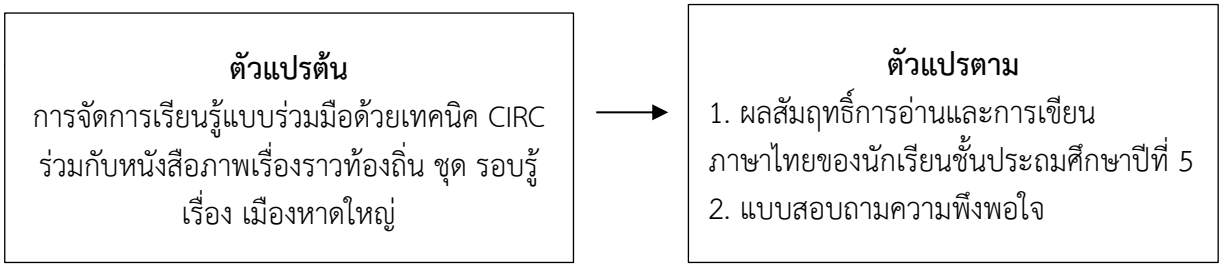
การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC เป็นการจัดการเรียนรู้แบบร่วมมือรูปแบบ CIRC เป็นการเรียนรู้ที่ผสมผสานการอ่านและการเขียน พัฒนาขึ้นโดย Madden, Slavin และ Stevens ในปี 1987 โดยผู้สอนจะใช้เรื่องหรือนิยายสำหรับสอนอ่าน ผู้เรียนจะถูกกำหนดให้ทำงานเป็นทีม ที่ประกอบด้วยผู้เรียนที่มีความสามารถในการอ่านต่างกัน ผู้เรียนทำงานภายในทีมเพื่อทำกิจกรรม ตั้งแต่ การเรียนรู้คำศัพท์ ความหมาย การสะกดคำ ฝึกอ่านกับเพื่อน สรุปย่อและฝึกทักษะในการอ่านจับใจความ ฝึกเขียนและจัดทำเป็นหนังสือของทีมหรือของห้อง (Slavin, 1995)

หนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” หมายถึง หนังสือที่ผู้วิจัยได้ศึกษาข้อมูลเกี่ยวกับบริบทท้องถิ่นต่าง ๆ ได้แก่ ประวัติความเป็นมา สถานที่ท่องเที่ยวที่หลากหลาย เทศกาลตามปฏิทินในเมืองหาดใหญ่ อาหารพื้นถิ่น และสถาปัตยกรรมที่เป็นเอกลักษณ์ของอำเภอหาดใหญ่ จังหวัดสงขลา รวบรวมอยู่ในหนังสือภาพเรื่องราวท้องถิ่น ชุด รอบรู้เรื่อง เมืองหาดใหญ่ เพื่อพัฒนาทักษะการอ่านและการเขียนภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 5

แผนการจัดการเรียนรู้ หมายถึง แผนการจัดกิจกรรมการเรียนรู้ที่จัดทำเป็นลายลักษณ์อักษรเพื่อใช้ในการปฏิบัติการสอนขณะทำวิจัย เรื่อง การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” ของนักเรียนชั้นประถมศึกษาปีที่ 5 โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) อำเภอหาดใหญ่ จังหวัดสงขลา ซึ่งประกอบด้วยแผนการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับทักษะการอ่านจับใจความและการเขียนย่อความ จำนวน 6 แผน ใช้เวลาเรียนทั้งสิ้น 12 ชั่วโมง โดยมีขั้นตอนที่สอดคล้องกับ (อาภรณ์ ใจเที่ยง, 2553) ได้นำ “ขั้นตอนการจัดกระบวนการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC 5 ขั้นตอน ได้แก่ 1. ขั้นเตรียมการสอน 2. ขั้นสอน 3. ขั้นทำกิจกรรมกลุ่ม 4. ขั้นตรวจสอบผลงานและทดสอบ และ 5. ขั้นสรุปบทเรียนและประเมินผลการทำงานกลุ่ม”

ทฤษฎีความพึงพอใจ หมายถึง การประเมินของผู้เรียนที่แสดงออกถึงความรู้สึกที่มีต่อการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” ของนักเรียนชั้นประถมศึกษาปีที่ 5 โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) อำเภอหาดใหญ่ จังหวัดสงขลา

กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิด

วิธีดำเนินการวิจัย

1. ประชากรและกลุ่มตัวอย่าง

1.1 ประชากรที่ใช้ในการศึกษาวิจัย คือ นักเรียนชั้นประถมศึกษาปีที่ 5 ของโรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) สังกัดเทศบาลนครหาดใหญ่ จังหวัดสงขลา ปีการศึกษา 2567 จำนวน 158 คน

1.2 กลุ่มตัวอย่างที่ใช้ในการศึกษาวิจัย คือ นักเรียนชั้นประถมศึกษาปีที่ 5/1 โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) สังกัดเทศบาลนครหาดใหญ่ จังหวัดสงขลา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 32 คน โดยการเลือกใช้วิธีเจาะจงห้องเรียน (Purposive Sampling)

2. เครื่องมือที่ใช้ในการวิจัย

เครื่องมือที่ใช้ในการวิจัยประกอบด้วย

2.1 แผนการจัดการเรียนรู้ทั้ง 6 แผน 12 ชั่วโมง ซึ่งส่วนหนึ่งของรายวิชาภาษาไทย รหัส ท15101 กลุ่มสาระการเรียนรู้ภาษาไทย

1. ศึกษาหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 (ฉบับปรับปรุง พุทธศักราช 2560) ในกลุ่มสาระการเรียนรู้ภาษาไทยระดับชั้นประถมศึกษาปีที่ 5

2. ศึกษาหลักสูตรสถานศึกษา วิสัยทัศน์โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) วิสัยทัศน์รายวิชาภาษาไทย ตัวชี้วัด สมรรถนะสำคัญของผู้เรียน คุณลักษณะอันพึงประสงค์กลุ่มสาระการเรียนรู้ภาษาไทย พันธกิจกลุ่มสาระการเรียนรู้ภาษาไทย เป้าหมายและ คำอธิบายรายวิชาภาษาไทย

3. ศึกษาเอกสาร ตำรา ทฤษฎีและงานวิจัยที่เกี่ยวข้องกับการอ่าน การอ่านจับใจความสำคัญ การเขียน การเขียนเชิงสร้างสรรค์ การสร้างหนังสือส่งเสริมการอ่าน รวมถึงการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC

4. สร้างแผนการจัดการเรียนรู้การอ่านจับใจความสำคัญและการเขียนเชิงสร้างสรรค์ โดยใช้การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ของนักเรียนชั้นประถมศึกษาปีที่ 5 โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) จำนวน 6 แผน ใช้เวลาเรียนทั้งสิ้น 12 ชั่วโมง

5. นำแผนการจัดการเรียนรู้ที่สร้างขึ้นเสนอต่อผู้ทรงคุณวุฒิ เพื่อตรวจหาความเหมาะให้สอดคล้อง

6. นำแผนการสอนที่ได้รับการปรับปรุงแก้ไขตามข้อเสนอแนะของผู้ทรงคุณวุฒิ แก้ไขแล้วไปให้ผู้ทรงคุณวุฒิจำนวน 3 ท่าน เพื่อตรวจสอบความเที่ยงตรงเชิงโครงสร้าง เชิงเนื้อหา เวลาความเหมาะสมของกิจกรรมการเรียนการสอนสื่อการเรียนการสอน

7. ผู้วิจัยนำแผนการจัดการเรียนรู้ การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” เพื่อพัฒนาทักษะการอ่านและการเขียนของนักเรียนชั้นประถมศึกษาปีที่ 5 ที่ผ่านการประเมินผู้ทรงคุณวุฒิและได้ปรับปรุงแล้ว นำไปทดลองกับนักเรียนที่ไม่ใช่กลุ่มตัวอย่าง โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) ของนักเรียนชั้นประถมศึกษาปีที่ 5

8. นำแผนการจัดการเรียนรู้ การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” เพื่อพัฒนาทักษะการอ่านและการเขียนของนักเรียนชั้นประถมศึกษาปีที่ 5 ที่ได้รับการปรับปรุงแก้ไขฉบับสมบูรณ์เพื่อไปใช้กับกลุ่มตัวอย่าง คือ นักเรียนชั้นประถมศึกษาปีที่ 5/1 โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) สังกัดเทศบาลนครหาดใหญ่ จังหวัดสงขลา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 32 คน

2.2 หนังสือภาพเรื่องราวท้องถิ่น ชุด รอบรู้เรื่อง เมืองหาดใหญ่ ประกอบด้วย 5 บท ได้แก่

1. ศึกษาการสร้างหนังสือส่งเสริมการอ่านสำหรับนักเรียนระดับชั้นประถมศึกษาปีที่ 5

2. ศึกษาหัวข้อบริบทท้องถิ่น อำเภอหาดใหญ่ จังหวัดสงขลา

3. ผู้วิจัยกำหนดรูปแบบและออกแบบหนังสือภาพ เรื่องราวท้องถิ่นของอำเภอหาดใหญ่ จังหวัดสงขลา เนื้อหาสาระในหนังสือภาพเรื่องราวท้องถิ่นของอำเภอหาดใหญ่ จังหวัดสงขลาใน 1 ชุด ประกอบการเรียน 5 บท ได้แก่ บทที่ 1 เรียนรู้ความเป็นมาเมืองหาดใหญ่ บทที่ 2 เรียนรู้อาหารพื้นถิ่นบทที่ 3 เรียนรู้แหล่งยอดนิยม บทที่ 4 เรียนรู้ความหลากศิลป์ และบทที่ 5 เรียนรู้ถิ่นวัฒนธรรม

4. สร้างแบบประเมินคุณภาพของหนังสือให้ผู้ทรงคุณวุฒิ ทั้ง 3 ท่าน โดยตรวจสอบคุณภาพหนังสือ และนำแบบประเมินหนังสือส่งเสริมการอ่านมาปรับปรุงให้มีคุณภาพตามที่ผู้ทรงคุณวุฒิให้ความเห็นและเสนอแนะไว้ สอดคล้องกับ บุญชม ศรีสะอาด (2545) กล่าวไว้ว่า ตามเกณฑ์ของลิเคร์ท (Likert) แบบมาตราส่วนประเมินค่า 5 ระดับ

5. นำหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” ให้ผู้ทรงคุณวุฒิที่มีประสบการณ์ทั้ง 3 ด้าน ได้แก่ ด้านการสอนภาษาไทย ด้านวรรณกรรม และด้านการวัดผลและประเมินผล ทั้ง 3 ท่าน พิจารณาคุณภาพของหนังสือ พร้อมให้ข้อเสนอแนะแนวทางในการปรับปรุงหนังสือ

6. ผู้วิจัยทดลองหาคุณภาพของหนังสือ ที่ผ่านการประเมินจากผู้ทรงคุณวุฒิและได้ปรับปรุงแล้วนำไปทดลองกับนักเรียนที่ไม่ใช่กลุ่มตัวอย่าง โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) ของนักเรียนชั้นประถมศึกษาปีที่ 5

7. ผู้วิจัยทดลองหาคุณภาพของหนังสือ ที่ผ่านการประเมินจากผู้ทรงคุณวุฒิและได้ปรับปรุงแล้วนำไปทดลองกับนักเรียนที่ไม่ใช่กลุ่มตัวอย่าง โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) ของนักเรียนชั้นประถมศึกษาปีที่ 5

8. ผู้วิจัยนำหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” ร่วมกับการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ของนักเรียนชั้นประถมศึกษาปีที่ 5 ที่ได้รับการปรับปรุงแก้ไขฉบับสมบูรณ์เพื่อไปใช้กับกลุ่มตัวอย่าง คือ นักเรียนชั้นประถมศึกษาปีที่ 5/1 โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) สังกัดเทศบาลนครหาดใหญ่ จังหวัดสงขลา ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 32 คน

2.3 แบบทดสอบวัดผลสัมฤทธิ์ เป็นแบบทดสอบ ชนิดปรนัย 4 ตัวเลือก จำนวน 20 ข้อ

2.4 แบบสอบถามความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 5

3. การวิเคราะห์ข้อมูลในการวิจัย

3.1 หาค่าเฉลี่ยการวัดคุณภาพของหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” เพื่อพัฒนาทักษะการอ่านและการเขียนภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 5

3.2 เปรียบเทียบผลสัมฤทธิ์การอ่านและการเขียนภาษาไทยก่อนและหลัง โดยใช้การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” ของนักเรียนชั้นประถมศึกษาปีที่ 5 ก่อนและหลังการทดลองของกลุ่มทดลอง โดยการทดสอบค่า t กรณีข้อมูลไม่เป็นอิสระต่อกัน (t–test แบบ Dependent) ประเมินโดยจากผู้ทรงคุณวุฒิ ทั้ง 3 ท่าน

3.3 หาค่าเฉลี่ยคะแนนความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” เพื่อพัฒนาทักษะการอ่านและการเขียนภาษาไทย ของนักเรียนชั้นประถมศึกษาปีที่ 5

ผลการวิจัย

4.1 ผลการวิเคราะห์คุณภาพของหนังสือ

ตารางที่ 1 แสดงคุณภาพของหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่”

ข้อที่	รายการประเมิน	$\overline{X}$	S.D.	แปลผล
1. ด้านเนื้อหาสาระ				
1.	เนื้อหาเหมาะสมกับวัยของเด็ก	4.67	0.58	มากที่สุด
2.	ความยาวของเนื้อหามีความเหมาะสม	4.33	0.58	มาก
3.	เนื้อหามีประโยชน์และให้แง่คิดที่เหมาะสม	5.00	0.00	มากที่สุด
4.	เนื้อหาให้คุณค่าเชิงอนุรักษ์ท้องถิ่นอย่างเหมาะสม	4.67	0.58	มากที่สุด
รวม		4.67	0.43	มากที่สุด
2. ด้านการนำเสนอโครงเรื่อง				
1.	การดำเนินเรื่องมีความน่าสนใจ	4.33	0.58	มาก
2.	โครงเรื่องไม่ซับซ้อน	4.33	0.58	มาก
3.	วางโครงเรื่องการนำเสนอที่ต่อเนื่องเหมาะสม	5.00	0.00	มากที่สุด
4.	มีการเปิด-ปิดเรื่องที่เหมาะสม	4.67	0.58	มากที่สุด
รวม		4.58	0.43	มากที่สุด
3. ด้านการใช้ภาษาและตัวอักษร				
1.	ขนาดของตัวอักษรมีความเหมาะสมสำหรับเด็ก	4.67	0.58	มากที่สุด
2.	ภาษาที่ใช้มีความเหมาะสมสำหรับเด็ก	4.67	0.58	มากที่สุด
3.	ภาษาที่ใช้มีความชัดเจน เข้าใจง่าย	4.67	0.58	มากที่สุด
4.	ตัวอักษรมีความเป็นระเบียบ	5.00	0.00	มากที่สุด
รวม		4.59	0.55	มากที่สุด
4. ด้านการจัดภาพและความสวยงาม				
1.	ปกมีความสวยงามและทันสมัย	5.00	0.00	มากที่สุด
2.	ภาพประกอบมีขนาดที่เหมาะสม	5.00	0.00	มากที่สุด
3.	ภาพประกอบช่วยส่งเสริมเนื้อหาให้ชัดเจนมากยิ่งขึ้น	4.67	0.58	มากที่สุด
4.	ภาพประกอบและการใช้สีสวยงามตามหลักศิลปะ	5.00	0.00	มากที่สุด
รวม		4.92	0.14	มากที่สุด
5. ด้านการจัดทำรูปเล่ม				
1.	ขนาดของหนังสือมีความเหมาะสม	4.33	0.58	มากที่สุด
2.	หนังสือมีรูปแบบสวยงาม เหมาะสม	4.67	0.58	มากที่สุด
3.	มีการเข้าเล่มที่เหมาะสม คงทน สวยงาม	4.67	0.58	มากที่สุด
4.	ภาพรวมของหนังสือภาพเรื่องราวท้องถิ่น	5.00	0.00	มากที่สุด
รวม		4.67	0.43	มากที่สุด
รวมทั้งหมด		4.72	0.38	มากที่สุด

จากตารางที่ 1 แสดงให้เห็นว่า การวัดคุณภาพของหนังสือเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” เพื่อพัฒนาทักษะการอ่านและการเขียน ของนักเรียนชั้นประถมศึกษาปีที่ 5 ได้รับการประเมินคุณภาพจากผู้ทรงคุณวุฒิทั้ง 3 ท่าน โดยวิเคราะห์ 5 ด้าน ได้แก่ 1) ด้านเนื้อหาสาระ 2) ด้านการนำเสนอโครงเรื่อง 3) ด้านการใช้ภาษาและตัวอักษร 4) ด้านการจัดภาพและความสวยงาม และ 5) ด้านการจัดทำรูปเล่ม ซึ่งมีค่าเฉลี่ย ($\overline{X}$) เท่ากับ 4.72 คะแนน และค่าเบี่ยงเบนมาตรฐาน เท่ากับ 0.38 คะแนน

4.2 ผลการวิเคราะห์ข้อมูลเพื่อเปรียบเทียบผลสัมฤทธิ์การอ่านและการเขียนก่อนและหลังเรียน

ตารางที่ 2 แสดงการวิเคราะห์ข้อมูลเพื่อเปรียบเทียบผลสัมฤทธิ์การอ่านและการเขียนก่อนเรียนและหลังเรียน

ผลสัมฤทธิ์การอ่านและการเขียนภาษาไทย	คะแนนเต็ม	คะแนนก่อนเรียน		คะแนนหลังเรียน		t
		$\overline{X}$	S.D.	$\overline{X}$	S.D.	
1. ด้านความรู้ความจำ	5	3.22	.79	4.53	.62	10.06*
2. ด้านความเข้าใจ	5	3.41	1.07	4.25	.72	5.19*
3. ด้านการนำไปใช้	5	3.10	.78	3.94	.88	5.40*
4. ด้านการวิเคราะห์	5	2.63	.83	3.50	.80	7.50*
รวม	**20**	**12.40**	**3.47**	**16.22**	**3.02**	**13.88***

** มีนัยสำคัญทางสถิติที่ระดับที่ .01

จากตารางที่ 2 แสดงให้เห็นว่าภาพรวมของนักเรียนที่ได้รับการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” เพื่อพัฒนาทักษะการอ่านและการเขียนของนักเรียนชั้นประถมศึกษาปีที่ 5 ซึ่งมีผลสัมฤทธิ์การอ่านและการเขียนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .01 โดยมีคะแนนเฉลี่ยก่อนเรียนเท่ากับ 12.40 คะแนน และคะแนนหลังเรียนเท่ากับ 16.22 คะแนน จากคะแนนเต็ม 20 คะแนน

เมื่อเปรียบเทียบผลสัมฤทธิ์การอ่านและการเขียนรายด้าน ได้แก่ 1) ด้านความรู้-ความจำ 2) ด้านความเข้าใจ 3) ด้านการนำไปใช้และด้านการวิเคราะห์ โดยพิจารณาคะแนนเฉลี่ยหลังเรียน พบว่า นักเรียนมีผลสัมฤทธิ์การอ่านและการเขียนสูงสุดทางด้านความรู้-ความจำ มีคะแนนเฉลี่ย ($\overline{X}$) เท่ากับ 4.53 คะแนนและค่าเบี่ยงเบนมาตรฐาน S.D. เท่ากับ 0.62 รองลงมาในด้านความเข้าใจ มีคะแนนเฉลี่ย ($\overline{X}$) เท่ากับ 4.25 คะแนน และค่าเบี่ยงเบนมาตรฐาน S.D. เท่ากับ 0.72 ต่อมาในด้านการนำไปใช้ มีคะแนนเฉลี่ย ($\overline{X}$) เท่ากับ 3.94 คะแนน และค่าเบี่ยงเบนมาตรฐาน S.D. เท่ากับ 0.88 และมีคะแนนผลสัมฤทธิ์การอ่านและการเขียนสูงสุดทางด้านการวิเคราะห์ต่ำสุด มีคะแนนเฉลี่ย ($\overline{X}$) เท่ากับ 3.50 คะแนน และค่าเบี่ยงเบนมาตรฐาน S.D. เท่ากับ 0.80

ตารางที่ 3 แสดงการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนด้านการอ่านและการเขียนภาษาไทยก่อนเรียนและหลังเรียน

ผลสัมฤทธิ์ทางการเรียนด้านการอ่านและการเขียน	N	$\overline{X}$	S.D.	$\sum D$	$\sum D^2$	t	p
ก่อนเรียน	32	12.40	3.47	124	560	13.88*	.000*
หลังเรียน	32	16.22	3.02				

**มีนัยสำคัญทางสถิติที่ระดับ .01

จากตารางที่ 3 แสดงให้เห็นว่า นักเรียนชั้นประถมศึกษาศึกษาปีที่ 5/1 ได้รับการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” เพื่อพัฒนาทักษะการอ่านและการเขียน โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) มีผลสัมฤทธิ์การอ่านและการเขียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับที่ .01

4.3 ผลการวิเคราะห์ข้อมูลเพื่อประเมินความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 5

ตารางที่ 4 แสดงการศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 5

ข้อที่	รายการประเมิน	$\overline{X}$	S.D.	แปลผล
1. ด้านกระบวนการจัดการเรียนรู้				
1.	กิจกรรมเหมาะสมกับเรื่องที่เรียนและมีความน่าสนใจ	4.66	0.60	มากที่สุด
2.	กิจกรรมพัฒนาความสามารถด้านการเขียนตั้งแต่ง่ายไปสู่ยากตามลำดับ	4.75	0.44	มากที่สุด
3.	กิจกรรมกระตุ้นให้ผู้เรียนเกิดความคิดสร้างสรรค์ อย่างต่อเนื่อง	4.72	4.44	มากที่สุด
4.	ส่งเสริมให้ผู้เรียนพัฒนาความสามารถด้านการเขียนได้ดียิ่งขึ้น	4.64	0.53	มากที่สุด
รวม		4.64	0.53	มากที่สุด
2. ด้านกระบวนการกลุ่ม				
1.	มีโอกาสแลกเปลี่ยนเรียนรู้งานกับเพื่อนจนกระทั่งเกิดความรู้ที่คงทน	4.56	0.56	มากที่สุด
2.	มีส่วนร่วมในการอภิปรายและแสดงความคิดเห็น	4.75	0.44	มากที่สุด
3.	ผู้เรียนทราบจุดเด่นและข้อบกพร่องของตนเองอย่างต่อเนื่อง	4.44	0.67	มาก
4.	ได้รับข้อเสนอแนะจากเพื่อนและครูอย่างใกล้ชิด	4.63	0.55	มากที่สุด
รวม		4.59	0.56	มากที่สุด
3. ด้านบรรยากาศการเรียนรู้				
1.	ผู้เรียนมีความเพลิดเพลิน สนุกสนาน เกิดความตื่นตัวและกระตือรือร้นต่อการทำกิจกรรมอย่างต่อเนื่อง	4.56	0.56	มากที่สุด
2.	ผู้เรียนกล้าแสดงออก กล้าถ่ายทอดเรื่องราวต่าง ๆ ผ่านงานเขียนเชิงสร้างสรรค์	4.47	0.57	มาก
3.	ผู้เรียนเกิดความรู้สึกภูมิใจที่สามารถพัฒนาความสามารถด้านการเขียนเชิงสร้างสรรค์ได้สำเร็จตามศักยภาพ	4.69	0.47	มากที่สุด
4.	ผู้เรียนมีความพึงพอใจต่อกิจกรรมการพัฒนาความสามารถด้านการเขียนเชิงสร้างสรรค์	4.66	0.60	มากที่สุด
รวม		4.59	0.55	มากที่สุด
4. ด้านการวัดและประเมินผล				
1.	มีเกณฑ์การวัดที่แน่นอน	4.75	0.44	มากที่สุด
2.	เกณฑ์การพิจารณาอย่างชัดเจน	4.84	0.37	มากที่สุด
3.	เพื่อนช่วยพิจารณาผลงานตามเกณฑ์ที่วางไว้	4.63	0.55	มากที่สุด
4.	ได้รับประเมินจากครูตามเกณฑ์ที่ตั้งไว้	4.78	0.42	มากที่สุด
รวม		4.75	0.45	มากที่สุด
5. ด้านประโยชน์ที่ได้รับ				
1.	ได้ฝึกเขียนตามหลักการที่ได้เรียนรู้อย่างชัดเจน	4.75	0.44	มากที่สุด
2.	เรียนรู้กระบวนการทำงานกลุ่มได้ดียิ่งขึ้น	4.84	0.37	มากที่สุด
3.	ได้แก้ไขงานเขียนให้สมบูรณ์ก่อนส่งครู	4.63	0.55	มากที่สุด
4.	เขียนเรื่องตามจินตนาการได้ดียิ่งขึ้น	4.78	0.42	มากที่สุด
รวม		4.75	0.45	มากที่สุด
รวมทั้งหมด		4.67	0.51	มากที่สุด

จากตารางที่ 4 แสดงให้เห็นว่าในภาพรวมของนักเรียนที่ได้รับการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” มีความพึงพอใจอยู่ในระดับ มากที่สุด เมื่อเปรียบเทียบแต่ละด้านพบว่า นักเรียนมีความพึงพอใจอยู่ในระดับมากที่สุดในทุก ๆ ด้าน โดยคะแนน ด้านการวัดและประเมินผล และด้านประโยชน์ที่ได้รับ สูงสุด โดยมีคะแนนเฉลี่ย ($\overline{X}$) เท่ากับ 4.75 คะแนนและค่าเบี่ยงเบนมาตรฐาน เท่ากับ 0.42 เท่ากัน และคะแนนด้านที่มีความพึงพอใจอยู่ในระดับต่ำที่สุด คือ ด้านกระบวนการกลุ่ม โดยมีคะแนนเฉลี่ย ($\overline{X}$) เท่ากับ 4.59 คะแนนและค่าเบี่ยงเบนมาตรฐาน เท่ากับ 0.56 จะเห็นได้ว่าในภาพรวมนักเรียนมีความพึงพอใจอยู่ในระดับมากที่สุด

สรุปและอภิปรายผล

1. หนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” สำหรับการพัฒนาทักษะการอ่านและการเขียน ของนักเรียนชั้นประถมศึกษาปีที่ 5 ร่วมกับการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC มีค่าเฉลี่ย ($\overline{X}$) เท่ากับ 4.72 คะแนนและค่าเบี่ยงเบนมาตรฐาน เท่ากับ 0.38 คะแนน ทั้งนี้เป็นผลอันเนื่องมาจาก หนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” สำหรับการพัฒนาทักษะการอ่านและการเขียน ของนักเรียนชั้นประถมศึกษาปีที่ 5 ที่ผู้วิจัยสร้างและพัฒนาขึ้น มีการศึกษา ค้นคว้า ปรับปรุงและพัฒนาหนังสือส่งเสริมการอ่าน เพื่อพัฒนาทักษะการอ่านและการเขียนอย่างเป็นระบบ วางแผนการสร้างและลงมือจัดทำตามลำดับขั้นตอน ตั้งแต่ศึกษาหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 ศึกษาเนื้อหาสาระกลุ่มสาระการเรียนรู้ภาษาไทย ศึกษาเอกสาร ตำราและงานวิจัยที่เกี่ยวกับการจัดการเรียนรู้และเทคนิควิธีการสร้างหนังสือส่งเสริมการอ่านเพื่อพัฒนาทักษะ การอ่านและการเขียน จากนั้นจึงนำความรู้ที่ศึกษาค้นคว้ามาประมวลผลแล้ว สร้างหนังสือส่งเสริมการอ่านเพื่อพัฒนาทักษะการอ่านและการเขียนที่มีจุดมุ่งหมายชัดเจนว่าต้องการฝึกทักษะด้านใด ใช้ภาษาที่ง่าย มีคำชี้แจงที่สั้นเข้าใจง่าย เวลาที่ใช้ในการฝึกเหมาะสมกับวัย ตามรูปแบบขั้นตอนการสร้างหนังสือส่งเสริมการอ่านของ ฉวีวรรณ คูหาภินันท์ (2527) ซึ่งเสนอขั้นตอนในการสร้างหนังสือส่งเสริมการอ่านไว้ 7 ขั้นตอน เริ่มจากศึกษาความรู้เกี่ยวกับการสร้างหนังสือจากผลงานนักเขียนคนอื่น ๆ เลือกเนื้อหาที่มีความหลากหลาย วางแก่นโครงเรื่องให้ชัดเจน เขียนบท การทำดั่มมี่ จัดทำรูปเล่ม และการตั้งชื่อเรื่อง ปรับแก้ตามที่ผู้ทรงคุณวุฒิให้คำแนะนำ โดยมีจุดมุ่งหมายเพื่อส่งเสริมกระบวนการคิดอันเกิดจากการอ่านเนื้อหาประเภทต่าง ๆ โดยเนื้อหาของหนังสือส่งเสริมการอ่านเพื่อพัฒนาทักษะการอ่านและการเขียนแต่ละเรื่อง ซึ่งทำให้เห็นว่า การสร้างหนังสือส่งเสริมการอ่านตามขั้นตอนดังกล่าวทำให้ผู้วิจัยสามารถสร้างหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” สำหรับการพัฒนาทักษะการอ่านและ การเขียนได้ตามวัตถุประสงค์ที่ตั้งไว้ โดยเริ่มจากบทที่ 1 เรียนรู้ความเป็นมาเมืองหาดใหญ่ บทที่ 2 เรียนรู้อาหารพื้นถิ่น บทที่ 3 เรียนรู้แหล่งยอดนิยม บทที่ 4 เรียนรู้ความหลากศิลป์ และ บทที่ 5 เรียนรู้ถิ่นวัฒนธรรม ทำให้ผู้เรียนเกิดภาพจินตนาการที่แจ่มชัด สนุกกับการอ่าน อีกทั้งผู้วิจัยได้นำหนังสือส่งเสริมการอ่านเพื่อพัฒนาทักษะการอ่านและการเขียน ที่สร้างขึ้นเสนอต่อผู้ทรงคุณวุฒิ ดำเนินการปรับแก้ตามคำแนะนำของผู้ทรงคุณวุฒิ เมื่อได้หนังสืออ่านส่งเสริมการอ่านเพื่อพัฒนาทักษะการอ่านและการเขียน ที่มีประสิทธิภาพแล้วจึงนำไปใช้กับกลุ่มตัวอย่าง ได้แก่ นักเรียนชั้นประถมศึกษาปีที่ 5/1 โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์)

การจัดทำหนังสืออ่านส่งเสริมการอ่าน เพื่อพัฒนาทักษะการอ่านและการเขียน สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 ในครั้งนี้ ผู้วิจัยได้ศึกษางานวิจัยเพิ่มเติมที่สอดคล้องกับการสร้างหนังสือส่งเสริมการอ่านเกี่ยวกับท้องถิ่น จากงานวิจัยของ อรรถพร สารานพกุล (2557) ที่ได้วิจัยเรื่อง การสร้างหนังสือ

สารคดีท้องถิ่น ชุด “ท่องแดนสโตย” เพื่อพัฒนาทักษะการอ่านของนักเรียนชั้นมัธยมศึกษาปีที่ 4 ซึ่งมีคุณภาพระดับดีมาก และมีประสิทธิภาพเท่ากับ 83.11/86.38 สูงกว่าเกณฑ์ 80/80 ที่กำหนดไว้จากการศึกษาทำให้เห็นว่า การสร้างหนังสือสารคดีท้องถิ่นสำหรับนักเรียนชั้นมัธยมตอนปลายนั้น ยังสามารถออกแบบกิจกรรมการเรียนรู้สำหรับนักเรียนระดับชั้นประถมศึกษาปีที่ 5 ได้อีกด้วย โดยการปรับเนื้อหาและวิธีการให้สอดคล้องกับวัย และพัฒนาการทางด้านภาษาและความคิดของนักเรียนระดับชั้นประถมศึกษาปีที่ 5 เน้นความเข้าใจง่าย สนุกสนาน ให้ผู้เรียนมีนิสัยรักการอ่านเพื่อกระตุ้นความสนใจในการอ่านโดยการนำหนังสือส่งเสริมการอ่าน เชื่อมโยงกับบริบทท้องถิ่นที่อยู่ในชีวิตประจำวันของผู้เรียน เช่น เรื่องราวท้องถิ่น แต่ละเรื่องนำเสนอเนื้อหาใกล้ตัว เนื้อหาสั้นกระชับเพื่อให้ผู้เรียนอ่านเข้าใจง่าย เนื้อหามีความคิดสร้างสรรค์ เปิดโอกาสให้นักเรียนได้ใช้ความคิดวิเคราะห์ของตนเอง เพื่อนำมาพัฒนางานเขียนของตนเองต่อไปให้มากที่สุด ซึ่งทำให้ผู้วิจัยเห็นว่าแนวคิดดังกล่าว นำมาจัดทำหนังสือส่งเสริมการอ่านเพื่อพัฒนาทักษะการอ่านและการเขียนขึ้น เป็นจำนวน 1 เล่ม ประกอบด้วยเนื้อหาจำนวน 5 บท ได้แก่ บทที่ 1 เรียนรู้ความเป็นมาเมืองหาดใหญ่ บทที่ 2 เรียนรู้อาหารพื้นถิ่น บทที่ 3 เรียนรู้แหล่งยอดนิยม บทที่ 4 เรียนรู้ความหลากศิลป์ และบทที่ 5 เรียนรู้ถิ่นวัฒนธรรม ซึ่งผู้ทรงคุณวุฒิได้ตรวจสอบและให้ข้อพิจารณาไว้ว่า

1. ด้านเนื้อหาสาระ ผู้ทรงคุณวุฒิพิจารณาแล้วเห็นว่าเนื้อหามีความถูกต้อง เหมาะสม และสอดคล้องกับระดับวัยของนักเรียนชั้นประถมศึกษาปีที่ 5 ทั้งยังสามารถส่งเสริมการเรียนรู้เกี่ยวกับท้องถิ่นได้เป็นอย่างดี ทำให้ผู้เรียนได้รับข้อมูลที่มีคุณค่าและสามารถนำไปใช้ประโยชน์ได้จริง

2. ด้านการนำเสนอโครงเรื่อง โครงเรื่องมีการนำเสนออย่างเป็นลำดับขั้นตอน ชัดเจน และน่าสนใจ ทำให้นักเรียนสามารถทำความเข้าใจเนื้อหาได้ง่าย นอกจากนี้ยังช่วยกระตุ้นความสนใจของผู้เรียน ส่งเสริมให้เกิดการคิดวิเคราะห์และเชื่อมโยงเนื้อหาต่าง ๆ ได้อย่างมีประสิทธิภาพ

3. ด้านการใช้ภาษาและตัวอักษร การใช้ภาษามีความถูกต้องตามหลักไวยากรณ์ เหมาะสมกับระดับการเรียนรู้ของนักเรียน อีกทั้งยังมีความสละสลวยและอ่านเข้าใจง่าย ตัวอักษรมีขนาดเหมาะสม ชัดเจน และช่วยให้นักเรียนสามารถอ่านได้สะดวก

4. ด้านการจัดภาพและความสวยงาม การออกแบบภาพประกอบมีความสวยงาม ชัดเจน และเหมาะสมกับเนื้อหา โดยภาพที่ใช้สามารถช่วยเสริมสร้างความเข้าใจและจินตนาการของนักเรียน ทำให้การเรียนรู้มีความน่าสนใจและสนุกสนานมากยิ่งขึ้น

5. ด้านการจัดทำรูปเล่ม รูปเล่มมีความเป็นระเบียบเรียบร้อย มีโครงสร้างที่เหมาะสมต่อการใช้งาน วัสดุที่ใช้มีคุณภาพดี สามารถเปิดอ่านได้สะดวกและมีความทนทานเพียงพอสำหรับการใช้งานในระยะยาว

นอกจากนี้ ความหลากหลายของเนื้อหาแต่ละบทในหนังสือส่งเสริมการอ่าน เพื่อพัฒนาทักษะการอ่านและการเขียน ดังกล่าวข้างต้น เป็นเนื้อหาที่ผู้สอนคำนึงถึงสถานการณ์ที่เป็นจริงของนักเรียนว่า ในชีวิตประจำผู้ต้องเจอคำ ข้อความหรือเนื้อหาที่หลากหลายประเภท ดังนั้น การกำหนดเนื้อหาของหนังสือส่งเสริมการอ่านเพื่อพัฒนาทักษะการอ่านและการเขียน ทั้ง 5 บท ดังกล่าว จึงมีความแตกต่างกัน เมื่อนำมาเป็นสื่อนวัตกรรมจึงส่งผลให้ผู้เรียนไม่เบื่อหน่ายต่อการเรียน กระตือรือร้นต่อการฝึกฝนทักษะการอ่านและต่อยอดการเขียนเชิงสร้างสรรค์อย่างต่อเนื่องตั้งแต่บทที่ 1 จนกระทั่งถึง บทที่ 5 และเกิดความตระหนักว่า เป็นการเรียนรู้ที่ช่วยให้ผู้เรียนเกิดทักษะด้านการอ่านและการเขียนเชิงสร้างสรรค์ที่พัฒนาขึ้นอย่างต่อเนื่อง และเป็นเนื้อหาที่สามารถนำไปปรับใช้ในชีวิตประจำวันได้จริง

2. ผลการเปรียบเทียบผลสัมฤทธิ์ทางการเรียนด้านการอ่านและการเขียนระหว่างก่อนเรียนกับหลังเรียน ของนักเรียนชั้นประถมศึกษาปีที่ 5 ที่เรียนโดยใช้การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC

ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 เป็นไปตามสมมติฐานข้อ 2 ทั้งนี้เป็นผลเนื่องมาจาก

หนังสือภาพเรื่องราวท้องถิ่น ชุด รอบรู้เรื่อง เมืองหาดใหญ่ ที่ผู้วิจัยนำมาใช้ร่วมกับการจัดการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ให้แก่ นักเรียนชั้นประถมศึกษาปีที่ 5 โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) เป็นสื่อนวัตกรรมที่มีประสิทธิภาพ นอกจากนี้ หนังสือส่งเสริมการอ่านเพื่อพัฒนาทักษะการอ่านและการเขียนดังกล่าว ยังเป็นสื่อนวัตกรรมที่ผู้เรียนสามารถเรียนรู้ด้วยตนเอง สามารถกลับไปอ่านทบทวนและฝึกเขียนซ้ำ ๆ ได้ เมื่อยังเข้าใจเนื้อหาไม่ถ่องแท้ นอกจากนี้ การทบทวนหนังสือส่งเสริมการอ่านเพื่อพัฒนาทักษะการอ่านและการเขียนซ้ำ ๆ ส่งผลให้นักเรียนมีความรู้ความเข้าใจในเนื้อหาและกลวิธีการเขียนเชิงสร้างสรรค์ถ่องแท้ขึ้น เกิดองค์ความรู้ที่คงทนและเพิ่มความชำนาญให้แก่นักเรียนด้านการอ่านและการเขียน

นอกจากนี้ ผู้วิจัยทำความเข้าใจในแนวคิดการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC เป็นอย่างดี นำไปสู่การวางแผนการจัดกิจกรรมการเรียนรู้ที่สอดคล้องและเหมาะสมกับวัย เมื่อผู้เรียนได้เรียนโดยใช้กิจกรรมการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC จากการอ่านหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” สู่การเขียนเชิงสร้างสรรค์ได้ ผู้เรียนสามารถอ่านจับใจความสำคัญและมีกระบวนการเขียนที่หลากหลายที่จะนำไปสู่การเขียนเชิงสร้างสรรค์ จากการทำกิจกรรมรวมกลุ่มกัน ซึ่งสอดคล้องกับแนวคิดของ Slavin, R. E. (1995) ที่ระบุว่า เทคนิค CIRC ที่แบ่งกลุ่มผู้เรียนตามระดับความสามารถ ในกลุ่มจะประกอบด้วยผู้เรียนที่มีความสามารถแตกต่างกันกัน คือ เก่ง ปานกลาง อ่อน กลุ่มละ 6-7 คน กิจกรรมมีการฝึกการทำงานร่วมกันเป็นทีม ฝึกเป็นรายบุคคล มีการประเมินผลโดยเพื่อน มีการจัดระบบการให้รางวัลแก่ทีมที่ทำกิจกรรมได้บรรลุตามเป้าหมาย ซึ่งเทคนิค CIRC จะช่วยส่งเสริมการจำและการเข้าใจเนื้อหาได้ดี เนื่องจากผู้เรียนมีการได้แลกเปลี่ยนความคิดเห็น ฝึกฝน และทบทวนความรู้ร่วมกัน โดยมีคุณครูผู้สอนคอยให้คำแนะนำและกำลังใจ การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” ส่งผลให้ผลสัมฤทธิ์ทางการอ่านและการเขียนของนักเรียนชั้นประถมศึกษาปีที่ 5 สูงขึ้นอย่างมีนัยสำคัญทางสถิติที่ระดับ .01 กระบวนการเรียนการสอนภาษาไทยเพื่อเพิ่มประสิทธิภาพการเรียนรู้ของผู้เรียนให้ดียิ่งขึ้น สอดคล้องกับงานวิจัยของจารุวรรณ สังฆะจารย์ (2565) ได้ศึกษาค้นคว้า เรื่อง การจัดกิจกรรมการเรียนรู้แบบร่วมมือเทคนิค CIRC เพื่อส่งเสริมความสามารถในการเขียนเชิงสร้างสรรค์ของนักเรียนชั้นประถมศึกษาปีที่ 5 พบว่า ความสามารถในการเขียนเชิงสร้างสรรค์หลังจัดกิจกรรมการเรียนรู้แบบร่วมมือเทคนิค CIRC สูงกว่าก่อนการจัดกิจกรรมการเรียนรู้แบบร่วมมือเทคนิค CIRC อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และมีผลสัมฤทธิ์ทางการเรียนด้านการเขียนเชิงสร้างสรรค์หลังจัดกิจกรรมการเรียนรู้แบบร่วมมือเทคนิค CIRC สูงกว่าก่อนการจัดกิจกรรมการเรียนรู้แบบร่วมมือเทคนิค CIRC อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และงานวิจัยของสุภาพร มีอาษา (2560) ได้ศึกษาค้นคว้า เรื่อง การพัฒนากิจกรรมการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC เพื่อส่งเสริมความสามารถในการอ่านและการเขียนภาษาไทย สำหรับนักเรียนชั้นประถมศึกษาปีที่ 3 พบว่า นักเรียนมีความสามารถในการอ่านภาษาไทย หลังเรียนด้วยกิจกรรมการเรียนรู้สูงกว่าก่อนเรียนอย่างมีนัยยะสำคัญทางสถิติที่ระดับ .01 และนักเรียนมีความสามารถในการเขียนภาษาไทยหลังเรียนด้วยกิจกรรมการเรียนรู้สูงกว่าก่อนเรียนอย่างมีนัยยะสำคัญทางสถิติที่ระดับ .01 จากเหตุผลดังกล่าวข้างต้น จึงอาจเป็นสาเหตุสำคัญที่ทำให้ผลสัมฤทธิ์ทางการเรียนด้านการอ่านและการเขียนของนักเรียนชั้นประถมศึกษาปีที่ 5 ที่เรียนโดยใช้การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” หลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01

3. ผลการวิเคราะห์หาค่าความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 5 ที่มีต่อการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่”

ผู้วิจัยได้ ศึกษาความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 5/1 โรงเรียนเทศบาล 3 (โศภนพิทยาคุณานุสรณ์) จำนวน 32 คน พบว่า ความพึงพอใจของนักเรียนชั้นประถมศึกษาปีที่ 5 ที่มีต่อการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” ในภาพรวม ทั้ง 5 ด้าน อยู่ในระดับพึงพอใจมากที่สุด เมื่อเปรียบเทียบแต่ละด้านพบว่า นักเรียนมีความพึงพอใจอยู่ในระดับมากที่สุดในทุก ๆ ด้าน โดยคะแนน ด้านการวัดและประเมินผล และด้านประโยชน์ที่ได้รับ สูงสุด โดยมีคะแนนเฉลี่ย ($\overline{X}$) เท่ากับ 4.75 คะแนนและค่าเบี่ยงเบนมาตรฐาน เท่ากับ 0.42 เท่ากัน และคะแนนด้านที่มีความพึงพอใจอยู่ในระดับต่ำที่สุด คือ ด้านกระบวนการกลุ่ม โดยมีคะแนนเฉลี่ย ($\overline{X}$) เท่ากับ 4.59 คะแนนและค่าเบี่ยงเบนมาตรฐาน เท่ากับ 0.56 ทั้งนี้เป็นผลอันเนื่องมาจากกระบวนการเรียนรู้ที่นำมาใช้นั้น สามารถตอบสนองความต้องการของผู้เรียนได้เป็นอย่างดี เมื่อพิจารณาในแต่ละด้าน พบว่า ด้านการวัดและประเมินผล และด้านประโยชน์ที่ได้รับ ได้รับคะแนนความพึงพอใจสูงสุด ซึ่งอาจเป็นเพราะการวัดและประเมินผลที่ใช้ในกระบวนการเรียนรู้แบบร่วมมือเทคนิค CIRC มีความหลากหลายและชัดเจน ทำให้ผู้เรียนสามารถรับรู้ถึงความก้าวหน้าของตนเองได้ง่ายขึ้น นอกจากนี้ การใช้หนังสือภาพเรื่องราวท้องถิ่นช่วยทำให้เนื้อหามีความเชื่อมโยงกับชีวิตประจำวันของผู้เรียน ส่งผลให้ผู้เรียนมองว่าการเรียนรู้มีประโยชน์และนำไปใช้ได้จริง ในขณะที่ ด้านกระบวนการกลุ่ม ได้รับคะแนนความพึงพอใจต่ำที่สุด อาจเป็นไปได้ว่า ผู้เรียนบางส่วนยังคงปรับตัวกับการทำงานเป็นกลุ่ม หรือพบปัญหาในการร่วมมือกันระหว่างสมาชิกกลุ่ม ซึ่งคะแนนในระดับสูงแสดงให้เห็นว่ากระบวนการกลุ่มที่ใช้ในเทคนิค CIRC ยังสามารถส่งเสริมการเรียนรู้แบบร่วมมือได้ดี ซึ่งสอดคล้องกับ อาภรณ์ ใจเที่ยง (2553) ที่ได้กล่าวถึงหลักการในการจัดการเรียนการสอนไว้ว่า ในการจัดการเรียนการสอนนั้นผู้สอนควรจัดกิจกรรมให้สอดคล้องและเหมาะสมกับวัย ความสามารถ ความสนใจของผู้เรียน เช่น นักเรียนชั้นประถมศึกษาชอบเรียนปนเล่น ผู้สอนจึงควรจัดกิจกรรมให้ผู้เรียนได้แสดงความสามารถได้แข่งขัน ได้เล่นเกม ได้ร้องเพลง ให้ได้แสดงออกตามวัย ผู้เรียนจะเรียนด้วยความสนุกสาน เพลิดเพลิน ดีกว่าที่จะนั่งฟังครูอธิบายเพียงอย่างเดียว ผลการวิจัยโดยภาพรวมนี้สะท้อนให้เห็นว่า การจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น เรื่อง “รอบรู้เรื่อง เมืองหาดใหญ่” เป็นแนวทางที่สามารถส่งเสริมการเรียนรู้การอ่านจับใจความและการเขียนเชิงสร้างสรรค์สูงขึ้นได้ อีกทั้งช่วยสร้างประสบการณ์ที่ดีให้กับผู้เรียน ผู้เรียนสามารถนำความรู้ที่ได้จากการอ่านหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” มาประยุกต์ใช้ในชีวิตประจำวันและสนุกสาน เพลิดเพลินกับการเรียนวิชาภาษาไทยมากยิ่งขึ้น

ข้อเสนอแนะ

1. ก่อนทำการสอนในชั่วโมงแรก ครูควรทำความเข้าใจวิธีการเรียนโดยการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ร่วมกับหนังสือภาพเรื่องราวท้องถิ่น ชุด รอบรู้เรื่อง เมืองหาดใหญ่ กับผู้เรียนให้ชัดเจน ควรให้ผู้เรียนทำความเข้าใจเกี่ยวกับหนังสือภาพเรื่องราวท้องถิ่น ชุด “รอบรู้เรื่อง เมืองหาดใหญ่” ว่ามีเนื้อหาหลัก ๆ มีกี่บท อะไรบ้าง อีกทั้งควรอธิบายเพิ่มเติมให้เข้าใจถึงขั้นตอนในการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค CIRC ในแต่ละครั้ง ซึ่งจะทำให้การเรียนคาบแรกและคาบต่อ ๆ ไปประสบปัญหาน้อยที่สุด

2. ผู้สอนควรจัดกิจกรรมการเรียนรู้ให้เหมาะสมกับเวลา เนื่องจากกระบวนการเรียนรู้แบบร่วมมือเป็นกระบวนกลุ่มที่ต้องใช้เวลาอย่างต่อเนื่อง เวลาในคาบเรียนอาจไม่เพียงพอ จึงควรให้นักเรียนสามารถไปดำเนินการต่อนอกเวลาได้

3. ผู้สอนต้องประเมินและแจ้งผลการปฏิบัติกิจกรรม ตลอดจนให้คำแนะนำข้อสังเกตที่เป็นประโยชน์ต่อผู้เรียนทุกครั้ง ทั้งนี้เพื่อเป็นข้อมูลให้ผู้เรียนได้มีการปรับปรุง พัฒนาและแก้ไขจุดบกพร่องของตนเองต่อไป

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2551). หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพฯ : ชุมนุมสหกรณ์การเกษตรแห่งประเทศไทย.

จารุวรรณ สังฆะจารย์. (2565). การจัดกิจกรรมการเรียนรู้แบบร่วมมือเทคนิค CIRC เพื่อส่งเสริมความสามารถในการเขียนเชิงสร้างสรรค์ ของนักเรียนชั้นประถมศึกษาปีที่ 5 (ปริญญาการศึกษามหาบัณฑิต). มหาวิทยาลัยราชภัฏมหาสารคาม, มหาสารคาม.

ฉวีวรรณ คูหาภินันท์. (2527). วรรณกรรมสำหรับเด็ก. กรุงเทพฯ : บูรพาสาส์น.

บุญชม ศรีสะอาด. (2545). การวิจัยเบื้องต้น (พิมพ์ครั้งที่ 7). กรุงเทพฯ : สุรีวิริยาสาสน์

ปราสาท สอนรมย์. (2546). การจัดการเรียนรู้แบบโครงงาน. ขอนแก่น : มหาวิทยาลัยขอนแก่น.

สุภาพร มีอาษา. (2560). การพัฒนากิจกรรมการเรียนรู้แบบร่วมมือ ด้วยเทคนิค CIRC เพื่อส่งเสริมความสามารถในการอ่านและการเขียนภาษาไทยสำหรับนักเรียนชั้นประถมศึกษาปีที่ 3 (การค้นคว้าอิสระการศึกษามหาบัณฑิต). มหาวิทยาลัยนเรศวร, พิษณุโลก.

อรรถพร สารานพกุล. (2557). การสร้างหนังสือสารคดีท้องถิ่น ชุด “ท่องแดนสโตย” เพื่อพัฒนาทักษะการอ่านของนักเรียนชั้นมัธยมศึกษาปีที่ 4 (ปริญญานิพนธ์การศึกษามหาบัณฑิต). มหาวิทยาลัยทักษิณ, สงขลา.

อาภรณ์ ใจเที่ยง. (2553). หลักการสอน (พิมพ์ครั้งที่ 5). กรุงเทพฯ : โอเดียนสโตร์.

Slavin, R. E. (1995). Cooperative learning: Theory, research and practice (2nd ed.). Boston, MA: Allyn & Bacon.

แรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

Motivation for the Performance of Primary School Teachers in Hat Yai Songkhla Primary Educational Service Area Office 2

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อ 1) ศึกษาระดับแรงจูงใจในการปฏิบัติงานของครู และ 2) เปรียบเทียบแรงจูงใจในการปฏิบัติงานของครู จำแนกตามเพศ ประสบการณ์ทำงาน และขนาดของโรงเรียน กลุ่มตัวอย่าง ได้แก่ ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 กำหนดขนาดกลุ่มตัวอย่างโดยใช้ตารางสำเร็จรูปของเครจซี่และมอร์แกน ได้กลุ่มตัวอย่าง จำนวน 217 คน และสุ่มอย่างง่ายโดยการจับสลากแบบไม่ใส่คืน เครื่องมือที่ใช้ในการวิจัย ได้แก่ แบบสอบถามที่ผู้วิจัยสร้างขึ้นหาค่าความตรงเชิงเนื้อหาโดยค่าดัชนีความสอดคล้องระหว่างข้อคำถามกับวัตถุประสงค์ ได้ค่าระหว่าง .67 - 1.00 และหาค่าความเชื่อมั่นโดยการหาค่าสัมประสิทธิแอลฟ่าของครอนบาค ได้เท่ากับ .938 สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ความถี่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน การทดสอบค่าทีอิสระ และการทดสอบค่าเอฟ

ผลการวิจัยพบว่า 1) ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 มีแรงจูงใจในการปฏิบัติงานในภาพรวมและรายด้าน อยู่ในระดับมาก

2) ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ที่มีเพศ ประสบการณ์ทำงาน และขนาดสถานศึกษา ต่างกัน มีแรงจูงใจในการปฏิบัติงานในภาพรวมไม่ต่างกัน เมื่อพิจารณาเป็นรายด้าน พบว่า ครูที่มีประสบการณ์ทำงานต่างกัน มีแรงจูงใจในการปฏิบัติงาน ด้านเงินเดือนค่าตอบแทนและสวัสดิการ แตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

คำสำคัญ: แรงจูงใจในการปฏิบัติงาน, ครู

Abstract

This research was aimed to (1) examine the work motivation level of Teachers in Schools and (2) compare of Teachers in Schools classified by genders, work experiences and school size. The sample group, included teachers, was determined using the ready-

made table of Krejcie & Morgan, the sample of 217 teachers will be selected as a sample random sampling group by non-return lottery. The questionnaire, made by authors from the review literature. The content accuracy was determined by the consistency index between the question and the objective, which were 0.67 – 1.00, and the confidence value was determined by finding the Alpha coefficient of Kronbach equal to .938 and statistics consisting of the frequency, percentage, mean, standard deviation, independent t-test and F-test.

The results are show that 1) The overall level of the work motivation of Primary School Teachers in Hat Yai Songkhla Primary Educational Service Area Office 2, overview and aspects was high. and 2) Primary School Teachers in Hat Yai Songkhla Primary Educational Service Area Office 2., with different genders, work experiences and school size were not significantly different.

Keywords: Motivation for Work Performance, Teacher

บทนำ

ปัจจุบันประเทศไทยได้เผชิญกับการเปลี่ยนแปลงของกระแสสังคมโลกมากขึ้นในหลาย ๆ ด้าน ทั้งมิติของการเปลี่ยนแปลงทางเศรษฐกิจ สังคม การเมือง วัฒนธรรม วิทยาศาสตร์และเทคโนโลยีได้ส่งผลกระทบต่อคนไทยหลายประการตลอดจนการปฏิรูประบบการบริหารการศึกษาและการจัดการศึกษา ที่ใช้ระบบการกระจายอำนาจไปสู่โรงเรียนมากขึ้น และปัจจัยที่จะทำให้โรงเรียนไปสู่ความสำเร็จได้หรือไม่ขึ้นอยู่กับผู้บริหารสถานศึกษาเพียงคนเดียว ทุกฝ่ายที่เกี่ยวข้องจะต้องให้ความร่วมมือในการจัดการศึกษา ทั้งผู้บริหารสถานศึกษา คณะกรรมการสถานศึกษา ครู ผู้ปกครอง นักเรียน ชุมชม และหน่วยงานที่เกี่ยวข้องจะต้องร่วมคิด ร่วมทำ ร่วมแก้ไข และร่วมชื่นชมในความสำเร็จนั้น ๆ สถานศึกษาจึงเป็นองค์กรหนึ่งที่มีความสำคัญยิ่งในสังคม มีส่วนในการผลักดันชาติให้ก้าวหน้า โดยเป้าหมายหลักของสถานศึกษา คือ การพัฒนานักเรียนให้มีคุณภาพและคุณลักษณะที่พึงประสงค์ตามจุดมุ่งหมายของหลักสูตร และบุคคลที่มีอิทธิพลโดยตรงต่อการพัฒนาคุณภาพนักเรียน คือ ครูผู้สอน ครูจึงเป็นส่วนสำคัญของการพัฒนาคุณภาพการจัดการเรียนการสอน การพัฒนาคุณภาพและประสิทธิภาพในการปฏิบัติของครูในสถานศึกษาให้สามารถจัดการเรียนการสอนได้สอดคล้องกับพระราชบัญญัติการศึกษาแห่งชาติ พ.ศ. 2542 จำเป็นต้องมีการดูแลเอาใจใส่ สร้างแรงจูงใจให้เกิดกำลังใจพร้อมที่จะปฏิบัติงานอย่างดีและมีคุณภาพด้วย มิฉะนั้นอาจจะทำให้คุณภาพและประสิทธิภาพในการจัดการเรียนการสอนเกิดความสูญเปล่าได้ เพราะครูเป็นผู้นำนโยบายและหลักสูตรไปปฏิบัติ ซึ่งการที่ครูจะปฏิบัติได้ผลดีมากน้อยเพียงใด ปัจจัยที่สำคัญ คือ ขวัญกำลังใจและแรงจูงใจที่ดีของครู เป็นปัจจัยเกื้อหนุนที่ส่งผลไปถึงประสิทธิภาพของโรงเรียน บุคลากรในสถานศึกษาจึงเป็นทรัพยากรมนุษย์ที่มีความสำคัญเป็นอย่างยิ่งต่อความสำเร็จของสถานศึกษา ทั้งนี้เพราะการที่สถานศึกษาหนึ่ง ๆ จะบรรลุถึงเป้าหมายได้สำเร็จนั้นจะต้องอาศัยบุคลากรที่มีสมรรถนะที่เหมาะสมกับวิสัยทัศน์ พันธกิจและเป้าหมายของสถานศึกษา (อนันต์ธนา สามพุ่มพวง, 2558)

แรงจูงใจจึงเป็นปัจจัยหนึ่งที่มีความสำคัญและส่งเสริมการปฏิบัติงานของครู ซึ่งส่งผลต่อประสิทธิภาพการจัดการเรียนการสอน คุณสมบัติอันสำคัญของผู้เป็นหัวหน้าหรือผู้บริหาร คือ ความสามารถ ที่จะให้คนทำงานด้วยความยินดี ไม่ใช่การบังคับให้คนทำด้วยความจำใจ อีกประการหนึ่ง

หัวหน้าที่ดีนั้นไม่ใช่แต่เป็นผู้สามารถจะทำงานทุกอย่างได้ด้วยตนเองเท่านั้น ยังต้องเป็นผู้สามารถทำให้คนในความควบคุมของตนทำงานด้วยความยินดีด้วย ซึ่งปัจจุบันนับได้ว่าความสำเร็จขององค์การนั้นจะขึ้นอยู่กับความสามารถของการจัดการในการที่จะโน้มน้าวจิตใจพนักงานทั้งในหน่วยงานและในองค์การทั้งหมดให้ทุ่มเทกำลังกาย กำลังใจ พลังความรู้ ความสามารถในการปฏิบัติงานในแนวทางที่สอดคล้องกับเป้าหมายและวัตถุประสงค์ขององค์การ ดังนั้น การจูงใจจึงเป็นเรื่องสำคัญเรื่องหนึ่งที่มีผลต่อพฤติกรรมของบุคคลในองค์ (สุมัธนา สร้อยสน, 2558)

สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ประกอบไปด้วย อำเภอ 5 อำเภอ คือ อำเภอหาดใหญ่ อำเภอรัตภูมิ อำเภอควนเนียง อำเภอบางกล่ำ อำเภอคลองหอยโข่ง มีโรงเรียนในสังกัด 125 โรงเรียน มีนักเรียนทั้งหมด 23,172 คน มีครูและบุคลากรทั้งหมด 1,389 คน ครอบคลุม 5 อำเภอในจังหวัดสงขลา คือ อำเภอหาดใหญ่ อำเภอคลองหอยโข่ง อำเภอรัตภูมิ อำเภอควนเนียง และอำเภอบางกล่ำ โดยอำเภอหาดใหญ่เป็นเมืองใหญ่ที่สุดในภาคใต้ และเป็นเมืองที่มีชื่อเสียงในการท่องเที่ยว เป็นศูนย์รวมของสินค้าและบริการหลักในภาคใต้ ประกอบด้วยองค์กรปกครองส่วนท้องถิ่น 15 แห่ง มีโรงเรียนในระดับประถมศึกษา จำนวน 49 โรงเรียน เป็นโรงเรียนขนาดเล็ก 16 โรงเรียน โรงเรียนขนาดกลาง 31 โรงเรียน และโรงเรียนขนาดใหญ่ 2 โรงเรียน มีข้าราชการครูและบุคลากรทางการศึกษา 543 คน ซึ่งสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 มีวิสัยทัศน์ในการในการบริหารงานคือ “เป็นองค์กรชั้นนำในการจัดการศึกษาที่มีคุณภาพ สอดคล้องกับหลักปรัชญาของเศรษฐกิจพอเพียงทันต่อการเปลี่ยนแปลงของโลก” มีหน้าที่ในการส่งเสริม สนับสนุน การจัดการศึกษาขั้นพื้นฐานในเขตพื้นที่ให้ทั่วถึงและมีคุณภาพ โดยนำยุทธศาสตร์กลยุทธ์ ตัวชี้วัด ของกระทรวงศึกษาธิการ สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน และแผนพัฒนาการศึกษาขั้นพื้นฐาน แผนปฏิบัติการประจำปีงบประมาณ พ.ศ.2566 ของสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 มาเป็นกรอบทิศทางในการขับเคลื่อนนโยบายสู่การปฏิบัติ จากรายงานผลการจัดการศึกษา ประจำปีงบประมาณ พ.ศ.2566 มีการจัดโครงการยกระดับผลสัมฤทธิ์ทางการเรียน ตามกลยุทธ์ที่ 1 ยกระดับคุณภาพการศึกษาให้สอดคล้องกับการเปลี่ยนแปลงในศตวรรษที่ 21 โดยการพัฒนาผู้บริหาร ครูและบุคลากรทางการศึกษา อบรมครูผู้สอนกลุ่มสาระการเรียนรู้ภาษาไทย คณิตศาสตร์ วิทยาศาสตร์และภาษาอังกฤษ ระดับชั้นประถมศึกษาปีที่ 6 ให้มีความรู้ความเข้าใจ มีทักษะการจัดการเรียนรู้และพัฒนาผลการทดสอบ (O-NET) ส่งผลให้โรงเรียนในสังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 มีผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐาน (O-NET) เฉลี่ยสูงกว่าปีที่ผ่านมา ร้อยละ 64.23 จากข้อมูลข้างต้นเป็นตัวบ่งชี้ที่แสดงให้เห็นว่าครูมีอิทธิพลต่อการพัฒนาศักยภาพของนักเรียนโดยตรง ทั้งนี้ หากครูได้รับการพัฒนา มีแรงจูงใจในการปฏิบัติงาน สามารถปฏิบัติงานได้อย่างมีความสุขและปฏิบัติงานอย่างทุ่มเทแรงกายแรงใจ ส่งผลต่อการพัฒนาคุณภาพการศึกษา และในทางกลับกัน ถ้าครูขาดแรงจูงใจในการปฏิบัติงาน ครูรู้สึกท้อแท้ ครูไม่มีกำลังใจในการทำงาน ส่งผลต่อการปฏิบัติงาน งานขาดประสิทธิภาพ มีผลทางลบต่อนักเรียนและครูบางคน อาจทำให้ครูตัดสินใจย้ายโรงเรียนหรือลาออกก่อนเกษียณอายุราชการ (สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2, 2564)

จากความเป็นมาและความสำคัญดังกล่าว ทำให้ผู้วิจัยสนใจและต้องการศึกษาแรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 เพื่อเป็นข้อมูลสารสนเทศที่สำคัญ และเป็นแนวทางให้แก่ผู้บริหารของสำนักงานเขตพื้นที่

การศึกษาประถมศึกษาสงขลา เขต 2 ในการกำหนดนโยบายและแผนงานต่าง ๆ ในการปฏิบัติงานของครูในโรงเรียน ให้เกิดประสิทธิภาพและประสิทธิผลในการปฏิบัติงานของข้าราชการครูต่อไป

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาแรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2
2. เพื่อเปรียบเทียบแรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 จำแนกตามเพศ ประสบการณ์ทำงาน และขนาดของโรงเรียน

แนวคิด ทฤษฎี กรอบแนวคิด

แรงจูงใจในการปฏิบัติงาน หมายถึง แรงกระตุ้นที่ทำให้บุคคลแสดงพฤติกรรมเพื่อให้บรรลุเป้าหมายที่บุคคลนั้นต้องการ เป็นปัจจัยภายใน (ความต้องการภายใน) ของบุคคลที่มีอิทธิพล ต้องการสร้างความพอใจในการทำงาน (Job Satisfiers) ซึ่งเป็นปัจจัยที่เป็นตัวกระตุ้นที่จะนำมาใช้จูงใจให้คนปฏิบัติงานดีขึ้น (นัฏจรี เจริญสุข, 2561) โดยประกอบไปด้วย

แรงจูงใจด้านงานที่ทำในปัจจุบัน

การจูงใจเป็นเครื่องมือสำคัญอย่างหนึ่งของการบริหารงาน ทั้งนี้เพื่อเพิ่มพูนผลการปฏิบัติงานการผลิตและอื่น ๆ ซึ่งจะนำไปสู่ความสัมฤทธิ์ผลของงานและของคน การจูงใจมีความสำคัญต่อการปฏิบัติงาน ดังต่อไปนี้

1. การจูงใจทำให้เกิดความพึงพอใจในการทำงาน เป็นการกระตุ้นให้บุคคลเกิดการกระทำหรือมีการเปลี่ยนแปลงพฤติกรรม โดยนำเอาสิ่งเร้าที่บุคคลนั้นพึงพอใจมาเร้าหรือกระตุ้นให้เกิดแรงขับเพื่อบรรลุเป้าหมาย ซึ่งจะช่วยให้บุคคลนั้นเกิดความพึงพอใจ เช่น พนักงานที่ทำงานในโรงงานอุตสาหกรรม หากเขาบรรลุเป้าหมายการทำงาน มีคนมาชมผลงานของเขา หรือให้เขาได้ทำงานที่ถนัด พนักงานเหล่านั้นยอมมีความพึงพอใจในการทำงาน เป็นต้น
2. การจูงใจเป็นการเพิ่มพูนผลผลิตและผลงานขององค์กร ในหน่วยงานใดก็ตาม ถ้าใช้หลักการและเทคนิคการจูงใจเข้าช่วยในการบริหารงานแล้วย่อมเป็นการเพิ่มพูนผลงานของพนักงาน และผลผลิตขององค์กร ทั้งนี้เพราะพนักงานหรือผู้ถูกจูงใจจะขยันทำงานมากยิ่งขึ้น
3. การจูงใจเป็นการเพิ่มประสิทธิภาพการประเมินผลการปฏิบัติงาน การที่หัวหน้างาน ใช้เทคนิคการจูงใจพนักงานนั้น จำเป็นต้องทราบก่อนว่างานหรือผลงานของพนักงานที่รับผิดชอบอยู่นั้นใช้เทคนิคการจูงใจต่าง ๆ หัวหน้างานต้องทราบเรื่องของการประเมินผลการติดตามผลก่อน การประเมินล่วงหน้าก่อนการจูงใจเป็นการเพิ่มประสิทธิภาพของการประเมินผลด้วยวิธีการที่จะทราบผลการปฏิบัติงานนั้นมีหลายวิธี เช่น การสังเกต การรายงานหัวหน้าระดับเหนือขึ้นมา การใช้แบบฟอร์มการประเมินผลเป็นรายเดือนหรือรายปี เป็นต้น
4. การจูงใจเป็นเครื่องมือในการแก้ปัญหา การที่หัวหน้าให้เกียรติลูกน้องที่เกี่ยวข้องกับปัญหาได้มีโอกาสร่วมมือร่วมคิดในการแก้ปัญหาที่เกิดขึ้น ซึ่งจะช่วยให้สามารถแก้ไขปัญหาต่าง ๆ ได้โดยไม่ยากนัก ความร่วมมือร่วมใจในการทำงานของลูกน้องจึงมีมากขึ้น การให้ผู้ร่วมงานได้แสดงความคิดเห็นที่เป็นประโยชน์ การพูดชมเชยให้ผู้อื่นฟัง จัดได้ว่าเป็นการจูงใจแบบเสริมแรงซึ่งจะช่วยให้ผู้ร่วมงานทุ่มเททั้งกาย

และใจในการช่วยเหลือกันแก้ไขปัญหา หรือช่วยกันขจัดปัญหาต่าง ๆ ไม่ว่าจะเป็นปัญหาของหัวหน้าหรือปัญหาของผู้ร่วมงานด้วยกัน

จากที่กล่าวมาจึงพอสรุปได้ว่า แรงจูงใจด้านงานที่ทำในปัจจุบัน หมายถึง แรงกระตุ้นทำให้ผู้ปฏิบัติงาน เกิดความรู้สึกหรือทัศนคติที่ดีต่อการปฏิบัติงานที่ได้รับมอบหมายจากผู้บริหารสถานศึกษา ประกอบด้วย 2 ลักษณะ คือ งานสอนและงานพิเศษอื่น ๆ ที่โรงเรียนแต่งตั้งให้รับผิดชอบนอกเหนือจากงานสอน ลักษณะของงานที่ทำต้องตรงกับความสามารถ ความสนใจ และความถนัด มีสิ่งอำนวยความสะดวกในการทำงานที่ดีมีมาตรฐาน และผู้ปฏิบัติงานรู้สึกว่าเป็นงานที่ดี มีเกียรติจึงจะเป็นปัจจัยให้เกิดแรงจูงใจในการปฏิบัติงาน

แรงจูงใจด้านเงินเดือนค่าตอบแทนและสวัสดิการ

องค์ประกอบที่ทำให้เกิดแรงจูงใจในการปฏิบัติงานของครู การได้รับเงินเดือน ค่าตอบแทนและสวัสดิการต่าง ๆ จะส่งผลให้เกิดแรงจูงใจ นอกจากนี้ความก้าวหน้าในหน้าที่การงานทำให้ครูได้รับค่าตอบแทนเพิ่มขึ้น เช่น ค่าตอบแทนพิเศษ เงินวิทยฐานะ เงินรางวัล หรือสวัสดิการในรูปแบบ ต่าง ๆ จะก่อให้เกิดแรงจูงใจในการปฏิบัติงาน

ค่าตอบแทน (Compensation) คือ ค่าใช้จ่ายต่าง ๆ ที่องค์การจ่ายให้แก่ผู้ปฏิบัติงาน ค่าใช้จ่ายนี้อาจจ่ายในรูปตัวเงินหรือมิใช่ตัวเงินก็ได้ เพื่อตอบแทนการปฏิบัติงานตามหน้าที่ความรับผิดชอบ จูงใจให้มีการปฏิบัติงานอย่างมีประสิทธิภาพส่งเสริมขวัญกำลังใจของผู้ปฏิบัติงาน และเสริมสร้างฐานะความเป็นอยู่ของครอบครัวผู้ปฏิบัติงานให้ดีขึ้น ค่าตอบแทนมีความสำคัญอย่างมากในการเป็นเครื่องมือที่ช่วยในการจัดการผลการปฏิบัติงานของพนักงาน โดยระบบการจ่ายค่าตอบแทนได้ มีการพัฒนาอยู่เสมอ เพื่อให้โครงสร้างของค่าตอบแทนมีความเหมาะสมกับองค์การ ซึ่งจะเป็นส่วนช่วยให้การดำเนินกลยุทธ์ขององค์การประสบความสำเร็จ

วาสนา ม่วงแนม (2560) ได้กล่าวว่า การได้รับค่าตอบแทนที่ยุติธรรมสอดคล้องเหมาะสมกับความสามารถ ทั้งนี้ ความพึงพอใจไม่ได้ขึ้นอยู่กับปริมาณหรือจำนวนเงินที่ได้รับเท่านั้น แต่ขึ้นอยู่กับความรู้สึกหรือการรับรู้ว่ายุติธรรมด้วย ซึ่งรวมถึงโอกาสความก้าวหน้าในงาน และได้รับการพัฒนาให้เติบโตในงานสภาพแวดล้อมที่สนับสนุนในการทำงาน เกี่ยวข้องกับสิ่งแวดล้อมทางกายภาพที่อำนวยความสะดวกให้แก่ผู้ปฏิบัติงาน และช่วยให้การทำงานมีประสิทธิภาพ ดังเช่น เรื่องความปลอดภัย อุณหภูมิ เสียง แสง เครื่องมือในการทำงาน

Cooper (1958, อ้างถึงใน พลลภ จิระโร, 2563) ได้ชี้ให้เห็นว่า การได้รับเงินเดือนที่ยุติธรรมและสวัสดิการอื่น ๆ ที่เหมาะสมจะทำให้เกิดแรงจูงใจในการปฏิบัติงาน

Hatfield and Huseman (1987, อ้างถึงใน พลลภ จิระโร, 2563) ได้พัฒนาแนวคิดของนักวิจัยต่าง ๆ มาเป็นเครื่องมือใช้วัดแรงจูงใจในการปฏิบัติงานเกี่ยวกับองค์ประกอบทางค่าจ้าง ประกอบด้วย 1) ถือว่าเป็นรางวัล/ไม่ถือว่าเป็นรางวัล 2) มาก/น้อย 3) ยุติธรรม/ไม่ยุติธรรม 4) เป็นทางบวก/เป็นทางลบ

จากที่กล่าวมาแล้วสรุปได้ว่า แรงจูงใจด้านเงินเดือน ค่าตอบแทนและสวัสดิการ หมายถึง แรงกระตุ้นด้านปัจจัยหรือองค์ประกอบที่เกี่ยวข้องกับงานที่ได้รับตอบแทนจากการทำงานเป็นรายเดือนที่ได้รับอยู่ในปัจจุบัน เงินค่าตอบแทนพิเศษ เงินวิทยฐานะ เงินรางวัล และสวัสดิการที่ได้รับในรูปแบบต่าง ๆ ที่ทางราชการจัดให้จะต้องมีความเป็นธรรมที่จะส่งผลให้เกิดแรงจูงใจในการปฏิบัติงาน

แรงจูงใจด้านการเลื่อนขั้นเลื่อนตำแหน่ง

การเลื่อนขั้นเลื่อนตำแหน่งนั้นหลาย ๆ แห่ง อาจจะกล่าวได้ว่า แทบจะมิได้มีการกระทำอย่างจริงจังและถูกต้อง ซึ่งเท่ากับชี้ให้เห็นถึงจุดเน้นที่บกพร่องขององค์การ นั่นคือเท่ากับองค์การได้มุ่งเน้นแต่เพียงการออกแบบระบบของการให้รางวัลตอบแทนมากกว่าการให้ความสำคัญต่อการเลื่อนขั้นเลื่อนตำแหน่ง นอกจากนี้ในหลาย ๆ แห่งที่มีการเลื่อนขั้นเลื่อนตำแหน่งนั้น อาจมีการกระทำบางอย่างไม่ถูกต้อง โดยที่เรียกว่า “การเลื่อนขั้นเลื่อนตำแหน่งเทียม” (Quasi Promotions) ซึ่งหมายถึง การมีระบบการเลื่อนขั้นเลื่อนตำแหน่งที่สักแต่ว่าจัดทำขึ้นเพื่อที่จะใช้ในความหมายของการให้เป็นรางวัลตอบแทนในเรื่อง “ยศขั้น” มากกว่า นั่นคือได้มีการเปลี่ยนชื่อตำแหน่งของบุคคลเท่านั้น แต่ว่างานที่มอบหมายให้ยังคงเหมือนเดิมทุกประการ เช่น พนักงานบัญชีธรรมดาอาจจะเลื่อนขั้นเป็นพนักงานบัญชีอาวุโส เป็นต้น ซึ่งในกรณีเช่นนี้ถ้ามีการตัดสินใจเกี่ยวกับการเลื่อนขั้นในตำแหน่งนี้ วิธีการและหลักการคงเป็นเช่นเดียวกันกับการตัดสินใจเกี่ยวกับการคัดเลือก นั่นคือเป็นความพยายามของผู้บริหารที่มุ่งจะให้ได้คนที่เหมาะสมที่สุดและคู่ควรกับตำแหน่ง แต่ยังมีข้อแตกต่างจากเรื่องของการคัดเลือกอยู่ประการหนึ่ง ก็คือในการตัดสินใจเลื่อนขั้นตำแหน่งนั้น องค์การจะมีโอกาสมากกว่าที่จะสามารถตรวจสอบผลได้อย่างชัดแจ้ง จากผลการปฏิบัติงานต่าง ๆ ที่บุคคลผู้นั้นได้กระทำมาก่อน ซึ่งนายจ้างหรือบริษัทจะสามารถตรวจผลที่ได้ทำมาแล้วมากกว่าที่จะทำโดยการคาดหมายหรือเดาเอาว่าเขาจะมีโอกาสทำงานได้สำเร็จผลเพียงใด โดยการยึดถือแต่เพียงคะแนนจากการทดสอบเท่านั้น ในกรณีของการทดสอบการสัมภาษณ์หรือการดูจากคำรับรอง ดังเช่นในกรณีของการคัดเลือกคนใหม่ นอกจากนี้การเลื่อนขั้นเลื่อนตำแหน่งยังมีข้อแตกต่างในทางที่เป็นปัญหาที่ยากอยู่เหมือนกัน นั่นคือมักจะต้องเผชิญกับบรรยากาศความกดดันในเรื่องของการชิงดีชิงเด่นในทางการเมืองระหว่างบุคคลที่มีข่าวว่าจะได้รับการเลื่อนขั้น และหลาย ๆ กรณีก็มักจะต้องพบกับปัญหาของการวิ่งเต้น หรือการใช้อิทธิพลความสนิทสนมที่มีเป็นพิเศษหรือการแสร้งทำคุณประโยชน์เพื่อให้เกิดความกระอักกระอ่วนต่อผู้บริหาร ซึ่งมักจะทำให้เกิดผลได้ไม่ยาก โดยเฉพาะกับผู้บริหารที่มิได้มีประสบการณ์หรือความเข้าใจในความสำคัญของการเลื่อนขั้น โดยการเลื่อนขั้นเลื่อนตำแหน่งแสดงถึงความก้าวหน้าในภาวการณ์ทำงานของบุคลากร ซึ่งมักจะแสดงถึงการเปลี่ยนแปลงหน้าที่ต่าง ๆ ความรับผิดชอบและค่าตอบแทน การเลื่อนตำแหน่งเป็นกระบวนการหนึ่งของการบริหารงานบุคคล ซึ่งถือว่ามีความสำคัญมาก โดยวัตถุประสงค์ในการเลื่อนขั้นเลื่อนตำแหน่ง เพื่อปรับปรุงโครงสร้างขององค์กรให้ดีขึ้น เพื่อเพิ่มประสิทธิภาพของพนักงานให้ดีขึ้น เพื่อส่งเสริมให้มีการปฏิบัติงานที่เป็นระเบียบมากขึ้น และเพื่อปรับปรุงการปฏิบัติงาน (ศิริวรรณ อินทสโร, 2560)

โกมล บัวพรหม (2553) การเลื่อนขั้นเลื่อนตำแหน่งความก้าวหน้าของตนเอง การให้รู้การปฏิบัติงานของตนเอง ทำให้เขารู้ว่าประสบความสำเร็จและเกิดความภูมิใจรวมถึงข้อบกพร่องที่ควรแก้ไข

จากที่กล่าวมาข้างต้น สรุปได้ว่า แรงจูงใจด้านการเลื่อนขั้นเลื่อนตำแหน่ง หมายถึง แรงกระตุ้นให้ผู้ปฏิบัติงานเกิดความรู้สึกหรือทัศนคติที่ดีต่อการพิจารณาให้ความดีความชอบให้ได้รับการเลื่อนขั้น เลื่อนเงินเดือนที่สูงขึ้นและได้รับการประเมินผลการปฏิบัติงานจากผู้บังคับบัญชาอย่างเป็นธรรม การมีโอกาสในการเลื่อนตำแหน่งที่สูงขึ้นเป็นช่องทางของความก้าวหน้าในตำแหน่งหน้าที่ จะทำให้บุคคลเกิดความรู้สึกมั่นคงและมีแรงจูงใจในการปฏิบัติงานเป็นองค์ประกอบเกี่ยวกับการให้ความดีความชอบ การมีโอกาสที่ได้รับการเลื่อนตำแหน่ง ซึ่งเป็นช่องทางความก้าวหน้าในตำแหน่งหน้าที่ โดยได้รับการพิจารณาความดีความชอบอย่างยุติธรรมจะทำให้บุคคลเกิดความรู้สึกมั่นคงและพึงพอใจต่องาน

แรงจูงใจด้านผู้บังคับบัญชา

ผู้บังคับบัญชาเป็นผู้ที่มีบทบาทสำคัญในการช่วยเหลือ แนะนำในการทำงานของผู้ใต้บังคับบัญชาในรูปแบบต่าง ๆ เพื่อให้การทำงานเกิดประสิทธิภาพสูงสุด โดยคำนึงถึงการมีสัมพันธภาพอันดีระหว่างกันและแรงจูงใจในการทำงานของผู้ใต้บังคับบัญชา

วาสนา ม่วงแนม (2560) ได้กล่าวว่า หัวหน้างานและเพื่อนร่วมงานที่เกื้อกูล ที่มีความสามารถในการบริหารคนให้ความสนใจสนับสนุนความก้าวหน้าของลูกน้อง รวมทั้งมีความสัมพันธ์กับเพื่อนร่วมงานที่ดี สนับสนุนช่วยเหลือกันและกัน หากองค์กรสามารถสร้างบรรยากาศที่ดีในการทำงานให้เกิดขึ้นก่อนนั้น หมายความว่า จะสร้างให้เกิดความพึงพอใจในการทำงานตามมา

ปรีดา จันทะวงษา (2561) ได้กล่าวว่า การนิเทศงานเป็นองค์ประกอบที่ส่งผลต่อแรงจูงใจในการปฏิบัติงานของบุคคล เป้าหมายสูงสุดของการบริหารงาน ได้แก่ การจัดการให้ผู้ใต้บังคับบัญชาทำงานเพื่อบรรลุจุดมุ่งหมายสูงสุดขององค์กร ดังนั้นจึงเป็นหน้าที่และภารกิจที่สำคัญที่สุดของผู้บริหารที่จะต้องเรียนรู้ศาสตร์ในการบริหารบุคคล ที่เน้นเรื่องการศึกษาพฤติกรรมบุคคล กลุ่ม และองค์กร ตลอดจนปัจจัยต่าง ๆ ที่ส่งผลกระทบต่อพฤติกรรมในองค์กร เพื่ออธิบาย ทำนาย และควบคุมปรากฏการณ์ของการบริหารที่เกิดขึ้น โดยเฉพาะอย่างยิ่งความรู้ความเข้าใจเรื่องแนวคิด แรงจูงใจของบุคคล จะช่วยให้ผู้บริหารรู้ถึงความต้องการและแรงจูงใจของผู้ใต้บังคับบัญชา และพร้อมที่จะสร้างแรงจูงใจในการทำงานเพื่อให้ผู้ใต้บังคับบัญชาดังกล่าวทำงานที่เรียกว่า “งานก็ได้ผล คนก็เป็นสุข” ที่ถือว่าเป็นองค์ประกอบสำคัญของความสำเร็จในการบริหารงาน

จากที่กล่าวมาแล้วสรุปได้ว่า แรงจูงใจด้านผู้บังคับบัญชา หมายถึง แรงกระตุ้นให้ผู้ปฏิบัติงานเกิดความรู้สึกหรือทัศนคติที่ดีต่อการปฏิบัติงานในการใช้หลักวิชาการบริหารในการบริหารงาน และทำงานร่วมกับผู้ใต้บังคับบัญชา ให้การช่วยเหลือ แนะนำ ในการทำงานรูปแบบต่าง ๆ เพื่อให้เกิดความ ร่วมมือร่วมใจและแรงจูงใจในการปฏิบัติงานที่จะให้งานบรรลุตามวัตถุประสงค์อย่างมีประสิทธิภาพ

แรงจูงใจด้านเพื่อนร่วมงาน

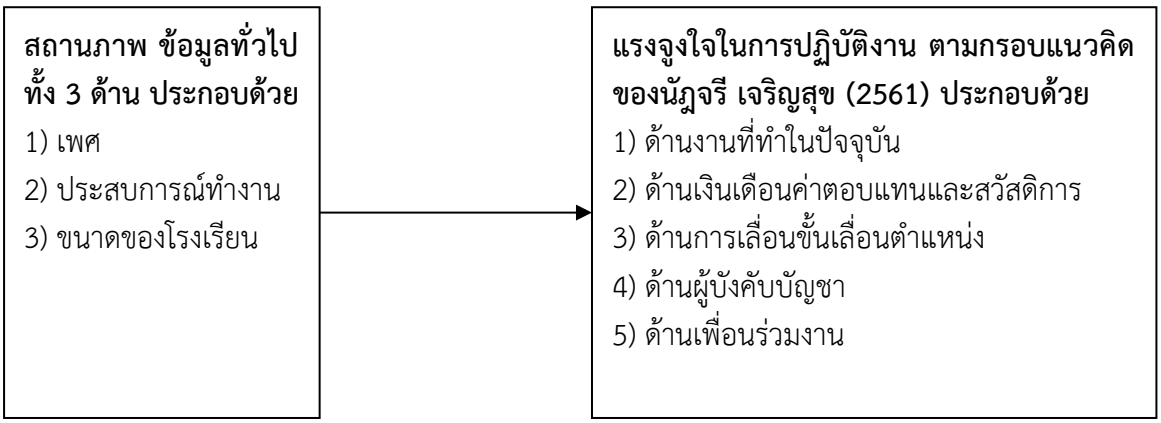
การสร้างสัมพันธภาพภายในองค์กร คือ การสร้างความสัมพันธ์ระหว่างหัวหน้างานและเพื่อนร่วมงาน เป็นพฤติกรรมปฏิสัมพันธ์ตอบโต้ระหว่างบุคคล เพื่อความรู้จักกัน เพื่อให้ได้ซึ่งความรักใคร่ความเข้าใจอันดีต่อกัน อันจะนำมาซึ่งความสัมพันธ์ซึ่งเกี่ยวข้องกันของบุคคลและสังคม ให้เกิดการปรับตัวกันในสังคม ยอมรับความแตกต่างระหว่างบุคคล เคารพในสิทธิผู้อื่น รู้จักการให้ และการยอมรับพึ่งพาซึ่งกันและกัน ในบรรดาผู้ร่วมงานทุกระดับดูเหมือนว่าจะไม่มีผู้ร่วมงานระดับใดมีอิทธิพลต่อการทำงานเท่ากับเพื่อนร่วมงาน เพราะนอกจากจะมีส่วนช่วยผลักดันให้เกิดการร่วมงานกันเป็นกลุ่มหรือเป็นทีมแล้ว เพื่อนร่วมงานยังมีอิทธิพลต่อความผูกพันในเรื่องส่วนตัวและการรวมกลุ่มกันในด้านแรงงานที่ฝ่ายผู้บังคับบัญชาจะต้องระมัดระวังอย่างยิ่งอีกด้วย การสร้างความสัมพันธ์ระหว่างผู้ใต้บังคับบัญชากับผู้ใต้บังคับบัญชาเป็นการสร้างสายใยในบุคคลระดับเดียวกัน ในทางตรงกันข้ามถ้าความสัมพันธ์ระหว่างผู้ใต้บังคับบัญชากับผู้ใต้บังคับบัญชาลดลง ก็จะเกิดการขาดความร่วมมือในการทำงาน ขาดประสิทธิภาพทำให้องค์กรหรือหน่วยงานไม่ประสบความสำเร็จ เพื่อนร่วมงานที่มีความสนิทสนมเอื้อเฟื้อเผื่อแผ่ซึ่งกันและกัน จึงจะทำให้เกิดแรงจูงใจในการปฏิบัติงาน มีทัศนคติที่ดีต่อเพื่อนร่วมงานในการปฏิบัติงานของบุคคลในองค์กรที่ทำงานร่วมกัน (มนัสนันท์ มีทรัพย์ทอง, 2563)

มธุรส แผ่นทอง (2561) ได้กล่าวว่า ความสัมพันธ์กับเพื่อนร่วมงาน คือ บุคลากรมีความรู้สึกที่ดีต่อเพื่อนร่วมงาน เป็นองค์ประกอบที่สำคัญในการที่จะสร้างบรรยากาศในการปฏิบัติงานของบุคคลภายในองค์กรที่ทำงานร่วมกัน

สรุปได้ว่า แรงจูงใจด้านเพื่อนร่วมงาน หมายถึง แรงกระตุ้นให้ผู้ปฏิบัติงานเกิดความรู้สึก หรือทัศนคติที่ดีต่อเพื่อนร่วมงานในการปฏิบัติงานของบุคคลในองค์กรที่ทำงานร่วมกัน มีความสัมพันธ์ กับผู้บังคับบัญชา และเพื่อนร่วมงาน ทั้งในด้านการงานส่วนตัว และความสามารถในการทำงานร่วมกัน เป็นอย่างดี ให้การยกย่องนับถือซึ่งกันและกัน มีความสามัคคี และมีบรรยากาศในการทำงาน

กรอบแนวคิดที่ใช้ในการวิจัย

การวิจัยครั้งนี้เป็นการศึกษาแรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 โดยผู้วิจัยศึกษาแรงจูงใจในการปฏิบัติงานของครูตามกรอบแนวคิดของนัฏจรี เจริญสุข (2561) ประกอบด้วย 5 ด้าน คือ ด้านงานที่ทำในปัจจุบัน ด้านเงินเดือนค่าตอบแทน และสวัสดิการ ด้านการเลื่อนขั้นเลื่อนตำแหน่ง ด้านผู้บังคับบัญชา ด้านเพื่อนร่วมงาน



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

ประชากรและกลุ่มตัวอย่าง

ประชากร คือ ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 จำนวนทั้งสิ้น 512 คน

กลุ่มตัวอย่าง คือ ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ตามตารางสำเร็จรูปของ Krejcie & Morgan จำนวน 217 คน โดยใช้วิธีการสุ่มตัวอย่างอย่างง่าย (Simple Random Sampling)

เครื่องมือที่ใช้ในการวิจัย

แบบสอบถาม เป็นแบบมาตราส่วนประมาณค่า (Rating Scale) 5 ระดับ ที่สร้างขึ้นเพื่อสอบถามแรงจูงใจในการปฏิบัติงานของครูประถมศึกษาในอำเภอหาดใหญ่ สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 โดยผ่านการ ปรับปรุงแนะนำจากอาจารย์ที่ปรึกษาแล้วเสนอผู้เชี่ยวชาญจำนวน 3 ท่าน ตรวจสอบเพื่อหาค่าเที่ยงตรงตามเนื้อหา ได้ค่าดัชนีความสอดคล้องระหว่างข้อ

คำถามกับวัตถุประสงค์ มีค่าระหว่าง .67 - 1.00 แล้วนำแบบสอบถามไปทดลองใช้ (Try Out) แล้วหาค่าสัมประสิทธิ์แอลฟ่า ตามวิธีครอนบาค ได้ค่าความเชื่อมั่นแบบสอบถามทั้งฉบับเท่ากับ .938 จากนั้นผู้วิจัยทำการแก้ไข ปรับปรุงและเสนออาจารย์ที่ปรึกษาตรวจสอบความสมบูรณ์อีกครั้งแล้วจึงนำไปใช้จริง

การเก็บรวบรวมข้อมูล

1. ผู้วิจัยได้ขอความอนุเคราะห์จากผู้อำนวยการโรงเรียนเพื่อให้ครูซึ่งเป็นกลุ่มตัวอย่างในการวิจัยครั้งนี้ตอบแบบสอบถาม

2. ผู้วิจัยดำเนินการเก็บข้อมูลโดยใช้แบบสอบถามผ่านทาง Google Form ไปยังสถานศึกษาที่เป็นกลุ่มตัวอย่างผ่านทางตัวแทนครูของโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

3. ผู้วิจัยได้รับแบบสอบถามตอบกลับมาจำนวน 217 ฉบับ คิดเป็นร้อยละ 100 แล้วได้ทำการตรวจสอบความถูกต้อง โดยคัดแยกแบบสอบถามที่ไม่สมบูรณ์ เก็บข้อมูลเพิ่มเติมจนครบตามจำนวนที่ต้องการ และเมื่อได้รับแบบสอบถามคืน ผู้วิจัยดำเนินการตรวจสอบความถูกต้องความสมบูรณ์ของการตอบแบบสอบถาม แล้วนำไปดำเนินการวิเคราะห์ทางสถิติและสรุปผลตามขั้นตอนของการวิจัยต่อไป

สถิติที่ใช้ในการวิจัย

ค่าร้อยละ (Percentage) ค่าเฉลี่ย (Mean) ค่าส่วนเบี่ยงเบนมาตรฐาน (Standard deviation) การทดสอบค่าทีอิสระ (Independent t-test) และการทดสอบค่าเอฟ (F-test)

ผลการวิจัย

ตอนที่ 1 ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม โดยข้อมูลทั่วไปของผู้ตอบแบบสอบถามประกอบด้วยข้อมูล เพศ ประสบการณ์ทำงาน และขนาดสถานศึกษา รายละเอียดแสดงในตารางที่ 3 ดังนี้

ตารางที่ 1 ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

(n = 217)

ข้อมูลทั่วไป	จำนวน (คน)	ร้อยละ
เพศ		
ชาย	42	19.35
หญิง	175	80.65
ประสบการณ์การทำงาน		
ต่ำกว่า 5 ปี	41	18.90
5 ถึง 10 ปี	114	52.53
มากกว่า 10 ปี	62	28.57
ขนาดสถานศึกษา		
ขนาดเล็ก	34	15.67
ขนาดกลาง	120	55.30
ขนาดใหญ่	63	29.03

จากตารางที่ 1 พบว่า ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ส่วนใหญ่เป็นเพศหญิง ร้อยละ 80.65 มีประสบการณ์การทำงาน 5 ถึง 10 ปี ร้อยละ 52.53 และทำงานอยู่ในสถานศึกษาขนาดกลาง ร้อยละ 55.30

ตอนที่ 2 ผลการศึกษาแรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

ผู้วิจัยได้จำแนกแรงจูงใจในการปฏิบัติงานออกเป็น 5 ด้าน ในภาพรวมและในแต่ละด้าน ดังตารางที่ 2

ตารางที่ 2 ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และระดับแรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ในภาพรวมทั้ง 5 ด้าน

แรงจูงใจในการปฏิบัติงานของครู	ระดับความคิดเห็น		
	$\bar{x}$	SD	ระดับ
1. ด้านงานที่ทำในปัจจุบัน	4.09	.34	มาก
2. ด้านเงินเดือนค่าตอบแทนและสวัสดิการ	4.28	.21	มาก
3. ด้านการเลื่อนขั้นเลื่อนตำแหน่ง	4.13	.31	มาก
4. ด้านผู้บังคับบัญชา	4.07	.32	มาก
5. ด้านเพื่อนร่วมงาน	4.08	.18	มาก
รวม	**4.13**	**.17**	มาก

จากตารางที่ 2 ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 มีแรงจูงใจในการปฏิบัติงานในภาพรวมและอยู่ในระดับมาก ($\bar{x}$ = 4.13, SD = .17) เมื่อพิจารณารายด้าน พบว่า ด้านเงินเดือนค่าตอบแทนและสวัสดิการ มีค่าเฉลี่ยสูงสุด ($\bar{x}$ = 4.28, SD = .21) ด้านการเลื่อนขั้นเลื่อนตำแหน่ง มีค่าเฉลี่ยรองลงมา ($\bar{x}$ = 4.13, SD= .31) และด้านผู้บังคับบัญชา มีค่าเฉลี่ยต่ำสุด ($\bar{x}$ = 4.07, SD = .32)

ตอนที่ 3 ผลการเปรียบเทียบแรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 จำแนกตามตัวแปรเพศ ประสบการณ์ทำงาน และขนาดสถานศึกษา

ตารางที่ 3 เปรียบเทียบแรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 จำแนกตามตัวแปร เพศ

แรงจูงใจในการปฏิบัติงานของครู	เพศชาย n = 42		เพศหญิง n = 175		t	P-value
	$\bar{X}$	SD	$\bar{X}$	SD		
1. ด้านงานที่ทำในปัจจุบัน	4.14	.38	4.07	.34	1.191	.235
2. ด้านเงินเดือนค่าตอบแทนและสวัสดิการ	4.31	.22	4.28	.21	.734	.464
3. ด้านการเลื่อนขั้นเลื่อนตำแหน่ง	4.15	.33	4.13	.31	.284	.777
4. ด้านผู้บังคับบัญชา	4.09	.39	4.07	.30	.325	.745
5. ด้านเพื่อนร่วมงาน	4.08	.21	4.07	.17	.037	.971
รวม	**4.15**	**.22**	**4.12**	**.16**	**.885**	**.377**

จากตารางที่ 3 ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ที่มีเพศต่างกัน มีแรงจูงใจในการปฏิบัติงานของครู ในภาพรวมและรายด้าน ไม่ต่างกัน

ตารางที่ 4 ผลการเปรียบเทียบความแตกต่างของแรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 จำแนกตามประสบการณ์ทำงาน

แรงจูงใจในการปฏิบัติงานของครู	แหล่งความแปรปรวน	df	SS	MS	F	P-value
1. ด้านงานที่ทำในปัจจุบัน	ระหว่างกลุ่ม	2	.027	.014	.114	.893
	ภายในกลุ่ม	214	25.645	.120		
	รวม	**216**	**25.672**			
2. ด้านเงินเดือนค่าตอบแทนและสวัสดิการ	ระหว่างกลุ่ม	2	.309	.155	3.590*	.029
	ภายในกลุ่ม	214	.9222	.043		
	รวม	**216**	**9.531**			
3. ด้านการเลื่อนขั้นเลื่อนตำแหน่ง	ระหว่างกลุ่ม	2	.392	.196	1.999	.138
	ภายในกลุ่ม	214	20.993	.098		
	รวม	**216**	**21.385**			
4. ด้านผู้บังคับบัญชา	ระหว่างกลุ่ม	2	.082	.041	.404	.668
	ภายในกลุ่ม	214	21.679	.101		
	รวม	**216**	**21.761**			

ตารางที่ 4 (ต่อ)

แรงจูงใจในการปฏิบัติงานของครู	แหล่งความแปรปรวน	df	SS	MS	F	P-value
5. ด้านเพื่อนร่วมงาน	ระหว่างกลุ่ม	2	.006	.003	.098	.907
	ภายในกลุ่ม	214	6.706	.031		
	รวม	**216**	**6.712**			
รวม	ระหว่างกลุ่ม	2	.104	.052	1.764	.174
	ภายในกลุ่ม	214	6.322	.030		
	รวม	**216**	**6.426**			

* มีนัยสำคัญทางสถิติที่ระดับ .05

จากตารางที่ 4 ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ที่มีประสบการณ์ทำงานต่างกัน มีแรงจูงใจในการปฏิบัติงาน ภาพรวม ไม่ต่างกัน เมื่อพิจารณาเป็นรายด้าน พบว่า ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ที่มีประสบการณ์ทำงานต่างกัน มีแรงจูงใจในการปฏิบัติงาน ด้านเงินเดือค่าตอบแทนและสวัสดิการ แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ดังนั้นจึงทำการทดสอบความแตกต่างเป็นรายคู่ด้วยวิธี Scheffe ดังตารางที่ 10

ตารางที่ 5 การเปรียบเทียบความแตกต่างรายคู่ของแรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ด้านเงินเดือค่าตอบแทนและสวัสดิการ จำแนกตามตัวแปรประสบการณ์ทำงาน

ประสบการณ์ทำงาน	$\bar{x}$	ต่ำกว่า 5 ปี	5 ถึง 10 ปี	10 ปีขึ้นไป
		4.33	**4.30**	**4.23**
ต่ำกว่า 5 ปี	**4.33**	-	.03	.10*
5 ถึง 10 ปี	**4.30**	-	-	.07
10 ปีขึ้นไป	**4.23**	-	-	-

* มีนัยสำคัญทางสถิติที่ระดับ .05

จากตารางที่ 5 แรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ด้านเงินเดือนค่าตอบแทนและสวัสดิการ พบว่า ครูที่มีประสบการณ์ทำงานต่ำกว่า 5 ปี มีแรงจูงใจแตกต่างกับครูที่มีประสบการณ์ทำงาน 10 ปีขึ้นไป อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 โดยครูที่มีประสบการณ์ทำงานต่ำกว่า 5 ปี มีค่าเฉลี่ยมากกว่าครูที่มีประสบการณ์ทำงาน 10 ปีขึ้นไป

ตารางที่ 6 ผลการเปรียบเทียบความแตกต่างของแรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ จำแนกตามขนาดสถานศึกษา

แรงจูงใจในการปฏิบัติงานของครู	แหล่งความแปรปรวน	df	SS	MS	F	P-value
1. ด้านงานที่ทำในปัจจุบัน	ระหว่างกลุ่ม	2	.001	.001	.006	.994
	ภายในกลุ่ม	214	25.671	.120		
	รวม	**216**	**25.672**			
2. ด้านเงินเดือน ค่าตอบแทนและสวัสดิการ	ระหว่างกลุ่ม	2	.022	.011	.246	.782
	ภายในกลุ่ม	214	9.509	.044		
	รวม	**216**	**9.531**			
3. ด้านการเลื่อนขั้นเลื่อนตำแหน่ง	ระหว่างกลุ่ม	2	.089	.045	.448	.640
	ภายในกลุ่ม	214	21.296	.100		
	รวม	**216**	**21.385**			
4. ด้านผู้บังคับบัญชา	ระหว่างกลุ่ม	2	.007	.004	.036	.965
	ภายในกลุ่ม	214	21.754	.102		
	รวม	**216**	**21.761**			
5. ด้านเพื่อนร่วมงาน	ระหว่างกลุ่ม	2	.007	.004	.114	.892
	ภายในกลุ่ม	214	6.705	.031		
	รวม	**216**	**6.712**			
รวม	ระหว่างกลุ่ม	2	.002	.001	.032	.969
	ภายในกลุ่ม	214	6.424	.030		
	รวม	**216**	**6.426**			

* มีนัยสำคัญทางสถิติที่ระดับ .05

จากตารางที่ 6 ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ที่ทำงานในขนาดสถานศึกษาต่างกัน มีแรงจูงใจในการปฏิบัติงาน ภาพรวมและรายด้านทั้ง 5 ด้าน ไม่ต่างกัน

สรุปและอภิปรายผล

1. ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 มีแรงจูงใจในการปฏิบัติงานในภาพรวมและรายด้านทั้ง 5 ด้าน อยู่ในระดับมาก เมื่อพิจารณารายด้าน พบว่า ด้านที่มีค่าเฉลี่ยสูงสุด คือ ด้านเงินเดือนค่าตอบแทนและสวัสดิการ ด้านที่มีค่าเฉลี่ยรองลงมา คือ ด้านการเลื่อนขั้นเลื่อนตำแหน่ง และด้านที่มีค่าเฉลี่ยต่ำสุด คือ ด้านผู้บังคับบัญชา

ครูมีแรงจูงใจในการปฏิบัติงาน **ด้านเงินเดือนค่าตอบแทนและสวัสดิการ** อยู่ในระดับมาก ทั้งนี้อาจเป็นเพราะว่า เงินเดือนค่าตอบแทนเป็นปัจจัยกระตุ้นให้เกิดพลังในการปฏิบัติงาน ผลตอบแทนและสวัสดิการ จะช่วยให้ครูมีความมั่นคงในชีวิต เสริมสร้างฐานะความเป็นอยู่ของครอบครัว มีความสุขในการปฏิบัติงาน มีความสะดวกสบาย เกิดความพึงพอใจในการปฏิบัติหน้าที่ และช่วยส่งเสริมขวัญกำลังใจ

ในการปฏิบัติงาน ซึ่งสอดคล้องกับงานวิจัยของนัฏจรี เจริญสุข (2561) ได้ศึกษาแรงจูงใจในการปฏิบัติงานของครูในโรงเรียน สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุราษฎร์ธานี เขต 1 ผลการวิจัยพบว่า แรงจูงใจในการปฏิบัติงานของครูในโรงเรียน สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุราษฎร์ธานี เขต 1 มีค่าเฉลี่ยแรงจูงใจโดยรวมอยู่ในระดับมาก โดยเรียงลำดับตามค่าเฉลี่ย คือ ด้านเงินเดือนค่าตอบแทนและสวัสดิการ ด้านการเลื่อนขั้นเลื่อนตำแหน่ง ด้านงานที่ทำในปัจจุบัน ด้านเพื่อนร่วมงาน และด้านผู้บังคับบัญชาชั้นต้น ตามลำดับ

ครูมีแรงจูงใจในการปฏิบัติงาน **ด้านการเลื่อนขั้นเลื่อนตำแหน่ง** อยู่ในระดับมาก ทั้งนี้ อาจเป็นเพราะว่า ครูที่ปฏิบัติหน้าที่มีความเชื่อ ความพยายามในการปฏิบัติหน้าที่ เพื่อนำพาตัวเองก้าวไปสู่ตำแหน่งที่สูงกว่าเดิม มีวิทยฐานะที่สูงขึ้น ได้รับค่าตอบแทนเพิ่มขึ้น จึงมีแรงจูงใจในการปฏิบัติงานเป็นรางวัลในการทำงานให้แก่ตนเอง สอดคล้องกับงานวิจัยของนิติยา แสนอุบล (2560) ได้ศึกษาแรงจูงใจในการปฏิบัติงานของข้าราชการครูในกลุ่มโรงเรียนศรีราชา 1 สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาชลบุรี เขต 3 ผลการวิจัยพบว่า แนวทางการเสริมสร้างแรงจูงใจในการปฏิบัติงาน ด้านปัจจัยค้ำจุน พบว่า ผู้บริหารควรพิจารณาเลื่อนขั้นเงินเดือน จากผลงานและความสำเร็จของงานอย่างเป็นธรรม ควรให้ความสำคัญกับครูทุกคนอย่างทั่วถึงด้วยความเสมอภาค ไม่เอนเอียง ควรสร้างบรรยากาศการทำงานที่ดี เพื่อให้ครูรู้สึกอบอุ่นและมีความสุขในการทำงาน เมื่อมีความสุขก็จะปฏิบัติงานอย่างเต็มกำลังความสามารถ

ครูมีแรงจูงใจในการปฏิบัติงาน **ด้านงานที่ทำในปัจจุบัน** อยู่ในระดับมาก ทั้งนี้ อาจเป็นเพราะว่า ครูมีอิสระในการทำงาน ได้รับการมอบหมายงานได้ตรงกับความรู้ความสามารถและประสบการณ์ของครู พร้อมกับสนับสนุนความคิดริเริ่มอันเป็นประโยชน์ต่อโรงเรียน และผู้บริหารใช้หลักการมีส่วนร่วมในการปฏิบัติงานเป็นหลักสำคัญ จึงเป็นสิ่งเร้าหรือแรงกระตุ้นให้ครูเปลี่ยนแปลงพฤติกรรม มีความรับผิดชอบงานตามภาระหน้าที่ที่จะต้องปฏิบัติงาน และคุณครูทุกคนมีทัศนคติที่ดีในการปฏิบัติงาน สอดคล้องกับงานวิจัยของมธุรส แผ่นทอง (2561) ศึกษาแรงจูงใจในการปฏิบัติงาน ของครูโรงเรียนกลุ่มเขาเขียว สังกัดองค์การบริหารส่วนจังหวัดชัยภูมิ ผลการวิจัยพบว่า แรงจูงใจในการปฏิบัติงานของครูโรงเรียนกลุ่มเขาเขียว สังกัดองค์การบริหารส่วนจังหวัดชัยภูมิ โดยรวมและรายด้านอยู่ในระดับมาก โดยด้านที่มีค่าเฉลี่ยสูงสุด คือ ด้านลักษณะงานที่ทำ

ครูมีแรงจูงใจในการปฏิบัติงาน **ด้านเพื่อนร่วมงาน** อยู่ในระดับมาก ทั้งนี้อาจเป็นเพราะว่า ครูที่ปฏิบัติงานร่วมกัน มีการสร้างความสัมพันธ์ที่ดีซึ่งกันและกัน รู้จักรักใคร่กัน สนิทสนมกัน ทำให้เกิดการยอมรับความแตกต่างระหว่างบุคคล ครูทุกคนจะร่วมมือกับผู้บังคับบัญชาและเพื่อนร่วมงาน จึงมีบรรยากาศที่ดีในการปฏิบัติงานในโรงเรียน สอดคล้องกับงานวิจัยของอานัส รุ่งวิทยพันธ์ (2565) ได้ศึกษาได้ศึกษาแนวทางการเสริมสร้างแรงจูงใจในการปฏิบัติงานของข้าราชการครู ในโรงเรียนขนาดเล็ก สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 1 ผลการวิจัยพบว่า ปัจจัยจูงใจด้านการยอมรับนับถือเมื่อครูได้รับการยอมรับทางความรู้ ความสามารถจากผู้บริหารและเพื่อนร่ววมงาน ครูจะได้ปฏิบัติงานอย่างเต็มศักยภาพ ซึ่งครูทุกคนควรตระหนักถึงการสร้างแรงจูงใจด้วยการเป็นแบบอย่างที่ดี เพื่อให้เกิดการยอมรับนับถือ และผู้บริหารกับครูควรยกย่องชมเชยครูที่ปฏิบัติผลงานดีเด่นด้วยการแสดงความยินดีในที่ประชุม

ครูมีแรงจูงใจในการปฏิบัติงาน **ด้านผู้บังคับบัญชา** อยู่ในระดับมาก ทั้งนี้อาจเป็นเพราะว่า ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ส่วนใหญ่ได้รับการช่วยเหลือ ได้รับคำแนะนำที่ดีในการปฏิบัติงาน ได้รับการเสริมแรงที่ดีจากผู้บริหาร ผู้บริหารให้กำลังใจ มอบรางวัล เกียรติบัตร ประกาศเชิดชูผลงาน สร้างบรรยากาศทัศนคติที่ดีต่อการปฏิบัติงาน ครูมีความพึงพอใจในการบริหารงาน และร่วมแรงร่วมใจในการปฏิบัติงานเพื่อให้บรรลุตามวัตถุประสงค์อย่างมีประสิทธิภาพ สอดคล้องกับงานวิจัยของมนัสนันท์ มีทรัพย์ทอง (2563) ได้ศึกษาเรื่องแรงจูงใจในการปฏิบัติงานของครูสังกัดวิทยาลัยเทคนิคในภาคตะวันออก ผลการวิจัยพบว่าแรงจูงใจในการปฏิบัติงานของครูสังกัด วิทยาลัยเทคนิคในภาคตะวันออก โดยรวมอยู่ในระดับมาก ซึ่งผู้บริหารควรสร้างขวัญ กำลังใจในการทำงาน รู้จักชื่นชมยินดี มอบรางวัลให้แก่ครู รวมทั้งยกย่อง ชมเชย มอบเกียรติบัตรรางวัล โดยปฏิบัติกิจกรรมหน้าเสาธง ให้นักเรียนและคุณครูได้เห็นภาพการประสบความสำเร็จและภาคภูมิใจในผลงานที่ประสบความสำเร็จ ผู้บริหารควรมอบหมายงานให้ตรงกับความรู้ความสามารถ การมีส่วนร่วมมากขึ้นในการวางแผนการปฏิบัติหน้าที่อย่างโปร่งใส นโยบายการบริหารงานมีความชัดเจน และผู้บริหารควรให้อิสระทางความคิดแก่ครูในการปฏิบัติงานสอน อำนวยความสะดวก สนับสนุนสื่อ และอุปกรณ์การสอน

2. การเปรียบเทียบแรงจูงใจในการปฏิบัติงานของครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 จำแนกตามเพศ ประสบการณ์ทำงาน และขนาดของโรงเรียน มีรายละเอียดการอภิปราย ดังนี้

2.1 ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ที่มีเพศต่างกัน มีแรงจูงใจในการปฏิบัติงานในการปฏิบัติงาน ภาพรวมและรายด้านไม่แตกต่างกัน ซึ่งไม่เป็นไปตามสมมติฐานที่ตั้งไว้ ทั้งนี้ อาจเป็นเพราะว่าครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 มุ่งเน้นในด้านความรู้ความสามารถของครูผู้สอนมากกว่าที่จะเน้นในเรื่องของเพศในการปฏิบัติงาน เพราะเมื่อครูผู้สอนไม่ว่าจะเพศใดก็ตาม ถ้าเข้ามาปฏิบัติงานตามตำแหน่งหน้าที่ก็ต้องอยู่ในกฎ ระเบียบ บรรยากาศ และสภาพแวดล้อมในการปฏิบัติงานเหมือน ๆ กัน จึงทำให้ครูผู้สอนมีแรงจูงใจในกาปฏิบัติที่เหมือน ๆ กัน สอดคล้องกับงานวิจัยของนัฎจรี เจริญสุข (2561) ได้ศึกษาแรงจูงใจในการปฏิบัติงานของครูในโรงเรียน สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุราษฎร์ธานี เขต 1 ผลการวิจัยพบว่า แรงจูงใจในการปฏิบัติงานของครูในโรงเรียน สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุราษฎร์ธานี เขต 1 มีค่าเฉลี่ยแรงจูงใจโดยรวมอยู่ในระดับมาก และการเปรียบเทียบความคิดเห็นของครู พบว่า ครูที่มีเพศและประสบการณ์ในการปฏิบัติงานต่างกัน จะมีแรงจูงใจในการปฏิบัติงาน ไม่ต่างกัน

2.2 ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ที่มีประสบการณ์ทำงานต่างกัน มีแรงจูงใจในการปฏิบัติงานภาพรวมไม่แตกต่างกัน ซึ่งไม่เป็นไปตามสมมติฐานที่ตั้งไว้ แต่เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านเงินเดือนค่าตอบแทนและสวัสดิการ สำหรับครูที่มีประสบการณ์ทำงานต่ำกว่า 5 ปี มีค่าเฉลี่ยสูงกว่าครูที่มีประสบการณ์ทำงาน 10 ปีขึ้นไป อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ทั้งนี้ อาจเป็นเพราะว่าทั้งครูที่มีประสบการณ์ทำงานมากและครูที่ประสบการณ์ทำงานน้อย ต่างมีแรงจูงใจในการปฏิบัติงาน มีความมุ่งมั่นในการทำงานเพื่อเป้าหมายของสถานศึกษาและความเจริญก้าวหน้าในอนาคต หากอยู่ในสถานศึกษาเดียวกัน มีกฎมีระเบียบ ในการปฏิบัติงานเหมือนกัน และมีการประเมินผลการปฏิบัติงานเหมือนกัน ครูจึงมีแรงจูงใจในการปฏิบัติงานไม่แตกต่างกัน แต่เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านความก้าวหน้า ตามความคิดเห็น

ของครูที่มีประสบการณ์ทำงานต่ำกว่า 5 ปี มีค่าเฉลี่ยสูงกว่าครูที่มีประสบการณ์ทำงาน 10 ปีขึ้นไป อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ทั้งนี้ อาจเป็นเพราะว่าครูที่มีประสบการณ์ต่ำกว่า 5 ปี ย่อมเป็นช่วงวัยของการปฏิบัติงานอย่างเข้มข้น รุ่นใหม่ไฟแรง ต้องการสร้างผลงาน ต้องการได้รับคำยกย่องชมเชย มีแรงจูงใจในปฏิบัติงานด้านความก้าวหน้า สูงกว่าครูที่ประสบการณ์มากกว่า 10 ปีขึ้นไป สอดคล้องกับงานวิจัยของดนุสรณ์ สุขจ้อง (2567) ได้ศึกษาแรงจูงใจในการปฏิบัติงานของครูโรงเรียนสังกัดสำนักงานการศึกษาเอกชน อำเภอเบตง จังหวัดยะลา ผลการวิจัยพบว่า ครูโรงเรียนสังกัดสำนักงานการศึกษาเอกชนอำเภอเบตง จังหวัดยะลา ที่มีเพศ ประสบการณ์ทำงาน วุฒิการศึกษา และขนาดสถานศึกษา ต่างกัน มีแรงจูงใจในการปฏิบัติงานในภาพรวม ไม่ต่างกัน เมื่อพิจารณาเป็นรายด้าน พบว่า ครูที่มีประสบการณ์ทำงานต่างกัน มีแรงจูงใจในการปฏิบัติงาน ด้านความก้าวหน้า และครูที่ทำงานในสถานศึกษาต่างกัน มีแรงจูงใจในการปฏิบัติงาน ด้านความรับผิดชอบ แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

2.3 ครูโรงเรียนประถมศึกษาในอำเภอหาดใหญ่ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2 ที่ทำงานในสถานศึกษาที่มีขนาดสถานศึกษาต่างกัน มีแรงจูงใจในการปฏิบัติงาน ภาพรวมและรายด้าน ไม่แตกต่างกัน ทั้งนี้ อาจเป็นเพราะว่า ทุกสถานศึกษามีคุณครูปฏิบัติงานตามหน้าที่อย่างสม่ำเสมอ และผู้บริหารสถานศึกษารู้จักยุทธวิธีในการทำงาน โดยใช้ศาสตร์และศิลป์ในการบริหารงาน รู้จักโน้มน้าวผู้ร่วมงาน ให้เข้ามามีส่วนร่วมในการปฏิบัติงานและเกิดความผูกพันกับสถานศึกษา สอดคล้องกับงานวิจัยของนัฏจรี เจริญสุข (2561) ได้ศึกษาแรงจูงใจในการปฏิบัติงานของครูในโรงเรียน สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุราษฎร์ธานี เขต 1 ผลการวิจัยพบว่า ครูและบุคลากรที่ทำงานในสถานศึกษาที่มีขนาดสถานศึกษาต่างกัน มีความคิดเห็นต่อแรงจูงใจในการปฏิบัติงาน โดยภาพรวมและรายด้านไม่แตกต่างกัน

ข้อเสนอแนะ

ข้อเสนอแนะจากการวิจัย

1. จากผลการวิจัยพบว่า ผู้บริหารและครูควรร่วมมือกันเพื่อวางแผน กำหนดนโยบายที่ชัดเจนในปฏิบัติงานของโรงเรียนอย่างมีส่วนร่วม ดังนั้นผู้บริหารควรให้ความสำคัญอย่างทั่วถึงและเป็นไปด้วยความเสมอภาคในทุก ๆ ด้าน เช่น การพิจารณาเลื่อนเงินเดือน การสนับสนุนการจัดการเรียนการสอน กิจกรรมยกย่องเทิดทูนเกียรติให้แก่ครู พร้อมทั้งสร้างบรรยากาศในการทำงานอย่างเป็นกัลยาณมิตร

2. จากผลการวิจัยพบว่า ผู้บริหารควรกำหนดนโยบายที่ชัดเจนในปฏิบัติงานของโรงเรียนอย่างมีส่วนร่วม ดังนั้นผู้บริหารควรให้ความสำคัญกับการพัฒนาศักยภาพของครู โดยจัดให้มีการอบรมพัฒนาครูอย่างต่อเนื่องและสม่ำเสมอ ซึ่งอาจจะจัดอบรมร่วมกันระหว่างโรงเรียน

3. จากผลการวิจัยพบว่า ผู้บริหารควรมอบหมายงานให้ตรงกับความสามารถและความถนัด ดังนั้นผู้บริหารควรมอบหมายหน้าที่ให้ตรงกับความรู้ความสามารถ ความถนัดของครูเป็นสำคัญ อาจจะไม่ต้องคำนึงถึงวุฒิการศึกษา พร้อมทั้งสร้างขวัญกำลังใจ กระตุ้นให้ครูเห็นความสำคัญและความสำเร็จของงาน

ข้อเสนอแนะในการวิจัยครั้งต่อไป

1. ควรศึกษาความต้องการจำเป็นของแรงจูงใจในการปฏิบัติงาน เพื่อใช้เป็นแนวทางการเสริมสร้างแรงจูงใจในการปฏิบัติงานของครูสังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

2. ควรมีการศึกษาวิจัยเชิงเปรียบเทียบเกี่ยวกับแนวทางการเสริมสร้างแรงจูงใจในการปฏิบัติงานของครูในสังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2

เอกสารอ้างอิง

โกมล บัวพรหม. (2553). แรงจูงใจในการปฏิบัติงานของครูโรงเรียนมัธยม สังกัดสำนักงานเขตพื้นที่การศึกษาสุราษฎร์ธานี เขต 3 (วิทยานิพนธ์ครุศาสตรมหาบัณฑิต). มหาวิทยาลัยราชภัฏสุราษฎร์ธานี, สุราษฎร์ธานี.

ดนุสรณ์ สุขจ้อง. (2567). แรงจูงใจในการปฏิบัติงานของครูโรงเรียนสังกัดสำนักงานการศึกษาเอกชนอำเภอเบตง จังหวัดยะลา (สารนิพนธ์ศึกษาศาสตรมหาบัณฑิต). มหาวิทยาลัยหาดใหญ่, สงขลา.

นัฏจรี เจริญสุข. (2561). การศึกษาแรงจูงใจในการปฏิบัติงานของครูในโรงเรียน สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุราษฎร์ธานี เขต 1 (วิทยานิพนธ์ครุศาสตรมหาบัณฑิต). คณะครุศาสตร์ มหาวิทยาลัยราชภัฏสุราษฎร์ธานี, สุราษฎร์ธานี.

นิติยา แสนอุบล. (2560). แรงจูงใจในกากรปฏิบัติงานของข้าราชการครูในกลุ่มโรงเรียนศรีราชา 1 สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาชลบุรี เขต 3 (สารนิพนธ์การศึกษามหาบัณฑิต). มหาวิทยาลัยบูรพา, ชลบุรี.

ปรีดา จันทะวงษา. (2561). แรงจูงใจในการปฏิบัติงานของครูโรงเรียนพนัสพิทยาคาร สังกัดสำนักงานเขตพื้นที่การศึกษามัธยมศึกษา เขต 18 (งานนิพนธ์การศึกษาหาบัณฑิต). มหาวิทยาลัยบูรพา, ชลบุรี.

พลลภ จิระโร. (2563). แรงจูงใจในการทำงานของครูและบุคลากรทางการศึกษาที่ส่งผลต่อคุณภาพของผู้เรียนในโรงเรียนสังกัดองค์กรปกครองส่วนท้องถิ่น จังหวัดชุมพร (วิทยานิพนธ์ครุศาสตรบัณฑิต). มหาวิทยาลัยราชภัฏสุราษฎร์ธานี, สุราษฎร์ธานี

มธุรส แผ่นทอง. (2561). แรงจูงใจในการปฏิบัติงานของครูโรงเรียนกลุ่มเขาเขียว สังกัดองค์การบริหารส่วนจังหวัดชัยภูมิ. (วิทยานิพนธ์ศึกษาศาสตรมหาบัณฑิต). มหาวิทยาลัยบูรพา, ชลบุรี.

มนัสนันท์ มีทรัพย์ทอง. (2563). แรงจูงใจในการปฏิบัติงานของครู สังกัดวิทยาลัยเทคนิคในภาคตะวันออก (วิทยานิพนธ์ครุศาสตรมหาบัณฑิต). มหาวิทยาลัยราชภัฏรำไพพรรณ, จันทบุรี

วาสนา ม่วงแนม. (2560). รูปแบบการเสริมสร้างแรงจูงใจในการปฏิบัติงานที่มีประสิทธิภาพของข้าราชการครู สังกัดสำนักงานเขตพื้นที่การศึกษามัธยมศึกษา เขต 11 (วิทยานิพนธ์ปริญญาดุษฎีบัณฑิต). มหาวิทยาลัยนอร์กรุงเทพ, กรุงเทพฯ.

ศิริวรรณ อินทสโร. (2560). แนวทางการเสริมสร้างแรงจูงใจในการปฏิบัติงานของข้าราชการครู โรงเรียนขนาดเล็ก สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสตูล (วิทยานิพนธ์ศึกษาศาสตรมหาบัณฑิต). มหาวิทยาลัยหาดใหญ่, สงขลา.

สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 2. (2564). สภาพอัตรากำลังครูของสถานศึกษา ปีงบประมาณ พ.ศ. 2566. สืบค้นเมื่อ 13 มกราคม 2568 จาก http://www.ska2.go.th

สุมัธนา สร้อยสน. (2558). บทบาทผู้บริหารสถานศึกษาที่ส่งผลต่อแรงจูงใจในการปฏิบัติงานของครูในอำเภอบ้านบึง จังหวัดชลบุรี สำนักงานเขตพื้นที่การศึกษามัธยมศึกษา เขต 18 (วิทยานิพนธ์การศึกษามหาบัณฑิต). มหาวิทยาลัยบูรพา, ชลบุรี.

อนันต์ธนา สามพุ่มพวง. (2558). แรงจูงใจกับความผูกพันต่อองค์กรของข้าราชการครู สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุพรรณบุรี เขต 2 (วิทยานิพนธ์ ศึกษาศาสตรมหาบัณฑิต). มหาวิทยาลัยศิลปากร, กรุงเทพฯ.

อานัส รุ่งวิทยพันธ์. (2565). แนวทางการเสริมสร้างแรงจูงใจในการปฏิบัติงานของข้าราชการครู ในโรงเรียนขนาดเล็ก สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลา เขต 1. (สารนิพนธ์ศึกษาศาสตรมหาบัณฑิต). มหาวิทยาลัยหาดใหญ่, สงขลา.

การพัฒนาทักษะการอ่านและการเขียนคำภาษาไทยโดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา

The Development of Thai Reading and Writing Skills Using Reading and Writing Exercises Based on Spelling Rules for Grade 4 Students at Tessaban 5 School (Wat Hat Yai), Songkhla Province

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อ 1) สร้างและหาประสิทธิภาพของแบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา ตามเกณฑ์ 80/80 2) เปรียบเทียบทักษะการอ่านและการเขียนภาษาไทย ก่อนเรียนและหลังเรียน โดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกด ของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา กลุ่มตัวอย่างได้แก่นักเรียนชั้นประถมศึกษาปีที่ 4/2 จำนวน 30 คน โดยเครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล 1) แผนจัดการเรียนรู้ 2) แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดจำนวน 12 แบบฝึก 3) แบบทดสอบวัดทักษะการอ่านและการเขียนจำนวน 20 ข้อ สถิติที่ใช้คือ ค่าเฉลี่ย ร้อยละ ส่วนเบี่ยงเบนมาตรฐานและสถิติทดสอบสมมุติฐาน t-test dependent ผลการวิจัยพบว่า แบบฝึกทักษะการอ่านและการเขียนแบ่งเป็น 12 แบบฝึกมีประสิทธิภาพของแบบฝึกทักษะการอ่านและการเขียนภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 4 มีค่า 82.70/91.00 และเปรียบเทียบ ทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา โดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกด หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

คำสำคัญ: ทักษะการอ่านและการเขียน, มาตราตัวสะกด, แบบฝึกทักษะ, การเขียนสะกดคำ

Abstract

This research aimed to: 1) develop and determine the efficiency of reading and spelling practice exercises based on Thai spelling rules for Grade 4 students at Tessaban 5 School (Wat Hat Yai), Songkhla Province, according to the 80/80 efficiency criterion; and 2) compare the students' Thai reading and spelling skills before and after learning through the developed practice exercises. The sample group consisted of 30 Grade 4/2 students. The instruments used for data collection included: 1) lesson plans, 2) twelve sets of reading and spelling practice exercises based on Thai spelling rules, and 3) a 20-item reading and spelling skills test. The statistics used for data analysis were mean, percentage, standard deviation, and dependent t-test.

The research findings revealed that the twelve sets of reading and spelling practice exercises had an efficiency of 82.70/91.00, which meets the required standard. Furthermore, a comparison of the students' Thai reading and spelling skills before and after the intervention showed that the post-test scores were significantly higher than the pre-test scores at the 0.05 level of significance.

Keywords: Reading and writing skills, Thai Orthographic Rules, Skill Exercises, Spelling Writing

บทนำ

"การอ่านออกเขียนได้" หรือ Literacy แห่งศตวรรษที่ 21 เป็นทักษะพื้นฐานที่มีความสำคัญอย่างยิ่งต่อการพัฒนาผู้เรียนในทุกระดับการศึกษา โดยเฉพาะในระดับประถมศึกษาซึ่งเป็นรากฐานสำคัญของการเรียนรู้ในระดับที่สูงขึ้น ทักษะการอ่านและการเขียนภาษาไทยไม่เพียงแต่ช่วยเสริมสร้างความรู้ ความเข้าใจและการพัฒนาตนเองเท่านั้น แต่ยังเป็นเครื่องมือสำคัญในการแสวงหาความรู้ในทุกกลุ่มสาระการเรียนรู้และการดำรงชีวิตในสังคมปัจจุบัน (กระทรวงศึกษาธิการ, 2560) หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พ.ศ. 2551 (ฉบับปรับปรุง 2560) ได้ให้ความสำคัญกับการพัฒนาทักษะภาษาไทยโดยเน้นผู้เรียนเป็นศูนย์กลาง ส่งเสริมให้ผู้เรียน "คิดเป็น ทำเป็น" และใช้ภาษาไทยเป็นเครื่องมือในการแสวงหาความรู้และพัฒนาตนเองอย่างต่อเนื่อง

จากการที่ผู้วิจัยได้ไปสังเกตการสอนในรายวิชาปฏิบัติการสอนในสถานศึกษา 3 ในภาคการศึกษาที่ 1 ปีการศึกษา 2567 และจากการสัมภาษณ์ครูระเบียบ ไหมแก้ว (การสัมภาษณ์, วันที่ 1 พฤศจิกายน 2567) พบว่า ผลการประเมินนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา นักเรียนส่วนใหญ่ยังประสบปัญหาในการอ่าน และเขียนคำตามมาตราตัวสะกดไม่ถูกต้อง ส่งผลให้ผลสัมฤทธิ์ทางการเรียนกลุ่มสาระภาษาไทยอยู่ในระดับต่ำกว่าเกณฑ์ที่กำหนด โดยเฉพาะในปีการศึกษา 2567 ที่นักเรียนมีคะแนนเฉลี่ยด้านการอ่านและการเขียนต่ำกว่ามาตรฐาน สะท้อนถึงปัญหาการจับใจความและการสะกดคำผิดพลาด เช่น การเขียนคำที่มีตัวสะกดไม่ตรงตามมาตรา (แม่กน, แม่กด) ซึ่งเป็นอุปสรรคสำคัญต่อการพัฒนาทักษะทางภาษา และการเรียนรู้ในระดับที่สูงขึ้น

ปัญหาดังกล่าวสอดคล้องกับผลการศึกษาของนักวิจัยหลายท่านที่พบว่า นักเรียนระดับประถมศึกษาส่วนใหญ่ยังขาดทักษะในด้านการเขียนที่ถูกต้อง โดยเฉพาะการเขียนสะกดคำตามมาตราตัวสะกด

ซึ่งเป็นปัญหาพื้นฐานที่ส่งผลต่อการเรียนรู้ในระดับที่สูงขึ้น การพัฒนาทักษะการเขียนสะกดคำตามมาตราตัวสะกดจึงมีความสำคัญอย่างยิ่งในการแก้ไขปัญหาดังกล่าว โดยเฉพาะการใช้แบบฝึกทักษะที่ออกแบบอย่างเป็นระบบและเหมาะสมกับระดับชั้นของผู้เรียน จากการศึกษางานวิจัยพบว่า การใช้แบบฝึกทักษะเป็นวิธีการหนึ่งที่มีประสิทธิภาพในการพัฒนาทักษะการอ่านและการเขียนของนักเรียน ดังเช่น งานวิจัยของ นารีรัตน์ กาวี, เกวริน กาวีระ, ณัฐกมล ถามล และมาเรียม แสงสว่าง (2564) ที่ได้ศึกษาการพัฒนาทักษะการเขียนสะกดคำตามมาตราตัวสะกด โดยใช้แบบฝึกทักษะสำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนคำเที่ยงอนุสสรณ์ ผลการวิจัยพบว่า หลังการใช้แบบฝึกทักษะมาตราตัวสะกด นักเรียนมีทักษะการเขียนสะกดคำสูงขึ้นอย่างมีนัยสำคัญ เช่นเดียวกับงานวิจัยของ วิภาพร มงคลช่วง (2564) ของโรงเรียนบ้านโคกศรี ที่ได้ศึกษาการแก้ปัญหาการเขียนคำภาษาไทยไม่ถูกต้องของนักเรียนชั้นประถมศึกษาปีที่ 4 โดยใช้แบบฝึกหัดการเขียนคำในมาตราตัวสะกด ผลการวิจัยพบว่า นักเรียนมีผลสัมฤทธิ์ทางการเรียนสูงขึ้นหลังการใช้แบบฝึกหัด

นอกจากนี้ งานวิจัยของ อุทัย รักษาเมือง (2566) โรงเรียนอนุบาลนครศรีธรรมราช ได้ศึกษาการพัฒนาทักษะการอ่าน และการเขียนสะกดคำมาตราตัวสะกดไม่ตรงมาตราของนักเรียนชั้นประถมศึกษาปีที่ 3 พบว่า การจัดการเรียนรู้โดยใช้แบบฝึกทักษะการอ่าน และการเขียนสะกดคำมาตราตัวสะกดไม่ตรงมาตราช่วยให้นักเรียนมีผลสัมฤทธิ์ทางการเรียนสูงขึ้น โดยคะแนนเฉลี่ยหลังเรียน (25.72) สูงกว่าคะแนนเฉลี่ยก่อนเรียน (21.76) อย่างชัดเจน สอดคล้องกับงานวิจัยของ ปาลิดา อิธิตา (2565) โรงเรียนบ้านมูเซอ พบว่า แบบฝึกทักษะการอ่านและการเขียนตามมาตราตัวสะกด สำหรับนักเรียนชั้นประถมศึกษาปีที่ 2 มีประสิทธิภาพ 93.34/89 สูงกว่าเกณฑ์ 75/75 และผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

จะเห็นได้ว่า การใช้แบบฝึกทักษะเป็นวิธีการที่มีประสิทธิภาพในการพัฒนาทักษะการอ่าน และการเขียนของนักเรียนในทุกระดับการศึกษา โดยเฉพาะในระดับประถมศึกษาซึ่งเป็นช่วงที่นักเรียนกำลังพัฒนาทักษะพื้นฐานทางภาษา การใช้แบบฝึกทักษะที่ออกแบบอย่างเป็นระบบและเหมาะสมกับระดับชั้นของผู้เรียนจะช่วยให้นักเรียนได้ฝึกฝนทักษะการอ่านและการเขียนอย่างต่อเนื่อง ส่งผลให้มีพัฒนาการที่ดีขึ้นและมีผลสัมฤทธิ์ทางการเรียนสูงขึ้น ดังนั้นการวิจัยการพัฒนาทักษะการอ่านและการเขียนคำภาษาไทยโดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา เพื่อให้นักเรียนได้ฝึกฝนอย่างเป็นระบบ ควบคู่กับกิจกรรมเชิงปฏิบัติ เช่น การจับคู่ภาพกับคำ การแต่งประโยค และเกมเติมตัวสะกด ซึ่งสอดคล้องกับแนวทางพระราชบัญญัติการศึกษาแห่งชาติ ที่ส่งเสริมการเรียนรู้จากประสบการณ์จริงและการแก้ปัญหาด้วยนวัตกรรม โดยคาดหวังว่าแบบฝึกทักษะนี้ จะช่วยพัฒนาความแม่นยำในการใช้ภาษาไทยและยกระดับผลสัมฤทธิ์ทางการเรียนของนักเรียนให้สูงขึ้นอย่างยั่งยืน

วัตถุประสงค์ของการวิจัย

1) เพื่อสร้างและหาประสิทธิภาพของแบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา ตามเกณฑ์ 80/80

2) เพื่อเปรียบเทียบทักษะการอ่านและการเขียนภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา ก่อนเรียนและหลังเรียน โดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกด

สมมติฐานของการวิจัย

1) ทักษะการอ่านและการเขียนภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา โดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกด หลังเรียนสูงกว่าก่อนเรียน

แนวคิด ทฤษฎี กรอบแนวคิด

แนวคิดเกี่ยวกับทักษะการอ่านและการเขียนภาษาไทย

การอ่านและการเขียนเป็นทักษะพื้นฐานสำคัญ ในการเรียนรู้ภาษาไทยและสาระการเรียนรู้อื่น ๆ การเข้าใจหลักการและทฤษฎีเกี่ยวกับการอ่าน และการเขียนจะช่วยให้สามารถจัดการเรียนการสอนได้อย่างมีประสิทธิภาพ

ความสำคัญของทักษะการอ่านและการเขียน

ความสำคัญของการอ่าน

การอ่านมีความสำคัญต่อการเรียนรู้และการดำเนินชีวิตหลายประการ ดังนี้ (สนิท ตั้งทวี, 2556; กอบกาญจน์ วงศ์วิสิทธิ์, 2561)

ด้านการศึกษา เป็นเครื่องมือในการแสวงหาความรู้ ช่วยพัฒนาสติปัญญาและความคิดเป็นพื้นฐานในการเรียนรู้วิชาต่าง ๆ และเป็นช่องทางในการศึกษาตลอดชีวิต

ด้านการดำรงชีวิต ช่วยให้ติดตามข้อมูลข่าวสารได้ทันเหตุการณ์ ช่วยในการประกอบอาชีพ ช่วยให้เข้าใจคำสั่ง คำชี้แจง และคำแนะนำต่าง ๆ ช่วยให้ปรับตัวเข้ากับสังคมได้ดี

ด้านจิตใจและอารมณ์ ช่วยให้เกิดความเพลิดเพลินเป็นการพักผ่อนและคลายเครียด เสริมสร้างจินตนาการและความคิดสร้างสรรค์และสร้างเสริมทัศนคติและค่านิยมที่ดี

ความสำคัญของการเขียน

การเขียนมีความสำคัญในหลายด้าน ดังนี้ (อัจฉรา ชีวพันธ์, 2557; จุไรรัตน์ ลักษณะศิริ และ บาหยัน อิ่มสำราญ, 2558)

ด้านการสื่อสาร เป็นเครื่องมือในการถ่ายทอดความรู้ ความคิด และความรู้สึก การบันทึกเรื่องราวและประสบการณ์ เป็นสื่อกลางในการติดต่อสื่อสารระหว่างบุคคลและเป็นการสื่อสารที่มีหลักฐานและสามารถอ้างอิงได้

ด้านการศึกษาและการทำงาน ใช้ในการบันทึกความรู้ การทำรายงานและบทความทางวิชาการ การทำเอกสารราชการและเป็นเครื่องมือในการประเมินผลการเรียนรู้

ด้านการสร้างสรรค์และจรรโลงสังคม สร้างสรรค์งานศิลปะทางภาษา เผยแพร่วัฒนธรรมและภูมิปัญญาแสดงเอกลักษณ์ของชาติ พัฒนาสังคม และประเทศชาติ

ความสัมพันธ์ระหว่างการอ่านและการเขียน

การอ่านและการเขียนมีความสัมพันธ์กันอย่างใกล้ชิด ตามแนวคิดของ สุนันทา มั่นเศรษฐวิทย์ (2557) และขจรศักดิ์ สุนลี (2559) ดังนี้

1. การอ่านเป็นการรับสารเข้า การเขียนเป็นการส่งสารออก
2. การอ่านมากช่วยให้มีคลังคำศัพท์และรูปแบบประโยคที่หลากหลายสำหรับการเขียน
3. การอ่านช่วยพัฒนาความคิด ส่วนการเขียนช่วยในการถ่ายทอดความคิด
4. ทั้งการอ่านและการเขียนต้องอาศัยความรู้เกี่ยวกับคำศัพท์ ไวยากรณ์ และการใช้ภาษา

5. การเขียนที่ดีมักได้รับอิทธิพลจากการอ่านงานเขียนที่ดี

6. การอ่านและการเขียนต่างก็ส่งเสริมซึ่งกันและกัน

หลักการสอนอ่านภาษาไทย

สุนันทา มั่นเศรษฐวิทย์ (2557) และ บันลือ พฤกษะวัน (2558) ได้เสนอหลักการสอนการอ่านภาษาไทย ดังนี้

ด้านเนื้อหาและวิธีการ

เริ่มจากสิ่งที่ง่ายไปสู่สิ่งที่ยาก สอนจากสิ่งที่ใกล้ตัวไปสู่สิ่งที่ไกลตัว เน้นการอ่านที่เข้าใจความหมาย ไม่ใช่เพียงอ่านออกเสียง สอนให้สัมพันธ์กับทักษะอื่น ๆ เช่น การฟัง การพูด และการเขียน เลือกวิธีสอนที่เหมาะสมกับเนื้อหาและวัยของผู้เรียน ใช้สื่อการสอนที่หลากหลายและน่าสนใจ

ด้านกระบวนการสอน

กำหนดจุดประสงค์การสอนอ่านให้ชัดเจน จัดกิจกรรมการสอนให้ผู้เรียนมีส่วนร่วม แบ่งกลุ่มการสอนตามความสามารถของผู้เรียน จัดการสอนเป็นรายบุคคลสำหรับผู้เรียนที่มีปัญหา มีการวัดและประเมินผลที่หลากหลาย นำผลการประเมินมาปรับปรุงการสอน

ด้านการจัดบรรยากาศการเรียนรู้

สร้างบรรยากาศที่เป็นกันเอง จัดห้องเรียนให้เอื้อต่อการอ่าน มีมุมหนังสือในห้องเรียน มีการยกย่องชมเชยผู้เรียนที่มีพัฒนาการด้านการอ่าน จัดกิจกรรมส่งเสริมการอ่านอย่างสม่ำเสมอ

หลักการสอนเขียนภาษาไทย

อัจฉรา ชีวพันธ์ (2557) และ ขจรศักดิ์ สุนลี (2559) ได้เสนอหลักการสอนเขียนภาษาไทย ดังนี้

ด้านเนื้อหาและวิธีการ เริ่มจากการฝึกกล้ามเนื้อมือสำหรับผู้เริ่มเรียน สอนการเขียนพยัญชนะ สระ และวรรณยุกต์ให้ถูกต้อง เน้นการเขียนคำและประโยคที่มีความหมาย สอนการเขียนที่ถูกต้องตามอักขรวิธี เพิ่มความยากของการเขียนตามลำดับบูรณาการการเขียนกับทักษะอื่น ๆ

ด้านกระบวนการสอน กำหนดจุดประสงค์การสอนเขียนให้ชัดเจน สาธิตการเขียนให้ผู้เรียนเห็นเป็นแบบอย่าง ให้ผู้เรียนได้ฝึกปฏิบัติจริง มีการตรวจแก้ไขงานเขียนและให้ข้อมูลย้อนกลับทันที ให้ผู้เรียนได้แก้ไขงานเขียนของตนเอง

ด้านการจัดบรรยากาศการเรียนรู้ สร้างบรรยากาศที่ผ่อนคลายและเป็นกันเองจัดกิจกรรมที่กระตุ้นให้อยากเขียนมีการนำเสนอผลงานเขียนของผู้เรียน ให้กำลังใจและเสริมแรงทางบวก จัดให้มีการประกวดผลงานเขียน

การประเมินทักษะการอ่านและการเขียน

การประเมินทักษะการอ่านและการเขียนที่มีประสิทธิภาพ จะช่วยให้ทราบพัฒนาการและปัญหาของผู้เรียน ซึ่งจะนำไปสู่การพัฒนาและแก้ไขได้อย่างเหมาะสมตามแนวคิดของ กาญจนา วัฒายุ (2558) และ ทิศนา แขมมณี (2560) มีดังนี้

การประเมินทักษะการอ่าน

วิธีการประเมิน การทดสอบการอ่านออกเสียง การตอบคำถามจากเรื่องที่อ่าน การเล่าเรื่องย้อนกลับ การใช้แบบทดสอบความเข้าใจในการอ่าน และการสังเกตพฤติกรรมการอ่าน

เครื่องมือในการประเมิน แบบทดสอบการอ่าน แบบบันทึกการอ่าน แบบสังเกตพฤติกรรม แฟ้มสะสมงานและแบบประเมินตนเอง

การประเมินทักษะการเขียน

วิธีการประเมิน การตรวจผลงานการเขียน การให้เขียนตามหัวข้อที่กำหนด การสังเกตกระบวนการเขียน การประเมินจากแฟ้มสะสมงานและการสัมภาษณ์เกี่ยวกับงานเขียน

เครื่องมือในการประเมิน แบบประเมินงานเขียน เกณฑ์การให้คะแนน (Rubrics) แบบตรวจสอบรายการ (Checklist) แบบสังเกตพฤติกรรมและแฟ้มสะสมงาน

เกณฑ์การประเมินทักษะการอ่านและการเขียน

เกณฑ์การประเมินการอ่าน ความถูกต้องในการอ่าน ความคล่องแคล่วในการอ่านความเข้าใจในการอ่าน การวิเคราะห์ การตีความและการนำไปประยุกต์ใช้

เกณฑ์การประเมินการเขียน ความถูกต้องของอักขรวิธี ความสมบูรณ์ของเนื้อหา ความถูกต้องของไวยากรณ์ การใช้คำศัพท์ที่หลากหลาย การลำดับความคิดและความคิดสร้างสรรค์

แนวคิดเกี่ยวกับการพัฒนาแบบฝึกทักษะ

การพัฒนาแบบฝึกทักษะเป็นกระบวนการสร้างสื่อการเรียนรู้ที่มีความสำคัญอย่างยิ่งในการพัฒนาทักษะทางภาษา โดยเฉพาะการอ่านและการเขียน แบบฝึกทักษะที่มีประสิทธิภาพจะช่วยให้ผู้เรียนได้มีโอกาสฝึกฝนซ้ำ และพัฒนาทักษะนั้นจนเกิดความชำนาญ

ขั้นตอนการสร้างแบบฝึกทักษะ

กระบวนการสร้างแบบฝึกทักษะมีขั้นตอนที่สำคัญตามแนวคิดของ ทัศนีย์ ศุภเมธี (2556) ดังนี้

1. ขั้นศึกษาปัญหาและความต้องการ วิเคราะห์ปัญหาในการเรียนรู้ของนักเรียน ศึกษาความต้องการในการพัฒนาทักษะและวิเคราะห์หลักสูตรและเนื้อหา

2. ขั้นวิเคราะห์เนื้อหาและกำหนดจุดประสงค์ แยกเนื้อหาเป็นหน่วยย่อย กำหนดจุดประสงค์การเรียนรู้ของแต่ละหน่วยและกำหนดพฤติกรรมที่ต้องการวัด

3. ขั้นออกแบบแบบฝึกทักษะ กำหนดรูปแบบของแบบฝึก ออกแบบกิจกรรมที่หลากหลายและกำหนดสื่อและอุปกรณ์ที่ใช้ประกอบ

4. ขั้นสร้างและพัฒนาแบบฝึกทักษะ สร้างแบบฝึกตามที่ได้ออกแบบไว้ สร้างเครื่องมือในการวัดและประเมินผลและตรวจสอบคุณภาพเบื้องต้น

5. ขั้นหาประสิทธิภาพของแบบฝึกทักษะ ทดลองใช้กับนักเรียนกลุ่มเล็ก นำผลมาวิเคราะห์หาประสิทธิภาพและปรับปรุงแก้ไขให้มีประสิทธิภาพตามเกณฑ์

6. ขั้นนำไปใช้จริง นำแบบฝึกไปใช้กับกลุ่มเป้าหมาย เก็บรวบรวมข้อมูล วิเคราะห์ผลและสรุป

การหาประสิทธิภาพของแบบฝึก

ชัยยงค์ พรหมวงศ์ (2558) ได้กล่าวถึงความจำเป็นที่จะต้องทดสอบประสิทธิภาพของชุดการสอนหรือแบบฝึกอยู่หลายประการ คือ

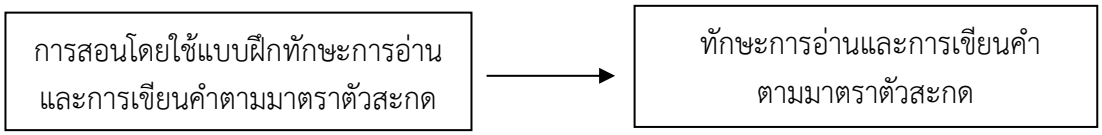
ผู้ผลิตแบบฝึกการทดสอบประสิทธิภาพ จะทำให้ผู้ผลิตมั่นใจได้ว่าเนื้อหาสาระที่บรรจุลงในชุดแบบฝึกง่ายต่อการเข้าใจ อันจะช่วยให้ผู้ผลิตมีความชำนาญสูงขึ้นการกำหนดเกณฑ์ประสิทธิภาพ ทำได้โดยการประเมินพฤติกรรมต่อเนื่อง (กระบวนการ)และพฤติกรรมขั้นสุดท้าย (ผลลัพธ์) โดยกำหนดค่าประสิทธิภาพ E_1 เป็นประสิทธิภาพของกระบวนการและ E_2 เป็นประสิทธิภาพของผลลัพธ์ กำหนดเป็นเกณฑ์ที่ผู้สอนคาดหมายว่าผู้เรียนจะเปลี่ยนพฤติกรรมที่พึงพอใจ โดยกำหนดให้เป็นเปอร์เซ็นต์ของผลการทดสอบหลังเรียนของผู้เรียนทั้งหมด นั่นคือใช้เกณฑ์ในเนื้อหาเป็นทักษะไว้ 80/80

วิธีคำนวณหาประสิทธิภาพ โดยใช้การคำนวณดังนี้

E_1 ได้จากการนำคะแนนงานทุกชิ้นของนักเรียนแต่ละคนรวมกันแล้วหาค่าเฉลี่ยเทียบเป็นร้อยละ

E_2 ได้จากการนำคะแนนผลการสอบหลังการทดลองของนักเรียนทั้งหมดรวมกันแล้วหาค่าเฉลี่ยเทียบเป็นร้อยละ

กรอบแนวคิดที่ใช้ในการวิจัย



วิธีดำเนินการวิจัย

1. ประชากรที่ใช้ในการวิจัย ได้แก่ นักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา ภาคการศึกษาที่ 2 ปีการศึกษา 2567 จำนวน 3 ห้อง จำนวนทั้งหมด 86 คน

2. กลุ่มตัวอย่างใช้ในการวิจัย ได้แก่ นักเรียนชั้นประถมศึกษาปีที่ 4/2 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา ภาคการศึกษาที่ 2 ปีการศึกษา 2567 จำนวน 1 ห้อง 30 คน โดยวิธีการสุ่มแบบยกกลุ่มใช้ห้องเป็นหน่วยในการสุ่ม

3. รูปแบบการวิจัย

เป็นรูปแบบการทดลอง การศึกษาค้นคว้าครั้งนี้ใช้แบบแผนการทดลองแบบกลุ่มเดียวทดสอบก่อนเรียนและหลังเรียน (One Group Pre-test-Post-test Design) (Campbell & Stanley, 1963)

ตารางที่ 1 แสดงแผนภาพแผนการทดลอง

กลุ่มทดลอง	ทดสอบก่อนเรียน	สิ่งทดลอง	ทดสอบหลังเรียน
E	O_1	X	O_2

X คือ การทดลอง

O_1 คือ การทดสอบก่อนเรียน

O_2 คือ การทดสอบหลังเรียน

4. เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล มีดังนี้

1) แผนการจัดการเรียนรู้ทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดวิชาภาษาไทยของนักเรียนระดับชั้นประถมศึกษาปีที่ 4 จำนวน 12 แผน 12 ชั่วโมง

2) แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดวิชาภาษาไทยของนักเรียนระดับชั้นประถมศึกษาปีที่ 4

3) แบบวัดผลสัมฤทธิ์ด้านทักษะการอ่าน และการเขียนคำตามมาตราตัวสะกดวิชาภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 4 จำนวน 20 ข้อ

การสร้างเครื่องมือวิจัย

1) ผู้วิจัยดำเนินการ คือ สร้างแผนจัดการเรียนรู้ ศึกษาหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 ศึกษาค้นคว้าตำรา เอกสาร ทฤษฎี สร้างแผนการจัดการเรียนรู้การอ่านและการเขียน

คำตามมาตราตัวสะกดวิชาภาษาไทยและนำแผนที่สร้างขึ้นเสนอต่อผู้เชี่ยวชาญ 3 คน ตรวจสอบประเมินคุณภาพ ปรับปรุงแก้ไขตามความแนะนำของผู้เชี่ยวชาญ โดยหาความเที่ยงตรงเชิงเนื้อหา (IOC) มีค่าตั้งแต่ระดับ 0.5 ขึ้นไป

2) ผู้วิจัยดำเนินการสร้างแบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดวิชาภาษาไทย โดยศึกษาหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 ศึกษาค้นคว้าตำรา เอกสาร ทฤษฎี แล้วสร้างแบบฝึกทักษะการอ่านและการเขียน ให้ผู้เชี่ยวชาญ 3 คน เพื่อตรวจสอบความถูกต้องเหมาะสมเชิงเนื้อหา สอดคล้องกับจุดประสงค์การเรียนรู้ โดยใช้แบบประเมินความเหมาะสม มีลักษณะเป็นมาตรประเมินค่า (Rating Scale) 5 ระดับ แล้ววิเคราะห์ค่าเฉลี่ยนำไปเทียบกับเกณฑ์

3) ผู้วิจัยดำเนินการแบบวัดผลสัมฤทธิ์ด้านทักษะการอ่าน และการเขียนคำตามมาตราตัวสะกดวิชาภาษาไทย โดยศึกษาหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 ศึกษาค้นคว้าตำรา เอกสาร ทฤษฎี แล้วสร้างแบบวัดผลสัมฤทธิ์ด้านทักษะการอ่านและการเขียน จำนวน 30 ข้อ ให้ผู้เชี่ยวชาญ 3 คน เพื่อพิจารณาข้อคำถามของข้อสอบแต่ละข้อว่าสอดคล้องกับจุดประสงค์การเรียนรู้ โดยใช้แบบประเมินความสอดคล้อง นำผลมาวิเคราะห์หาค่า IOC มีค่าตั้งแต่ระดับ 0.5 ขึ้นไป หาค่าความยาก (P) ใช้ค่าระหว่าง 0.20 - 0.80 ค่าอำนาจจำแนก (r) ใช้ค่า 0.20 - 1.00 และค่าความเชื่อมั่นของแบบวัดผลสัมฤทธิ์ด้านทักษะการอ่านและการเขียนได้ค่า 0.86

5. การเก็บรวบรวมข้อมูล

ซึ่งผู้วิจัยได้ทำการทดลองโดยมีขั้นตอนดังนี้

1) ครูจัดการเรียนการสอนโดยใช้แผนการจัดการเรียนรู้ทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดวิชาภาษาไทยที่ได้จัดทำขึ้น จำนวน 12 แผน 12 ชั่วโมง สำหรับนักเรียนระดับชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา ในภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 30 คน

2) ครูให้นักเรียนทำแบบวัดผลสัมฤทธิ์ด้านทักษะการอ่าน และการเขียนคำตามมาตราตัวสะกดวิชาภาษาไทยก่อนเรียน (Pre-test)

3) ครูบอกจุดประสงค์การเรียนรู้ของรายวิชา

4) ครูให้นักเรียนฝึกปฏิบัติตามแผนการจัดการเรียนรู้

5) ครูตรวจสอบการฝึกปฏิบัติของนักเรียนอย่างใกล้ชิดและทำการแก้ไขทันที เมื่อพบว่านักเรียนทำผิดเพื่อให้แก้ไขข้อบกพร่องต่าง ๆ

6) ครูให้นักเรียนทำแบบวัดผลสัมฤทธิ์ด้านทักษะการอ่า นและการเขียนคำตามมาตราตัวสะกดวิชาภาษาไทยหลังเรียน (Post-test)

7) ครูนำผลการทดสอบก่อนเรียน (Pre-test) และหลังเรียน (Post-test) ไปวิเคราะห์ข้อมูลทางสถิติ

6. การวิเคราะห์ข้อมูล

1) หาค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน

2) สร้างและหาประสิทธิภาพของแบบฝึกทักษะการอ่าน และการเขียนคำตามมาตราตัวสะกด หาประสิทธิภาพใช้สถิติ E_1/E_2

3) เปรียบเทียบผลสัมฤทธิ์ด้านทักษะการอ่าน และการเขียนระหว่างก่อนเรียนและหลังเรียน โดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) ใช้สถิติ t-test dependent

ผลการวิจัย

1) หาประสิทธิภาพของแบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกด

ตารางที่ 2 การหาประสิทธิภาพของแบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกด

คะแนน	จำนวนนักเรียน	คะแนนเต็ม	คะแนนเฉลี่ย ($\overline{X}$)	ร้อยละ	ค่าประสิทธิภาพ E_1/E_2
ระหว่างเรียน (E_1)	30	10	8.27	82.70	82.70/91.00
หลังเรียน (E_2)	30	20	18.20	91.00	

จากตารางที่ 2 ผลการหาประสิทธิภาพของแบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดของนักเรียนชั้นประถมศึกษาปีที่ 4 พบว่า คะแนนเฉลี่ยระหว่างเรียนมีค่า 8.27 คะแนน คิดเป็นค่าประสิทธิภาพของกระบวนการระหว่างเรียน (E_1) เท่ากับ 82.70 และคะแนนเฉลี่ยหลังเรียนมีค่า 18.20 คะแนนค่าเป็นค่าประสิทธิภาพของผลลัพธ์หลังเรียน (E_2) เท่ากับ 91.00 แสดงว่า แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกด มีประสิทธิภาพ (E_1/E_2) อยู่ที่ 82.70/91.00



ภาพที่ 1 ตัวอย่างแบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกด

2) เปรียบเทียบผลสัมฤทธิ์ด้านทักษะการอ่านและการเขียนระหว่างก่อนเรียนและหลังเรียน โดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดของนักเรียน ชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา

ตารางที่ 3 แสดงการเปรียบเทียบผลสัมฤทธิ์ด้านทักษะการอ่านและการเขียนระหว่างก่อนเรียนและหลังเรียนโดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่)

การทดสอบ	จำนวนนักเรียน	คะแนนเฉลี่ย ($\overline{X}$)	S.D.	t	Sig.
ก่อนเรียน	30	15.26	1.24	13.06	0.000*
หลังเรียน	30	18.20	2.26		

*นัยสำคัญทางสถิติที่ระดับ 0.05

จากตารางที่ 3 ผลการเปรียบเทียบผลสัมฤทธิ์ด้านทักษะการอ่านและการเขียนระหว่างก่อนเรียนและหลังเรียนโดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดของนักเรียน ชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา พบว่า คะแนนจากการทดสอบผลสัมฤทธิ์ด้านทักษะการอ่านและการเขียนก่อนเรียนมีค่าเฉลี่ย 15.26 ค่าส่วนเบี่ยงเบนมาตรฐาน 1.24 และผลสัมฤทธิ์ด้านทักษะการอ่านและการเขียนหลังเรียนมีค่าเฉลี่ย 18.20 ค่าส่วนเบี่ยงเบนมาตรฐานเท่ากับ 2.26 เมื่อเปรียบเทียบผลสัมฤทธิ์ด้านทักษะการอ่านและการเขียนระหว่างก่อนเรียนและหลังเรียนโดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกด โดยใช้ค่า t (t-test dependent) ปรากฏว่าค่า Sig. มีค่า 0.000 น้อยกว่า 0.05 แสดงว่าความแตกต่างมีนัยสำคัญทางสถิติ คือนักเรียนที่เรียนโดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดมีผลสัมฤทธิ์ด้านทักษะการอ่านและการเขียนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

สรุปและอภิปรายผล

สรุปผลการวิจัย

1. ประสิทธิภาพของแบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกด มีประสิทธิภาพ (E_1/E_2) อยู่ที่ 82.70/91.00

2. นักเรียนที่เรียนโดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดมีผลสัมฤทธิ์ด้านทักษะการอ่านและการเขียนหลังเรียนสูงกว่าก่อนเรียน

อภิปรายผลการวิจัย

การพัฒนาทักษะการอ่านและการเขียนคำภาษาไทย โดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดของนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา ผู้วิจัยสามารถอภิปรายผลได้ ดังนี้

1. ประสิทธิภาพของแบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกด ของนักเรียนชั้นประถมศึกษาปีที่ 4 พบว่า แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกด มีประสิทธิภาพ (E_1/E_2) อยู่ที่ 82.70/91.00 เป็นไปตามเกณฑ์ 80/80 เนื่องจากผู้วิจัยได้ทำการศึกษาชุดฝึกทักษะอย่างมีระบบ โดยเริ่มตั้งแต่ศึกษาหลักสูตร วิเคราะห์มาตรฐานตัวชี้วัดและสาระการเรียนรู้ สร้างชุดแบบฝึกทักษะให้มีความสอดคล้องกับหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 ศึกษาเนื้อหาเกี่ยวกับการอ่านและการเขียนคำตามมาตราตัวสะกด นำมาสังเคราะห์เนื้อหาแบบฝึกทักษะให้สอดคล้องกับความรู้ที่ผู้เรียนจำเป็นต้องรู้ ศึกษาหลักการสร้างแผนการจัดการเรียนรู้ที่ดีและสร้างแผนการจัดการเรียนรู้ขึ้น

จำนวน 12 แผน 12 ชั่วโมง สร้างแบบทดสอบความรู้ทั้งก่อนเรียนและหลังเรียนให้มีความสอดคล้องกับเนื้อหาและจุดประสงค์ของการเรียนรู้ จากนั้นก็ให้ผู้เชี่ยวชาญตรวจสอบและประเมินคุณภาพนำข้อเสนอแนะของผู้เชี่ยวชาญมาปรับปรุงแก้ไขให้มีคุณภาพเพิ่มมากขึ้น สอดคล้องกับ นวรัตน์ สังข์สร, ประภาศ ปานเจี้ยง และเก็ตถวา บุญปราการ (2566) ได้ศึกษาผลการจัดกิจกรรมการเขียนสะกดคำที่ไม่ตรงตามมาตราตัวสะกดโดยใช้แบบฝึกทักษะ กลุ่มสาระการเรียนรู้ภาษาไทย ของนักเรียนชั้นประถมศึกษาปีที่ 2 โรงเรียนในเครือข่ายสถานศึกษาสี่เมืองสัมพันธ์ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลาเขต 2 ปีการศึกษา 2564 โรงเรียนวัดม่วงค่อมและโรงเรียนวัดควนลัง (มิตรภาพที่ 11) พบว่า การพัฒนาแบบฝึกทักษะมีกระบวนการสร้างที่เป็นระบบขั้นตอน มีการตรวจสอบประสิทธิภาพโดยผู้เชี่ยวชาญและนำคำแนะนำมาปรับปรุงแก้ไขเพื่อให้ชุดการเรียนรู้มีความถูกต้องและน่าเชื่อถือ นอกจากนี้ในกระบวนการพัฒนาแบบฝึกทักษะนี้ ผู้วิจัยคำนึงถึงผลที่จะเกิดแก่ผู้เรียน จึงได้ออกแบบแบบฝึกทักษะ โดยให้ผู้เรียนได้เรียนรู้ตามความสามารถของตนเอง โดยไม่ต้องแข่งขันกับผู้อื่น แต่ทั้งนี้ผู้เรียนจะต้องฝึกฝนทำแบบฝึกหัดและกิจกรรมต่าง ๆ ในแบบฝึกทักษะทุกชุด จึงทำให้แบบฝึกทักษะการเขียนสะกดคำที่ไม่ตรงตามมาตราตัวสะกดกลุ่มสาระการเรียนรู้ภาษาไทย ชั้นประถมศึกษาปีที่ 2 มีประสิทธิภาพเท่ากับ 84.00/86.00 และงานวิจัยของ อุทัย รักษาเมือง (2566) โรงเรียนอนุบาลนครศรีธรรมราช ได้ศึกษาการพัฒนาทักษะการอ่านและการเขียนสะกดคำมาตราตัวสะกดไม่ตรงมาตราของนักเรียนชั้นประถมศึกษาปีที่ 3 พบว่า การจัดการเรียนรู้ โดยใช้แบบฝึกทักษะการอ่านและการเขียนสะกดคำมาตราตัวสะกดไม่ตรงมาตรา ช่วยให้นักเรียนมีผลสัมฤทธิ์ทางการเรียนสูงขึ้น โดยคะแนนเฉลี่ยหลังเรียน (25.72) สูงกว่าคะแนนเฉลี่ยก่อนเรียน (21.76)

2. ผลสัมฤทธิ์ด้านทักษะการอ่านและการเขียนระหว่างก่อนเรียนและหลังเรียน โดยใช้แบบฝึกทักษะการอ่านและการเขียนคำตามมาตราตัวสะกดของนักเรียนในระดับชั้นประถมศึกษาปีที่ 4 โรงเรียนเทศบาล 5 (วัดหาดใหญ่) จังหวัดสงขลา พบว่า หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 แสดงให้เห็นว่าการจัดการเรียนรู้ โดยใช้แบบฝึกทักษะทำให้นักเรียนมีความเข้าใจในเนื้อหานักเรียน ได้ฝึกอ่านจากและการเขียนแบบฝึกทักษะ การเลือกเนื้อหาที่นำมาจัดกิจกรรมการเรียนรู้เป็นสิ่งสำคัญควรคำนึงถึงความเหมาะสมของ เพศ วัย และระดับความสามารถในการเรียนของนักเรียนเพราะเด็กผู้ชายและเด็กผู้หญิงอาจมีความสนใจในเนื้อหาที่แตกต่างกัน การจัดเตรียมหนังสือและกิจกรรมที่หลากหลายจะช่วยให้ทุกคนสามารถเชื่อมโยงกับการเรียนรู้ได้ เด็กผู้ชายอาจชอบกิจกรรมที่มีการเคลื่อนไหว การแข่งขัน ขณะที่เด็กผู้หญิงอาจชอบการเรียนรู้แบบร่วมมือ อย่างไรก็ตามไม่ควรตีกรอบตายตัว ควรสร้างโอกาสให้เด็กได้เรียนรู้ในหลายรูปแบบหากเนื้อหาใดที่นักเรียนสนใจนักเรียนจะเกิดความกระตือรือร้น การเรียนรู้เพิ่มมากขึ้น และในระหว่างการดำเนินการจัดกิจกรรมครูควรสังเกตพฤติกรรมนักเรียน ที่มีความสามารถในการเรียนต่ำ อาจจะไม่เข้าใจหรือเกิดการเรียนรู้ช้าหรือต้องการความช่วยเหลือ ครูควรใช้เทคนิคเสริมแรงกระตุ้นให้นักเรียนสนใจหรืออธิบายให้เข้าใจชัดเจนอีกครั้ง จากผลการวิจัยที่ผ่านมาพบว่า กระบวนการจัดการเรียนรู้ โดยใช้แบบฝึกทักษะเป็นวิธิหนึ่งที่ช่วยพัฒนาผลสัมฤทธิ์ของนักเรียนได้ ซึ่งสอดคล้องกับผลงานการวิจัย นวรัตน์ สังข์สร และคณะ (2566) ได้ศึกษาผลการจัดกิจกรรมการเขียนสะกดคำที่ไม่ตรงตามมาตราตัวสะกดโดยใช้แบบฝึกทักษะ กลุ่มสาระการเรียนรู้ภาษาไทย ของนักเรียนชั้นประถมศึกษาปีที่ 2 โรงเรียนในเครือข่ายสถานศึกษาสี่เมืองสัมพันธ์ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสงขลาเขต 2 ปีการศึกษา 2564 โรงเรียนวัดม่วงค่อมและโรงเรียนวัดควนลัง (มิตรภาพที่ 11) พบว่า นักเรียนมีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติระดับที่ .05 และ กาญจนา ชลเกริกเกียติ (2561) คะแนนแบบทดสอบหลังเรียนสูงกว่าคะแนนทดสอบก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ

.05 ซึ่งเป็นตามสมมติฐานที่ตั้งไว้ แสดงให้เห็นว่า การจัดการเรียนรู้โดยใช้แบบฝึกทักษะการอ่านและการเขียนสะกดคำกลุ่มสาระการเรียนรู้ภาษาไทยชั้นประถมศึกษาปีที่ 1 ทำให้ผลสัมฤทธิ์ทางการเรียนด้านการอ่านและการเขียนสะกดคำสูงขึ้น

ข้อเสนอแนะ

ข้อเสนอแนะสำหรับการนำผลวิจัยไปใช้

1. ในระหว่างการดำเนินการจัดกิจกรรม ครูควรสังเกตพฤติกรรมนักเรียนที่มีความสามารถ ในการเรียนต่ำ อาจจะไม่เข้าใจหรือเกิดการเรียนรู้ช้าหรือต้องการความช่วยเหลือ ครูควรใช้เทคนิคเสริมแรงกระตุ้นให้นักเรียนสนใจหรืออธิบายให้เข้าใจชัดเจนอีกครั้ง

ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

1. ควรมีการสร้างแบบฝึกทักษะในกลุ่มสาระการเรียนรู้ภาษาไทย เนื้อหาที่เข้าใจยากหรือเนื้อหาที่เป็นปัญหาต่อการเรียนการสอนในกลุ่มทักษะภาษาไทยในแต่ละระดับชั้น เพื่อนำไปทดลองหาประสิทธิภาพ

2. ควรมีการสร้างแบบฝึกภาษาไทย ในหน่วยการเรียนรู้อื่นหรือในระดับชั้นอื่น ๆ

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2560). หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 (ฉบับปรับปรุง พ.ศ. 2560). กรุงเทพฯ: โรงพิมพ์ชุมนุมสหกรณ์การเกษตรแห่งประเทศไทย จำกัด.

กาญจนา ชลเกริกเกียติ. (2561). การพัฒนาทักษะการอ่านและเขียนคำพื้นฐานภาษาไทยโดยใช้แบบฝึกทักษะสาระการเรียนรู้ภาษาไทยของนักเรียนชั้นประถมศึกษาปีที่ 1 โรงเรียนวัดบ่อมะปริง. กรุงเทพฯ: สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุราษฎร์ธานี เขต 2 สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน กระทรวงศึกษาธิการ.

กาญจนา วัฒายุ. (2558). การวิจัยเพื่อพัฒนาคุณภาพการศึกษา (พิมพ์ครั้งที่ 4). กรุงเทพฯ: ธนพรการพิมพ์.

กอบกาญจน์ วงศ์วิสิทธิ์. (2561). การอ่านเชิงวิเคราะห์วิจารณ์. กรุงเทพฯ: โอเดียนสโตร์.

ขจรศักดิ์ สุนลี. (2559). การสอนภาษาไทยในระดับประถมศึกษา. กรุงเทพฯ: มหาวิทยาลัยศรีนครินทรวิโรฒ.

จุไรรัตน์ ลักษณะศิริ และบาหยัน อิ่มสำราญ. (2558). การใช้ภาษาไทย. นครปฐม: มหาวิทยาลัยศิลปากร.

ชัยยงค์ พรหมวงศ์. (2558). นวัตกรรมและเทคโนโลยีทางการศึกษาการสอน. กรุงเทพฯ: ไทยวัฒนาพานิช.

ทัศนีย์ ศุภเมธี. (2556). การสอนภาษาไทย. กรุงเทพฯ: สถาบันราชภัฏธนบุรี.

ทิศนา แขมมณี. (2560). ศาสตร์การสอน: องค์ความรู้เพื่อการจัดกระบวนการเรียนรู้ที่มีประสิทธิภาพ (พิมพ์ครั้งที่ 21). กรุงเทพฯ: จุฬาลงกรณ์มหาวิทยาลัย.

นวรัตน์ สังข์สร, ประภาศ ปานเจี้ยง และเก็ตถวา บุญปราการ. (2566). การพัฒนาทักษะการเขียนสะกดคำไม่ตรงมาตราตัวสะกดโดยใช้แบบฝึกพัฒนาการเขียนสะกดคำสำหรับนักเรียนชั้นประถมศึกษาปีที่ 2. วารสาร มจรอุบลปริทรรศน์, 8(3), 719-727.

นารีรัตน์ กาวี, เกวริน กาวีระ, ณัฐกมล ถามล และมาเรียม แสงสว่าง. (2564). การพัฒนาทักษะการเขียนสะกดคำตามมาตราตัวสะกดโดยใช้แบบฝึกทักษะสำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 โรงเรียนคำเที่ยงอนุสสรณ์. วารสารล้านนาวิจัยปริทรรศน์, 2(1), 8-16.

บันลือ พฤกษะวัน. (2558). แนวพัฒนาการอ่านเร็ว คิดเป็น (พิมพ์ครั้งที่ 5). กรุงเทพฯ: ไทยวัฒนาพานิช.

ปาลิดา อิธิตา. (2565). การสร้างแบบฝึกทักษะการอ่านและการเขียนมาตราตัวสะกดของนักเรียนชั้นประถมศึกษาปีที่ 2 โรงเรียนบ้านมูเซอ สังกัด สำนักงานเขตพื้นที่การศึกษาประถมศึกษาตาก เขต 1. วารสารวิจัยวิชาการ, 5(1), 217-230.

วิภาพร มงคลช่วง. (2564). การแก้ปัญหาการเขียนคำภาษาไทยไม่ถูกต้องของนักเรียนชั้นประถมศึกษาปีที่ 4 โดยใช้แบบฝึกหัดการเขียนคำในมาตราตัวสะกด (รายงานการวิจัย). ยโสธร: โรงเรียนบ้านโคกศรี, สำนักงานเขตพื้นที่การศึกษาประถมศึกษายโสธร เขต 2.

สนิท ตั้งทวี. (2556). การใช้ภาษาไทย. กรุงเทพฯ: โอเดียนสโตร์.

สุนันทา มั่นเศรษฐวิทย์. (2557). หลักและวิธีสอนอ่านภาษาไทย (พิมพ์ครั้งที่ 7). กรุงเทพฯ: ไทยวัฒนาพานิช.

อัจฉรา ชีวพันธ์. (2557). การสอนเขียนเชิงสร้างสรรค์ระดับประถมศึกษา (พิมพ์ครั้งที่ 3). กรุงเทพฯ: จุฬาลงกรณ์มหาวิทยาลัย.

อุทัย รักษาเมือง. (2566). การพัฒนาทักษะการอ่านและการเขียนสะกดคำมาตราตัวสะกดไม่ตรงมาตราของนักเรียนชั้นประถมศึกษาปีที่ 3 โดยใช้แบบฝึกทักษะการอ่านและการเขียนคำ มาตราตัวสะกดไม่ตรงมาตรา. นครศรีธรรมราช: โรงเรียนอนุบาลนครศรีธรรมราช "ณ นคร อุทิศ", สำนักงานเขตพื้นที่การศึกษาประถมศึกษานครศรีธรรมราช เขต 1.

Campbell, D. T., & Stanley, J. C. (1963). Experimental and quasi-experimental design for research. Hope-Well, NJ: Houghton Mifflin.

การสร้างหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด เพื่อพัฒนาทักษะการอ่านจับใจความสำคัญของนักเรียนชั้นมัธยมศึกษาปีที่ 3

Creation of Supplementary Reading Book on Suntra Legend Using Six-Step Technique and Mind Mapping to Develop Reading for Main Ideas of Secondary Three Students

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บทคัดย่อ

บทความวิจัยนี้มีวัตถุประสงค์ ดังนี้ (1) เพื่อสร้างและหาประสิทธิภาพหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิดเพื่อพัฒนาทักษะอ่านจับใจความสำคัญของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ตามเกณฑ์ 80/80 (2) เพื่อเปรียบเทียบทักษะการอ่านจับใจความสำคัญก่อนและหลังเรียน หลังจากการใช้หนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด และ (3) เพื่อศึกษาความพึงพอใจ ของนักเรียนชั้นมัธยมศึกษาปีที่ 3 หลังจากที่เรียนโดยใช้การสร้างหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด กลุ่มตัวอย่างที่ใช้ในการวิจัยเป็นนักเรียนชั้นมัธยมศึกษาปีที่ 3/2 ของโรงเรียนอุดมวิทยายน จำนวน 18 คน โดยวิธีการสุ่มตัวอย่างแบบกลุ่ม (Cluster Random Sampling) สถิติที่ใช้ในการวิเคราะห์ข้อมูลคือ ร้อยละ ค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐานและสถิติที่ใช้ในการทดสอบสมมติฐาน Wilcoxon signed-rank test ผลการวิจัยประกอบด้วย (1) ประสิทธิภาพของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา มีประสิทธิภาพ 80.44/82.03 ซึ่งสูงกว่าเกณฑ์ที่กำนดไว้ที่ 80/80 (2) ทักษะการอ่านจับใจความสำคัญของนักเรียนหลังจากการใช้หนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา สูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และ (3) ความพึงพอใจของนักเรียนชั้นมัธยมศึกษาปีที่ 3 หลังจากที่เรียนโดยใช้การสร้างหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา อยู่ในระดับมากที่สุด

คำสำคัญ: หนังสือส่งเสริมการอ่าน, การอ่านจับใจความสำคัญ, เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด

Abstract

The objectives of this research were (1) to develop and determine the efficiency of the *Legend of Nang Suntra* reading promotion book using the Six-Step Ladder Technique combined with mind mapping to enhance reading comprehension skills among Secondary Three students based on the 80/80 criterion, (2) to compare students' reading comprehension skills before and after using the developed reading promotion book through the Six-Step Ladder Technique combined with mind mapping to enhance reading comprehension skills, and (3) to study students' satisfaction after learning with the *Legend of Nang Suntra* reading promotion book through the Six-Step Ladder Technique combined with mind mapping to enhance reading comprehension skills. The study was conducted with 18 Secondary 3/2 students from Udomwittayayon School, Cluster random sampling were used for data collection. The data were analyzed using percentage, mean, standard deviation, and the Wilcoxon signed-rank test for hypothesis testing. The findings revealed that (1) the efficiency of the *Legend of Nang Suntra* reading promotion book was 80.44/82.03, which exceeded the predetermined 80/80 criterion, (2) students' reading comprehension skills after using the reading promotion book significantly improved compared to before learning with a statistical significance level of .05, and (3) students' satisfaction with the learning experience using the *Legend of Nang Suntra* reading promotion book was at the highest level.

Keywords: Reading Promotion Book, Reading Comprehension,
Six-Step Ladder Technique Combined with Mind Mapping

บทนำ

การอ่าน เป็นทักษะพื้นฐานที่มีความสำคัญของกระบวนการเรียนรู้เพื่อแสวงหาความรู้ อันจะส่งผลให้ผู้เรียนมีความรู้ ความเข้าใจ เพื่อพัฒนาสติปัญญา โดยครูมีบทบาทสำคัญในการช่วยปลูกฝังทักษะการอ่านให้แก่นักเรียนให้มีนิสัยรักการอ่าน และสามารถวิเคราะห์เรื่องที่อ่านได้อย่างมีเหตุผล เพราะการอ่านที่มีประสิทธิภาพสูงสุด คือ การอ่านที่ผู้เรียนสามารถวิเคราะห์เรื่องที่อ่านได้อย่างถูกต้อง ดังที่ วานิช ยืนชีวิต (2552) กล่าวว่า การอ่าน เป็นทักษะหนึ่งที่มีความสำคัญที่จะนำไปสู่กระบวนการคิด และการเขียน เพื่อการแสวงหาความรู้ในการพัฒนาชีวิตและทำให้เป็นคนทันโลกเหตุการณ์ต่าง ๆ สอดคล้องกับ วรรณา จันทนาคม (2537) อ้างอิงใน สมพร แพ่งพิพัฒน์, 2555) ได้กล่าวว่า การอ่านเป็นปัจจัยสำคัญในการพัฒนาบุคคล ที่จะช่วยพัฒนาทั้งทางสติปัญญาและอารมณ์ แต่ปัญหาด้านการอ่านของผู้เรียนก็ยังปรากฏให้เห็น ดังผลการประเมิน PISA 2022 ของประเทศไทย พบว่า นักเรียนไทยมีคะแนนเฉลี่ยด้านการอ่าน 379 คะแนน ซึ่งเมื่อเทียบกับ PISA 2018 พบว่า ด้านการอ่านลดลง 14 คะแนน ทั้งนี้ ผลการประเมินของประเทศไทยตั้งแต่ PISA 2000 จนถึง PISA 2022 มีคะแนนเฉลี่ยด้านการอ่านมีแนวโน้มลดลง สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี (2566)

นโยบายรัฐมนตรีว่าการกระทรวงศึกษาธิการ มุ่งเน้นให้สถานศึกษาส่งเสริมการอ่าน ดังที่ เพิ่มพูน ชิดชอบ (2566) ได้มีข้อสั่งการให้สถานศึกษาเล็งเห็นความสำคัญในการส่งเสริมการอ่านให้แก่ผู้เรียน ตาม

หลักสูตรแกนกลางการศึกษาขั้นพื้นฐานพุทธศักราช 2551 กลุ่มสาระการเรียนรู้ภาษาไทย โดยเฉพาะมาตรฐานและตัวชี้วัดที่ผู้เรียนจะต้องบรรลุตามเป้าหมาย คือ ผู้เรียนสามารถระบุใจความสำคัญจากสิ่งที่อ่านได้

จากปัญหาดังกล่าวมีแนวทางในการแก้ปัญหา เพื่อพัฒนาการอ่านที่เหมาะสมสำหรับนักเรียนคือการให้นักเรียนได้ฝึกทักษะการอ่าน โดยมีหนังสือส่งเสริมการอ่านเพื่อใช้ในการฝึกฝนทักษะด้านการอ่าน หากนำสิ่งที่เป็นเรื่องใกล้ตัว จากประสบการณ์ของผู้เรียน อาจเป็นเรื่องเล่า ตำนานเกี่ยวกับบุคคล สถานที่ ความเชื่อ สภาพแวดล้อม ลักษณะภูมิศาสตร์และประวัติศาสตร์เกี่ยวกับท้องถิ่น เพื่อปลูกจิตสำนึกรักถิ่นฐานบ้านเกิดของตนเอง และอาจทำให้ผู้เรียนมีความสนใจในการเล่าเรียนเพิ่มมากขึ้น โดยจากการสำรวจพบว่านักเรียนสนใจเกี่ยวกับความเป็นมาของรูปปั้นนางสุนทรา ซึ่งอยู่ใกล้กับโรงเรียนของนักเรียน ซึ่งเป็นที่เคารพบูชาของชาวบ้านในชุมชน โดยจากการศึกษาพบว่า นางสุนทรา เป็นที่มาของชื่อหมู่บ้านสุนทรา ซึ่งมาจากชื่อตัวละครตัวหนึ่งจากนิทานพื้นบ้าน เรื่องพระรถเมรี ดังนั้นผู้วิจัยจึงสนใจในการสร้างหนังสือส่งเสริมการอ่านที่เป็นเรื่องใกล้ตัวกับนักเรียน เพื่อส่งเสริมพัฒนาให้นักเรียนฝึกฝนในการอ่านและมีนิสัยรักการอ่าน หากผู้เรียนได้อ่านหนังสือส่งเสริมการอ่านที่เกี่ยวข้องกับเรื่องราวที่เกิดขึ้นใกล้ตัว หรืออยู่ในชุมชนท้องถิ่นของตนเอง จะทำให้เกิดองค์ความรู้ที่ได้เห็นสภาพความเป็นอยู่ วิถีชีวิตของคนในท้องถิ่นได้ชัดเจนยิ่งขึ้น ดังนั้นหนังสือส่งเสริมการอ่านจึงเป็นสื่อที่สำคัญในการช่วยพัฒนาผู้เรียน ให้สามารถเรียนรู้ ฝึกปฏิบัติและฝึกให้ผู้เรียนเกิดกระบวนการคิดที่เป็นระบบมากขึ้นจากเรื่องใกล้ตัวหรือเหตุการณ์ที่ได้พบเจอ ดังที่จินตนา ใบกายูซี (2537) ได้กล่าวถึง การเขียนหนังสือส่งเสริมการอ่านจากประสบการณ์ว่า สภาพปัญหาในท้องถิ่นสามารถนำมาเป็นหัวข้อในการเขียนหนังสือส่งเสริมการอ่านได้ สามารถนำเรื่องราวที่เกิดขึ้นนั้นมาเผยแพร่ให้สาธารณะชนได้รับทราบข้อมูลในท้องถิ่นของตน การจัดการเรียนการสอนของครูในยุคปัจจุบันจะใช้สื่อที่เป็นหนังสือเรียนอย่างเดียว คงไม่เพียงพอสำหรับการสอนที่จะทำให้ผู้เรียนบรรลุตามจุดประสงค์การใช้สื่อหนังสืออื่นที่สอดคล้องกับมาตรฐานการเรียนรู้ และตัวชี้วัด ให้มีความเหมาะสม และหากเป็นเรื่องใกล้ตัวของผู้เรียนจะช่วยให้ผู้เรียนเกิดแรงจูงใจ หรือเกิดความสนใจในการอ่าน และมีทักษะการอ่านจับใจความสำคัญเพิ่มมากขึ้น โดยครูผู้สอนอาจนำเทคนิคการจัดการเรียนรู้มาพัฒนาทักษะการอ่านจับใจความ เช่น เทคนิคการจัดกิจกรรมแบบหมวก 6 ใบ เทคนิค SQ3R SQ4R SQ6R SQ10R เทคนิค OK5R วิธีการสอนแบบ 5W1H และ เทคนิคบันได 6 ขั้นในการอ่านจับใจความสำคัญ

ผู้วิจัยพบว่ามีเทคนิคการสอนใหม่ที่ช่วยพัฒนาทักษะการอ่านจับใจความสำคัญ ส่งผลให้นักเรียนมีทักษะการอ่านจับใจความสำคัญที่พัฒนาขึ้น ผู้วิจัยจึงได้เลือกใช้เทคนิคบันได 6 ขั้น ตามแนวคิดของอาจารย์เสกสันต์ ผลวัฒนะ สาขาวิชาภาษาไทย คณะศิลปศาสตร์ มหาวิทยาลัยธรรมศาสตร์ เป็นการจัดการเรียนรู้ที่เน้นผู้เรียนเป็นสำคัญอีกรูปแบบหนึ่งให้ผู้เรียนได้ลงมือปฏิบัติจริง มีความเหมาะสมกับระดับการอ่านและสอดคล้องกับมาตรฐานและตัวชี้วัด ตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 สามารถพัฒนาสมรรถนะการอ่านขั้นสูง ในระดับชั้นมัธยมศึกษาปีที่ 3 ได้ ซึ่งมีขั้นตอนตามที่ สำนักวิชาการและมาตรฐานการศึกษา (2564) กำหนดไว้ดังนี้ บันไดขั้นที่ 1 การอ่านเรื่องให้จบ ตั้งคำถาม 5w1h บันไดขั้นที่ 2 การหาคำสำคัญ (Key Words) บันไดขั้นที่ 3 ตัดส่วนขยายใจความสำคัญ บันไดขั้นที่ 4 เติมคำเชื่อมส่วนขยายใจความสำคัญ เพื่อตัดส่วนขยายใจความสำคัญทิ้ง บันไดขั้นที่ 5 สังเกตคำหรือกลุ่มคำแสดงความขัดแย้งหรือตรงข้ามกันที่ปรากฏในย่อหน้า และบันไดขั้นที่ 6 หาใจความสำคัญได้ทุกบทอ่าน นักเรียนสามารถจับใจความสำคัญจากเรื่องที่อ่านได้ทุกรูปแบบ และเพื่อให้สิ่งที่ผู้เรียนได้ศึกษาผ่านไปนั้นมีความแม่นยำ สามารถจดจำเข้าใจได้ง่ายขึ้น โดยนำวิธีการเรียนรู้ที่ใช้แผนผังความคิด (Mind Mapping)

มาจัดการเรียนรู้แก่ผู้เรียน เพื่อสรุปความคิดรวบยอดทำให้เห็นความสัมพันธ์ของเนื้อเรื่องที่อ่าน ดังที่ วิมลรัตน์ สุนทรโรจน์ (2557) กล่าวว่า การจัดการเรียนรู้โดยใช้แผนผังความคิดจะทำให้ง่ายต่อการเข้าใจในการอ่านหรือการศึกษาและเพิ่มความคงทนในการเรียนรู้ สอดคล้องกับ อารี สัณหฉวี (2542) ได้กล่าวว่า ผู้เรียนจะเรียนรู้และร่วมกิจกรรมอย่างไม่น่าเบื่อ ช่วยในการจดจำและความเข้าใจเรื่อง ได้ค้นพบวิธีการอ่านจับใจความด้วยตนเองและพร้อมที่จะเรียนรู้ตามความถนัดของตนได้ ดังนั้นการสร้างหนังสือส่งเสริมการอ่านเพื่อพัฒนาทักษะการอ่านจับใจความสำคัญ โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด จึงเป็นการจัดการเรียนรู้เพื่อพัฒนาผู้เรียนให้เกิดการเรียนรู้ได้ด้วยตนเอง ผู้ที่เกี่ยวข้องได้มีส่วนในการให้ความสำคัญและตระหนักในการฝึกทักษะการอ่าน จนทำให้ผู้เรียนเห็นความสำคัญของสาระเนื้อหาที่ได้เรียนรู้และสามารถนำความรู้มาประยุกต์ใช้ในการดำเนินชีวิตได้

จากเหตุผลที่ได้กล่าวมาข้างต้น ผู้วิจัยจึงสนใจสร้างหนังสือส่งเสริมการอ่าน ชุดตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด เพื่อพัฒนาทักษะการอ่านจับใจความของนักเรียนชั้นมัธยมศึกษาปีที่ 3 เพื่อนำหนังสือส่งเสริมการอ่านที่สร้างจากเรื่องราวใกล้ตัวในท้องถิ่นของนักเรียนและเทคนิคการสอนนี้มาใช้ในการจัดการเรียนรู้ เพื่อพัฒนาทักษะการอ่านจับใจความสำคัญของนักเรียนให้มีประสิทธิภาพ และยังเป็นการช่วยปลูกฝังให้ผู้เรียนเกิดความรักในถิ่นฐานบ้านเกิดของตน

วัตถุประสงค์ของการวิจัย

1. เพื่อสร้างและหาประสิทธิภาพหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด สำหรับพัฒนาทักษะอ่านจับใจความสำคัญของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ตามเกณฑ์ 80/80
2. เพื่อเปรียบเทียบทักษะการอ่านจับใจความสำคัญ ก่อนและหลังเรียน หลังจากการใช้หนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด สำหรับพัฒนาทักษะอ่านจับใจความสำคัญ
3. เพื่อศึกษาความพึงพอใจ ของนักเรียนชั้นมัธยมศึกษาปีที่ 3 หลังจากที่เรียนโดยใช้การสร้างหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด สำหรับพัฒนาทักษะอ่านจับใจความสำคัญ

แนวคิด ทฤษฎี กรอบแนวคิด

การอ่าน เป็นทักษะพื้นฐานที่มีความสำคัญของกระบวนการเรียนรู้เพื่อแสวงหาความรู้ อันจะส่งผลให้ผู้เรียนได้มีความรู้ ความเข้าใจ พัฒนาสติปัญญาต่อไป โดยครูจะมีบทบาทสำคัญที่จะช่วยปลูกฝังทักษะการอ่านให้แก่นักเรียนให้มีนิสัยรักการอ่าน ดังที่ วานิช ยืนชีวิต (2552) กล่าวว่า การอ่านเป็นอีกทักษะหนึ่งที่มีความสำคัญที่จะนำไปสู่กระบวนการคิด และการเขียน เพื่อการแสวงหาความรู้ในการพัฒนาชีวิตและทำให้เป็นคนทันโลกเหตุการณ์ต่าง ๆ

การอ่านจับใจความสำคัญมีความจำเป็นอย่างยิ่งสำหรับนักเรียน เพราะเป็นพื้นฐานในการเข้าใจเรื่องที่อ่าน และสามารถเรียนรู้เรื่องราวอื่น ๆ และจำเป็นมากในชีวิตประจำวัน ดังที่ บันลือ พฤกษะวัน (2557) ได้กล่าวว่า การอ่านจับใจความสำคัญนั้นเป็นการอ่านเพื่อที่จะต้องทำความเข้าใจในเนื้อเรื่อง เพื่อต้องการทราบว่าเรื่องนั้นกล่าวถึงสาระสำคัญอย่างไร และมีความหมายอย่างไร

การสร้างหนังสือส่งเสริมการอ่านมีหลายรูปแบบ ทั้งในรูปแบบหนังสือสารคดี นวนิยาย นิทาน ฯลฯ มีรูปเล่มสวยงาม มีภาพประกอบ จะช่วยให้ความรู้และมีประโยชน์ ลักษณะที่ดีของหนังสือส่งเสริมการอ่านมีหลายประการ ดังที่ ณรงค์ ทองปาน (2526) ได้กล่าวถึงลักษณะที่ดีของหนังสือสำหรับเด็ก ไว้ดังนี้

1. เป็นเรื่องที่เด็กชอบและตรงกับความสนใจของเด็ก เนื้อหาต้องมีวัตถุประสงค์ชัดเจน มีความคิดรวบยอดเพียงเรื่องเดียว

2.เนื้อหาต้องมีความยากง่ายพอเหมาะกับวัยเด็ก สนุกสนานไม่มีบทบรรยายมาก ไม่ต้องมีตัวละครมาก โครงเรื่องและการดำเนินเรื่องน่าสนใจ

3. ใช้สำนวนภาษาที่รัดกุม เข้าใจง่าย อ่านง่าย ไม่สับสน ไม่วกวน ใช้สำนวนที่เด็กคุ้นเคย ไม่ใช้กาษาที่เป็นแบบแผนทางการเกินไป

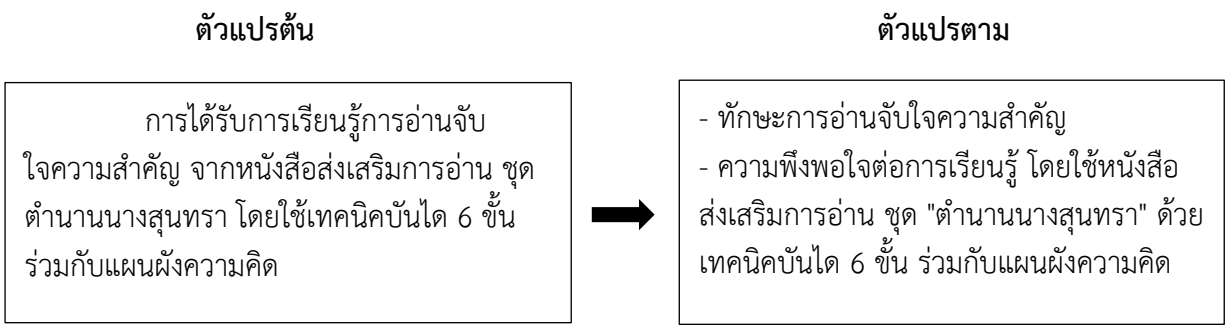
4. รูปเล่มของหนังสือ ควรที่จะมีขนาดกะทัดรัด การเย็บเล่มแข็งแรง ทนทาน ปกสีสวยสะดุดตาเพื่อเร้าใจ ดึงดูดความสนใจ

5. ในส่วนของท้ายเล่ม อาจมีคำศัพท์ อธิบายคำยาก คำถาม ให้วาดภาพ เป็นต้น

การจัดการเรียนรู้ที่พัฒนาทักษะการอ่านจับใจความสำคัญให้นักเรียนเกิดการเรียนรู้จากการปฏิบัติจริง โดยใช้เทคนิคบันได 6 ขั้น เป็นบันไดความสำเร็จในการพัฒนาทักษะการอ่านจับใจความสำคัญ เพราะมีขั้นลำดับที่ชัดเจนในการฝึกฝนการอ่านของนักเรียน อีกทั้งให้นักเรียนสรุปใจความสำคัญจากแผนผังความคิดจะช่วยให้นักเรียนเห็นความสัมพันธ์ของเรื่องได้ดีขึ้นอีกด้วย

ทั้งนี้ ผู้วิจัยเห็นว่าการสร้างหนังสือส่งเสริมการอ่าน มีความเหมาะสมและน่าสนใจนักเรียนสำหรับมัธยมศึกษาปีที่ 3 และการนำเรื่องเล่าเกี่ยวกับความเป็นมาของชุมชนท้องถิ่นมาใช้ในการส่งเสริมทักษะการอ่านจะช่วยให้นักเรียนจับใจความสำคัญได้ดีขึ้น ผู้วิจัยจึงมีความสนใจที่จะสร้างหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา ให้นักเรียนได้ฝึกอ่านเพื่อพัฒนาทักษะการจับใจความสำคัญให้มีประสิทธิภาพมากขึ้น

กรอบแนวคิดในการวิจัยศึกษาตัวแปรต้น ได้แก่ การได้รับการเรียนรู้การอ่านจับใจความสำคัญจากหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด และตัวแปรตาม ได้แก่ ทักษะการอ่านจับใจความสำคัญ และความพึงพอใจต่อการเรียนรู้ โดยใช้หนังสือส่งเสริมการอ่าน ชุด "ตำนานนางสุนทรา" ด้วยเทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

การสร้างหนังสือส่งเสริมการอ่าน ชุด "ตำนานนางสุนทรา" โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด เพื่อพัฒนาทักษะการอ่านจับใจความ ของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ดำเนินการตามระเบียบวิธีวิจัย ดังนี้

1. ประชากรและกลุ่มตัวอย่าง

1.1 ประชากร คือ นักเรียนชั้นมัธยมศึกษาปีที่ 3 ในอำเภอควนขนุน สังกัดสำนักงานเขตพื้นที่การศึกษามัธยมศึกษาพัทลุง จำนวน 6 โรงเรียน รวม 250 คน

1.2 กลุ่มตัวอย่าง คือ นักเรียนชั้นมัธยมศึกษาปีที่ 3 โรงเรียนอุดมวิทยายน อำเภอควนขนุน จังหวัดพัทลุง ภาคเรียนที่ 2 ปีการศึกษา 2567 จำนวน 18 คน ซึ่งได้มาโดยใช้วิธีการสุ่มแบบกลุ่ม (Cluster Random Sampling) หน่วยในการสุ่มคือ ห้องเรียน โดยการเลือก 1 ห้องเรียน

2. เนื้อหาที่ใช้ในการวิจัย

2.1 หนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา ของนักเรียนชั้นมัธยมศึกษาปีที่ 3 โดยแบ่งเนื้อหาออกเป็น 5 ตอน ดังนี้ ตอนที่ 1 ชื่อบ้านนามเมือง ตอนที่ 2 ร้อยเรื่องตำนาน ตอนที่ 3 ชาวบ้านทำนา ตอนที่ 4 เชิญมาแก้บน ตอนที่ 5 ส(สุ)นทรารวมใจ

2.2 การอ่านเพื่อพัฒนาทักษะการอ่านจับใจความ หมายถึง ความสามารถในการอ่านจับใจความสำคัญที่นักเรียนสามารถตอบคำถามจากเรื่องที่อ่าน การอ่านเพื่อทำความเข้าใจสามารถระบุใจความสำคัญบอกรายละเอียดเรียงลำดับเหตุการณ์ ตีความ แสดงความคิดเห็นสรุปใจความจากเรื่องที่อ่านเข้าใจเหตุและผลของเรื่องเปรียบเทียบสิ่งที่อ่าน ประเมินเรื่องที่อ่านและสามารถนำสิ่งที่ได้จากการอ่านมาประยุกต์ใช้กับการดำเนินชีวิตประจำวัน โดยใช้แบบวัดความสามารถในการอ่านจับใจความสำคัญ

3. ระยะเวลาที่ใช้ในการทดลอง ดำเนินการทดลองในภาคเรียนที่ 2 ปีการศึกษา 2567 ใช้เวลาจำนวน 1 ชั่วโมง รวมกับเวลาที่ใช้ในการทดสอบก่อนเรียน – หลังเรียน อย่างละ 1 ชั่วโมง รวมเวลาทั้งหมดเป็นจำนวน 16 ชั่วโมง

4. เครื่องมือที่ใช้ในการวิจัย ได้แก่ หนังสือส่งเสริมการอ่าน ชุด "ตำนานนางสุนทรา แบบวัดความสามารถในการอ่านจับใจความสำคัญ ก่อนเรียนและหลังเรียน เป็นข้อสอบปรนัยชนิดเลือกตอบ 4 ตัวเลือก ฉบับละ 30 ข้อ และแบบประเมินความพึงพอใจของนักเรียนที่มีต่อการเรียนการสอนโดยใช้หนังสือส่งเสริมการอ่าน ชุด "ตำนานนางสุนทรา" เป็นแบบมาตราส่วนประมาณค่า (Rating Scale) 5 ระดับ

5. การสร้างเครื่องมือวิจัย ดำเนินการตามลำดับขั้นตอน ดังนี้

5.1 หนังสือส่งเสริมการอ่าน ชุด "ตำนานนางสุนทรา" เริ่มจากการศึกษาเอกสารและงานวิจัยที่เกี่ยวข้อง ศึกษาวิเคราะห์ตัวชี้วัด และโครงสร้างรายวิชา 23102 ภาษาไทย 6 ชั้นมัธยมศึกษาปีที่ 3 ภาคเรียนที่ 2 หลักสูตรกลุ่มสาระการเรียนรู้ภาษาไทย ศึกษาทฤษฎีการสร้างหนังสือ ศึกษาการเขียนหนังสือส่งเสริมการอ่าน การกำหนดแก่นเรื่องและกำหนดชื่อตอน ผู้วิจัยนำข้อมูลที่โรงเรียนสำรวจความต้องการของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ศึกษาข้อมูลที่สำคัญของตำบลปันแต อำเภอควนขนุน จังหวัดพัทลุง เพื่อสร้างแก่นเรื่องของหนังสือที่จะดำเนินการจัดสร้าง ศึกษาข้อมูลท้องถิ่นบ้านสุนทรา ตำบลปันแต จากหนังสือวรรณกรรมพื้นบ้านปักษ์ใต้ เรื่องนางสุนทรา (พระรถ-เมรี) และจากการลงพื้นที่เพื่อเก็บข้อมูลภาคสนาม โดยใช้วิธีการจัดการข้อมูลที่ได้จากการสัมภาษณ์ด้วยการจดบันทึกและการใช้แถบบันทึกเสียง นำประเด็นที่ศึกษามากำหนดเป็นข้อมูลในการสร้างแก่น เรื่องและวางโครงเรื่องของหนังสือในแต่ละตอน

ซึ่งข้อมูลในแต่ละตอนได้มาจากข้อมูลในการทบทวนวรรณกรรมและจากการสัมภาษณ์ เกี่ยวกับเรื่องเล่าตำนานนางสุนทรา ผู้วิจัยนำข้อมูลที่ได้จากการศึกษามาเป็นข้อมูลในการเขียนเรื่องในหนังสือส่งเสริมการอ่านทั้ง 5 ตอน นำเรื่องที่เขียนทั้ง 5 ตอน ได้แก่ ตอนที่ 1 ชื่อบ้านนามเมือง ตอนที่ 2 ร้อยเรื่องตำนาน ตอนที่ 3 ชาวบ้านทำนา ตอนที่ 4 เชิญมาแก้บนและตอนที่ 5 ส(สุ)นทรารวมใจ ให้บุคคลที่ผู้วิจัยได้ไปสัมภาษณ์เก็บข้อมูล ได้อ่านเรื่องเพื่อตรวจสอบความถูกต้องของข้อมูล ปรับปรุงแก้ไขเนื้อเรื่องแล้ว ผู้วิจัยออกแบบรูปเล่ม จัดวาง เรียบเรียงลำดับเนื้อหาและภาพประกอบ กำหนดขนาดตัวอักษรให้เหมาะสมกับวัยของผู้เรียน จัดพิมพ์หนังสือหนังสือส่งเสริมการอ่าน ชุด "ตำนานนางสุนทรา" ตามที่ได้วางแผนไว้ โดยตรวจสอบความถูกต้องของการสะกดคำ การเว้นวรรคตอน การจัดวางภาพที่เหมาะสม และการจัดทำสีพื้นหลังให้ตัดกับตัวอักษรเพื่อให้ง่ายต่อการอ่าน นำหนังสือส่งเสริมการอ่าน ชุด "ตำนานนางสุนทรา เสนอต่อผู้เชี่ยวชาญเพื่อขอรับข้อเสนอแนะพร้อมทั้งให้ผู้เชี่ยวชาญประเมิน ผู้วิจัยจัดพิมพ์เป็นหนังสือส่งเสริมการอ่าน ชุด "ตำนานนางสุนทรา" ฉบับสมบูรณ์แล้ว ดังภาพที่ 2



ภาพที่ 2 หนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา

ผู้วิจัยนำหนังสือส่งเสริมการอ่าน ชุด "ตำนานนางสุนทรา" ที่ผ่านการปรับปรุงตามคำแนะนำของผู้เชี่ยวชาญ ไปทดลองใช้เพื่อหาประสิทธิภาพของหนังสือส่งเสริมการอ่าน ชุด "ตำนานนางสุนทรา" จำนวน 3 ครั้ง ได้แก่ การหาประสิทธิภาพแบบเดี่ยว แบบกลุ่มย่อยและแบบกลุ่มใหญ่ กับนักเรียนชั้นมัธยมศึกษาปีที่ 3 โรงเรียนดอนศาลานำวิทยาที่ไม่ใช่กลุ่มตัวอย่าง โดยจากการทดลองแบบเดี่ยว (1:1) มีประสิทธิภาพ

เท่ากับ 76.67/78.89 ซึ่งต่ำกว่าเกณฑ์ 80/80 การทดลองแบบกลุ่มย่อย (1:3) มีประสิทธิภาพเท่ากับ 78.89/80.00 ซึ่งยังคงต่ำกว่าเกณฑ์ 80/80 เล็กน้อย และจากการทดลองแบบกลุ่มใหญ่ (1:30) มีประสิทธิภาพเท่ากับ 80.33/81.89 ซึ่งเป็นไปตามเกณฑ์ 80/80 มีความเหมาะสมที่สามารถนำไปใช้ทดลองกับกลุ่มตัวอย่างในขั้นต่อไปได้ ผู้วิจัยขออนุญาตผู้บริหารสถานศึกษาและนำหนังสือส่งเสริมการอ่าน ชุด "ตำนานนางสุนทรา" ไปใช้กับกลุ่มตัวอย่าง หลังจากนักเรียนได้เรียนโดยใช้หนังสือส่งเสริมการอ่าน ชุด "ตำนานนางสุนทรา" แล้วนักเรียนประเมินความพึงพอใจผู้วิจัยวิเคราะห์ข้อมูล โดยเปรียบเทียบคะแนนเฉลี่ยของการทำแบบฝึกหัดท้ายตอนและแบบทดสอบท้ายบทเรียนและคะแนนเฉลี่ยที่ได้จากการแบบวัดความสามารถในการอ่านจับใจความสำคัญของนักเรียนกับเกณฑ์ 80/80 เปรียบเทียบทักษะการอ่านจับใจความสำคัญ ก่อนและหลังเรียนหลังจากการใช้หนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด โดยสถิติที่ใช้ทดสอบสมมติฐาน Wilcoxon Match-paircd Sign Ranks Test

5.2 แบบทดสอบท้ายตอนของหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิดเริ่มจากผู้วิจัยศึกษาเอกสารที่เกี่ยวข้องกับการวัดผลการศึกษา กำหนดจุดประสงค์การเรียนรู้ตามมาตรฐานและตัวชี้วัด ท 1.1 ม.3/3 ระบุใจความสำคัญและรายละเอียดของข้อมูลที่สนับสนุนจากเรื่องที่อ่าน ผู้วิจัยสร้างตารางวิเคราะห์แบบทดสอบท้ายตอนบทเรียน เพื่อกำหนดจำนวนคำถามที่ใช้วัดทักษะการอ่านจับใจความสำคัญ โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด จำนวน 58 ข้อ ใช้จริง 50 ข้อ แบบเลือกตอบนำแบบแบบทดสอบท้ายตอนบทเรียน เสนอต่อผู้เชี่ยวชาญเพื่อตรวจสอบหาค่าดัชนีความสอดคล้อง (IOC) ได้ค่าความสอดคล้อง 1.00 นำไปทดลองใช้กับนักเรียนกลุ่มที่เคยเรียนเรื่องนี้มาแล้วเพื่อหาความยากง่าย (Difficulty) และหาค่าอำนาจจำแนก (Discrimination) ปรากฏว่าข้อสอบทั้ง 50 ข้อที่ผู้วิจัยต้องการใช้ มีผลการวิเคราะห์ค่าความยากง่าย (p) อยู่ระหว่าง 0.43-0.77 ซึ่งเป็นค่าเฉลี่ยอยู่ในเกณฑ์ความยากง่ายที่ยอมรับได้ และค่าอำนาจจำแนก (r) อยู่ระหว่าง 0.20-0.53 ซึ่งเป็นค่าเฉลี่ยอยู่ในเกณฑ์อำนาจจำแนกที่ยอมรับได้ ระหว่าง 0.20 – 1.00

5.3 แบบวัดความสามารถในการอ่านจับใจความสำคัญก่อนเรียนและหลังเรียน ชนิดเลือกตอบ 4 ตัวเลือก จำนวน 30 ข้อ เริ่มจากศึกษาเอกสารที่เกี่ยวข้องกับการวัดผลการศึกษา กำหนดจุดประสงค์การเรียนรู้เชิงพฤติกรรมตามมาตรฐานและตัวชี้วัด สร้างตารางวิเคราะห์แบบในมาตรฐานและตัวชี้วัด ท 1.1 ม.3/3 จำนวน 45 ข้อ ใช้จริง 30 ข้อ โดยให้ผู้เชี่ยวชาญตรวจสอบค่าดัชนีความสอดคล้อง (IOC) ได้ค่าความสอดคล้อง 1.00 นำแบบวัดไปใช้กับนักเรียนกลุ่มที่เคยเรียนเรื่องนี้มาแล้วเพื่อหาความยากง่าย (Difficulty) และหาค่าอำนาจจำแนก (Discrimination) โดยผลของแบบวัด (ก่อนเรียน) มีค่าความยากง่าย (p) อยู่ระหว่าง 0.43-0.77 และค่าอำนาจจำแนก (r) อยู่ระหว่าง 0.20-0.87 และผลการวิเคราะห์ค่าความยากง่าย (p) ค่าอำนาจจำแนก (r) ของแบบวัด (ฉบับหลังเรียน) มีค่าความยากง่าย (p) อยู่ระหว่าง 0.37-0.63 และค่าอำนาจจำแนก (r) อยู่ระหว่าง 0.20-0.93 ซึ่งเป็นค่าเฉลี่ยในเกณฑ์ความยากง่ายและอำนาจจำแนกที่ยอมรับได้ ผู้วิจัยจัดทำแบบวัดเพื่อนำไปหาค่าความเชื่อมั่น โดยใช้วิธีของ Kuder – Richardson จากสูตร KR-20 (ล้วน สายยศ และอังคณา สายยศ, 2539) ได้ค่าความเชื่อมั่น ฉบับก่อนเรียนเท่ากับ 0.87 และฉบับหลังเรียน ได้ค่าความเชื่อมั่น เท่ากับ 0.88 สามารถนำไปใช้เป็นแบบวัดความสามารถในการอ่านจับใจความสำคัญได้

5.4 แบบประเมินความพึงพอใจหนังสือส่งเสริมการอ่าน ชุด "ตำนานนางสุนทรา" เริ่มจากศึกษาวิธีในการสร้างและกำหนดรูปแบบของแบบประเมินความพึงพอใจ นำแบบประเมินเสนอผู้เชี่ยวชาญ

ตรวจสอบค่าดัชนีความสอดคล้อง (IOC) ได้ค่าดัชนีความสอดคล้อง (IOC) เฉลี่ย 1.00 นำแบบประเมินความพึงพอใจหาค่าความเชื่อมั่น ได้ค่าความเชื่อมั่น เท่ากับ 0.98 สามารถนำไปใช้เป็นแบบประเมินความพึงพอใจได้

ผลการวิจัย

1. สร้างและหาประสิทธิภาพหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด ของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ตามเกณฑ์ 80/80 ดังตารางที่ 1

ตารางที่ 1 ผลการวิเคราะห์หาประสิทธิภาพของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด ของนักเรียนชั้นมัธยมศึกษาปีที่ 3 กับกลุ่มตัวอย่าง โรงเรียนอุดมวิทยายน

คะแนนทักษะการอ่านจับใจความสำคัญ	N	คะแนนเต็ม	คะแนนเฉลี่ย	ร้อยละ	ประสิทธิภาพ E_1/E_2
แบบฝึกหัดและแบบทดสอบท้ายตอน	18	50	40.22	80.44	80.44/82.03
แบบวัดความสามารถในการอ่านจับใจความสำคัญ	18	30	24.61	82.03	

จากตารางที่ 1 ผลการวิเคราะห์หาประสิทธิภาพของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิดของนักเรียนชั้นมัธยมศึกษาปีที่ 3 นักเรียนกลุ่มตัวอย่าง ซึ่งเป็นนักเรียนชั้นมัธยมศึกษาปีที่ 3/2 โรงเรียนอุดมวิทยายน จำนวน 18 คน มีประสิทธิภาพเท่ากับ 80.44/82.03 ซึ่งสูงกว่าเกณฑ์ 80/80 แสดงว่าหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิดมีประสิทธิภาพในการใช้เป็นสื่อในการจัดการเรียนการสอนเพื่อพัฒนาทักษะการอ่านจับใจความสำคัญได้

2. เปรียบเทียบทักษะการอ่านจับใจความสำคัญ ก่อนและหลังเรียนหลังจากการใช้หนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิดเพื่อพัฒนาทักษะอ่านจับใจความสำคัญ ดังตารางที่ 2

ตารางที่ 2 เปรียบเทียบทักษะการอ่านจับใจความสำคัญ ก่อนและหลังเรียนหลังจากการใช้หนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิดของนักเรียนชั้นมัธยมศึกษาปีที่ 3 กับกลุ่มตัวอย่าง โรงเรียนอุดมวิทยายน ด้วยการทดสอบวิลคอกซัน (Wilcoxon Match-paired Sign Ranks Test)

คะแนน	N	$\overline{X}$	S.D	Asymp Sig. (2-tailed)
ก่อนเรียน	18	20.05	2.28	.000
หลังเรียน	18	24.51	3.22	

**มีนัยสำคัญทางสถิติที่ระดับ.05

จากตารางที่ 2 พบว่าทักษะการอ่านจับใจความสำคัญหลังจากการใช้หนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิดสำหรับพัฒนาทักษะอ่านจับใจความสำคัญของนักเรียนชั้นมัธยมศึกษาปีที่ 3 หลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

3. ศึกษาความพึงพอใจของนักเรียนชั้นมัธยมศึกษาปีที่ 3 หลังจากที่เรียนโดยใช้การสร้างหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด ดังตารางที่ 3

ตารางที่ 3 ผลการศึกษาความพึงพอใจของนักเรียนชั้นมัธยมศึกษาปีที่ 3 โรงเรียนอุดมวิทยายน หลังจากการเรียนโดยใช้หนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด

ที่	รายการประเมิน	$\overline{X}$	S.D.	ระดับความพึงพอใจ
1	นักเรียนชอบหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา”	4.56	0.51	มากที่สุด
2	เนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มีความเหมาะสม	4.61	0.50	มากที่สุด
3	เนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มีความน่าสนใจ ใช้ภาษาได้เหมาะสมกับวัย อ่านเข้าใจได้ง่าย	4.67	0.49	มากที่สุด
4	นักเรียนมีความเข้าใจเนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา”	4.67	0.49	มากที่สุด
5	เนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มีประโยชน์ต่อนักเรียน	4.56	0.51	มากที่สุด
6	เนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา”ส่งเสริมให้นักเรียนมีทัศนคติที่ดี รัก ภาคภูมิใจถิ่นฐานบ้านเกิดของตน	4.72	0.46	มากที่สุด
7	ภาพประกอบเนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มีความเหมาะสมกับเนื้อเรื่อง	4.78	0.43	มากที่สุด
8	เนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” ให้ความรู้ ข้อคิด	4.56	0.51	มากที่สุด
9	เนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มีการสอดแทรกคุณธรรมจริยธรรมให้แก่นักเรียน	4.67	0.49	มากที่สุด
10	เนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” ส่งเสริมให้นักเรียนเข้าใจวัฒนธรรมในท้องถิ่นของตน	4.56	0.62	มากที่สุด
11	หนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” นำเสนอเนื้อหาเป็นไปตามลำดับขั้นตอน	4.50	0.62	มาก
12	หนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” ออกแบบได้สวยงาม รูปเล่มมีความคงทน	4.39	0.62	มาก
13	ภาพประกอบปกและในหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มีความสวยงาม	4.61	0.50	มากที่สุด
14	ขนาดของตัวอักษรในหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มองเห็นได้ชัดเจน	4.50	0.51	มาก
15	การจัดการเรียนรู้ด้วยหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” เพื่อพัฒนาทักษะการอ่านจับใจความสำคัญ โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด ส่งเสริมให้นักเรียนมีการพัฒนาทักษะการอ่านจับใจความสำคัญได้	4.72	0.46	มากที่สุด
รวมเฉลี่ยทั้งหมด		4.63	0.51	มากที่สุด

จากตารางที่ 11 แสดงให้เห็นว่า ความพึงพอใจของนักเรียนชั้นมัธยมศึกษาปีที่ 3 หลังจากที่เรียนโดยใช้การสร้างหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด ในภาพรวมอยู่ในระดับมากที่สุด โดยมีค่าเฉลี่ย 4.63 โดยผลความพึงพอใจของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ในประเด็นภาพประกอบเนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มีความเหมาะสมกับเนื้อเรื่อง อยู่ในลำดับที่ 1 ซึ่งมีผลการประเมินในระดับมากที่สุด ($\overline{X}$ = 4.78, S.D. = 0.43) รองลงมา คือเนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา”ส่งเสริมให้นักเรียนมีทัศนคติที่ดี รัก ภาคภูมิใจถิ่นฐานบ้านเกิดของตนและการจัดการเรียนรู้ด้วยหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา”เพื่อพัฒนาทักษะการอ่านจับใจความสำคัญ โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิดส่งเสริมให้นักเรียนมีการพัฒนาทักษะการอ่านจับใจความสำคัญได้ อยู่ในลำดับที่ 2 ซึ่งมีผลการประเมินในระดับมากที่สุด ($\overline{X}$ = 4.72, S.D. = 0.46) ลำดับที่ 3 ได้แก่ เนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่านชุด “ตำนานนางสุนทรา” มีความน่าสนใจ ใช้ภาษาได้เหมาะสมกับวัยอ่านเข้าใจได้ง่าย นักเรียนมีความเข้าใจเนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” และเนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มีการสอดแทรกคุณธรรมจริยธรรมให้แก่นักเรียน ซึ่งมีผลการประเมินในระดับที่เท่ากัน คือมากที่สุด ($\overline{X}$ = 4.67, S.D. = 0.49) ลำดับที่ 4 ได้แก่เนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา”มีความเหมาะสมและภาพประกอบปกและในหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มีความสวยงามมีผลการประเมินในระดับที่มากที่สุด ($\overline{X}$ = 4.61, S.D. = 0.50) ลำดับที่ 5 มีทั้งหมด 5 ประเด็นที่มีผลการประเมินความพึงพอใจที่เท่ากัน ได้แก่ นักเรียนชอบหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” เนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา”มีประโยชน์ต่อนักเรียน เนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา”ให้ความรู้ ข้อคิด และเนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา”ส่งเสริมให้นักเรียนเข้าใจวัฒนธรรมในท้องถิ่นของตน ซึ่งมีผลการประเมินในระดับมากที่สุด ($\overline{X}$ = 4.56, S.D. = 0.62) ลำดับที่ 6 ได้แก่ หนังสือส่งเสริมการอ่านชุด “ตำนานนางสุนทรา” นำเสนอเนื้อหาเป็นไปตามลำดับขั้นตอน และขนาดของตัวอักษรในหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา”มองเห็นได้ชัดเจน ซึ่งมีผลการประเมินในระดับมาก ($\overline{X}$ = 4.50, S.D. = 0.62) และหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” ออกแบบได้สวยงามรูปเล่มมีความคงทน ซึ่งมีผลการประเมินในระดับมาก ($\overline{X}$ = 4.39, S.D. = 0.62) ตามลำดับ

สรุปและอภิปรายผล

1. หนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด ที่สร้างขึ้นมีประสิทธิภาพเท่ากับ 80.44/82.03 ซึ่งสูงกว่าเกณฑ์ 80/80 ที่กำหนดไว้

2. ทักษะการอ่านจับใจความสำคัญของนักเรียนชั้นมัธยมศึกษาปีที่ 3/2 หลังใช้หนังสือการอ่านชุด “ตำนานนางสุนทรา” สูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 โดยก่อนเรียนนักเรียนมีคะแนนเฉลี่ย 20.05 คะแนน มีส่วนเบี่ยงเบนมาตรฐาน เท่ากับ 2.28 และหลังเรียนมีคะแนนเฉลี่ย 24.61 คะแนน มีส่วนเบี่ยงเบนมาตรฐาน เท่ากับ 3.22

3. นักเรียนชั้นมัธยมศึกษาปีที่ 3/2 มีความพึงพอใจในการใช้หนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” ระดับมากที่สุด

อภิปรายผล

การวิจัยเรื่องการสร้างหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิดของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ผู้วิจัยได้นำผลการวิจัยมาอภิปรายผลตามสมมติฐานของการวิจัย ดังนี้

1. หนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด ที่สร้างขึ้นมีประสิทธิภาพเท่ากับ 80.44/82.03 ซึ่งสูงกว่าเกณฑ์ที่กำหนด 80/80 ทั้งนี้เพราะการดำเนินการสร้างหนังสือส่งเสริมการอ่านชุด “ตำนานนางสุนทรา” ผู้วิจัยได้สร้างตามลำดับขั้นตอนตั้งแต่ศึกษาเอกสารและงานวิจัยที่เกี่ยวข้อง เลือกประเด็นที่นักเรียนให้สนใจเขียนโครงเรื่อง เขียนเรื่อง การจัดทำดัมมี่ จัดทำรูปเล่ม และแต่งชื่อเรื่องให้มีความสอดคล้องกับเนื้อหาซึ่งสอดคล้องกับ จินตนา ใบกาซูยี (2542) ได้ระบุถึงขั้นตอนการเขียนหนังสือส่งเสริมการอ่าน สรุปได้ว่าขั้นตอนในการสร้างหนังสือส่งเสริมการอ่าน มี 7 ขั้นตอน เริ่มจากการกำหนดจุดประสงค์ กำหนดระดับกลุ่มผู้อ่านกำหนดเนื้อหา กำหนดชื่อเรื่อง กำหนดโครงสร้างเนื้อหา กำหนดแนวการเขียน และทำรูปเล่มอีกหนึ่งปัจจัยที่มีผลทำให้หนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มีประสิทธิภาพสูงกว่าเกณฑ์ที่กำหนด เป็นเพราะหนังสือเล่มนี้ได้ผ่านการทดสอบประสิทธิภาพและปรับปรุงแก้ไขก่อนนำไปใช้จริง จึงทำให้หนังสือเล่มนี้เป็นไปตามสมมติฐาน ดังที่ ชัยยงค์ พรหมวงศ์ (2556) ได้กล่าวว่า การหาประสิทธิภาพของสื่อเป็นการนำสื่อไปใช้ (Try Out) แล้วนำมาปรับปรุงก่อนนำไปสอนจริง (Trial Run) และนำผลที่ได้มาปรับปรุงแก้ไขเสร็จแล้ว จึงดำเนินการผลิตออกมาเป็นจำนวนมาก ดังนั้นสื่อที่มีประสิทธิภาพจะทำให้ผู้เรียนเกิดการเรียนรู้ได้จริง การทดสอบประสิทธิภาพของสื่อให้เป็นไปตามลำดับขั้น จะช่วยให้ให้ได้สื่อที่มีประสิทธิภาพในการสอนจริงตามเกณฑ์ที่กำหนดไว้

นอกจากนี้ผู้วิจัยได้เห็นถึงความสำคัญของการนำข้อมูลในท้องถิ่นที่มีความสัมพันธ์โดยตรงกับนักเรียนมาเป็นข้อมูลในการสร้างหนังสือเกี่ยวกับประวัติความเป็นมาของท้องถิ่น ตำนาน นิทาน สถานที่ต่าง ๆ ที่มีความเชื่อมโยงถึงกัน ภูมิปัญญา วิถีชีวิต และความเชื่อ โดยจากการลงพื้นที่เก็บข้อมูลภาคสนามและจากเอกสารที่ได้เกี่ยวข้องของบ้านสุนทรา ตำบลปันแต อำเภอควนขนุน จังหวัดพัทลุง นำมาสร้างเป็นหนังสือหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” ส่งผลให้นักเรียนมีความสนใจในเนื้อเรื่องที่อ่าน เกิดความภาคภูมิใจในท้องถิ่น สอดคล้องกับ จินตนา ใบกาซูยี (2537) ได้กล่าวว่า การเขียนหนังสือส่งเสริมการอ่านจากประสบการณ์ว่า สภาพปัญหาในท้องถิ่นสามารถนำมาเป็นหัวข้อในการเขียนหนังสือส่งเสริมการอ่านได้ สามารถนำเรื่องราวที่เกิดขึ้นนั้นมาเผยแพร่ให้สาธารณะชนได้รับทราบข้อมูลในท้องถิ่นของตน และหากเป็นเรื่องใกล้ตัวของผู้เรียนจะช่วยให้ผู้เรียนเกิดแรงจูงใจ หรือเกิดความสนใจในการอ่านและมีทักษะการอ่านจับใจความสำคัญเพิ่มมากขึ้น สอดคล้องกับงานวิจัย วรรษมล ศุภคุณ (2564) เรื่อง การพัฒนาทักษะการอ่านจับใจความ ด้วยหนังสือส่งเสริมการอ่านกลุ่มสาระการเรียนรู้ภาษาไทย สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 พบว่าหนังสือส่งเสริมการอ่านเพื่อพัฒนาทักษะการอ่านจับใจความ กลุ่มสาระการเรียนรู้ภาษาไทย ชั้นประถมศึกษาปีที่ 5 มีประสิทธิภาพ 80.05/83.56 นักเรียนที่ได้รับการจัดการเรียนรู้กลุ่มสาระการเรียนรู้ภาษาไทย โดยใช้หนังสือส่งเสริมการอ่าน มีผลหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ผลการวิจัยสะท้อนให้เห็นว่าการใช้หนังสือส่งเสริมการอ่าน มีส่วนช่วยในการพัฒนาทักษะการอ่านจับใจความให้ดียิ่งขึ้น ส่งผลให้นักเรียนมีกระบวนการในการลำดับเรื่องราวได้อย่างเป็นระบบ

การสร้างหนังสือส่งเสริมการอ่าน ชุด ตำนานนางสุนทรา มีกระบวนการในการสร้างอย่างเป็นลำดับขั้นตอนตลอดจน มีการนำไปทดลองใช้เพื่อหาประสิทธิภาพและปรับปรุงแก้ไขก่อนนำไปใช้จริง จึงทำให้หนังสือส่งเสริมการอ่านที่เป็นเรื่องใกล้ตัวของผู้เรียน เป็นเรื่องเล่าเกี่ยวกับท้องถิ่นของตนเองและช่วยปลูกฝังให้ผู้เรียนเกิดความรักในบ้านเกิดของตนเอง เป็นสื่อที่มีประสิทธิภาพสูงกว่าเกณฑ์ที่กำหนดและสามารถนำไปใช้ในการจัดการเรียนการสอนได้อย่างมีประสิทธิภาพ

2. ทักษะการอ่านจับใจความสำคัญของนักเรียนชั้นมัธยมศึกษาปีที่ 3/2 หลังใช้หนังสือการอ่านชุด “ตำนานนางสุนทรา” สูงกว่าก่อนเรียน โดยก่อนเรียนนักเรียนมีคะแนนเฉลี่ย 20.05 คะแนน มีส่วนเบี่ยงเบนมาตรฐาน เท่ากับ 2.28 และหลังเรียนมีคะแนนเฉลี่ย 24.61 คะแนน มีส่วนเบี่ยงเบนมาตรฐานเท่ากับ 3.22 มีค่าการทดสอบ The Wilcoxon Matched Pairs Signed – Ranks Test ที่ระดับนัยสำคัญ .05 ซึ่งสอดคล้องกับสมมติฐาน ทั้งนี้เนื่องมาจากหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” ที่ผู้วิจัยสร้างขึ้นมีประสิทธิภาพตามเกณฑ์มาตรฐาน 80/80 อีกทั้งในการสร้างหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มีเนื้อเรื่องที่เกี่ยวกับสิ่งที่อยู่ใกล้ตัวนักเรียนซึ่งทำให้นักเรียนมีความสนใจ สามารถทำความเข้าใจได้เร็ว ซึ่งสอดคล้องกับ อภิเชษฐ์ เทศเล็ก (2558) ได้ศึกษาถึงเรื่องการพัฒนาหนังสือส่งเสริมการอ่าน ชุดท่องเที่ยวเมืองสามพรานเพื่อส่งเสริมความสามารถในการอ่านจับใจความสำคัญ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 6 สรุปได้ว่า ได้หนังสือส่งเสริมการอ่านชุดท่องเที่ยวเมืองสามพราน เพื่อส่งเสริมความสามารถในการอ่านจับใจความสำคัญสำหรับนักเรียนชั้นประถมศึกษาปีที่ 6 ที่พัฒนาขึ้นมีประสิทธิภาพเท่ากับ 81.63/82.67 นักเรียนมีความสามารถในการอ่านจับใจความสำคัญของนักเรียนชั้นประถมศึกษาปีที่ 6 หลังการจัดการเรียนรู้สูงกว่าก่อนการจัดการเรียนรู้ อย่างมีนัยสำคัญทางสถิติที่ .05 และความคิดเห็นของนักเรียนชั้นประถมศึกษาปีที่ 6 ที่มีต่อการจัดการเรียนรู้ด้วยหนังสือส่งเสริมการอ่านชุดท่องเที่ยวเมืองสามพราน ในภาพรวมอยู่ในระดับเห็นด้วยมาก เนื่องจากได้ที่นำข้อมูลท้องถิ่นมาเป็นส่วนประกอบในเนื้อหาของเรื่อง มีสถานที่ท่องเที่ยวสำคัญในท้องถิ่น ทำให้เกิดการเรียนรู้และสนใจในเนื้อเรื่อง ส่งผลให้ผู้เรียนมีผลหลังเรียนสูงกว่าก่อนเรียน เช่นเดียวกันกับงานวิจัยของ (กาญจนา สุริยะวิทยะ, 2553) ที่นำเรื่องราวใกล้ตัวมาเกี่ยวกับประเพณีท้องถิ่นสกลนคร มาพัฒนาเป็นหนังสือส่งเสริมการอ่านเพื่อฝึกทักษะการอ่านและการเขียนภาษาไทย ชั้นประถมศึกษาปีที่ 2 ซึ่งผลการวิจัยพบว่า หนังสือส่งเสริมการอ่าน เรื่องประเพณีท้องถิ่นสกลนคร เพื่อฝึกทักษะการอ่านและการเขียนชั้นประถมศึกษาปีที่ 2 มีประสิทธิภาพสูงกว่าเกณฑ์มาตรฐานที่กำหนด 80/80 ผลสัมฤทธิ์ทางการเรียนของนักเรียนชั้นประถมศึกษาปีที่ 2 หลังเรียนด้วยหนังสือส่งเสริมการอ่าน เรื่องประเพณีท้องถิ่นสกลนคร เพื่อฝึกทักษะการอ่านและการเขียนภาษาไทย สูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .01

นอกจากนี้การใช้เทคนิคบันได 6 ขั้น ที่ผู้วิจัยได้นำมาใช้ร่วมกับหนังสือส่งเสริมการอ่าน เป็นเทคนิคใหม่ในการสอนการอ่านจับใจความสำคัญ จึงได้ศึกษาค้นคว้างานวิจัยที่เกี่ยวข้องได้เพียง 2 เรื่อง เพื่อเป็นแนวทางในการศึกษางานวิจัยในครั้งนี้ การใช้เทคนิคบันได 6 ขั้น เป็นเทคนิคที่มีประสิทธิภาพสูง ซึ่งเหมาะสมในการพัฒนาทักษะการอ่านจับใจความสำคัญ ประกอบด้วย บันไดขั้นที่ 1-6 และนำมาใช้ร่วมกับการฝึกให้นักเรียนสรุปใจความสำคัญ โดยใช้แผนผังความคิดมาร่วมในบันไดขั้นที่ 6 ในเทคนิคบันได 6 ขั้นในขั้นสุดท้าย เพราะเพื่อให้สิ่งที่ผู้เรียนได้ศึกษาผ่านไปนั้นมีความแม่นยำ สามารถเข้าใจได้ง่ายขึ้น โดยนำวิธีการเรียนรู้ที่ใช้ดังกล่าวมาจัดการเรียนรู้แก่นักเรียน เพื่อสรุปความคิดรวบยอด ทำให้เห็นความสัมพันธ์ของเนื้อเรื่องที่อ่าน ดังที่ วิมลรัตน์ สุนทรโรจน์ (2557) ได้กล่าวว่าการจัดการเรียนรู้โดยใช้แผนผังความคิดจะทำให้ง่ายต่อการเข้าใจในการอ่านหรือการศึกษาและเพิ่มความคงทนในการเรียนรู้

ความเข้าใจในเรื่องนั้น ๆ ของผู้เรียนได้เป็นอย่างดี สอดคล้องกับ อารี สัณหฉวี (2542) ได้กล่าวว่า ผู้เรียนจะเรียนรู้และร่วมกิจกรรมอย่างไม่น่าเบื่อช่วยในการจดจำและความเข้าใจเรื่อง ได้ค้นพบวิธีการอ่านจับใจความด้วยตนเองและพร้อมที่จะเรียนรู้ตามความถนัดของตนได้ จึงทำให้ผู้เรียนเกิดทักษะการอ่านจับใจความสำคัญ

3. นักเรียนชั้นมัธยมศึกษาปีที่ 3 มีความพึงพอใจในการใช้หนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” ภาพรวมอยู่ในระดับมากที่สุดมีค่าเฉลี่ย 4.63 ทั้งนี้เป็นผลมาจากภาพประกอบเนื้อหาในเรื่องทั้ง 5 ตอนของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มีความเหมาะสมกับเนื้อเรื่อง ซึ่งจากการประเมินความพึงพอใจพบว่า ผลการประเมินในประเด็นดังกล่าวอยู่ในระดับมากที่สุด ดังที่ รังสิมันต์ ฉิมรักษ์ (2550) ได้กล่าวว่า หนังสือส่งเสริมการอ่านเมื่ออ่านแล้วผู้อ่านสามารถนำข้อคิดจากเรื่องไปปรับใช้ในการดำเนินชีวิต ซึ่งจะเขียนในรูปของร้อยแก้วหรือร้อยกรองก็ได้ มีรูปเล่มที่สวยงาม และมีภาพประกอบเนื้อเรื่อง สอดคล้องกับ ณรงค์ ทองปาน (2526) ได้กล่าวถึงลักษณะที่ดีของหนังสือสำหรับเด็กเป็นเรื่องที่เด็กชอบและตรงกับความสนใจของเด็ก เนื้อหาต้องมีวัตถุประสงค์ชัดเจนมีความคิดรวบยอดเพียงเรื่องเดียว ความยากง่ายพอเหมาะกับวัยไม่ต้องมีตัวละครมาก โครงเรื่องและการดำเนินเรื่องน่าสนใจใช้สำนวนภาษาที่รัดกุม เข้าใจง่าย อ่านง่าย ไม่สับสน ไม่วกวน ใช้สำนวนที่เด็กคุ้นเคยไม่ใช้กาษาที่เป็นแบบแผนทางการเกินไป รูปเล่มของหนังสือปกสีสวยสะดุดตา เพื่อเร้าใจ ดึงดูดความสนใจ

นอกจากนี้เนื้อหาของหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” มีเนื้อหาที่เข้าใจง่าย เป็นเรื่องในท้องถิ่นส่งเสริมให้นักเรียนมีทัศนคติที่ดี รัก ภาคภูมิใจถิ่นฐานบ้านเกิดของตน จึงเป็นเหตุผลที่ทำให้นักเรียนมีความสนใจและพึงพอใจหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” ในระดับมากที่สุด ($\overline{X}$ = 4.63)

หนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด สร้างขึ้นเพื่อพัฒนาทักษะการอ่านจับใจความสำคัญของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ซึ่งสอดคล้องกับหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 เป็นหนังสือที่สร้างขึ้นเพื่อพัฒนาคุณภาพผู้เรียนระดับชั้นมัธยมศึกษาปีที่ 3 ที่สามารถนำมาเป็นสื่อในการจัดการเรียนรู้เพื่อมุ่งหวังให้นักเรียนมีทักษะการอ่านที่สูงขึ้น ดังที่ กระทรวงศึกษาธิการ (2553) ได้กล่าวถึง คุณภาพของผู้เรียน เมื่อจบการศึกษาระดับชั้นมัธยมศึกษาปีที่ 3 ในสาระการอ่าน สามารถอ่านจับใจความสำคัญและรายละเอียดของสิ่งที่อ่านและเขียนกรอบแนวคิด ผังความคิด ย่อความ เขียนรายงานจากสิ่งที่อ่านได้ รวมทั้งประเมินความถูกต้องของข้อมูลที่ใช้สนับสนุนจากเรื่องที่อ่าน จึงกล่าวได้ว่า หนังสือเล่มนี้สร้างขึ้นเพื่อวัตถุประสงค์ในการพัฒนาทักษะทางภาษาไทยของผู้เรียน แต่ก็มีคุณค่าในฐานะงานวรรณกรรมท้องถิ่นที่สะท้อนให้เห็นภูมิปัญญาของคนในท้องถิ่น ซึ่งผู้วิจัยมีเชื่อว่าหนังสือเล่มนี้ นอกจากเป็นสื่อเพื่อพัฒนาทักษะการอ่านจับใจความสำคัญของนักเรียนให้ดียิ่งขึ้นแล้วยัง เป็นจะเป็นเครื่องมือที่ทำให้ผู้เรียนเกิดความรักในบ้านเกิดของตนเอง

ข้อเสนอแนะ

ข้อเสนอแนะที่ได้จากการวิจัย

1. การจัดการเรียนการสอนโดยใช้หนังสือหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด ทำให้นักเรียนมีทักษะการอ่านจับใจความสำคัญที่ดีขึ้น จึงควรนำเทคนิคและสื่อมาใช้เพื่อพัฒนาทักษะด้านอื่นได้

2. จากผลการประเมินความพึงพอใจของนักเรียน พบว่านักเรียนมีความพึงพอใจการเรียนโดยใช้หนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด ในระดับมากที่สุด จึงควรนำมาพัฒนาทักษะการอ่านจับใจความสำคัญในระดับชั้นอื่น ๆ ได้ด้วย

ข้อเสนอแนะในการทำวิจัยครั้งต่อไป

1. ครูสามารถนำเรื่องราวในท้องถิ่น มาจัดสร้างหนังสือส่งเสริมการอ่านในรูปแบบร้อยกรองเพื่อพัฒนาทักษะการอ่านจับใจความสำคัญของนักเรียนได้

2. สามารถนำหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิดมาบูรณาการกับรายวิชาอื่น ๆ และจัดทำเป็นหลักสูตรท้องถิ่นเพื่อใช้ในการจัดการเรียนการสอนได้สามารถนำหนังสือส่งเสริมการอ่าน ชุด “ตำนานนางสุนทรา” โดยใช้เทคนิคบันได 6 ขั้น ร่วมกับแผนผังความคิด มาพัฒนานักเรียนในสาระการเขียนได้

เอกสารอ้างอิง

กระทรวงศึกษาธิการ. (2553). หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพฯ: ชุมนุมสหกรณ์การเกษตรแห่งประเทศไทย จำกัด.

กาญจนา สุริยะวิทยะ. (2553). การพัฒนาหนังสือส่งเสริมการอ่านเรื่องประเพณีท้องถิ่นสกลนคร เพื่อฝึกทักษะการอ่านและการเขียนภาษาไทย ชั้นประถมศึกษาปีที่ 2. วิทยานิพนธ์ครุศาสตรมหาบัณฑิต. มหาวิทยาลัยราชภัฏสกลนคร, สกลนคร.

จินตนา ใบกาซูยี. (2537). การเขียนสื่อการเรียนการสอน. กรุงเทพฯ: สุวีริยาสาส์น.

จินตนา ใบกาซูยี. (2542). การจัดทำหนังสือสำหรับเด็ก. กรุงเทพฯ: คุรุสภาลาดพร้าว.

ชัยยงค์ พรมหมวงศ์. (2556). การทดสอบประสิทธิภาพสื่อหรือชุดการสอน. วารสารศิลปากรศึกษาศาสตร์วิจัย, 5(1) : 19-54.

ณรงค์ ทองปาน. (2526). การสร้างหนังสือสำหรับเด็ก. กรุงเทพฯ: กรมฝึกหัดครู.

เพิ่มพูน ชิดชอบ. (2566). นโยบายการศึกษา เรียนดี มีความสุข. กรุงเทพฯ: กระทรวงศึกษาธิการ.

รังสิมันต์ ฉิมรักษ์. (2550). การเขียนหนังสือส่งเสริมการอ่าน. กรุงเทพฯ: สุวีริยาสาส์น.

วรรษมล ศุภคุณ. (2564). การพัฒนาทักษะการอ่านจับใจความ ด้วยหนังสือส่งเสริมการอ่าน กลุ่มสาระการเรียนรู้ภาษาไทย สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5. วารสารวิจัยรำไพพรรณี, 15(2), 48-57.

วานิช ยืนชีวิต. (2552). การพัฒนากิจกรรมการเรียนรู้ภาษาไทยด้านการอ่าน ชั้นประถมศึกษาปีที่ 4 ด้วยการจัดกิจกรรมกลุ่มร่วมมือแบบ STAD โดยใช้หนังสือส่งเสริมการอ่านด้วยนิทานพื้นบ้าน. วิทยานิพนธ์การศึกษามหาบัณฑิต. มหาวิทยาลัยสารคาม, มหาสารคาม.

วิมลรัตน์ สุนทรโรจน์. (2549). เอกสารประกอบการสอนวิชา 0506702 นวัตกรรมเพื่อการเรียนรู้ มหาสารคาม คณะศึกษาศาสตร์. มหาวิทยาลัยมหาสารคาม, มหาสารคาม.

สมพร แพ่งพิพัฒน์. (2555). ภาษาไทยเพื่อการสื่อสาร (พิมพ์ครั้งที่ 2). กรุงเทพฯ: โอเดียนสโตร์.

สำนักวิชาการและมาตรฐานการศึกษา. (2564). หลักสูตรพัฒนาสมรรถนะการอ่านขั้นสูงสำหรับนักเรียนชั้นมัธยมศึกษาตอนต้น. กรุงเทพฯ: สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน.

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี. (2566). การแถลงข่าวผลการประเมิน PISA 2022. สืบค้น วันที่ 12 ธันวาคม 2566 จาก https://pisathailand.ipst.ac.th/news-21/

อภิเชษฐ์ เทศเล็ก. (2558). การพัฒนาหนังสือส่งเสริมการอ่านชุดท่องเที่ยวเมืองสามพรานเพื่อส่งเสริมความสามารถในการอ่านจับใจความสำคัญ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 6. วิทยานิพนธ์ศึกษาศาสตรมหาบัณฑิต. มหาวิทยาลัยศิลปากร, นครปฐม.

อารี สัณหฉวี. (2542). พหุปัญญาในห้องเรียน: วิธีการสอนเพื่อพัฒนาปัญญาหลายด้าน. กรุงเทพ ฯ: ศูนย์พัฒนาหนังสือกรมวิชาการ.

การสร้างหนังสืออ่านเพิ่มเติม ชุด "ดินแดนศรีวิชัยชวนฝัน” เพื่อพัฒนาความสามารถในการอ่านจับใจความด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H สำหรับนักเรียนระดับชั้นประถมศึกษาปีที่ 6*

Creation of Supplementary Reading Book on “Recounting Srivijaya Town Legend” to Develop Reading for Main Ideas Using 5E and 5W1H Methods for Primary Six Students

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บทคัดย่อ

การศึกษาครั้งนี้ มีวัตถุประสงค์เพื่อสร้างและหาประสิทธิภาพหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” สำหรับนักเรียนระดับชั้นประถมศึกษาปีที่ 6 ตามเกณฑ์ 80/80 เพื่อเปรียบเทียบความสามารถในการอ่านจับใจความของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” และวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H และเพื่อศึกษาความพึงพอใจของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 หลังจากที่เรียนโดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” และวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H กลุ่มตัวอย่างที่ใช้ในการศึกษาครั้งนี้ เป็นนักเรียนระดับชั้นประถมศึกษาปีที่ 6 โรงเรียนวัดท่าไทร(ดิตถานุเคราะห์) จำนวน 38 คน ได้มาโดยการสุ่มแบบยกกลุ่ม (Cluster Random Sampling) โดยใช้โรงเรียนเป็นหน่วยสุ่มเครื่องมือที่ใช้ในการศึกษา ประกอบด้วย หนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” จำนวน 4 ตอน แบบทดสอบวัดความสามารถการอ่านจับใจความก่อนเรียนและหลังเรียน เป็นปรนัยชนิดเลือกตอบ 4 ตัวเลือก จำนวน 30 ข้อ และแบบประเมินความพึงพอใจขอนักเรียนที่มีต่อหนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” และวิเคราะห์ข้อมูลโดยวิธีการหาประสิทธิภาพของหนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยการหาค่าประสิทธิภาพ E_1/E_2 ของหนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” ศึกษาความสามารถการอ่านจับใจความของนักเรียนด้วยการเปรียบเทียบค่าเฉลี่ยและร้อยละของคะแนนทดสอบ t-test ศึกษาความพึงพอใจของนักเรียนที่มีต่อหนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยการวิเคราะห์หาค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน

ผลการศึกษา พบว่า

1. หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” มีประสิทธิภาพเท่ากับ 84.75/84.82 ซึ่งสูงกว่าเกณฑ์มาตรฐาน 80/80 ที่ตั้งไว้

2. ความสามารถการอ่านจับใจความของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H สูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .01

3. ความพึงพอใจของนักเรียนที่มีต่อการจัดการเรียนรู้โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H อยู่ในระดับมากที่สุด โดยมีค่าเฉลี่ยเท่ากับ 4.82 ส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.09

คำสำคัญ: หนังสืออ่านเพิ่มเติม, การอ่านจับใจความสำคัญ, วิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H

Abstract

This research study aimed to create and evaluate the effectiveness of a supplementary reading book on “Recounting Srivijaya Town Legend” for Primary Six students based on the criteria of 80/80, compare the reading for main ideas ability of Primary Six students using the supplementary reading book on “Recounting Srivijaya Town Legend” and learning through 5E and 5W1H methods, and examine the satisfaction of Primary Six students towards the supplementary reading book on “Recounting Srivijaya Town Legend” and learning through 5E and 5W1H methods. The research samples were 38 Primary Six students at Wat Thasai (Ditthanukroe) School, who were selected by cluster random sampling by school unit. The research instruments were a 4-section supplementary reading book on “Recounting Srivijaya Town Legend,” a 30-item reading for main idea pre- and post-test in the form of 4 choices, and a questionnaire on the satisfaction of Primary Six students with the supplementary reading book on “Recounting Srivijaya Town Legend.” The data were analyzed by evaluating the effectiveness of the supplementary reading book on “Recounting Srivijaya Town Legend,” comparing mean scores and percentages of the test scores and t-tests, and means and standard deviations were used for analyzing the satisfaction of Primary Six students with the supplementary reading book on “Recounting Srivijaya Town Legend.”

The research findings revealed that:

1) the effectiveness of supplementary reading book on “Recounting Srivijaya Town Legend” was 84.75/84.82, higher than the standard of 80/80 as set

2) Reading for main idea ability of Primary Six students was higher after learning by the use of supplementary reading book on “Recounting Srivijaya Town Legend” and through 5E and 5W1H methods

3) the satisfaction of students towards learning management by the use of

supplementary reading book on “Recounting Srivijaya Town Legend” and learning through 5E and 5W1H methods was at the highest level, with the mean score of 4.82, S.D. = 0.09.

Keywords: Reading Promotion Book, Reading Comprehension,
Main Ideas Using 5E with 5W1H Methods

บทนำ

ภาษาไทยเป็นภาษาประจำชาติที่มีบทบาทสำคัญทั้งในด้านการสื่อสาร ถ่ายทอดความรู้ ความคิด และวัฒนธรรมอีกทั้งยังเป็นเครื่องมือสำคัญ ในการแสวงหาความรู้และพัฒนาศักยภาพของผู้เรียนในทุกมิติ โดยเฉพาะทักษะการอ่าน ซึ่งถือเป็นพื้นฐานสำคัญของการเรียนรู้ในสาระต่าง ๆ มีความสอดคล้องกับแนวคิดของ กนกวรรณ ภู่ทิม (2560) ที่ระบุว่า การอ่านเป็นเครื่องมือสำคัญในการพัฒนาความคิด การวิเคราะห์ และการดำเนินชีวิต และมีความคิดเห็นที่สอดคล้องกับนโยบายของกระทรวงศึกษาธิการ (2551) ว่าควรส่งเสริมการอ่านอย่างเป็นระบบ โดยเน้นให้ครูเป็นต้นแบบในการรักการอ่าน โดยเฉพาะในระดับประถมศึกษา ซึ่งเป็นช่วงวัยที่ควรปลูกฝังทักษะการอ่านจับใจความอย่างต่อเนื่อง

อย่างไรก็ตาม จากผลการทดสอบทางการศึกษาระดับชาติขั้นพื้นฐาน (O-NET) ปี 2566 พบว่า คะแนนเฉลี่ยวิชาภาษาไทยอยู่ในระดับต่ำ โดยสาระการอ่านมีค่าคะแนนเฉลี่ยอยู่ที่ 59.61 ซึ่งแสดงถึงปัญหาด้านทักษะการอ่านจับใจความของนักเรียนระดับประถมศึกษา สอดคล้องกับแนวคิดของ พรสวรรค์ จันทร์เล็ก (2562) ที่เน้นว่า ครูควรฝึกให้นักเรียนสามารถเข้าใจและจับใจความสำคัญจากสิ่งที่อ่านได้อย่างมีประสิทธิภาพ ทั้งนี้ สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุราษฎร์ธานี เขต 1 (2566) ยังได้กำหนดแนวทางเชิงนโยบายในการส่งเสริมการอ่านอย่างเหมาะสมกับช่วงวัย เพื่อปลูกฝังนิสัยรักการอ่านอย่างยั่งยืน และส่งเสริมความเป็นท้องถิ่นให้นักเรียนได้เรียนรู้อย่างยั่งยืน (สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุราษฎร์ธานี เขต 1, 2566)

จากแนวทางดังกล่าว การบูรณาการเนื้อหาท้องถิ่นเข้ากับกิจกรรมการเรียนรู้เป็นแนวทางหนึ่งที่มีศักยภาพในการเสริมสร้างแรงจูงใจและความผูกพันของผู้เรียน ประเด็นนี้เชื่อมโยงสอดคล้องกับ อรรถพร สารานพกุล (2557) มีความคิดเห็นว่า การเรียนรู้จากบริบทท้องถิ่นช่วยให้นักเรียนเกิดความภาคภูมิใจและเข้าใจคุณค่าของบ้านเกิดอย่างแท้จริง ดังนั้นการจัดทำหนังสืออ่านเพิ่มเติมในรูปแบบนิทานจึงเป็นแนวทางที่เหมาะสมในการพัฒนาทักษะการอ่านให้มีประสิทธิภาพ โดยเฉพาะเมื่อนำเสนอด้วยเนื้อหาใกล้ตัว ซึ่งต่อยอดจากแนวคิดของ วรรษมล ศุภคุณ (2564) ที่ใช้นิทานพื้นบ้านท้องถิ่นเป็นสื่อส่งเสริมการอ่านในระดับประถมศึกษา

นอกจากนี้ รูปแบบการจัดการเรียนรู้ยังมีบทบาทสำคัญในการพัฒนาทักษะการอ่าน ผู้วิจัยเห็นว่าการใช้รูปแบบการเรียนรู้แบบ 5E ร่วมกับเทคนิคการตั้งคำถาม 5W1H จะช่วยกระตุ้นการคิดวิเคราะห์ การเข้าใจเนื้อหาในหลากหลายมุมมอง และส่งเสริมการเรียนรู้อย่างมีระบบ ซึ่งเป็นแนวคิดที่ต่อยอดจาก ปัทมาวดี ขันธ์ชัย (2560) ที่พัฒนาทักษะการอ่านของนักเรียนโดยใช้รูปแบบ SQ3R ร่วมกับ 5E เพื่อส่งเสริมการคิดและการเขียน ซึ่งพบว่า มีข้อจำกัดด้านเวลาและกระบวนการจัดกิจกรรมในชั้นเรียน

ด้วยเหตุนี้ ผู้วิจัยจึงได้พัฒนาหนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” โดยถ่ายทอดเรื่องราวท้องถิ่นของจังหวัดสุราษฎร์ธานีในรูปแบบนิทาน เพื่อใช้เป็นสื่อพัฒนาความสามารถในการอ่านจับใจความสำหรับนักเรียนชั้นประถมศึกษาปีที่ 6 โดยจัดการเรียนรู้ตามรูปแบบ 5E ร่วมกับเทคนิค 5W1H เพื่อเสริมสร้างกระบวนการคิดวิเคราะห์และส่งเสริมการเรียนรู้อย่างลึกซึ้งและยั่งยืน

วัตถุประสงค์ของการวิจัย

1. เพื่อสร้างและหาประสิทธิภาพหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” สำหรับนักเรียนระดับชั้นประถมศึกษาปีที่ 6 ให้มีประสิทธิภาพตามเกณฑ์ 80/80
2. เพื่อศึกษาความสามารถในการอ่านจับใจความของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H
3. เพื่อศึกษาระดับความพึงพอใจของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 ที่มีต่อการจัดการเรียนรู้โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H

สมมติฐานของการวิจัย

1. หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” สำหรับนักเรียนระดับชั้นประถมศึกษาปีที่ 6 มีประสิทธิภาพตามเกณฑ์ 80/80
2. ความสามารถในการอ่านจับใจความของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” และวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H หลังเรียนสูงกว่าก่อนเรียน
3. ความพึงพอใจของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 ที่มีต่อการจัดการเรียนรู้โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” และวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H อยู่ในระดับมาก

การทบทวนวรรณกรรม

การทบทวนวรรณกรรมได้กล่าวถึงหลักการและแนวทางในการพัฒนาทักษะการอ่านจับใจความและการสร้างสื่อการเรียนรู้ดังนี้

1. การอ่านจับใจความ

การอ่านจับใจความเป็นพื้นฐานสำคัญของการแสวงหาความรู้ และส่งเสริมทักษะทางภาษาอื่น ๆ ผู้เรียนจึงควรได้รับการฝึกฝนอย่างเป็นระบบ (แววมยุรา เหมือนนิล, 2541) โดยมุ่งเน้นการค้นหาสาระสำคัญของเรื่องที่อ่าน และสุนันทา มั่นเศรษฐวิทย์ (2542) อธิบายว่า การอ่านจับใจความประกอบด้วย 4 ขั้นตอนหลัก ได้แก่ การแปลความของสัญลักษณ์ การเข้าใจความหมายของคำและประโยค การจับแนวคิดหลัก และกระบวนการคิดระหว่างการอ่าน จึงสรุปได้ว่า การพัฒนาทักษะการอ่านจับใจความควรจัดเนื้อหาให้เหมาะสมกับผู้เรียน มีการตั้งคำถามเพื่อทดสอบความเข้าใจ เช่น คำถาม 5W1H พร้อมการอธิบายคำศัพท์ การวิเคราะห์ข้อเท็จจริงและข้อคิดเห็น ตลอดจนการสรุปข้อคิดหลังอ่าน เพื่อให้การเรียนรู้บรรลุผลอย่างมีประสิทธิภาพ

2. การสร้างหนังสืออ่านเพิ่มเติม

หนังสืออ่านเพิ่มเติมเป็นสื่อการเรียนรู้ที่กระทรวงศึกษาธิการให้ความสำคัญ เนื่องจากสามารถส่งเสริมทักษะการอ่าน พัฒนาสติปัญญา และปลูกฝังนิสัยรักการอ่านให้แก่ผู้เรียน โดย ลักขณา รอดสน (2540) ระบุว่า หนังสืออ่านเพิ่มเติมช่วยขยายความรู้ ส่งเสริมการอ่าน และเป็นแหล่งศึกษาค้นคว้าเพิ่มเติม เทียมจันทร์ ศรีสังข์ (2542) ชี้ว่า หนังสือดังกล่าวสนับสนุนการเรียนรู้ตามความสนใจ และสามารถใช้เป็นสื่อประกอบการเรียนการสอนได้อย่างมีประสิทธิภาพ ส่วน เพลินพิศ กอบตระกูล (2539) สรุปว่า หนังสืออ่านเพิ่มเติมช่วยปลูกฝังนิสัยรักการอ่าน ส่งเสริมการเรียนรู้ด้วยตนเอง ขยายเนื้อหาในหนังสือเรียน และเสริมสร้างคุณธรรม จริยธรรม ทั้งยังให้ความเพลิดเพลินแก่ผู้อ่านอีกด้วย

ฉวีวรรณ คูหาอภินันท์ (2542) ได้เสนอขั้นตอนการเขียนหนังสืออ่านเพิ่มเติมไว้ 2 ขั้นตอนหลัก ได้แก่

1. การวางแผนการเขียน ได้แก่ การกำหนดประเภทหนังสือ จุดประสงค์ กลุ่มผู้อ่าน เนื้อหา ชื่อเรื่อง โครงสร้างเนื้อหา แนวการเขียน และแหล่งข้อมูลอ้างอิง เพื่อให้การเขียนมีทิศทางและเหมาะสมกับผู้อ่าน

2. การจัดทำรูปเล่มและต้นฉบับ ครอบคลุมการกำหนดความยาวและขนาดของหนังสือตามวัยผู้อ่าน การเลือกขนาดกระดาษให้เหมาะสมกับมาตรฐานโรงพิมพ์ การใช้ภาพประกอบ การทำดัมมี่ เพื่อจำลองรูปเล่ม และการจัดทำต้นฉบับที่สมบูรณ์อย่างน้อย 2 ชุดสำหรับส่งโรงพิมพ์และสำรองไว้กับผู้เขียน

3. ข้อมูลท้องถิ่น

สาระการเรียนรู้ท้องถิ่นเป็นองค์ความรู้เกี่ยวกับบริบทของชุมชน เช่น ภูมิประเทศ วัฒนธรรม และประวัติศาสตร์ ที่สามารถนำมาใช้จัดการเรียนรู้เพื่อให้ผู้เรียนเข้าใจถิ่นฐานของตนเอง (ถวัลย์ มาศจรัส, 2549) การจัดการเรียนรู้โดยใช้ข้อมูลท้องถิ่นควรเลือกสิ่งที่อยู่ใกล้ตัวและสอดคล้องกับประสบการณ์ ของนักเรียน เพื่อสร้างการเรียนรู้ที่มีความหมาย (อรรถพร สารานพคุณ, 2557) แนวทางนี้ยังช่วยส่งเสริมจิตสำนึกรักบ้านเกิด และสามารถบูรณาการได้ในหลายวิชา โดยเฉพาะวิชาภาษาไทย

4. วิธีการเรียนรู้แบบ 5E

สุนีย์ เหมะประสิทธิ์ (2542) ได้นำแนวคิดการจัดกิจกรรมการเรียนรู้แบบ 5E โดยเน้นให้นักเรียนแสวงหาและสร้างความรู้ด้วยตนเอง เพื่อพัฒนาทักษะชีวิตและสังคม ประกอบด้วย 5 ขั้นตอน ได้แก่ 1) Engagement การกระตุ้นความสนใจและทบทวนความรู้เดิม 2) Exploration ให้นักเรียนสำรวจ ทดลองและสร้างความรู้ด้วยตนเอง 3) Explanation การให้นักเรียนนำเสนอความรู้ที่ค้นพบ 4) Elaboration การนำไปประยุกต์ใช้หรือขยายมโนมติในบริบทใหม่ 5) Evaluation การประเมินผลการเรียนรู้และแลกเปลี่ยนความคิดเห็นร่วมกันในสังคมแห่งการเรียนรู้ โดยที่ พันธุ์ ทองชุมนุม (2544) กล่าวถึงข้อดีของการจัดการเรียนรู้ว่า ช่วยให้นักเรียนพัฒนาความคิดอย่างเต็มที่ คิดอย่างเป็นระบบ และเน้นผู้เรียนเป็นศูนย์กลาง ส่วนข้อจำกัด ได้แก่ ใช้เวลามาก หากสถานการณ์ไม่ดึงดูดจะทำให้ผู้เรียนไม่สนใจ ก่อให้เกิดบรรยากาศการเรียนรู้ที่ไม่เร้าใจ อีกทั้งนักเรียนบางกลุ่มอาจมีปัญหาในการเรียนรู้ด้วยตนเอง โดยเฉพาะผู้ที่มีสติปัญญาต่ำหรือขาดแรงจูงใจ ส่งผลให้ไม่บรรลุเป้าหมายการเรียนรู้ตามที่กำหนดไว้

5. เทคนิคการสอน 5W1H

วิทวัฒน์ ขัตติยะมาน (2549) เสนอแนวทางการอ่านจับใจความ โดยใช้คำถาม 6W1H ได้แก่ Who (ใครเกี่ยวข้อง), What (เกิดเหตุการณ์อะไร), Where (เกิดที่ไหน), When (เมื่อไร), Why (ทำไมถึงเกิด), และ How (เกิดขึ้นอย่างไร) เพื่อช่วยวิเคราะห์และทำความเข้าใจเนื้อหาอย่างมีระบบ สอดคล้องกับการจัดกิจกรรมการเรียนรู้ที่เน้นการคิดวิเคราะห์ของผู้เรียน

การทบทวนนี้สรุปได้ว่า การพัฒนาทักษะการอ่านจับใจความและการสร้างหนังสืออ่านเพิ่มเติมมีบทบาทสำคัญในการพัฒนาผู้เรียน ทั้งในด้านการคิดวิเคราะห์ การเรียนรู้ด้วยตนเองและการเชื่อมโยงกับข้อมูลท้องถิ่นเพื่อการเรียนรู้ที่มีความหมายและมีประสิทธิภาพ

วิธีดำเนินการวิจัย

การสร้างหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” เพื่อศึกษาความสามารถในการอ่านจับใจความด้วยการใช้วิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H สำหรับนักเรียนชั้นประถมศึกษาปีที่ 6 ผู้วิจัย

1. ประชากรและกลุ่มตัวอย่าง

กำหนดประชากร คือ นักเรียนระดับชั้นประถมศึกษาปีที่ 6 ของโรงเรียนขนาดกลางในเขตเทศบาลตำบลท่าทองใหม่ อำเภอกาญจนดิษฐ์ ซึ่งมี 2 โรงเรียน ได้แก่ โรงเรียนบ้านบางสำโรง และโรงเรียนวัดท่าไทร (ดิตถานุเคราะห์) โดยที่นักเรียนระดับชั้นประถมศึกษาปีที่ 6 โรงเรียนวัดท่าไทร (ดิตถานุเคราะห์) จำนวน 38 คน และนักเรียนระดับชั้นประถมศึกษาปีที่ 6 โรงเรียนบ้านบางสำโรง จำนวน 39 คน รวมทั้งสิ้น 77 คน

กลุ่มตัวอย่าง คือ นักเรียนระดับชั้นประถมศึกษาปีที่ 6 โรงเรียนวัดท่าไทร (ดิตถานุเคราะห์) จำนวน 38 คน ได้มาโดยการสุ่มแบบกลุ่ม (Cluster Random Sampling) โดยใช้หน่วยสุ่มโรงเรียน

2. เครื่องมือในการวิจัย

เครื่องมือที่ใช้ในการวิจัย ได้แก่

2.1 หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” จำนวน 4 ตอน ตอนที่ 1 มหัศจรรย์เมืองร้อยเกาะ ตอนที่ 2 เงาะโรงเรียนตราตรึงใจ ตอนที่ 3 เพื่อนใหม่ที่ฟาร์มหอยใหญ่ และตอนที่ 4 ไข่แดงศรีวิชัยกับพลังวิเศษ

2.2 แบบทดสอบวัดความสามารถในการอ่านจับใจความก่อนเรียนและหลังเรียน โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H เพื่อพัฒนาความสามารถในการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 6 เป็นข้อสอบปรนัย ชนิดเลือกตอบ 4 ตัวเลือก ฉบับละ 30 ข้อ

2.3 แบบประเมินคุณภาพหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H เพื่อพัฒนาความสามารถในการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 6 เป็นแบบมาตราส่วนประมาณค่า (Rating Scale) 5 ระดับ

2.4 แบบประเมินความพึงพอใจของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 ที่มีต่อการจัดการเรียนรู้โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H เป็นแบบมาตราส่วนประมาณค่า (Rating Scale) 5 ระดับ

3. การสร้างเครื่องมือและการวิเคราะห์ข้อมูล

3.1 หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน”

ผู้วิจัยได้ดำเนินการสร้างและพัฒนาหนังสืออ่านเพิ่มเติมตามลำดับขั้นตอน 7 ขั้นตอน ดังนี้

3.1.1 วิเคราะห์หลักสูตร

ผู้วิจัยศึกษาหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 โดยเน้นหน่วยการเรียนรู้ที่ 5 วิชาภาษาไทย ระดับชั้นประถมศึกษาปีที่ 6 ภาคเรียนที่ 2 ของโรงเรียนวัดท่าไทร (ดิตถานุเคราะห์)

3.1.2 ศึกษาทฤษฎีและแนวทางการสร้างหนังสือ

ผู้วิจัยศึกษาขั้นตอนและรูปแบบการสร้างหนังสืออ่านเพิ่มเติม จากเอกสารและงานวิจัยที่เกี่ยวข้อง โดยอ้างอิงแนวทางของฉวีวรรณ คูหาอภินันท์ (2542)

3.1.3 เก็บรวบรวมข้อมูลท้องถิ่น

ผู้วิจัยศึกษาข้อมูลจากหนังสือเอกลักษณ์จังหวัดสุราษฎร์ธานี เพื่อนำมาสร้างเป็นโครงเรื่องสำหรับนิทานในหนังสืออ่านเพิ่มเติม

3.1.4 พัฒนารูปแบบหนังสือ

ผู้วิจัยได้กำหนดโครงสร้างหนังสือออกเป็น 4 เล่ม ประกอบด้วย ส่วนนำ บทอ่าน แบบฝึกหัด และแบบทดสอบท้ายบท แล้วนำเสนอร่างฉบับแรกต่ออาจารย์ที่ปรึกษาวิทยานิพนธ์โดยมีตอนต่าง ๆ ได้แก่

ตอนที่ 1: มหัศจรรย์เมืองร้อยเกาะ

ตอนที่ 2: เงาะโรงเรียนตราตรึงใจ

ตอนที่ 3: เพื่อนใหม่ที่ฟาร์มหอยใหญ่

ตอนที่ 4: ไข่แดงศรีวิชัยกับพลังวิเศษ

3.1.5 ตรวจสอบและพัฒนาเนื้อหา

ผู้วิจัยปรับปรุงหนังสือตามข้อเสนอแนะของที่ปรึกษา จากนั้นนำเสนอผู้เชี่ยวชาญ 5 คน เพื่อตรวจสอบคุณภาพและความเหมาะสม ก่อนจัดพิมพ์ฉบับสมบูรณ์

3.1.6 ทดลองใช้เพื่อหาประสิทธิภาพ

ผู้วิจัยนำหนังสือที่ผ่านการปรับปรุงไปทดลองใช้กับกลุ่มเป้าหมายเพื่อหาประสิทธิภาพในการใช้งาน ดังต่อไปนี้

1. แบบเดี่ยว 1:1 มีประสิทธิภาพ เท่ากับ 56.13/67.78 ต่ำกว่าเกณฑ์
2. แบบกลุ่มเล็ก 1:10 มีประสิทธิภาพ เท่ากับ 72.80/77.67 ต่ำกว่าเกณฑ์
3. แบบกลุ่มใหญ่ 1:100 มีประสิทธิภาพ เท่ากับ 85.70/84.10 สูงกว่าเกณฑ์ที่กำหนด 80/80 สามารถนำไปใช้กับกลุ่มตัวอย่างได้

3.1.7 ขออนุญาตและนำไปใช้ในสถานศึกษา

ผู้วิจัยขออนุญาตผู้บริหารและกรรมการสถานศึกษา เพื่อนำหนังสือไปใช้ในการจัดกิจกรรมการเรียนการสอน และศึกษาผลต่อความสามารถด้านการอ่านจับใจความของนักเรียน

3.2 แบบประเมินคุณภาพหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” เพื่อพัฒนาความสามารถในการอ่านจับใจความ สำหรับนักเรียนชั้นประถมศึกษาปีที่ 6 (สำหรับผู้เชี่ยวชาญ) มีขั้นตอนดังนี้

3.2.1 ศึกษาวิธีการสร้างและกำหนดรูปแบบของแบบประเมิน

3.2.2 กำหนดประเด็นในการประเมินหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ซึ่งประกอบด้วย การจัดรูปเล่ม การจัดภาพ เนื้อเรื่อง การใช้ภาษา การนำเสนอเนื้อหา คุณค่าของหนังสือ และประโยชน์ต่อการเรียนการสอน

3.2.3 การสร้างแบบประเมินคุณภาพหนังสือให้สอดคล้องกับวัตถุประสงค์ที่ผู้วิจัยกำหนด และสอดคล้องกับเนื้อหาสาระที่สร้างขึ้นในหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน”

3.2.4 นำแบบประเมินคุณภาพหนังสือเสนอต่อผู้เชี่ยวชาญเพื่อพิจารณาความถูกต้อง ความเหมาะสมและความสอดคล้องของแบบประเมิน พร้อมทั้งปรับปรุงแก้ไขตลอดถึงข้อเสนอแนะอื่น ๆ สรุปประเด็นต่าง ๆ ดังนี้

1. ด้านเนื้อเรื่องให้เพิ่มประเด็นความคิดเห็นอีก 1 ประเด็น คือ เนื้อเรื่องไม่ขัดต่อความมั่นคงและศีลธรรม

2. ด้านการนำเสนอเนื้อหา ให้เพิ่มประเด็นความคิดเห็นอีก 1 ประเด็น คือ เนื้อหาส่งเสริมและพัฒนาทักษะกระบวนการคิด

3. ด้านการจัดรูปเล่ม ให้รวมความคิดเห็น เรื่องขนาดของหนังสือและจำนวนหน้าของหนังสือไว้ในข้อเดียวกัน ผู้วิจัยแก้ไขได้เป็น “ขนาดของหนังสือและจำนวนหน้าเหมาะสม”

4. ด้านประโยชน์ ให้เพิ่มประเด็นความเห็นเรื่อง หนังสือสามารถใช้ฝึกอ่านซ้ำ ๆ และสามารถยืมอ่านนอกเวลาได้ ผู้วิจัยจึงแยกความคิดเห็นเป็น 2 ความคิดเห็น คือ สามารถใช้ฝึกอ่านซ้ำ ๆ จนเกิดทักษะและสามารถยืมใช้อ่านนอกเวลาเรียนได้

3.2.5 จัดพิมพ์แบบประเมินคุณภาพหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” สำหรับนักเรียนชั้นประถมศึกษาปีที่ 6 (สำหรับผู้เชี่ยวชาญ) ฉบับสมบูรณ์ เพื่อนำไปให้ผู้เชี่ยวชาญแสดงความคิดเห็นและให้ข้อเสนอแนะในการสร้างหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน”

3.3 แบบวัดความสามารถในการอ่านจับใจความ

ผู้วิจัยได้พัฒนาแบบวัดความสามารถในการอ่านจับใจความก่อนเรียนและหลังเรียน โดยใช้หนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” เป็นสื่อประกอบการเรียนรู้ ดำเนินการตามลำดับขั้นตอน ดังนี้

3.3.1 ขั้นวิเคราะห์

ผู้วิจัยศึกษาหลักสูตรสถานศึกษาโรงเรียนวัดท่าไทร (ดิตถานุเคราะห์) กลุ่มสาระการเรียนรู้ภาษาไทย สาระการอ่าน ชั้นประถมศึกษาปีที่ 6 และศึกษาทฤษฎีการสร้างแบบทดสอบจากเอกสารและงานวิจัยที่เกี่ยวข้อง หลังจากนั้นผู้วิจัยจึงกำหนดเนื้อหาที่วัดความสามารถในการอ่านจับใจความ ได้แก่ การตอบคำถามจากเรื่องที่อ่าน การแยกข้อเท็จจริงและข้อคิดเห็น การสรุปใจความสำคัญ การเรียงลำดับเหตุการณ์ และการสรุปคุณค่าหรือข้อคิดจากบทอ่าน สุดท้ายคือ กำหนดจำนวนข้อคำถามให้ครอบคลุมมาตรฐานตัวชี้วัดและเนื้อหาตามหลักสูตร

ตารางที่ 1 ความคิดเห็นของนักวิชาการเกี่ยวกับความสามารถในการอ่านจับใจความ

ความสามารถการอ่านจับใจความ	1. แววมยุรา เหมือนนิล (2541)	2. กล้า พิมพ์วงศ์ (2543)	3. พรรัตน์ ระนันท์ (2554)	4. บันลือ พฤกษะวัน (2557)
1.การอธิบายคำศัพท์			√	√
2.การบอกรายละเอียด		√	√	√
3.การเรียงลำดับเหตุการณ์	√	√	√	√
4.การแยกข้อเท็จจริงกับข้อคิดเห็น	√	√	√	√
5.การเลือกความหมายของคำ	√			
การตอบคำถามจากข้อเท็จจริง			√	√
6.การยกตัวอย่าง	√			
7.การจำแนกใจความสำคัญและส่วนขยายใจความ	√	√	√	√
8.การสรุปข้อคิด	√		√	√
9.การทำนายผล		√		√

3.3.2 ขั้นออกแบบและพัฒนา

ผู้วิจัยสร้างแบบทดสอบวัดความสามารถในการอ่านจับใจความทั้งก่อนเรียนและหลังเรียน แบบเลือกตอบ 4 ตัวเลือก จำนวน 40 ข้อ (คู่ขนาน) ใช้เวลา 60 นาที แล้วจึงนำไปเสนอตัวแบบต่อผู้เชี่ยวชาญเพื่อตรวจสอบค่าดัชนีความสอดคล้อง (IOC) ระหว่างข้อคำถามกับจุดประสงค์การเรียนรู้ พบว่าแบบทดสอบที่ผ่านเกณฑ์ 30 ข้อ มีค่าดัชนีความสอดคล้อง คะแนนต่ำสุด เท่ากับ 0.33 สูงสุด เท่ากับ 1.00 แล้วจึงนำไปแก้ไขปรับปรุงแบบทดสอบตามข้อเสนอแนะของผู้เชี่ยวชาญ

3.3.3 ขั้นทดลองใช้

หลังจากแก้ไขตามข้อเสนอแนะของผู้เชี่ยวชาญ ผู้วิจัยนำไปทดลองกลุ่มใหญ่ (1:100) กับนักเรียน 39 คน โดยการสุ่มแบบกลุ่มจากนักเรียนที่มีผลสัมฤทธิ์ทางการเรียนต่างระดับ ผลการทดลอง พบว่า ค่าความยากง่าย (p) คะแนนต่ำสุดเท่ากับ 0.39 สูงสุดเท่ากับ 0.66 ค่าอำนาจจำแนก (r) คะแนนต่ำสุดเท่ากับ 0.21 สูงสุดเท่ากับ 0.68

3.3.4 ขั้นประเมินผล

ผู้วิจัยนำผลจากการทดลองใช้มาพิจารณาความเหมาะสมของแบบทดสอบ เพื่อใช้จริงในการวิจัยพบว่ามีค่าความเชื่อมั่น ด้วยสูตร KR-20 เท่ากับ 0.78 ถือว่าใช้วัดผลได้อย่างน่าเชื่อถือ

3.4 แบบประเมินความพึงพอใจของนักเรียนที่มีต่อการเรียนการสอน โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน”

3.4.1. ขั้นวิเคราะห์

ผู้วิจัยได้ศึกษาทฤษฎี แนวทาง และรูปแบบในการสร้างแบบประเมินความพึงพอใจจากเอกสารและงานวิจัยที่เกี่ยวข้อง นอกจากนี้ได้กำหนดจุดมุ่งหมายของแบบประเมินให้ครอบคลุมเนื้อหาและวัตถุประสงค์ของการใช้หนังสืออ่านเพิ่มเติม ร่วมกับการจัดการเรียนรู้แบบ 5E ควบคู่กับ 5W1H

3.4.2. ขั้นออกแบบ

ผู้วิจัยจัดทำแบบสอบถามความพึงพอใจในรูปแบบมาตราส่วนประมาณค่า (Rating Scale) จำนวน 20 ข้อ แล้วนำไปเสนอต้นฉบับแบบประเมินต่อผู้เชี่ยวชาญ เพื่อตรวจสอบความถูกต้อง ความเหมาะสม และความสอดคล้องกับวัตถุประสงค์การวิจัย อีกทั้งปรับปรุงแบบสอบถามตามข้อเสนอแนะของผู้เชี่ยวชาญ เช่น การจัดรูปแบบหัวข้อภาพรวมใหม่ และการแยกรายการด้านส่งเสริมวัฒนธรรมและศีลธรรมออกจากด้านคุณธรรมจริยธรรม

3.4.3. ขั้นทดลอง

ผู้วิจัยทบทวนและตรวจสอบความชัดเจนของรายการคำถาม เพื่อให้สามารถนำไปใช้จริงกับกลุ่มตัวอย่างได้อย่างเหมาะสม แล้วนำไปตรวจสอบความเข้าใจของนักเรียนในการตอบแบบประเมินเพื่อยืนยันความชัดเจนของข้อความ

3.4.4. ขั้นประเมินผล

ผู้วิจัยวิเคราะห์ความเที่ยงตรงเชิงเนื้อหา โดยใช้วิธีหาค่าดัชนีความสอดคล้อง (IOC) จากผู้เชี่ยวชาญ สรุปได้แบบประมิน 15 รายการ มีค่าดัชนีความสอดคล้อง ข้อต่ำสุด เท่ากับ 0.67 และสูงสุด เท่ากับ 1.00 หลังจากนั้น นำผลการวิเคราะห์มาปรับปรุงและจัดพิมพ์แบบประเมินความพึงพอใจฉบับสมบูรณ์เพื่อใช้ในกระบวนการวิจัย

3.5 แผนการจัดการเรียนรู้แบบย่อ เรื่อง การอ่านจับใจความด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1Hสำหรับนักเรียนชั้นประถมศึกษาปีที่ 6 โดยใช้หนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” มีวัตถุประสงค์ เพื่อพัฒนาความสามารถในการอ่านจับใจความ การแยกข้อเท็จจริงและข้อคิดเห็น การเชื่อมโยงความรู้สู่การตัดสินใจ และการประเมินคุณค่าจากเรื่องที่อ่าน ผ่านกระบวนการเรียนรู้แบบ 5E (Engage, Explore, Explain, Elaborate, Evaluate) ร่วมกับเทคนิค 5W1H (Who, What, When, Where, Why, How) ผู้วิจัยได้ดำเนินการเขียนแผนตามขั้นตอน ดังต่อไปนี้

3.5.1 ศึกษามาตรฐาน/ตัวชี้วัด: ตามสาระการเรียนรู้ภาษาไทย สาระที่ 1: การอ่าน (ท 1.1 ป.6/3, ป.6/4, ป.6/5 และ ป.6/8)

3.5.2 ศึกษาโครงสร้างแผนการจัดการเรียนรู้ โดยออกแบบแผนการจัดการเรียนรู้ตามโครงสร้างหลักสูตรสถานศึกษาโรงเรียนวัดท่าไทร(ดิตถานุเคราะห์) จำนวน 5 แผนการเรียนรู้ รวมระยะเวลา 10 ชั่วโมง โดยใช้เนื้อหาจากหนังสือ “ดินแดนศรีวิชัยชวนฝัน” ดังนี้

แผนที่ 1: ท้องถิ่นของเรา
แผนที่ 2: มหัศจรรย์เมืองร้อยเกาะ
แผนที่ 3: เงาะโรงเรียนตราตรึงใจ
แผนที่ 4: เพื่อนใหม่ที่ฟาร์มหอยใหญ่
แผนที่ 5: ไข่แดงศรีวิชัยกับพลังวิเศษ

3.5.3 วิเคราะห์แนวทางการจัดกิจกรรม โดยกำหนดให้กิจกรรมในแต่ละแผนเน้นให้ผู้เรียนมีส่วนร่วม ผ่านการตั้งคำถาม การอ่านวิเคราะห์ และการอภิปราย โดยใช้กรอบคำถาม 5W1H ควบคู่กับขั้นตอน 5E เพื่อส่งเสริมทักษะคิดวิเคราะห์ และการสื่อสารอย่างมีเหตุผล

3.5.4 นำแผนการเรียนรู้ไปให้อาจารย์ที่ปรึกษา และผู้เชี่ยวชาญตรวจสอบความถูกต้องและปรับแก้ตามคำแนะนำ

3.5.6 ผู้วิจัยนำแผนไปใช้การศึกษาครั้งนี้ ผู้วิจัยนำแผนการเรียนรู้ชุดนี้ไปใช้ในชั้นเรียนระดับประถมศึกษาปีที่ 6 โดยครูผู้สอนดำเนินการสอนตามลำดับขั้นของ 5E และใช้คำถาม 5W1H กระตุ้นการคิดวิเคราะห์ของนักเรียนพบว่า วิธีการนี้ช่วยส่งเสริมความเข้าใจในเนื้อหาและทักษะการจับใจความได้อย่างมีประสิทธิภาพ ทั้งยังเสริมสร้างเจตคติที่ดีต่อการอ่านและการเรียนรู้เชิงวิเคราะห์อีกด้วย

ผลการวิจัย

1. สร้างและหาประสิทธิภาพหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน”

หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” จำนวน 4 ตอน 4 เล่ม จากการให้ผู้เชี่ยวชาญทั้ง 3 คนประเมินคุณภาพของหนังสือนิทาน ตามแบบประเมินที่ผู้วิจัยสร้างขึ้น 7 ประเด็น มีผลการประเมินคุณภาพ ดังตารางต่อไปนี้

ตารางที่ 2 ผลการประเมินคุณภาพหนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” ในภาพรวมโดยผู้เชี่ยวชาญ

รายการ	ระดับการประเมิน	แปลผล
1.ด้านเนื้อเรื่อง	5.00	ดีมาก
2.ด้านการใช้ภาษา	4.65	ดีมาก
3.ด้านการนำเสนอเนื้อหา	4.80	ดีมาก
4.ด้านการจัดรูปเล่ม	4.85	ดีมาก
5.ด้านการจัดภาพ	4.87	ดีมาก
6.ด้านคุณค่าของหนังสือ	4.60	ดีมาก
7.ด้านประโยชน์ต่อการเรียนการสอน	5.00	ดีมาก
เฉลี่ยภาพรวมทั้งหมด	4.82	ดีมาก

จากตารางที่ 2 ผลการประเมินคุณภาพหนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” โดยผู้เชี่ยวชาญทั้ง 5 ท่าน พบว่า หนังสือมีคุณภาพอยู่ในระดับดีมากในทุกด้าน โดยมีค่าเฉลี่ยรวม 4.82 คะแนน เมื่อพิจารณารายด้าน พบว่า ด้านเนื้อเรื่องและด้านประโยชน์ต่อการเรียนการสอนได้รับการประเมินสูงสุดที่ค่าเฉลี่ย 5.00 รองลงมาคือ ด้านการจัดภาพ (4.87) และการจัดรูปเล่ม (4.85) สะท้อนถึงความใส่ใจในองค์ประกอบด้านเนื้อหาและภาพประกอบอย่างลงตัว ขณะที่ด้านการนำเสนอเนื้อหา (4.80) และการใช้ภาษา (4.65) ก็ได้รับคะแนนในระดับดีมากเช่นกัน ส่วนด้านคุณค่าของหนังสือได้รับค่าเฉลี่ย 4.60 แม้อยู่ในลำดับสุดท้ายแต่ยังคงอยู่ในระดับดีมาก ซึ่งแสดงให้เห็นถึงความครบถ้วนทั้งในด้านสาระ ความสวยงาม และประโยชน์ในการส่งเสริมการเรียนรู้ของนักเรียน

ผู้วิจัยนำหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” มาใช้กับนักเรียนกลุ่มตัวอย่าง ซึ่งเป็นนักเรียนชั้นประถมศึกษาปีที่ 6 โรงเรียนวัดท่าไทร (ดิตถานุเคราะห์) จำนวน 38 คน โดยผู้วิจัยนำคะแนนจากการทำแบบทดสอบท้ายบทและคะแนนจากการทำแบบวัดความสามารถการอ่านจับใจความหลังเรียนเพื่อใช้ในการหาค่าตามเกณฑ์ 80/80 ดังตารางต่อไปนี้

ตารางที่ 3 ผลการวิเคราะห์หาประสิทธิภาพของหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H เพื่อพัฒนาความสามารถในการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 6 กับกลุ่มตัวอย่าง โรงเรียนวัดท่าไทร(ดิตถานุเคราะห์)

คะแนนความสามารถในการอ่านจับใจความ	N	คะแนนเต็ม	คะแนนเฉลี่ย	ร้อยละ	ประสิทธิภาพ
แบบทดสอบท้ายบท	38	40	33.90	84.75	84.75/84.82
แบบทดสอบวัดความสามารถในการอ่านจับใจความ (หลังเรียน)	38	30	25.45	84.82	

จากตารางที่ 3 แสดงว่าผลการวิเคราะห์หาประสิทธิภาพของหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” กับการทดลองแบบกลุ่มใหญ่ (1:100) กับนักเรียนกลุ่มตัวอย่าง ซึ่งเป็นนักเรียนชั้นประถมศึกษาปีที่ 6 โรงเรียนวัดท่าไทร(ดิตถานุเคราะห์) จำนวน 38 คน มีประสิทธิภาพเท่ากับ 84.75/84.82 ซึ่งสูงกว่าเกณฑ์ 80/80 แสดงว่าหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” มีประสิทธิภาพและมีความเหมาะสมสามารถนำไปใช้พัฒนาทักษะการอ่านจับใจความได้

2. ศึกษาความสามารถในการอ่านจับใจความ ของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H

ตารางที่ 4 วิเคราะห์ผลการศึกษาความสามารถในการอ่านจับใจความของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H ของนักเรียนชั้นประถมศึกษาปีที่ 6 โรงเรียนวัดท่าไทร(ดิตถานุเคราะห์)

คะแนนความสามารถในการอ่านจับใจความ	N	$\bar{x}$	ส่วนเบี่ยงเบนมาตรฐาน (S.D.)	t-test	df	P
ก่อนเรียน	38	18.79	2.60	- 20.48	37	≤.001
หลังเรียน	38	25.45	2.14			

**มีนัยสำคัญทางสถิติที่ระดับ .01

จากตารางที่ 4 แสดงว่านักเรียนมีความสามารถในการอ่านจับใจความหลังเรียนสูงกว่าก่อนเรียน มีนัยสำคัญทางสถิติที่ระดับ .01 โดยก่อนเรียนนักเรียนมีคะแนนเฉลี่ย 18.79 มีส่วนเบี่ยงเบนมาตรฐานเท่ากับ 2.60 และหลังเรียนมีคะแนนเฉลี่ย 25.45 คะแนน มีส่วนเบี่ยงเบนมาตรฐาน เท่ากับ 2.14

3. ศึกษาระดับความพึงพอใจของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 ที่มีต่อการจัดการเรียนรู้โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H เพื่อพัฒนาความสามารถการอ่านจับใจความ

ตารางที่ 5 ระดับความพึงพอใจของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 โรงเรียนวัดท่าไทร (ดิตถานุเคราะห์) หลังจากที่เรียนโดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H เพื่อพัฒนาความสามารถการอ่านจับใจความ

	รายการความพึงพอใจ	$\bar{X}$	S.D.	การแปลความหมาย
1	นักเรียนชอบหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน”	4.82	0.39	มากที่สุด
2	เนื้อหาทั้ง 4 ตอน ของหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน”มีความเหมาะสมกับวัยของนักเรียน	4.76	0.49	มากที่สุด
3	เนื้อหาทั้ง 4 ตอน ของหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” มีความน่าสนใจ ใช้ภาษาเหมาะกับวัย อ่านเข้าใจง่าย	4.55	0.65	มากที่สุด
4	นักเรียนเข้าใจเนื้อหาทั้ง 4 ตอน ของหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน”	4.95	0.23	มากที่สุด
5	เนื้อหาทั้ง 4 ตอน ของหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” มีประโยชน์ต่อนักเรียน	4.89	0.31	มากที่สุด
6	ภาพประกอบเนื้อหาทั้ง 4 ตอน ของหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” มีความเหมาะสมกับเรื่อง	5.00	0.00	มากที่สุด

	รายการความพึงพอใจ	$\overline{X}$	S.D.	การแปลความหมาย
7	เนื้อหาทั้ง 4 ตอน ของหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ให้ความรู้ข้อคิด คติเตือนใจ	4.37	0.82	มาก
8	เนื้อหาทั้ง 4 ตอน ของหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” สอดแทรกคุณธรรม จริยธรรม	4.55	0.65	มากที่สุด
9	เนื้อหาทั้ง 4 ตอน ของหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ปลูกฝังทัศนคติที่ดีให้เกิดความรัก ภาคภูมิใจ ในท้องถิ่นของตน	5.00	0.00	มากที่สุด
10	หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” นำเสนอเนื้อหาเป็นไปตามลำดับขั้นตอน	4.74	0.45	มากที่สุด
11	หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ออกแบบรูปเล่มและเข้าเล่มได้สวยงามคงทน	4.89	0.31	มากที่สุด
12	ขนาดของตัวอักษร (ตัวหนังสือ) มองเห็นชัดเจน	4.74	0.45	มากที่สุด
13	รูปภาพหน้าปกและรูปภาพในหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” มีสีสวยงาม	5.00	0.00	มากที่สุด
14	การจัดการเรียนรู้ด้วยหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” พัฒนาความสามารถในการอ่านจับใจความด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H ส่งเสริมให้ผู้เรียนเกิดการพัฒนาทักษะการอ่านจับใจความได้	5.00	0.00	มากที่สุด
15	หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ทำให้นักเรียนรู้จักท้องถิ่นมากขึ้น	5.00	0.00	มากที่สุด
	รวมเฉลี่ยทั้งหมด	4.82	0.09	มากที่สุด

จากตารางที่ 5 สรุประดับความพึงพอใจของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 โรงเรียนวัดท่าไทร (ดิตถานุเคราะห์) หลังจากที่เรียนโดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H เพื่อพัฒนาความสามารถการอ่านจับใจความ ในภาพรวมอยู่ในระดับมากที่สุด ($\bar{x}$ = 4.82)

จากผลการประเมินความพึงพอใจของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 โรงเรียนวัดท่าไทร (ดิตถานุเคราะห์) หลังจากใช้หนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” พบว่า นักเรียนมีความพึงพอใจในระดับมากที่สุด ($\bar{x}$ = 5.00) ถึง 5 รายการ โดยเฉพาะด้านภาพประกอบความเหมาะสมของเนื้อหา การจัดการเรียนรู้แบบ 5E ร่วมกับ 5W1H และการส่งเสริมความรู้ท้องถิ่น ขณะเดียวกันยังมีความพึงพอใจในระดับมากที่สุด ($\bar{x}$ = 4.51 – 4.99) อีก 9 รายการ ซึ่งสะท้อนว่าเนื้อหาเข้าใจง่าย น่าสนใจ เหมาะสมกับวัย และเป็นประโยชน์ต่อผู้เรียน ส่วนรายการที่มีความพึงพอใจในระดับมาก ($\bar{x}$ = 3.51 – 4.50) เพียง 1 รายการ คือ ด้านข้อคิด คติเตือนใจ แสดงให้เห็นว่า หนังสือสามารถตอบสนองความสนใจของนักเรียนได้ในหลายมิติ และช่วยส่งเสริมทักษะการเรียนรู้อย่างมีประสิทธิภาพ

สรุปผล

1. หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” สำหรับนักเรียนระดับชั้นประถมศึกษาปีที่ 6 ที่สร้างขึ้นมีคุณภาพระดับดีมาก และมีประสิทธิภาพเท่ากับ 84.75/84.82 ซึ่งสูงกว่าเกณฑ์ 80/80 ที่กำหนดไว้

2. ความสามารถในการอ่านจับใจความของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” และวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H สูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .01

3. นักเรียนระดับชั้นประถมศึกษาปีที่ 6 มีความพึงพอใจในการใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” และวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H ระดับมากที่สุด

อภิปรายผล

การศึกษาการสร้างหนังสืออ่านเพิ่มเติม ชุด "ดินแดนศรีวิชัยชวนฝัน” เพื่อพัฒนาความสามารถในการอ่านจับใจความด้วยวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H สำหรับนักเรียนระดับชั้นประถมศึกษาปีที่ 6 มีวัตถุประสงค์เพื่อสร้างและหาประสิทธิภาพหนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” สำหรับนักเรียนระดับชั้นประถมศึกษาปีที่ 6 ตามเกณฑ์ 80/80 เพื่อเปรียบเทียบความสามารถในการอ่านจับใจความของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 โดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” และวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H และเพื่อศึกษาความพึงพอใจของนักเรียนระดับชั้นประถมศึกษาปีที่ 6 หลังจากที่เรียนโดยใช้หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” และวิธีการเรียนรู้แบบ 5E ร่วมกับ 5W1H พบว่า มีประเด็นสำคัญ ต่อไปนี้

1. หนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” ที่ผู้วิจัยสร้างขึ้นเพื่อพัฒนาความสามารถในการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 6 มีคุณภาพอยู่ในระดับดีมาก และมีประสิทธิภาพอยู่ที่ 84.75/84.82 ซึ่งสูงกว่าเกณฑ์มาตรฐานที่กำหนดไว้ที่ 80/80 อันแสดงให้เห็นว่าหนังสือเล่มดังกล่าวสามารถส่งเสริมความสามารถในการอ่านจับใจความของนักเรียนได้อย่างมีประสิทธิภาพ โดยเป็นไปตามสมมติฐานของการวิจัย

ทั้งนี้ ความสำเร็จของหนังสืออ่านเพิ่มเติมดังกล่าวสามารถอธิบาย ได้จากการออกแบบที่พิถีพิถันเนื้อหาที่กระชับ ชัดเจน เหมาะสมกับวัย และมีภาพประกอบที่สวยงามดึงดูดใจ อีกทั้งยังมีแนวทางการอ่านจับใจความ แบบฝึกหัด และแบบทดสอบที่สามารถใช้ประเมินผลการเรียนรู้ของนักเรียนได้อย่างมีประสิทธิผล ซึ่งประเด็นดังกล่าวสอดคล้องกับแนวคิดของ ฉวีวรรณ คูหาอภินันท์ (2542) ที่กล่าวถึงกระบวนการสร้างหนังสือว่า ต้องเริ่มจากการศึกษาข้อมูลจากตำราและงานวิจัยที่เกี่ยวข้อง ตลอดจนการออกแบบรูปเล่ม ให้สอดคล้องกับเนื้อหาและความสนใจของผู้เรียน

นอกจากนี้ ผลการวิจัยยังมีความสอดคล้องกับผลการวิเคราะห์ของ พิรุณรัตน์ กว้างขวาง (2563) ที่พบว่าการใช้หนังสืออ่านเพิ่มเติมชุด “หมูแดงยอดนักอ่าน” มีผลสัมฤทธิ์ทางการเรียนของนักเรียนสูงกว่าการสอนแบบปกติอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ซึ่งเป็นผลมาจากการจัดกิจกรรมการเรียนรู้ที่สอดคล้องกับวัยและความต้องการของผู้เรียน อีกทั้งหนังสือยังมีภาพประกอบที่สดใส สวยงาม สอดคล้องกับเนื้อหา และสามารถกระตุ้นความสนใจของผู้เรียนได้เป็นอย่างดี ดังนั้นจึงสามารถสรุปได้ว่า หนังสืออ่านเพิ่มเติมที่ออกแบบอย่างเหมาะสมทั้งด้านเนื้อหาและรูปแบบการนำเสนอ มีส่วนสำคัญในการส่งเสริม

ความสามารถในการอ่านจับใจความของนักเรียน และสามารถนำไปใช้ในการพัฒนาการจัด การเรียนการสอนเพื่อยกระดับคุณภาพผู้เรียนได้อย่างมีประสิทธิภาพ

อย่างไรก็ตาม ผู้วิจัยยังมีประเด็นเพิ่มเติมที่สามารถต่อยอดจากงานวิจัยของ อารีรัตน์ ทุยหล่อน (2563) ซึ่งใช้หนังสืออ่านเพิ่มเติมชุด “ตำนานพื้นบ้านไทย” และ พรสวรรค์ จันทร์เล็ก (2563) ที่ใช้หนังสือนิทานคุณธรรมสำหรับนักเรียนชั้นประถมศึกษาปีที่ 1 ในการพัฒนาความสามารถในการอ่านจับใจความ โดยทั้งสองงานวิจัยชี้ให้เห็นถึงคุณลักษณะสำคัญของหนังสืออ่านเพิ่มเติมที่มีคุณภาพว่า ควรเน้นการตอบสนองความสนใจและความต้องการของผู้เรียน มีเนื้อหาที่เหมาะสมกับวัยและระดับความสามารถของนักเรียน ทั้งยังควรเป็นเรื่องราวที่ใกล้ตัวนักเรียน เพื่อให้สามารถเชื่อมโยงและเข้าใจเนื้อหาได้ อย่างมีประสิทธิภาพ

นอกจากนี้ หนังสืออ่านเพิ่มเติมที่ดีควรมีการสอดแทรกคุณธรรมและจริยธรรม อันจะช่วยเสริมสร้างคุณลักษณะที่ดีและกระตุ้นให้นักเรียนเกิดความสนใจในการศึกษาค้นคว้าด้วยตนเอง ซึ่งจะส่งผลต่อการพัฒนาทักษะต่าง ๆ อย่างรอบด้านและยั่งยืน ทั้งนี้ แนวคิดดังกล่าวสอดคล้องกับข้อเสนอของ อรรถพร สารานพกุล (2557) ที่เห็นว่า การเรียนรู้จากบริบทท้องถิ่นมีส่วนสำคัญในการปลูกฝังความรักและความผูกพันต่อบ้านเกิดของนักเรียน โดยการนำเสนอเนื้อหาในรูปแบบนิทานพื้นบ้านที่สะท้อนวัฒนธรรมประเพณี และสถานที่ใกล้ตัว เป็นการกระตุ้นจินตนาการ แรงบันดาลใจ และความสนุกสนานในการอ่าน ส่งเสริมทักษะการคิดวิเคราะห์ และการอ่านจับใจความอย่างมีประสิทธิภาพ

กล่าวโดยสรุป การออกแบบหนังสืออ่านเพิ่มเติมที่มีเนื้อหาเชื่อมโยงกับบริบทท้องถิ่น โดยเฉพาะการใช้เรื่องเล่า ตำนาน และประวัติศาสตร์ของจังหวัดสุราษฎร์ธานีเป็นแกนหลักของบทอ่าน มีส่วนช่วยกระตุ้นความสนใจและการมีส่วนร่วมของนักเรียน ทั้งยังสร้างความรู้สึกผูกพันและภาคภูมิใจในท้องถิ่น อีกทั้งยังสามารถถ่ายทอดเอกลักษณ์ทางวัฒนธรรมได้อย่างชัดเจน จึงนับเป็นแนวทางที่มีศักยภาพในการพัฒนาไม่เพียงแต่ทักษะด้านภาษา แต่ยังส่งเสริมการเรียนรู้อย่างสร้างสรรค์และยั่งยืนในภาพรวมของผู้เรียนอีกด้วย

2. ความสามารถในการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 6 ที่ได้รับการจัดการเรียนรู้โดยใช้หนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” ร่วมกับกระบวนการเรียนรู้ตามแนวทาง 5E และเทคนิค 5W1H มีการพัฒนาอย่างมีนัยสำคัญทางสถิติที่ระดับ .01 โดยคะแนนเฉลี่ยหลังเรียน (25.45) สูงกว่าก่อนเรียน (18.79) อย่างชัดเจน (t = -20.48) สะท้อนให้เห็นถึงประสิทธิภาพของหนังสืออ่านเพิ่มเติมที่มีคุณภาพตามเกณฑ์ 80/80 และสอดคล้องกับสมมติฐานการวิจัย

เมื่อพิจารณาถึงปัจจัยที่ส่งผลต่อการพัฒนาความสามารถในการอ่านจับใจความ พบว่า มิใช่เพียงลักษณะของหนังสือที่มีเนื้อหาท้องถิ่นที่ใกล้ตัวและภาพประกอบที่น่าสนใจเท่านั้น หากแต่กระบวนการเรียนรู้ ที่ออกแบบอย่างเป็นระบบ โดยเน้นผู้เรียนเป็นสำคัญ ก็มีบทบาทอย่างยิ่งในการส่งเสริมทักษะการคิด การอ่าน และการสื่อสารอย่างสร้างสรรค์ โดยเฉพาะการใช้แนวทาง 5E ร่วมกับเทคนิคการตั้งคำถาม 5W1H ซึ่งสามารถกระตุ้นการคิดวิเคราะห์ และสร้างการเชื่อมโยงองค์ความรู้ได้อย่างมีประสิทธิภาพ ส่งผลให้การเรียนรู้เกิดขึ้นอย่างลุ่มลึกและยั่งยืน

แนวทางดังกล่าวสอดคล้องกับงานวิจัยของ พัชรา พลเยี่ยม (2567) ที่ศึกษาการจัดการเรียนรู้แบบ 5E ร่วมกับการใช้คำถามระดับสูง โดยพบว่าทั้ง 5 ขั้นตอนของการจัดการเรียนรู้ ได้แก่ ขั้นสร้างความสนใจ (Engagement) ขั้นสำรวจและค้นหา (Exploration) ขั้นอธิบายและลงข้อสรุป (Explanation) ขั้นขยายความรู้ (Elaboration) และขั้นประเมินผล (Evaluation) ล้วนแทรกเทคนิคการใช้คำถามวิเคราะห์

อย่างเหมาะสม ซึ่งช่วยเสริมสร้างทักษะการคิดอย่างมีระบบและเป็นเหตุเป็นผล นอกจากนี้ ผลการวิจัยยังสอดคล้องกับการศึกษาของ ปัทมาวดี ขันธ์ชัย (2560) ที่ได้พัฒนารูปแบบการสอนโดยใช้เทคนิค SQ3R ร่วมกับกระบวนการเรียนรู้ 5E เพื่อส่งเสริมทักษะการอ่านคิดวิเคราะห์และการเขียนในนักเรียนระดับประถมศึกษา โดยพบว่าการผสมผสานระหว่างกระบวนการเรียนรู้ที่มีโครงสร้างชัดเจนกับเทคนิคการเรียนรู้ที่เน้นกระบวนการคิดช่วยยกระดับความสามารถด้านภาษาและการคิดวิเคราะห์ของผู้เรียนได้อย่างมีนัยสำคัญ

ในทำนองเดียวกัน งานวิจัยของ ภัทรสุดา นาคสุข (2564) ซึ่งใช้เทคนิคการสอน 5W1H ร่วมกับวรรณกรรมท้องถิ่นภาคกลาง ในการพัฒนาความสามารถในการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 6 พบว่า คะแนนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 อีกทั้งนักเรียนยังมีความคิดเห็นในภาพรวมต่อการจัดการเรียนรู้ในระดับเห็นด้วยมาก โดยเฉพาะในด้านประโยชน์ที่ได้รับจากการเรียนรู้

นอกจากนี้ ผู้วิจัยได้วิเคราะห์ประเด็นการศึกษาที่ต่อยอดจาก สิรินาถ เม่นเผือก (2566) ได้รายงานผลการวิจัยเกี่ยวกับการจัดการเรียนรู้โดยใช้เทคนิค 5W1H กับนักเรียนชั้นประถมศึกษาปีที่ 5 ซึ่งพบว่ามีประสิทธิภาพอยู่ที่ 85.78/85.45 สูงกว่าเกณฑ์ที่กำหนดไว้ที่ 80/80 พบว่า การจัดการเรียนรู้ที่ผสมผสานหนังสืออ่านเพิ่มเติมที่มีคุณภาพกับกระบวนการเรียนรู้เชิงรุก เช่น แนวทาง 5E และเทคนิค 5W1H ถือเป็นแนวทางที่มีประสิทธิภาพอย่างยิ่งในการส่งเสริมความสามารถด้านการอ่านจับใจความของผู้เรียน ทั้งในด้านทักษะการคิดวิเคราะห์ ความเข้าใจในเนื้อหา และการเรียนรู้อย่างมีความหมาย ซึ่งสอดคล้องกับแนวทางการจัดการศึกษาสำหรับผู้เรียนในศตวรรษที่ 21 ที่มุ่งเน้นการพัฒนาทักษะที่หลากหลายอย่างสมดุลทั้งด้านความรู้ กระบวนการและคุณลักษณะอันพึงประสงค์

ดังนั้นจึงสรุปได้ว่า การผสมผสานรูปแบบการสอนแบบ 5E ร่วมกับเทคนิค 5W1H ช่วยพัฒนาความสามารถด้านการอ่านจับใจความของผู้เรียนอย่างมีประสิทธิภาพ โดยส่งเสริมการคิดวิเคราะห์อย่างเป็นระบบ การตั้งคำถามเชิงลึก และการมีส่วนร่วมในการเรียนรู้อย่างกระตือรือร้น ทั้งยังช่วยให้ผู้เรียนเข้าใจเนื้อหาได้ลึกซึ้งและสามารถถ่ายทอดสาระสำคัญได้อย่างชัดเจน สอดคล้องกับแนวทางการเรียนรู้ในศตวรรษที่ 21

3. นักเรียนระดับชั้นประถมศึกษาปีที่ 6 มีความพึงพอใจในระดับ “มากที่สุด” ต่อการใช้หนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” ร่วมกับกระบวนการจัดการเรียนรู้ตามแนวทาง 5E และเทคนิคการตั้งคำถาม 5W1H โดยมีค่าคะแนนเฉลี่ยความพึงพอใจอยู่ที่ 4.82 ซึ่งสะท้อนให้เห็นถึงความเหมาะสมของสื่อการเรียนรู้และแนวทางการจัดกิจกรรมที่ตอบสนองต่อความต้องการของผู้เรียนอย่างแท้จริง ทั้งนี้ความพึงพอใจดังกล่าวสอดคล้องกับงานวิจัยของ ณิชาพัฒณ์ ไชยเสนบดินทร์ (2564) ที่ได้พัฒนาการเรียนรู้โดยใช้วรรณกรรมท้องถิ่นในพื้นที่จังหวัดเชียงราย ซึ่งแสดงให้เห็นว่า ความเชื่อมโยงระหว่างเนื้อหาในบทเรียนกับบริบทของผู้เรียนมีส่วนสำคัญต่อความสนใจและการมีส่วนร่วมทางการเรียนรู้

ความพึงพอใจของนักเรียนที่ปรากฏในงานวิจัยนี้เกิดจากหลายปัจจัยประกอบกัน โดยเริ่มตั้งแต่การศึกษาปัญหาและวิเคราะห์ความต้องการของผู้เรียนอย่างเป็นระบบ ซึ่งผู้วิจัยพบว่า นักเรียนส่วนใหญ่มีปัญหาในการอ่านจับใจความการวิเคราะห์ข้อมูลจากบทอ่าน และการแยกแยะข้อเท็จจริงกับข้อคิดเห็น ดังนั้นการออกแบบนวัตกรรมการเรียนรู้ในครั้งนี้ จึงตอบสนองต่อปัญหาอย่างเหมาะสมด้วยการใช้หนังสืออ่านเพิ่มเติมที่สอดคล้องกับบริบทและความสนใจของนักเรียน

หนังสืออ่านเพิ่มเติม ชุด “ดินแดนศรีวิชัยชวนฝัน” ถูกสร้างขึ้นโดยอิงจากข้อมูลท้องถิ่นของจังหวัดสุราษฎร์ธานี ไม่ว่าจะเป็นด้านประวัติศาสตร์ วัฒนธรรม ภูมิปัญญา หรือสถานที่สำคัญต่าง ๆ ซึ่งผู้เรียนมีความคุ้นเคยจึงเอื้อต่อการเชื่อมโยงเนื้อหากับประสบการณ์ส่วนตน และเสริมสร้างความภาคภูมิใจในท้องถิ่นอย่างลึกซึ้ง ขณะเดียวกันรูปแบบของหนังสือก็ได้รับการออกแบบอย่างพิถีพิถัน ไม่ว่าจะเป็นการจัดเนื้อหาในรูปแบบนิทานที่เหมาะสมกับช่วงวัย ภาพประกอบที่สวยงามสดใสรวมไปถึงองค์ประกอบที่ช่วยส่งเสริมการอ่านจับใจความ เช่น คำแนะนำในการอ่าน แบบฝึกหัด และกิจกรรมท้ายบทที่ช่วยประเมินความเข้าใจของผู้เรียนได้อย่างมีประสิทธิภาพ

ยิ่งไปกว่านั้น การจัดกิจกรรมการเรียนรู้ที่ผสมผสานแนวทาง 5E กับเทคนิค 5W1H มีส่วนสำคัญในการส่งเสริมทักษะการคิดอย่างเป็นระบบ กระตุ้นการตั้งคำถาม และสร้างการเรียนรู้แบบมีส่วนร่วม ซึ่งกระบวนการเรียนรู้ดังกล่าวดำเนินไปภายในระยะเวลา 10 ชั่วโมง และส่งผลอย่างชัดเจนต่อพัฒนาการด้านการอ่านจับใจความของนักเรียน ทั้งนี้ หนังสือยังผ่านการตรวจสอบคุณภาพจากผู้เชี่ยวชาญด้านเนื้อหาและการเขียนจำนวน 5 ท่าน จึงทำให้มั่นใจได้ถึงความถูกต้อง เหมาะสม และประสิทธิภาพในการใช้เป็นสื่อการเรียนรู้

นอกจากนี้ หนังสือยังมีเนื้อหาส่วนท้ายที่เปิดโอกาสให้นักเรียนได้เรียนรู้เพิ่มเติมจากภาพถ่ายข้อมูลประกอบและสาระที่เกี่ยวข้อง ซึ่งไม่เพียงแต่ช่วยต่อยอดการเรียนรู้เท่านั้น แต่ยังปลูกฝังจิตสำนึกในการอนุรักษ์วัฒนธรรมท้องถิ่น และเสริมสร้างความตระหนักรู้ในคุณค่าของบ้านเกิดตนเอง

กล่าวโดยสรุป การใช้หนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” ร่วมกับวิธีการเรียนรู้แบบ 5E และเทคนิค 5W1H ถือเป็นแนวทางที่มีประสิทธิภาพทั้งในด้านการพัฒนาทักษะการอ่านจับใจความและการสร้างแรงจูงใจในการเรียนรู้ โดยเฉพาะอย่างยิ่งในบริบทของการเรียนการสอนภาษาไทยระดับประถมศึกษาที่ต้องการสื่อการเรียนรู้ที่สอดคล้องกับบริบทของผู้เรียน มีความน่าสนใจ และสามารถส่งเสริมทักษะการคิดวิเคราะห์ได้อย่างรอบด้าน

จากผลการศึกษาการใช้หนังสืออ่านเพิ่มเติมชุด “ดินแดนศรีวิชัยชวนฝัน” ร่วมกับการจัดการเรียนรู้แบบ 5E และเทคนิค 5W1H พบข้อค้นพบสำคัญหลายประการที่สอดคล้องกับการพัฒนาทักษะด้านการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 6 ดังนี้

ประการแรก หนังสือถูกออกแบบให้เชื่อมโยงเนื้อหากับบริบทท้องถิ่น โดยใช้ตำนานและประวัติศาสตร์ของจังหวัดสุราษฎร์ธานี เป็นแกนหลักถ่ายทอดผ่านรูปแบบนิทาน ทำให้นักเรียนสามารถเข้าถึงเนื้อหาได้อย่างลึกซึ้งและเพลิดเพลิน ส่งเสริมการเรียนรู้ที่มีความหมายและจินตนาการ

ประการที่สอง เนื้อหาภายในหนังสือช่วยปลูกฝังความภาคภูมิใจในท้องถิ่น สะท้อนอัตลักษณ์ทางวัฒนธรรมอย่างชัดเจน และส่งเสริมให้นักเรียนตระหนักถึงคุณค่าของถิ่นกำเนิดตนเอง

ประการที่สาม การจัดกิจกรรมการเรียนรู้แบบ 5E ร่วมกับ 5W1H ส่งผลให้นักเรียนมีส่วนร่วมในกระบวนการเรียนรู้อย่างมีระบบ พัฒนาทักษะการคิดวิเคราะห์ การตั้งคำถาม และการสรุปใจความสำคัญของบทอ่านได้อย่างแม่นยำ

ประการที่สี่ การเรียนรู้ในขั้นไตร่ตรองและประเมินผลเปิดโอกาสให้นักเรียนแสดงความคิดสร้างสรรค์ผ่านกิจกรรมการเขียน เช่น การแต่งนิทานหรือการ์ตูน ซึ่งช่วยต่อยอดการอ่านสู่การสื่อสารอย่างมีจินตนาการ

ประการที่ห้า หนังสือมีคุณภาพสูงทั้งด้านเนื้อหาและรูปแบบ มีภาพประกอบที่เหมาะสม เนื้อหากระชับ พร้อมแบบฝึกหัดและแบบทดสอบที่สอดคล้องกับกระบวนการเรียนรู้ ช่วยประเมินความเข้าใจของผู้เรียนได้อย่างมีประสิทธิภาพ

แม้การศึกษาในครั้งนี้จะมีข้อจำกัดด้านเวลาในการจัดกิจกรรมเพียง 10 ชั่วโมงตามกรอบเวลาเรียนวิชาภาษาไทย แต่ก็สามารถบรรลุวัตถุประสงค์การวิจัยได้อย่างครบถ้วน นอกจากข้อจำกัดด้านเวลาในการจัดกิจกรรมการเรียนรู้แล้ว ยังพบข้อจำกัดเพิ่มเติมที่ผู้วิจัยต้องให้ความสำคัญ ได้แก่ การออกแบบกิจกรรมให้เหมาะสมกับนักเรียนที่มีความบกพร่องทางการเรียน โดยเฉพาะด้านการอ่าน ซึ่งผู้วิจัยจำเป็นต้องปรับรูปแบบการนำเสนอเนื้อหา และกิจกรรมให้สอดคล้องกับระดับความสามารถของนักเรียนกลุ่มนี้ เพื่อให้ทุกคนสามารถเข้าถึงและมีส่วนร่วมในการเรียนรู้อย่างเท่าเทียม

อีกประการหนึ่งคือ ข้อจำกัดด้านความหลากหลายทางศาสนา เนื่องจากจังหวัดสุราษฎร์ธานีมีบริบททางวัฒนธรรมที่ผูกโยงกับคุณธรรม จริยธรรม และหลักคำสอนทางพระพุทธศาสนาอย่างชัดเจน อย่างไรก็ตาม ในชั้นเรียนมีนักเรียนที่นับถือศาสนาแตกต่างกัน ผู้วิจัยจึงจำเป็นต้องตัดเนื้อหาที่เกี่ยวข้องกับศาสนาออกเพื่อเคารพความหลากหลายและสร้างบรรยากาศการเรียนรู้ที่เปิดกว้างและครอบคลุมสำหรับผู้เรียนทุกกลุ่ม

กล่าวโดยสรุป หนังสือ “ดินแดนศรีวิชัยชวนฝัน” เป็นสื่อการเรียนรู้ที่มีคุณค่าทั้งในด้านการพัฒนาทักษะภาษาไทยและการส่งเสริมอัตลักษณ์ท้องถิ่น โดยใช้กระบวนการเรียนรู้ที่ส่งเสริมศักยภาพของผู้เรียนในศตวรรษที่ 21 ได้อย่างสมดุลและมีประสิทธิภาพ

เอกสารอ้างอิง

กนกวรรณ ภู่ทิม. (2560). การศึกษาความสามารถในการอ่านจับใจความและการเขียนวิชาภาษาไทยของนักเรียนชั้นมัธยมศึกษาปีที่ 1 โดยการประยุกต์ใช้การจัดการเรียนรู้แบบร่วมมือเทคนิค CIRC ร่วมกับการสอนอ่านแบบปฏิบัติการ (วิทยานิพนธ์ศึกษาศาสตรมหาบัณฑิต). มหาวิทยาลัยบูรพา,ชลบุรี.

กระทรวงศึกษาธิการ. (2551). หลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพฯ: ชุมนุมสหกรณ์การเกษตรแห่งประเทศไทย จำกัด.

ฉวีวรรณ คูหาอภินันท์. (2542). หนังสือสำหรับเด็ก. กรุงเทพฯ: บูรพาสาส์น.

ณิชาพัฒณ์ ไชยเสนบดินทร์. (2564). การส่งเสริมความสามารถในการอ่านอย่างมีวิจารณญาณของนักเรียนชั้นมัธยมศึกษาปีที่ 3 ด้วยกิจกรรมการเรียนรู้โดยใช้วรรณกรรมท้องถิ่นเป็นฐานร่วมกับกลวิธี SQP2RS. วารสารสหวิทยาการวิจัยและวิชาการ, 4(3), 911–928.

ถวัลย์ มาศจรัส. (2549). การเขียนเรื่องบันเทิงคดีและสารคดีสำหรับเด็กและเยาวชน. กรุงเทพฯ: ธารอักษร.

เทียมจันทร์ ศรีสังข์. (2542). การสร้างหนังสืออ่านเพิ่มเติมเรื่อง ชีวิตมีสีสันที่อรัญประเทศ สำหรับท้องถิ่นของเรา 1 ระดับมัธยมศึกษาตอนต้น จังหวัดสระแก้ว (วิทยานิพนธ์ศึกษาศาสตรมหาบัณฑิต). มหาวิทยาลัยสุโขทัยธรรมาธิราช, นนทบุรี.

ปัทมาวดี ขันธ์ชัย. (2560). การพัฒนารูปแบบการสอนโดยใช้เทคนิค SQ3R ร่วมกับ 5E เพื่อส่งเสริมทักษะการอ่านคิดวิเคราะห์และเขียน สำหรับนักเรียนชั้นประถมศึกษาปีที่ 4 (วิทยานิพนธ์การศึกษามหาบัณฑิต). กรุงเทพฯ: มหาวิทยาลัยทักษิณ.

พัชรา พลเยี่ยม. (2567). แนวทางการจัดการเรียนรู้แบบสืบเสาะหาความรู้ 5 ขั้น (5E) ร่วมกับเทคนิคการใช้คำถามระดับสูง. วารสารมนุษยศาสตร์ สังคมศาสตร์ และนวัตกรรม มหาวิทยาลัยกาฬสินธุ์, 3(1), 68-85.

พันธุ์ ทองชุมนุม. (2544). การสอนวิทยาศาสตร์ระดับประถมศึกษา. สงขลา: มหาวิทยาลัยสงขลานครินทร์.

พิรุณรัตน์ กว้างขวาง. (2563). การเปรียบเทียบผลสัมฤทธิ์ทางการเรียนวิชาภาษาไทย เรื่อง การอ่านของนักเรียนชั้นประถมศึกษาปีที่ 2 ระหว่างการสอนโดยใช้หนังสืออ่านเพิ่มเติม ชุดหมูแดงยอดนักอ่าน กับการสอนแบบปกติ. วารสารนวัตกรรมการศึกษาและการวิจัย, 5(2), 264-265.

เพลินพิศ กอบตระกูล. (2539). การสร้างหนังสืออ่านเพิ่มเติมเรื่องการอนุรักษ์สัตว์น้ำสำหรับชั้นประถมศึกษาปีที่ 5 (วิทยานิพนธ์การศึกษามหาบัณฑิต). มหาวิทยาลัยบูรพา,ชลบุรี.

พรรัตน์ ระนันท์. (2554). การพัฒนาแบบฝึกเสริมทักษะการอ่านจับใจความสำคัญเรื่องประเพณีไทยโดยใช้เทคนิคการจัดการเรียนรู้แบบผังกราฟิก สำหรับนักศึกษาจีน มหาวิทยาลัยราชภัฏเชียงราย (วิทยานิพนธ์ ศึกษาศาสตรมหาบัณฑิต). มหาวิทยาลัยราชภัฏเชียงราย, เชียงราย.

พรสวรรค์ จันทร์เล็ก. (2562). การพัฒนาทักษะการอ่านจับใจความโดยใช้หนังสือนิทานคุณธรรมสำหรับนักเรียนชั้นประถมศึกษาปีที่ 1 โรงเรียนบ้านสันโค้ง (เชียงรายจรูญราษฎร์) อำเภอเมือง จังหวัดเชียงราย. พิฆเนศวร์สาร, 16(1), 81-95.

ภัทรสุดา นาคสุข. (2564). การพัฒนาความสามารถทางการอ่านจับใจความ ของนักเรียนชั้นประถมศึกษาปีที่ 6 โดยใช้เทคนิคการสอน 5W1H ร่วมกับวรรณกรรมท้องถิ่นภาคกลาง (วิทยานิพนธ์ศึกษาศาสตรมหาบัณฑิต). มหาวิทยาลัยศิลปากร, นครปฐม.

ลักขณา รอดสน. (2540). การสร้างหนังสืออ่านเพิ่มเติมเกี่ยวกับภูมิปัญญาชาวบ้าน เรื่องเรือสายน้ำและชีวิตชาวปทุยธานี ระดับมัธยมศึกษาตอนต้น จังหวัดปทุมธานี (วิทยานิพนธ์ศิลปะศาสตรมหาบัณฑิต). มหาวิทยาลัยเกษตรศาสตร์, กรุงเทพฯ.

วรรษมล ศุภคุณ. (2564). การพัฒนาทักษะการอ่านจับใจความด้วยหนังสือส่งเสริมการอ่านกลุ่มทักษะการเรียนรู้ภาษาไทย สำหรับนักเรียนชั้นประถมศึกษาปีที่ 5 (วิทยานิพนธ์ครุศาสตรมหาบัณฑิต). มหาวิทยาลัยราชภัฏรำไพพรรณี, จันทบุรี.

วิทวัฒน์ ขัตติยะมาน. (2549). การสอนเพื่อพัฒนาการคิด (พิมพ์ครั้งที่ 2). สงขลา: เทมการพิมพ์.

แววมยุรา เหมือนนิล. (2541). ภาษาไทย. กรุงเทพฯ: พัฒนาการพิมพ์.

สิรินาถ เม่นเผือก. (2566). การพัฒนาความสามารถด้านการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 5 โดยใช้การจัดการเรียนรู้เทคนิค 5W1H (วิทยานิพนธ์ครุศาสตรมหาบัณฑิต). มหาวิทยาลัยราชภัฏมหาสารคาม, มหาสารคาม.

สุนันทา มั่นเศรษฐวิทย์. (2542). หลักและวิธีการสอนอ่านภาษาไทย. กรุงเทพฯ: ไทยวัฒนาพานิช.

สุนีย์ เหมะประสิทธิ์. (2542). เอกสารประกอบการสอนวิทยาศาสตร์ สำหรับครูประถม. กรุงเทพฯ: คณะศึกษาศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ ประสานมิตร.

สำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุราษฎร์ธานี เขต 1 . (2565) . เอกสารประเมินผลการทดสอบระดับชาติ O-NET ปีการศึกษา 2566. สุราษฎร์ธานี: โรงพิมพ์สุราษฎร์ธานี.

อรรถพร สารานพคุณ. (2557). การสร้างหนังสือสารคดีท้องถิ่น ชุด “ท่องแดนสโตย” เพื่อพัฒนาทักษะการอ่านของนักเรียนชั้นมัธยมศึกษาปีที่ 4 (วิทยานิพนธ์การศึกษามหาบัณฑิต). มหาวิทยาลัยทักษิณ, สงขลา.

อารีรัตน์ ทุยหล่อน. (2563). การพัฒนาความสามารถด้านการอ่านจับใจความของนักเรียนชั้นประถมศึกษาปีที่ 6 ด้วยเทคนิค KWLH Plus โดยใช้หนังสืออ่านเพิ่มเติม ชุด ตำนานพื้นบ้านไทย โรงเรียนบ้านตะคร้อ (รัฐประชาชนูทิศ) อำเภอไพศาลีจังหวัดนครสวรรค์. วารสารพัฒนาทักษะทางวิชาการอย่างยั่งยืน, 2(2), 26-37.

การพัฒนาชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2

The Development of Learning Activities with Chatbot based on the 7-step Learning Cycle Approach for Enhancing Media Literacy Skills of Grade 8 Students

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์ 1) เพื่อพัฒนาและทดสอบประสิทธิภาพของชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 2) เพื่อเปรียบเทียบทักษะการรู้เท่าทันสื่อ หลังเรียนและก่อนเรียนรู้ด้วยชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น 3) เพื่อเปรียบเทียบทักษะการรู้เท่าทันสื่อ หลังเรียนรู้ด้วยชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น กับเกณฑ์ร้อยละ 70 และ 4) เพื่อศึกษาความพึงพอใจของนักเรียน ที่มีต่อชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น กลุ่มตัวอย่างที่ใช้ นักเรียนชั้นมัธยมศึกษาปีที่ 2 จำนวน 40 คน จากโรงเรียนสตรีอิสลามวิทยามูลนิธิ เครื่องมือที่ใช้ในการวิจัย ประกอบด้วย 1) ชุดกิจกรรมการเรียนรู้ด้วยแชทบอท 2) แผนการจัดการเรียนรู้โดยใช้การจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น ประกอบชุดกิจกรรมแชทบอท 3) แบบทดสอบวัดทักษะการรู้เท่าทันสื่อ และ 4) แบบประเมินความพึงพอใจของนักเรียน การวิเคราะห์ข้อมูลใช้สถิติ 1) ประสิทธิภาพของชุดกิจกรรมตามเกณฑ์ E_1/E_2 2) สถิติเชิงอนุมาน ได้แก่ การทดสอบข้อมูล 2 กลุ่มที่ไม่อิสระต่อกัน และการทดสอบค่าเฉลี่ยของกลุ่มตัวอย่าง 1 กลุ่ม และ 3) สถิติเชิงพรรณนา ได้แก่ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน ผลการวิจัยพบว่า 1) ประสิทธิภาพของชุดกิจกรรมการเรียนรู้ด้วยแชทบอท มีค่าเท่ากับ 72.71/76.10 เป็นไปตามเกณฑ์ 2) นักเรียนมีคะแนนเฉลี่ยทักษะการรู้เท่าทันสื่อหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 3) นักเรียนมีคะแนนเฉลี่ยทักษะการรู้เท่าทันสื่อหลังเรียนสูงกว่าเกณฑ์ร้อยละ 70 อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และ 4) ความพึงพอใจของนักเรียนที่เรียนด้วยชุดกิจกรรมการเรียนรู้ด้วยแชทบอทอยู่ในระดับมากที่สุด

คำสำคัญ: แชทบอท, การเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น, ทักษะการรู้เท่าทันสื่อ, ชุดกิจกรรมการเรียนรู้

Abstract

This study aimed to 1) develop and evaluate the effectiveness of learning activities with chatbot based on the 7-step learning cycle approach for enhancing media literacy skills of grade 8 students, 2) compare the media literacy skills after and before learning through the learning activities with chatbot based on the 7-step learning cycle approach, 3) compare the media literacy skills after learning through the learning activities with chatbot based on the 7-step learning cycle approach with 70 percent criteria, and 4) study the satisfaction with learning activities with chatbot based on the 7-step learning cycle approach. The sample group for this research consisted of 40 grade 8 students from Striislam Vittya Mulniti School. Research instruments included 1) the learning activities with chatbot, 2) the lesson plan based on the 7-step learning cycle approach integrated with the chatbot activities, 3) the media literacy skills assessment test, and 4) the student satisfaction questionnaire. The data analysis used the following statistics: 1) the effectiveness of the learning activities based on the E_1/E_2 criteria, 2) inferential statistics, including paired-sample tests and single-group mean comparisons, and 3) descriptive statistics included mean and standard deviation. The research findings revealed that: 1) The effectiveness of the learning activities with chatbot was 72.71/76.10, meeting the specified criteria; 2) students' average post-learning media literacy skills scores were higher than their pre-test scores, with statistical significance at the .05 level, 3) students' post-learning media literacy skills scores were higher than the 70 percent criteria, with statistical significance at the .05 level; and 4) students' satisfaction on the learning activities with chatbot was at a high level.

Keywords: Chatbot, 7-step learning cycle approach, Media literacy skills, Learning activities

บทนำ

การเรียนรู้ในศตวรรษที่ 21 มีความเจริญก้าวหน้าทางด้านเทคโนโลยีสารสนเทศที่ทุกคนสามารถเข้าถึงได้ง่ายและตลอดเวลา โดยเฉพาะอย่างยิ่งทักษะการรู้เท่าทันสื่อเป็นทักษะหนึ่งที่มีความสำคัญเพราะสังคมมีการเปลี่ยนแปลงในด้านต่าง ๆ อย่างรวดเร็วโดยเฉพาะอย่างยิ่งการเปลี่ยนแปลงทางสังคมตามความก้าวหน้าทางเทคโนโลยีสารสนเทศและการสื่อสาร มีจำนวนเพิ่มขึ้นของปริมาณข้อมูลข่าวสารที่เผยแพร่ผ่านสื่อสมัยใหม่ซึ่งปัจจัยดังกล่าวส่งผลให้นักเรียนสามารถรับรู้ ข้อมูลข่าวสารในฐานะผู้รับสารและเป็นผู้ผลิตข่าวสารได้ในเวลาเดียวกัน ทุกคนจึงควรมีทักษะการรู้เท่าทันสื่อในการใช้งานอินเทอร์เน็ต รู้จักโทษและประโยชน์ของการใช้เทคโนโลยี มีความรับผิดชอบ และรู้จักปฏิบัติตนเมื่อพบเนื้อหาที่ไม่เหมาะสมในการใช้งานอินเทอร์เน็ต ความสำคัญของทักษะการรู้เท่าทันสื่อถูกบรรจุเนื้อหาในรายวิชาวิทยาการคำนวณที่มีการส่งเสริมทักษะการรู้เท่าทันสื่อให้กับนักเรียน เพื่อให้นักเรียนสามารถใช้เทคโนโลยีสารสนเทศและการสื่อสารในการเรียนรู้ การทำงาน และการแก้ปัญหาได้อย่างมีประสิทธิภาพ รู้เท่าทันและมีจริยธรรม (สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี, 2560)

จากความก้าวหน้าทางเทคโนโลยีสารสนเทศที่สามารถเข้าถึงได้ง่ายในทุกที่และตลอดเวลา โดยเฉพาะนักเรียนในศตวรรษที่ 21 สามารถเข้าถึงและใช้เทคโนโลยีต่าง ๆ ได้จากการเรียนหรือใช้ในชีวิตประจำวันหากนักเรียนนำไปใช้ในทางที่ผิดอาจเกิดโทษส่งผลให้นักเรียนตกเป็นเหยื่อจากผู้ไม่หวังดีหรือเกิดปัญหาการติดเกมหรือเสพติดสื่อออนไลน์ได้ ผู้วิจัยได้ศึกษาผลสำรวจสถานการณ์การรู้เท่าทันสื่อสารสนเทศและดิจิทัลของประชาชนในประเทศไทย ปี พ.ศ. 2563 - 2564 จากผู้ร่วมตอบแบบสำรวจทางออนไลน์ 5,239 คน โดย (กองทุนพัฒนาสื่อปลอดภัย และสร้างสรรค์, 2564) ร่วมกับคณะวิศกรรมศาสตร์ มหาวิทยาลัยมหิดล โดยมีผู้ตอบแบบสอบถามเป็นนักเรียนและนักศึกษา พบว่าในปัจจุบันประชาชนไทยมีพฤติกรรมการใช้งานอินเทอร์เน็ตต่อวันมากกว่า 10 ชั่วโมง คิดเป็นร้อยละ 72.50 ของผู้ตอแบบสอบถามทั้งหมด ซึ่งเป็นระยะเวลาค่อนข้างมากเมื่อเทียบกับระยะเวลาในหนึ่งวัน ทำให้ผู้ใช้จำนวนมากพบปัญหาจากการใช้งานสื่อสารสนเทศอย่างหลากหลายเช่น แอปพลิเคชัน Tik-Tok Facebook และ Instagram โดยนักเรียนส่วนใหญ่มักใช้โทรศัพท์มือถือเพื่อรับสื่อในช่วงเวลาว่างและพักกลางวัน จากการสอบถามนักเรียนเกี่ยวกับประสบการณ์การใช้สื่อ พบว่า มีนักเรียนอย่างน้อย 2 - 3 คนจากนักเรียนในแต่ละห้องที่ได้รับผลกระทบด้านลบจากการใช้สื่อ เช่น การหลงเชื่อสื่อโฆษณาที่เกินจริง การส่งต่อข้อมูลข่าวสารที่ไม่เป็นความจริงในสื่อโซเชียลของตนเอง ซึ่งทักษะการรู้เท่าทันสื่อ เป็นการไม่หลงเชื่อเนื้อหาที่ได้อ่าน ได้ฟัง ได้ยิน แต่สามารถวิเคราะห์สงสัย และรู้จักตั้งคำถามว่าสิ่งนั้นจริงหรือไม่จริง ใครเป็นคนให้ข้อมูลเขาต้องการสื่ออะไร หรือมีจุดมุ่งหมายแอบแฝงหรือไม่ (สำนักงานกองทุนสนับสนุนการสร้างเสริมสุขภาพ, 2562) โดยองค์ประกอบที่สำคัญตามแนวคิดขององค์กรการศึกษา วิทยาศาสตร์และวัฒนธรรมแห่งประชาชาติหรือยูเนสโก (United Nations Educational, Scientific and Cultural Organization: UNESCO) ในการรู้เท่าทันสื่อประกอบด้วย 4 องค์ประกอบคือ การเข้าถึง การวิเคราะห์ การประเมินค่า การสร้างสรรค์ (ชัชชญา เรืองยศ และ แอนนา จุมพลเสถียร, 2565)

การประยุกต์ใช้เทคโนโลยีสารสนเทศกับอุปกรณ์มือถือจัดเป็นส่วนสำคัญในการพัฒนาด้านการจัดการเรียนรู้สะท้อนให้เห็นถึงความก้าวหน้าในการนำเทคโนโลยีมาใช้เป็นนวัตกรรมที่กระตุ้นให้นักเรียนเกิดแรงบันดาลใจจนเป็นการศึกษาตลอดชีวิต (ธัชพนธ์ สรภูม, 2562) ครูต้องใช้เทคโนโลยีสมัยใหม่เข้ามาผสมผสานการจัดการเรียนรู้เพื่อให้นักเรียนได้รับประโยชน์มากที่สุด ซึ่งการประยุกต์ใช้เทคโนโลยีสารสนเทศกับอุปกรณ์มือถือสำหรับจัดการเรียนรู้อย่างหลากหลายเพื่อพัฒนาประสิทธิภาพในการเรียนให้เพิ่มขึ้น แชทบอท (Chatbot) เป็นโปรแกรมบนคอมพิวเตอร์ที่มีความสามารถในการสนทนาโต้ตอบกับผู้ใช้อัตโนมัติโดยใช้ภาษาธรรมชาติ (Natural Language) ในการสื่อสารทั้งรูปแบบข้อความ (Text) หรือเสียงพูด (Speech) (สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี, 2562) ความสำคัญของแชทบอทเป็นเทคโนโลยีที่สามารถโต้ตอบกับนักเรียน สามารถสำรวจความต้องการของนักเรียน และนำข้อมูลต่าง ๆ ของนักเรียนมาจัดการได้ง่ายขึ้นการใช้เทคโนโลยีในชีวิตประจำวันของนักเรียนจะช่วยเปลี่ยนแปลงวิธีการเรียนของนักเรียน แชทบอทจะช่วยให้ครูสามารถสร้างสภาพแวดล้อมการเรียนรู้ส่วนบุคคลให้กับนักเรียนได้ และครูจะทราบได้ว่านักเรียนสามารถเข้าใจเนื้อหาในการเรียนหรือไม่การใช้งานแชทบอทในด้านการศึกษาจะเป็นกระแสหลักในโรงเรียนและมหาวิทยาลัยในอีกไม่กี่ปีข้างหน้า (สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี, 2561)

จากการศึกษาการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น พบว่า การเรียนการสอนที่เหมาะสมกับการสร้างองค์ความรู้ในรายวิชาวิทยาการคำนวณ การจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น (7-step Learning Cycle) เป็นวิธีการหนึ่งที่น่าสนใจและเป็นประโยชน์ สามารถนำมาใช้ในการจัดการเรียนการสอนในรายวิชาวิทยาการคำนวณเพื่อให้นักเรียนศึกษาค้นคว้าด้วยตนเองตาม

ความสามารถและความสนใจมีอิสระในการคิดโดยการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น ประกอบด้วย ขั้นตรวจสอบความรู้เดิม (Elicitation Phase) ขั้นสร้างความสนใจ (Engagement Phase) ขั้นสำรวจและค้นหา (Exploration Phase) ขั้นอธิบายและลงข้อสรุป (Explanation Phase) ขั้นขยายความรู้ (Elaboration Phase) ขั้นประเมินผล (Evaluation Phase) และ ขั้นนำความรู้ไปใช้ (Extension Phase) ตามแนวคิดของไอน์เซนคราฟ (Eisenkraft, 2003) โดยมีเป้าหมายเพื่อกระตุ้นให้นักเรียนได้มีความสนใจและสนุกกับการเรียนและยังสามารถปรับหรือประยุกต์สิ่งที่ได้เรียนรู้ไปสู่การสร้างประสบการณ์ของตนเอง การเรียนรู้โดยใช้การสอนแบบวัฏจักรการเรียนรู้ 7 ขั้น เป็นการจัดกิจกรรมการเรียนการสอนเพื่อให้นักเรียนเกิดการเรียนรู้และประสบการณ์ตามจุดหมายที่ตั้งไว้โดยต้องอาศัยสื่อเป็นตัวกลางในการถ่ายทอดความรู้ (กุลิสสรา จิตรชญาวณิช, 2564)

จากที่มาและความสำคัญของปัญหาดังกล่าวข้างต้น ผู้วิจัยจึงสนใจที่จะพัฒนาชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 และเป็นการจัดการเรียนรู้พื้นฐานการใช้เทคโนโลยีอย่างปลอดภัย ซึ่งเป็นเนื้อหาที่ช่วยพัฒนาทักษะชีวิต และสามารถเป็นแนวทางในการใช้เทคโนโลยีสมัยใหม่มาประยุกต์ใช้ในการจัดการเรียนรู้ที่เหมาะสมกับเนื้อหา และสามารถเป็นไปตามวัตถุประสงค์การเรียนรู้ของรายวิชาวิทยาการคำนวณอย่างมีประสิทธิภาพ

วัตถุประสงค์ของการวิจัย

1. เพื่อพัฒนาและทดสอบประสิทธิภาพชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2
2. เพื่อเปรียบเทียบทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 หลังเรียนและก่อนเรียนรู้ด้วยชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น
3. เพื่อเปรียบเทียบทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 หลังเรียนรู้ด้วยชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น กับเกณฑ์ร้อยละ 70
4. เพื่อศึกษาความพึงพอใจของนักเรียนมัธยมศึกษาปีที่ 2 ที่มีต่อชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น

แนวคิด ทฤษฎี กรอบแนวคิด

ความหมายแชทบอท

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี (2562) ได้กล่าวว่า แชทบอท เป็นโปรแกรมที่ถูกพัฒนาขึ้นโดยนักพัฒนาโปรแกรมตามความต้องการของหน่วยงานเพื่อจำลองบทสนทนาของมนุษย์ให้สามารถพูดคุยหรือสื่อสารกับมนุษย์ผ่านทางเสียงหรือข้อความแบบทันทีทันใด สามารถตอบคำถาม ให้ข้อมูล ให้ความช่วยเหลือ ให้ความบันเทิง

ความหมายการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น

กุลิสสรา จิตรชญาวณิช (2564) ได้กล่าวว่า การจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น (7E)คือ การจัดการเรียนรู้เพื่อเสริมสร้างให้นักเรียนรู้จักศึกษาค้นคว้าด้วยตนเองเพื่อให้รู้จักการคิดอย่างเป็นระบบและมีความเชื่อถือได้ การนำวิธีการการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เป็นวิธีการจัดการเรียนรู้ที่ให้ความสำคัญเกี่ยวกับการใช้วิธีการสืบเสาะหาความรู้เป็นหลักในการเรียนรู้ซึ่งจะทำให้

นักเรียนได้ฝึกทักษะการรู้เท่าทันสื่อโดยสามารถเปรียบเทียบชั่งน้ำหนักความน่าเชื่อถือความมีเหตุผลของความคิดเดิมกับความคิดใหม่

ขั้นตอนของการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น (7E)

Eisenkraft (2003) ได้กล่าวถึง การจัดการเรียนรู้ตามวัฏจักร การ เรียนรู้ 7 ขั้น (7E) ดังนี้

1. ขั้นตรวจสอบความรู้เดิม (Elicitation) ครูจัดกิจกรรมเพื่อให้นักเรียนดึงความรู้ ความเข้าใจจากประสบการณ์เดิมของนักเรียนออกมา หรือทบทวนความรู้เดิมที่นักเรียนมีอยู่

2. ขั้นเร้าความสนใจ (Engagement) ครูจัดกิจกรรมเพื่อกระตุ้นความสนใจให้นักเรียนเกิดความอยากรู้อยากเห็น กิจกรรมอาจเป็นการทดลอง การนำเสนอข้อมูล ข่าวหรือสถานการณ์ที่ก่อให้เกิดความขัดแย้งกับสิ่งที่นักเรียนเคยพบเห็น

3. ขั้นสำรวจค้นหา (Exploration) ครูกระตุ้นให้นักเรียนตรวจสอบปัญหาและให้นักเรียนดำเนินการตรวจสอบ สืบค้น รวบรวมข้อมูล โดยการวางแผนการสำรวจตรวจสอบ ลงมือปฏิบัติ เช่น การสังเกต การรวบรวมข้อมูล

4. ขั้นอธิบายและลงข้อสรุป (Explanation) ครูส่งเสริมให้นักเรียนนำข้อมูลที่ได้มาวิเคราะห์และจัดการทำข้อมูลในรูปตาราง กราฟ แผนภาพ เพื่อให้เห็นแนวโน้มหรือความสัมพันธ์ของข้อมูล สรุปผลและอภิปรายผลการทดลองโดยอิงทฤษฎีหรือกฎต่าง ๆ อย่างเป็นเหตุเป็นผล

5. ขั้นขยายความรู้ (Elaboration) ครูให้นักเรียนใช้สัญลักษณ์ นิยาม คำอธิบาย และทักษะไปสู่สถานการณ์ใหม่ ให้นักเรียนได้ประยุกต์ใช้ความรู้ที่สร้างขึ้นในการตอบคำถาม และทางแก้ปัญหา และนำไปสู่การตั้งสมมติฐาน และค้นคว้าต่อไป

6. ขั้นประเมินผล (Evaluation) เป็นการประเมินผลการเรียนรู้ของนักเรียน ซึ่งมีทั้งการประเมินการปฏิบัติกิจกรรมในแต่ละขั้นตอน และการประเมินการเรียนรู้ของนักเรียนก่อนที่นักเรียนจะขยายความคิดรวบยอด และค้นพบปัญหาใหม่ โดยครูและนักเรียนมีส่วนร่วมในการประเมิน

7. ขั้นนำความรู้ไปใช้ (Extension) ครูจะต้องเป็นคนเปิดโอกาสให้นักเรียนสามารถนำความรู้ที่ได้ไปปรับปรุงให้เหมาะสมและสามารถเกิดผลประโยชน์ในการใช้ชีวิตประจำวันได้ครูทำหน้าที่ในการสนับสนุนกระตุ้นให้นักเรียนสามารถเอาความรู้ไปสร้างความรู้ใหม่ ซึ่งจะช่วยให้นักเรียนสามารถส่งต่อการเรียนรู้ได้

ความหมายทักษะการรู้เท่าทันสื่อ

สำนักงานกองทุนสนับสนุนการสร้างเสริมสุขภาพ (2560) ได้กล่าวไว้ว่า การที่เราไม่หลงเชื่อเนื้อหาที่ได้อ่าน ได้ยิน ได้ฟัง แต่สามารถคิดวิเคราะห์ สงสัย และรู้จักตั้งคำถามว่าสิ่งนั้นจริงหรือไม่จริง ใครเป็นคนให้ข้อมูลเขาต้องการสื่ออะไร หรือมีจุดมุ่งหมายแอบแฝงหรือไม่

งานวิจัยที่เกี่ยวข้อง

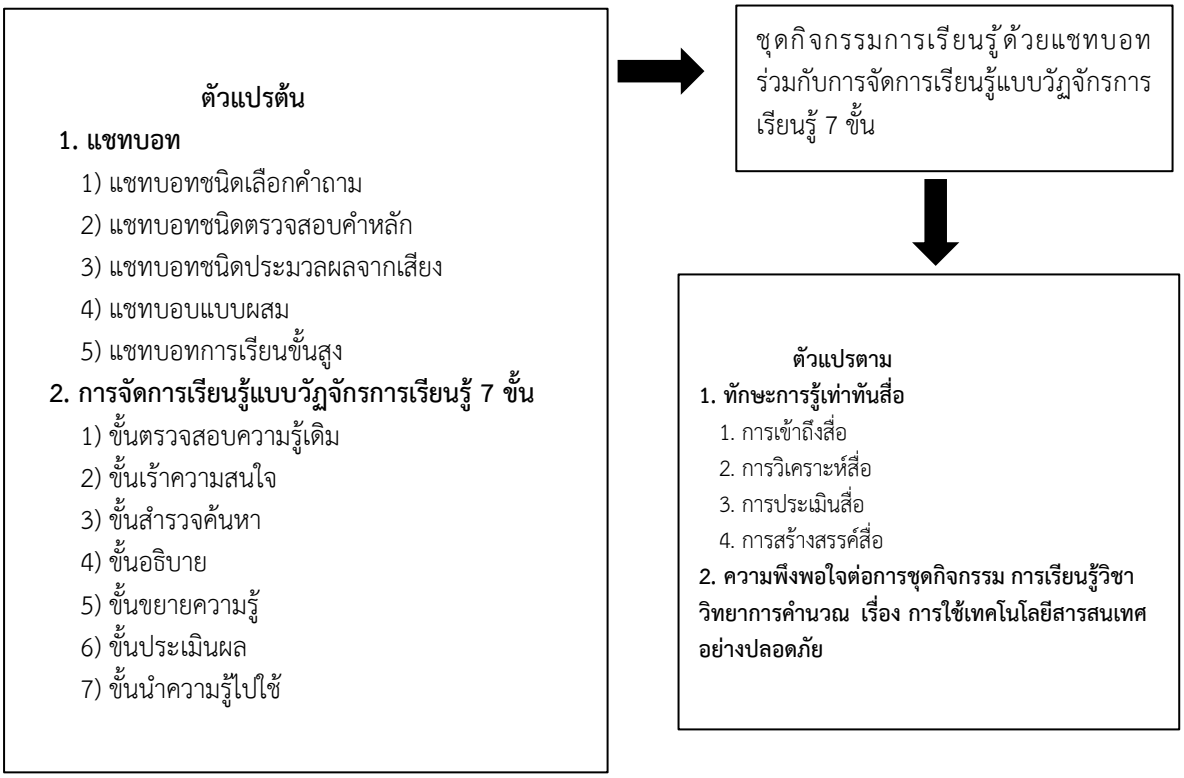
ศราวุธ มากชิต (2565) ได้ทำศึกษาเรื่องการเรียนรู้โดยใช้ปัญหาเป็นฐานผ่านแชทบอท สำหรับวิชาวิทยาการก้าวหน้าทางคอมพิวเตอร์ กลุ่มตัวอย่างเลือกแบบเจาะจง (purposive sampling) คือ นักศึกษาระดับปริญญาตรีชั้นปีที่ 3 จำนวน 20 คน ประเมินประสิทธิภาพของบทเรียน และประเมินความพึงพอใจการใช้งานแชทบอทในกระบวนการเรียนการสอน งานวิจัยนี้เป็นการวิจัยและพัฒนา โดยพัฒนาบทเรียนในหัวข้อการเขียนโปรแกรมภาษาไพทอนผ่านแชทบอททำงานบนแพลตฟอร์ม Dialog Flow และใช้งานผ่านแอปพลิเคชันไลน์แชทบอทที่พัฒนาขึ้นเป็นการสนทนาผ่านข้อความ (Keyword-based Conversation) โดยใช้วิธีการประมวลผลภาษาธรรมชาติ (Natural Language Processing: NLP) เพื่อ

แปลข้อความคำถามจากผู้เรียนและตอบคำถามตามรูปแบบที่กำหนดไว้ เครื่องมือที่ใช้ในการวิจัย ได้แก่ 1) บทเรียนผ่านแชทบอท 2) ปัญหาหรือคำถามระหว่างเรียน 3) แบบทดสอบก่อนและหลังเรียน และ 4) แบบประเมินความพึงพอใจ สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ค่าร้อยละ ส่วนเบี่ยงเบนมาตรฐาน และการทดสอบค่าที (t-Test) ผลการวิจัย พบว่า การจัดการเรียนรู้โดยใช้ปัญหาเป็นฐานผ่านแชทบอทมีผลสัมฤทธิ์ทางการเรียนของผู้เรียนโดยคะแนนหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ประสิทธิภาพบทเรียน E_1/E_2 มีค่าเท่ากับ 83.91./81.13 ซึ่งสูงกว่าเกณฑ์ที่ตั้งไว้ และการประเมินความพึงพอใจในการจัดการเรียนการสอนอยู่ในระดับมาก ($\bar{x}$=3.74, S.D.=0.77)

สรญา ทองธรรมมา (2562) ได้ศึกษาวิจัยเรื่อง การพัฒนารูปแบบการเรียนการสอนวิทยาการคำนวณตามแนวทฤษฎีคอนสตรัคติวิสต์ เพื่อเสริมสร้างความสามารถในการรู้เท่าทันสื่อและข่าวสารของนักเรียนชั้นประถมศึกษาปีที่ 1 มีวัตถุประสงค์เพื่อศึกษาสภาพปัญหาการจัดการเรียนการสอน เรื่อง พัฒนารูปแบบการเรียนการสอนเรื่องวิทยาการคำนวณตามทฤษฎีคอนสตรัคติวิสต์ และศึกษาผลการใช้รูปแบบการเรียนการสอนเรื่อง วิทยาการคำนวณตามทฤษฎีคอนสตรัคติวิสต์ของนักเรียนชั้นประถมศึกษาปีที่ 1 โรงเรียนเทศบาลสวนสนุก ปีการศึกษา 2561 ผลการวิจัยพบว่า 1) สภาพปัญหาในการจัดการเรียนการสอนวิทยาการคำนวณของนักเรียนชั้นประถมศึกษาปีที่ 1 ที่อยู่ในระดับมากคือ ด้านพื้นฐานการรู้เท่าทันสื่อและข่าวสาร 2) รูปแบบการเรียนที่สร้างขึ้นประกอบด้วยแนวคิดและทฤษฎีพื้นฐานการเรียนรู้ วัตถุประสงค์ ขั้นตอนการสอนระบบสังคม หลักการตอบสนอง และระบบสนับสนุน ผลการประเมินความเหมาะสมพบว่าความเหมาะสมที่มากที่สุดและมีความสอดคล้องกันทุกขั้นตอนและมีประสิทธิภาพตามเกณฑ์ที่กำหนดและ 3) ผลการใช้รูปแบบการเรียนการสอนเรื่องวิทยาการคำนวณตามทฤษฎีคอนสตรัคติวิสต์ถูกพบว่านักเรียนที่ถูกสอนด้วยวิธีดังกล่าวมีพัฒนาในการรู้เท่าทันสื่อและข่าวสารหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

วิลาวัลย์ ศรมณี และเสนอ ภิรมจิตผ่อง (2559) ได้ทำการศึกษาเรื่องผลการพัฒนาแผนการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมการคิดอย่างมีวิจารณญาณ สำหรับนักเรียนชั้นมัธยมศึกษาตอนต้น มีวัตถุประสงค์ 1) เพื่อสร้างและพัฒนาแผนการจัดการเรียนรู้ 2) เพื่อศึกษาประสิทธิภาพของแผนการจัดการเรียนรู้ 3) เพื่อเปรียบเทียบการคิดอย่างมีวิจาณญาณของนักเรียนก่อนเรียนและหลังเรียน 4) เพื่อศึกษาความคิดเห็นของนักเรียนต่อการจัดการเรียนรู้ กลุ่มตัวอย่างได้แก่ นักเรียนชั้นมัธยมศึกษาปีที่ 2 จำนวน 41 คน เครื่องมือที่ใช้ในการวิจัย 1) แบบสอบถามสภาพการจัดการเรียนรู้เพื่อส่งเสริมการคิดอย่างมีวิจารณญาณ 2) แบบวัดความสามารถในการคิดอย่างมีวิจารณญาณ 3) แบบสอบถามเพื่อสำรวจความคิดเห็นของนักเรียนที่มีต่อการจัดการเรียนรู้ ผลการวิจัยพบว่า 1) แผนการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น มี 9 แผน 2) แผนการจัดการเรียนรู้ที่พัฒนาขึ้นมีค่าประสิทธิภาพเท่ากับ 75.12/78.78 ซึ่งสูงกว่าเกณฑ์ 70/70 ที่ตั้งไว้ และมีดัชนีประสิทธิผลเท่ากับ 0.61 แสดงว่านักเรียนมีความก้าวหน้าในการเรียนร้อยละ 61.70 3) หลังการทดสอบนักเรียนมีคะแนนเฉลี่ยการคิดอย่างมีวิจารณญาณสูงกว่าก่อนการทดลอง อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 4) นักเรียนมีความคิดเห็นต่อการจัดการเรียนรู้อยู่ในระดับมาก

กรอบแนวคิดในการวิจัย



วิธีดำเนินการวิจัย

1. ประชากรและกลุ่มตัวอย่าง

ประชากร คือ นักเรียนชั้นมัธยมศึกษาปีที่ 2 ปีการศึกษา 2567 โรงเรียนสตรีอิสลามวิทยามูลนิธิ จำนวน 5 ห้อง สำหรับการวิจัยครั้งนี้ผู้วิจัยใช้ประชากรเพียง 2 ห้อง ได้แก่ ชั้นมัธยมศึกษาปีที่ 2/3 และ 2/5 จำนวนทั้งสิ้น 75 คน ที่กำลังศึกษาในภาคเรียนที่ 2 ปีการศึกษา 2567 โดยไม่นับห้องเรียนเงื่อนไขพิเศษ คือ ชั้นมัธยมศึกษาปีที่ 2/1 - 2/2 และ 2/4 เป็นประชากร เนื่องจากเป็นห้องเรียนที่นักเรียนมีความสามารถพิเศษและมีผลสัมฤทธิ์ทางการเรียนสูง

กลุ่มตัวอย่าง คือ นักเรียนชั้นมัธยมศึกษาปีที่ 2/3 ภาคเรียนที่ 2 ปีการศึกษา 2567 ของโรงเรียนสตรีอิสลามวิทยามูลนิธิ จังหวัดยะลา จำนวน 40 คน ใช้วิธีการสุ่มตัวอย่างแบบกลุ่ม (Cluster Random Sampling)

2. เครื่องมือที่ใช้ในการวิจัย

2.1 เครื่องมือที่ใช้ในการวิจัย

1) ชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 เรื่อง การใช้เทคโนโลยีสารสนเทศอย่างปลอดภัยที่ผ่านการตรวจสอบความเที่ยงตรงเชิงเนื้อหาจากผู้เชี่ยวชาญ จำนวน 3 คน แล้วแก้ไขตามข้อเสนอแนะและผ่านการทดลองนำร่องกับนักเรียนชั้นมัธยมศึกษาปีที่ 2 จำนวน 35 คน (ที่ไม่ใช่กลุ่มตัวอย่าง) เพื่อหาประสิทธิภาพของชุดกิจกรรมการเรียนรู้ตามเกณฑ์ E_1/E_2 เท่ากับ 70/70 ซึ่งพบว่าชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้นมีประสิทธิภาพเท่ากับ 70.69/71.24

2) แผนการจัดการเรียนรู้ประกอบชุดกิจกรรม จำนวน 4 แผน รวม 8 ชั่วโมง ผู้วิจัยได้

ดำเนินการสร้างและหาคุณภาพของแผนการจัดการเรียนรู้ดังนี้ ศึกษาหลักสูตรกลุ่มสาระการเรียนรู้วิทยาศาสตร์ สาระเทคโนโลยี วิชาวิทยาการคำนวณชั้นมัธยมศึกษาปีที่ 2 ตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธสักราช 2551 (ฉบับปรับปรุง พ.ศ. 2560) จากนั้นศึกษาแนวคิด ทฤษฎี และงานวิจัยที่เกี่ยวกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น จากนั้นเขียนแผนการจัดการเรียนรู้โดยยึดองค์ประกอบของแผนการจัดการเรียนรู้เป็นหลักเพื่อให้ได้สาระครบถ้วนสมบูรณ์ โดยแต่ละแผนมีองค์ประกอบดังนี้ มาตรฐานการเรียนรู้ ตัวชี้วัดหลักสูตร จุดประสงค์การเรียนรู้ สาระการเรียนรู้ กิจกรรมการเรียนรู้ตามวิธีการสอนแบบวัฏจักรการเรียน 7 ขั้น จากนั้นนำแผนการจัดการเรียนรู้ที่สร้างขึ้นให้ผู้เชี่ยวชาญ ตรวจสอบความเที่ยงตรงเชิงเนื้อหาให้สอดคล้องกับส่วนประกอบของแผนการจัดการเรียนรู้และครอบคลุมเนื้อหา เมื่อผ่านการตรวจสอบความเที่ยงตรงเชิงเนื้อหาและแก้ไขตามข้อเสนอแนะของผู้เชี่ยวชาญ ผู้วิจัยนำไปทดลองนำร่องกับนักเรียนชั้นมัธยมศึกษาปีที่ 2 ส่วนชุดกิจกรรมการเรียนรู้ใช้ควบคู่ประกอบการจัดการเรียนรู้ตามแผนการจัดการเรียนรู้

2.2 เครื่องมือที่ใช้ในการวัดตัวแปรตาม

1) แบบทดสอบวัดทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 เรื่อง การใช้เทคโนโลยีสารสนเทศอย่างปลอดภัยเป็นแบบทดสอบแบบปรนัยเพื่อวัดทักษะการรู้เท่าทันสื่อก่อนเรียนและหลังเรียนด้วยชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้น จำนวน 30 ข้อ โดยผู้วิจัยนำแบบทดสอบวัดทักษะการรู้เท่าทันสื่อที่มีความสอดคล้องระหว่างข้อสอบกับจุดประสงค์ (Index of Item Objective Congruence: IOC) ตั้งแต่ 0.50 - 1.00 ไปทดลองนำร่องกับนักเรียนชั้นมัธยมศึกษาปีที่ 2 จำนวน 35 คน (ที่ไม่ใช่กลุ่มตัวอย่าง) แล้ววิเคราะห์หาค่าความยากง่าย ค่าอำนาจจำแนก และค่าความเชื่อมั่นของแบบทดสอบโดยแบบทดสอบแต่ละข้อมีค่าความยากง่ายตั้งแต่ 0.57-0.77 ค่าอำนาจจำแนกตั้งแต่ 0.20 - 0.80 และมีค่าความเชื่อมั่นของแบบทดสอบทั้งฉบับเท่ากับ 0.76

2) แบบสอบถามเพื่อวัดระดับความพึงพอใจของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ที่มีต่อการจัดการเรียนรู้ด้วยชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้น จำนวน 15 ข้อ ที่ผ่านการตรวจสอบความเที่ยงตรงเชิงเนื้อหาและแก้ไขตามข้อเสนอแนะของผู้เชี่ยวชาญ โดยมีค่าความเชื่อมั่นของแบบสอบถามทั้งฉบับเท่ากับ 0.87

3. การเก็บรวบรวมข้อมูลในการวิจัย

การศึกษาครั้งนี้เป็นการวิจัยเชิงทดลองและใช้แบบแผนการวิจัยแบบกลุ่มเดียววัดสองครั้ง (One-Group Pretest-Posttest Design) ซึ่งเป็นการมุ่งเน้นดำเนินการทดลองกับกลุ่มทดลองเพียงกลุ่มเดียว โดยมีลักษณะการทดลอง ดังตารางที่ 1

ตารางที่ 1 แบบแผนการวิจัยแบบ One-Group Pretest-Posttest Design

สอบก่อนเรียน	ทรีตเมนต์	ทดสอบหลังเรียน
O_1	X	O_2

เมื่อ O_1 คือ การทดสอบก่อนเรียน (Pre-test)
X คือ ชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้น
O_2 คือ การทดสอบหลังเรียน (Post-test)

4.การวิเคราะห์ข้อมูลและสถิติที่ใช้

ผู้วิจัยวิเคราะห์หาประสิทธิภาพของชุดกิจกรรม เรื่อง การใช้เทคโนโลยีสารสนเทศอย่างปลอดภัย เพื่อพัฒนาทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ตามเกณฑ์ E_1/E_2 เท่ากับ 70/70 (ชัยยงค์ พรหมวงศ์, 2556) จากนั้นเปรียบเทียบทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ก่อนและหลังเรียนด้วยชุดกิจกรรมที่ผู้วิจัยสร้างขึ้น โดยใช้สถิติ Paired Sample t-Test และเปรียบเทียบทักษะการรู้ทันสื่อของนักเรียนหลังเรียนด้วยชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้นกับเกณฑ์ร้อยละ 70 โดยใช้สถิติ One Sample t-Test นอกจากนี้ผู้วิจัยใช้สถิติเชิงพรรณนา ได้แก่ ค่าเฉลี่ยเลขคณิต และส่วนเบี่ยงเบนมาตรฐานเพื่อวิเคราะห์ความพึงพอใจของนักเรียนที่เรียนด้วยชุดกิจกรรมที่ผู้วิจัยสร้างขึ้น

ผลการวิจัย

1. ผลการพัฒนาชุดกิจกรรมการเรียนรู้

ผลการพัฒนาชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อ นักเรียนชั้นมัธยมศึกษาปีที่ 2 และผลการทดสอบประสิทธิภาพของชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้น

1.1 ผลการพัฒนาชุดกิจกรรมการเรียนรู้

1) การพัฒนาชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อโดยโดยมีเนื้อหา ได้แก่ (1) การใช้เทคโนโลยีสารสนเทศ (2) การปฏิบัติตนเมื่อพบเนื้อหาที่ไม่เหมาะสม (3) ความรับผิดชอบต่อการใช้งานเทคโนโลยีสารสนเทศ (4) ทรัพย์สินทางปัญญา ซึ่งชุดกิจกรรมการเรียนรู้ เรื่อง การใช้เทคโนโลยีสารสนเทศอย่างปลอดภัยที่ผู้วิจัยได้จัดทำขึ้นมีองค์ประกอบ ดังนี้ (1) คู่มือการใช้ชุดกิจกรรม (2) แชทบอท (3) ใบกิจกรรม (4) ใบบันทึกกิจกรรม

2) ผู้วิจัยสร้างชุดกิจกรรมทั้งหมด 4 ชุดกิจกรรม ได้แก่ (1) ครูหมีรู้ทัน (2) ครูหมีควรปฏิบัติหรือไม่ (3) ครูหมีต้องรับผิดชอบ (4) ครูหมีใครบางคือเจ้าของ แสดงดังภาพที่ 2



ภาพที่ 2 ชุดกิจกรรมการเรียนรู้ด้วยแชทบอท เรื่อง การใช้เทคโนโลยีสารสนเทศอย่างปลอดภัย

1.2 ผลการวิเคราะห์ค่าประสิทธิภาพของชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้น

ผู้วิจัยมีการเก็บคะแนนกระบวนการจากชุดกิจกรรมในระหว่างเรียน จำนวน 4 ชุดกิจกรรม หลังจากนั้นมีการทดสอบหลังเรียน โดยกำหนดเกณฑ์ประสิทธิภาพ E_1 / E_2 เท่ากับ 70/70 ผลการวิเคราะห์ประสิทธิภาพของชุดกิจกรรมการเรียนรู้ แสดงดังตารางที่ 2

ตารางที่ 2 ประสิทธิภาพของชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้น

ลำดับ	คะแนนกระบวนการจากกิจกรรมและใบงานในแต่ละชุดกิจกรรม					คะแนนสอบหลังเรียน (30 คะแนน)
	กิจกรรมที่ 1 (20 คะแนน)	กิจกรรมที่ 2 (15 คะแนน)	กิจกรรมที่ 3 (20 คะแนน)	กิจกรรมที่ 4 (15 คะแนน)	รวม (70 คะแนน)	
ค่าเฉลี่ย	15.93	10.88	14.63	9.48	50.90	22.83
ร้อยละ	79.65	72.53	73.15	63.20	72.71	76.10
E_1 / E_2 เท่ากับ 72.71/76.10						

จากตารางที่ 2 แสดงให้เห็นว่าคะแนนกระบวนการจากชุดกิจกรรมมีค่าเฉลี่ยคิดเป็นร้อยละ 72.71 และผลการทดสอบหลังเรียนของนักเรียนกลุ่มเดียวกันมีค่าเฉลี่ยเป็นร้อยละ 76.10 ดังนั้น ประสิทธิภาพของชุดกิจกรรมการเรียนรู้ มีค่าเท่ากับ 72.71/76.10 ซึ่งสูงกว่าเกณฑ์ 70/70 ที่ตั้งไว้

1. ผลการเปรียบเทียบทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ก่อนและหลังเรียนด้วยชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้น

ผู้วิจัยให้นักเรียนทำแบบทดสอบวัดทักษะการรู้เท่าทันสื่อ จำนวน 30 ข้อ (คะแนนเต็ม 30 คะแนน) หลังเรียนและก่อนเรียนด้วยชุดกิจกรรมการเรียนรู้ จากนั้นนำคะแนนที่ได้มาทำการวิเคราะห์ข้อมูล แสดงดังตารางที่ 3

ตารางที่ 3 ผลการเปรียบเทียบคะแนนเฉลี่ยทักษะการรู้เท่าทันสื่อของนักเรียนหลังเรียนและก่อนเรียน

ข้อสอบ	จำนวนข้อสอบ	Mean	S.D.	t	p-value
หลังเรียน	30	22.95	4.69	19.07*	.00
ก่อนเรียน	30	8.05	1.11		

*นัยสำคัญทางสถิติที่ระดับ .05

จากตารางที่ 3 พบว่าคะแนนเฉลี่ยทักษะการรู้เท่าทันสื่อของนักเรียนหลังเรียนเท่ากับ 22.95 (S.D. = 4.69) ซึ่งสูงกว่าก่อนเรียนที่มีคะแนนเฉลี่ยเป็น 8.05 (S.D. = 1.11) อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

2. ผลการเปรียบเทียบคะแนนทักษะการรู้เท่าทันสื่อ หลังเรียนด้วยชุดกิจกรรมกับเกณฑ์

ผู้วิจัยเปรียบเทียบคะแนนทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 หลังเรียนด้วยชุดกิจกรรมการเรียนรู้กับเกณฑ์ร้อยละ 70 โดยผลการเปรียบเทียบทักษะการรู้เท่าทันสื่อ แสดงดังตารางที่ 4

ตารางที่ 4 ผลการเปรียบเทียบคะแนนทักษะการรู้เท่าทันสื่อของนักเรียนหลังเรียนกับเกณฑ์ร้อยละ 70

จำนวนข้อสอบ (ข้อ)	ร้อยละของคะแนนที่นักเรียนทำได้	Mean	S.D.	t	p-value
30	76.50	22.95	4.69	2.02*	.00

*นัยสำคัญทางสถิติที่ระดับ .05

จากตารางที่ 4 พบว่า คะแนนเฉลี่ยทักษะการรู้เท่าทันสื่อของนักเรียนหลังเรียนด้วยชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้น เท่ากับ 22.95 คิดเป็นร้อยละ 76.50 ซึ่งสูงกว่าเกณฑ์ร้อยละ 70 อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

3. ผลการศึกษาความพึงพอใจของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ที่เรียนด้วยชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้น

ผลการประเมินความพึงพอใจของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ที่เรียนด้วยชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อที่ผู้วิจัยสร้างขึ้น จำนวน 40 คน สามารถแสดงได้ ดังตารางที่ 5

ตารางที่ 5 ผลการประเมินความพึงพอใจของนักเรียน ที่เรียนด้วยชุดกิจกรรมที่ผู้วิจัยสร้างขึ้น

ข้อที่	รายการประเมิน	$\bar{x}$	S.D.	ระดับความพึงพอใจ
1	ชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้นมีความน่าสนใจและสวยงาม	4.58	0.64	มากที่สุด
2	ชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้นมีความเหมาะสมกับเนื้อหาที่เรียน	4.50	0.78	มากที่สุด
3	ชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้น มีความชัดเจนและเข้าใจง่าย	4.30	0.76	มากที่สุด
4	ชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้นจะช่วยกระตุ้นความสนใจของนักเรียนได้อย่างดี	4.25	0.78	มากที่สุด
5	ชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้นมีความท้าทายความสามารถของนักเรียน	4.33	0.80	มากที่สุด
6	ชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้น ส่งผลให้นักเรียนเกิดกระบวนการรู้เท่าทันสื่อ	4.45	1.01	มากที่สุด
7	นักเรียนมีทักษะการรู้เท่าทันสื่อจากการใช้ชุดกิจกรรมที่ผู้วิจัยสร้างขึ้น	4.18	1.17	มาก
8	นักเรียนได้รับความรู้จากการใช้ชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้น	4.35	0.92	มากที่สุด
9	นักเรียนเข้าใจเนื้อหาที่เรียนและสามารถนำความรู้ในรายวิชาวิทยาการคำนวณ เรื่อง การใช้เทคโนโลยีสารสนเทศอย่างปลอดภัยไปใช้ประโยชน์ได้	4.48	0.91	มากที่สุด

ตารางที่ 5 (ต่อ)

10	นักเรียนเข้าใจเนื้อหาที่เรียนและมีความสุขเมื่อได้เรียนวิชาวิทยาการคำนวณ เรื่องการใช้เทคโนโลยีสารสนเทศอย่างปลอดภัย	4.20	1.09	มาก
11	นักเรียนเข้าใจเนื้อหาที่เรียนและชื่นชอบเมื่อครูผู้สอนให้ทำกิจกรรมในขณะเรียนวิชาวิทยาการคำนวณ เรื่อง การใช้เทคโนโลยีสารสนเทศอย่างปลอดภัย	4.38	1.10	มากที่สุด
12	ในขณะที่เรียนรายวิทยาการคำนวณ เรื่อง การใช้เทคโนโลยีสารสนเทศอย่างปลอดภัยนักเรียนเข้าใจเนื้อหาที่เรียนและมีความสนุกสนานไม่เบื่อหน่าย	4.28	1.04	มากที่สุด
13	ครูเปิดโอกาศให้นักเรียนสามารถอธิบายในสิ่งที่นักเรียนต้องการทราบ	4.23	1.12	มากที่สุด
14	ครูใช้วิธีการสอนและสื่อการสอนทีหลากลาย	4.15	4.10	มาก
15	ครูเปิดโอกาสให้นักเรียนซักถามปัญหาหรือข้อสงสัย	4.10	1.10	มาก
	ความพึงพอใจในภาพรวม	**4.32**	**0.96**	**มากที่สุด**

จากตารางที่ 5 พบว่าความพึงพอใจของนักเรียนที่เรียนด้วยชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้นในภาพรวมมีค่าเฉลี่ยเท่ากับ 4.32 (S.D. = 0.96) ซึ่งอยู่ในระดับมากที่สุด โดยใช้เกณฑ์การแบ่งช่วงคะแนนค่าเฉลี่ยของ (ชัชวาลย์ เรืองประพันธ์, 2539) เมื่อพิจารณารายข้อ พบว่านักเรียนมีความพึงพอใจในการเรียนรู้ด้วยชุดกิจกรรมแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อ 3 อันดับแรก ได้แก่ ชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น มีความน่าสนใจและสวยงาม โดยมีความพึงพอใจเฉลี่ยเท่ากับ 4.58 (S.D. = 0.64) รองลงมา คือ ชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น มีความเหมาะสมกับเนื้อหาที่เรียน มีค่าเฉลี่ยคะแนนความพึงพอใจเท่ากับ 4.50 (S.D. = 0.78) และอันดับที่ 3 คือ นักเรียนเข้าใจเนื้อหาที่เรียนและสามารถนำความรู้ในรายวิชาวิทยาการคำนวณ เรื่อง การใช้เทคโนโลยีสารสนเทศอย่างปลอดภัยไปใช้ประโยชน์ได้ มีค่าคะแนนความพึงพอใจเฉลี่ยเท่ากับ 4.48 (S.D. = 1.04) ทั้งนี้ข้อที่มีคะแนนเฉลี่ยน้อยที่สุด คือ ครูเปิดโอกาสให้นักเรียนซักถามปัญหาหรือข้อสงสัย มีค่าคะแนนความพึงพอใจเฉลี่ยเท่ากับ 4.10 (S.D. = 1.10) แต่ยังอยู่ในระดับความพึงพอใจ

สรุปและอภิปรายผล

สรุปผลการวิจัย

ผลการวิจัยการพัฒนาชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 เรื่อง การใช้เทคโนโลยีสารสนเทศอย่างปลอดภัยพบว่า ชุดกิจกรรมการเรียนรู้มีประสิทธิภาพสูงกว่าเกณฑ์ที่กำหนด 70/70 ส่งผลให้คะแนนทักษะการรู้เท่าทันสื่อของนักเรียนหลังเรียนสูงกว่าก่อนเรียนและสูงกว่าเกณฑ์ร้อยละ 70 อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และความพึงพอใจของนักเรียนที่เรียนด้วยชุดกิจกรรมการเรียนรู้ด้วยแชทบอทที่ผู้วิจัยสร้างขึ้นในภาพรวมอยู่ในระดับมากที่สุดซึ่งชี้ให้เห็นว่าชุดกิจกรรมการเรียนรู้เป็นไปตามวัตถุประสงค์และช่วยพัฒนาทักษะการรู้เท่าทันสื่อของผู้เรียนได้

อภิปรายผลการวิจัย

การวิจัยเรื่อง การพัฒนาชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 สามารถอภิปรายผลการวิจัยได้ ดังนี้

1) ผลการพัฒนาและทดสอบประสิทธิภาพชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อ เรื่อง การใช้เทคโนโลยีสารสนเทศอย่างปลอดภัย สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 2 เมื่อพิจารณาค่าประสิทธิภาพแต่ละชุดกิจกรรม พบว่า ชุดกิจกรรมการเรียนรู้ที่มีคะแนนเฉลี่ยสูงสุด คือ ชุดกิจกรรมการเรียนรู้ ชุดที่ 1 เรื่อง การใช้เทคโนโลยีสารสนเทศ ซึ่งมีคะแนนเฉลี่ยคิดเป็นร้อยละ 79.65 ชุดกิจกรรมการเรียนรู้ที่มีคะแนนน้อยที่สุด คือ ชุดกิจกรรมการเรียนรู้ที่ 4 เรื่อง ทรัพย์สินทางปัญญาโดยมีคะแนนเฉลี่ยคิดเป็นร้อยละ 63.20 เนื่องจากชุดกิจกรรมการเรียนรู้ที่ 1 ผู้วิจัยได้ออกแบบกิจกรรมให้นักเรียนเข้าใจในการเข้าถึงสื่อในชีวิตประจำวันได้และเป็นกิจกรรมที่ที่กำหนดสถานการณ์การรู้เท่าทันสื่อในชีวิตจริงกับการรู้จักโทษและประโยชน์ของการใช้เทคโนโลยีสารสนเทศส่งผลให้คะแนนเฉลี่ยในชุดกิจกรรมที่ 1 มีคะแนนเฉลี่ยสูงสุด ส่วนในชุดกิจกรรมที่ 4 เนื้อหาส่วนใหญ่เกี่ยวกับสิทธิ และลิขสิทธิ์ของทรัพย์สินทางปัญญาซึ่งมีเนื้อหาที่ค่อนข้างยากบางคำนักเรียนยังไม่รู้จักคำศัพท์ที่สอนทำให้นักเรียนไม่ทันกับกิจกรรมซึ่งสังเกตได้จากการที่นักเรียนขาดความมั่นใจในการตอบคำถามส่งผลให้คะแนนเฉลี่ยในชุดกิจกรรมที่ 4 ได้คะแนนต่ำกว่าชุดกิจกรรมอื่น ๆ อย่างไรก็ตาม เมื่อพิจารณาคะแนนกระบวนการและคะแนนจากการทดสอบหลังเรียนยังคงเป็นไปตามเกณฑ์ที่ทำให้ประสิทธิภาพของชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้นมีค่าประสิทธิภาพ E_1/E_2 เท่ากับ 72.71/76.10 สูงกว่าเกณฑ์ 70/70 ที่ได้กำหนดไว้ซึ่งสอดคล้องกับงานวิจัยของวิลาวัลย์ ศรมณี และเสนอ ภิรมจิตผ่อง (2559) ได้ทำการศึกษาเรื่อง ผลการพัฒนาแผนการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมการคิดอย่างมีวิจารณญาณ สำหรับนักเรียนชั้นมัธยมศึกษาตอนต้น มีค่าประสิทธิภาพเท่ากับ 75.12/78.78 ซึ่งสูงกว่าเกณฑ์ 70/70 ที่ตั้งไว้

2) ผลการศึกษาการเปรียบเทียบทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 หลังเรียนและก่อนเรียนรู้ด้วยชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น มีทักษะการรู้เท่าทันสื่อหลังเรียนสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 โดยคะแนนเฉลี่ยก่อนเรียนค่าเฉลี่ยเท่ากับ 8.05 (S.D. = 1.11) และหลังเรียนค่าเฉลี่ย 22.95 (S.D. = 4.69) ชี้ให้เห็นว่าการจัดการรู้ด้วยชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น ที่ผู้วิจัยสร้างขึ้นเน้นให้นักเรียนเกิดการเรียนรู้ด้วยตนเองผ่านแชทบอทสามารถทบทวนได้ตลอดเวลา โดยมีครูเป็นผู้สอนค่อยให้คำแนะนำ ทำให้นักเรียนเข้าใจในเนื้อหาบทเรียนได้อย่างถูกต้องสมบูรณ์ ซึ่งสอดคล้องกับงานวิจัยของ เอกภูมิ อิ่มอก และคณะ (2567) ได้ศึกษาการพัฒนาการจัดการเรียนรู้แบบร่วมมือด้วยเทคนิค STAD ร่วมกับแชทบอท เรื่อง องค์ประกอบของระบบคอมพิวเตอร์ สำหรับนักเรียนระดับชั้นมัธยมศึกษาปีที่ 2 โรงเรียนเทศบาล 5 บ้านหนองผักก้าม อำเภอเมือง จังหวัดเลย ผลการวิจัย พบว่า ผลการเปรียบเทียบผลสัมฤทธิ์ก่อนเรียนและหลังเรียน รายวิชาเทคโนโลยี (วิทยาการคำนวณ) ของนักเรียนที่ใช้การจัดการเรียนรู้แบบรวมมือด้วยเทคนิค STAD ร่วมกับแชทบอท เรื่อง องค์ประกอบของระบบคอมพิวเตอร์ สำหรับนักเรียนระดับชั้นมัธยมศึกษาปีที่ 2 มีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติระดับ .05

3) ผลการเปรียบเทียบทักษะการรู้เท่าทันสื่อของนักเรียนชั้นมัธยมศึกษาปีที่ 2 หลังเรียนรู้ด้วยชุดกิจกรรมแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น กับเกณฑ์ร้อยละ 70 อย่าง

มีนัยสำคัญทางสถิติที่ระดับ .05 ในทุก ๆ ด้าน ได้แก่ การเข้าถึงสื่อ การวิเคราะห์ส่อ การประเมินค่าสื่อ และการสร้างสรรค์สื่อ ทั้งนี้โดยคะแนนทักษะการรู้เท่าทันสื่อของนักเรียนภาพรวมคะแนนเฉลี่ยหลังเรียนคิดเป็นร้อยละ 76.50 สูงกว่าเกณฑ์ร้อยละ 70 อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ชี้ให้เห็นว่าการจัดการเรียนรู้ด้วยแชทบอทโดยใช้วิธีการแบบวัฏจักรการเรียนรู้ 7 ขั้น สามารถกระตุ้นให้นักเรียนได้มีการระดมความคิดในการระบุปัญหาจากสถานการณ์ที่กำหนดเปิดโอกาสให้นักเรียนสามารถทำกิจกรรมอย่างเป็นอิสระทำให้นักเรียนเกิดความกระตือรือร้นในการเรียนรู้มีความความเข้าใจการรู้เท่าทันสื่อ ซึ่งนำไปสู่การสืบค้นข้อมูลและหาวิธีการต่าง ๆ และสามารถสรุปผลให้นักเรียนเกิดทักษะการรู้เท่าทันสื่อเมื่อพิจารณาแบบวัดทักษะการรู้เท่าทันสื่อ ซึ่งสอดคล้องกับ ณัฐสิทธิ์ เวชกามา และสิทธิพล อาจอินทร์ (2565) ใช้การจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น ร่วมกับเทคนิคผังกราฟิกของนักเรียนชั้นมัธยมศึกษาปีที่ 5 พบว่าคะแนนความสามารถในการวิเคราะห์ของนักเรียนมีค่าเท่ากับร้อยละ 70.29 ซึ่งสูงกว่าเกณฑ์ร้อยละ 70 อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

4) ผลการศึกษาความพึงพอใจของนักเรียนชั้นมัธยมศึกษาปีที่ 2 ที่เรียนด้วยชุดกิจกรรมการเรียนรู้แชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนการเรียนรู้ 7 ขั้น พบว่า ในภาพรวมนักเรียนมีความพึงพอใจในการเรียนรู้ด้วยชุดกิจกรรมการเรียนรู้แชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนการเรียนรู้ 7 ขั้น เพื่อส่งเสริมทักษะการรู้เท่าทันสื่อโดยคะแนนเฉลี่ยอยู่ในระดับความพึงพอใจระดับมาก 4.32 (S.D. = 0.96) เมื่อพิจารณาเป็นรายข้อ พบว่า นักเรียนมีความพึงพอใจขั้นในการเรียนด้วยชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้7 ขั้น 3 ลำดับแรก ได้แก่ ชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น มีความน่าสนใจและสวยงามโดยคะแนนเฉลี่ยอยู่ในระดับความพึงพอใจมากที่สุด 4.58 (S.D. = 0.64) รองลงมา คือ ชุดกิจกรรมการเรียนรู้ด้วยแชทบอทร่วมกับการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น มีความเหมาะสมกับเนื้อหาที่เรียนโดยคะแนนเฉลี่ยอยู่ในระดับความพึงพอใจมากที่สุด 4.50 (S.D. = 0.78) และอันดับที่ 3 คือ นักเรียนเข้าใจเนื้อหาที่เรียนและสามารถนำความรู้ในรายวิชาวิทยาการคำนวณ เรื่อง การใช้เทคโนโลยีสารสนเทศอย่างปลอดภัยไปใช้ประโยชน์ได้โดยคะแนนเฉลี่ยอยู่ในระดับความพึงพอใจมาก 4.48 (S.D. = 1.04) ทั้งนี้ชุดกิจกรรมการเรียนรู้ที่ผู้วิจัยสร้างขึ้นซึ่งสอดคล้องกับ สุมนา บุษบก (2563) ได้ศึกษาวิจัยการพัฒนาแอปพลิเคชันแชทบอทสำหรับงานบริการนักศึกษา กรณีศึกษากองพัฒนานักศึกษา มหาวิทยาลัยเทคโนโลยีราชมงคลสุวรรณภูมิภาพรวมโดยคะแนนเฉลี่ยอยู่ในระดับมากที่สุด 4.46 (S.D. = 0.03) และสอดคล้องกับ อัมพร วัจนะ (2566) ได้ศึกษาวิจัย การพัฒนาแอปพลิเคชันแชทบอทตอบคำถามการวิจัยเพื่อพัฒนาการเรียนรู้อัตโนมัติ สำหรับนักศึกษาระดับบัณฑิตศึกษาโดยคะแนนเฉลี่ยภาพรวมอยู่ในระดับมากที่สุด 4.55 (S.D. = 0.33)

ข้อเสนอแนะ

1. ข้อเสนอแนะในการนำผลการวิจัยไปใช้

1.1 ในการเรียนรู้ชุดกิจกรรมร่วมกับแชทบอท ผู้สอนควรศึกษารูปแบบการสอนและหลักการให้เข้าใจก่อนนำไปใช้และทำข้อตกลงและอธิบายขั้นตอนกับนักเรียนเกี่ยวกับบทบาทหน้าที่การเรียนเป็นกลุ่ม เพื่อให้การจัดกิจกรรมการเรียนการสอนเป็นไปตามวัตถุประสงค์ที่ตั้งไว้

1.2 การนำชุดกิจกรรมด้วยแชทบอทไปใช้งานต้องมีแท็บเล็ตหรือมือถือเท่านั้นในการจัดกิจกรรมหากเป็นในแอปพลิเคชันไลน์แบบติดตั้งบนเครื่องคอมพิวเตอร์ จะไม่สามารถใช้งานส่วนของปุ่มเมนู สำหรับลิงก์ไปยังเว็บไซต์บริการของเครือข่ายได้จะได้เพียงส่วนของระบบโต้ตอบอัตโนมัติ

2. ข้อเสนอแนะในการทำการวิจัยครั้งต่อไป

2.1 ควรมีการวิจัยเพื่อพัฒนาชุดกิจกรรมการเรียนรู้ด้วยแชทบอทในเนื้อหาวิชาอื่น ๆ หรือในระดับชั้นการศึกษาที่หลากหลาย เช่น ระดับมัธยมศึกษาตอนปลายเพื่อพัฒนาทักษะที่สำคัญ เป็นการคิดเชิงตรรกะ (Logical Thinking) การแก้ปัญหา (Problem-Solving) และการเรียนรู้ด้วยตนเอง (Self-Directed Learning) เป็นต้น

2.2 การสนทนาแบบความต้องการ (Intentbased) ในการออกแบบแชทบอทควรมีการแนะนำเมื่อนักเรียนใช้งานแชทบอทในการสนทนาครูควรเพิ่มข้อมูลที่สามารถพิมพ์กลับยังหน้าแรกได้หรือปุ่มย้อนกลับเพื่อไม่ให้ออกจากเส้นทางและอาจจะทำให้ไม่ถึงจุดมุ่งหมายที่ครูเตรียมไว้

เอกสารอ้างอิง

กองทุนพัฒนาสื่อปลอดภัย และสร้างสรรค์. (2564). ผลสำรวจสถานการณ์การรู้เท่าทันสื่อ สารสนเทศและดิจิทัลของประชาชนไทย ปี พ.ศ. 2563 – 2564. สืบค้นเมื่อ 5 ตุลาคม 2567 จาก https://www.shorturl.asia/F57KO

กุลิสสรา จิตรชญาณิช. (2564). การจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น (พิมพ์ครั้งที่ 2). กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

ชัชชญา เรืองยศ และ แอนนา จุมพลเสถียร. (2565). การรู้เท่าทันสื่อสังคมออนไลน์ของผู้สูงวัย. Media and Communication Inquiry, Media and Communication Inquiry, 4(1). 144-169.

ชัชวาลย์ เรืองประพันธ์. (2539). สถิติพื้นฐาน. คณะวิทยาศาสตร์ มหาวิทยาลัยขอนแก่น.

ชัยยงค์ พรหมวงศ์. (2556). การทดสอบประสิทธิภาพสื่อหรือชุดการสอน. วารสารศิลปากรศึกษาศาสตร์วิจัย, 5(1), 7-20.

ณัฐสิทธิ์ เวชกามา และสิทธิพล อาจอินทร์. (2565). ความสามารถในการแก้ปัญหาและความสามารถในการคิดวิเคราะห์โดยใช้การจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น ร่วมกับเทคนิคผังกราฟิกของนักเรียนระดับชั้นมัธยมศึกษาปีที่ 5. วารสารมหาวิทยาลัยราชภัฏร้อยเอ็ด, 16(3), 64-76.

ติรยา นามวงษ์. (2565). การพัฒนาบทเรียนคอมพิวเตอร์ช่วยสอนโดยใช้การจัดการเรียนรู้แบบ สืบเสาะหาความรู้ ร่วมกับแผนผังมโนทัศน์ วิชาวิทยาการคำนวณ สำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 2. วารสารศึกษาศาสตร มหาวิทยาลัยมหาสารคาม, 16(2), 101-112.

ธัชพนธ์ สรภูม. (2562). การจัดการเรียนการสอนแบบผสมผสานโดยการประยุกต์ใช้เทคโนโลยีสารสนเทศบนโทรศัพท์เคลื่อนที่ของการศึกษาไทยในยุค Thailand 4.0. ใน การประชุมวิชาการระดับชาติ. ครั้งที่ 6 ประจำปี พ.ศ 2562, วิทยาลัยนครราชสีมา.

เนตรดาว สร้อยแสง, ชนวัตน์ ตันติวรานุรักษ์, และ เชษฐ์ ศิริสวัสดิ์ (2562). ผลการจัดการเรียนรู้แบบวัฏจักรสืบเสาะหาความรู้ 7 ขั้น โดยเน้นการใช้ประจักษ์พยาน ทางวิทยาศาสตร์ร่วมกับเทคนิคผังกราฟิกที่มีผลต่อการคิดวิเคราะห์และ ผลสัมฤทธิ์ทางการเรียนวิชาชีววิทยาของนักเรียนชั้นมัธยมศึกษาปีที่ 4. วารสารศึกษาศาสตร์, 21(2), 153-164.

วิลาวัลย์ ศรมณี และ เสนอ ภิรมจิตรผ่อง. (2559). การพัฒนาแผนการจัดการเรียนรู้แบบวัฏจักรการเรียนรู้ 7 ขั้น เพื่อส่งเสริมการคิดอย่างมีวิจารณญาณ สำหรับนักเรียนชั้นมัธยมศึกษาตอนต้น. Ubon Ratchathani Journal of Research and Evaluation, 2(1), 56-65.

ศราวุธ มากชิต. (2565). การเรียนรู้โดยใช้ปัญหาเป็นฐานผ่านแชทบอท สำหรับวิชาวิทยาการก้าวหน้าทางคอมพิวเตอร์. วารสารครุศาสตร์อุตสาหกรรม, 21(1), 44-55.

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี. (2560). คู่มือการใช้หลักสูตรรายวิชาพื้นฐานวิทยาศาสตร์ (ฉบับปรับปรุง พ.ศ. 2560) ตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551. กรุงเทพฯ: สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี กระทรวงศึกษาธิการ.

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี. (2562). การประยุกต์ใช้งาน Chatbot. สืบค้นเมื่อ 3 พฤษภาคม 2567 จาก https://www. scimath.org/article-technology/item/10452-chatbot

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี. (2562). การประยุกต์ใช้งาน Chatbot. สืบค้นเมื่อ 18 ตุลาคม 2567 จาก https://www. scimath.org/article-technology/item/10452-hatbot

สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี.(2561). คู่มือการใช้หลักสูตรรายวิชาพื้นฐานวิทยาศาสตร์ กลุ่มสาระการเรียนรู้วิทยาศาสตร์ (ฉบับปรับปรุง พ.ศ. 2560) ตามหลักสูตรแกนกลางการศึกษาขั้นพื้นฐาน พุทธศักราช 2551 สาระเทคโนโลยี(วิทยาการคำนวณ) ระดับประถมศึกษาและมัธยมศึกษา. กรุงเทพฯ : สถาบันส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี.

สรญา ทองธรรมมา. (2562). พัฒนารูปแบบการเรียนการสอนวิทยาการคำนวณตามแนวทฤษฎีคอนสตรัคติวิสต์เพื่อเสริมสร้างความสามารถในการรู้เท่าทันสื่อและข่าวสารของนักเรียนชั้นประถมศึกษาปีที่ 1. วารสารสมาคมพัฒนาวิชาชีพการบริหารการศึกษาแห่งประเทศไทย, 1(2), 3-18.

สำนักงานกองทุนสนับสนุนการสร้างเสริมสุขภาพ. (2562). รายงานประจำปี 2562 สำนักงานกองทุนสนับสนุนการสร้างเสริมสุขภาพ (สสส.). สืบค้นเมื่อ 19 ตุลาคม 2567 จาก https://www.thaihealth.or.th/?p=137336

สุมนา บุษบก, ณัฐพร เพ็ชรพงษ์ และ จีรนุช สิงห์โตแก้ว. (2563). การพัฒนาแอปพลิเคชัน Chatbot สำหรับงานบริการนักศึกษากรณีศึกษากองพัฒนา นักศึกษา มหาวิทยาลัยเทคโนโลยีราชมงคลสุวรรณภูมิ. วารสารวิจัย, 19(2), 85-94.

อัมพร วัจนะ. (2566). ได้ศึกษาวิจัย การพัฒนาแอปพลิเคชันแชทบอทตอบคำถามการวิจัยเพื่อพัฒนาการเรียนรู้อัตโนมัติ สำหรับนักศึกษาระดับบัณฑิตศึกษา. วารสารวิทยสารสนเทศและเทคโนโลยี, 4(2), 63-75.

เอกภูมิ อิ่มอก, จตุพงษ์ กะวิวังสกุล, จุฬารินทร์ อุนเรือนและณัฐสุดา สุวรกิม. (2566). ผลการใช้แชทบอทในการจัดการเรียนรู้แบบห้องเรียนกลับด้านสำหรับนักเรียนชั้นมัธยมศึกษาปีที่ 5. วารสารครุศาสตร์ มหาวิทยาลัยราชภัฏเลย, 17(2), 15-26.

Eisenkraft, A. (2003). Expanding the 5E model: A proposed 7E model emphasizes “transfer of learning” and the importance of eliciting prior understanding. (Teacher Practitioner). The Science Teacher, 70, 56-59.

สมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่
TEACHER COMPETENCY OF STUDENT TEACHERS HATYAI UNIVERSITY

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ และเพื่อเปรียบเทียบสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ จำแนกตามเพศกลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้ คือ นักศึกษาวิชาชีพครูชั้นปีที่ 4 มหาวิทยาลัยหาดใหญ่ จำนวน 148 คน วิธีการสุ่มตัวอย่างใช้วิธีสุ่มแบบหลายขั้นตอน เครื่องมือที่ใช้คือแบบสอบถามแบบมาตราส่วนประมาณค่า มีค่าความเชื่อมั่นทั้งฉบับเท่ากับ 0.97 สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน และการทดสอบค่าที (t-test)

ผลการศึกษาพบว่า สมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ มหาวิทยาลัยหาดใหญ่ โดยภาพรวมอยู่ในระดับมากและเมื่อพิจารณาเป็นรายด้าน พบว่าทุกด้านอยู่ในระดับมาก โดยเรียงลำดับจากมากไปน้อย ได้แก่ สมรรถนะด้านจริยธรรมและจรรยาบรรณวิชาชีพครู สมรรถนะด้านการทำงานเป็นทีมสมรรถนะด้านการบริการที่ดี สมรรถนะด้านการพัฒนาตนเองและสมรรถนะด้านการมุ่งสัมฤทธิ์ในการปฏิบัติงานตามลำดับ นอกจากนี้เมื่อเปรียบเทียบสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ จำแนกตามเพศพบว่า โดยภาพรวมและในแต่ละด้านไม่แตกต่างกันอย่างมีนัยสำคัญทางสถิติ

คำสำคัญ: สมรรถนะ, นักศึกษาวิชาชีพครู

Abstract

The purpose of this research is to study the competency of student teachers at Hatyai University and to compare the competency of student teachers at Hatyai University by gender. The sample used in this research is fourth-year student teachers at Hatyai University, totaling 148 people. The sampling method used is Multi Stage Random Sampling. The instruments were collected by five ration scale questionnaires with the reliability at 0.97. The statistical analysis used includes mean, standard deviation and t-test.

The results revealed that the overall teaching competencies of the pre-service teachers at Hatyai University were at a high level. When considered in specific aspects, all competencies were also rated at a high level. The competencies, ranked from highest to lowest, were: ethical and professional conduct, teamwork, quality service, self-development, and achievement orientation. Moreover, the comparison of teaching competencies classified by gender showed no statistically significant differences, both overall and in each individual aspect.

Keywords: Competency, pre-service teachers

บทนำ

การศึกษายุค 4.0 (Education 4.0) หมายถึง การจัดการศึกษาที่สอดคล้องกับบริบทของศตวรรษที่ 21 ซึ่งมุ่งเน้นการตอบสนองต่อการเปลี่ยนแปลงของพฤติกรรมผู้เรียน การประยุกต์ใช้เทคโนโลยีดิจิทัลและนวัตกรรมเป็นเครื่องมือในการส่งเสริมการเรียนรู้ที่มีประสิทธิภาพ โดยมีเป้าหมายเพื่อพัฒนาผู้เรียนให้มีความสามารถในการคิดสร้างสรรค์ การวิจัย และการสร้างนวัตกรรมบนพื้นฐานของวิทยาศาสตร์และเทคโนโลยี เพื่อยกระดับขีดความสามารถในการแข่งขันของประเทศ การจัดการศึกษายุคใหม่นี้จึงจำเป็นต้องส่งเสริมการเรียนรู้เชิงรุก การคิดวิเคราะห์และการเรียนรู้ตลอดชีวิต ผ่านกระบวนการแสวงหาความรู้ด้วยตนเอง สำนักงานเลขาธิการสภาการศึกษา (2560, หน้า 36–78) ได้จัดทำแผนการศึกษาแห่งชาติ พ.ศ. 2560–2579 เพื่อกำหนดกรอบเป้าหมายและทิศทางการจัดการศึกษาของประเทศ โดยมีเป้าหมายหลักในการสร้างโอกาสและความเสมอภาคในการเข้าถึงการศึกษาที่มีคุณภาพ พัฒนาระบบการบริหารจัดการศึกษาที่มีประสิทธิภาพ และเสริมสร้างศักยภาพของกำลังคนให้มีสมรรถนะที่ตอบสนองต่อความต้องการของตลาดแรงงานและการพัฒนาประเทศอย่างยั่งยืน แนวคิดสำคัญของแผนการศึกษาดังกล่าวยึดหลักการจัดการศึกษาสำหรับประชาชนทุกคน (Education for All) หลักความเท่าเทียมและการเข้าถึงอย่างทั่วถึง (Inclusive Education) หลักปรัชญาของเศรษฐกิจพอเพียง (Sufficiency Economy Philosophy) และหลักการมีส่วนร่วมของทุกภาคส่วนในสังคม (All for Education) นอกจากนี้ ยังให้ความสำคัญกับการบรรลุเป้าหมายการพัฒนาที่ยั่งยืน (Sustainable Development Goals: SDGs 2030) และการตอบสนองต่อประเด็นภายในประเทศ (Local Issues) โดยเฉพาะอย่างยิ่งด้านคุณภาพของประชากรในแต่ละช่วงวัย

พระราชบัญญัติการศึกษาแห่งชาติ พ.ศ. 2542 มาตรา 53 ได้กำหนดให้มีองค์กรวิชาชีพครูผู้บริหารสถานศึกษาและผู้บริหารการศึกษามีฐานะเป็นองค์กรอิสระภายใต้ การบริหารของสภาวิชาชีพในกำกับของกระทรวง มีอำนาจหน้าที่กำหนดมาตรฐานวิชาชีพออก และเพิกถอนใบอนุญาตประกอบวิชาชีพ กำกับดูแลการปฏิบัติตามมาตรฐานและจรรยาบรรณของวิชาชีพ รวมทั้งการพัฒนาวิชาชีพครู ผู้บริหารสถานศึกษาและผู้บริหารการศึกษาและมาตรา 73 บัญญัติว่าให้มีการแก้ไขปรับปรุงพระราชบัญญัติครู พุทธศักราช 2488 เพื่อให้เป็นไปตามสาระสำคัญดังกล่าว และเพื่อสืบทอดประวัติศาสตร์และเจตนารมณ์ของการจัดตั้งคุรุสภาให้เป็นสภาวิชาชีพครูต่อไป จึงได้มีการตราพระราชบัญญัติสภาครูและบุคลากรทางการศึกษา พ.ศ. 2546 และมีผลบังคับใช้ตั้งแต่วันที่ 12 มิถุนายน 2546 โดยพระราชบัญญัติฉบับนี้กำหนดให้มีสภาครูและบุคลากรทางการศึกษาเรียกว่า “คุรุสภา” มีฐานะเป็นนิติบุคคล อยู่ในกำกับของกระทรวงศึกษาธิการ (สำนักงานเลขาธิการคุรุสภา. 2549 :น. 19-25)

คุรุสภา ถือเป็นหน่วยงานในฐานะเป็นนิติบุคคล ที่มีหน้าที่กำกับดูแลสภาครูและบุคลากรทางการศึกษาให้เป็นไปตามการกำหนดวิชาชีพทางการศึกษา ซึ่งถือเป็นวิชาชีพควบคุมวิชาชีพที่ทำหน้าที่หลักด้านการเรียนการสอนและการส่งเสริมการเรียนรู้ของผู้เรียนด้วยวิธีการต่าง ๆ รวมทั้งการรับผิดชอบการบริหารสถานศึกษาในสถานศึกษาปฐมวัย ขั้นพื้นฐานและอุดมศึกษาที่ต่ำกว่าปริญญาทั้งของรัฐและเอกชน และการบริหารการศึกษานอกสถานศึกษาในระดับเขตพื้นที่การศึกษา ตลอดจนการสนับสนุนการศึกษาให้บริการหรือปฏิบัติงานเกี่ยวเนื่องกับการจัดการเรียนการสอน การนิเทศ และการบริหารการศึกษาในหน่วยงานการศึกษาต่าง ๆ ประกอบด้วย 1) วิชาชีพครู 2) วิชาชีพผู้บริหารสถานศึกษา 3) วิชาชีพผู้บริหารการศึกษา 4) วิชาชีพบุคลากรทางการศึกษาอื่นตามที่กำหนดในกฎกระทรวง (สำนักงานเลขาธิการคุรุสภา. 2549 : 19-25) อำนาจหน้าที่ของคุรุสภา ได้กำหนดมาตรฐานวิชาชีพและจรรยาบรรณของวิชาชีพ ซึ่งมาตรฐานวิชาชีพครูในส่วนของมาตรฐานประสบการณ์ วิชาชีพผ่านการปฏิบัติการสอนในสถานศึกษาตามหลักสูตรปริญญาทางการศึกษาเป็นเวลาไม่น้อยกว่า 1 ปี และผ่านเกณฑ์การประเมินปฏิบัติการสอนตามหลักเกณฑ์ วิธีการ และเงื่อนไขที่คณะกรรมการคุรุสภากำหนด ซึ่งเป็นหน้าที่โดยตรงของคณะศึกษาศาสตร์และศิลปศาสตร์ มหาวิทยาลัยหาดใหญ่ ที่ถือเป็นสถาบันผลิตบุคลากรทางการศึกษาเพื่อให้การพัฒนาวิชาชีพ เป็นไปตามมาตรฐานข้อกำหนดคุณลักษณะและคุณภาพที่พึงประสงค์ในการประกอบวิชาชีพทางการศึกษา ซึ่งผู้ประกอบวิชาชีพทางการศึกษาต้องปฏิบัติตาม เพื่อให้เกิดคุณภาพในการประกอบวิชาชีพ และหลักเกณฑ์ วิธีการ และเงื่อนไขที่คณะกรรมการคุรุสภากำหนด คือ 1) การฝึกปฏิบัติวิชาชีพระหว่างเรียน 2) การปฏิบัติการสอนในสถานศึกษาในสาขาวิชาเฉพาะ ซึ่งการปฏิบัติการสอนในสถานศึกษาในสาขาวิชาเฉพาะนั้น ไปประกอบด้วยสาระความรู้การฝึกทักษะ 10 ประการ ได้แก่ 1) การบูรณาการความรู้ทั้งหมดมาใช้ในการปฏิบัติการสอนในสถานศึกษา 2) การจัดทำแผนการจัดการเรียนรู้ที่ยึดผู้เรียนเป็นสำคัญ 3) การจัดกระบวนการเรียนรู้ 4) การเลือกใช้การผลิตสื่อและนวัตกรรมที่สอดคล้องกับการจัดการเรียนรู้ 5) การใช้เทคนิคและยุทธวิธีในการจัดการเรียนรู้ 6) การวัดและประเมินผลการเรียนรู้ 7) การทำวิจัยในชั้นเรียนเพื่อพัฒนาผู้เรียน 8) การนำผลการประเมินมาพัฒนาการจัดการเรียนรู้และพัฒนาคุณภาพผู้เรียน 9) การบันทึกและรายงานผลการจัดการเรียนรู้ 10) การสัมมนาทางการศึกษาและสมรรถนะ 4 ด้าน ได้แก่ 1) สามารถจัดการเรียนรู้ในสาขาวิชาเฉพาะ 2) สามารถประเมินปรับปรุงและพัฒนาการจัดการเรียนรู้ให้เหมาะสมกับศักยภาพของผู้เรียน 3) สามารถทำวิจัยในชั้นเรียนเพื่อพัฒนาผู้เรียน 4) สามารถจัดทำรายงานผลการจัดการเรียนรู้และการพัฒนาผู้เรียน

จากการศึกษาพบว่า การกำหนดสมรรถนะของครูกำหนดเป็น 2 ประเภท คือ สมรรถนะหลักและสมรรถนะตามสายงานที่ปฏิบัติและมีการประเมินสมรรถนะในการปฏิบัติงานของครู โดยมีวัตถุประสงค์เพื่อประเมินผลการปฏิบัติงานของครูผู้สอนและใช้เป็นฐานข้อมูล ในการกำหนดกรอบการพัฒนาครู ตามนโยบายพัฒนาครูทั้งระบบ ซึ่งมีกรอบความคิดมาจากแนวคิดของ McClelland (สำนักงานคณะกรรมการข้าราชการพลเรือน,2558, หน้า 2 - 3) นักจิตวิทยาของมหาวิทยาลัยฮาร์วาร์ดได้อธิบายกล่าวถึงสมรรถนะไว้ว่า “สมรรถนะเป็นคุณลักษณะของบุคคลเกี่ยวกับผลการปฏิบัติงาน ประกอบด้วย ความรู้ (Knowledge) ทักษะ (Skills) ความสามารถ (Ability) และคุณลักษณะอื่น ๆ ที่เกี่ยวข้องกับการทำงาน (Other Characteristics) และเป็นคุณลักษณะเชิงพฤติกรรมที่ทำให้บุคลากรในองค์กรปฏิบัติงานได้ผลงานที่โดดเด่นกว่าคนอื่น ๆ ในสถานการณ์ที่หลากหลายซึ่งเกิดจากแรงผลักดันเบื้องลึก (Motives) อุปนิสัย (Traits) ภาพลักษณ์ภายใน (Self-image) และบทบาทที่แสดงออกต่อสังคม (Social role) ที่แตกต่างกัน ทำให้แสดงพฤติกรรมการทำงานที่ต่างกัน ซึ่งสอดคล้องกับแนวทางการพัฒนาสมรรถนะการบริหารทรัพยากรบุคคลแนวใหม่ภาครัฐของสำนักงานคณะกรรมการข้าราชการพลเรือน โดยส่งเสริมสนับสนุนให้ส่วนราชการบริหารทรัพยากรบุคคลตามกรอบมาตรฐานความสำเร็จด้านการบริหารทรัพยากรบุคคล (Standard for Success) เพื่อให้เกิดผลสัมฤทธิ์ต่อความสำเร็จของส่วนราชการ การพัฒนาสมรรถนะของครูผู้สอน จึงมีความสำคัญและจำเป็นอย่างยิ่งต่อการพัฒนาการศึกษาในปัจจุบัน

มหาวิทยาลัยหาดใหญ่ โดยคณะศึกษาศาสตร์และศิลปศาสตร์และวิทยาลัยนานาชาติดิษยะศริน ในฐานะสถาบันการผลิตครู ซึ่งมีการเปิดหลักสูตรศึกษาศาสตรบัณฑิตหลายสาขาวิชาในระดับปริญญาตรี คือ หลักสูตรศึกษาศาสตรบัณฑิต สาขาวิชาภาษาไทย หลักสูตรศึกษาศาสตรบัณฑิต สาขาวิชาการประถมศึกษา หลักสูตรศึกษาศาสตรบัณฑิต สาขาวิชาสังคมศึกษา หลักสูตรศึกษาศาสตรบัณฑิต สาขาวิชาวิทยาศาสตร์ทั่วไปและหลักสูตรศึกษาศาสตรบัณฑิต สาขาวิชาภาษาอังกฤษ แต่ละปีการศึกษาได้มีการจัดส่งนักศึกษาในระดับชั้นปีที่ 4 ออกฝึกปฏิบัติการสอนตามสถานศึกษาต่าง ๆ จำนวนมาก จึงมีความจำเป็นต้องสร้างความเข้มแข็ง ในการพัฒนานักศึกษาวิชาชีพครูให้เป็นผู้มีความเป็นพลเมืองในศตวรรษที่ 21 โดยการจัดการเรียนการสอนและกิจกรรมพัฒนานักศึกษาวิชาชีพครู ให้เป็นผู้มีคุณลักษณะที่ดีตามที่สังคมต้องการ เป็นครูดี ครูเก่ง มีจิตสำนึกในความเป็นครู เป็นแบบอย่างที่ดี มีการดำเนินชีวิตที่ดีงามมีวินัย มีจริยธรรมวิชาชีพครูพร้อมที่จะออกไปประกอบวิชาชีพครูอย่างสมศักดิ์ศรี และมีคุณภาพจากเหตุผลที่ได้กล่าวมาในข้างต้น ผู้วิจัยได้ตระหนักถึงการพัฒนาสมรรถนะความเป็นครู เป็นคุณลักษณะที่สำคัญที่มีผลต่อแรงจูงใจที่จะเป็นครูที่มีคุณภาพเป็นกุญแจสำคัญ ในการจัดการเรียนรู้ที่มีประสิทธิภาพมีโลกทัศน์ ที่กว้างไกลและความคิดสร้างสรรค์เกี่ยวกับกระบวนการเรียน วิชาชีพครูจึงควรเป็นวิชาชีพของคนเก่ง คนดีในสังคมและผู้ประกอบวิชาชีพนี้ควรเป็นต้นแบบทางคุณธรรม จริยธรรม การประพฤติตนตามการดำรงชีวิต สามารถชี้นำสังคมไปในทางที่เหมาะสมได้ และมุ่งสู่ความเป็นครูมืออาชีพต่อไป

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาศึกษาสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่
2. เพื่อเปรียบเทียบสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ จำแนกตามเพศ

แนวคิด ทฤษฎี กรอบแนวคิด

1.1 ความหมายสมรรถนะ

สำนักงานคณะกรรมการข้าราชการพลเรือน (2553, น.5) ได้สรุปความหมายของสมรรถนะไว้ว่าหมายถึง คุณลักษณะเชิงพฤติกรรมที่เป็นผลมาจากความรู้ความสามารถทักษะและคุณลักษณะอื่น ๆ ที่ทำให้บุคคลสร้างผลงานได้โดดเด่นในองค์กร

สำนักงานเลขาธิการสภาการศึกษา (2562, น. 9) ได้สรุปความหมายของสมรรถนะไว้ว่าเป็นความสามารถของบุคคลในระดับที่สามารถปฏิบัติงานใดงานหนึ่งได้สำเร็จ โดยใช้ความรู้ ทักษะ เจตคติ/คุณลักษณะที่ตนมีอยู่ ทั้งนี้สมรรถนะเป็นพฤติกรรมที่แสดงออกถึงความสามารถของบุคคล ในการนำความรู้ทักษะและคุณลักษณะเฉพาะของตน มาประยุกต์ใช้ในงานหรือในสถานการณ์ต่าง ๆ ได้จนประสบความสำเร็จ สมรรถนะจึงเป็นผลรวมของความรู้ ทักษะ เจตคติหรือคุณลักษณะที่ทำให้บุคคลประสบความสำเร็จในการทำงานการแก้ปัญหาและการดำรงชีวิต

จากที่กล่าวมาในข้างต้นสามารถสรุปได้ว่าสมรรถนะ คือ ลักษณะเฉพาะภายในตัวของบุคคลที่ส่งผลให้สามารถปฏิบัติงานจนประสบความสำเร็จได้อย่างมีประสิทธิภาพ ผลงานมีความโดดเด่นเกิดผลงานสูงสุดจนบรรลุตามเป้าหมายที่วางไว้

1.2 ความหมายสมรรถนะความเป็นครู

McClelland (n.d. อ้างถึงใน กานต์ อัมพานนท์, 2558, น.3) จำแนกสมรรถนะประกอบด้วย 3 กลุ่ม คือ

1. กลุ่มสมรรถนะหลัก (Core Competency) เป็นทักษะหลักที่ทุกตำแหน่งในองค์กรต้องมี เช่น มีความรู้เกี่ยวกับการสอนหรือการวัดผล และประเมินผล เป็นต้น

2. กลุ่มความสามารถด้านหน้าที่ (Functional Competency) เป็นความสามารถส่วนบุคคลแยกออกมาจากสมรรถนะหลัก เช่น หน้าที่รับผิดชอบการสอนการใช้เทคนิคการสอน เป็นต้น

3. กลุ่มความสามารถด้านการจัดการ (Managerial Competency) เป็นทักษะของบุคคลระดับหัวหน้างาน หัวหน้าทีม หรือผู้บริหารระดับอาวุโส เช่น ทักษะการวางแผนและการจัดการทักษะการบริหารการเปลี่ยนแปลง เป็นต้น

บุญฤดี อุดมผล (2563) ได้กล่าวถึงความหมายสมรรถนะความเป็นครูไว้ว่า คุณลักษณะของบุคคลที่มีความรู้ ความสามารถ ทักษะ คุณลักษณะที่เฉพาะและจำเป็นสำหรับการประกอบวิชาชีพครูมีความสามารถในการจัดการเรียนการสอน และส่งเสริมการเรียนรู้ของผู้เรียนให้บรรลุผลอย่างมีประสิทธิภาพ

สุรีรัตน์ อารีรักษ์สกุล ก้องโลก (2563) ได้กล่าวถึงความหมายสมรรถนะความเป็นครูไว้ว่า สมรรถนะความเป็นครู หมายถึง คุณลักษณะของบุคคลที่มีความรู้ มีทักษะ มีคุณลักษณะของครูที่ดีมีความสามารถในการจัดการเรียนการสอน และส่งเสริมการเรียนรู้ของผู้เรียนด้วยวิธีการที่หลากหลาย เพื่อให้ผู้เรียนเป็นบุคคลที่มีคุณธรรม มีความรู้ เป็นบุคคลที่มีคุณภาพของสังคมทุกระดับ

อภิภา ปรัชญพฤทธิ์ (2561) ได้ให้ความหมายไว้ว่า สมรรถนะความเป็นครู หมายถึง ความสามารถในการประยุกต์ใช้ความรู้ ทักษะ และคุณลักษณะเฉพาะที่จำเป็นสำหรับการประกอบวิชาชีพครู โดยครอบคลุมทั้งสมรรถนะพื้นฐานและสมรรถนะที่จำเป็นของครูยุค 4.0 โดยเฉพาะอย่างยิ่งความสามารถในการสอนหรือพัฒนาให้นักเรียนมีสมรรถนะแกนกลางของการศึกษายุค 4.0

สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน (2561) ได้ให้ความหมายไว้ว่า สมรรถนะความเป็นครู หมายถึง ความรู้ ทักษะ ความสามารถ และคุณลักษณะของครูที่จำเป็นต่อการปฏิบัติงานในวิชาชีพครู ให้บรรลุผลอย่างมีประสิทธิภาพ

องค์ประกอบสมรรถนะความเป็นครู ข้อบังคับคุรุสภาว่าด้วยมาตรฐานวิชาชีพ พ.ศ. 2556 ได้กำหนดมาตรฐานวิชาชีพสำหรับผู้ประกอบวิชาชีพครู ไว้ 3 มาตรฐาน ได้แก่

1) มาตรฐานความรู้และประสบการณ์วิชาชีพ 2) มาตรฐานการปฏิบัติงาน และ 3) มาตรฐานการปฏิบัติตน โดยมาตรฐานความรู้และประสบการณ์วิชาชีพ ได้กำหนดมาตรฐานความรู้ด้านความเป็นครู ไว้เป็น 1 ใน 11 มาตรฐานความรู้ ซึ่งมาตรฐานความรู้ด้านความเป็นครู ประกอบด้วย สาระความรู้และสมรรถนะความเป็นครู ดังนี้

สาระความรู้

1. สภาพงานครู คุณลักษณะ และมาตรฐานวิชาชีพครู
2. การปลูกฝังจิตวิญญาณความเป็นครู
3. กฎหมายที่เกี่ยวข้องกับครูและวิชาชีพครู
4. การจัดการความรู้เกี่ยวกับวิชาชีพครู
5. การสร้างความก้าวหน้าและพัฒนาวิชาชีพครูอย่างต่อเนื่อง

สมรรถนะความเป็นครู

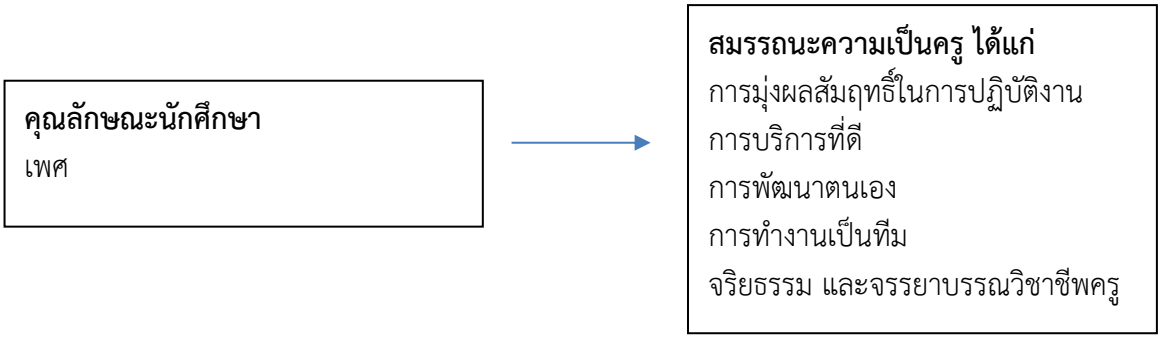
1. รอบรู้ในเนื้อหาวิชาที่สอนและกลยุทธ์การสอน เพื่อให้ผู้เรียนคิดวิเคราะห์ สังเคราะห์ สร้างสรรค์สิ่งใหม่ ๆ ได้
2. แสวงหาและเลือกใช้ข้อมูลข่าวสารความรู้เพื่อให้ทันต่อการเปลี่ยนแปลง
3. ปฏิสัมพันธ์ระหว่างครูกับผู้เรียนที่ส่งเสริมการพัฒนาศักยภาพผู้เรียน
4. มีจิตวิญญาณความเป็นครู

ตารางที่ 1 แสดงการสังเคราะห์การแบ่งกลุ่มสมรรถนะ

กลุ่มสมรรถนะ	แหล่งข้อมูล				ความถี่
	สพฐ	OECD	Mohanta, G.C.	McClelland	
สมรรถนะหลัก (Core Competencies)	✓	✓	✓	✓	4
สมรรถนะประจำสายงาน (Functional Competency)	✓	✓	✓	✓	4
สมรรถนะส่วนบุคคล (Personal Competency)			✓	✓	2

จากตารางที่ 1 สรุปได้ว่า การจำแนกประเภทสมรรถนะ สามารถจำแนกได้หลายแบบ ขึ้นอยู่กับการกำหนดลักษณะของสมรรถนะหรือการจัดกลุ่มสมรรถนะ โดยผู้วิจัยจัดกลุ่มของสมรรถนะได้ 3 กลุ่ม ดังนี้ 1) สมรรถนะหลัก (Core competencies) 2) สมรรถนะประจำสายงานหรือสมรรถนะเฉพาะตำแหน่ง (Functional/Technical Competency) และ 3) สมรรถนะส่วนบุคคล (Personal Competency)

กรอบแนวคิดการวิจัย



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

การวิจัยการศึกษาสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ เป็นการวิจัยเชิงปริมาณ (Quantitative Research) ได้ดำเนินการวิจัย ดังนี้

1. ประชากรและกลุ่มตัวอย่าง

ประชากรที่ใช้ในการวิจัยครั้งนี้ คือ นักศึกษาหลักสูตรศึกษาศาสตรบัณฑิต มหาวิทยาลัยหาดใหญ่ ชั้นปีที่ 4 ปีการศึกษา 2566 จำนวน 235 คน

กลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้ คือ นักศึกษาวิชาชีพครูชั้นปีที่ 4 มหาวิทยาลัยหาดใหญ่ ปีการศึกษา 2566 ผู้วิจัยกำหนดขนาดกลุ่มตัวอย่างของเครจซี่และมอร์แกน (Krejcie & Morgan, 1970 อ้างอิงใน ธีรวุฒิ เอกะกุล, 2543) ได้กลุ่มตัวอย่างเท่ากับ 148 คน วิธีการสุ่มตัวอย่าง ใช้วิธีสุ่มแบบหลายขั้นตอน (Multi Stage Random Sampling)

2. เครื่องมือที่ใช้ในการวิจัยและการหาคุณภาพเครื่องมือ

เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลครั้งนี้ คือแบบสอบถามสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่

การสร้างและพัฒนาเครื่องมือ

การสร้างแบบสอบถามเพื่อใช้ในการวิจัยครั้งนี้ ผู้วิจัยดำเนินการ ดังนี้

1. วิเคราะห์และศึกษาเอกสาร หลักการ แนวคิด ทฤษฎี และผลงานวิจัยที่เกี่ยวข้องกับสมรรถนะความเป็นครูจากหนังสือ ตำรา วารสาร บทความ และงานวิจัยต่าง ๆ

2. วิเคราะห์และศึกษาเอกสาร หลักการ แนวคิด ทฤษฎี และผลงานวิจัยที่เกี่ยวข้องกับการสร้างแบบสอบถามจากหนังสือ ตำรา วารสาร บทความ และงานวิจัยต่าง ๆ

3. กำหนดนิยามศัพท์เฉพาะ และประเด็นปัจจัยให้ครอบคลุมกับเนื้อหาที่ต้องการในที่นี้ผู้วิจัยใช้แนวคิดของสำนักงานคณะกรรมการข้าราชการครูและบุคลากรทางการศึกษา (2548) ซึ่งประกอบด้วย

สมรรถนะหลัก 5 สมรรถนะ ได้แก่ การมุ่งผลสัมฤทธิ์ในการปฏิบัติงาน การบริการที่ดี การพัฒนาตนเอง การทำงานเป็นทีมและจริยธรรม และจรรยาบรรณวิชาชีพครู

4. สร้างรายการคำถามที่ได้กำหนดไว้ในนิยามศัพท์เฉพาะ ในที่นี้เน้นสมรรถนะการมุ่งผลสัมฤทธิ์ในการปฏิบัติงาน การบริการที่ดี การพัฒนาตนเอง การทำงานเป็นทีมและจริยธรรม และจรรยาบรรณวิชาชีพครู

5. นำแบบสอบถามที่สร้างขึ้นเสนอผู้ทรงคุณวุฒิ เพื่อพิจารณาและขอคำแนะนำเพื่อให้ได้ความเที่ยงตรงเชิงเนื้อหา (Content Validity) จำนวน 3 ท่าน

6. นำผลการพิจารณาและคำแนะนำของผู้ทรงคุณวุฒิทั้ง 3 ท่าน วิเคราะห์หาความเที่ยงตรงเชิงเนื้อหา (Content Validity) จากนั้นคัดเลือกคำถามที่ได้ค่าดัชนีความเที่ยงตรงตามเกณฑ์กล่าวคือตั้งแต่ 0.60 ขึ้นไป มาแก้ไขปรับปรุงแบบสอบถามให้มีคุณภาพยิ่งขึ้น

7. นำแบบสอบถามที่ผ่านการคัดเลือก และปรับปรุงแก้ไขตามข้อเสนอแนะของผู้เชี่ยวชาญมาจัดพิมพ์ และนำไปทดลองใช้ (Try Out) กับนักศึกษา จำนวน 30 คน ซึ่งไม่ใช่กลุ่มตัวอย่างจริงในการวิจัยในครั้งนี้

8. นำผลการทดลองใช้มาตรวจและวิเคราะห์คุณภาพของแบบสอบถาม โดยการหาค่าอำนาจจำแนก (Discrimination) ด้วยการทดสอบค่าที (t – test) ด้วยการแบ่งกลุ่มที่ได้น้ำหนักคะแนนสูงออกมา 25% เป็นกลุ่มสูงและกลุ่มที่ได้น้ำหนักคะแนนต่ำออกมา 25% เป็นกลุ่มต่ำเมื่อได้ค่าอำนาจจำแนกของแบบสอบถามในแต่ละข้อแล้ว จากนั้นคัดเลือกเฉพาะข้อที่มีค่าอำนาจจำแนกตั้งแต่ 1.75 ขึ้นไป (ล้วน สายยศ และอังคณา สายยศ, 2540 : 42) โดยคำนึงถึงความครอบคลุมของเนื้อหาและคุณลักษณะที่ต้องการวัด

9. หาค่าความเชื่อมั่น (Reliability) ของแบบสอบถามด้วยการหาค่าสัมประสิทธิ์แอลฟ่า (Alpha coefficient) ตามวิธีการของ Cronbach (บุญเรียง ขจรศักดิ์, 2535: 166) ในที่นี้ได้ค่าความเชื่อมั่นทั้งฉบับเท่ากับ 0.97

10. เมื่อได้แบบสอบถามที่มีคุณภาพตามที่กำหนดแล้ว จึงนำไปเก็บข้อมูลกับกลุ่มตัวอย่าง เพื่อดำเนินการวิเคราะห์วิจัยต่อไป

3. การวิเคราะห์ข้อมูล

สถิติที่ใช้ในการบรรยายลักษณะข้อมูล ได้แก่ ค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน และการทดสอบค่าที (t-test)

ผลการวิจัย

ผลการศึกษาสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ แสดงรายละเอียดดังนี้

ตารางที่ 2 ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐานสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ ภาพรวม

สมรรถนะ	$\bar{x}$	S.D.	การแปลผล
สมรรถนะการมุ่งสัมฤทธิ์ในการปฏิบัติงาน	4.41	.497	มาก
สมรรถนะการบริการที่ดี	4.43	.523	มาก

สมรรถนะ	$\bar{x}$	S.D.	การแปลผล
สมรรถนะการพัฒนาตนเอง	4.41	.541	มาก
สมรรถนะการทำงานเป็นทีม	4.46	.519	มาก
สมรรถนะจริยธรรม และจรรยาบรรณวิชาชีพครู	4.48	.512	มาก
ภาพรวม	**4.44**	**.485**	**มาก**

จากตารางที่ 2 พบว่า สมรรถนะความเป็นครูนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ โดยภาพรวมอยู่ในระดับมาก ($\bar{x}$ = 4.44) และเมื่อพิจารณาเป็นรายด้านพบว่าทุกด้านอยู่ในระดับมาก โดยเรียงตามลำดับจากมากที่สุด คือ สมรรถนะจริยธรรมและจรรยาบรรณวิชาชีพครู ($\bar{x}$ = 4.48) รองลงมาสมรรถนะการทำงานเป็นทีม ($\bar{x}$ = 4.46) สมรรถนะการบริการที่ดี ($\bar{x}$ = 4.43) สมรรถนะการพัฒนาตนเอง และสมรรถนะการมุ่งสัมฤทธิ์ในการปฏิบัติงาน มีค่าเฉลี่ยน้อยที่สุด ($\bar{x}$ = 4.41)

ตารางที่ 3 ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐานสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ สมรรถนะการมุ่งสัมฤทธิ์ในการปฏิบัติงานรายด้าน

สมรรถนะการมุ่งสัมฤทธิ์ในการปฏิบัติงาน	$\bar{x}$	S.D.	การแปลผล
ด้านความสามารถในการวางแผน การกำหนดเป้าหมาย การวิเคราะห์ สังเคราะห์ภารกิจงาน	4.36	.552	มาก
ด้านความมุ่งมั่นในการปฏิบัติหน้าที่ให้มีคุณภาพ ถูกต้อง ครบถ้วนสมบูรณ์	4.43	.529	มาก
ด้านความสามารถในการติดตามประเมินผลการปฏิบัติงาน	4.40	.592	มาก
ด้านความสามารถในการพัฒนาการปฏิบัติงานให้มีประสิทธิภาพอย่างต่อเนื่องเพื่อให้งานประสบความสำเร็จ	4.46	.518	มาก

จากตารางที่ 3 พบว่าสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ ด้านสมรรถนะการมุ่งสัมฤทธิ์ในการปฏิบัติงานอยู่ในระดับมาก โดยเรียงตามลำดับจากมากที่สุด คือ ด้านความสามารถในการพัฒนาการปฏิบัติงานให้มีประสิทธิภาพอย่างต่อเนื่องเพื่อให้งานประสบความสำเร็จ ($\bar{x}$ = 4.46) รองลงมา ด้านความมุ่งมั่นในการปฏิบัติหน้าที่ให้มีคุณภาพ ถูกต้อง ครบถ้วนสมบูรณ์ ($\bar{x}$ = 4.43) ด้านความสามารถในการติดตามประเมินผลการปฏิบัติงาน ($\bar{x}$ = 4.40) และด้านความสามารถในการวางแผน การกำหนดเป้าหมาย การวิเคราะห์ สังเคราะห์ภารกิจงาน มีค่าเฉลี่ยน้อยที่สุด ($\bar{x}$ = 4.36)

ตารางที่ 4 ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ ด้านสมรรถนะการบริการที่ดีรายด้าน

ด้านสมรรถนะการบริการที่ดี	$\bar{x}$	S.D.	การแปลผล
ด้านความตั้งใจและเต็มใจในการให้บริการ	4.43	.541	มาก
ด้านการปรับปรุงระบบบริการให้มีประสิทธิภาพ	4.43	.562	มาก

จากตารางที่ 4 พบว่าสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ ด้านสมรรถนะการบริการที่ดี อยู่ในระดับมากและมีค่าเฉลี่ยเท่ากัน คือ ด้านความตั้งใจและเต็มใจในการให้บริการ และด้านการปรับปรุงระบบบริการให้มีประสิทธิภาพ ($\bar{x}$ = 4.43)

ตารางที่ 5 ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ ด้านสมรรถนะการพัฒนาตนเองรายด้าน

ด้านสมรรถนะการพัฒนาตนเอง	$\bar{x}$	S.D.	การแปลผล
ด้านการศึกษาค้นคว้าหาความรู้ ติดตามองค์ความรู้ใหม่ๆ ทางวิชาการและวิชาชีพ	4.40	.574	มาก
ด้านการสร้างองค์ความรู้และนวัตกรรมในการพัฒนาองค์กรและวิชาชีพ	4.38	.603	มาก
ด้านการแลกเปลี่ยนความคิดเห็น และสร้างเครือข่าย	4.43	.543	มาก

จากตารางที่ 5 พบว่าสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ ด้านสมรรถนะการพัฒนาตนเองอยู่ในระดับมาก โดยเรียงตามลำดับจากมากที่สุด คือ ด้านการแลกเปลี่ยนความคิดเห็นและสร้างเครือข่าย ($\bar{x}$ = 4.43) รองลงมา ด้านการศึกษาค้นคว้าหาความรู้ติดตามองค์ความรู้ใหม่ ๆ ทางวิชาการและวิชาชีพ ($\bar{x}$ = 4.40) และด้านการสร้างองค์ความรู้และนวัตกรรมในการพัฒนาองค์กรและวิชาชีพ มีค่าเฉลี่ยน้อยที่สุด ($\bar{x}$ = 4.38)

ตารางที่ 6 ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐานสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ ด้านสมรรถนะการทำงานเป็นทีมรายด้าน

ด้านสมรรถนะการทำงานเป็นทีม	$\bar{x}$	S.D.	การแปลผล
ด้านการให้ความร่วมมือ ช่วยเหลือและสนับสนุนเพื่อนร่วมงาน	4.47	.529	มาก
ด้านการเสริมแรงให้กำลังใจเพื่อนร่วมงาน	4.48	.568	มาก
ด้านการปรับตัวเข้ากับกลุ่มคนหรือสถานการณ์ที่หลากหลาย	4.42	.585	มาก
ด้านการแสดงบทบาทผู้นำ/ผู้ตาม	4.42	.585	มาก
ด้านการเข้าไปมีส่วนร่วมกับผู้อื่นในการพัฒนาการจัดการศึกษาให้บรรลุผลสำเร็จตามเป้าหมาย	4.44	.553	มาก

จากตารางที่ 6 พบว่าสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ ด้านสมรรถนะการพัฒนาตนเองอยู่ในระดับมาก โดยเรียงตามลำดับจากมากที่สุด คือ ด้านการเสริมแรงให้กำลังใจเพื่อนร่วมงาน ($\bar{x}$ = 4.48) รองลงมา ด้านการให้ความร่วมมือ ช่วยเหลือและสนับสนุนเพื่อนร่วมงาน ($\bar{x}$ = 4.47) ด้านการเข้าไปมีส่วนร่วมกับผู้อื่นในการพัฒนาการจัดการศึกษาให้บรรลุผลสำเร็จตามเป้าหมาย ($\bar{x}$ = 4.44) ด้านการปรับตัวเข้ากับกลุ่มคนหรือสถานการณ์ที่หลากหลาย และด้านการแสดงบทบาทผู้นำ/ผู้ตาม มีค่าเฉลี่ยน้อยที่สุด ($\bar{x}$ = 4.42)

ตารางที่ 7 ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐานสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ ด้านสมรรถนะจริยธรรมและจรรยาบรรณวิชาชีพครูรายด้าน

ด้านสมรรถนะจริยธรรมและจรรยาบรรณวิชาชีพครู	$\bar{x}$	S.D.	การแปลผล
ด้านความรักและศรัทธาในวิชาชีพ	4.45	.552	มาก
ด้านความมีวินัย และความรับผิดชอบในวิชาชีพ	4.49	.506	มาก
ด้านการดำรงชีวิตอย่างเหมาะสม	4.48	.530	มาก
ด้านการประพฤติปฏิบัติตน เป็นแบบอย่างที่ดี	4.47	.531	มาก

จากตารางที่ 7 พบว่าสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ ด้านสมรรถนะการพัฒนาตนเองอยู่ในระดับมาก โดยเรียงตามลำดับจากมากที่สุด คือ ด้านความมีวินัย และความรับผิดชอบในวิชาชีพ ($\bar{x}$ = 4.49) รองลงมา ด้านการดำรงชีวิตอย่างเหมาะสม ($\bar{x}$ = 4.48) ด้านการประพฤติปฏิบัติตน เป็นแบบอย่างที่ดี ($\bar{x}$ = 4.47) ด้านความรักและศรัทธาในวิชาชีพ มีค่าเฉลี่ยน้อยที่สุด ($\bar{x}$ = 4.45)

การเปรียบเทียบสมรรถนะความเป็นครูของนักศึกษา หลักสูตรศึกษาศาสตรบัณฑิต มหาวิทยาลัยหาดใหญ่ จำแนกตามเพศ

ตารางที่ 8 การเปรียบเทียบสมรรถนะความเป็นครูของนักศึกษา หลักสูตรศึกษาศาสตรบัณฑิต มหาวิทยาลัยหาดใหญ่ จำแนกตามเพศ

สมรรถนะ	เพศ	n	$\bar{X}$	SD.	t – test	df	P value
สมรรถนะการมุ่งสัมฤทธิ์ในการปฏิบัติงาน	ชาย	19	4.35	0.50	- 0.606	148	0.546
	หญิง	131	4.42	0.50			
สมรรถนะการบริการที่ดี	ชาย	19	4.39	0.62	- 0.352	148	0.726
	หญิง	131	4.43	0.51			
สมรรถนะการพัฒนาตนเอง	ชาย	19	4.35	0.64	- 0.474	148	0.636
	หญิง	131	4.42	0.53			
	ชาย	19	4.42	0.61	- 0.338	148	0.736

สมรรถนะ	เพศ	n	$\bar{X}$	SD.	t – test	df	P value
สมรรถนะการทำงานเป็นทีม	หญิง	131	4.46	0.51			
สมรรถนะจริยธรรมและจรรยาบรรณวิชาชีพครู	ชาย	19	4.53	0.48	0.489	148	0.626
	หญิง	131	4.47	0.52			
ภาพรวม	ชาย	19	4.43	0.52	- 0.176	148	0.860

จากตารางที่ 8 ผลจากการวิเคราะห์ข้อมูลสมรรถนะความเป็นครูของนักศึกษา หลักสูตรศึกษาศาสตรบัณฑิต มหาวิทยาลัยหาดใหญ่ โดยภาพรวมและรายด้านไม่แตกต่างกัน

อภิปรายผล

การวิจัยการศึกษาสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ มี 2 ประเด็น ที่สามารถนำมาอภิปรายผล ดังนี้

วัตถุประสงค์ที่ 1 เพื่อศึกษาศึกษาสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่

1. สมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ ผลจากการวิเคราะห์ข้อมูล พบว่า สมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ โดยภาพรวมอยู่ในระดับมาก ($\bar{x}$ = 4.44) และเมื่อพิจารณาเป็นรายด้านพบว่า ทุกด้านอยู่ในระดับมาก โดยเรียงตามลำดับจากมากที่สุด คือ สมรรถนะจริยธรรม และจรรยาบรรณวิชาชีพครู ($\bar{x}$ = 4.48) รองลงมาสมรรถนะการทำงานเป็นทีม ($\bar{x}$ = 4.46) สมรรถนะการบริการที่ดี ($\bar{x}$ = 4.43) สมรรถนะการพัฒนาตนเองและสมรรถนะการมุ่งสัมฤทธิ์ในการปฏิบัติงาน มีค่าเฉลี่ยน้อยที่สุด ($\bar{x}$ = 4.41)

การที่นักศึกษามีความคิดเห็น และรับรู้สมรรถนะความเป็นครูของตนเองภายหลังจากที่ได้ผ่านการได้ฝึกประสบการณ์วิชาชีพ 1 ภาคการศึกษา ว่าอยู่ในระดับมากทุกด้านสะท้อนให้เห็นถึงการประสบความสำเร็จในการสร้างรากฐานที่มั่นคงแข็งแรงบังเกิด ทั้งในส่วนรวมกล่าวคือคณะศึกษาศาสตร์และศิลปศาสตร์ ที่ผลิตนักศึกษา ส่งผลให้นักศึกษารับรู้ว่าตนเองเป็นผู้มีความสามารถทำความเข้าใจเรียนรู้ศึกษา ทั้งภาคทฤษฎีสู่ภาคปฏิบัติ สู่การจัดการเรียนการสอน ให้นักศึกษามีความรู้สามารถสร้างองค์ความรู้ทักษะ ความสามารถ อีกทั้งได้ผ่านการฝึกฝนอบรมเน้นการพัฒนาคุณลักษณะที่พึงประสงค์ จากการที่ได้เข้าร่วมกิจกรรมการเรียนรู้และโครงการต่าง ๆ ของคณะ ผ่านการสอน ผ่านทุกสิ่งทั้งในด้านบวกและด้านลบตามศักยภาพและความพร้อมของนักศึกษาตลอดเวลา 4 ปีที่ผ่านมาในแต่ละหลักสูตรที่ได้หล่อหลอมทั้งจิตวิญญาณความเป็นครูปลูกฝังคุณธรรม ค่านิยม และคุณลักษณะอันพึงประสงค์ของสังคม สังเกตได้จากการที่นักศึกษาต่างมีความคิดเห็น และให้ความสำคัญต่อสมรรถนะจริยธรรมและจรรยาบรรณวิชาชีพครูมากที่สุด โดยเฉพาะอย่างยิ่งในรายการปฏิบัติตนตามกฎ ระเบียบ ข้อบังคับ และวัฒนธรรมที่ดีขององค์กรและเป็นแบบอย่างที่ดี ในการส่งเสริมผู้อื่นให้ปฏิบัติตนตามหลักจริยธรรมจรรยาบรรณวิชาชีพครูและพัฒนาจนเป็นที่ยอมรับ สมดั่งการเป็นนักศึกษาของมหาวิทยาลัยที่เน้นปลูกฝัง เรื่องการมีคุณธรรมจริยธรรม ยึดมั่นจรรยาบรรณวิชาชีพ มีมนุษยสัมพันธ์ดีมีความสามารถในการทำงานร่วมกับผู้อื่น ได้อย่างกัลยาณมิตร และมีบุคลิกภาพเป็นแบบอย่างที่ดีเหมาะสมกับความเป็นครูวิชาชีพ และมีคุณลักษณะบัณฑิต

อันพึงประสงค์ สอดคล้องกับปรัชญาของมหาวิทยาลัย คือ รู้คิด รู้ธรรม รู้สำเร็จ อย่างไรก็ตามหัวใจสำคัญที่สุดของการศึกษา คือ ครูหรือผู้สอน ครูคือกุญแจความสำเร็จ ครูต้องมีใจรักการสอน รู้วิธีสอนสามารถบ่มเพาะความรับผิดชอบของผู้เรียนให้เกิดการตกผลึกทางปัญญา การที่นักศึกษาคณะศึกษาศาสตร์และศิลปศาสตร์มีความคิดเห็น ตระหนักตนเองมีคุณสมบัติว่าด้วยสมรรถนะจริยธรรมและจรรยาบรรณวิชาชีพครูมากที่สุด จึงย่อมเป็นโอกาสให้คณาจารย์ทุกคน ได้ใช้โอกาสในทุกวิชา ทุกภาคการศึกษา ตลอดจนบุคลากร ผู้บริหาร และผู้ที่เกี่ยวข้อง ได้ใช้เป็นพลวัตในการส่งเสริม สร้างและพัฒนาศักยภาพนักศึกษาที่มีแตกต่างกัน ให้มุ่งไปด้วยเป้าหมายเดียวกัน คือการเป็นคนคุณภาพหรือนวัตกร เพราะนวัตกรสำคัญกว่านวัตกรรม ในที่นี้ นวัตกรที่ดีควรมีลักษณะ ดังนี้ 1. รู้จักมนุษย์และสังคมอย่างดีพอ 2. สามารถมองอนาคตที่ชัดเจนได้ 3. คิดสมดุลในผลประโยชน์และการตอบแทนสังคม 4. มีทักษะการจัดการ 5. มีความสามารถในการคิดวิเคราะห์และคิดสร้างสรรค์ 6. สามารถออกแบบและสร้างสิ่งใหม่หรือปรับสิ่งเก่าได้ 7. มีจิตผลิตภาพและทำได้ 8. คิดถึงสิ่งที่ดีกว่า 9. มีสำนึกทางสังคม 10. เห็นคุณค่าความดีความงาม (ไพฑูรย์ สินลารัตน์ และคณะ, 2559) สอดคล้องกับ พงษ์ศักดิ์ ด้วงทา (2558) ที่ศึกษาสมรรถนะวิชาชีพครูโรงเรียนเอกชน ในสังกัดสำนักงานเขตพื้นที่การศึกษาพิษณุโลก เขต 1 การวิจัยมีวัตถุประสงค์ คือ 1.ประเมินสมรรถนะวิชาชีพครูโรงเรียนเอกชนในสังกัดสำนักงานเขตพื้นที่การศึกษาพิษณุโลก เขต1 2. ตรวจสอบความสอดคล้องของโมเดลสมรรถนะวิชาชีพครูกับข้อมูลเชิงประจักษ์ พบว่า สมรรถนะหลัก (Core Competency) มีผลการประเมินอยู่ในระดับมาก โดยด้านที่มีผลการประเมินอยู่ในระดับมากที่สุด คือ การบริการที่ดี และวินัย คุณธรรมและจรรยาบรรณวิชาชีพครู ปรัตถจริยา กิตดา และเลี้ยววาริณ อุบล (2558) ศึกษาความเป็นครูในศตวรรษที่ 21 ตามความคาดหวังของนักเรียนและนักศึกษา การวิจัยมีวัตถุประสงค์ คือ 1) เพื่อศึกษาความคาดหวังของนักเรียนและนักศึกษาที่มีต่อความเป็นครูในศตวรรษที่ 21 ด้านคุณธรรมจริยธรรมครู ด้านคุณลักษณะที่ดีของครู ด้านบุคลิกภาพที่ดีของครู ด้านบทบาทหน้าที่ของครู และด้านสมรรถนะของครู 2) เพื่อเปรียบเทียบความเป็นครูในศตวรรษที่ 21 ตามความคาดหวังนักศึกษาระหว่างนักศึกษาคณะครุศาสตร์และนักศึกษาคณะอื่นๆ พบว่า 1) นักเรียนและนักศึกษากับมีความความคาดหวังความเป็นครูในศตวรรษที่ 21 ในระดับมากทั้ง 5 ด้าน คือ ด้านคุณธรรมจริยธรรมครูนักเรียนและนักศึกษาคาดหวังในเรื่องความกตัญญูกตเวทีต่อชาติ ศาสน์ กษัตริย์ ด้านคุณลักษณะที่ดีของครูนักเรียนและนักศึกษาคาดหวังในเรื่องครูควรมีความรู้แม่นยำ ในหลักสูตรที่สอนครูควรสอนศิษย์ให้รู้แจ้ง โดยไม่ปิดบังด้านบุคลิกภาพของครูนักเรียนและนักศึกษาคาดหวัง ในเรื่องครูควรมีความเป็นมิตรรู้จักพูดในเชิงบวก พูดให้กำลังใจผู้อื่น มีสัมพันธภาพที่ดีกับผู้อื่น ด้านบทบาทหน้าที่ของครูนักเรียนและนักศึกษาคาดหวังในเรื่องครูควรสั่งสอนความรู้ในสรรพวิทยาการต่าง ๆ ให้แก่ผู้เรียน ด้านสมรรถนะของครูนักเรียนและนักศึกษาคาดหวังในเรื่องมีความรับผิดชอบต่อตนเอง นักเรียนและส่วนรวม เปิดใจกว้างยอมรับความเปลี่ยนแปลง กระตุ้นให้ผู้อื่นเกิดการเรียนรู้และร่วมมือในการพัฒนาผู้เรียน ประเมินผู้เรียนอย่างรอบด้านและเป็นธรรม สร้างเครือข่ายความร่วมมือระหว่างครู ผู้ปกครอง ชุมชน และองค์กรอื่น ๆ เพื่อการจัดการเรียนรู้

อย่างไรก็ตามข้อค้นพบที่ได้จากการศึกษาครั้งนี้สมรรถนะการมุ่งผลสัมฤทธิ์ในการปฏิบัติงาน ในรายการที่นักศึกษาตระหนักตนเองมีสมรรถนะต่ำ แต่ก็ยังเป็นระดับสมรรถนะต่ำที่สุดในระดับมาก นั่นคือรายการ “วิเคราะห์ภารกิจงานเพื่อวางแผนการแก้ปัญหาอย่างเป็นระบบ” สะท้อนให้เห็นว่า นักศึกษาขาดความเข้าใจในภาระหน้าที่ของงานที่รับผิดชอบ นักศึกษาขาดทักษะในการวิเคราะห์ข้อมูลและสะท้อนองค์ความรู้เพื่อหาสาเหตุของปัญหาและอุปสรรค จนไม่สามารถเชื่อมโยงระหว่างเป้าหมายและแผนการทำงานได้ จึงควรอย่างยิ่งที่นักศึกษาควรได้รับการฝึกการวางแผนงาน และฝึกการแก้ปัญหา ซึ่งสอดคล้อง

กับวารี ถิระจิตร (2541, หน้า 80) ในการเสริมสร้างให้เด็กมีทักษะและเข้าใจกระบวนการ แก้ปัญหานั้น ครูจำเป็นต้องฝึกฝนให้เด็กรู้จักสังเกตและพยายามหาแนวทางในการแก้ปัญหาด้วยตนเอง ไม่ควรจำกัดแค่วิธีการใดวิธีการหนึ่งเพียงวิธีเดียว เด็กอาจเลือกใช้วิธีการแก้ปัญหาแตกต่างกันไป แต่สิ่งที่สำคัญอย่างมากก็คือ เด็กจะต้องรู้และเข้าใจปัญหานั้น ๆ อย่างแจ่มชัด การที่เด็กได้ฝึกฝนในการแก้ปัญหาบ่อย ๆ จะช่วยส่งเสริมให้เด็กมีความชำนาญมากขึ้นและสามารถแก้ปัญหาได้เป็นอย่างดี

วัตถุประสงค์ที่ 2 เพื่อเปรียบเทียบสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ จำแนกตามเพศ

เพศมีสมรรถนะความเป็นครูของนักศึกษาวิชาชีพครู มหาวิทยาลัยหาดใหญ่ ไม่แตกต่างกันทั้งนี้อาจเป็นเพราะครูมีการมุ่งผลสัมฤทธิ์ในการปฏิบัติงาน การบริการที่ดี การพัฒนาตนเอง การทำงานเป็นทีม จริยธรรมและจรรยาบรรณวิชาชีพครู ประกอบกับครูมีภาวะผู้นำครู มีการสร้างความสัมพันธ์และความร่วมมือกับชุมชนเพื่อการจัดการเรียนรู้สอดคล้องกับ ปริชาติ โพธิ์ใบงาม (2558) วิจัยเรื่อง สมรรถนะด้านการพัฒนาผู้เรียนของครูโรงเรียนสังกัดเทศบาลนครปากเกร็ด จังหวัดนนทบุรี ผลการวิจัย พบว่าผลการเปรียบเทียบสมรรถนะด้านการพัฒนาผู้เรียนของครูโรงเรียนสังกัดเทศบาลนครปากเกร็ด จังหวัดนนทบุรี จำแนกตามเพศ ปรากฏผล ดังนี้ ครูโรงเรียนสังกัดเทศบาลนครปากเกร็ด จังหวัดนนทบุรี ที่มีเพศต่างกันมีความคิดเห็นเกี่ยวกับสมรรถนะด้านการพัฒนาผู้เรียนของครู โรงเรียนสังกัดเทศบาลนครปากเกร็ด จังหวัดนนทบุรี โดยรวมและรายด้านไม่แตกต่างกันสอดคล้องกับงานวิจัยของ วิไลวรรณ มาลัย (2562) ได้วิจัยเรื่อง สมรรถนะหลักตามเกณฑ์ตัวบ่งชี้สมรรถนะครู สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุพรรณบุรี เขต 3 ผลการวิจัยพบว่า ผลเปรียบเทียบสมรรถนะหลักตามเกณฑ์ตัวบ่งชี้สมรรถนะครู สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุพรรณบุรี เขต 3 ผู้บริหารสถานศึกษาและครูที่มีเพศและตำแหน่งต่างกัน มีความคิดเห็นต่อสมรรถนะหลักตามเกณฑ์ตัวบ่งชี้สมรรถนะครูไม่แตกต่างกัน และสอดคล้องกับแสงดาว คงนาวัง (2564) ได้วิจัยเรื่อง สมรรถนะความเป็นครูของนักศึกษาหลักสูตรประกาศนียบัตรบัณฑิตวิชาชีพครู มหาวิทยาลัยภาคตะวันออกเฉียงเหนือ ผลการวิจัยพบว่า ผลการเปรียบเทียบสมรรถนะความเป็นครูของนักศึกษาหลักสูตรประกาศนียบัตรบัณฑิตวิชาชีพครู จำแนกตามเพศ โดยภาพรวมและรายด้านไม่แตกต่างกัน

เอกสารอ้างอิง

กานต์ อัมพานนท์. (2558). การสร้างเสริมศักยภาพและสมรรถนะของครูในการสอนคิดวิเคราะห์. เพชรบูรณ์: คณะครุศาสตร์ มหาวิทยาลัยราชภัฏเพชรบูรณ์.

ธีรวุฒิ เอกะกุล.(2543). ระเบียบวิธีวิจัยทางพฤติกรรมศาสตร์และสังคมศาสตร์. อุบลราชธานี: สถาบันราชภัฏอุบลราชธานี.

บุญฤดี อุดมผล. (2563). รูปแบบการเสริมสร้างสมรรถนะความเป็นครูเชิงพุทธบูรณาการของนักศึกษาคณะครุศาสตร์มหาวิทยาลัยราชภัฏ. วารสารการวิจัยการบริหารการพัฒนา ปีที่ 10 ฉบับที่ 2 (เมษายน - มิถุนายน 2563)

บุญเรียง ขจรศิลป์. (2536). สถิติวิจัย 1. กรุงเทพฯ: ฟิสิกส์เซ็นเตอร์การพิมพ์.

ปรัตถจริยา กิตดา และเลี้ยววาริณ อุบล. (2558). ผลของการใช้ชุดฝึกอบรมการบริหารจิตตามแนวพุทธเพื่อเสริมสร้างจิตลักษณะทางพุทธและลักษณะทางพุทธของนักศึกษาระดับอุดมศึกษา. วารสารปัญญาภิวัฒน์, 7(2) : 207.

พงษ์ศักดิ์ ด้วงทา. (2558). สมรรถนะวิชาชีพครูโรงเรียนเอกชน ในสังกัดสำนักงานเขตพื้นที่การศึกษาพิษณุโลก เขต 1. Veridian E-Journal, Silpakorn University, ฉบับภาษาไทยสาขามนุษยศาสตร์ สังคมศาสตร์และศิลปะ, 8 (3) เดือนกันยายน – ธันวาคม: 905-918.

ไพฑูรย์ สินลารัตน์. (2559). การศึกษา 4.0 เราต้องแปลงกับดักให้เป็นความหวังดี. การศึกษา 4.0 เป็นยิ่งกว่าการศึกษา. กรงเทพฯ : โรงพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

ล้วน สายยศ และอังคณา สายยศ. (2540). สถิติวิทยาทางการวิจัย. กรุงเทพฯ : สุวีริยาสาส์น.

วารี ถิระจิตร. (2541). การศึกษาสำหรับเด็กพิเศษ. (พิมพ์ครั้งที่ 2). กรุงเทพฯ. โรงพิมพ์จุฬาลงกรณ์มหาวิทยาลัย.

วิไลวรรณ มาลัย. (2562). สมรรถนะหลักตามเกณฑ์ตัวบ่งชี้สมรรถนะครูสังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาสุพรรณบุรี เขต 3. บัณฑิตศึกษาปริทรรศน์ วิทยาลัยสงฆ์นครสวรรค์ ปีที่ 7 ฉบับที่ 2 พฤษภาคม - สิงหาคม 2562:109-118

สุรีรัตน์ อารีรักษ์สกุล ก้องโลก. (2563). การพัฒนาสมรรถนะการจัดการเรียนรู้ของครูคณิตศาสตร์โดยใช้การพัฒนาบทเรียนร่วมกันในโรงเรียนประถมศึกษาจังหวัดนนทบุรี. วารสารศึกษาศาสตร์ มสธ., 13 (1), 175-190.

สำนักงานข้าราชการครูและบุคลากรทางการศึกษา. (2548). มาตรฐานตำแหน่งและมาตรฐานวิทยฐานะของข้าราชการ ครูและบุคลากรทางการศึกษา. หนังสือเวียนที่ ศธ 0206.3/ ว.17 วันที่ 21 ตุลาคม 2548

สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน. (2561). แนวทางการดำเนินงานโครงการพัฒนาครู รูปแบบครบวงจร ประจำปีงบประมาณ 2561. กรุงเทพฯ: สำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน.

สำนักงานคณะกรรมการข้าราชการพลเรือน. (2548). การปรับใช้สมรรถนะในการบริหารทรัพยากรมนุษย์.เอกสารประกอบการสัมมนา เรื่อง สมรรถนะของข้าราชการ. กรุงเทพ: สำนักงานคณะกรรมการข้าราชการพลเรือน.

สำนักงานคณะกรรมการข้าราชการพลเรือน. (2553). คู่มือการพัฒนาข้าราชการตามสมรรถนะหลัก (Core Competencies). กรุงเทพฯ: แอร์บอร์น พรินต์ จำกัด.

สำนักงานเลขาธิการคุรุสภา. (2549). พระราชบัญญัติการศึกษาแห่งชาติ พ.ศ. 2542 และพระราชบัญญัติสภาครูและบุคลากรทางการศึกษา พ.ศ. 2546. กรุงเทพฯ: สำนักงานเลขาธิการคุรุสภา

สำนักงานเลขาธิการสภาการศึกษา. (2560). แผนการศึกษาแห่งชาติ พ.ศ. 2560 – 2579 กรุงเทพฯ: พริกหวานกราฟฟิค จำกัด.

สำนักงานเลขาธิการสภาการศึกษา. (2562).แนวทางการพัฒนาสมรรถนะผู้เรียน ระดับการศึกษาพื้นฐาน. กรุงเทพฯ : สกศ.

แสงดาว คงนาวัง. (2564). สมรรถนะความเป็นครูของนักศึกษาหลักสูตรประกาศนียบัตรบัณฑิตวิชาชีพครูมหาวิทยาลัยภาคตะวันออกเฉียงเหนือ.วารสารพุทธปรัชญาวิวัฒน์ กรกฎาคม – ธันวาคม 2567:48-60

อภิภา ปรัชญพฤทธิ์. (2561). การพัฒนารูปแบบการผลิตครูเพื่อรองรับการศึกษายุค 4.0.กรุงเทพฯ: จุฬาลงกรณ์มหาวิทยาลัย.







(ระดับชาติ)

กลุ่มบริหารธุรกิจและการท่องเที่ยว

การพัฒนาต้นแบบพาณิชย์อิเล็กทรอนิกส์ของร้านค้าชุมชนบ้านพรุ อำเภอหาดใหญ่ จังหวัดสงขลา

Development of Electronic Commerce Prototype for Community Ban Phu Hatyai District, Songkhla Province

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อ 1) ศึกษาและออกแบบระบบต้นแบบพาณิชย์อิเล็กทรอนิกส์ของร้านค้าชุมชน บ้านพรุ อำเภอหาดใหญ่ จังหวัดสงขลา 2) เพื่อพัฒนาระบบต้นแบบพาณิชย์อิเล็กทรอนิกส์ของร้านค้าชุมชนบ้านพรุ อำเภอหาดใหญ่ จังหวัดสงขลา ให้เป็นที่รู้จักอย่างแพร่หลาย จากความต้องการของร้านค้าชุมชนบ้านพรุ เพื่อจัดทำเว็บไซต์จำหน่ายสินค้าออนไลน์ มีระบบการใช้งานแบ่งเป็น 2 ส่วน คือ ระบบหน้าร้านและระบบหลังร้าน ซึ่งใช้งานระบบประกอบด้วยผู้ใช้ 2 กลุ่ม คือ กลุ่มลูกค้าและกลุ่มผู้จำหน่าย ผลจากการประเมินจากผู้ใช้งานระบบ จำนวน 225 คน พบว่า ความพึงพอใจของผู้ใช้งานเว็บไซต์ระบบภาพรวมอยู่ในระดับดีมาก มีค่าเฉลี่ยเท่ากับ 4.25 เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านความสวยงาม ทันสมัย น่าสนใจของหน้าโฮมเพจอยู่ในระดับดีมาก มีค่าเท่ากับ 4.98 การจัดรูปแบบในเว็บไซต์ง่ายต่อการอ่านและใช้งานอยู่ในระดับมากที่สุด มีค่าเฉลี่ยเท่ากับ 4.76 สีสัน ในการออกแบบเว็บไซต์มีความเหมาะสมอยู่ในระดับปานกลาง มีค่าเฉลี่ยเท่ากับ 3.05 เมนูง่ายต่อการใช้งานอยู่ในระดับมาก มีค่าเฉลี่ยเท่ากับ 4.20 สีพื้นหลังกับสีตัวอักษร มีความเหมาะสมต่อการอ่านอยู่ในระดับมาก มีค่าเฉลี่ยเท่ากับ 4.16 ขนาดตัวอักษรและรูปแบบตัวอักษรอ่านได้ง่ายและสวยงามอยู่ในระดับมาก มีค่าเฉลี่ยเท่ากับ 3.69 และภาพรวมความพึงพอใจในการออกแบบเว็บไซต์อยู่ในระดับมากที่สุด มีค่าเฉลี่ยเท่ากับ 4.94 โดยทางกลุ่มได้นำระบบพาณิชย์อิเล็กทรอนิกส์ไปประยุกต์ใช้เพื่ออำนวยความสะดวกในการประชาสัมพันธ์ให้เป็นที่รู้จักในวงกว้างมากขึ้น และเพื่อเป็นแนวทางในการพัฒนาระบบพาณิชย์อิเล็กทรอนิกส์สำหรับกลุ่มอื่น ๆ ต่อไป

คำสำคัญ : เครื่องแกง, สมุนไพรบ้านไร่, ชุมชนบ้านพรุ, พาณิชย์อิเล็กทรอนิกส์, สงขลา

Abstract

This research aims to (1) study and design a prototype e-commerce system for community stores in Ban Phru, Hat Yai District, Songkhla Province, and (2) develop the prototype e-commerce system to enhance its recognition and accessibility. Based on the needs of the community stores in Ban Phru, an online sales website was developed, comprising two main components: the front-end system (storefront) and the back-end system (administrative panel). The system is designed for two user groups: customers and vendors. The evaluation results from 225 system users indicate an overall satisfaction level of "very high," with an average score of 4.25. When analyzed by specific aspects, the aesthetic appeal, modernity, and attractiveness of the homepage were rated as "very high," with an average score of 4.98. The website's layout was deemed "highly user-friendly" and "easy to read," receiving an average score of 4.76. The color scheme used in the website design was rated as "moderate," with an average score of 3.05. The ease of use of the menu system was rated "high," with an average score of 4.20. The appropriateness of the background color in relation to the text color for readability was rated "high," with an average score of 4.16. The font size and style were considered "easy to read and visually appealing," receiving an average score of 3.69. Overall, user satisfaction with the website design was rated at the "highest level," with an average score of 4.94. The developed e-commerce system has been implemented to facilitate the promotion and public recognition of community stores on a broader scale. Additionally, it serves as a model for further development of e-commerce systems for other community groups in the future.

Keywords: curry paste, Ban Rai herbs, Ban Phru community, E-commerce, Songkhla

บทนำ

แนวโน้มการค้าโลกได้เข้าสู่ระบบออนไลน์และเติบโตอย่างต่อเนื่องทุกปี เทคโนโลยีและอินเทอร์เน็ตเป็นสิ่งสำคัญที่ผู้ประกอบการจะต้องทำความเข้าใจและนำมาใช้ให้เกิดประโยชน์สูงสุด ปัจจุบันการซื้อขายสินค้าทางออนไลน์เป็นที่นิยมและแพร่หลายอย่างมาก (คณิดา ไกรสันติ, ฐานันท์ ตั้งรุจิกุล, พาฝัน รัตนะ และบุญรัตน์ บุญรัศมี, 2566) ช่วยให้ผู้ซื้อสามารถเลือกซื้อสินค้าได้ตลอด 24 ชั่วโมง โดยไม่ต้องการเดินทางไปยังร้านค้าจริง และยังสามารถเลือกช่องทางการชำระเงินที่สะดวกสำหรับตนเองได้อีกด้วย ช่วยประหยัดเวลาและค่าใช้จ่าย ลดเวลาในการเดินทางในยังร้านค้า และการค้นหาสินค้าทำให้ผู้ซื้อประหยัดเวลาได้มากขึ้น รวมถึงผู้ซื้อสามารถเปรียบเทียบราคาและคุณภาพของสินค้าได้อย่างสะดวก อย่างไรก็ตามระบบพาณิชย์อิเล็กทรอนิกส์ (E-commerce) ช่วยให้ผู้ประกอบการสามารถเพิ่มศักยภาพการขาย ความน่าเชื่อถือในการซื้อสินค้าด้วยการให้คำแนะนำและรีวิวจากลูกค้าที่เคยซื้อสินค้าไปก่อนหน้านี้ได้ (อดิศร โกษาจันทร์, เกษสุภัค เนตรสุวรรณ, อิทธิชัย อินลุเพท, และจิตราภา คนฉลาด, 2566)

แนวโน้มของระบบพาณิชย์อิเล็กทรอนิกส์ (E-commerce) ไม่ได้ส่งผลเฉพาะกับตลาดโลกหรือธุรกิจขนาดใหญ่เท่านั้น แต่ยังเริ่มมีบทบาทอย่างมากในระดับ “วิสาหกิจชุมชน” ซึ่งเป็นกลไกสำคัญในการสร้างงาน สร้างรายได้ และกระจายรายได้สู่ท้องถิ่น ข้อมูลจากกรมพัฒนาชุมชนระบุว่า ปัจจุบันมีวิสาหกิจชุมชนที่จดทะเบียนแล้วกว่า 80,000 กลุ่มทั่วประเทศ แต่มีไม่ถึง 30% ที่สามารถเข้าถึงตลาดออนไลน์ได้อย่างมีประสิทธิภาพ สาเหตุหลักเกิดจากข้อจำกัดด้านทักษะดิจิทัล การขาดช่องทางการขาย และการขาดองค์ความรู้ด้านการตลาดออนไลน์ จากการศึกษาศักยภาพของกลุ่มแม่บ้านเกษตรกรบ้านพรุ หมู่ที่ 10 ตำบลบ้านพรุ อำเภอหาดใหญ่ จังหวัดสงขลา พบว่า ทางกลุ่มมีปัญหาทางด้านช่องทางการจัดจำหน่ายสินค้า และการโฆษณาประชาสัมพันธ์สินค้า แม้กลุ่มมีผลิตภัณฑ์เครื่องแกงสมุนไพรที่มีคุณภาพ แต่การขาดการเข้าถึงตลาดดิจิทัลทำให้ศักยภาพการขายยังไม่สามารถเติบโตได้อย่างเต็มที่ ดังนั้น การพัฒนาระบบเว็บไซต์ จึงเป็นแนวทางสำคัญที่จะช่วยเพิ่มช่องทางการจัดจำหน่าย เข้าถึงกลุ่มลูกค้าใหม่ ๆ และสร้างโอกาสในการเติบโตอย่างยั่งยืนให้กับกลุ่มแม่บ้าน โดยระบบเว็บไซต์ที่พัฒนาขึ้นจะมีข้อมูลสินค้าอย่างครบถ้วน รองรับการชำระเงินออนไลน์ และสามารถเชื่อมต่อกับสื่อสังคมออนไลน์ต่าง ๆ ได้ เพื่อให้เกิดการประชาสัมพันธ์อย่างมีประสิทธิภาพ เพิ่มโอกาสในการขยายตลาดจากระดับชุมชนสู่ระดับภูมิภาคหรือระดับประเทศได้ในอนาคต

การผลิตเครื่องแกงสมุนไพรกลุ่มแม่บ้านเกษตรกรบ้านพรุ ของหมู่ที่ 10 ตำบลบ้านพรุ อำเภอหาดใหญ่ จังหวัดสงขลา โดยมีนางอารีย์ ห่อเพชร เป็นประธานกลุ่ม กลุ่มแม่บ้านเกษตรกรบ้านพรุเครื่องแกงสมุนไพร กล่าวว่าหากจะพัฒนาให้ธุรกิจเครื่องแกงปักษ์ใต้ประสบความสำเร็จจำเป็นต้องส่งเสริมและพัฒนาผู้ที่เกี่ยวข้องตลอดห่วงโซ่คุณค่าตั้งแต่เกษตรกร ผู้รวบรวมวัตถุดิบ ผู้ผลิตเครื่องแกง ผู้กระจายสินค้า และช่องทางการจัดจำหน่ายหรือตลาด จนกระทั่งผลิตภัณฑ์ถูกส่งถึงมือผู้บริโภค โดยมีวัตถุประสงค์เพื่อเพิ่มและกระจายรายได้ให้กับชุมชน และเพื่อผลิตวัตถุดิบปลอดภัยให้แก่กลุ่มเครื่องแกง

จากการศึกษาศักยภาพการจัดการกลุ่มแม่บ้านเกษตรกรบ้านพรุ ของหมู่ที่ 10 ตำบลบ้านพรุ อำเภอหาดใหญ่ จังหวัดสงขลา พบว่าทางกลุ่มแม่บ้านมีปัญหาทางด้านช่องทางการจัดจำหน่ายสินค้า และการโฆษณาประชาสัมพันธ์สินค้า ภาครัฐความให้การส่งเสริมด้านการตลาดโดยอาจจะสนับสนุนในส่วนของการออกแบบผลิตภัณฑ์หรือบรรจุภัณฑ์ที่ทันสมัยมากยิ่งขึ้น ซึ่งเป็นการเพิ่มมูลค่าให้กับสินค้าและที่สำคัญเป็นการเพิ่มช่องทางการจัดจำหน่ายสินค้าได้มากยิ่งขึ้น รวมถึงการโฆษณาและการประชาสัมพันธ์สินค้าให้เป็นที่รู้จักผ่านสื่อต่าง ๆ ซึ่งในอนาคตการส่งเสริมการขายสินค้าผ่านระบบพาณิชย์อิเล็กทรอนิกส์เป็นการส่งเสริมการตลาดที่จะเพิ่มยอดขายจากการสั่งซื้อทางออนไลน์ได้อีกหนึ่งช่องทาง

จากปัญหาการจัดการดังกล่าว คณะผู้จัดทำจึงคิดที่จะพัฒนาระบบเว็บไซต์มาเพื่อพัฒนาและปรับปรุง ผลิตภัณฑ์เครื่องแกงสมุนไพรกลุ่มแม่บ้านเกษตรกรบ้านพรุ เพื่อแก้ปัญหาดังกล่าว และอำนวยความสะดวกการซื้อขายให้กับลูกค้า ซึ่งในระบบที่พัฒนาขึ้นจะมีข้อมูลสินค้า รายละเอียดสินค้าอย่างครบถ้วนเพื่อเพิ่มการตัดสินใจให้แก่ลูกค้าได้

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาและออกแบบระบบต้นแบบพาณิชย์อิเล็กทรอนิกส์ของร้านค้าชุมชนบ้านพรุ อำเภอหาดใหญ่ จังหวัดสงขลา
2. เพื่อพัฒนาระบบต้นแบบพาณิชย์อิเล็กทรอนิกส์ของร้านค้าชุมชนบ้านพรุ อำเภอหาดใหญ่ จังหวัดสงขลา

แนวคิด ทฤษฎี กรอบแนวคิด

1. พาณิชย์อิเล็กทรอนิกส์ (E-Commerce)

พาณิชย์อิเล็กทรอนิกส์ (E-Commerce) คือ การดำเนินธุรกิจโดยใช้สื่ออิเล็กทรอนิกส์ เพื่อให้บรรลุเป้าหมายทางธุรกิจที่องค์กรได้วางไว้ เช่น การซื้อขายสินค้า และบริการ การโฆษณาผ่านสื่ออิเล็กทรอนิกส์ ไม่ว่าจะเป็นโทรศัพท์ วิทยุ หรือแม้แต่อินเทอร์เน็ต เป็นต้น โดยมีวัตถุประสงค์เพื่อลดค่าใช้จ่าย และเพิ่มประสิทธิภาพขององค์กร โดยการลดบทบาทองค์ประกอบทางธุรกิจลง เช่น ทำเลที่ตั้ง อาคารประกอบการ โกดังเก็บสินค้า ห้องแสดงสินค้า รวมถึงพนักงานขาย พนักงานแนะนำสินค้า พนักงานต้อนรับลูกค้า เป็นต้น อีกทั้งยังช่วยลดข้อจำกัดของระยะทางและเวลาลงได้ (สิรินณา ชมชื่น, และรัตนา ลีรุ่งนาวารัตน์, 2562)

ประโยชน์ของพาณิชย์อิเล็กทรอนิกส์ (E-Commerce)

เพ็ญนฤมล จะระ (2554) กล่าวว่า ปัจจุบันพาณิชย์อิเล็กทรอนิกส์เป็นธุรกิจที่น่าจับตามองมีตัวเลขการเติบโตต่อเนื่องทุกปี เพราะการทำธุรกิจประเภทนี้มีประโยชน์มากมาย ดังนี้

1) ทำการค้าได้ตลอด 24 ชั่วโมง และขายสินค้าได้ทั่วโลก นักท่องอินเตอร์เน็ตจากทั่วทุกมุมโลกสามารถเข้ามาในเว็บไซต์ของบริษัทได้ตลอดเวลาผู้ขายสามารถนำเสนอสินค้า ผลิตภัณฑ์ และบริการต่าง ๆ ได้อย่างรวดเร็ว

2) ข้อมูลทันสมัยอยู่เสมอ และประหยัดค่าใช้จ่าย พาณิชย์อิเล็กทรอนิกส์ นั้นมีประโยชน์ที่สำคัญมากอีกประการหนึ่ง คือ สามารถเสนอข้อมูลที่ใหม่ล่าสุดให้กับลูกค้าได้ทันทีซึ่งช่วยประหยัดค่าใช้จ่ายในการจัดพิมพ์เอกสารและประหยัดเวลาในการประชาสัมพันธ์

3) แทนหน้าร้าน หรือบูทแสดงสินค้า พาณิชย์อิเล็กทรอนิกส์สามารถแสดงสินค้าที่มีอยู่ให้กับลูกค้าทั่วโลกได้มองเห็นสินค้าของคุณ โดยไม่ต้องเสียค่าใช้จ่ายตกแต่งหน้าร้าน หรือในการเดินทางออกไปในบูทแสดงสินค้าในที่ต่างๆ

4) เทคโนโลยีช่วยส่งเสริมผลิตภัณฑ์ให้น่าสนใจยิ่งขึ้น ปัจจุบันมีเทคโนโลยีใหม่ๆ มาช่วยในการทำให้ผลิตภัณฑ์มีความน่าสนใจยิ่งขึ้น เช่น การแสดงสินค้าโดยผู้ชมสามารถดูสินค้าได้ 180 องศา หรือลูกค้าสามารถอ่านหัวข้อของหนังสือที่ต้องการซื้อก่อนได้

5) ง่ายต่อการชำระเงิน พาณิชย์อิเล็กทรอนิกส์สามารถชำระเงินได้อย่างสะดวกสบายโดยวิธีการตัดผ่านบัตรเครดิตหรือการโอนเงินเข้าบัญชีซึ่งจะเป็นระบบอัตโนมัติ

6) สร้างความประทับใจและพึงพอใจได้มากกว่า ปัจจุบันการสั่งซื้อสินค้าผ่านทางอินเทอร์เน็ตทำได้อย่างง่ายดาย สินค้าและบริการมีให้เลือกมากมายทำให้ไม่ต้องเสียเวลาในการเดินทางและเสียเวลาไปกับการค้นหาสินค้าและบริการที่ต้องการลูกค้าสามารถค้าหาสินค้าที่ต้องการได้อย่างรวดเร็ว

7) รู้และแก้ปัญหาต่าง ๆ ได้ทันท่วงที พาณิชย์อิเล็กทรอนิกส์สามารถให้บริการหลังการขายได้เช่นกันโดยใช้ประโยชน์จากอีเมล์ในการติดต่อลูกค้า การสร้างแบบสอบถามลูกค้าเพื่อสอบถามความพึงพอใจต่อสินค้าและบริการทำให้ร้านค้าสามารถนำข้อมูลเหล่านี้มาแก้ปัญหาและตอบสนองความต้องการของลูกค้าได้ดียิ่งขึ้น

กระบวนการทางพาณิชย์อิเล็กทรอนิกส์ (E-Commerce)

ณัฐนรี ดิษฐาน (2565) ได้ทำการศึกษากระบวนการพาณิชย์อิเล็กทรอนิกส์แบ่งออกเป็น 4 ประเด็นที่แตกต่างออกไป ประกอบด้วย

1. ระบบการขายและการตลาด ผู้บริโภคสามารถหาข้อมูลของสินค้าได้จากหลาย ๆ ช่องทาง จึงทำให้ผู้ประกอบการหรือผู้ขายจะต้องมีการทำการตลาดเพื่อให้ผู้บริโภคสามารถเข้าถึงข้อมูลต่าง ๆ ได้ สร้างการรับรู้ของผู้บริโภค สร้างช่องทางในการเข้าถึงผู้บริโภคมากกว่าเดิม รวมถึงการโฆษณาผ่านสื่อออนไลน์ เพื่อที่จะส่งผลให้ผู้ประกอบการสามารถทราบความต้องการที่แท้จริงของผู้บริโภคได้

2. ระบบเว็บไซต์ แบ่งออกเป็น 2 ส่วน ได้แก่ เว็บไซต์ของผู้ประกอบการโดยตรง หมายถึง เว็บไซต์ที่สร้างขึ้นเพื่อผู้ประกอบการนั้น ๆ อาจมีการจำหน่ายสินค้าแบรนด์เดียวหรือหลากหลายแบรนด์ขึ้นอยู่กับผู้ประกอบการ อีกส่วนหนึ่ง คือ เว็บไซต์ที่จำหน่ายสินค้าออนไลน์รวมจะเป็นเว็บไซต์ที่เป็นแหล่งรวมของผู้ประกอบการพาณิชย์อิเล็กทรอนิกส์หลาย ๆ รายมารวมกันที่มีความต้องการจำหน่ายสินค้าหรือบริการ โดยแบ่งกลุ่มสินค้าที่ชัดเจน โดยลูกค้าจะมีการสั่งซื้อสินค้าจากเว็บไซต์ที่กล่าวถึง

3. ระบบชำระเงินของผู้ประกอบการแต่ละรายแตกต่างกัน โดยผู้ประกอบการรายใหญ่จะมีระบบการชำระเงินที่มีมาตรฐาน (Payment Gateway) ได้แก่ การชำระเงินผ่านบัตรเครดิต มีการบันทึกรายการแต่ละรายการและผู้ประกอบการสามารถตรวจสอบการชำระเงินได้ทันที ซึ่งแตกต่างกับผู้ประกอบการรายย่อย ที่ลูกค้าสามารถใช้ช่องทางการโอนเงินผ่านธนาคารบนโทรศัพท์ของลูกค้าด้วยตนเองได้ แล้วจึงค่อยส่งรายละเอียดและหลักฐานการชำระเงินให้ผู้ประกอบการ ก่อนที่ผู้ประกอบการจะนำส่งสินค้า ส่วนของลูกค้ามีบริการการชำระเงินปลายทาง (Cash on Delivery - COD) เหมาะสำหรับผู้บริโภคที่ยังไม่มั่นใจในการชำระเงินออนไลน์ ลูกค้าชำระเงินกับพนักงานจัดส่งเมื่อได้รับสินค้า ซึ่งร่วมมือกับบริษัทขนส่ง Kerry, Flash ,ไปรษณีย์ไทย ข้อดี: เพิ่มความมั่นใจให้ลูกค้าใหม่

4. ระบบขนส่ง เป็นขั้นตอนที่เกิดหลังจากที่ผู้ประกอบการได้รับการแจ้งยืนยันหลักฐานการชำระเงินจากลูกค้าหรือผู้บริโภคเป็นที่เรียบร้อยแล้ว ซึ่งผู้ประกอบการจะต้องทำการบรรจุหีบห่อให้กับผลิตภัณฑ์ของตน แล้วจึงทำการจัดส่งให้กับผู้บริโภคผ่านทางบริษัทขนส่งทั้งของรัฐและเอกชน เช่น ไปรษณีย์ไทย เมื่อผู้ประกอบการทำการจัดส่งสินค้าเป็นที่เรียบร้อยแล้ว จึงทำการแจ้งรายละเอียดรวมถึงรหัสการขนส่งเพื่อให้ลูกค้าสะดวกในการติดตามขั้นตอนการส่งสินค้าของบริษัทขนส่ง ซึ่งหากระบบขนส่งมีการจัดระบบที่ดี จะส่งผลให้ผู้บริโภคได้รับสินค้าได้ครบถ้วน ไม่เสียหาย และรวดเร็ว ดังนั้น ระบบขนส่งจึงจำเป็นต่อการจัดจำหน่ายสินค้าผ่านช่องทางออนไลน์หรือพาณิชย์อิเล็กทรอนิกส์ในปัจจุบันและมีการแข่งขันเพิ่มมากขึ้นจากการขยายตัวของอุตสาหกรรมภาคขนส่ง โดยเฉพาะบริษัทเอกชนที่เข้าสู่อุตสาหกรรมมากขึ้น ทั้ง Kerry Express หรือแม้แต่ DHK และ SCG จึงส่งผลดีกับผู้ประกอบการเกี่ยวกับการลดลงของราคาในการขนส่งสินค้าหรือผลิตภัณฑ์สู่มือผู้บริโภค

โปรแกรมที่ใช้ในการพัฒนา

1. เครื่องมือในการสร้างเว็บ WordPress

Suwadeemanop, W., Tinkratok, S., & Sooknit, U. (2024) ได้ศึกษาโปรแกรม WordPress หรือ เว็บไซต์เป็นสื่อที่อยู่ในความควบคุมของผู้ใช้โดยสมบูรณ์ กล่าวคือ ผู้ใช้สามารถตัดสินใจเลือกได้ว่าจะดูเว็บไซต์ใดและจะไม่เลือกดูเว็บไซต์ใด ได้ตามต้องการ จึงทำให้ผู้ใช้ไม่มีความอดทนต่ออุปสรรคและปัญหาที่เกิดจากการออกแบบเว็บไซต์ผิดพลาดถ้าผู้ใช้เห็นว่าเว็บที่กำลังดูอยู่นั้นไม่มีประโยชน์ต่อตัวเขาหรือไม่เข้าใจว่าเว็บไซต์นี้จะใช้งานอย่างไร ก็สามารถที่จะเปลี่ยนไปดูเว็บไซต์อื่นๆ ได้อย่างรวดเร็ว เนื่องจากในปัจจุบันมีเว็บไซต์อยู่มากมาย และยังมีเว็บไซต์ที่เกิดขึ้นใหม่ ๆ ทุกวัน ผู้ใช้จึงมีทางเลือกมากขึ้นและสามารถเปรียบเทียบคุณภาพของเว็บไซด์ต่าง ๆ ได้เองเว็บไซต์ มีการใช้งานที่สะดวก ย่อมได้รับความสนใจจากผู้ใช้มากกว่าเว็บไซด์ที่ดูสับสน วุ่นวาย มีข้อมูลมากมายแต่หาอะไรไม่เจอ นอกจากนี้ยังใช้เวลาใน

การแสดงผลแต่ละหน้านานเกินไป ซึ่งปัญหาเหล่านี้ล้วนเป็นผลมาจากการออกแบบเว็บไซต์ไม่ดีทั้งสิ้น ดังนั้น การออกแบบเว็บไซต์จึงเป็นกระบวนการสำคัญในการสร้างเว็บไซต์ ให้ประทับใจ ผู้ใช้ ทำให้เขาอยากกลับเข้ามาเว็บไซต์เดิมอีกในอนาคต ซึ่งนอกจากต้องพัฒนาเว็บไซต์ที่ดีมีประโยชน์แล้ว ยังต้องคำนึงถึงการแข่งขันกับเว็บไซต์อื่น ๆ อีกด้วย

2. โดเมนเนม (Domain Name)

โดเมนเนม หรือ ชื่อโดเมน เป็นชื่อที่ตั้งขึ้นเพื่อให้ง่ายต่อการจดจำ เนื่องจากไอพีแอดเดรสนั้นจดจำได้ยากกว่า และเมื่อการเปลี่ยนแปลงไอพีแอดเดรส ผู้ใช้ไม่จำเป็นต้องรับรู้หรือจดจำไอพีแอดเดรสใหม่ ยังคงใช้โดเมนเนมเดิมได้ต่อไปอักขระที่จะใช้ในการตั้งชื่อโดเมนเนม ได้แก่ ตัวอักษรภาษาอังกฤษ ตัวเลข และ (ยัติภังค์) คั่นด้วย (มหัพภาค) โดยปกติจะขึ้นต้นด้วยตัวอักษรและลงท้ายด้วยตัวอักษรหรือตัวเลข มีความยาวตั้งแต่ 1 ถึง 63 ตัวอักษร ตัวอักษรตัวใหญ่ A - Z หรือตัวอักษรตัวเล็ก ถือว่าเหมือนกัน

3. เว็บโฮสติ้ง (Web Hosting)

เป็นบริการให้เช่าพื้นที่ในการนำเว็บไซต์มาฝากเพื่อให้เว็บไซต์สามารถออนไลน์บนอินเตอร์เน็ตได้ โดยเป็นการให้บริการแบบเบ็ดเสร็จ คือ ผู้ใช้บริการไม่ต้องยุ่งยากกับระบบเว็บเซิร์ฟเวอร์ เพราะทางผู้ให้บริการ Web Hosting จะเตรียมการทุกอย่างไว้ให้เรียบร้อย แต่ต้องทำการจดโดเมนก่อนจึงจะมาเช่า Web Hosting เพื่อเก็บเว็บไซต์

4. กระบวนการสร้างต้นแบบ (Prototyping Process)

การสร้างต้นแบบจะไม่พัฒนาทั้งระบบทีเดียวทั้งหมด แต่จะพัฒนาโดยใช้ต้นแบบซึ่งประกอบด้วยส่วนต่างๆ ของระบบใหม่แต่จำลองให้มีขนาดเล็กเพื่อให้ผู้ใช้ได้ทดลองใช้ก่อน และให้ข้อเสนอแนะเพื่อใช้ในการปรับปรุงต้นแบบนี้ให้เหมาะสมต่อไป กระบวนการนี้จะปฏิบัติการซ้ำ ๆ จนกระทั่งผู้ใช้ยอมรับระบบ จึงจะนำต้นแบบนั้นไปพัฒนาให้เต็มรูปแบบต่อไป

ขั้นตอนของวิธีการสร้างต้นแบบ มี 4 ขั้นตอนดังนี้

1. กำหนดความต้องการ เป็นการหาความต้องการพื้นฐานของผู้ใช้ระบบ นักออกแบบระบบจะต้องมีเวลาเพียงพอในการศึกษาหาความต้องการด้านสารสนเทศพื้นฐานของผู้ใช้

2. ออกแบบต้นแบบ นักพัฒนาระบบสามารถใช้เครื่องมือในการพัฒนาต้นแบบออกแบบระบบเพื่อให้เกิดความรวดเร็ว

3. นำต้นแบบไปใช้ ผู้ใช้จะนำต้นแบบไปทดลองใช้ว่าสามารถตอบสนองความต้องการของผู้ใช้เพียงใด โดยผู้ใช้สามารถให้ข้อคิดเห็นเกี่ยวกับปัญหาหรือข้อแนะนำในการปรับปรุงต้นแบบได้

4. การปรับแต่งต้นแบบ เป็นการนำความเห็นของผู้ใช้มาปรับปรุงต้นแบบให้มีประสิทธิภาพมากขึ้น ขั้นตอนนี้จะเกิดซ้ำไปซ้ำมาจนกระทั่งผู้ใช้เกิดความพอใจ แล้วจึงจะสามารถนำต้นแบบไปใช้งานได้ (Operational Prototype)



ภาพที่ 1 กระบวนการสร้างต้นแบบ (Prototyping Process) เสกสรรค์ วิลุน (2553)

วิธีดำเนินการวิจัย

1. ศึกษาระบบการทำธุรกิจของร้านค้าชุมชนบ้านพรุ อำเภอหาดใหญ่ จังหวัดสงขลา
2. ศึกษาเทคโนโลยีพาณิชย์อิเล็กทรอนิกส์
3. ศึกษาเว็บไซต์สำเร็จรูป WordPress เพื่อสร้างเว็บเพจ
4. วิเคราะห์และออกแบบต้นแบบพาณิชย์อิเล็กทรอนิกส์ นำข้อมูลที่ได้จากการศึกษาค้นคว้าและจากแบบสอบถามมาวิเคราะห์ เพื่อออกแบบต้นแบบพาณิชย์อิเล็กทรอนิกส์

4.1 การออกแบบขั้นตอนทำงานของระบบ ดังภาพที่ 2 แสดงขั้นตอนการทำงานของระบบ (Use case diagram)

4.2 การออกแบบต้นแบบระบบพาณิชย์อิเล็กทรอนิกส์ ดังนี้

1. ระบบหน้าร้าน (Front-End) เป็นระบบที่แสดงรายละเอียดเกี่ยวกับสินค้าต่างๆ ภายในโดยส่วนนี้จะเกี่ยวข้องกับลูกค้า ซึ่งมีคุณสมบัติดังนี้

1) สามารถสั่งซื้อสินค้าได้
2) สามารถแสดงข้อมูลสินค้าที่สั่งซื้อได้
3) สามารถแสดงจำนวนการสั่งซื้อของสินค้าได้
4) สามารถแสดงที่อยู่ผู้สั่งซื้อสินค้า
5) สามารถแสดงการแก้ไขข้อมูลของผู้สั่งซื้อได้
6) สามารถตรวจสอบรายละเอียดการสั่งซื้อสินค้าได้
7) สามารถบันทึกรายละเอียดการขายสินค้าได้
8) สามารถแสดงข้อมูลการชำระเงิน
9) สามารถยกเลิกสินค้าที่สั่งได้
10) สามารถคำนวณการซื้อสินค้าได้

11) สามารถคำนวณการชำระเงินได้

12) สามารถคำนวณยอดรวมในการสั่งซื้อสินค้าของลูกค้า

2. ระบบหลังร้าน (Back-End) เป็นส่วนของการจัดการข้อมูลต่างๆ ภายในระบบ โดยส่วนนี้จะเกี่ยวข้องกับผู้ดูแลระบบ ซึ่งมีคุณสมบัติดังนี้

1) สามารถแสดงข้อมูลสินค้าและรายละเอียดแต่ละชนิด

2) สามารถตรวจสอบการสั่งซื้อของลูกค้าได้

3) สามารถมีการจัดการเพิ่ม-ลบแก้ไขสต็อกได้

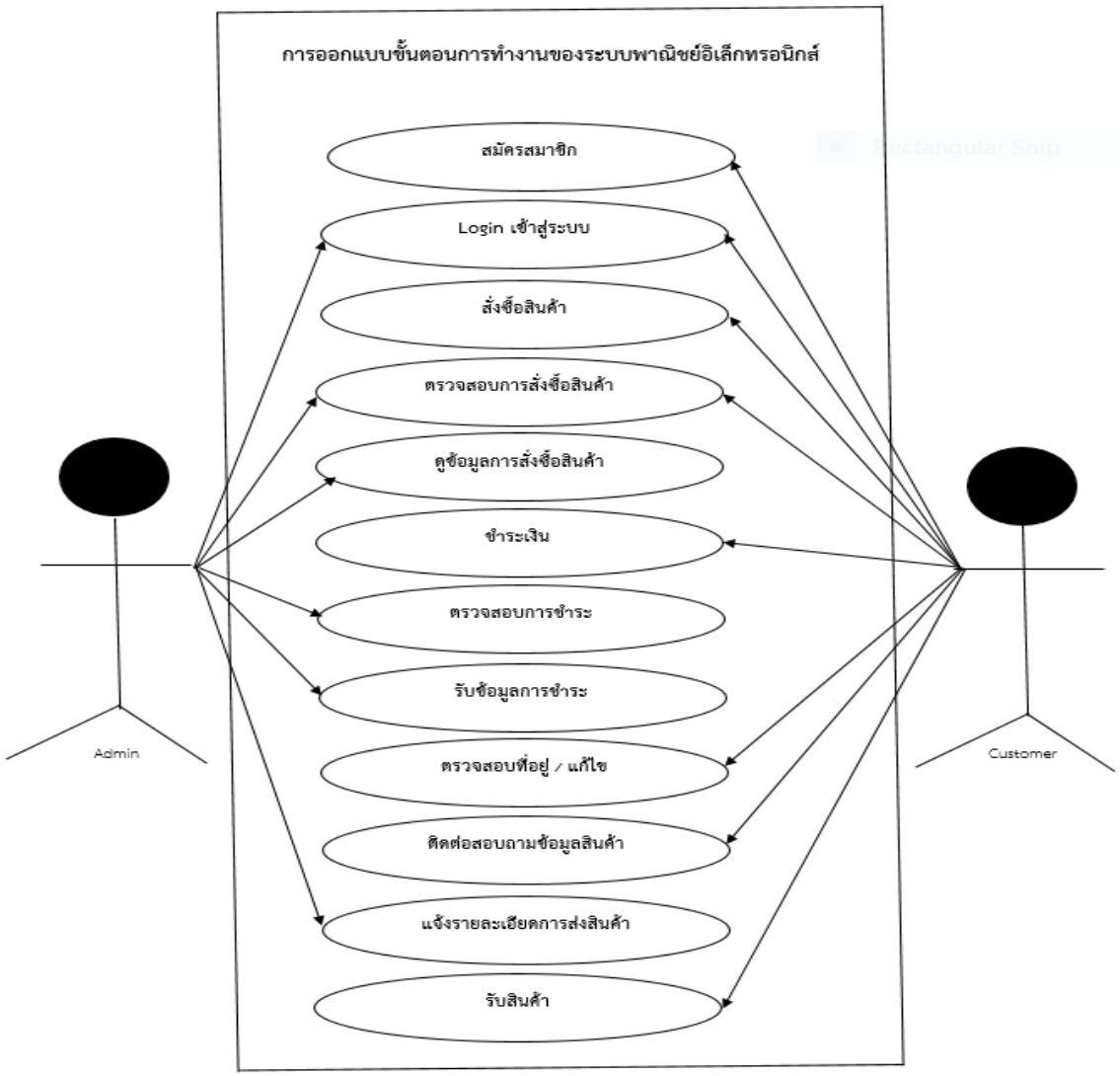
4) สามารถตรวจสอบการจัดส่งสินค้าได้

5) สามารถตรวจสอบการชำระเงินได้

5. สร้างและทดลองใช้งานต้นแบบระบบพาณิชย์อิเล็กทรอนิกส์

6. ประเมินผลและสรุปผลการประเมินการใช้งานต้นแบบระบบพาณิชย์อิเล็กทรอนิกส์

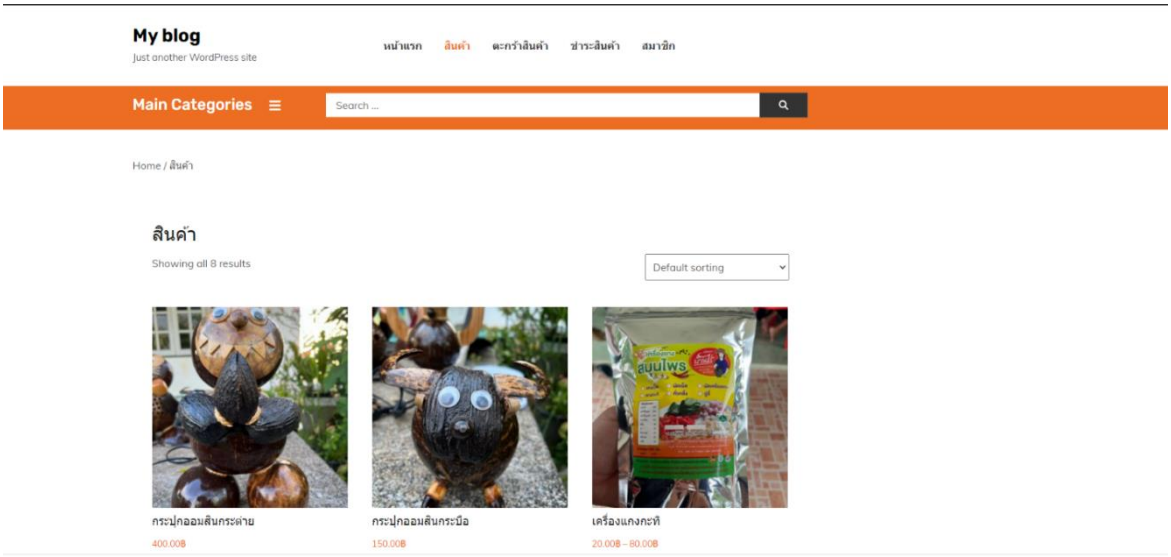
7. สรุปผลการดำเนินงานวิจัยและจัดทำรายงาน



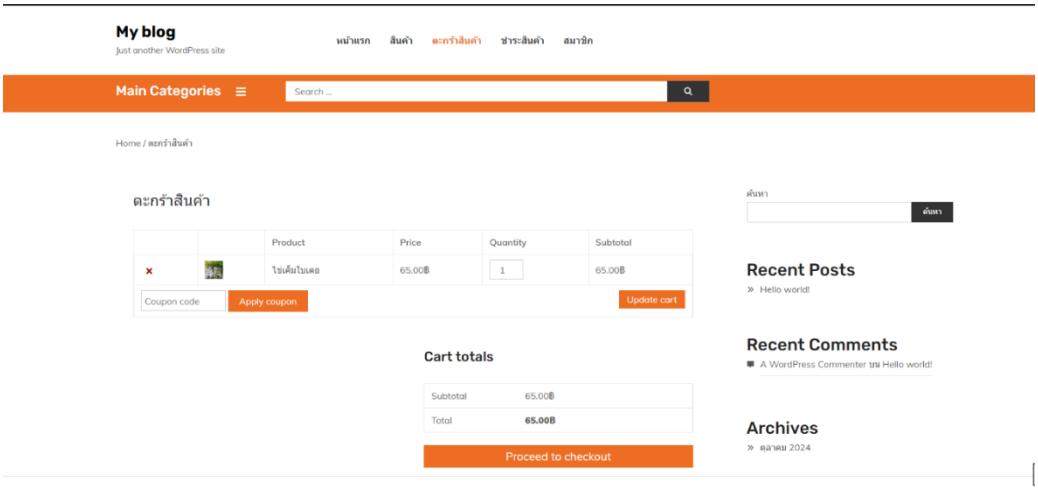
ภาพที่ 2 แสดงขั้นตอนการทำงานของระบบ (Use Case Diagram)

ผลการวิจัย

จากการพัฒนาต้นแบบพาณิชย์อิเล็กทรอนิกส์สำหรับร้านค้าชุมชนบ้านพรุ อำเภอหาดใหญ่ จังหวัดสงขลา มีการออกแบบและพัฒนาระบบพาณิชย์อิเล็กทรอนิกส์ ดังภาพที่ 3 แสดงหน้าหลักของเว็บไซต์ ซึ่งในส่วนของหน้าหลัก จะแสดงเมนูหลัก เช่น สินค้าทั้งหมด วิธีการสั่งซื้อสินค้า การชำระเงิน และสมาชิก สำหรับในส่วนของระบบตะกร้าสินค้าและการชำระเงิน เมื่อลูกค้าเลือกสินค้าและทำการยืนยันการสั่งซื้อ ระบบก็จะให้ทำการกรอกข้อมูลสำหรับการจัดส่งสินค้า ดังภาพที่ 4 แสดงหน้าตะกร้าสินค้าเพื่อตรวจสอบสินค้าที่สั่งซื้อ

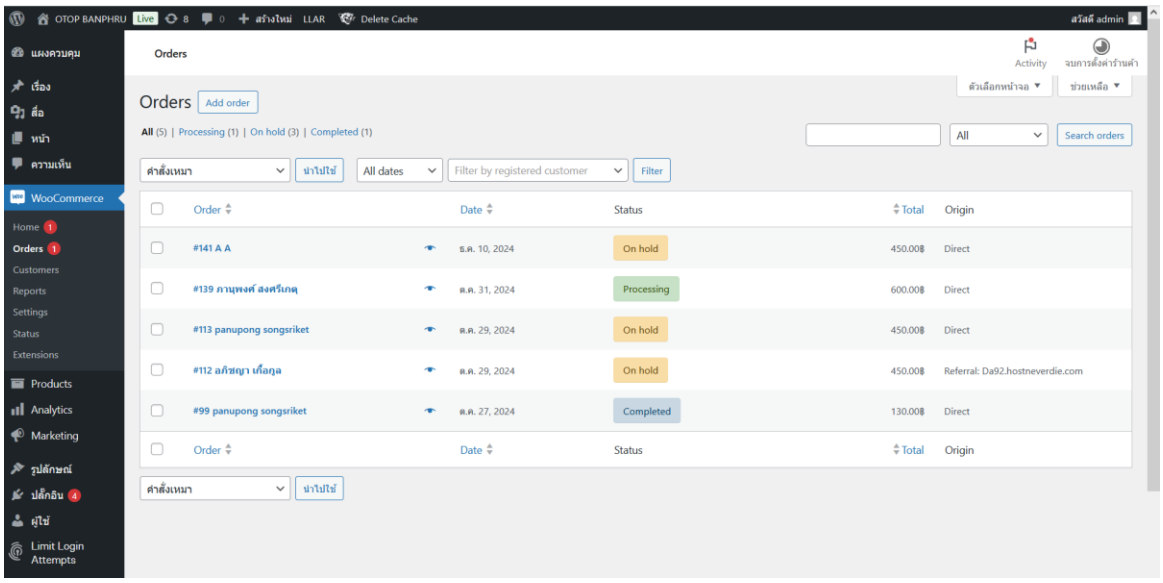


ภาพที่ 3 แสดงหน้าหลักของเว็บไซต์



ภาพที่ 4 แสดงหน้าตะกร้าสินค้าเพื่อตรวจสอบสินค้าที่สั่งซื้อ

ส่วนการจัดการข้อมูลระบบทั้งหมดจะอยู่ในระบบหลังร้านซึ่งทางผู้จำหน่าย (ชุมชนบ้านพรุ/ดูแลระบบ) จะต้องทำการเข้าสู่ระบบ ประกอบด้วย การจัดการสินค้า การจัดการส่วนเสริม การจัดการลูกค้า การจัดการระบบและงานขาย ดังภาพที่ 5 การจัดการข้อมูลหลังร้าน



ภาพที่ 5 การจัดการข้อมูลหลังร้าน

จากการศึกษาความพึงพอใจของผู้ใช้ระบบพาณิชย์อิเล็กทรอนิกส์สำหรับร้านค้าชุมชนบ้านพรุ อำเภอหาดใหญ่ จังหวัดสงขลา ได้เก็บรวบรวมข้อมูลการประเมินการใช้งานจากผู้ที่ได้ทดลองใช้งานระบบ จำนวน 225 คน ได้แก่ กลุ่มลูกค้าผู้ใช้งานระบบพาณิชย์อิเล็กทรอนิกส์ จำนวน 200 คน และกลุ่มผู้จำหน่าย (ชุมชนบ้านพรุ/ดูแลระบบ) จำนวน 25 คน โดยแบ่งการประเมินออกเป็น 6 ด้าน พบว่า ความพึงพอใจในการออกแบบเว็บไซต์อยู่ในระดับมากที่สุด มีค่าเฉลี่ยเท่ากับ 4.94 เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านความสวยงาม ทันสมัย น่าสนใจของหน้าโฮมเพจอยู่ในระดับดีมาก มีค่าเฉลี่ยเท่ากับ 4.98 ด้านการจัดรูปแบบในเว็บไซต์ง่ายต่อการอ่านและใช้งานอยู่ในระดับมากที่สุด มีค่าเฉลี่ยเท่ากับ 4.76 ด้านการออกแบบเว็บไซต์มีความเหมาะสมอยู่ในระดับปานกลาง มีค่าเฉลี่ยเท่ากับ 3.05 ด้านเมนูง่ายต่อการใช้งานอยู่ในระดับมาก มีค่าเฉลี่ยเท่ากับ 4.20 ด้านสีพื้นหลังกับสีตัวอักษร มีความเหมาะสมต่อการอ่าน อยู่ในระดับมาก มีค่าเฉลี่ยเท่ากับ 4.16 และด้านขนาดตัวอักษรและรูปแบบตัวอักษรอ่านได้ง่ายและสวยงามอยู่ในระดับมาก มีค่าเฉลี่ยเท่ากับ 3.69

สรุปและอภิปรายผล

จากการออกแบบและพัฒนาระบบต้นแบบพาณิชย์อิเล็กทรอนิกส์ของร้านค้าชุมชนบ้านพรุ อำเภอหาดใหญ่ จังหวัดสงขลา ผู้วิจัยได้ติดตั้งเครื่องมือสร้างเว็บไซต์เพื่อออกแบบและพัฒนาระบบ โดยทำการทดสอบการใช้งานระบบกับกลุ่มผู้จำหน่าย (ร้านค้าชุมชนบ้านพรุ/ผู้ดูแลระบบ) และได้เก็บรวบรวมข้อมูลผลการประเมินการใช้งานจากผู้ที่ได้ทดลองใช้งานระบบ จำนวน 225 คน ได้แก่ กลุ่มลูกค้าผู้ใช้งานระบบพาณิชย์อิเล็กทรอนิกส์ จำนวน 200 คน และกลุ่มผู้จำหน่าย (ชุมชนบ้านพรุ/ดูแลระบบ) จำนวน 25 คน โดยแบ่งการประเมินออกเป็น 6 ด้าน พบว่า ความพึงพอใจในการออกแบบเว็บไซต์อยู่ในระดับมากที่สุด มีค่าเฉลี่ยเท่ากับ 4.94 เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านความสวยงาม ทันสมัย น่าสนใจของหน้าโฮมเพจอยู่ในระดับดีมาก มีค่าเท่ากับ 4.98 ด้านการจัดรูปแบบในเว็บไซต์ง่ายต่อการอ่านและใช้งานอยู่ในระดับมากที่สุด มีค่าเฉลี่ยเท่ากับ 4.76 ด้านการออกแบบเว็บไซต์มีความเหมาะสมอยู่ในระดับปานกลาง มีค่าเฉลี่ยเท่ากับ 3.05 ด้านเมนูง่ายต่อการใช้งานอยู่ในระดับมาก มีค่าเฉลี่ยเท่ากับ

4.20 ด้านสีพื้นหลังกับสีตัวอักษร มีความเหมาะสมต่อการอ่าน อยู่ในระดับมาก มีค่าเฉลี่ยเท่ากับ 4.16 และด้านขนาดตัวอักษรและรูปแบบตัวอักษรอ่านได้ง่ายและสวยงามอยู่ในระดับมาก มีค่าเฉลี่ยเท่ากับ 3.69 ซึ่งสอดคล้องกับทฤษฎีการออกแบบเว็บเพจได้อธิบายว่าเว็บไซต์และองค์ประกอบของเว็บไซต์มีบทบาทสำคัญต่อธุรกิจนอกจากจะเป็นการดึงดูดลูกค้าแล้วยังต้องทำให้ลูกค้าเชื่อถือกับเว็บไซต์อีกด้วย ในส่วนองค์ประกอบการจัดวางตัวอักษรจนกระทั่งสีที่ใช้ ต้องมีความสอดคล้องกับงานที่ทำให้ลูกค้ารู้สึกปลอดภัยเมื่อเข้ามาใช้บริการเว็บไซต์ (ณัฐนรี ดิษฐาน, 2565) อีกทั้งสอดคล้องกับระบบพาณิชย์อิเล็กทรอนิกส์สำหรับการจัดการผลิตภัณฑ์กลุ่มวิสาหกิจชุมชนสุชาวดี ตำบลปริก อำเภอสะเดา จังหวัดสงขลา ซึ่งประกอบด้วยระบบหลังร้านเป็นส่วนของผู้ดูแลระบบที่จัดการข้อมูลรายละเอียดของสินค้า การสมัครสมาชิก สถานะการสั่งซื้อสินค้า และสรุปการซื้อขายสินค้า และระบบหน้าร้านเป็นส่วนของลูกค้าที่ระบบแสดงรายละเอียดที่เกี่ยวข้องกับสินค้าในร้าน โดยลูกค้าสามารถดูรายละเอียดของสินค้า สั่งซื้อ ตรวจสอบสถานะการสั่งซื้อและสามารถแจ้งการชำระเงินผ่านระบบกลับไปยังร้านค้าได้ (คณิดา ไกรสันติ, 2562) โดยทางกลุ่มได้นำระบบพาณิชย์อิเล็กทรอนิกส์ไปประยุกต์ใช้เพื่ออำนวยความสะดวกในการจัดการผลิตภัณฑ์ เพิ่มช่องทางการจัดจำหน่ายให้มียอดขายเพิ่มขึ้น และประชาสัมพันธ์ให้เป็นที่รู้จักในวงกว้างมากขึ้นและเพื่อเป็นแนวทางในการพัฒนาระบบพาณิชย์อิเล็กทรอนิกส์สำหรับกลุ่มอื่น ๆ ต่อไป

ปัญหาและอุปสรรคของต้นแบบพาณิชย์อิเล็กทรอนิกส์ (E-Commerce Prototype) ผู้จำหน่าย (คณะกรรมการกลุ่ม) ยังขาดความเข้าใจในเรื่องพาณิชย์อิเล็กทรอนิกส์และอินเทอร์เน็ตทำให้เกิดความลำบากและความสับสนบางตอนในการใช้งานเว็บเพจต้นแบบพาณิชย์อิเล็กทรอนิกส์ (E-Commerce Prototype)

ข้อเสนอแนะ

1. ด้านเทคโนโลยี พาณิชย์อิเล็กทรอนิกส์ได้ใช้เทคโนโลยีประเภทต่างๆ เข้ามาช่วยในการประชาสัมพันธ์สินค้าให้ผู้คนได้รู้จักมากยิ่งขึ้น และเทคโนโลยีเข้ามาช่วยให้ธุรกิจเป็นไปตามเป้าหมายที่วางไว้

2. ด้านการบริหารลูกค้าสัมพันธ์ นำเทคนิค CRM มาประยุกต์ใช้กับระบบพาณิชย์อิเล็กทรอนิกส์หรือ E-Commerce ซึ่ง CRM ก็คือการสร้างความสัมพันธ์กับลูกค้า โดยการใช้เทคโนโลยีและเข้าถึงลูกค้าเพื่อเพิ่มระดับการให้บริการแก่ลูกค้า สร้างความเข้าใจในความต้องการของลูกค้า

3. ด้านระบบ ควรมีการพัฒนาระบบพาณิชย์อิเล็กทรอนิกส์ให้มีความสมบูรณ์ยิ่งขึ้น โดยอาจเพิ่มเติมฟังก์ชันที่ตอบสนองต่อพฤติกรรมของผู้ใช้ เช่น ระบบแจ้งเตือนสถานะคำสั่งซื้อแบบเรียลไทม์ หรือระบบแนะนำสินค้าตามความสนใจของลูกค้า ควรนำระบบไปพัฒนาต่อยอดเป็นแอปพลิเคชันบนอุปกรณ์พกพา (Mobile Application) เพื่อให้ผู้ใช้งานสามารถเข้าถึงร้านค้าออนไลน์ได้สะดวกทุกที่ทุกเวลา เพิ่มความคล่องตัวในการสั่งซื้อและบริหารจัดการข้อมูลและควรเชื่อมต่อระบบกับช่องทางโซเชียลมีเดีย เช่น Facebook, LINE, Instagram และ TikTok เพื่อประชาสัมพันธ์สินค้าได้หลากหลายช่องทาง และเพิ่มโอกาสทางการตลาดจากกลุ่มลูกค้าที่ใช้โซเชียลมีเดียเป็นประจำ

4. ด้านการบริหารจัดการ ควรส่งเสริมให้ผู้ดูแลระบบมีความรู้ด้านการบริหารลูกค้าสัมพันธ์ (CRM) มากขึ้น โดยอาจจัดฝึกอบรมหรือเวิร์กช็อป เพื่อให้สามารถนำข้อมูลลูกค้ามาวิเคราะห์และปรับใช้กับกลยุทธ์การตลาดได้อย่างมีประสิทธิภาพ การนำเทคโนโลยีมาใช้ร่วมกับกลยุทธ์ CRM จะช่วยให้สามารถติดตามพฤติกรรมการซื้อของลูกค้า สร้างความสัมพันธ์ระยะยาว และเพิ่มความภักดีในแบรนด์ของชุมชน ควรมีการแบ่งบทบาทหน้าที่อย่างชัดเจนในทีมงาน เช่น ฝ่ายจัดการข้อมูลสินค้า ฝ่ายตอบลูกค้า และฝ่ายดูแลการจัดส่ง เพื่อให้ระบบการทำงานมีประสิทธิภาพมากขึ้น

4. ด้านการวิจัยในอนาคต เสนอให้มีการศึกษาต่อยอดระบบพาณิชย์อิเล็กทรอนิกส์ไปสู่การเชื่อมโยงกับระบบโลจิสติกส์ในท้องถิ่น เพื่อให้กระบวนการจัดส่งสินค้าเป็นไปอย่างรวดเร็วและโปร่งใส ควรมีการประเมินผลกระทบของระบบพาณิชย์อิเล็กทรอนิกส์ต่อเศรษฐกิจชุมชน เช่น การเพิ่มรายได้ การสร้างงานในท้องถิ่น และความพึงพอใจของลูกค้า เสนอให้วิจัยเพิ่มเติมในด้านประสบการณ์ผู้ใช้ (User Experience: UX) เพื่อปรับปรุงระบบให้ตอบสนองต่อการใช้งานของกลุ่มเป้าหมายอย่างแท้จริง และออกแบบอินเทอร์เฟซที่ใช้งานง่ายสำหรับผู้สูงอายุหรือผู้ไม่มีพื้นฐานด้านเทคโนโลยี

เอกสารอ้างอิง

คณิดา ไกรสันติ, ฐานันท์ ตั้งรุจิกุล, พาฝัน รัตนะ และบุญรัตน์ บุญรัศมี. (2566). การพัฒนาระบบพาณิชย์อิเล็กทรอนิกส์เพื่อส่งเสริมศักยภาพทางการตลาดของผลิตภัณฑ์กลุ่มเครื่องปั้นดินเผาเซรามิกดินสามน้ำ ชุมชนบ้านบางกล่ำ อำเภอบางกล่ำ จังหวัดสงขลา. วารสารสังคมศาสตร์และวัฒนธรรม, 7(2), 442-459.

คณิดา ไกรสันติ. (2562). การพัฒนาระบบพาณิชย์อิเล็กทรอนิกส์สำหรับการจัดการผลิตภัณฑ์กลุ่มวิสาหกิจชุมชนสุชาวดี ตำบลปริก อำเภอสะเดา จังหวัดสงขลา. วารสารหาดใหญ่วิชาการ. 18(1), 39-60.

ณัฐนรี ดิษฐาน. (2565). แรงจูงใจที่มีผลต่อการเลือกซื้อสินค้าประเภทผลิตภัณฑ์เสริมอาหารผ่านช่องทางพาณิชย์อิเล็กทรอนิกส์ (E-commerce) ของผู้บริโภคในเขตกรุงเทพมหานคร. วิทยาลัยการจัดการ. มหาวิทยามหิดล.

เพ็ญนฤมล จะระ. (2554). ปัจจัยที่มีผลต่อการตัดสินใจเลือกซื้อสินค้าประเภทเสื้อผ้าแฟชั่นของผู้บริโภคกลุ่มวัยรุ่น ผ่านทางระบบพาณิชย์อิเล็กทรอนิกส์ (E-commerce) ในเขตกรุงเทพมหานคร. มหาบัณฑิต วิชาเอกธุรกิจระหว่างประเทศ คณะบริหารธุรกิจ มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี. กรุงเทพฯ.

เสกสรรค์ วิลุน (เว็บไซต์). (2553). การสร้างต้นแบบ (Prototyping). สืบค้นจาก: http://nokkatad.blogspot.com/2010/11/prototyping.html. 7 กุมภาพันธ์ 2568.

สิรินณา ชมชื่น, อุษา สิทธิ์สงวน และรัตนา ลีรุ่งนาวารัตน์. (2562).การพัฒนาระบบจำหน่ายเสื้อผ้าแฟชั่นผ่านระบบพาณิชย์อิเล็กทรอนิกส์.วารสารวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยราชภัฏอุดรธานี, 7(1), 71-83.

อดิศร โกษาจันทร์, เกษสุภัค เนตรสุวรรณ, อิทธิชัย อินลุเพท และ จิตราภา คนฉลาด. (2566). การพัฒนาระบบพาณิชย์อิเล็กทรอนิกส์สำหรับจำหน่ายต้นไม้ประดับ. วารสารวิชาการและวิจัยมหาวิทยาลัยภาคตะวันออกเฉียงเหนือ, 13(3), 114-129.

Suwadeemanop, W., Tinkratok, S., & Sooknit, U. (2024). Development of an Online Cloth Bag Shop Website for DD Cloth Bag Store. Chalermkarnchana Academic Journal, 10(2), 129–137.

การฟื้นฟูอนุรักษ์ภูมิปัญญางานจักสานย่านลิเภาบ้านม้าเงย ตำบลป่าชิง อำเภอจะนะ จังหวัดสงขลา

Restoration and Conservation of Yanliphao Weaving Wisdom at Banmangey, Tambol Paching, Amphur Chana, Songkhla Province

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์ 1) เพื่อฟื้นฟูอนุรักษ์ภูมิปัญญางานจักสานย่านลิเภาบ้านม้าเงย ตำบลป่าชิง อำเภอจะนะ จังหวัดสงขลา ที่กำลังจะเลือนหายไปให้คงอยู่กับชุมชน 2) เพื่อจัดตั้งกลุ่มอาชีพ กลุ่มแม่บ้านเกษตรกรจักสานย่านลิเภา ตำบลป่าชิง อำเภอจะนะ จังหวัดสงขลา เพื่อเป็นกลุ่มสัมมาชีพในท้องถิ่น ในการร่วมอนุรักษ์สืบสาน ถ่ายทอดความรู้จากครูภูมิปัญญาสู่สมาชิกในชุมชน และถ่ายทอดให้กับผู้สนใจ 3) เพื่อพัฒนารูปแบบผลิตภัณฑ์ใหม่ กลุ่มเป้าหมายใหม่ ช่องทางการจัดจำหน่ายออนไลน์และงานออกร้านและการประชาสัมพันธ์ผลิตภัณฑ์ให้เข้าถึงกลุ่มเป้าหมาย เป็นที่รู้จักอย่างแพร่หลาย ผู้ให้ข้อมูลคือ สมาชิกกลุ่มจักสานย่านลิเภาบ้านม้าเงย จำนวน 2 คน การเก็บข้อมูลด้วยแบบสัมภาษณ์ การวิเคราะห์ข้อมูลใช้การวิเคราะห์เนื้อหา

ผลการวิจัยพบว่า สมาชิกกลุ่มจักสานย่านลิเภาบ้านม้าเงยออกแบบผลิตภัณฑ์แบบดั้งเดิมตามความต้องการของลูกค้า ไม่มีการใช้เทคโนโลยีในการผลิต จำหน่ายผลิตภัณฑ์ ผ่านออนไลน์ และ งานแสดงสินค้า ปัญหาและอุปสรรคในการดำเนินงานกลุ่ม คือ ผู้จักสานมีจำนวนน้อย ใช้เวลานานในการทำชิ้นงาน และการ

จัดระบบ การตลาด ส่วนแนวทางในการพัฒนาผลิตภัณฑ์งานจักสานย่านลิเภา คือกลุ่มจักสานย่านลิเภาบ้านม้าเงยควรจัดระบบข้อมูลผลิตภัณฑ์ และการถ่ายทอดภูมิปัญญา ผลิตงานจักสานย่านลิเภาตามความต้องการของลูกค้าและคงความเป็นเอกลักษณ์ดั้งเดิม วิเคราะห์สื่อเพื่อการประชาสัมพันธ์ วางแผนการตลาด รวมทั้งภาครัฐควรผลักดันขีดความสามารถในการพัฒนาผลิตภัณฑ์ และพัฒนาตลาดของผู้ผลิตและผู้ประกอบการ

คำสำคัญ: การฟื้นฟู; การอนุรักษ์; ภูมิปัญญาท้องถิ่น; งานจักสานย่านลิเภา

Abstracts

The objectives of this research are 1) to restore and conserve Yanliphao weaving wisdom at Banmangey, Tambol Paching, Amphur Chana, Songkhla Province which is about to disappear so that it remains with the community, 2) to establish a career group, a group of Yanliphao weaving farmer housewives, Tambol Paching, Amphur Chana, Songkhla Province, to be a local career group to jointly conserve, continue, and pass on knowledge from local wisdom teachers to community members and pass it on to those who are interested, and 3) to develop new product formats, new target groups, online distribution channels and booths and to publicize products to reach the target groups and make them widely known. Data were collected from 2 members of yanliphao weaving group. Research instruments were interviewing form. Data were analyzed by content analysis.

The research found that the members of Yanliphao weaving group at Banmangey designed traditional products according to customer needs. They did not use technology for production. They sold products at the group stores, online and trade shows. Problems and obstacles in group operations were a few wicker workers, taking a long time to do the work, and lack of organizing the marketing system. The guidelines for the development of Yanliphao weaving products were the Yanliphao weaving wisdom at Banmangey should organize the product information system and the transmission of wisdom, produce Yanliphao weaving products according to customer requirements and maintain the original identity, analyze media for public relation, plan the marketing. In addition, the government should push the capability in product development and develop the market of manufacturers and entrepreneurs.

Keywords: Restoration, Conservation, Local Wisdom, Yanliphao Weaving

บทนำ

“ภูมิปัญญาท้องถิ่น” เป็นองค์ความรู้รวมทั้งความคิดและความเชื่อที่ท้องถิ่นนั้น ได้สั่งสมและสืบทอดอย่างต่อเนื่องกันมา โดยใช้วิธีการ เครื่องมือและวิถีชีวิต เพื่อการป้องกันและแก้ปัญหาการดำรงชีพของบุคคลในชุมชนหรือท้องถิ่นนั้น อยู่รอดปลอดภัย มีความสุข มั่งคั่งและมั่นคง ภูมิปัญญาท้องถิ่นที่เกิดขึ้นในประเทศไทยจึงเรียกในภาพรวมว่า “ภูมิปัญญาไทย” ซึ่งมีคุณค่าและความสำคัญมีความสัมพันธ์กับวัฒนธรรมที่เข้มแข็งและสามารถเปลี่ยนเป็นมูลค่ามหาศาลในสังคมได้อย่างยั่งยืน

ย่านลิเภา เป็นพืชประเภทย่านหรือเถาวัลย์ที่พบมากอยู่ในสวนยางพารา ถือได้ว่าเป็นพืชร่วมยางขึ้นเองโดยธรรมชาติใต้ต้นยาง เนื่องจากใต้ต้นยางมีความชุ่มชื่นส่วนใหญ่จะขึ้นในพื้นที่ภาคใต้ แหล่งที่พบมาก ได้แก่จังหวัดนครศรีธรรมราช สตูล สงขลา ยะลา ปัตตานี นราธิวาส เป็นต้น ลำต้นลิเภาที่ขึ้นอยู่ในสวนยาง จะมีทรงของย่านเป็นเส้นตรงมีโค้งหยักบ้างไม่มากนัก ย่านลิเภาที่หาได้ในสวนยางจึงมีทรงของเส้นตรงที่สวยงาม โดยเฉพาะในช่วงฤดูกาลการเบิกหน้ายางจะมีลำเส้นที่สวย ย่านลิเภาจะมี 2 ชนิด คือ ย่านลิเภาเส้นเขียวกับย่านลิเภาเส้นดำ ซึ่งส่วนมากในสวนยางจะพบย่านลิเภาเส้นเขียวมากกว่าเส้นดำ ลักษณะใบของย่านลิเภาเส้นเขียวจะมีลักษณะเรียวยาว ส่วนย่านลิเภาเส้นดำจะมีขนาดใบเล็กกว่าและขอบใบโค้งหยิก ลักษณะเส้นหรือย่านลิเภา สามารถนำมาใช้ทำจักสานได้ทั้งเส้นเล็กและเส้นใหญ่ ย่านลิเภาที่ภาคใต้นั้น ใช้ได้ดีเพราะว่าฝนตกมากทำให้เกิดความเหนียว ทำให้เส้นเหนียวและอยู่ได้เป็นร้อยปี ดังที่คนญี่ปุ่นบอกว่าลักษณะพิเศษของย่านลิเภา ถ้าแม้นว่าทิ้งให้แก่กับต้นแล้วใยของเขาจะเหนียวอยู่ได้เป็นร้อยปี โดยที่ไม่มีตัวแมลงมากัดกินเลย เพราะฉะนั้นพูดได้ว่าเป็นพืชเศรษฐกิจที่ยอดเยี่ยมที่เหมาะแก่การนำมาจักสานเป็นผลิตภัณฑ์ประเภทต่าง ๆ (สุรสิทธิ์ ระวังวงศ์, ชาตรี หอมเขียว, อภิชล ทองมั่ง กำเนิดว้ำ และ ชัยวัฒนภัทร เลาสัตย์, 2565)

บ้านม้าเงย ตั้งอยู่ที่ หมู่ที่ 1 ตำบลป่าชิง อำเภอจะนะ จังหวัดสงขลา ในอดีตชาวบ้านมีอาชีพทำสวนยาง และทำนา จากการรวบรวมข้อมูลความเป็นมางานจักสานย่านลิเภาบ้านม้าเงยร่วมกับชาวบ้านในชุมชนที่สามารถทำงานจักสานย่านลิเภาได้กล่าวว่า นายไหม ไชยวิรัตน์ เป็นบุคคลแรกในพื้นที่ของบ้านม้าเงย ที่ทำจักสานย่านลิเภา (หากปัจจุบันท่านมีชีวิตอยู่ท่านจะมีอายุ 126 ปี) สำหรับรูปแบบงานจักสานย่านลิเภาบ้านม้าเงย ถูกส่งต่อเรื่องราวการสืบสานไปยังพื้นที่อำเภอโคกโพธิ์ จังหวัดปัตตานี ชาวบ้านเริ่มมีรายได้เสริมจากการจักสานย่านลิเภา มาร่วม 30 ปี แต่ในช่วงสถานการณ์โควิค 3-4 ปีที่ผ่านมา ได้ชะลอการจักสาน เนื่องจากไม่มีการสั่งซื้อและหยุดทำการจักสานในที่สุด จึงทำให้ชาวบ้านซึ่งส่วนใหญ่เป็นผู้สูงอายุขาดรายได้ ดำรงชีพตามวิถี ปลูกผัก ทำสวน ขายของพอเลี้ยงชีพ จนกระทั่งปลายปี 2567 คณะผู้วิจัยได้เข้ามาร่วมฟื้นฟู และสืบสานอาชีพงานจักสานย่านลิเภาบ้านม้าเงยให้กลับมาอีกครั้ง เพื่อสืบสานอาชีพแห่งภูมิปัญญาดั้งเดิมของชุมชนท้องถิ่น และสร้างรายได้เสริมแก่คนที่มีความสามารถด้านงานจักสานในพื้นที่ให้มีเศรษฐกิจฐานรากที่ดีขึ้น

แนวคิดทฤษฎีและงานวิจัยที่เกี่ยวข้อง

การฟื้นฟูและอนุรักษ์ภูมิปัญญาท้องถิ่นสามารถอธิบายได้ผ่านกรอบแนวคิดทุนทางวัฒนธรรม (Cultural Capital) ของ Bourdieu (1986) ซึ่งเสนอว่าทุนที่ฝังอยู่ในวิถีชีวิต เช่น ความรู้ดั้งเดิม ทักษะเชิงช่างและงานหัตถกรรม เป็นสินทรัพย์ที่สามารถเปลี่ยนเป็นคุณค่าทางเศรษฐกิจและความมั่นคงทางสังคมได้หากได้รับการฟื้นฟู ถ่ายทอด และต่อยอดอย่างเหมาะสม แนวคิดนี้สอดคล้องกับ Hall (1997) ที่มองว่าอัตลักษณ์ทางวัฒนธรรมมิได้หยุดนิ่ง แต่สามารถสร้างและตีความใหม่ผ่านบริบทการเล่าเรื่องและการมีส่วนร่วมของชุมชน โดยเฉพาะในกรณีของการถ่ายทอดภูมิปัญญาผ่านผู้สูงวัยหรือครูภูมิปัญญา ซึ่ง Seroto (2011) และ Smith (2006) ต่างก็เน้นย้ำถึงความสำคัญของกระบวนการเล่าเรื่อง (storytelling) ในการส่งต่อองค์ความรู้และเสริมสร้างอัตลักษณ์ชุมชน ขณะที่ Bessette (2004) เสนอว่า การสื่อสารเพื่อการพัฒนา (Communication for Development) โดยใช้ทุนทางวัฒนธรรมเป็นฐานสามารถเสริมพลังให้ชุมชนเข้าถึงตลาดและพัฒนาความยั่งยืนได้อย่างแท้จริง ในบริบทของไทย หลายงานวิจัยสะท้อนถึงแนวทางที่สอดคล้องกัน เช่น วิไลวรรณ ทองเจริญ (2560) และ สุมาลี ชัยเจริญสุข (2561) ต่างพบว่าการรวมกลุ่มแม่บ้านหรือช่างท้องถิ่นเพื่อพัฒนาผลิตภัณฑ์จักสานร่วมสมัย ช่วยเพิ่มมูลค่าทางเศรษฐกิจและ

ส่งเสริมความภาคภูมิใจในชุมชน ขณะที่ ศิริพร ศรีสุวรรณ (2563) และ ปริญญา ตันติสุข (2559) ได้เน้นบทบาทของ “เรื่องเล่า” ในการสร้างการรับรู้ถ่ายทอดคุณค่าทางวัฒนธรรม และกระตุ้นการเรียนรู้ข้ามรุ่น โดยเฉพาะในกลุ่มเยาวชน ซึ่งล้วนสะท้อนให้เห็นว่าการฟื้นฟูภูมิปัญญาท้องถิ่นไม่ได้จำกัดอยู่ที่การอนุรักษ์เท่านั้น แต่ยังเป็นการพัฒนาอย่างสร้างสรรค์ที่ยึดโยงทั้งทุนทางวัฒนธรรม การสื่อสาร และความร่วมมือของชุมชนอย่างเป็นระบบ

วัตถุประสงค์การวิจัย

1. เพื่อฟื้นฟูอนุรักษ์ภูมิปัญญางานจักสานย่านลิเภาบ้านม้าเงย ตำบลป่าชิง อำเภอจะนะ จังหวัดสงขลา ที่กำลังจะเลือนหายไปให้คงอยู่กับชุมชน
2. เพื่อจัดตั้งกลุ่มอาชีพ กลุ่มแม่บ้านเกษตรกรจักสานย่านลิเภา ตำบลป่าชิง อำเภอจะนะ จังหวัดสงขลา เพื่อเป็นกลุ่มสัมมาชีพในท้องถิ่น ในการร่วมอนุรักษ์ สืบสาน ถ่ายทอดความรู้จากครูภูมิปัญญาสู่สมาชิกในชุมชน และถ่ายทอดให้กับผู้สนใจ
3. เพื่อพัฒนารูปแบบผลิตภัณฑ์ใหม่ กลุ่มเป้าหมายใหม่ ช่องทางการจัดจำหน่ายออนไลน์งานออกร้านและการประชาสัมพันธ์ผลิตภัณฑ์ให้เข้าถึงกลุ่มเป้าหมาย เป็นที่รู้จักอย่างแพร่หลาย

เอกสารและงานวิจัยที่เกี่ยวข้อง

ภูมิปัญญา (Wisdom) หมายถึง ความรู้ ความคิด ความเชื่อ ความสามารถ ความชัดเจนที่กลุ่มชนได้สร้างจากประสบการณ์ที่ได้สั่งสมไว้ในการปรับตัวการดำรงชีพในระบบนิเวศ หรือสภาพ แวดล้อมทางธรรมชาติ สิ่งแวดล้อมทางสังคม และวัฒนธรรมที่ได้มีการพัฒนาสืบสานกันมา (ศักดิ์ชัย เกียรตินาคินทร์, 2542 ; วันเพ็ญ พวงพันธุ์บุตร, 2542) ให้ทัศนะเกี่ยวกับภูมิปัญญาไทยว่า หมายถึงองค์ความรู้ทั้งหลายที่มีการสั่งสมและถ่ายทอดสืบต่อกันมาของชาติไทย โดยการคิดค้นปรับเปลี่ยนผสมผสานกับความรู้ใหม่และพัฒนาให้เหมาะสม เพื่อพัฒนาคุณภาพชีวิต มีความเป็นเอกลักษณ์ของตนเอง รุ่ง แก้วแดง (2543) ได้กล่าวถึงภูมิปัญญาไทยว่า หมายถึง องค์ความรู้ ความสามารถและทักษะของคนไทย อันเกิดจากการสั่งสมประสบการณ์ที่ผ่านกระบวนการเลือกสรรเรียนรู้พัฒนาและถ่ายทอดสืบต่อกันมา เพื่อใช้แก้ปัญหาและพัฒนาวิถีชีวิตของคนไทยให้สมดุลกับสภาพแวดล้อมและเหมาะสมกับยุคสมัย รัตนะ บัวสนธิ์ (2535) กล่าวว่า ภูมิปัญญาท้องถิ่น หมายถึงกระบวนทัศน์ชองบุคคลที่มีต่อตนเอง ต่อโลกและสิ่งแวดล้อม ซึ่งกระบวนทัศน์ดังกล่าวมีรากฐานจากคำสอนทางศาสนา คติ จารีตประเพณีที่ได้รับการถ่ายทอด สั่งสอนและปฏิบัติสืบเนื่องกันมา ปรับเข้ากับบริบททางสังคมที่เปลี่ยนแปลง แต่ละสมัย ทั้งนี้โดยมีเป้าหมายเพื่อความสงบสุขของส่วนที่เป็นชุมชน และปัจเจกบุคคล จึงกล่าวได้ว่า ภูมิปัญญาเป็นผลของการใช้สติปัญญาปรับตัวกับสภาวะต่าง ๆ ในพื้นที่ที่กลุ่มชนชั้นนั้นตั้งหลักแหล่งถิ่นฐานอยู่และได้แลกเปลี่ยนสังสรรค์ทางวัฒนธรรมกับกลุ่มชนอื่น จากพื้นที่ที่สิ่งแวดล้อมอื่นได้มีการติดต่อสัมพันธ์กัน แล้วรับเอามาปรับเปลี่ยนนำมาสร้างประโยชน์หรือแก้ปัญหาได้ในสิ่งแวดล้อม และบริบททางสังคมของวัฒนธรรมของกลุ่มชนนั้น ภูมิปัญญาจึงมีทั้งภูมิปัญญาอันเกิดจากประสบการณ์ในพื้นที่ ภูมิปัญญาที่เกิดจากภายนอกและภูมิปัญญาที่ผลิตใหม่หรือผลิตซ้ำ เพื่อการแก้ปัญหา การปรับตัวให้สอดคล้องกับความจำเป็นและความเปลี่ยนแปลง ภูมิปัญญาท้องถิ่นเป็นเรื่องที่ก่อเกิดสั่งสม ปรับเปลี่ยนตามเหตุปัจจัย อยู่ในจิตใจ ระบบคิด พฤติกรรม ความเคยชินและความสันทันชัดเจนที่เรียกเป็นองค์รวมว่า “ชาวบ้าน” โดยชาวบ้านเพื่อชาวบ้านภูมิปัญญาท้องถิ่น ได้รับการทดสอบในชีวิตจริง ผ่านกาลเวลา สถานการณ์ และบริบททางเศรษฐกิจ สังคมที่เคลื่อนไหว

เปลี่ยนแปลง จึงเป็นธรรมดาที่ภูมิปัญญาท้องถิ่นหลายสิ่งหลายอย่างตกสมัยไปแล้ว ทว่า พร้อมกันนั้น ภูมิปัญญาท้องถิ่นอีกหลายอย่างก็ยังคงอยู่ หากแต่มีการปรับใช้สถานการณ์แล้วงอกงามเจริญเติบโตต่อไป (เอกวิทย์ ณ ถลาง, 2544) ภูมิปัญญาจึงเป็นรากฐานในการดำเนินชีวิตของชาวบ้านซึ่งเกิดจากความเชื่อของคน

หัตถกรรมย่านลิเภา

อาจารย์เผ่าทอง ทองเจือ ผู้เชี่ยวชาญด้านศิลปะและวัฒนธรรมไทย กล่าวบรรยายในงานนิทรรศการ “เพียรสาน...งานศิลป์” จัดขึ้นเมื่อวันที่ 10 ตุลาคม พ.ศ. 2565 ณ หอศิลป์สมเด็จพระนางเจ้าสิริกิติ์ พระบรมราชินีนาถ เขตพระนคร กรุงเทพฯ โดย มูลนิธิส่งเสริมศิลปาชีพในสมเด็จพระนางเจ้าสิริกิติ์ พระบรมราชินีนาถ หัวข้อศิลปาชีพในมิติจักสาน : จากงานพื้นบ้าน สู่หัตถศิลป์ไทย ตอนหนึ่งว่า การทำเครื่องจักสานเป็นหัตถกรรมแรก ที่มนุษย์สมัยก่อนประวัติศาสตร์รู้จักและทำใช้ในชีวิตประจำวัน ก่อนที่จะรู้จักทำเครื่องปั้นดินเผา ซึ่งมีการพบชิ้นส่วนเครื่องจักสานกับโครงกระดูกมนุษย์ผ่านแหล่งโบราณคดีเมื่อประมาณ 3,000 ปีก่อน และปรากฏหลักฐานวัฒนธรรมการทำเครื่องจักสานแพร่หลายในทุกภูมิภาคไทย นอกจากนี้ยังพบว่า งานจักสานแฝงอยู่ในราชสำนักมาโดยตลอด โดยสมเด็จพระนางเจ้าสิริกิติ์ พระบรมราชินีนาถ พระบรมราชชนนีพันปีหลวง ทรงฟื้นการทำจักสานย่านลิเภา ฟื้นราชประเพณีต่าง ๆ ในราชสำนักขึ้นมาใหม่ ซึ่งมีของใช้โบราณที่เป็นย่านลิเภาเป็นจำนวนมากที่พบในตำหนักสมเด็จพระพันวัสสาอัยยิกาเจ้า พบในคลังพระที่นั่งวิมานเมฆ เป็นต้น (สมเด็จพระพันปีหลวง ทรงอนุรักษ์, 2565)



ภาพที่ 1 สมเด็จพระนางเจ้าสิริกิติ์ พระบรมราชินีนาถ พระบรมราชชนนีพันปีหลวงทรงฟื้นฟูงานจักสานย่านลิเภา
ที่มา : มติชนออนไลน์, 2565



ภาพที่ 2 พระโอรสและพระธิดาในสมเด็จพระเจ้าน้องยาเธอกรมพระยาดำรงราชานุภาพ มีเครื่องจักสาน

ย่านลิเภาวางประกอบซึ่งใช้อย่างแพร่หลายในราชสำนักสมัยนั้น (ภาพซ้าย) ภาพถ่ายฝีพระหัตถ์ในรัชกาลที่ 5 ภาพหญิงผู้ดีเมืองกำแพงเพชรถือตะกร้าจักสานไม้ไผ่ใส่สิ่งของ (ภาพขวา)
ที่มา : มติชนออนไลน์, 2565

ความเป็นมาของงานจักสานย่านลิเภาบ้านม้าเงย

นายไหม ไชยวิรัตน์ เป็นบุคคลแรกในพื้นที่ของบ้านม้าเงย ที่ทำจักสานย่านลิเภา (หากปัจจุบันท่านมีชีวิตอยู่ท่านจะมีอายุ 126 ปี) โดยเมื่อครั้งที่ยังมีชีวิตอยู่นายไหม ไชยวิรัตน์ ไปเลี้ยงวัวในป่า ในสวนยาง เห็นย่านลิภาในป่า เส้นสวย ๆ งาม ๆ จึงนำย่านลิเภามาสานเป็นหมวก เชี่ยนหมาก ทำเฉอใส่ข้าวใส่ของและของใช้ในครัวเรือนข้าวของเครื่องใช้จากงานจักสานย่านลิเภา มักจะทำในเวลาไปเลี้ยงวัว นั่งเล่น ๆ ระหว่างเลี้ยงวัว เฝ้าวัว ในป่า ในสวนยาง ก็จะหาย่านลิเภามาทำจักสาน พอตกค่ำก็จะพาวัวกลับบ้าน ในสมัยก่อนใครมาเยี่ยมมาเยือน ก็จะมอบให้ญาติที่มาเยี่ยมบ้านเป็นของฝากกลับบ้านไป นายไหม ไชยวิรัตน์ ซึ่งเป็นคุณพ่อของคุณยายจาง ไชยวิรัตน์ จึงเป็นต้นกำเนิดของจักสานย่านลิเภาบ้านม้าเงย ตำบลป่าชิง โดยปรากฏหลักฐานเชิงประจักษ์คือ หมวกย่านลิเภาของนายไหม ไชยวิรัตน์ ที่มีอายุร่วม 100 ปี ซึ่งมีความคงทนทนทาน ยังคงอยู่ เป็นที่ทราบกันของญาติพี่น้องและคนในชุมชน ต่อมา นางสาวจาง ไชยวิรัตน์ ซึ่งเป็นบุตรสาว ก็ได้เรียนรู้และสืบสานการจักสานย่านลิเภามาตั้งแต่รุ่นคุณพ่อสมัยยังมีชีวิตอยู่ ซึ่งปัจจุบันก็ยังคงทำ โดยใช้เวลาว่างไปหาย่านลิเภาและนำมาทำเป็นกระเป๋า ของใช้ต่าง ๆ อยู่อย่างต่อเนื่องมากว่าครึ่งทศวรรษและทำเก็บสะสมในรูปแบบต่าง ๆ ไว้มากมาย นับเป็นผลิตภัณฑ์ที่ทรงคุณค่าและเล่าเรื่องราวที่ดีงามของชุมชนบ้านม้าเงย ตำบลป่าชิงได้อีกเรื่องราวหนึ่ง

สำหรับรูปแบบงานจักสานย่านลิเภาบ้านม้าเงย ถูกส่งต่อเรื่องราวการสืบสานไปยังพื้นที่อำเภอโคกโพธิ์ จังหวัดปัตตานี เนื่องจากนายไหม ไชยวิรัตน์ มีญาติพี่น้องในพื้นที่ดังกล่าว เวลาไปเยี่ยมญาติที่ปัตตานี นายไหม ไชยวิรัตน์ มักจะให้หมวก ตะกร้า ลิเภากับญาติ และญาติที่อำเภอโคกโพธิ์ให้ความสนใจก็ได้เรียนรู้ในเรื่องการจักสานย่านลิเภา เมื่อถึงงานประเพณีชักพระที่อำเภอโคกโพธิ์ จังหวัดปัตตานี มีคนภายนอกมาร่วมงาน คือคุณพรโรจน์กับพี่สาว ได้ให้ความสนใจในงานจักสานย่านลิเภา จึงได้ตามหาคนที่ทำจักสานย่านลิเภาที่ทำตะกร้า หมวก และได้มาพบกับนางสาวจาง ไชยวิรัตน์ ซึ่งอาศัยอยู่ในหมู่บ้านม้าเงย ตำบลป่าชิง อำเภอจะนะ ให้ช่วยทำผลิตภัณฑ์งานจักสานให้ตามแบบ ทำให้ชาวบ้านเริ่มมีรายได้เสริมจากการจักสานย่านลิเภา มาร่วม 30 ปี แต่ในช่วงสถานการณ์โควิค 3-4 ปีที่ผ่านมา ได้ชะลอการจักสานเนื่องจากไม่มีการสั่งซื้อและหยุดทำการจักสานในที่สุด จึงทำให้ชาวบ้านซึ่งส่วนใหญ่เป็นผู้สูงอายุขาดรายได้ดำรงชีพตามวิถี ปลูกผัก ทำสวน ขายของพอเลี้ยงชีพ จนกระทั่งปลายปี 2567 ผู้ช่วยศาสตราจารย์ดวงฤดี อุทัยหอม พร้อมคณะ ได้เข้ามาร่วมฟื้นฟูและสืบสานอาชีพงานจักสานย่านลิเภาบ้านม้าเงย ให้กลับมาอีกครั้งเพื่อสืบสานอาชีพแห่งภูมิปัญญาดั้งเดิมของชุมชนท้องถิ่น และสร้างรายได้เสริมแก่คนที่มีความสามารถด้านงานจักสานในพื้นที่ให้มีเศรษฐกิจฐานรากที่ดีขึ้น

แนวคิดทฤษฎีและงานวิจัยที่เกี่ยวข้อง

การฟื้นฟูและอนุรักษ์ภูมิปัญญาท้องถิ่นสามารถอธิบายได้ผ่านกรอบแนวคิดทุนทางวัฒนธรรม (Cultural Capital) ของ Bourdieu (1986) ซึ่งเสนอว่าทุนที่ฝังอยู่ในวิถีชีวิต เช่น ความรู้ดั้งเดิม ทักษะเชิงช่าง และงานหัตถกรรม เป็นสินทรัพย์ที่สามารถเปลี่ยนเป็นคุณค่าทางเศรษฐกิจและความมั่นคงทางสังคมได้ หากได้รับการฟื้นฟู ถ่ายทอด และต่อยอดอย่างเหมาะสม แนวคิดนี้สอดคล้องกับ Hall (1997) ที่มองว่าอัตลักษณ์ทางวัฒนธรรมมิได้หยุดนิ่ง แต่สามารถสร้างและตีความใหม่ผ่านบริบทการเล่าเรื่องและการมีส่วนร่วมของชุมชน โดยเฉพาะในกรณีของการถ่ายทอดภูมิปัญญาผ่านผู้สูงวัยหรือครูภูมิปัญญา ซึ่ง

Seroto (2011) และ Smith (2006) ต่างก็เน้นย้ำถึงความสำคัญของกระบวนการเล่าเรื่อง (storytelling) ในการส่งต่อองค์ความรู้และเสริมสร้างอัตลักษณ์ชุมชน ขณะที่ Bessette (2004) เสนอว่า การสื่อสารเพื่อการพัฒนา (Communication for Development) โดยใช้ทุนทางวัฒนธรรมเป็นฐานสามารถเสริมพลังให้ชุมชนเข้าถึงตลาดและพัฒนาความยั่งยืนได้อย่างแท้จริง ในบริบทของไทย หลายงานวิจัยสะท้อนถึงแนวทางที่สอดคล้องกัน เช่น วิไลวรรณ ทองเจริญ (2560) และ สุมาลี ชัยเจริญสุข (2561) ต่างพบว่าการรวมกลุ่มแม่บ้านหรือช่างท้องถิ่นเพื่อพัฒนาผลิตภัณฑ์จักสานร่วมสมัย ช่วยเพิ่มมูลค่าทางเศรษฐกิจและส่งเสริมความภาคภูมิใจในชุมชน ขณะที่ ศิริพร ศรีสุวรรณ (2563) และ ปริญญา ตันติสุข (2559) ได้เน้นบทบาทของ “เรื่องเล่า” ในการสร้างการรับรู้ ถ่ายทอดคุณค่าทางวัฒนธรรม และกระตุ้นการเรียนรู้ข้ามรุ่น โดยเฉพาะในกลุ่มเยาวชน ซึ่งล้วนสะท้อนให้เห็นว่าการฟื้นฟูภูมิปัญญาท้องถิ่นไม่ได้จำกัดอยู่ที่การอนุรักษ์เท่านั้น แต่ยังเป็นการพัฒนาอย่างสร้างสรรค์ที่ยึดโยงทั้งทุนทางวัฒนธรรม การสื่อสาร และความร่วมมือของชุมชนอย่างเป็นระบบ

วิธีดำเนินการวิจัย

การฟื้นฟูอนุรักษ์ภูมิปัญญางานจักสานย่านลิเภาบ้านม้าเงย ตำบลป่าชิง อำเภอจะนะ จังหวัดสงขลา เป็นการวิจัยเชิงคุณภาพ ดำเนินการวิจัย 2 ระยะ โดย ระยะที่ 1 เป็นการศึกษาการดำเนินงานของกลุ่มงานจักสานย่านลิเภา ส่วนระยะที่ 2 เป็นการศึกษาแนวทางในการพัฒนาจักสานย่านลิเภา

ผู้ให้ข้อมูล

นางสาวจาง ไชยวิรัตน์ อายุ 78 ปีและนางสุนิตย์ เกือแก้ว อายุ 55 ปี ตัวแทนสมาชิกกลุ่มงานจักสานย่านลิเภา ตำบลป่าชิง อำเภอจะนะ จังหวัดสงขลา

เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล

การศึกษาครั้งนี้ ใช้แบบสัมภาษณ์ผู้นำกลุ่มและสมาชิกกลุ่มงานจักสานย่านลิเภา คำถามครอบคลุมประเด็นข้อมูลทั่วไปของกลุ่ม วิธีการจัดการกลุ่ม แนวทางการพัฒนา ปัญหาและความต้องการที่เกี่ยวกับงานจักสานย่านลิเภา

การวิเคราะห์ข้อมูล

ในการวิเคราะห์ข้อมูล ใช้วิธีวิเคราะห์เนื้อหา (Content Analysis) เพื่อสกัดสาระสำคัญและตีความข้อมูลจากบทสัมภาษณ์เชิงลึก โดยเริ่มจากการถอดเทปคำสัมภาษณ์ให้เป็นข้อความสมบูรณ์ (verbatim transcription) แล้วดำเนินการอ่านข้อมูลซ้ำอย่างรอบด้าน เพื่อสร้างความเข้าใจในบริบทจากนั้น ทำการเปิดรหัส (Open coding) เพื่อระบุหน่วยข้อมูลสำคัญ และจัดกลุ่มประเด็นที่มีความสอดคล้องกันเข้าสู่หมวดหมู่แนวคิด (Categorization) ก่อนจะสังเคราะห์เป็นธีมหลัก (Thematic Abstraction) ที่สะท้อนประสบการณ์ มุมมอง และคุณค่าที่ปรากฏในเสียงของผู้ให้ข้อมูล โดยกระบวนการทั้งหมดอ้างอิงแนวทางของ Krippendorff (2004) ซึ่งเน้นการวิเคราะห์เชิงคุณภาพอย่างมีระบบบนฐานของความหมายและบริบททางสังคมที่แวดล้อมข้อมูลนั้น

ผลการวิจัย

การดำเนินงานของกลุ่มจักสานย่านลิเภา ตำบลป่าชิง อำเภอจะนะ จังหวัดสงขลา มีรายละเอียดดังต่อไปนี้

1. รูปแบบผลิตภัณฑ์งานจักสานย่านลิเภาบ้านม้าเงยแบบดั้งเดิม จะเป็นกลุ่มตะกร้า หมวก เชี่ยนหมาก และเครื่องใช้ในครัวเรือน เหมาะกับการใช้งานในชีวิตประจำวันและกลุ่มผู้ใช้งานจะเป็นกลุ่มผู้สูงวัย หรือรู้จักผลิตภัณฑ์นี้ดีแล้ว



ภาพที่ 3 รูปแบบผลิตภัณฑ์งานจักสานย่านลิเภาบ้านม้าเงยแบบดั้งเดิม

2. วิธีทำงานจักสานย่านลิเภาแบบโบราณ

งานจักสานย่านลิเภาของบ้านม้าเงย ชาวบ้านจะหาย่านลิเภาในสวนยางพารา ตัดนำเส้นใหญ่นำมาทำแกน ขนาดของย่านที่ตัดประมาณ 1 เมตร หลังจากตัดเส้นใหญ่ เพื่อนำมาทำแกนแล้ว ก็จะหาเส้นขนาดกำลังเหมาะสม เรียกว่าขนาดกลางอ่อนกลางแก่ (ภาษาใต้เรียกว่าเพหราด) เพื่อนำมาเป็นเส้นสาน หลังจากหาเส้นลิเภากลางอ่อนกลางแก่มาได้แล้ว จะตั้งไว้ให้พอแห้งแล้วนำมาผ่าให้ได้สี่เส้น จากนั้นนำมาขูด และนำมาเข้าแป้นเพื่อให้เส้นมีความเท่ากัน และต่อด้วยนำมารูดกับมีดเพื่อให้เส้นนิ่ม และนำมาสานทำเป็นผลิตภัณฑ์ในรูปแบบต่าง ๆ งานจักสานย่านลิเภาบ้านม้าเงย จะแตกต่างจากพื้นที่อื่น ๆ เป็นงานจักสานย่านลิเภาในรูปแบบโบราณแบบใช้แกนลิเภาเพื่อมาทำการขึ้นรูปหรือตั้งรูปเพื่อสาน ส่วนการสานลิเภาในพื้นที่อื่น ๆ จะทำกับเบ้าสำเร็จและสานตามเบ้าสำเร็จรูป เพื่อให้ได้ผลิตภัณฑ์ อาทิ กระเป๋า แจกัน พัด จานรองแก้ว ถาดใส่ผลไม้ เฉอใส่ของ เป็นต้น จากนั้นนำมาลงสีย้อมไม้เพื่อให้ผลิตภัณฑ์มีความสวยงามตามสีที่ต้องการ หรือไม่ลงสีย้อมไม้ก็ได้

3. วัสดุอุปกรณ์สำหรับจักสานย่านลิเภา ประกอบด้วย

1. ย่านลิเภาเส้นเขียว ย่านลิเภาเส้นดำ
2. มีดเล็ก
3. เครื่องหรือแป้นรูดเส้น
4. เหล็กแหลมสำหรับนำรู



ภาพที่ 4 วัสดุอุปกรณ์สำหรับจักสานย่านลิเภา

4. รูปแบบงานจักสานย่านลิเภาบ้านม้าเงย แบบร่วมสมัย

ผลิตภัณฑ์งานหัตถกรรมจักสานของชุมชน เป็นสินค้ากลุ่มภูมิปัญญาท้องถิ่นที่น่าสนใจ และเป็นตลาดเฉพาะ ดังนั้น ค่อนข้างมีข้อจำกัดกับกลุ่มเป้าหมายทางการตลาด อย่างไรก็ดีผลิตภัณฑ์งานหัตถกรรมจักรสานของชุมชน เป็นสินค้าที่มีเสน่ห์ และมีคุณค่ามีมูลค่ากับผู้ใช้งานและผู้รับ ดังนั้น การนำเสนอคุณค่าของผลิตภัณฑ์ รวมถึงการพัฒนารูปแบบผลิตภัณฑ์ที่แตกต่างไปจากเดิมจากกลุ่มผู้อาวุโส ผู้สูงวัย ไปสู่ตลาดเป้าหมายกลุ่มอื่น ๆ อาทิ ลูกค้าวัยทำงาน ลูกค้าวัยรุ่น การเข้าถึงกลุ่มเป้าหมายกลุ่มนี้ ผ่านการจัดบูธในงานแสดงสินค้า เช่นในงานแสดงสินค้า OTOP และการเดินแบบงานแฟชั่น นอกจากนี้ทางกลุ่มยังทำเป็นของขวัญให้บริษัทหรือองค์กรในเทศกาลสำคัญ รูปแบบผลิตภัณฑ์และงานออกแบบจึงเป็นสิ่งสำคัญยิ่ง รวมถึงการกำหนดราคาที่เข้าถึงกลุ่มเป้าหมาย ใช้วัสดุอุปกรณ์เสริมต่าง ๆ มาเป็นองค์ประกอบในการผลิต ดังนั้น เพื่อให้การตลาดขยายไปยังกลุ่มเป้าหมายใหม่ ทางกลุ่มจึงได้พัฒนาผลิตภัณฑ์ประเภทกระเป๋าที่สามารถถือ หรือหิ้วได้ สไตล์สมัยใหม่ที่เหมาะกับทุกช่วงวัย ใช้วัสดุหนัง มาผสมผสาน ให้ดูแบบร่วมสมัย ใช้งานง่ายถือในหลากหลายโอกาส รวมถึงการออกแบบผลิตภัณฑ์ย่านลิเภาแนวตกแต่งหรือชุดของฝาก อาทิ เชตจานรองแก้ว รองจาน ช้อน เป็นต้น และการตั้งราคาผลิตภัณฑ์ที่หลากหลายระดับราคา ตามวัตถุดิบที่ใช้ รูปแบบขนาด จึงทำให้การพัฒนาผลิตภัณฑ์ของกลุ่มได้ขยายตลาดเป้าหมายได้กว้างขวางขึ้น



ภาพที่ 5 รูปแบบผลิตภัณฑ์จักสานย่านลิเภาที่ผสมหนังพียู

5. ครูภูมิปัญญาจักสานย่านลิเภาบ้านม้าเงย

เป็นผู้อาวุโสในชุมชนที่มีความรู้ความสามารถ ความเชี่ยวชาญเกี่ยวกับการทำงานจักสานย่านลิเภารูปแบบบ้านม้าเงย มาไม่ต่ำกว่า 30 ปี มีผลงานจักสานเป็นที่ยอมรับของชุมชน และพร้อมจะถ่ายทอดองค์

ความรู้ด้านงานจักสานเพื่อให้ภูมิปัญญาดังกล่าวคงอยู่ สืบทอดยาวนานจากรุ่นสู่รุ่น และถือเป็นปราชญ์ชุมชนที่พร้อมจะถ่ายทอดเรื่องราวการเรียนรู้ศึกษาแก่ผู้สนใจ

6. การจัดตั้งกลุ่มแม่บ้านเกษตรกร

กรมส่งเสริมการเกษตร มีนโยบายส่งเสริมและพัฒนากลุ่มแม่บ้านเกษตรกร มาตั้งแต่ ปี 2513 โดยส่งเสริมให้สตรีในภาคเกษตรรวมตัวกันเป็นกลุ่มแม่บ้านเกษตรกรตามความสมัครใจ เพื่อให้รู้จักทำงานเป็นหมู่ คณะภายใต้กติกากลุ่ม โดยสมาชิกเพื่อสมาชิกมีการบริหารงานในรูปคณะกรรมการ ซึ่งมีตั้งแต่ระดับตำบล อำเภอ จังหวัด เขต และระดับประเทศ มีศักยภาพในการดำเนินงานตามแนวเศรษฐกิจพอเพียงไปจนถึงวิสาหกิจชุมชน และเชิงธุรกิจ ทั้งยังช่วยผลักดันนโยบายกรมส่งเสริมการเกษตรและของรัฐบาลอย่างได้ผลดี ซึ่งก่อให้เกิดเครือข่าย ความร่วมมือและการดำเนินการเพื่อการพัฒนาองค์กรเกษตรกรให้เข้มแข็ง (สำนักพัฒนาเกษตรกร กรมส่งเสริมการเกษตร, 2555)

6.1 วัตถุประสงค์ในการจัดตั้งกลุ่มแม่บ้านเกษตรกร

1. เพื่อให้แม่บ้านเกษตรกรรวมตัวกันเป็นกลุ่มใช้พลังความคิด กำลังกาย กำลังทรัพย์ และจิตใจในการปรับปรุง ยกระดับฐานะของสังคมเกษตรให้ดีขึ้นทุกวิถีทาง

2. เพื่อให้แม่บ้านเกษตรกร ซึ่งเป็นผู้ประกอบการเกษตรมีความรู้ด้านการผลิตการจัดการ สามารถเข้าถึงบริการของรัฐ

3. เพื่อให้แม่บ้านเกษตรกรมีความรู้ด้านเคหกิจเกษตร ในการปรับปรุงความเป็นอยู่ของครอบครัวให้ดีขึ้น และเพิ่มรายได้ให้ครอบครัว

4. เพื่อให้กลุ่มแม่บ้านเกษตรกรช่วยกันแก้ไขปัญหาสังคมและดูแลสิ่งแวดล้อมชุมชนให้เกิดการพัฒนาที่ยั่งยืน

6.2 กลุ่มแม่บ้านเกษตรกรจักสานย่านลิเภา

เป็นการจัดตั้งกลุ่มแม่บ้านเกษตรกร ตามแนวทางของกรมส่งเสริมการเกษตร กระทรวงเกษตรและสหกรณ์ เป็นการรวมตัวกันของสมาชิกที่มีความสามารถในงานจักสานย่านลิเภาในชุมชน มีเอกสารรับรองกลุ่มอาลีพจากเกษตรอำเภอจะนะ จังหวัดสงขลา ออกให้ ณ วันที่ 5 มีนาคม 2567 สมาชิกในกลุ่มจะทำหน้าที่ในการอนุรักษ์ สืบสานภูมิปัญญางานจักสานของชุมชน และพัฒนาผลิตภัณฑ์ใหม่ รูปแบบใหม่ ๆ ตามความต้องการของตลาดและผู้สนใจมี นางสุนิตย์ เกือแก้ว ปฏิบัติหน้าที่ประธานกลุ่มแม่บ้านเกษตรกรจักสานย่านลิเภาบ้านม้าเงย


หนังสือรับรอง

ภาพที่ 6 หนังสือรับรองกลุ่มแม่บ้านเกษตรกรจักรสานย่านลิเภา

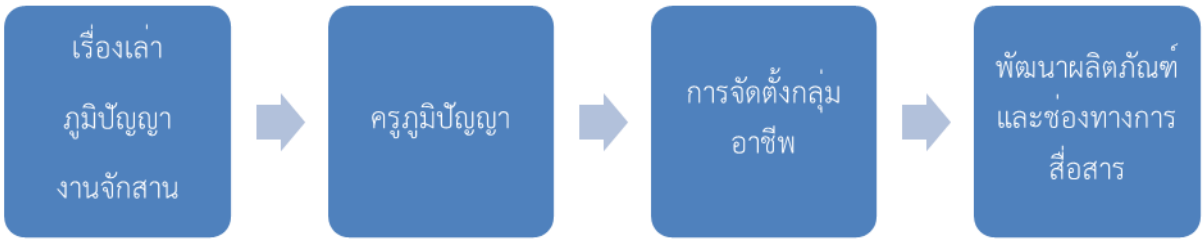
6.3 ช่องทางการติดต่อสื่อสาร

1. ณ ที่ทำการกลุ่มจักสานย่านลิเภาบ้านม้าเงย
   เลขที่ 102 หมู่ที่ 1 ตำบลป่าชิง อำเภอจะนะ จังหวัดสงขลา
   ผู้ประสานงาน คุณจาง ไชยวิรัตน์ โทร. 095-3094962
   คุณสุนิตย์ เกือแก้ว โทร. 063-2651956
2. ผ่านแฟนเพจ กลุ่มจักสานย่านลิเภาบ้านม้าเงย
   https://www.facebook.com/Lipaoarea
   แฟนเพจ เป็นทั้งช่องทางการประชาสัมพันธ์ข่าวสาร และการสั่งซื้อจากผู้สนใจผ่านทางแพลตฟอร์มออนไลน์

สรุปและอภิปรายผล

งานวิจัยเรื่อง การฟื้นฟูภูมิปัญญางานจักสานย่านลิเภาบ้านม้าเงย ตำบลป่าชิง อำเภอจะนะ จังหวัดสงขลา สะท้อนให้เห็นถึงความพยายามในการอนุรักษ์และสืบทอดทุนทางวัฒนธรรม (Cultural Capital) ของชุมชนท้องถิ่น ผ่านกระบวนการฟื้นฟูภูมิปัญญาหัตถกรรมจักสานที่กำลังจะเลือนหายไป โดยใช้แนวทางการศึกษาจากครูภูมิปัญญาท้องถิ่น ถ่ายทอดผ่านเรื่องเล่า (Storytelling) และประมวลข้อมูลเพื่อนำเสนอเป็นเรื่องราวที่ทรงคุณค่าต่อสังคม กระบวนการนี้สอดคล้องกับแนวคิดของ Bourdieu (1986) ที่พบว่า ทุนทางวัฒนธรรม ซึ่งฝังอยู่ในวิถีชีวิตของชุมชน เช่น ความรู้ ทักษะ และความเชี่ยวชาญในงานจักสาน เมื่อได้รับการฟื้นฟู ถ่ายทอด และต่อยอดอย่างเหมาะสม ไม่เพียงแต่ช่วยรักษาอัตลักษณ์ของชุมชน แต่ยังสามารถเปลี่ยนเป็นคุณค่าทางเศรษฐกิจและสังคมได้อย่างยั่งยืน นอกจากนี้ แนวทางการใช้ “เรื่องเล่า” และ “เรื่องราวจากครูภูมิปัญญา” ยังสอดคล้องกับแนวคิดของ Seroto (2011) ซึ่งเสนอว่าการเล่าเรื่องในชุมชนท้องถิ่นเป็นเครื่องมือสำคัญในการถ่ายทอดอัตลักษณ์และสืบทอดองค์ความรู้ จากรุ่นสู่รุ่น เช่นเดียวกันกับ Bessette (2004) ที่เน้นการสื่อสารเพื่อการพัฒนา (Communication for Development) โดยการใช้เนื้อหาเชิงวัฒนธรรมเป็นเครื่องมือเชื่อมโยงความรู้กับตลาดและสังคมภายนอก ในบริบทของไทย การศึกษาของ วิไลวรรณ ทองเจริญ (2560) แสดงให้เห็นว่าการรวมกลุ่มแม่บ้านเพื่อพัฒนางานจักสานในชุมชนบ้านบุ่งมีผลต่อการสร้างรายได้และเสริมสร้างอัตลักษณ์ท้องถิ่นอย่างยั่งยืน อีกทั้งถูกสนับสนุนจากงานวิจัยของ ศิริพร ศรีสุวรรณ (2563) ที่ย้ำถึงบทบาทของ Storytelling ในการเพิ่มมูลค่าและสื่อสารคุณค่าของผลิตภัณฑ์วัฒนธรรมชุมชนได้อย่างมีประสิทธิภาพ

การฟื้นฟูงานจักสานย่านลิเภาโดยชุมชนบ้านม้าเงย จึงมิใช่เพียงการอนุรักษ์งานหัตถกรรมตามพระราชเสาวนีย์ของสมเด็จพระนางเจ้าสิริกิติ์พระบรมราชินีนาถ หากแต่ยังเป็นกระบวนการพัฒนาโดยใช้ทุนทางวัฒนธรรมเป็นแกนกลาง ผ่านการมีส่วนร่วมของคนในชุมชน การรวมกลุ่มแม่บ้าน การออกแบบผลิตภัณฑ์ร่วมสมัย และการตลาดแบบผสมผสานระหว่างออนไลน์กับออฟไลน์ ซึ่งนอกจากจะช่วยสร้างความเข้มแข็งทางเศรษฐกิจแล้ว ยังเป็นการปลูกฝังความภาคภูมิใจในรากเหง้าและส่งต่อคุณค่าเหล่านี้ให้คนรุ่นหลังอย่างมีพลังและความหมาย โดยสามารถถ่ายทอดออกมาเป็นแนวทางการดำเนินงานผ่านโมเดลการฟื้นฟูอนุรักษ์ภูมิปัญญางานจักสานย่านลิเภาบ้านม้าเงย ตำบลป่าชิง อำเภอจะนะ ดังภาพที่ 7



ภาพที่ 7 โมเดลการฟื้นฟูอนุรักษ์ภูมิปัญญางานจักสานย่านลิเภาบ้านม้าเงย ตำบลป่าชิง อำเภอจะนะ

บรรณานุกรม

ปริญญา ตันติสุข. (2559). กระบวนการเล่าเรื่องและการสื่อสารเพื่ออนุรักษ์วัฒนธรรมท้องถิ่น: กรณีศึกษาเครื่องจักสานบ้านป่าข่า จังหวัดเชียงใหม่. วารสารนิเทศศาสตร์, 34(2), 112–130.

มติชนออนไลน์. (21 กันยายน 2565). สมเด็จพระพันปีหลวง ทรงอนุรักษ์ “จักสานไทย” หัตถกรรมล้ำค่า-สร้างอาชีพ. สืบค้นเมื่อ 18 ธันวาคม 2567 จาก https://www.matichon.co.th/royal/news_3574211.

รัตนะ บัวสนธิ์. (2535). การพัฒนาหลักสูตรและการจัดการเรียนการสอนเพื่อการถ่ายทอดภูมิปัญญาท้องถิ่น : กรณีศึกษาชุมชนแห่งหนึ่งในเขตภาคกลางตอนล่าง (ปริญญานิพนธ์ดุษฎีบัณฑิต). มหาวิทยาลัยศรีนครินทรวิโรฒ, กรุงเทพฯ.

รุ่ง แก้วแดง. (2543). ปฏิวัติการศึกษาไทย (พิมพ์ครั้งที่ 8). กรุงเทพฯ : มติชน.

วันเพ็ญ พวงพันธุ์บุตร. (2542). พื้นฐานวัฒนธรรมไทย. ลพบุรี : สถาบันราชภัฏเทพสตรี.

วิไลวรรณ ทองเจริญ. (2560). การอนุรักษ์และพัฒนาภูมิปัญญาท้องถิ่นด้านหัตถกรรมจักสานไม้ไผ่ของชุมชนบ้านบุ่ง อำเภอเมือง จังหวัดอำนาจเจริญ (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยราชภัฏอุบลราชธานี, อุบลราชธานี.

ศักดิ์ชัย เกียรตินาคินทร์. (2542). ภูมิปัญญาชุมชน ยาชุดวิเศษในการพัฒนา. วารสารวัฒนธรรมไทย, 36(9), 2-4.

ศิริพร ศรีสุวรรณ. (2563). การเล่าเรื่อง (Storytelling) เพื่อการสื่อสารคุณค่าของผลิตภัณฑ์วัฒนธรรมชุมชน. วารสารศิลปศาสตร์ มหาวิทยาลัยมหาสารคาม, 18(1), 112–126.

สำนักพัฒนาเกษตรกร กรมส่งเสริมการเกษตร. (2555). คู่มือการจัดตั้งและดำเนินงานกลุ่มแม่บ้านเกษตรกร. กรุงเทพฯ : สำนักพัฒนาเกษตรกร กรมส่งเสริมการเกษตร.

สุมาลี ชัยเจริญสุข. (2561). การใช้ภูมิปัญญาท้องถิ่นเพื่อพัฒนาผลิตภัณฑ์จักสานในชุมชนบ้านบางพลับ จังหวัดสมุทรสงคราม. วารสารวิชาการศิลปศาสตร์, 14(1), 45–58.

สุรสิทธิ์ ระวังวงศ์, ชาตรี หอมเขียว, อภิชล ทองมั่ง กำเนิดว้ำ และ ชัยวัฒนภัทร เลาสัตย์. (2565). การออกแบบและพัฒนาผลิตภัณฑ์ย่านลิเภาประเภทของใช้และประดับโดยใช้เทคนิคแบบจำลองธุรกิจ CANVAS ร่วมกับการแปลงหน้าที่เชิงคุณภาพ และวิศวกรรมคันไซ เพื่อยกระดับผลิตภัณฑ์วิสาหกิจชุมชนกลุ่มผู้ผลิตย่านลิเภา จังหวัดนครศรีธรรมราช. นครศรีธรรมราช : คณะวิศวกรรมศาสตร์ มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย.

เอกวิทย์ ณ ถลาง. (2544). ภูมิปัญญาอีสาน. กรุงเทพฯ : อมรินทร์.

Bessette, G. (2004). Involving the community : A guide to participatory development communication. International Development Research Centre (IDRC).

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), Handbook of theory and research for the sociology of education (pp. 241–258). New York, NY: Greenwood.

Hall, S. (1997). Representation: Cultural representations and signifying practices. London: Sage.

Krippendorff, K. (2004). Content analysis: An introduction to its methodology (2nd ed.). Thousand Oaks, CA : Sage.

Seroto, J. (2011). Indigenous education and heritage preservation: A case of oral tradition and cultural expression. Indilinga: African Journal of Indigenous Knowledge Systems, 10(2), 145–157.

Smith, L. T. (2006). Decolonizing methodologies: Research and indigenous peoples (2nd ed.). London : Zed Books.

แนวทางการพัฒนาการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลา: กรณีศึกษาหลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง

Guidelines for the development of cultural tourism in the Songkhla Lake Basin: Case Study Lad Tainod, Donsai Subdistrict, Khuan Kanun District, Patthalung Province

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อ 1) ศึกษาบริบทชุมชนของแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลาในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง 2) ศึกษาความพึงพอใจของนักท่องเที่ยวที่มีต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลาในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง 3) ศึกษาแนวทางการพัฒนาการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลาในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ใช้ระเบียบวิธีวิจัยเชิงคุณภาพ เก็บรวบรวมข้อมูลโดยใช้การสัมภาษณ์เชิงลึก การสังเกตแบบไม่มีส่วนร่วม การศึกษาข้อมูลจากเอกสารและสื่ออิเล็กทรอนิกส์ และการวิเคราะห์เชิงพรรณนา กลุ่มผู้ให้ข้อมูลหลักคือ 25 ราย โดยใช้การสุ่มตัวอย่างแบบเจาะจง ร่วมกับการใช้ระเบียบวิธีวิจัยเชิงปริมาณ ใช้แบบสอบถามกับนักท่องเที่ยวที่เดินทางมาท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง จำนวน 400 คน ด้วยวิธีการสุ่มตามความสะดวก วิเคราะห์ข้อมูลด้วยการใช้สถิติ วิเคราะห์ผลและเขียนสรุปเชิงพรรณนา

ผลการศึกษาพบว่า 1) บริบทชุมชนของแหล่งท่องเที่ยวเชิงวัฒนธรรมเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลาในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง มีลักษณะสำคัญคือ การดำเนินชีวิตตามวิถี ป่า นา เล ให้ความสำคัญกับทรัพยากรธรรมชาติของชุมชน นำทรัพยากรและศิลปวัฒนธรรมที่มีอยู่ในชุมชนมาเป็นแหล่งท่องเที่ยวเชิงวัฒนธรรม 2) นักท่องเที่ยวมีความพึงพอใจต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุงโดยรวมอยู่ในระดับมาก และ 3) แนวทางการพัฒนาท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลาในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง คือการสร้างอัตลักษณ์ให้หลาดใต้โหนด สร้างชุมชนให้เข้มแข็งและยั่งยืน

คำสำคัญ: การท่องเที่ยวเชิงวัฒนธรรม, ลุ่มน้ำทะเลสาบ, หลาดใต้โหนด

Abstract

This research aimed to 1) study the community context of the cultural tourism attraction of Songkhla Lake Basin, Lad Tainod, Don Sai Sub-district, Khuan Khanun District, Phatthalung Province, 2) study the satisfaction of tourists toward the cultural tourism attraction of Songkhla Lake Basin, Lad Tainod, Don Sai Sub-district, Khuan Khanun District, Phatthalung Province, 3) Guidelines for the development of cultural tourism approach of Songkhla Lake Basin in Lad Tainod area, Don Sai Sub-district, Khuan Khanun District, Phatthalung Province. The qualitative research method was used to collect data by in-depth interviews, non-participant observation, studying data from documents and electronic media, and descriptive analysis. The main informants were 25 persons. The purposive sampling was used together with the quantitative research method. A questionnaire was used to collect 400 tourists who traveled to the cultural tourism attraction of Lad Tainod, Don Sai Sub-district, Khuan Khanun District, Phatthalung Province by convenience sampling. The data were analyzed by using statistics, analyzing the results, and writing a descriptive summary.

The results of the study found that 1) The context of the community of the Songkhla Lake Basin cultural tourism site, Lad Tainod, Don Sai Subdistrict, Khuan Khanun District, Phatthalung Province, has important characteristics, namely, the way of life according to the way of life of the mountains, forests, rice fields, and sea, giving importance to the natural resources of the community, and using the resources and arts and cultures in the community as cultural tourism sites. 2) Tourists are satisfied with the cultural tourism site of the Songkhla Lake Basin, Lad Tainod, Don Sai Subdistrict, Khuan Khanun District, Phatthalung Province at a high level overall. 3) The approach for cultural tourism of the Songkhla Lake Basin in the area of Lad Tainod, Don Sai Subdistrict, Khuan Khanun District, Phatthalung Province is to create an identity for Lad Tainod, creating a strong and sustainable community.

Keywords: Cultural Tourism, Lake Basin, Lad Tainod

บทนำ

อุตสาหกรรมการท่องเที่ยวในประเทศไทยมีบทบาทสำคัญต่อระบบเศรษฐกิจของประเทศ ความสำคัญของอุตสาหกรรมท่องเที่ยวเริ่มมีบทบาทตั้งแต่ พ.ศ. 2503 มีการก่อตั้งองค์การส่งเสริมการท่องเที่ยวของประเทศไทย (อ.ส.ท.) ปัจจุบันได้เปลี่ยนชื่อเป็นการท่องเที่ยวแห่งประเทศไทย (ททท.) เป็นรัฐวิสาหกิจภายใต้กระทรวงการท่องเที่ยว มีหน้าที่ในการส่งเสริมการท่องเที่ยวในประเทศไทย รับผิดชอบด้านการตลาดในการส่งเสริมการท่องเที่ยวของนักท่องเที่ยวชาวไทยและชาวต่างชาติให้เที่ยวในประเทศไทย สร้างสรรค์สินค้าการท่องเที่ยวที่มีมาตรฐาน คุณภาพและรับผิดชอบต่อสิ่งแวดล้อม ขับเคลื่อนระบบนิเวศด้านการท่องเที่ยวให้พร้อมรองรับนักท่องเที่ยวคุณภาพอย่างยั่งยืน พัฒนาระบบเทคโนโลยีสารสนเทศการตลาดและข้อมูลด้านการตลาดการท้องเที่ยวที่ครอบคลุมครบถ้วนเพื่อตอบสนองความต้องการต่อนักท่องเที่ยว (กระทรวงการท่องเที่ยวและกีฬา, 2566)

ข้อมูลพฤติกรรมการเดินทางของนักท่องเที่ยวชาวไทยและชาวต่างชาติ (คณะกรรมการนโยบายการท่องเที่ยวแห่งชาติ, 2566) แสดงข้อมูลแนวโน้มการเปลี่ยนแปลงที่สำคัญของโลก (Mega Trend) ความพร้อมของอุตสาหกรรมท่องเที่ยวไทยทั้งในด้านของแหล่งท่องเที่ยว ชุมชนท่องเที่ยว ความยั่งยืนของทรัพยากรและวัฒนธรรม และโครงสร้างพื้นฐานต่าง ๆ พบว่า มีประเภทการท่องเที่ยวที่ประเทศไทยมีศักยภาพ 7 ประเภทคือ การท่องเที่ยวเชิงสร้างสรรค์และวัฒนธรรม (Creative Tourism) การท่องเที่ยวเชิงธุรกิจ (MICE) การท่องเที่ยวเชิงกีฬา (Sport Tourism) การท่องเที่ยวเชิงสุขภาพ ความงามและแพทย์แผนไทย (Medical and Wellness Tourism) การท่องเที่ยวสำราญทางน้ำ (Coastal Maritime and River Tourism) การท่องเที่ยวเชื่อมโยงอนุภูมิภาค ชุมชน และนานาชาติ (Connectivity Tourism) และการท่องเที่ยวอย่างมีความรับผิดชอบ (Responsible Tourism)

หลาดใต้โหนด ตั้งอยู่ในพื้นที่อำเภอควนขนุน จังหวัดพัทลุง ซึ่งเป็นพื้นที่รวบรวมศิลปวัฒนธรรม อาหารพื้นบ้าน วัตถุดิบท้องถิ่นจากป่า นา เล พื้นที่ส่วนหนึ่งติดกับเขตลุ่มน้ำทะเลสาบสงขลา ดังนั้นผู้วิจัยจึงมีความสนใจศึกษาบริบทของชุมชน ความพึงพอใจของนักท่องเที่ยวที่มีต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด และวิเคราะห์แนวทางการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง เพื่อให้แหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลาในพื้นที่หลาดใต้โหนดมีความยั่งยืน สามารถพัฒนาศักยภาพเพื่อให้เป็นแหล่งท่องเที่ยวทางวัฒนธรรมที่ตอบสนองความต้องการของนักท่องเที่ยว และหากได้มีการพัฒนาและส่งเสริมการท่องเที่ยวอย่างเหมาะสมก็จะเป็นการกระตุ้นระบบเศรษฐกิจของจังหวัดพัทลุงได้ แต่ทั้งนี้ยังไม่ได้รับส่งเสริมหรือมีแนวทางพัฒนาแหล่งท่องเที่ยวให้เป็นที่รู้จักเท่าที่ควรและไม่เกิดเป็นรูปธรรม (พัชรี กล่อมเมือง, ณัฏฐา เกิดทรัพย์, วัชรินทร์ อินทพรหม, วณิฎา ศิริวรสกุล, และ พัลยมน สินหนัง, 2567)

จากที่มาและความสำคัญของปญหาขางตน ผูวิจัยจึงตองการศึกษาบริบทชุมชนและความพึงพอใจของนักท่องเที่ยวที่มีต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลาในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง เพื่อจะไดนำขอมูลตาง ๆ มาวิเคราะหหาแนวทางพัฒนา และสงเสริมการทองเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลาในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ใหมีศักยภาพรองรับการทองเที่ยวไดอยางมีประสิทธิภาพ ตลอดจนสงเสริมประชาชนในทองถิ่นและนักทองเที่ยวไดเกิดความรูความเขาใจที่ถูกตอง เกี่ยวกับการทองเที่ยวเชิงวัฒนธรรมและนำไปสูการทองเที่ยวอยางยั่งยืน

วัตถุประสงค์ของการวิจัย

1) ศึกษาบริบทชุมชนของแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง

2) เพื่อศึกษาความพึงพอใจของนักท่องเที่ยวที่มีต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง

3) เพื่อศึกษาแนวทางการพัฒนาการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง

แนวคิด ทฤษฎี

แนวคิดการท่องเที่ยวเชิงวัฒนธรรม

การท่องเที่ยวทางวัฒนธรรมเป็นหนึ่งในรูปแบบการท่องเที่ยวที่ได้รับความนิยมในปัจจุบัน เนื่องจากการท่องเที่ยวเชิงวัฒนธรรมให้ความสนใจกับการเรียนรู้ประวัติศาสตร์ท้องถิ่น การเที่ยวชมวัฒนธรรมประเพณี และการท่องเที่ยวเพื่อชมวิถีชีวิตในชนบท ดังนั้นการท่องเที่ยวในลักษณะนี้จึงมุ่งเน้นการหาความรู้และการสร้างความภาคภูมิใจในวัฒนธรรมประเพณี การเที่ยวชมศิลปวัฒนธรรมแขนงต่าง ๆ เช่น สถาปัตยกรรม จิตรกรรม ประติมากรรม ภาษาและวรรณกรรม นาฏศิลป์ ดนตรี การแสดงรูปแบบต่าง ๆ ในขณะเดียวกัน Howell (1989) กล่าวว่า การท่องเที่ยวเชิงวัฒนธรรม หมายถึง การที่ผู้คนเดินทางมาที่แหล่งท่องเที่ยวเพื่อเรียนรู้หาประสบการณ์และความบันเทิง โดยนักท่องเที่ยวจะได้สัมผัสว่าท้องถิ่นที่แตกต่างกัน มีศิลปวัฒนธรรมที่โดดเด่นเป็นเอกลักษณ์ต่างกัน นักท่องเที่ยวมีประสบการณ์ที่ดีจากการได้เรียนรู้ศิลปวัฒนธรรมในพื้นที่ต่างกัน การให้คำนิยามของการท่องเที่ยวเชิงวัฒนธรรมของนักวิชาการแม้จะมีประเด็นที่แตกต่างกันไปบ้างแต่ล้วนมีจุดมุ่งเน้นเดียวกันในประเด็นรูปแบบการท่องเที่ยวที่ได้รับแรงบันดาลใจหรือสิ่งกระตุ้นให้เดินทางไปยังจุดหมายปลายทางการท่องเที่ยว เพื่อสังเกต เรียนรู้ มีประสบการณ์ร่วม และตระหนักถึงคุณค่าทางวัฒนธรรมของชุมชนในจุดหมายปลายทางนั้น ซึ่งครอบคลุมถึงงานสร้างสรรค์ ขนบธรรมเนียมประเพณี และกิจการต่าง ๆ ของชุมชนที่เป็นจุดหมายปลายทาง ทั้งนี้นักท่องเที่ยวและคนในชุมชนต้องเคารพกันและกัน (นุชนารถ รัตนสุวงศ์ชัย, 2554) ทั้งนี้หมายรวมถึงเรียนรู้และเข้าใจวัฒนธรรมของกันและกันเพื่อเกิดมิตรภาพและสันติภาพระหว่างชุมชนได้อย่างยั่งยืน

องค์ประกอบหลักของการท่องเที่ยวเชิงวัฒนธรรม (ศิริพร ถาวรวิสิทธิ์ และ เสรี วงษ์มณฑา, 2564) มีทั้งหมด 10 องค์ประกอบ คือ

1. ประวัติศาสตร์และร่องรอยทางประวัติศาสตร์
2. โบราณคดีและพิพิธภัณฑ์
3. งานสถาปัตยกรรมเก่าแก่ดั้งเดิม สิ่งปลูกสร้าง ผังเมืองเก่า ซากปรักหักพัง
4. ศิลปะ หัตถกรรม ประติมากรรม ภาพวาด รูปปั้นและแกะสลัก
5. ศาสนารวมถึงพิธีกรรมทางศาสนา
6. ดนตรี การแสดงละครและภาพยนตร์
7. ภาษาและวรรณกรรม
8. วิถีชีวิต เสื้อผ้า เครื่องแต่งกาย อาหาร
9. ประเพณีวัฒนธรรมพื้นบ้าน เทศกาลต่าง ๆ
10. ลักษณะงานและเทคโนโลยี ภูมิปัญญาท้องถิ่นที่นำมาใช้เฉพาะท้องถิ่น

แนวคิดเกี่ยวกับความพึงพอใจ

Kotler (1999) กล่าวว่า ความพึงพอใจของลูกค้าเป็นอีกแนวคิดที่สำคัญที่ได้รับการศึกษามากที่สุด เพราะความพึงพอใจของลูกค้ามีบทบาทสำคัญในการสร้างความได้เปรียบทางธุรกิจ เนื่องจากมีอิทธิพลต่อการรักษาลูกค้าเก่า และการแนะนำลูกค้าใหม่ความพึงพอใจเป็นปัจจัยสำคัญในการตัดสินใจของลูกค้าว่าจะใช้บริการ และจะเกี่ยวข้องกับผลิตภัณฑ์หรือบริการหรือไม่ ในการซื้อของออนไลน์ รวมถึงการซื้ออาหาร ความพึงพอใจของลูกค้าเป็นหนึ่งในปัจจัยสำคัญที่นำไปสู่การรักษาฐานลูกค้าและ

ขยายกลุ่มลูกค้าใหม่ รวมถึงความตั้งใจที่จะกลับมาซื้อซ้ำในระยะยาว ดังนั้นผู้วิจัยจึงได้ทำการศึกษาปัจจัยที่ส่งผลต่อความพึงพอใจของนักท่องเที่ยวที่มีต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบ ในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง สามารถนำไปพัฒนาหรือปรับปรุงเพื่อให้ลูกค้าที่ใช้บริการมีความพึงพอใจต่อการท่องเที่ยว

แนวคิดการวิเคราะห์สภาพแวดล้อมและศักยภาพองค์กร

การวิเคราะห์สภาพแวดล้อมและศักยภาพองค์กร (SWOT Analysis) เป็นแนวคิดที่ใช้วิเคราะห์จุดแข็ง จุดอ่อน โอกาส และอุปสรรคของหน่วยงานหรือองค์กรเพื่อเรียนรู้สภาพที่แท้จริงขององค์กรและนำมาสู่แนวทางในการจัดการองค์กรในอนาคตเป็นกลยุทธ์ที่หน่วยงานหรือองค์กรพัฒนาขึ้นเอง (ธนภณ นิธิเชาวกุล, 2562) สามารถแบ่งการวิเคราะห์ข้อมูลของหน่วยงานและองค์กรเป็น 2 ส่วนคือ สภาพแวดล้อมภายในและสภาพแวดล้อมภายนอก

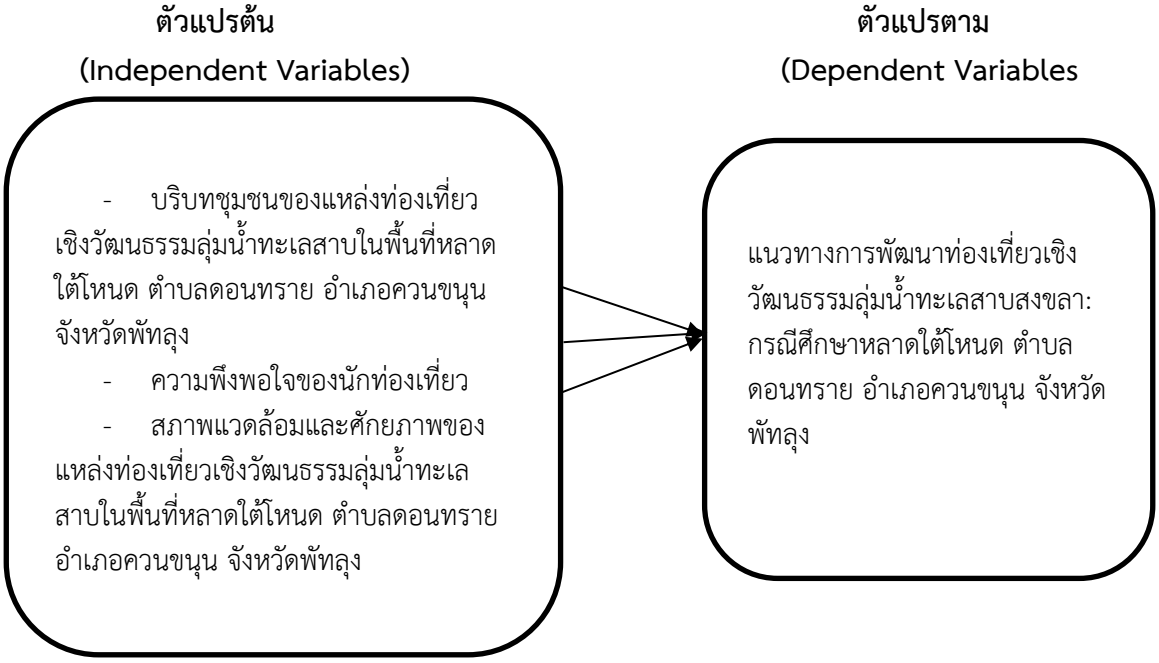
สภาพแวดล้อมภายใน หมายถึง สิ่งที่เกิดขึ้นจากเหตุและปัจจัยภายในหน่วยงานหรือองค์กรแบ่งเหตุและปัจจัยจากส่วนประสมทางการตลาด การเงิน การผลิต บุคลากร การบริหารงานและการจัดการองค์กร การวิเคราะห์มีรายละเอียดดังนี้

- จุดแข็ง (Strengths: S) หมายถึงจุดแข็งหรือข้อได้เปรียบเกิดจากสภาพแวดล้อมภายในเกิดจากการสำรวจข้อมูลเชิงปริมาณและเชิงคุณภาพควบคู่กัน จุดแข็งดังกล่าวเกิดจากการเปรียบเทียบกับคู่ค้าหรือคู่แข่งขันทางธุรกิจเพื่อให้เห็นข้อแตกต่างชัดเจน
- จุดอ่อน (Weakness: W) หมายถึงจุดอ่อนหรือข้อด้อยที่เกิดจากสภาพแวดล้อมภายในที่ส่งผลกระทบต่อองค์กร เป็นสิ่งจำเป็นที่หน่วยงานและองค์กรต้องพัฒนาเพื่อให้มีทิศทางการจัดการองค์กรที่ดีขึ้น การวิเคราะห์จุดอ่อนนี้เพื่อค้นหาช่องทางในการสร้างความเข้มแข็งให้องค์กร จุดอ่อนดังกล่าวเกิดจากการเปรียบเทียบกับคู่ค้าหรือคู่แข่งขันทางธุรกิจเพื่อให้เห็นข้อแตกต่างชัดเจน

สภาพแวดล้อมภายนอก หมายถึง สิ่งที่เกิดขึ้นจากเหตุปัจจัยภายในหน่วยงานหรือองค์กรแบ่งเหตุและปัจจัยต่าง ๆ จากกิจการทุกรูปแบบ การจัดจำหน่ายสินค้าหรือบริการในลักษณะเดียวกัน เช่น คู่แข่ง ผู้รับบริการ ผู้ผลิต พ่อค้าคนกลาง สภาพสังคม เศรษฐกิจ การเมือง กฎหมาย วัฒนธรรมและทรัพยากรทางธรรมชาติของหน่วยงานหรือองค์กร

- โอกาส (Opportunittes: O) หมายถึงข้อได้เปรียบที่มาจากปัจจัยภายนอกซึ่งเป็นสิ่งที่หน่วยงานหรือองค์กรแสวงหาเพื่อนำโอกาสนั้นมาเป็นแนวทางในการจัดการแนวทางกลยุทธ์ทางการตลาดของหน่วยงานและองค์กรตามความเหมาะสมเพื่อเพิ่มโอกาสในการสร้างจุดแข็งให้ตนเอง
- อุปสรรค (Threats: T) หมายถึงปัญหาที่เกิดจากสภาพแวดล้อมภายนอก ซึ่งไม่สามารถควบคุมได้ หน่วยงานและองค์กรจึงต้องปรับแผนงานจากการวิเคราะห์อุปสรรคเพื่อให้การตลาดของหน่วยงานและองค์กรพัฒนาขึ้นได้ สามารถรับมือกับปัญหาและอุปสรรคที่เกิดขึ้น

กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

วิจัยครั้งนี้เป็นการวิจัยแบบผสมผสาน (Mixed Methods Research) ใช้ระเบียบวิธีวิจัยเชิงคุณภาพ (Qualitative Research) ในการศึกษาบริบทชุมชนของหลาดใต้โหนดและใช้ระเบียบวิธีวิจัยเชิงปริมาณ (Quantitive Research) ในการศึกษาความพึงพอใจของนักท่องเที่ยวที่มีต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบ: กรณีศึกษาหลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง จากนั้นนำข้อมูลมาวิเคราะห์ สังเคราะห์ ประมวลผล เขียนสรุปและอภิปรายผล

ประชากรและกลุ่มตัวอย่าง

1. การวิจัยเชิงปริมาณ ประชากร คือ นักท่องเที่ยวชาวไทยที่มาท่องเที่ยวในแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง กลุ่มตัวอย่างไม่ทราบจำนวนประชากรที่แน่นอน ที่ใช้เก็บข้อมูลคือนักท่องเที่ยวชาวไทยและชาวต่างชาติ จำนวน 400 ตัวอย่าง ใช้สูตรการคำนวณขนาดกลุ่มตัวอย่างตามแนวทางของ กัลยา วานิชย์บัญชา (2561) โดยกำหนดค่าระดับความเชื่อมั่นที่ร้อยละ 95 โดยการสุ่มตัวอย่างใช้วิธีการสุ่มตัวอย่างแบบสะดวก (Convenience Sampling)

2. การวิจัยเชิงคุณภาพ กลุ่มผู้ให้ข้อมูลหลัก 25 ราย ได้แก่ ผู้จัดการหลาดใต้โหนดและคณะกรรมการตลาด จำนวน 3 ราย กลุ่มตัวแทนผู้ประกอบการหลาดใต้โหนดจำนวน 10 ราย นักวิชาการด้านวัฒนธรรมจำนวน 5 ราย และปราชญ์ชาวบ้านจำนวน 7 ราย กลุ่มตัวอย่างใช้วิธีการสุ่มแบบเจาะจง (Purposive Sampling)

เครื่องมือที่ใช้ในการวิจัย

ในงานวิจัยเรื่องแนวทางการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบ: กรณีศึกษาหลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุงใช้เครื่องมือวิจัยดังนี้

1. แบบสัมภาษณ์ ใช้แบบสัมภาษณ์แบบกึ่งโครงสร้าง (Semi- structured Interview) แนวคำถามในประเด็นแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง
2. การสังเกตแบบไม่มีส่วนร่วม (Non-participant Observation)
3. อุปกรณ์บันทึกภาพและสมุดจดข้อมูลเพื่อเก็บข้อมูลประกอบการวิจัย
4. แบบสอบถาม (Questionnaire) โดยการดัดแปลงข้อคำถามจากงานวิจัยที่เกี่ยวข้อง โดยแบ่งแบบสอบถามออกเป็น 3 ตอน ตอนที่ 1 ข้อมูลพื้นฐานของนักท่องเที่ยวที่มาท่องเที่ยวแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ตอนที่ 2 ข้อมูลพฤติกรรมนักท่องเที่ยวที่มีต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ตอนที่ 3 ข้อมูลเกี่ยวกับระดับความพึงพอใจ ความคิดเห็นและข้อเสนอแนะของนักท่องเที่ยว

การเก็บรวบรวมข้อมูล

1. สำรวจชุมชนเพื่อศึกษาข้อมูลเบื้องต้น สำรวจเอกสารงานวิจัยที่เกี่ยวข้องและลงพื้นที่จริงเพื่อ
2. สำรวจข้อมูลหลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง
3. ประสานงานเพื่อขอเข้าสัมภาษณ์บุคคลที่เป็นผู้ให้ข้อมูลหลัก
4. เก็บข้อมูลการสัมภาษณ์ตามแบบสัมภาษณ์และบันทึกข้อมูล
5. ลงพื้นที่วันเปิดหลาดใต้โหนดเพื่อเก็บข้อมูลจากนักท่องเที่ยว
6. นำข้อมูลมาวิเคราะห์ สังเคราะห์โดยใช้สถิติในการหาคำตอบตามวัตถุประสงค์ของการวิจัย
7.เขียนสรุปผลการวิจัย นำเสนอข้อมูลเชิงพรรณนา

การวิเคราะห์ข้อมูล

1. การวิจัยเชิงปริมาณ ใช้สถิติเชิงพรรณนา (Descriptive Statistics) ได้แก่ ค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน เพื่อวัดระดับความพึงพอใจของนักท่องเที่ยวที่มีต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมในพื้นที่หลาดใต้โหนด

2. การวิจัยเชิงคุณภาพ ใช้การวิเคราะห์เนื้อหา (Content Analysis) ซึ่งได้จากการศึกษาเอกสาร โดยคำนึงถึงบริบทหรือสภาพแวดล้อมของข้อมูลจากการลงพื้นที่สัมภาษณ์และสังเกต นำมาวิเคราะห์ประกอบและนำเสนอในรูปของข้อความแบบบรรยาย

ผลการวิจัย

1) ศึกษาบริบทชุมชนของแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลา หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง

บริบทชุมชนของแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลาในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง พบว่า มีลักษณะสำคัญ คือ ชุมชนมีพื้นที่ตั้งอยู่ในพื้นที่อุดมสมบูรณ์ในด้านทรัพยากรทางธรรมชาติประกอบด้วย “ป่า-นา-เล” จึงทำให้ชาวบ้านในชุมชนมีวิถีชีวิตที่เรียบง่าย ประกอบอาชีพตามทรัพยากรธรรมชาติที่มีอยู่ในชุมชน เก็บของตามป่าเขา ทำนา เก็บของตาม

ท้องทุ่งนา ทำการประมง เพื่อมาซื้อขายแลกเปลี่ยนสินค้ากันในชุมชน การนำวัตถุดิบในชุมชนมาแปรรูปเพื่อจำหน่ายสร้างรายได้ให้กับคนในชุมชน

ด้านศาสนาและความเชื่อของคนในชุมชน ประชากรในตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุงมีผู้นับถือศาสนาพุทธเป็นหลักประมาณร้อยละ 98 ผู้นับถือศาสนาอิสลามร้อยละ1.5 และผู้นับถือศาสนาคริสต์ร้อยละ 0.5 ตามลำดับ ประเพณีที่สำคัญของชุมชนจึงมีความเกี่ยวข้องกับวันสำคัญทางศาสนาพุทธเป็นหลัก เช่น ประเพณีสารทเดือนสิบ งานสงกรานต์ งานปีใหม่ มีความเชื่อเกี่ยวกับสิ่งที่ชาวบ้านในชุมชนใช้เพื่อการประกอบอาชีพ เช่น ชาวนามีความเชื่อเกี่ยวกับแม่โพสพ เพื่อให้การเพาะปลูกข้าวเจริญงอกงาม เกษตรกรมีความเชื่อและแสดงความนับถือต่อแหล่งพื้นที่ทำกินของตนเอง จึงมักมีการตั้งศาลพระภูมิเจ้าที่เพื่อแสดงความเคารพและเป็นเครื่องยึดเหนี่ยวจิตใจในการประกอบอาชีพ มีวิถีความเชื่อเกี่ยวกับศิลปะการแสดงประจำท้องถิ่นในการแสดงมโนราห์และหนังตะลุง การแสดงความเคารพต่อบรรพบุรุษเพื่อให้บรรพบุรุษคุ้มครองให้แคล้วคลาดปลอดภัย

ผลิตภัณฑ์ท้องถิ่นที่สำคัญคือ ผลิตภัณฑ์จากกะลามะพร้าวที่นำมาทำเป็นผลิตภัณฑ์หลากหลาย เช่น โดมไฟ ทัพพี ตะหลิว กระบวยตักน้ำ กระปุกออมสิน เป็นต้น ผลิตภัณฑ์จากกระจูดที่นำมาเป็นผลิตภัณฑ์ที่หลากหลาย เช่น เสื่อ กระเป๋า การรักษาโรคด้วยสมุนไพรพื้นบ้าน อาหารท้องถิ่นที่สำคัญ เช่น เม็ดสาคูต้น เม็ดมะม่วงหิมพานต์ กะละแม กล้วยฉาบ น้ำพริกแมงดา ปลาดุกร้า แกงลูกปลา ข้าวสังข์หยด ไหลบัว สายบัว เป็นต้น ซึ่งผลิตภัณฑ์ท้องถิ่นดังกล่าวช่วยสร้างอาชีพให้คนในชุมชน เพิ่มมูลค่าทางเศรษฐกิจ ชาวบ้านมีพื้นที่ในการประกอบอาชีพ มีความภาคภูมิใจในศิลปหัตถกรรมท้องถิ่นของตนเอง

หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง เปิดทำการเมื่อ 18 มกราคม พ.ศ. 2558 เปิดดำเนินการเฉพาะ วันอาทิตย์ 8.00 - 15.00 น. คำว่า “โหนด” มาจากต้นตาลโตนดที่มีอยู่บนผืนนาเดิมของที่ดิน แนวคิดหลักของสถานที่แห่งนี้คือ “ทุกคนเป็นเจ้าของตลาดร่วมกัน” มีหน้าที่ในการดูแลรักษา บริหาร และต้อนรับผู้มาเยือนด้วยความเป็นกันเอง เสมือนนักท่องเที่ยวเป็นสมาชิกในชุมชน สินค้า ประกอบด้วยพืชผักสวนครัว ผักและผลไม้สดตามฤดูกาล สมุนไพรพื้นบ้าน ผลิตภัณฑ์ท้องถิ่น อาหารท้องถิ่น นอกจากเป็นตลาดขายสินค้าพื้นบ้านแล้ว ยังมีพื้นที่แสดงศิลปวัฒนธรรมท้องถิ่นที่แสดงอัตลักษณ์ของจังหวัดพัทลุง

บริบทชุมชนของแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลาในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง มีเอกลักษณ์เฉพาะที่แสดงศิลปะและวัฒนธรรมท้องถิ่น นำเสนอความเป็นท้องถิ่นจนเป็นจุดแข็งของชุมชน ดังคำให้สัมภาษณ์ของผู้จัดการหลาดใต้โหนด

“หลาดใต้โหนดเดิมเป็นบ้านนักเขียน ต่อมาได้ขยายพื้นที่เปิดเป็นตลาดขายผักบ้าน ๆ ของกินบ้าน ๆ ที่พัทลุงบ้านเรา การแสดงที่เห็นในหลาดของเราเป็นเด็กในชุมชนดอนทรายเราเองฝึก เราแบ่งพื้นที่ให้เหมาะสมแบ่งโซนการขายสินค้า การแสดง มุมพักผ่อน เลือกเปิดหลาดวันอาทิตย์เพราะวันอาทิตย์เป็นวันหยุด อยากให้แต่ละครอบครัวมาเที่ยวด้วยกันในวันหยุด ลดเวลาที่อยู่หน้าจอ ขอเวลาให้ครอบครัวบ้าง ถ้าทุกคนอยากได้ความเป็นพัทลุง มาที่หลาดใต้โหนด คือ ได้ครบ”

(ผู้ให้สัมภาษณ์คนที่ 1, 8 กุมภาพันธ์ 2568)

คำให้สัมภาษณ์ของผู้ประกอบการหลาดใต้โหนด กล่าวว่า

“สินค้าในหลาด พวกเราเอามาจากริมรั้วบ้าน หรือของที่มีอยู่ที่บ้าน เราต้องการช่วยคนในชุมชนด้วยกัน ต้องการให้อาหาร สินค้าและศิลปหัตถกรรมที่ทำโดยคนควนหนุนบ้านเรา พรกนี่ก็ของดีชุมชน ลูกปัดโนราห์ก็ของบ้านเรา ดุกร้า ปลาแบร์ แกงน้ำเคย หาไม่ได้ที่อื่นแต่พัทลุงบ้านเรามี ทุกอย่างที่เราช่วยกันสร้าง ช่วยกันทำ ช่วยกันขาย ทำให้ทุกวันนี้หลาดเรามีนักท่องเที่ยวมาไม่ขาดสาย”

(ผู้ให้สัมภาษณ์คนที่ 2, 9 กุมภาพันธ์ 2568)

จากคำให้สัมภาษณ์ของผู้จัดการหลาดใต้โหนด คณะกรรมการหลาดใต้โหนดและผู้ประกอบการหลาดใต้โหนดแสดงให้เห็นว่า หลาดใต้โหนดเป็นแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบที่มีความอุดมสมบูรณ์ด้วยทรัพยากร “ป่า นา เล” สินค้าและศิลปวัฒนธรรมที่นำมาจัดแสดงรอบพื้นที่บ่งบอกอัตลักษณ์ชุมชน การนำของดีแต่ละหมู่บ้านมารวมกันไว้ในหลาดใต้โหนด การสร้างความร่วมมือกันระหว่างชาวบ้านในชุมชนกับผู้จัดการตลาดรวมถึงคณะกรรมการตลาด สร้างความเข้าใจและความต้องการของชุมชนจนกลายเป็นพื้นที่ที่มีทุนทางวัฒนธรรมที่เข้มแข็ง ชาวบ้านสามารถนำทุนทางวัฒนธรรมที่ตนเองมีอยู่แล้วมาต่อยอดเพื่อขับเคลื่อนเศรษฐกิจชุมชนได้ ปัจจุบันหลาดใต้โหนดดำเนินกิจการมาแล้ว 10 ปี และกำลังก้าวสู่ปีที่ 11 แสดงให้เห็นว่า ชุมชนแห่งนี้มีความเข้มแข็ง ทำให้นักท่องเที่ยวให้ความสนใจแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลาในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง

2) เพื่อศึกษาความพึงพอใจของนักท่องเที่ยวที่มีต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบ หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง

ผลการวิจัยเชิงปริมาณ เพื่อศึกษาความพึงพอใจของนักท่องเที่ยวที่มีต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมในพื้นที่หลาดใต้โหนด พบว่า 1) ผลการวิเคราะห์ข้อมูลพื้นฐานทั่วไปของนักท่องเที่ยวจากจำนวนนักท่องเที่ยว 400 คน เป็นเพศหญิง จำนวน 322 คน คิดเป็นร้อยละ 81.00 มีอายุต่ำกว่า 25 ปี จำนวน 163 คน คิดเป็นร้อยละ 40.75 มีสถานภาพโสด จำนวน 226 คน คิดเป็นร้อยละ 56.50 มีภูมิลำเนาอยู่ในจังหวัดพัทลุง จำนวน 248 คน คิดเป็นร้อยละ 62.00 มีระดับการศึกษามัธยมศึกษา จำนวน 158 คน คิดเป็นร้อยละ 47.00 มีอาชีพเป็นนักเรียน-นักศึกษา จำนวน 148 คน คิดเป็นร้อยละ 36.77 มีรายได้เฉลี่ยต่อเดือนตั้งแต่ 5,000-10,000 บาท จำนวน 254 คน คิดเป็นร้อยละ 63.50 2) การวิเคราะห์ข้อมูลพฤติกรรมของนักท่องเที่ยวเชิงวัฒนธรรม การเดินทางมากับกลุ่มเพื่อน จำนวน 253 คน คิดเป็นร้อยละ 63.25 ใช้รถยนต์ส่วนตัวจำนวน 295 คน คิดเป็นร้อยละ 73.75 รู้จักสถานที่ท่องเที่ยวจากเพื่อน/ญาติ จำนวน 324 คน คิดเป็นร้อยละ 81.00 และจุดประสงค์หลักของการเดินทางมาท่องเที่ยวในครั้งนี้เพื่อพักผ่อนหย่อนใจจำนวน 195 คน คิดเป็นร้อยละ 48.75 3) ผลการวิเคราะห์ข้อมูลระดับความพึงพอใจและข้อเสนอแนะของนักท่องเที่ยวที่มีต่อองค์ประกอบการท่องเที่ยวเชิงวัฒนธรรมหลาดใต้โหนด ทั้ง 5 ด้าน คือ ด้านแรงจูงใจ ด้านการจัดกิจกรรม ด้านการเดินทาง ด้านสิ่งอำนวยความสะดวกและด้านการกลับมาท่องเที่ยวซ้ำ ผลการวิจัยแสดงดังตารางที่ 1

ตารางที่ 1 ระดับความพึงพอใจของนักท่องเที่ยวที่มีต่อองค์ประกอบการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง

องค์ประกอบการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลา หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง	$\bar{X}$	S.D.	ระดับความพึงพอใจ
1. ด้านแรงจูงใจ	4.32	0.82	มาก
1.1 มีวัฒนธรรมที่เป็นเอกลักษณ์และน่าสนใจ	4.35	0.85	มาก
1.2 มีกิจกรรมการแสดงทางวัฒนธรรมที่หลากหลาย	4.25	0.80	มาก
1.3 มีการโพสต์และแชร์ภาพข้อมูลผ่านสื่อสาธารณะ	4.11	0.73	มาก
1.4 มีความเลื่อมใสศรัทธาต่อวัฒนธรรมที่ทรงคุณค่าทางจิตใจ	4.20	0.75	มาก
1.5 มีพื้นที่ให้นักท่องเที่ยวได้ร่วมทำกิจกรรมทางวัฒนธรรม	4.48	0.89	มาก
2. ด้านกิจกรรมการท่องเที่ยวเชิงวัฒนธรรม	4.40	0.80	มาก
2.1 มีกิจกรรมทางวัฒนธรรมที่เป็นเอกลักษณ์และมีความสอดคล้องกับแหล่งท่องเที่ยว	4.30	0.80	มาก
2.2 มีบุคลากรแนะนำและให้ความรู้เกี่ยวกับกิจกรรมในแหล่งท่องเที่ยว	4.48	0.87	มาก
2.3 กิจกรรมทางวัฒนธรรมในแหล่งท่องเที่ยวน่าประทับใจและก่อให้เกิดประสบการณ์	4.39	0.78	มาก
2.4 กิจกรรมในแหล่งท่องเที่ยวก่อให้เกิดการอนุรักษ์วัฒนธรรม	4.43	0.75	มาก
3. ด้านการเดินทาง	3.86	0.79	มาก
3.1 การเดินทางไปยังแหล่งท่องเที่ยวมีความสะดวก	3.85	0.78	มาก
3.2 มีป้ายบอกทางชัดเจน เข้าใจง่าย	3.64	0.75	มาก
3.3 การค้นหาพิกัดแหล่งท่องเที่ยวผ่านระบบอินเตอร์เน็ตมีความแม่นยำ	4.08	0.84	มาก
4. ด้านสิ่งอำนวยความสะดวก	3.83	0.78	มาก
4.1 มีสถานที่จอดรถที่เหมาะสมและเพียงพอ	3.90	0.85	มาก
4.2 มีร้านอาหารพื้นเมืองจำหน่ายจำนวนเพียงพอ	3.95	0.80	มาก
4.3 มีร้านจำหน่ายสินค้าพื้นเมืองจำนวนเพียงพอ	3.78	0.78	มาก
4.4 มีความเหมาะสมของราคาสินค้า	3.89	0.75	มาก
4.5 มีห้องน้ำบริการที่สะอาดและเพียงพอ	3.80	0.75	มาก
4.6 มีจุดถ่ายรูปที่เพียงพอบ่งบอกถึงแหล่งท่องเที่ยวเชิงวัฒนธรรม	3.65	0.70	มาก

ตารางที่ 1 (ต่อ)

องค์ประกอบการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลา หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง	$\overline{X}$	S.D.	ระดับความพึงพอใจ
5. ด้านการกลับมาท่องเที่ยวซ้ำ	3.85	0.77	มาก
5.1 มีความประทับใจต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมในพื้นที่หลาดใต้โหนด	3.98	0.85	มาก
5.2 มีความต้องการจะกลับมาท่องเที่ยวซ้ำในแหล่งท่องเที่ยวเชิงวัฒนธรรมในพื้นที่หลาดใต้โหนด	3.85	0.79	มาก
5.3 มีความต้องการจะแนะนำให้บุคคลที่รู้จักมาท่องเที่ยวในแหล่งท่องเที่ยวเชิงวัฒนธรรมในพื้นที่หลาดใต้โหนด	3.80	0.75	มาก
5.4 ความรู้และประสบการณ์ที่ได้จากแหล่งท่องเที่ยวเชิงวัฒนธรรมหลาดใต้โหนด สามารถนำไปใช้ให้เกิดประโยชน์อย่างอื่นได้	3.78	0.70	มาก

จากตารางที่ 1 สรุปผลได้ดังนี้ ด้านแรงจูงใจ ผลโดยรวมอยู่ในระดับมาก มีค่าเฉลี่ย ($\overline{X}$) เท่ากับ 4.32 ระดับความพึงพอใจในประเด็นต่าง ๆ ในด้านแรงจูงใจเรียงลำดับจากมากไปน้อยประกอบด้วย 1) มีพื้นที่ให้นักท่องเที่ยวได้ร่วมทำกิจกรรมทางวัฒนธรรม 2) มีวัฒนธรรมที่เป็นเอกลักษณ์และน่าสนใจ 3) มีกิจกรรมการแสดงทางวัฒนธรรมที่หลากหลาย 4) มีความเลื่อมใสศรัทธาต่อวัฒนธรรมที่ทรงคุณค่าทางจิตใจ 5) มีการโพสต์และแชร์ภาพข้อมูลผ่านสื่อสาธารณะ มีค่าเฉลี่ย ($\overline{X}$) เท่ากับ 4.48, 4.35, 4.25, 4.20 และ 4.11 ตามลำดับ

ด้านกิจกรรมการท่องเที่ยวเชิงวัฒนธรรม ผลโดยรวมอยู่ในระดับมาก มีค่าเฉลี่ย ($\overline{X}$) เท่ากับ 4.40 ระดับความพึงพอใจในประเด็นต่าง ๆ ในด้านกิจกรรมการท่องเที่ยวเชิงวัฒนธรรมเรียงลำดับจากมากไปน้อยประกอบด้วย 1) มีบุคลากรแนะนำและให้ความรู้เกี่ยวกับกิจกรรมในแหล่งท่องเที่ยว 2) กิจกรรมในแหล่งท่องเที่ยวก่อให้เกิดการอนุรักษ์วัฒนธรรม 3) มีกิจกรรมทางวัฒนธรรมที่เป็นเอกลักษณ์และมีความสอดคล้องกับแหล่งท่องเที่ยว 4) กิจกรรมทางวัฒนธรรมในแหล่งท่องเที่ยวน่าประทับใจและก่อให้เกิดประสบการณ์ มีค่าเฉลี่ย ($\overline{X}$) เท่ากับ 4.48, 4.43,4.39 และ 4.30 ตามลำดับ

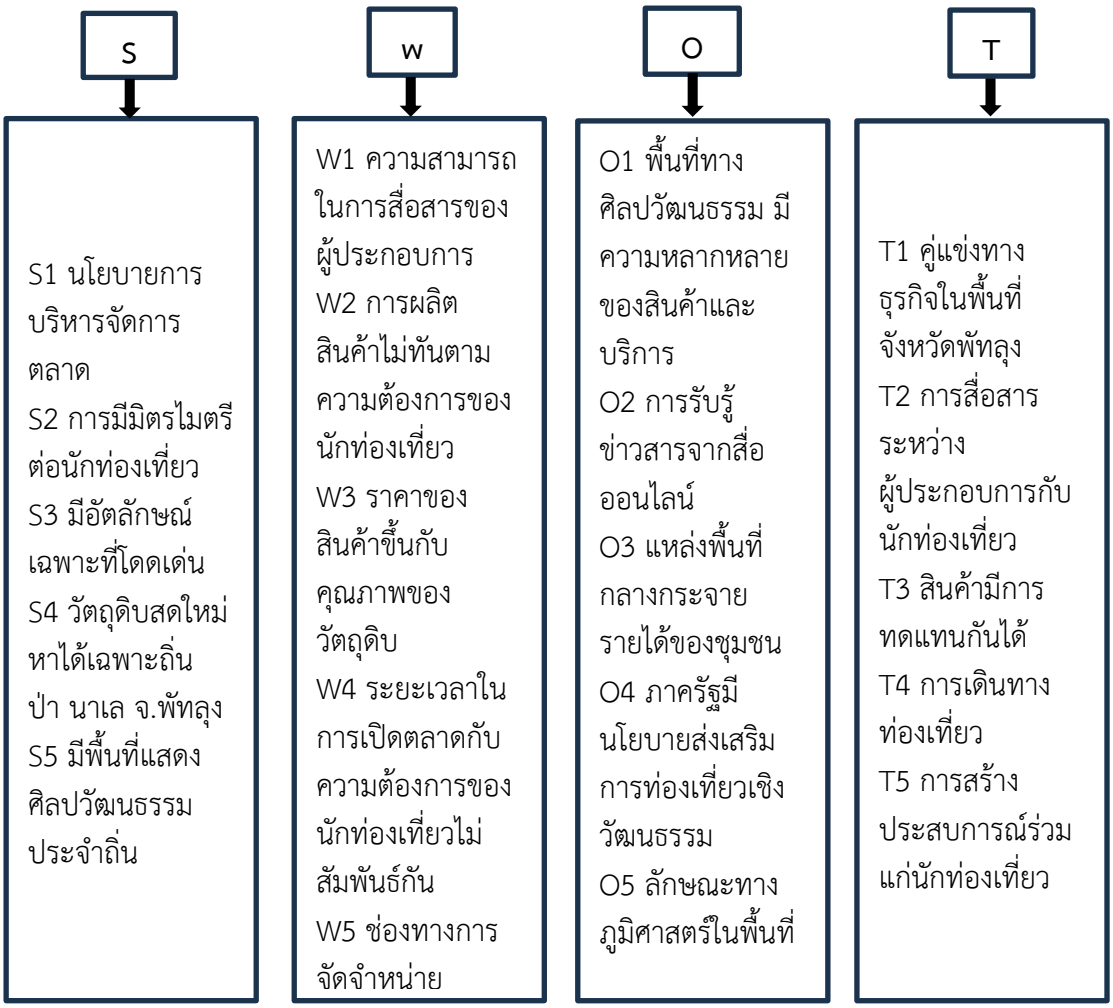
ด้านการเดินทาง ผลโดยรวมอยู่ในระดับมาก มีค่าเฉลี่ย ($\overline{X}$) เท่ากับ 3.86 ระดับความพึงพอใจในประเด็นต่าง ๆ ในด้านการเดินทางเรียงลำดับจากมากไปน้อยประกอบด้วย 1) การค้นหาพิกัดแหล่งท่องเที่ยวผ่านระบบอินเตอร์เน็ตมีความแม่นยำ 2) การเดินทางไปยังแหล่งท่องเที่ยวมีความสะดวก 3) มีป้ายบอกทางชัดเจน เข้าใจง่ายมีค่าเฉลี่ย ($\overline{X}$) เท่ากับ 4.08, 3.85 และ 3.64 ตามลำดับ

ด้านสิ่งอำนวยความสะดวก ผลโดยรวมอยู่ในระดับมาก มีค่าเฉลี่ย ($\overline{X}$) เท่ากับ 3.83 ระดับความพึงพอใจในประเด็นต่าง ๆ ในด้านสิ่งอำนวยความสะดวกเรียงลำดับจากมากไปน้อยประกอบด้วย 1) มีร้านอาหารพื้นเมืองจำหน่ายจำนวนเพียงพอ 2) มีสถานที่จอดรถที่เหมาะสมและเพียงพอ 3) มีความเหมาะสมของราคาสินค้า 4) มีห้องน้ำบริการที่สะอาดและเพียงพอ 5) มีร้านจำหน่ายสินค้าพื้นเมืองจำนวนเพียงพอ 6) มีจุดถ่ายรูปที่เพียงพอบ่งบอกถึงแหล่งท่องเที่ยวเชิงวัฒนธรรม มีค่าเฉลี่ย ($\overline{X}$) เท่ากับ 3.95, 3.90, 3.89, 3.80, 3.78 และ 3.65 ตามลำดับ

ด้านการกลับมาท่องเที่ยวซ้ำ ผลโดยรวมอยู่ในระดับมาก มีค่าเฉลี่ย ($\bar{X}$) เท่ากับ 3.85 ระดับความพึงพอใจในประเด็นต่าง ๆ ในด้านการกลับมาท่องเที่ยวซ้ำเรียงลำดับจากมากไปน้อยประกอบด้วย 1) มีความประทับใจต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมหลาดใต้โหนด 2) มีความต้องการจะกลับมาท่องเที่ยวซ้ำในแหล่งท่องเที่ยวเชิงวัฒนธรรมหลาดใต้โหนด 3) มีความต้องการจะแนะนำให้บุคคลที่รู้จักมาท่องเที่ยวในแหล่งท่องเที่ยวเชิงวัฒนธรรมหลาดใต้โหนด 4) ความรู้และประสบการณ์ที่ได้จากแหล่งท่องเที่ยวเชิงวัฒนธรรมหลาดใต้โหนด สามารถนำไปใช้ให้เกิดประโยชน์อย่างอื่นได้ มีค่าเฉลี่ย ($\bar{X}$) เท่ากับ 3.98, 3.85, 3.80 และ3.78 ตามลำดับ

3) เพื่อศึกษาแนวทางการพัฒนาการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง

การวิเคราะห์สภาพแวดล้อมและศักยภาพของแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ได้ผลการศึกษาดังภาพ



ภาพที่ 2 การวิเคราะห์สภาพแวดล้อมและศักยภาพของแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง

ที่มา: ผู้วิจัย

จากภาพที่ 2 แสดงการวิเคราะห์สภาพแวดล้อมและศักยภาพของแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ตามทฤษฎี SWOT Analysis แสดงผลได้ดังนี้

S ย่อมาจากคำว่า (Strengths) หมายถึง การวิเคราะห์จุดเด่น ข้อได้เปรียบหรือผลการดำเนินงานที่องค์กรหรือหน่วยงานควรรักษาและนำมาพัฒนาต่อยอดเพื่อเพิ่มศักยภาพองค์กรให้ดียิ่งขึ้น ผลการวิเคราะห์ข้อมูลพบว่า แหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง มีจุดเด่น 5 ประเด็นคือ การบริหารจัดการตลาด การมีมิตรไมตรีต่อนักท่องเที่ยว มีอัตลักษณ์เฉพาะที่โดดเด่น วัตถุดิบสดใหม่ หาได้เฉพาะถิ่น ป่า นา เล จังหวัดพัทลุงและมีพื้นที่แสดงศิลปวัฒนธรรมประจำถิ่น สามารถวิเคราะห์แนวทางซึ่งเป็นจุดแข็งการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ดังนี้ ในการบริหารจัดการหลาดใต้โหลดจะมีผู้จัดการและคณะกรรมการตลาด ซึ่งมีการบริหารจัดการด้วยนโยบายโดยการมีส่วนร่วมของคนในชุมชน ด้วยการนำสินค้าในชุมชนมาจำหน่ายซึ่งเป็นวัตถุดิบจากธรรมชาติ ปลอดสารพิษ มีสินค้าหัตถกรรมพื้นบ้าน โดยพ่อค้าแม่ค้าที่มาจำหน่ายสินค้ามีความเป็นมิตรไมตรี การพูดจาที่ดีกับนักท่องเที่ยว รวมถึงมีการแสดงศิลปวัฒนธรรมในพื้นที่หลาดใต้โหนด เช่น การแสดงมโนราห์ การร้องเล่นเพลงพื้นบ้าน โดยจากการสัมภาษณ์คณะกรรมการตลาดมีนโยบายการบริหารจัดตลาดที่ชัดเจน ทุกคนในชุมชนมีส่วนร่วมในการรับผิดชอบพื้นที่หลาดใต้โหนด

W ย่อมาจากคำว่า (Weakness) หมายถึง การวิเคราะห์จุดอ่อน ข้อเสียเปรียบขององค์กรที่ควรขจัดให้หมดไป ผลการวิเคราะห์ข้อมูลพบว่า แหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง มีจุดเด่น 5 ประเด็น คือ ความสามารถในการสื่อสารของผู้ประกอบการร้านค้า การผลิตสินค้าไม่ทันตามความต้องการของนักท่องเที่ยว ราคาของสินค้าขึ้นกับคุณภาพของวัตถุดิบ ระยะเวลาในการเปิดตลาดกับความต้องการของนักท่องเที่ยวไม่สัมพันธ์กันและช่องทางการจัดจำหน่าย ข้อมูลดังกล่าวแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ทำให้ผู้วิจัยค้นพบแนวทางปรับปรุงซึ่งเป็นจุดอ่อนการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง โดยอาจมีการอบรมทักษะการสื่อสารภาษาอังกฤษ ภาษามลายู ภาษาจีนให้กับผู้ประกอบการจากผู้เชี่ยวชาญ ส่วนการเปิดตลาดซึ่งมีแค่วันอาทิตย์เท่านั้นอาจทำให้นักท่องเที่ยวที่อยากจะเที่ยวตลาดไม่สามารถมาได้อาจจะทำให้เสียโอกาสในการสร้างรายได้ให้กับคนในชุมชน

O ย่อมาจากคำว่า (Opportunities) หมายถึง การวิเคราะห์สภาพแวดล้อมภายนอกที่เอื้อประโยชน์ต่อการดำเนินงานขององค์กรทั้งทางตรงและทางอ้อม ผลการวิเคราะห์ข้อมูลพบว่า แหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง มีจุดเด่น 5 ประเด็นคือ พื้นที่ทางศิลปวัฒนธรรม ความหลากหลายของสินค้าและบริการ การรับรู้ข่าวสารจากสื่อออนไลน์ แหล่งพื้นที่กลางกระจายรายได้ของชุมชน ภาครัฐมีนโยบายส่งเสริมการท่องเที่ยวเชิงวัฒนธรรม และลักษณะทางภูมิศาสตร์ในพื้นที่ จากการวิเคราะห์ข้อมูลแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ทำให้ผู้วิจัยค้นพบแนวทางเพิ่มประสิทธิภาพ ซึ่งเป็นโอกาสการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง โดยพื้นที่ของตลาดใต้โหลดมีความสะดวกในการเดินทางมาท่องเที่ยว สินค้ามีความหลากหลาย การรับรู้ข่าวสารของนักท่องเที่ยวสามารถรับรู้ได้จากสื่อออนไลน์

จากเพจหลาดใต้โหนดหรือเฟสบุ๊คของนักท่องเที่ยวที่ได้เดินทางมาท่องเที่ยวรวมถึงภาครัฐมีนโยบายสนับสนุนการท่องเที่ยวเชิงวัฒนธรรมในพื้นที่ตลาดใต้โหนด

T ย่อมาจากคำว่า (Threats) เป็นการวิเคราะห์สภาพภายนอกที่คุกคามหรือส่งผลกระทบทางลบต่อหน่วยงานหรือองค์กรผลการวิเคราะห์ข้อมูลพบว่า แหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง มีจุดเด่น 5 ประเด็นคือ คู่แข่งทางธุรกิจในพื้นที่จังหวัดพัทลุง การสื่อสารระหว่างผู้ประกอบการกับนักท่องเที่ยว มีสินค้าทดแทนกันได้ ไม่มีรถโดยสารในการเดินทางท่องเที่ยว และการสร้างประสบการณ์ร่วมแก่นักท่องเที่ยว จากการวิเคราะห์ข้อมูลแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ทำให้ผู้วิจัยค้นพบแนวทางการปรับปรุงแก้ไขอุปสรรคการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ดังนี้ 1) สินค้าที่มีการจำหน่ายในตลาดมีสินค้าทดแทนจากตลาดอื่น 2) การเดินทางไปท่องเที่ยวอาจจะไม่สะดวกสำหรับนักท่องเที่ยวที่ไม่มีรถส่วนตัว

ผลการวิจัย

จากการวิเคราะห์สภาพแวดล้อมและศักยภาพของแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ตามทฤษฎี SWOT Analysis นำไปสู่การค้นพบแนวทางแนวทางการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลา: กรณีศึกษาหลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ในประเด็น ความสามารถในการสื่อสารของผู้ประกอบการร้านค้าเนื่องจากเป็นสถานที่ท่องเที่ยวเชิงวัฒนธรรมที่มีความหลากหลายของนักท่องเที่ยวทั้งเชื้อชาติและภาษา การผลิตสินค้าเพื่อจำหน่ายเน้นความสด ใหม่ จัดแสดงสินค้าด้วยการสาธิตการผลิตสินค้าในวันจัดจำหน่ายจึงทำให้สินค้าอาจไม่เพียงพอต่อความต้องการของนักท่องเที่ยว การควบคุมราคาสินค้าให้เป็นไปในทิศทางเดียวกันทั้งหมด เพิ่มช่องทางการจัดจำหน่ายสินค้าให้มากขึ้นเพื่อตรงตามความต้องการของนักท่องเที่ยวและอาจมีนโยบายการเปิดตลาดในวันหยุดนักขัตฤกษ์เพิ่มเติมเพื่อตอบสนองความต้องการของนักท่องเที่ยวที่สนใจเดินทางท่องเที่ยวหลาดใต้โหนด

สรุปและอภิปรายผล

บริบทชุมชนหลาดใต้โหนดเป็นแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบที่แสดงให้เห็นความอุดมสมบูรณ์ด้วยทรัพยากร “ป่า นา เล” มีอัตลักษณ์ของชุมชนด้วยวิถีชีวิต ความเชื่อ ประเพณีและศิลปวัฒนธรรมที่โดดเด่นจนกลายเป็นพื้นที่ท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบ ส่งผลให้นักท่องเที่ยวทั้งชาวไทยและชาวต่างชาติสนใจเดินทางเข้ามาท่องเที่ยว ความเข้มแข็งของคนในชุมชนส่งผลให้พื้นที่หลาดใต้โหนดมีศักยภาพที่เข้มแข็งมีบทบาททั้งมิติทางกายภาพ เศรษฐกิจ สังคมและวัฒนธรรม สอดคล้องกับงานวิจัยของ มนัญชยา เพชรูจี, ผกามาศ จิรจารุภัทร และ จีรวัฒน์ วันทา (2564) ซึ่งกล่าวว่า ชุมชนที่มีเอกลักษณ์ให้ความสำคัญกับวิถีชีวิต ทุนทางวัฒนธรรม และรากเหง้าของชุมชน จะกลายเป็นชุมชนที่มีความเข้มแข็งสามารถพัฒนาตนเองให้เป็นที่รู้จักของนักท่องเที่ยวได้ และยังสอดคล้องกับงานของ โชติมา ดีพลพันธ์ และ ชนิษฐา ใจเป็ง. (2567) ซึ่งกล่าวว่า การท่องเที่ยวที่สนับสนุนให้คนในชุมชนมีส่วนร่วมในการวางแผน ตัดสินใจ และพัฒนาชุมชนของตนเอง เพื่อเพิ่มความเป็นอยู่ที่ดีขึ้นของคนในชุมชน

ความพึงพอใจของนักท่องเที่ยวที่มีต่อแหล่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบ หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง มีความคิดเห็นโดยรวมอยู่ในระดับมาก โดยมีระดับความพึงพอใจเรียงจากมากไปน้อยคือ ด้านกิจกรรมการท่องเที่ยวเชิงวัฒนธรรม ด้านแรงจูงใจ ด้านการเดินทาง ด้านการกลับมาท่องเที่ยวซ้ำ และด้านสิ่งอำนวยความสะดวก ซึ่งสอดคล้องกับงานวิจัยของอรทัย มูลคำ (2562) ซึ่งกล่าวว่า สิ่งที่ดึงดูดให้นักท่องเที่ยวมาเที่ยวได้มากที่สุด คือ แหล่งท่องเที่ยวเชิงวัฒนธรรม เนื่องจากมีศิลปวัฒนธรรมและทรัพยากรเป็นทุนทางวัฒนธรรมส่งผลให้มีกิจกรรมการท่องเที่ยวเชิงวัฒนธรรมที่หลากหลาย สามารถดึงดูดให้นักท่องเที่ยวทั้งชาวไทยและชาวต่างชาติสนใจเข้ามาศึกษาศิลปะ วัฒนธรรม และประเพณีท้องถิ่น

แนวทางการพัฒนาการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลาในพื้นที่หลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง มีความโดดเด่นในเรื่องนโยบายการบริหารจัดการตลาด การมีมิตรไมตรีต่อนักท่องเที่ยว มีอัตลักษณ์เฉพาะที่โดดเด่นวัตถุดิบสดใหม่ หาได้เฉพาะถิ่น ป่า นา เล จังหวัดพัทลุง มีพื้นที่แสดงศิลปวัฒนธรรมประจำถิ่นซึ่งเป็นข้อได้เปรียบทางด้านธุรกิจอันเกิดจากการมีส่วนร่วมของคนในชุมชน และการมีทุนทางวัฒนธรรมที่เน้นแสดงตัวตนของหลาดใต้โหนดให้ชัดเจน จนกลายเป็นแห่งท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลา จุดที่ควรปรับปรุงแก้ไขมากที่สุดคือ องค์ประกอบด้านสิ่งอำนวยความสะดวกรวมถึงการเพิ่มความสามารถในการสื่อสารของผู้ประกอบการร้านค้า การผลิตสินค้าให้ทันต่อความต้องการของนักท่องเที่ยว มีราคากลางของสินค้าประเภทเดียวกัน เพิ่มช่องทางการจัดจำหน่ายให้มากขึ้น สอดคล้องกับงานวิจัยของ ประสานโชค ธุวะนุติ และ ชนัด เผ่าพันธุ์ดี (2565) ซึ่งกล่าวว่า ศักยภาพแหล่งท่องเที่ยวเชิงวัฒนธรรมจำเป็นต้องอาศัยปัจจัยหลักของชุมชน อีกทั้งสอดคล้องกับงานวิจัยของ เสาวธาร สมานิตย์ และ ขวัญนภา สุขคร (2566) ซึ่งกล่าวว่า การมีส่วนร่วมของผู้นำชุมชน การบริหารจัดการชุมชนอย่างเข้มแข็งอย่างมีประสิทธิภาพ จะทำให้ภาพรวมเป็นแหล่งท่องเที่ยวที่สามารถดึงดูดนักท่องเที่ยวเข้ามาท่องเที่ยวอย่างต่อเนื่องและจะกลับมาท่องเที่ยวซ้ำอีกครั้งในอนาคต อีกทั้งสอดคล้องกับงานวิจัยของ อภิชาติ วิชัยกุล และ เสรี วงษ์มณฑา (2564) ซึ่งกล่าวว่า แหล่งทองเที่ยวมีการพัฒนาสิ่งอำนวยความสะดวกขั้นพื้นฐานในการรองรับนักทองเที่ยวอย่างเพียงพอ ค่าครองชีพถูก ควรมีการจัดการและสนับสนุนใหมีหน่วยงานเขามาร่วมสนับสนุนโครงการต่าง ๆ ที่มากพอในด้านนโยบาย งบประมาณ บุคลากร ควรสงเสริมใหจังหวัดนครศรีธรรมราช เป็นจังหวัดที่เปนศูนยกลางภาคใต้ด้านการทองเที่ยวเชิงวัฒนธรรม ควรจัดใหมีการรวมกลุมในการแลกเปลี่ยน ช่วยเหลือ ประสานงาน และรวมถึงใหขอมูลซึ่งกันและกัน เปิดใหโอกาสคนในชุมชนมีบทบาทในการบริหาร การจัดการ การพัฒนาการทองเที่ยวในพื้นที่จะนำมาซึ่งพัฒนาแหลงทองเที่ยวของชุมชนใหไดประโยชนสูงสุด และยังสอดคล้องกับงาน Boussaa & Madandola (2024) ซึ่งกล่าวว่า กลยุทธ์ในการพัฒนาทางกายภาพเพื่อส่งเสริมการท่องเที่ยวเชิงวัฒนธรรมเพื่อเพิ่มศักยภาพทางสังคมและเศรษฐกิจโดยใช้ระเบียบวิธีวิจัยแบบผสมผสาน

องค์ความรู้ใหม่

ที่ได้รับในงานวิจัยนี้คือ แนวทางการพัฒนาการท่องเที่ยวเชิงวัฒนธรรมอย่างยั่งยืนจำเป็นต้องมีปัจจัยหลายด้านในการส่งเสริมการท่องเที่ยวเชิงวัฒนธรรม ปัจจัยที่สำคัญคือ ตัวบุคคลที่อยู่ในชุมชนจะต้องมีจิตสำนึกที่ดีเกี่ยวกับชุมชนของตนเอง การเห็นคุณค่าของทรัพยากรในชุมชน ร่วมมือกันในการอนุรักษ์ทรัพยากร พื้นที่ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง และมีการหาช่องทางให้หน่วยงาน

ภาครัฐและภาคเอกชนเข้ามามีส่วนร่วมในการสนับสนุนงบประมาณและจัดกิจกรรมการท่องเที่ยวเชิงวัฒนธรรมในพื้นที่อย่างต่อเนื่องและยั่งยืน

ข้อเสนอแนะ

จากการวิจัยพบว่า แนวทางการพัฒนาการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลา: กรณีศึกษาหลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง ต้องมีการสร้างความแตกต่างกับแหล่งท่องเที่ยวอื่น ๆ รวมถึงการนำความรู้ด้านเทคโนโลยีการสื่อสารที่คนรุ่นใหม่ถนัดมาเสริมในการทำสื่อประชาสัมพันธ์ให้แก่นักท่องเที่ยวที่มีความสนใจการท่องเที่ยวเชิงวัฒนธรรมในพื้นที่เพื่อสร้างการรับรู้ที่จะส่งผลต่อการมาท่องเที่ยว

ข้อเสนอแนะเพื่อการวิจัยครั้งต่อไป

ควรศึกษาแหล่งท่องเที่ยวเชิงวัฒนธรรมอื่น ๆ รอบพื้นที่ลุ่มน้ำทะเลสาบสงขลาเพิ่มเติมเพื่อประโยชน์สำหรับการศึกษาแนวทางการจัดการท่องเที่ยวเชิงวัฒนธรรมลุ่มน้ำทะเลสาบสงขลาให้ครอบคลุม และควรศึกษารูปแบบโปรแกรมกิจกรรมการท่องเที่ยวเชิงวัฒนธรรมรอบพื้นที่ลุ่มน้ำทะเลสาบสงขลา

เอกสารอ้างอิง

กระทรวงการท่องเที่ยวและกีฬา. (2566). แผนพัฒนาการท่องเที่ยวแห่งชาติฉบับที่ 3 (พ.ศ.2566-2570). สืบค้นเมื่อ 30 มกราคม 2568. จาก https://province.mots.go.th/ewtadmin/ewt/ranong/download/article/article_20230418122435.pdf.

กัลยา วานิชย์บัญชา. (2561). สถิติสำหรับงานวิจัย (พิมพ์ครั้งที่ 12). จุฬาลงกรณ์มหาวิทยาลัย.

คณะกรรมการนโยบายการท่องเที่ยวแห่งชาติ. (2566). แผนพัฒนาการท่องเที่ยวแห่งชาติฉบับที่ 3 (พ.ศ. 2566 - 2570). กรุงเทพฯ: กระทรวงการท่องเที่ยวและกีฬา.

โชติมา ดีพลพันธ์และชนิษฐา ใจเป็ง. (2567). การจัดการท่องเที่ยวเชิงวัฒนธรรมโดยชุมชนสู่วิถีที่ยั่งยืน บ้านไผ่หูช้าง อำเภอบางเลน จังหวัดนครปฐม. วารสารชัยภูมิปริทรรศน์, 7(3), 80-89.

ธนภณ นิธิเชาวกุล. (2562). การจัดการการตลาด: เอกสารคำสอน. ชลบุรี: คณะการจัดการและการท่องเที่ยว มหาวิทยาลัยบูรพา.

นุชนารถ รัตนสุวงศ์ชัย. (2554). กลยุทธ์การพัฒนาการท่องเที่ยวเชิงวัฒนธรรม. วารสารคณะมนุษศาสตร์ มหาวิทยาลัยเกษตรศาสตร์, 18(1), 32-50.

ประสานโชค ธุวะนุติ และ ชนัด เผ่าพันธุ์ดี. (2565). ปัจจัยที่ส่งผลต่อศักยภาพแหล่งท่องเที่ยวเชิงวัฒนธรรมในตำบลบางขุนไทร อำเภอบ้านแหลม จังหวัดเพชรบุรี. วารสารวิชาการมหาวิทยาลัยราชภัฏเพชรบุรี, 12(1), 39-45.

พัชรี กลอมเมือง, ณัฏฐา เกิดทรัพย์, วัชรินทร์ อินทพรหม, วณิฎา ศิริวรสกุล, และ พัลยมน สินหนัง. (2567). การส่งเสริมการท่องเที่ยวเชิงวัฒนธรรม ตำบลดงละคร อำเภอเมือง นครนายก จังหวัดนครนายก. วารสารนวัตกรรมและการจัดการ มหาวิทยาลัยราชภัฏสวนสุนันทา , 9(1), 65-76.

มนัญชยา เพชรูจี, ผกามาศ จิรจารุภัทร และ จีรวัฒน์ วันทา. (2564). อัตลักษณ์ของชุมชนสามแพร่งและชุมชนบางลำพูกับการใช้ศิลปะเป็นเครื่องมือในการสร้างมูลค่าเพิ่มให้เกิดการท่องเที่ยว. วารสารวิจัยและพัฒนามหาวิทยาลัยราชภัฏสวนสุนันทา, 13(2), 70-95.

เสาวธาร สมานิตย์ และ ขวัญนภา สุขคร. (2566). กระบวนการสร้างคุณค่าจากทุนทางสังคม วัฒนธรรม สู่การพัฒนาบนความเข้มแข็งและยั่งยืนของชุมชน ตำบลผาปัง อำเภอแม่พริก จังหวัดลำปาง. วารสารหาดใหญ่วิชาการ, 21(2), 369-390.

ศิริพร ถาวรวิสิทธิ์ และ เสรี วงษ์มณฑา. (2564). แนวทางการส่งเสริมการท่องเที่ยวเชิงวัฒนธรรมของจังหวัดน่าน. วารสารสมาคมนักวิจัย, 26(1), 244 – 256.

อภิชาติ วิชัยกุล และ เสรี วงษ์มณฑา. (2564). แนวทางพัฒนาการท่องเที่ยวเชิงวัฒนธรรม จังหวัดนครศรีธรรมราช. วารสารสมาคมนักวิจัย, 26(3), 1-14.

อรทัย มูลคำ. (2562). แนวทางการส่งเสริมการท่องเที่ยวเขตพัฒนาเศรษฐกิจพิเศษ จังหวัดนครพนม. ดุษฎีนิพนธ์ ปรัชญาดุษฎีบัณฑิตรัฐประศาสนศาสตร์. พะเยา: มหาวิทยาลัยพะเยา

Boussaa, D., & Madandola, M. (2024). Cultural heritage tourism and urban regeneration: The case of Fez Medina in Morocco. Frontiers of Architectural Research, 13(6), 1228-1248.

Howell, D. (1989). Passport: An instruction to the travel and tourism industry. South-Western Publications

Kotler, P. (1999). Kotler on Marketing: How to Create, Win, and Dominate Markets. New York, NY: Simon and Schuster.

กลยุทธ์เพื่อการส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา

Strategies for Promoting Sustainable Gastronomy Tourism in Sakom Subdistrict, Chana District, Songkhla Province

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์ในการศึกษากลยุทธ์เพื่อการส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา โดยใช้ระเบียบวิธีวิจัยเชิงคุณภาพ เก็บรวบรวมข้อมูลโดยการสัมภาษณ์เชิงลึก การสังเกตแบบมีส่วนร่วม และสังเคราะห์ข้อมูลเพื่อสรุปผลการวิจัยและนำเสนอเชิงพรรณนา ผลการศึกษาพบว่า กลยุทธ์เพื่อส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนประกอบด้วย 4 กลยุทธ์ คือ 1) กลยุทธ์ด้านทรัพยากรการท่องเที่ยว ได้แก่ การนำทรัพยากรที่มีในชุมชนมาผลิตเป็นอาหารให้กับนักท่องเที่ยวได้บริโภค 2) กลยุทธ์ด้านทรัพยากรมนุษย์ ได้แก่ บุคคลในชุมชนที่มีความรู้เกี่ยวกับอาหาร 3) กลยุทธ์ด้านการบริการการท่องเที่ยว ได้แก่ การเป็นเจ้าบ้านที่ดี มีการบริการที่ดีกับนักท่องเที่ยวให้เกิดความประทับใจ 4) กลยุทธ์ด้านการตลาดการท่องเที่ยว ได้แก่ การทำการตลาดออนไลน์และออฟไลน์เพื่อสื่อสารข้อมูลแหล่งท่องเที่ยวให้กับนักท่องเที่ยว ซึ่งการวิเคราะห์ดังกล่าวจะทำให้เห็นความแตกต่างของความต้องการของกลุ่มนักท่องเที่ยว ที่มีวัตถุประสงค์ในการท่องเที่ยวเชิงอาหารที่แตกต่างกัน ซึ่งสามารถนำกลยุทธ์ไปใช้ในการกำหนดรูปแบบของการท่องเที่ยวเชิงอาหารได้อย่างมีประสิทธิภาพ

คำสำคัญ: กลยุทธ์, การท่องเที่ยวเชิงอาหาร, สะกอม, การท่องเที่ยวอย่างยั่งยืน

Abstract

This research aimed to study strategies for promoting sustainable gastronomy tourism in Sakom Sub-district, Chana District, Songkhla Province. The research methodology used qualitative research. Data were collected through in-depth interviews, participatory observation, and data synthesis to summarize the research results and present them descriptively. The results of the study found that the strategies for promoting sustainable food tourism consisted of 4 strategies: 1) Tourism resource strategies, which include using resources in the community to produce food for tourists to consume; 2) Human resource

strategies, which include people in the community who have knowledge about food; 3) Tourism service strategies, which include being a good host and providing good service to tourists to impress them; and 4) Tourism marketing strategies, which include online and offline marketing to communicate tourist attraction information to tourists. The analysis will reveal the differences in the needs of tourist groups with different purposes of gastronomy tourism, which can be used to effectively determine the form of gastronomy tourism.

Keywords: Strategy, Food tourism, Sakom, Sustainable tourism

บทนำ

อุตสาหกรรมการท่องเที่ยวไทยมีบทบาทสำคัญต่อระบบเศรษฐกิจของประเทศ ซึ่งการท่องเที่ยวมีผลทั้งทางตรงและทางอ้อมต่อระบบเศรษฐกิจ สังคม สิ่งแวดล้อมและวัฒนธรรม เป็นแหล่งรายได้หลัก เกิดการจ้างงาน การกระจายรายได้และความเจริญให้กับประเทศ และยังมีส่วนสำคัญในการพัฒนาระบบโครงสร้างพื้นฐานของการคมนาคม รวมถึงการขายสินค้าและบริการ เป็นกลไกสำคัญในการพัฒนาประเทศ อีกทั้งการท่องเที่ยวยังส่งผลต่อความสุขทางใจของนักท่องเที่ยวจากการเดินทางพักผ่อน การเปิดโลกทัศน์ให้กว้างขึ้นจากการได้สัมผัสประสบการณ์จากการท่องเที่ยวสร้างความภาคภูมิใจ ตระหนักในคุณค่าและเอกลักษณ์ประจำท้องถิ่น สร้างจุดเด่นให้กับท้องถิ่นต่าง ๆ (เพ็ญศิริ สมารักษ์ และคณะ, 2567)

นโยบายการท่องเที่ยวในแผนพัฒนาการท่องเที่ยวแห่งชาติฉบับที่ 3 (พ.ศ.2566-2570) มีเป้าหมายหลักด้านการท่องเที่ยวคือ การท่องเที่ยวไทยมีความเข้มแข็งและสมดุล (Thai Tourism is Strong and Balanced) การยกระดับความเชื่อมโยง และโครงสร้างพื้นฐานด้านการท่องเที่ยว (Connectivity) การสร้างความเชื่อมั่นและการมอบประสบการณ์ท่องเที่ยวคุณค่าสูง (Entrusted Experience) การบริหารจัดการการท่องเที่ยวอย่างยั่งยืน (Sustainable Development) (กระทรวงการท่องเที่ยวและกีฬา, 2566) การท่องเที่ยวเชิงอาหารเป็นนโยบายที่รัฐบาลให้ความสำคัญเป็นอันดับต้น ๆ เนื่องจากประเทศไทยมีความหลากหลายทางวัฒนธรรม มีทรัพยากรทางธรรมชาติ จึงเหมาะแก่การนำนโยบายเรื่องการท่องเที่ยวเชิงอาหารมากระตุ้นเศรษฐกิจ แสดงให้เห็นอัตลักษณ์ท้องถิ่นผ่านเมนูอาหาร

ตำบลสะกอม เป็นตำบลหนึ่งในอำเภอจะนะ จังหวัดสงขลา ชื่อตำบลสะกอมมาจากคำว่า “สะฆอร์” เป็นคำภาษามาลายูถิ่นมีความหมายถึงต้นไม้ที่มีผลสีแดงเป็นไม้พื้นถิ่นประจำพื้นที่ เมื่อเวลาผ่านไปคำว่า “สะฆอร์”มีการออกเสียงเพี้ยนเป็น “สะกอม” และใช้ว่า “สะกอม” เรียกชื่อตำบลนี้จนถึงปัจจุบัน การตั้งถิ่นฐานของชาวบ้านในตำบลสะกอมชาวบ้านหนีโรคอหิวาตกโรคมาจากอำเภอหนองจิก จังหวัดปัตตานีมาตั้งถิ่นฐานใหม่ที่บางพังกา ต่อมาเกิดภาวะฝนแล้งจนพรุกระจูดแห้ง ผู้นำจึงได้ออกสำรวจสถานที่ จนพบคลองที่ไหลมาจากอำเภอนาทวีออกสู่อ่าวไทย ที่บ้านปากบางสะกอม ซึ่งเหมาะสำหรับตั้งถิ่นฐานและทำมาหากิน โดยเฉพาะการทำประมงจากนั้นจึงได้ชักชวนชาวบ้านที่อยู่บริเวณดังกล่าว สภาพพื้นที่ทางภูมิศาสตร์ของตำบลสะกอมเป็นพื้นที่ราบชายฝั่ง มีเส้นทางน้ำและแหล่งน้ำกระจายทั่วพื้นที่กระจายทั่วพื้นที่ (ไชยา เกษารัตน์, ชาลี ไตรจันทร์, อิศรัฏฐ์ รินไธสง และอาคม ใจแก้ว, 2557) ซึ่งเหมาะแก่การประกอบอาชีพเกษตรกรรมและบางหมู่บ้านอยู่ติดกับชายทะเลอ่าวไทย เหมาะแก่การส่งเสริมอาชีพประมงและได้มีการพัฒนาพื้นที่ให้กลายเป็นแหล่งท่องเที่ยวทางธรรมชาติ โดยนำทรัพยากรธรรมชาติทางทะเลที่มีอยู่ในพื้นที่สร้างรายได้ให้กับชาวบ้านในชุมชน

กระแสนิยมของการท่องเที่ยวเชิงอาหารในปัจจุบันมีเพิ่มขึ้น ซึ่งนักท่องเที่ยวร้อยละ 53 เดินทางท่องเที่ยวโดยมีอาหารเป็นตัวขับเคลื่อนในการเลือกสถานที่ท่องเที่ยว การท่องเที่ยวเชิงอาหารกำลังเติบโตในด้านรายได้ที่สร้างให้กับชุมชน การพัฒนาโครงสร้างและเครือข่ายอุปโภคบริโภคจากการเข้ามาของนักท่องเที่ยว เป็นการปลุกกระแสให้ผู้คนกลับมาหาความเป็นท้องถิ่น อย่างไรก็ตาม เนื่องจากทุกชุมชนมีเอกลักษณ์ด้านอาหาร การสร้างความได้เปรียบทางการแข่งขันของชุมชนในการนำเสนอความแปลกใหม่ของวัตถุดิบหรือความโดดเด่นของอัตลักษณ์วัฒนธรรมท้องถิ่น (ศิริภรณ์ แพรกจินดา, 2559) สิ่งที่จะมีผลตามมาคือ ผลกระทบด้านเศรษฐกิจที่เกิดจากการท่องเที่ยวซึ่งส่งผลต่อรายได้ของคนในชุมชน ก่อให้เกิดการจ้างงาน ดังนั้น ผู้วิจัยจึงมีความสนใจศึกษากลยุทธ์เพื่อส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา ให้เกิดการพัฒนาที่ยั่งยืนและพึ่งพาตนเองได้ต่อไป

วัตถุประสงค์ของการวิจัย

ศึกษากลยุทธ์เพื่อการส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา

ประโยชน์ที่คาดว่าจะได้รับ

ผลการวิจัยเกี่ยวกับกลยุทธ์ เพื่อการส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่ ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา สามารถเป็นข้อมูลให้กับชุมชนเพื่อทำการพัฒนาศักยภาพด้านการท่องเที่ยวเชิงอาหารในแง่มุมอื่น ๆ ที่ยังไม่ได้นำเสนอต่อนักท่องเที่ยว

แนวคิด ทฤษฎีและงานวิจัยที่เกี่ยวข้อง

แนวคิด ทฤษฎี และงานวิจัยที่เกี่ยวข้อง เรื่องกลยุทธ์เพื่อการส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา มีดังนี้

แนวคิดเกี่ยวกับการสงเสริมการทองเที่ยว

Department of Local Administration, Ministry of Interior (2006) ให้คำนิยามไว้ว่า การสงเสริมการทองเที่ยว คือ การสงเสริมใหมีนักทองเที่ยวเดินทางเขามาในแหล่งทองเที่ยวของทองถิ่นหรือชุมชน และใชบริการทองเที่ยวในแหล่งทองเที่ยวนั้น การทองเที่ยวแห่งประเทศไทย ได้ใชองคประกอบของการสงเสริมการทองเที่ยว ในระบบการทองเที่ยว (Tourism System) ในการดำเนินงานด้านการทองเที่ยว เพื่อใหบรรลุเป้าหมายอย่างมีประสิทธิภาพ โดยมีองคประกอบหลัก 3 ด้าน คือ (1) ด้านแหล่งทองเที่ยว (2) ด้านการบริการการทองเที่ยว และ (3) ด้านการตลาดทองเที่ยว ซึ่งในการดำเนินการด้านการสงเสริมการทองเที่ยว จะมีหลักสำคัญ 5 ประการ คือ (1) พัฒนา บูรณะ ฟนฟู มรดก และสินทรัพย์ทางวัฒนธรรม (2) เพิ่มความหลากหลายของการทองเที่ยวรูปแบบต่าง ๆ รวมทั้งสงเสริมและพัฒนาแหล่งท่องเที่ยวใหม่ (3) เพิ่มมาตรการอำนวยความสะดวก สร้างความปลอดภัย และปองกันการเอาเปรียบนักทองเที่ยว (4) เร่งฟื้นฟูความร่วมมือกับทองถิ่นที่อยู่ใกลเคียง และ (5) บริหารการทองเที่ยว โดยใชกลยุทธการตลาดเชิงรุกโดยสร้างใหมีกิจกรรมทองเที่ยว ที่เชื่อมโยงกับธุรกิจ หรือกิจกรรมของชุมชน สาระสำคัญของมาตรฐานที่เกี่ยวข่องกับการสงเสริมการทองเที่ยวเชิงอาหาร ได้แก่ มาตรฐานโครงการ Clean Food Good Taste หรือ “โครงการอาหารสะอาด รสชาติอร่อย” สนับสนุนสงเสริมใหประชาชนมีการสร้างเสริมสุขภาพ และมีหลักประกันสุขภาพ โดยได้เชื่อมโยงโครงการนี้เขาสู่ธุรกิจการทองเที่ยว ทั้งนี้ได้มีการกำหนด

กลยุทธและแนวทางการดำเนินงาน เพื่อให้บรรลุตามวัตถุประสงค์ไว 4 กลยุทธ ได้แก่ (1) การสร้างพหุภาคี (2) การประกันคุณภาพ (3) การสร้างความยั่งยืน และ (4) การประชาสัมพันธ์ (Department of Health, Ministry of Public Health, 2013)

แนวคิดการท่องเที่ยวเชิงอาหาร

อาหารเป็นหนึ่งในเจ็ดกลุ่มเครือข่ายเมืองสร้างสรรค์ของยูเนสโก การร่วมมือกันระหว่างชุมชนและภาครัฐเพื่อพัฒนาเศรษฐกิจ สังคมและสิ่งแวดล้อม และอาหารยังสร้างรายได้ให้กับการท่องเที่ยวพบว่าอาหารเป็นส่วนหนึ่งของกิจกรรมการท่องเที่ยวเชิงสร้างสรรค์ (ศรัญญู จันทร์วงศ์, พิมพ์พร เลิศอำไพ และปวริศา เทียนทอง, 2566)

การท่องเที่ยวเชิงอาหารคือ การผสมผสานธรรมชาติของท้องถิ่นเข้ากับทรัพยากรการท่องเที่ยว การเป็นเจ้าภาพที่ดี การบริการและเอกลักษณ์เฉพาะท้องถิ่น การใช้ประสาทสัมผัสในการลิ้มรสอาหาร ได้กลิ่นอาหาร เรียนรู้กรรมวิธีการปรุงได้ ทดลองทำอาหาร รวมเป็นประสบการณ์แก่นักท่องเที่ยว โดยการท่องเที่ยวเชิงอาหารมีวัตถุประสงค์เพื่อให้ความรื่นรมย์ ได้รับประสบการณ์นอกเหนือจากการรับประทานอาหาร การท่องเที่ยวลักษณะนี้นักท่องเที่ยวจะได้สัมผัสประสบการณ์ใหม่ ๆ มีความรู้ความเข้าใจเกี่ยวกับอาหารที่แสดงอัตลักษณ์ในแต่ละท้องที่ (บัณฑิต อเนกพูนสุข, 2560) ประสบการณ์การท่องเที่ยวจึงเกิดขึ้นกับนักท่องเที่ยวเฉพาะพื้นที่ใดพื้นที่หนึ่งเท่านั้น อาหารที่นำมาใช้ในการท่องเที่ยวจึงเป็นกลไกสำคัญ ที่ทำให้นักท่องเที่ยวมีภาพจำเชิงพื้นที่

ศักยภาพด้านการท่องเที่ยวเชิงอาหาร หมายถึง ความพร้อมและความน่าสนใจของแหล่งท่องเที่ยวที่เพียงพอที่จะดึงดูดให้นักท่องเที่ยวตัดสินใจเดินทางมาท่องเที่ยว (เบญจมาศ ณ ทองแก้ว, อาทิตย์ แพชนะ, ดรัลรัตน์ ขุนนุ้ย และ อำนาจ รักษาพล, 2560) ได้สรุปเกณฑ์ในการพิจารณาศักยภาพด้านการท่องเที่ยวที่ครอบคลุมทั้ง 4 ด้าน ประกอบด้วย ดังต่อไปนี้ (1) ด้านพื้นที่ คือ การดึงดูดนักท่องเที่ยวด้วยทรัพยากรทางธรรมชาติที่มีลักษณะเฉพาะหรือมีความเป็นเอกลักษณ์ประวัติศาสตร์ แหล่งโบราณวัตถุสถานที่มีความเกี่ยวเนื่องกับระบบนิเวศ วัฒนธรรมประเพณีในท้องถิ่น (2) ด้านการจัดการ คือ ความปลอดภัยในการท่องเที่ยวในพื้นที่ การจัดการสิ่งอำนวยความสะดวกต่าง ๆ (3) ด้านกิจกรรมและกระบวนการ คือ การพิจารณาถึงความหลากหลายของกิจกรรมการท่องเที่ยว การสร้างจิตสำนึกและการให้การศึกษาด้านสิ่งแวดล้อม (4) ด้านการมีส่วนร่วม คือ การพิจารณาว่าองค์กรท้องถิ่นมีส่วนร่วมในการควบคุมดูแลแหล่งท่องเที่ยวและประชาชนมีความพอใจที่จะให้แหล่งท่องเที่ยวในท้องถิ่นของตนได้รับการพัฒนา เป็นแหล่งท่องเที่ยวหรือไม่

แนวคิดการพัฒนาอย่างยั่งยืน

การพัฒนาอย่างยั่งยืนเป็นศัพท์ที่มีการบัญญัติใช้เมื่อปี พ.ศ. 2530 โดยองค์การสหประชาชาติ (United Nation) ให้ความหมายว่าเป็นการพัฒนาที่ตอบสนองความต้องการของคนรุ่นใหม่ การพัฒนาที่ยั่งยืน เน้นการใช้ทรัพยากรอย่างมีประสิทธิภาพมีมาตรการแก้ไขข้อบกพร่องของตลาด การจัดสรรทรัพยากรอย่างมีระบบ มุ่งเน้นความสมดุล 3 มิติคือ เศรษฐกิจ สังคมและสิ่งแวดล้อมโดยการพัฒนาทุกมิติให้มีความสัมพันธ์และเกี่ยวเนื่องกัน (สุภาสินี ตันติศรีสุข, 2555) ดังรายละเอียด (1) การพัฒนาเศรษฐกิจที่ยั่งยืน (Sustainable Economic Development) คือ การพัฒนาเศรษฐกิจของประเทศให้เจริญเติบโตอย่างมีคุณภาพ และมีการกระจายรายได้เพื่อเอื้อประโยชน์ต่อคนส่วนใหญ่ในพื้นที่เพื่อความยั่งยืนในระยะยาว(2) การพัฒนาสังคมที่ยั่งยืน (Sustainable Social Development) คือการพัฒนาคนและ สังคมให้เชื่อมโยงกับการพัฒนาทรัพยากรธรรมชาติและสิ่งแวดล้อมอย่างสมดุลโดย พัฒนาคนให้มีคุณภาพชีวิตที่

สูงขึ้น เรียนรู้ในการมีจิตสำนึกร่วมอนุรักษ์สิ่งแวดล้อม (3) การพัฒนาสิ่งแวดล้อมที่ยังยืน (Sustainable Environmental Development) คือ การใช้ทรัพยากรธรรมชาติในปริมาณที่ระบบนิเวศสามารถฟื้นตัวกลับสู่สภาพเดิมได้ รวมถึงการจัดการสิ่งแวดล้อมอย่างมีระบบเพื่อให้สังคมและชุมชนมีสิ่งแวดล้อมที่ดี

งานวิจัยที่เกี่ยวข้อง

ธมกร ธาราศรีสุทธิ (2555) ศึกษาเรื่อง แนวทางแก้ไขปัญหาผลกระทบทางเศรษฐกิจ สังคม และสิ่งแวดล้อม จากการพัฒนาการท่องเที่ยว : กรณีศึกษาชุมชนตลาดน้ำท่าคา มีวัตถุประสงค์เพื่อศึกษาผลกระทบทางเศรษฐกิจ สังคม และ สิ่งแวดล้อมจากการพัฒนาการท่องเที่ยวของชุมชนตลาดน้ำท่าคา และเสนอแนวทางแก้ไขปัญหาที่เกิดจากผลกระทบทางเศรษฐกิจ สังคม และสิ่งแวดล้อมจากการพัฒนาการท่องเที่ยวของชุมชน ตลาดน้ำท่าคา ผลการศึกษาพบว่า การพัฒนาการท่องเที่ยว ก่อให้เกิดผลกระทบของภาพรวมในระดับปานกลาง โดยมี ผลกระทบทางบวกด้านเศรษฐกิจและสังคมในระดับสูง ผลกระทบด้านเศรษฐกิจแตกต่างกันอย่างมีนัยสำคัญตามระดับการศึกษา อาชีพ รายได้ และภูมิลำเนา สำหรับแนวทางแก้ไขปัญหาผลกระทบที่เกิดขึ้น ควรส่งเสริมให้มีการพัฒนาการท่องเที่ยวโดยมุ่งประโยชน์ ระยะยาว เน้นการมีส่วนร่วม สร้างความเข้มแข็งให้ชุมชน สามารถ พึ่งพิงตนเองด้วยการสร้างงาน สร้างอาชีพ จัดกิจกรรมการท่องเที่ยว ขายสินค้าที่ผลิตได้ในชุมชน มีการกระจายรายได้ในชุมชนอย่างเป็นธรรม

พันธ์เทวัช ยังดี, ศิริวรรณ กวงเพ็ง และสมมาตร ผลเกิด (2558) ศึกษาเรื่องผลกระทบการท่องเที่ยวต่อเศรษฐกิจชุมชนรอบปราสาทหินเขาพนมรุ้งและปราสาทหินเมืองต่ำ จังหวัดบุรีรัมย์ มีวัตถุประสงค์เพื่อศึกษาผลกระทบจากการท่องเที่ยวต่อเศรษฐกิจทั้งทางตรงและทางอ้อมต่อชุมชน ผลการศึกษา พบว่า การท่องเที่ยวของปราสาทหินเขาพนมรุ้งและปราสาทหิน เมืองต่ำ มีผลกระทบทางเศรษฐกิจต่อชุมชนรอบปราสาททั้งทางตรงคือ กลุ่มผู้ประกอบการธุรกิจที่พัก ธุรกิจอาหาร และเครื่องดื่ม มีการสร้างงาน สร้างรายได้ให้ชุมชน โดยมีการจ้างงาน กับสมาชิกในชุมชนและทางอ้อมคือ การท่องเที่ยวส่งผลให้เกิดการกระจายรายได้และการสร้างงานแก่คนในชุมชนในหลายระดับ การมีรายได้จากการท่องเที่ยวยังสามารถกระจายไปสู่ท้องถิ่นได้ด้วย การใช้จ่ายซื้อสินค้าอุปโภคบริโภค รวมถึงบริการในท้องถิ่น

Kaur, J., Dutt, A., Nagina, R., & Bhalla, P. (2025) ศึกษาแนวทางการส่งเสริมที่ยั่งยืนของการท่องเที่ยวเชิงอาหารทั่วโลก ซึ่งเป็นรูปแบบของการท่องเที่ยวที่เติบโตอย่างรวดเร็ว เปิดโอกาสให้แสวงหาอัตลักษณ์ด้านอาหารแต่ละพื้นที่จึงก่อให้ผลกระทบทางบวกและทางลบด้านสิ่งแวดล้อม สังคม และเศรษฐกิจ โดยระบุกลยุทธ์ที่ประสบความสำเร็จและพื้นที่สำหรับการพัฒนา ภูมิภาคต่าง ๆ ส่งเสริมความยั่งยืนในการท่องเที่ยวเชิงอาหารอย่างไร มีความท้าทายและโอกาสใดบ้าง แนวทางการส่งเสริมที่ดีที่สุดใดบ้างที่สามารถนำมาใช้ได้ ผลการศึกษาพบว่าแนวทางส่งเสริมการท่องเที่ยวที่ยั่งยืนมีหลากหลาย และข้อเสนอแนะนำที่จะได้ไปดำเนินการสำหรับผู้กำหนดนโยบาย ผู้ประกอบการด้านการท่องเที่ยว และนักวิจัย ในการส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืน

จากการศึกษางานวิจัยพบว่า สามารถนำข้อมูลผลกระทบและแนวทางการส่งเสริมการท่องเที่ยวมาศึกษากลยุทธ์เพื่อส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่ ซึ่งในแต่ละพื้นที่มีบริบทที่แตกต่างเพื่อทำให้สามารถนำไปใช้ในการกำหนดรูปแบบของการท่องเที่ยวเชิงอาหารได้อย่างมีประสิทธิภาพ

วิธีดำเนินการวิจัย

การวิจัยเรื่องการจัดการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา เป็นการวิจัยเชิงคุณภาพ (Qualitative Research) โดยมีวิธีการดำเนินการวิจัยดังต่อไปนี้

ขอบเขตเชิงพื้นที่

ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา

กลุ่มตัวอย่าง

กลุ่มผู้ให้ข้อมูลหลักจำนวน 30 คน ประกอบด้วย กลุ่มที่1 ภาครัฐ คือ เจ้าหน้าที่จากหน่วยงานภาครัฐผู้ทำหน้าที่ส่งเสริมและสนับสนุนการท่องเที่ยวจำนวน 10 คน กลุ่มที่ 2 ภาคเอกชนผู้ประกอบการ คือ ตัวแทนของผู้ประกอบการร้านค้าและธุรกิจที่เกี่ยวข้องกับการท่องเที่ยวเชิงอาหารอื่น ๆ ในพื้นที่ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลาจำนวน 10 คน และกลุ่มที่ 3 คือภาคชุมชน คือชาวบ้านและผู้มีส่วนเกี่ยวข้องในชุมชนพื้นที่ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลาจำนวน 10 คน โดยใช้วิธีเลือกแบบเจาะจง (Purposive Sampling) เป็นการเลือกกลุ่มตัวอย่างตามสะดวกในเรื่องที่ศึกษา

เครื่องมือที่ใช้ในการวิจัย

1. แบบสัมภาษณ์กึ่งโครงสร้าง (Semi-Structured Interview) เพื่อทำการสัมภาษณ์เชิงลึก (In-Depth Interview) กับกลุ่มผู้ให้ข้อมูลหลักจำนวน 30 คน เพื่อเก็บบันทึกและรวบรวมข้อมูล

2. การสังเกตแบบมีส่วนร่วม (Participant Observation) โดยเข้าไปมีส่วนร่วมกับกลุ่มผู้ให้ข้อมูลหลักด้วยการซักถามและจดบันทึกอย่างละเอียด

อุปกรณ์ที่ใช้ในการเก็บรวบรวมข้อมูล

อุปกรณ์บันทึกภาพ อุปกรณ์บันทึกเสียง และสมุดจดบันทึกข้อมูล เพื่อเก็บข้อมูลประกอบการวิจัย โดยการขออนุญาตบุคคลทุกคนที่มีส่วนร่วม

การเก็บรวบรวมข้อมูล

1. สำรวจพื้นที่ในชุมชนเพื่อศึกษาข้อมูลเบื้องต้น สำรวจข้อมูลเชิงเอกสารและสื่อออนไลน์ และดำเนินการสำรวจกิจกรรมการท่องเที่ยวเชิงอาหารของพื้นที่ที่ศึกษา

2. ประสานงานกลุ่มผู้ให้ข้อมูลหลักทั้ง 3 กลุ่มในวันที่ชุมชนจัดกิจกรรมการท่องเที่ยวเชิงอาหารเพื่อลงพื้นที่ภาคสนาม เก็บข้อมูลจากการสังเกตสัมภาษณ์ จดบันทึก และเก็บภาพถ่าย

3. นำข้อมูลที่ได้จากการเก็บรวบรวมทั้งหมด มาสังเคราะห์เพื่อนำไปสู่การตอบคำถามการวิจัยในประเด็นกลยุทธ์เพื่อการส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่ ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา เพื่อสรุปข้อมูลผลการวิจัยและนำเสนอข้อมูลในเชิงพรรณนา

ผลการวิจัย

จากการวิจัยเรื่องกลยุทธ์เพื่อส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่ ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา นำเสนอผลข้อมูลเชิงพรรณนาได้ผลการศึกษากลยุทธ์เพื่อส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่ ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา 4 ด้าน คือ 1) กลยุทธ์ด้านทรัพยากรการท่องเที่ยว (Tourism Resource) 2) กลยุทธ์ด้านทรัพยากรมนุษย์ (Human Resources) 3) กลยุทธ์ด้านการบริการการท่องเที่ยว (Tourism Service) 4) กลยุทธ์ด้านการตลาดการท่องเที่ยว (Tourism Marketing) โดยสามารถเสนอผลได้รายละเอียดดังนี้

1) กลยุทธ์ด้านทรัพยากรการท่องเที่ยว (Tourism Resource) พบว่าพื้นที่ ตำบลสะกอม มีความอุดมสมบูรณ์จากระบบนิเวศทางทะเล และทรัพยากรป่าไม้ที่อุดมสมบูรณ์มีคลองสะกอมไหลผ่านพื้นที่ภายในหมู่บ้าน เป็นคลองน้ำกร่อยจากทิศเหนือจรดทิศใต้ของชุมชนระยะทางยาวประมาณ 5.25 กิโลเมตร จึงเป็นคลองที่ช่วยส่งเสริมการสร้างรายได้ให้กับคนในชุมชนตำบลสะกอม ส่งผลให้ทรัพยากร

การท่องเที่ยวเชิงอาหารของตำบลสะกอม เป็นทรัพยากรทางธรรมชาติที่มีอยู่ในชุมชน การประกอบอาชีพของคนในชุมชนจึงเป็นการทำประมงพื้นบ้าน ในลักษณะการสืบทอดกันรุ่นต่อรุ่น การสร้างอาชีพและสร้างรายได้จึงมาจากทะเลจนกลายเป็นการดำเนินชีวิตตามวิถีชาวเล สามารถสรุปได้เป็นตาราง ดังนี้

ตารางที่ 1 ตารางแสดงจำนวนทรัพยากรทางทะเล ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา

ประเภทของสัตว์ทะเล	จำนวน (ชนิดของสัตว์ทะเล)
หอย	60
ปู	31
กุ้ง	23
ปลา	13
หมึก	20

จากตารางจะเห็นได้ว่าทรัพยากรทางทะเลที่มีอยู่ในพื้นที่มีอยู่เป็นจำนวนมาก เมื่อคนในชุมชนว่างจากการทำประมง จึงเกิดการรวมกลุ่มกันเพื่อการกระจายรายได้ให้กับคนในชุมชน ด้วยการนำทรัพยากรทางทะเลที่หามาได้เป็นวัตถุดิบหลักในการทำการท่องเที่ยวเชิงอาหาร เพื่อแสดงอัตลักษณ์ของชุมชนให้เด่นชัดเพื่อให้เป็นที่รู้จักของคนนอกพื้นที่ รูปแบบของอาหารมีความหลากหลาย เช่น อาหารพื้นถิ่น อาหารที่มีความร่วมสมัย การเรียนรู้วัฒนธรรมอาหารการกินตามวิถีของคนในชุมชน

การจัดการกับทรัพยากรทางทะเล เน้นการทำประมงพื้นบ้าน งดการใช้อวนตาถี่ เพื่ออนุรักษ์สัตว์น้ำ มีธนาคารสัตว์ทะเล การส่งเสริมการให้ความรู้แก่ชาวประมงในพื้นที่ การจับสัตว์ทะเลตามหลักศีลธรรมและวิถีปฏิบัติที่สืบเนื่องมาจากบรรพบุรุษ จัดตั้งกลุ่มอนุรักษ์สัตว์ทะเล ปลูกฝังจิตสำนึกเด็กรุ่นใหม่เกี่ยวกับคุณค่าที่ยั่งยืนของท้องทะเลมากกว่าการเห็นคุณค่าของเงินตรา และจัดตั้งกลุ่มส่งเสริมการท่องเที่ยวเชิงอาหารของชุมชนเพื่อให้อาหารของชุมชนเป็นที่รู้จักของนักท่องเที่ยว



ภาพที่ 1 อาหารจากทรัพยากรทางทะเลเพื่อส่งเสริมการท่องเที่ยวเชิงอาหาร

2) กลยุทธ์ด้านทรัพยากรมนุษย์ (Human Resources) เป็นปัจจัยหนึ่งที่ช่วยให้การส่งเสริมการท่องเที่ยวเชิงอาหารประสบความสำเร็จ มีการให้ความสำคัญกับบุคคลที่อาศัยอยู่ในพื้นที่ ซึ่งเป็นบุคคลที่มีความรู้เฉพาะด้านเกี่ยวกับชุมชนรวมกลุ่มกัน เพื่อให้ความรู้กับนักท่องเที่ยวเพื่ออธิบายความเป็นมาของท้องถิ่น ความสำคัญของทรัพยากรทางธรรมชาติในชุมชน และอธิบายเรื่องราวและที่มาของอาหาร รวมถึงเป็นผู้ที่มีความเชี่ยวชาญในการประกอบอาหาร เพื่อสาธิตการทำอาหารให้กับนักท่องเที่ยวที่มาเยือน ทรัพยากรมนุษย์เหล่านี้ได้แก่ ปราชญ์ชาวบ้าน ผู้นำทางศาสนา ผู้นำท้องถิ่นและตัวแทนภาคเอกชน ต่างเข้ามามีส่วนในการขับเคลื่อน เรื่องการท่องเที่ยวเชิงอาหารของชุมชน สร้างชุมชนเข้มแข็งกระทั่งเป็นที่รู้จักของบุคคลต่างถิ่น

2.1) ปราชญ์ชาวบ้าน หมายถึง บุคคลผู้เป็นเจ้าของภูมิปัญญาท้องถิ่น ตามวิถีของชาวบ้าน มีการถ่ายทอดภูมิปัญญาดังกล่าวสู่รุ่นลูกหลาน เนื่องจากกลุ่มคนเหล่านี้เป็นผู้มีความรู้ ประสบการณ์ในอาหารท้องถิ่น จึงสามารถนำองค์ความรู้มาต่อยอดเป็นกลยุทธ์เพื่อการส่งเสริมการท่องเที่ยวเชิงอาหารได้

2.2) ผู้นำทางศาสนา หมายถึง บุคคลที่มีความน่าเชื่อถือในศาสนาต่าง ๆ กระทั่งถูกยกย่องจากชาวบ้านในชุมชนให้มีบทบาทสำคัญทางศาสนา เพื่อหล่อหลอมความเข้าใจและมีหลักปฏิบัติตามศาสนาของตน ชาวบ้านในชุมชนร้อยละ 99 นับถือศาสนาอิสลาม ร้อยละ 1 นับถือศาสนาพุทธ ในศาสนาอิสลามประกอบด้วยบาบอหรือโต๊ะครู โต๊ะอิหม่าม กรรมการมัสยิด ครูสอนอัลกุรอ่าน และครูสอนศาสนา ในศาสนาอิสลามชุมชนมีวัดตั้งอยู่ชื่อวัดสะกอม มีเจ้าอาวาสและคณะสงฆ์เป็นผู้ประกอบศาสนกิจ และสัปเหร่อ ซึ่งล้วนมีความสำคัญกับชาวบ้านในชุมชนทั้งสิ้น

2.3) ผู้นำท้องถิ่น หมายถึง บุคคลที่เป็นผู้นำมีลักษณะโดดเด่นเป็นที่ยอมรับของคนในชุมชน ทำงาน เพื่อประโยชน์ของชุมชนและสังคมร่วมมือกับชาวบ้านในชุมชน เพื่อให้ชุมชนเกิดการเปลี่ยนแปลงในทางที่ดีขึ้น ประกอบด้วยผู้ใหญ่บ้าน ชุดรักษาความปลอดภัย เครือข่ายนักรบผ้าถุง เป็นต้น

2.4) ภาคเอกชน หมายถึง หน่วยงานหรือกลุ่มบุคคลที่เป็นเจ้าของหรือแหล่งที่มาของเงินทุน องค์กรเอกชนที่พร้อมสนับสนุนหรือให้ความช่วยเหลือชุมชนและชาวบ้านในการจัดกิจกรรมต่าง ๆ เพื่อประโยชน์ของชุมชน ภาคเอกชนมักเป็นกลุ่มคนในพื้นที่ เช่นชาวบ้านที่มีกำลังทรัพย์ กลุ่มคนที่ทำอาชีพค้าขาย และกลุ่มชาวประมง

จากที่กล่าวมาสรุปได้ว่ากลยุทธ์ด้านทรัพยากรมนุษย์ เป็นผู้มีคุณสมบัติ มีความรู้ความสามารถ กำลังทรัพย์ แรงกายแรงใจ พร้อมในการเป็นผู้นำและผู้สนับสนุน นำความสามารถที่มีมาใช้ในการประกอบการท่องเที่ยวเชิงอาหาร เช่น ปราชญ์ชาวบ้าน เป็นผู้ให้ความรู้ด้านอาหารในชุมชนแก่นักท่องเที่ยว ผู้นำทางศาสนาเป็นผู้ให้ความรู้หลักปฏิบัติตามศาสนา การเรียนรู้วิถีด้านอาหารการกินและข้อห้ามตามหลักศาสนา ผู้นำท้องถิ่นเป็นผู้ให้ความรู้ที่มาที่ไปของแหล่งวัตถุดิบที่นำมาเป็นอาหาร เพื่อกำหนดเป็นกลยุทธ์ในการส่งเสริมการท่องเที่ยวในด้านทรัพยากรมนุษย์ ในการเปิดรับนักท่องเที่ยวให้เข้ามาสัมผัสวิถีของชุมชน มีการให้บริการที่ประทับใจและภาคเอกชนเป็นผู้ระดมเงินทุน เพื่อให้ชุมชนจัดกิจกรรมการท่องเที่ยวเชิงอาหาร

3) กลยุทธ์ด้านการบริการการท่องเที่ยว (Tourism Service) หมายถึง การอำนวยความสะดวกเกี่ยวกับการเดินทางท่องเที่ยวของนักท่องเที่ยวตลอดการเดินทาง นับเป็นการสร้างความประทับใจ หากมีความประทับใจมากก็เพิ่มโอกาสในการกลับมาท่องเที่ยวซ้ำ มีการรองรับนักท่องเที่ยวที่มีความต้องการหลากหลาย การบริการการท่องเที่ยวมีส่วนสำคัญในการสนับสนุนการท่องเที่ยวเชิงอาหาร ดังนี้

3.1) โครงสร้างพื้นฐานการท่องเที่ยว ได้แก่ การคมนาคมขนส่งมีให้นักท่องเที่ยวเลือกคือการเดินทางโดยทางรถยนต์ และการเดินทางโดยรถไฟ ระบบไฟฟ้าประปาของสถานที่ท่องเที่ยว ซึ่งมีความพร้อมในการรองรับนักท่องเที่ยว ระบบการสื่อสารมีคุณภาพและประสิทธิภาพ ระบบการสาธารณสุขที่ดีมีชุมชนให้ความสะดวก

3.2) กิจกรรมการท่องเที่ยวชุมชน การจัดกิจกรรมการท่องเที่ยวเชิงอาหารมีหลากหลายรูปแบบตามความต้องการของนักท่องเที่ยว เช่น กิจกรรมเรียนรู้วิถีวัฒนธรรมด้านศาสนา เดินชมแหล่งโบราณสถานในพื้นที่ สัมผัสวิถีชีวิตชาวบ้านในชุมชน การนำทรัพยากรทางทะเลที่เหลือใช้มาให้นักท่องเที่ยวสร้างประสบการณ์เรียนรู้ด้วยตนเอง จัดทำเป็นของตกแต่งบ้าน นำพืชท้องถิ่นมาใช้เป็นสีและของประดับร่างกายจากภูมิปัญญาชาวบ้าน การให้ความรู้ด้านอาหาร มีประสบการร่วมของนักท่องเที่ยวในการปรุงอาหารด้วยตนเองตามรสชาติที่ต้องการภายใต้วัตถุดิบในชุมชน

3.3) กลุ่มผู้ประกอบอาหารในชุมชน เป็นกลุ่มที่จะสามารถแสดงอัตลักษณ์ของชุมชนผ่านอาหาร สร้างความประทับใจด้ามประสาทสัมผัสแก่นักท่องเที่ยวได้ลิ้มลองรสชาติอาหารที่ดี ส่งผลต่อการสร้างความประทับใจ สร้างประสบการณ์แปลกใหม่ในด้านบวกและมีความโดดเด่นของการท่องเที่ยวเชิงอาหารในชุมชน คือการนำวัตถุดิบสดใหม่จากท้องทะเลมาเป็นอาหารจานหลักและอาหารจานรอง

3.4) คุณภาพของสินค้าและบริการ สิ่งสำคัญที่ทำให้การท่องเที่ยวเชิงอาหารได้รับความสนใจและประสบความสำเร็จ อาหารที่ได้มาตฐาน สะอาด สด ใหม่ถูกต้องตามหลักสุขอนามัยและตอบสนองความต้องการของนักท่องเที่ยวที่เดินทางมาสัมผัสรสชาติอาหาร ราคาได้มาตรฐาน มีการให้ บริการตามหลักเจ้าบ้านที่ดี การให้ความรู้รายละเอียดของอาหารท้องถิ่นแต่ละรายการด้วยความสามารถ มีทักษะทางภาษาที่สามารถให้ข้อมูล มีใจบริการเป็นเจ้าบ้านที่ดี แนะนำวิธีการรับประทานอาหารตามลำดับขั้นตอนเพื่อให้นักท่องเที่ยวสัมผัสรสชาติอาหารผ่านประสาทสัมผัสทั้ง 5 คือ การมองเห็นรูปลักษณ์อาหาร (Food Appearance) การลิ้มรส หรือรส (Taste) การได้กลิ่น หรือกลิ่น (Smell) การ ได้ยิน หรือเสียง (Hearing) สุดท้ายคือ การสัมผัส หรือสัมผัส (Touch) ทำให้นักท่องเที่ยวเกิดความประทับใจ

4) กลยุทธ์ด้านการตลาดการท่องเที่ยว (Tourism Marketing) เพื่อใช้กำหนดลู่ทางในการพัฒนาสินค้าทางการท่องเที่ยวและส่งเสริมให้เกิดนักท่องเที่ยว พบว่าการทำการตลาดด้านการท่องเที่ยวเชิงอาหาร 2 รูปแบบคือการตลาดการท่องเที่ยวออนไลน์และการตลาดการท่องเที่ยวออฟไลน์

4.1) การตลาดการท่องเที่ยวออนไลน์ มีการประชาสัมพันธ์ธุรกิจการท่องเที่ยวเชิงอาหารผ่านแพลตฟอร์มออนไลน์ เพื่อโปรโมตธุรกิจสินค้าและบริการให้น่าสนใจ และเป็นที่รู้จัก เช่น เว็บไซต์ขององค์การบริหารส่วนตำบลสะกอม เพจเฟสบุ๊คกลุ่มอาหารปันรัก เป็นต้น



ภาพที่ 2 แหล่งท่องเที่ยวตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา
ที่มา: องค์การบริหารส่วนตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา (ม.ป.ป.)



ภาพที่ 3 การประชาสัมพันธ์เพื่อส่งเสริมการท่องเที่ยวเชิงอาหารผ่านช่องทางออนไลน์
ที่มา: ศุภวรรณ ชนะสงคราม (2558)

4.2) การตลาดการท่องเที่ยวออฟไลน์ มีการประชาสัมพันธ์ธุรกิจการท่องเที่ยวเชิงอาหารผ่านการจัดงานนิทรรศการในงานต่าง ๆ การจัดโปรแกรมท่องเที่ยวเชิงอาหาร การติดป้ายประชาสัมพันธ์ การจัดทริปการเดินทางให้นักท่องเที่ยวด้วยตนเองตามความพึงพอใจของนักท่องเที่ยวที่ประสานงานเข้าไปในชุมชน และการบอกต่อแบบปากต่อปากของนักท่องเที่ยวที่เคยไปสัมผัสประสบการณ์การท่องเที่ยวเชิงอาหารมาแล้วกระทั่งเกิดความประทับใจ



ภาพที่ 4 นักท่องเที่ยวทำข้าวดอกราย อาหารท้องถิ่นตำบลสะกอม

จากภาพแสดงกิจกรรมหนึ่งของการท่องเที่ยวเชิงอาหารด้วยตนเอง แบบออฟไลน์ด้วยวิธีการให้คำแนะนำขั้นตอนการทำอาหารโดยนักโภชนาการของชุมชน ระหว่างการทำอาหารพบการให้ความรู้สอดแทรกเกี่ยวกับวัตถุดิบในท้องถิ่น เรื่องที่มาของอาหาร คุณค่าทางโภชนาการ วิธีการทำข้าวดอกรายที่ถูกต้อง และพบว่ามีข้าวดอกรายแฝงไปด้วยคุณค่าด้านคติสอนใจในการรับประทานร่วมกันกับคนในครอบครัว ส่วนผสมที่หลากหลายมีรสชาติโดดเด่น เป็นวัตถุดิบที่หาได้ในพื้นที่ เช่น อาหารทะเล และกะปิ วัตถุดิบไม่ผ่านการปรุงแต่งรสชาติจากเครื่องปรุงใด ๆ ดึงรสแห่งความเป็นธรรมชาติของทะเลสะกอมมาใส่ไว้ในอาหารที่แสดงอัตลักษณ์ของชุมชน เครื่องครัวที่ใช้เป็นครกชนิดพิเศษสำหรับตำข้าวดอกรายเท่านั้น เป็นครกที่ใช้เฉพาะชุมชน สร้างอัตลักษณ์และภาพจำแก่นักท่องเที่ยว ก่อให้เกิดการบอกต่อและท่องเที่ยวซ้ำเพื่อสร้างประสบการณ์การท่องเที่ยวที่แตกต่างในพื้นที่อื่น ๆ นักท่องเที่ยวได้เรียนรู้แหล่งที่มาของอาหาร เรียนรู้มรดกทางภูมิปัญญาจากมรดกทางวัฒนธรรมของชุมชน มีความเข้าใจความแตกต่างเชิงพื้นที่และความประทับใจในมิตรไมตรี

สรุปและอภิปรายผล

กลยุทธ์เพื่อการส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่ ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา ประกอบด้วยกลยุทธ์ด้านทรัพยากร โดยการนำทรัพยากรทางทะเลที่มีอยู่ในท้องถิ่นมาเป็นวัตถุดิบหลักในการทำการท่องเที่ยวเชิงอาหาร รูปแบบของอาหารมีความ การเรียนรู้วัฒนธรรมอาหารการกินตามวิถีของคนในชุมชน กลยุทธ์ด้านทรัพยากรมนุษย์ ชุมชนสามารถนำคนในชุมชนที่มีศักยภาพในด้านการประกอบอาหารมาเป็นส่วนหนึ่งของการให้ความรู้และทำกิจกรรมการท่องเที่ยวเชิงอาหาร กลยุทธ์ด้านการบริการการท่องเที่ยว คือการบริการที่ดีทำให้นักท่องเที่ยวมีความประทับใจ จึงมีส่วนในการสนับสนุนการท่องเที่ยวในชุมชน กลยุทธ์ด้านการตลาดการท่องเที่ยว คือวิธีการทำการตลาดสื่อสารข้อมูลข่าวสารไปยังนักท่องเที่ยวพบการสื่อสาร 2 รูปแบบคือออนไลน์และออฟไลน์ สรุปและอภิปรายผลการวิจัยเป็น 4 ด้านดังนี้

1. กลยุทธ์ด้านทรัพยากรการท่องเที่ยว (Tourism Resource) ทรัพยากรการท่องเที่ยวเชิงอาหารของพื้นที่มีหลากหลาย เช่น อาหาร สถาปัตยกรรม วิถีชีวิตคนสะกอม วัฒนธรรมการปฏิบัติตนที่มีความเป็นพหุวัฒนธรรม เป็นต้น เอกลักษณ์และอัตลักษณ์ที่อยู่ในชุมชนผสมผสานกันลงตัวกระทั่งกลายเป็นจุดเด่นที่น่าสนใจในการเดินทางท่องเที่ยว ทรัพยากรที่มีอยู่ในชุมชน วิถีภูมิปัญญา แสดงให้เห็นความดั้งเดิม ความจริงแท้ของรสชาติอาหารในพื้นที่ต่างมีส่วนกระตุ้นให้เกิดการท่องเที่ยวเชิงอาหาร เกิดการสร้างรายได้ สร้างงานให้ชาวบ้านในชุมชนและบุคคลทุกภาคส่วนที่เข้ามาเกี่ยวข้องกับกิจกรรมการท่องเที่ยวเชิงอาหาร สอดคล้องกับงานวิจัยของ จุฑารัตน์ เจือจิ้น (2555) ซึ่งกล่าวว่า หลักสำคัญของการท่องเที่ยวที่ประสบความสำเร็จ แหล่งท่องเที่ยวจะต้องมีทรัพยากรการท่องเที่ยวของชุมชนตนเองเป็นทุนเดิม นำวิถีชีวิตและวัฒนธรรมที่เป็นพื้นฐานมาผสมผสานเข้ากับการท่องเที่ยวรูปแบบต่าง ๆ ทำให้ชุมชนมีความเข้มแข็ง สร้างความภูมิใจให้ผู้คนในชุมชน ทรัพยากรด้านการท่องเที่ยวจะมีความยั่งยืนและ

ยังสอดคล้องกับงานของ อนุวัฒน์ ชมภูปัญญาและธนัสถา โรจนตระกูล (2565) ซึ่งกล่าวว่าการท่องเที่ยวโดยชุมชนให้ประสบความสำเร็จสามารถพัฒนาเศรษฐกิจฐานรากให้เข้มแข็งต้องอาศัยการมีส่วนร่วมของชุมชน การอนุรักษ์และความสัมพันธ์ระหว่างคนในชุมชนกับทรัพยากรธรรมชาติในรูปแบบการท่องเที่ยวกับการพัฒนาชุมชนท้องถิ่นให้เข้มแข็งและยั่งยืน

2. กลยุทธ์ด้านทรัพยากรมนุษย์ (Human Resources) ตัวบุคคลอันหมายถึง ปราชญ์ชาวบ้าน ผู้นำทางศาสนา ผู้นำท้องถิ่น ภาคเอกชน ซึ่งเป็นกลุ่มทรัพยากรมนุษย์ที่มีคุณค่าต่อชุมชนส่งผลให้การดำเนินการจัดการท่องเที่ยวเชิงอาหารมีความน่าสนใจ นักท่องเที่ยวจะมีความรู้เกี่ยวกับอาหารของชุมชนผ่านกลุ่มบุคคลที่มีความรักและหวงแหนชุมชน การบริหารจัดการกิจกรรมใดก็ตามหากให้ความสำคัญไปที่ตัวบุคคลหรือกลุ่มคนงานนั้นจะสำเร็จตามเป้าหมายได้ สอดคล้องกับงานวิจัยของ ปรีดาพร คณทา และดารารัตน์ อินทร์คุ้ม (2559) ซึ่งกล่าวว่า ชุมชนหรือองค์กรหากมีทรัพยากรมนุษย์เป็นทุนจะมีข้อได้เปรียบในการสร้างมูลค่าเพิ่ม การขับเคลื่อนโดยมนุษย์จะเกิดการพัฒนาสร้างความเข้มแข็งให้ชุมชนและองค์กรสร้างพลังที่เข้มแข็งได้ ส่งผลต่อการดำเนินงานและการจัดการต่าง ๆ ในเชิงบวก

3. กลยุทธ์ด้านการบริการการท่องเที่ยว (Tourism Service) มีความสำคัญต่อการตัดสินใจท่องเที่ยวของนักท่องเที่ยวเป็นอย่างมาก หากนักท่องเที่ยวมีทัศนคติที่ดี ต่อแหล่งท่องเที่ยวและประทับใจเจ้าบ้านฐานะเจ้าบ้านที่ดี สอดคล้องกับงานวิจัยของ ฐิติรัตน์ ทองไส และนพพล อัคฮาด (2566) ซึ่งกล่าวว่าการท่องเที่ยวโดยชุมชนมีการร่วมมือกันหลายภาคส่วน การร่วมมือร่วมใจในการให้บริการด้วยไมตรีจิตนำไปสู่การท่องเที่ยวชุมชนที่ยั่งยืนได้

4. กลยุทธ์ด้านการตลาดการท่องเที่ยว (Tourism Marketing) เนื่องจากการตลาดการท่องเที่ยวจัดเป็นช่องทางการสื่อสารระหว่างนักท่องเที่ยวกับกลุ่มเจ้าของพื้นที่หรือชุมชน สอดคล้องกับงานวิจัยของนธี เหมมันต์ และชญาน์ทัต เอี่ยวเรืองสุรัติ (2566) ซึ่งกล่าวว่า การสื่อสาร การประชาสัมพันธ์ทางการตลาดมี 2 ช่องทางคือ การบอกผ่านช่องทางสื่อสังคมออนไลน์และการบอกปากต่อปากของนักท่องเที่ยว สื่อออนไลน์จะช่วยให้เข้าถึงกลุ่มผู้รับสารที่ต้องการสื่อสารได้ง่าย สะดวก รวดเร็ว และมีประสิทธิภาพ ไปยังเพื่อนหรือญาติที่สามารถเกิดขึ้นได้หลังจากได้รับประสบการณ์จากการไปท่องเที่ยว ทั้ง 2 วิธีการต่างมีส่วนช่วยทำการตลาดการท่องเที่ยวให้สถานที่ท่องเที่ยวเป็นที่รู้จัก ส่งผลต่อการตัดสินใจท่องเที่ยว และยังสอดคล้องกับงานของ นิลุบล ประเคนภัทรา และภูริ ชุณห์ขจร (2567) ซึ่งกล่าวว่า กลยุทธ์ด้านการตลาดที่มีการพัฒนาสนับสนุนโครงการการประชาสัมพันธ์โดยคนในพื้นที่เป็นสิ่งสำคัญในการส่งเสริมการท่องเที่ยวเชิงอาหารเพื่อสุขภาพของประเทศไทย

องค์ความรู้ใหม่

ที่ได้รับในงานวิจัยนี้คือ กลยุทธ์เพื่อการส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนจำเป็นต้องมีปัจจัยหลายด้านในการส่งเสริมการท่องเที่ยวเชิงอาหารร่วมกัน ปัจจัยที่สำคัญคือ ตัวบุคคลที่อยู่ในชุมชนจะต้องมีจิตสำนึกที่ดีเกี่ยวกับชุมชนของตนเอง การเห็นคุณค่าของทรัพยากรในชุมชน ร่วมมือกันในการอนุรักษ์ทรัพยากรพื้นที่ มีกลุ่มนักอนุรักษ์ทรัยากรทางทะเลที่เป็นคนในชุมชนชื่อกลุ่ม “นักรบผ้าถุง” เป็นกลุ่มที่มีอุดมการณ์และมีความพร้อมในการถ่ายทอดองค์ความรู้ด้านทรัพยากรทางทะเลของชุมชนสู่เด็กรุ่นใหม่ การจัดการด้านทรัพยากรมนุษย์จึงมีความสำคัญต่อการจัดการท่องเที่ยวเชิงอาหารอย่างยั่งยืน เพื่อให้เกิดการพัฒนาสิ่งที่มีอยู่ในปัจจุบันให้คงอยู่เพื่อต่อยอดสู่อนาคตและตอบสนองต่อความต้องการของคนในปัจจุบัน

ข้อเสนอแนะ

จากการวิจัยพบว่ากลยุทธ์การส่งเสริมการท่องเที่ยวเชิงอาหารอย่างยั่งยืนในพื้นที่มีกลยุทธ์การส่งเสริมที่ยังไม่ครบถ้วน หากแต่ยังต้องได้รับการส่งเสริมและสนับสนุนในกลยุทธ์ด้านการตลาดการท่องเที่ยวที่หลากหลายมากยิ่งขึ้นจากภาครัฐและเอกชน รวมถึงการนำความรู้ด้านเทคโนโลยีการสื่อสารที่คนรุ่นใหม่ถนัดมาเสริมในการทำสื่อประชาสัมพันธ์ให้แก่นักท่องเที่ยวที่มีความสนใจการท่องเที่ยวเชิงอาหารในพื้นที่และเพิ่มกิจกรรมเส้นทางตามล่าหาวัตถุดิบ โดยให้นักท่องเที่ยวออกไปจับสัตว์ทะเลเป็นการสร้างประสบการณ์เพิ่มให้กับนักท่องเที่ยว

ข้อเสนอแนะในการทำวิจัยครั้งต่อไป ควรได้นำเสนออาหารประจำท้องถิ่น เพื่อการส่งเสริมการท่องเที่ยวของชุมชน เพื่อให้ผู้สนใจได้เรียนรู้เมนูอาหารประจำท้องถิ่นควบคู่ไปกับการส่งเสริมการท่องเที่ยวเชิงอาหารด้วยผ่านสื่อออนไลน์และสร้างการรับรู้ในวงกว้าง

เอกสารอ้างอิง

กระทรวงการท่องเที่ยวและกีฬา. (2566). แผนพัฒนาการท่องเที่ยวแห่งชาติฉบับที่ 3 (พ.ศ.2566-2570). สืบค้นเมื่อ 11 ธันวาคม 2567 จาก https://province.mots.go.th/ewtadmin/ewt/ranong/download/article/article_20230418122435.pdf.

จุฑารัตน์ เจือจิ้น. (2555). แนวทางการจัดการท่องเที่ยวทางวัฒนธรรม บ้านน้ำเชี่ยว จังหวัดตราด (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยศิลปากร, กรุงเทพฯ.

ฉลองศรี พิมลสมพงศ์. (2550). การวางแผนและพัฒนาตลาดการท่องเที่ยว. กรุงเทพฯ : สำนักพิมพ์มหาวิทยาลัยเกษตรศาสตร์.

ไชยา เกษารัตน์, ชาลี ไตรจันทร์, อิศรัฏฐ์ รินไธสง และอาคม ใจแก้ว. (2557). ความไม่สมดุลระหว่างผลประโยชน์สาธารณะของรัฐกับประชาชนอันเกิดจากการดำเนินโครงการหรือกิจการที่อาจก่อให้เกิดผลกระทบต่อชุมชน: ข้อมูลเชิงคุณภาพจากโครงการถมที่ดินในทะเลและการก่อสร้างหรือขยายสิ่งก่อสร้างบริเวณหรือในทะเลพื้นที่ ตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา. วารสารเทคโนโลยีภาคใต้, 7(1), 33-40.

ฐิติรัตน์ ทองไส และนพพล อัคฮาด. (2566). แนวทางการพัฒนาความร่วมมือในการจัดบริการ สาธารณะด้านการท่องเที่ยวโดยชุมชน: กรณีศึกษาชุมชนเกาะยอ อำเภอเมือง จังหวัดสงขลา. วารสารนโยบายและกิจการสาธารณะ, 3(1), 59-75.

ธมกร ธาราศรีสุทธิ. (2555). แนวทางแก้ไขปัญหาผลกระทบ ทางเศรษฐกิจ สังคม และสิ่งแวดล้อมจากการพัฒนาการท่องเที่ยว : กรณีศึกษาชุมชนตลาดน้ำท่าคา. วารสารมนุษยศาสตร์และสังคมศาสตร์ร่มพฤกษ์ มหาวิทยาลัยเกริก, 30(2), 98-116.

นธี เหมมันต์ และชญาน์ทัต เอี่ยวเรืองสุรัติ. (2566). การสื่อสารวัฒนธรรมอาหารท้องถิ่นเพื่อส่งเสริมการท่องเที่ยว : กรณีศึกษาหลาดใต้โหนด ตำบลดอนทราย อำเภอควนขนุน จังหวัดพัทลุง. ใน ทัศนีย์ ประธาน (ประธาน), การประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ครั้งที่ 15. มหาวิทยาลัยหาดใหญ่, สงขลา.

นิลุบล ประเคนภัทรา และภูริ ชุณห์ขจร. (2567). กลยุทธ์เพื่อการส่งเสริมการท่องเที่ยวเชิงอาหารเพื่อสุขภาพของประเทศไทย. วารสารวัฒนธรรมอาหารไทย สาขามนุษยศาสตร์และสังคมศาสตร์, 6(1), 60-69.

บัณฑิต อเนกพูนสุข. (2560). Food on the move. จุลสารวิชาการการท่องเที่ยวแห่งประเทศไทย, 3(1), 8-19.

เบญจมาศ ณ ทองแก้ว, อาทิตย์ แพชนะ, ดรัลรัตน์ ขุนนุ้ย และอำนาจ รักษาพล. (2560). การท่องเที่ยวเชิงอาหารตลาดใต้เคี่ยม จังหวัดชุมพร. ใน ทัศนีย์ ประธาน (ประธาน), การประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ครั้งที่ 10, มหาวิทยาลัยหาดใหญ่, สงขลา.

ปรีดาพร คณทา และดารารัตน์ อินทร์คุ้ม. (2559). ทุนมนุษย์กับการพัฒนาทรัพยากรมนุษย์แนวคิดใหม่. วารสารนวัตกรรมและการจัดการมหาวิทยาลัยราชภัฏสวนสุนันทา, 1(1), 62-70.

พันธ์เทวัช ยังดี, ศิริวรรณ กวงเพ้ง และสมมาตร ผลเกิด. (2558). การศึกษาผลกระทบการท่องเที่ยวต่อเศรษฐกิจชุมชน รอบปราสาทหินเขาพนมรุ้งและปราสาทหินเมืองต่ำ จังหวัดบุรีรัมย์. รมยสาร, 13(3), 123-135.

เพ็ญศิริ สมารักษ์, นันทภัค บุรขจรกุล และเปรมปรีดา ทองลา. (2565). ผลกระทบทางเศรษฐกิจจากการท่องเที่ยวโดยชุมชน ตำบลบางสระเก้า อำเภอแหลมสิงห์ จังหวัดจันทบุรี. วารสารวิจัยรำไพพรรณี ,16(1), 46-57.

ศรัญญู จันทร์วงศ์, พิมพ์พร เลิศอำไพ และปวริศา เทียนทอง. (2566). ทิศทางการท่องเที่ยวเชิงอาหารในจังหวัดเพชรบุรี. วารสารมนุษยศาสตร์และสังคมศาสตร์เพื่อการพัฒนาอย่างยั่งยืน, 7(1), 61-74.

ศิริภรณ์ แพรกจินดา. (2559). ปัจจัยที่มีอิทธิพลต่อความตั้งใจกลับมาร่วมงานเทศกาลอาหารทะเลซ้ำของผู้บริโภคในจังหวัดสมุทรสาคร (ปริญญาบริหารธุรกิจมหาบัณฑิต). มหาวิทยาลัยกรุงเทพ, กรุงเทพฯ.

ศุภวรรณ ชนะสงคราม. (2558). อาหารปันรัก. สืบค้นเมื่อ 10 ตุลาคม 2567 จาก https://www.facebook.com/savefood4saveworld/?locale=th_TH

สุภาสินี ตันติศรีสุข. (2555). การพัฒนาเศรษฐกิจเพื่อสิ่งแวดล้อมที่ยั่งยืน. วารสารเศรษฐศาสตร์สุโขทัยธรรมาธิราช, 6(2), 9-12.

องค์การบริหารส่วนตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา. (ม.ป.ป.). แหล่งท่องเที่ยวตำบลสะกอม อำเภอจะนะ จังหวัดสงขลา. สืบค้นเมื่อ 10 ตุลาคม 2567 จาก https://www.sakomchana .go.th /travel

อนุวัฒน์ ชมพูปัญญา และธนัสถา โรจนตระกูล. (2565). การพัฒนาศักยภาพชุมชนแบบมีส่วนร่วมสู่ชุมชนท่องเที่ยวที่ยั่งยืน. วารสารการพัฒนาการเรียนรู้สมัยใหม่, 7(8), 414-430.

Department of Health, Ministry of Public Health. (2013). Food sanitation requirements for food stalls. Retrieved from http://foodsan.anamai.moph.go.th/main.php?filename=stand.

Department of Local Administration, Ministry of Interior. (2006). Standard of Tourism Promotion. Retrieved from http://www.dla.go.th/ work/e_book/eb1/std210550/22/22.htm

Kaur, J., Dutt, A., Nagina, R., & Bhalla, P. (2025). Gastronomic Tourism and Sustainability Strategies: Challenges and Future Directions. In Global Sustainable Practices in Gastronomic Tourism (pp. 1-24). IGI Global Scientific Publishing.

United Nations World Tourism Organization (UNWTO). (1997). International tourism : aglobalperspective. Madrid: UNWTO.

การศึกษาปัจจัยที่ส่งผลต่อสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏนครศรีธรรมราช

Factors Affecting the Undergraduate Students' Competency of Using Digital Technology and Innovation in Nakhon Si Thammarat Rajabhat University

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์ 1) เพื่อศึกษาระดับปัจจัยที่ส่งผลต่อสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏนครศรีธรรมราช 2) เพื่อศึกษาแนวทางการส่งเสริมสมรรถนะการใช้เทคโนโลยีดิจิทัล และนวัตกรรมของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏนครศรีธรรมราช ซึ่งประกอบด้วยตัวแปรพยากรณ์ ได้แก่ สภาพแวดล้อมการเรียนรู้ แรงจูงใจและทัศนคติ การพัฒนาทักษะนวัตกรรม ตัวแปรเกณฑ์ คือ สมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม กลุ่มตัวอย่าง คือ นักศึกษามหาวิทยาลัยราชภัฏนครศรีธรรมราช จำนวน 400 คน ได้มาด้วยวิธีการสุ่มแบบเจาะจง (Purposive Sampling) คัดเลือกนักศึกษาที่มีคุณสมบัติ กำลังศึกษาอยู่ในระดับปริญญาตรี มีประสบการณ์ในการใช้เทคโนโลยีดิจิทัลเพื่อการเรียน และยินดีเข้าร่วมตอบแบบสอบถามออนไลน์ เครื่องมือที่ใช้ คือ แบบสอบถามออนไลน์ สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ค่าความถี่ ค่าร้อยละ ค่าเฉลี่ย ค่าเบี่ยงเบนมาตรฐาน และการวิเคราะห์สถิติการถดถอยพหุคูณ ผลการวิจัยพบว่า ปัจจัยที่ส่งผลต่อสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏนครศรีธรรมราช เรียงจากมากไปน้อย ได้แก่ การพัฒนาทักษะนวัตกรรม รองลงมา คือ แรงจูงใจและทัศนคติ ซึ่งสามารถร่วมกันทำนายความแปรปรวนของสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษา ร้อยละ 87.60 อย่างมีนัยสำคัญทางสถิติ

ที่ระดับ 0.05 ผลการวิจัยพบว่า แนวทางในการส่งเสริมสมรรถนะของนักศึกษาควรมุ่งเน้นในการพัฒนาทักษะนวัตกรรม และแรงจูงใจและทัศนคติ ผ่านการเรียนรู้เชิงปฏิบัติ การใช้เทคโนโลยีเพื่อเพิ่มประสิทธิภาพการเรียนการสอน

คำสำคัญ: สมรรถนะ, เทคโนโลยีดิจิทัล, นวัตกรรม, นักศึกษาปริญญาตรี

Abstract

This research aims to study (1) examine the levels of factors influencing the competency in digital technology and innovation usage among undergraduate students at Nakhon Si Thammarat Rajabhat University, (2) explore strategies for enhancing such competencies. The study considered key predictor variables, including the learning environment, motivation and attitude and innovation skill development. The criterion variable is the competency in utilizing digital technology and innovation. The sample consisted of 400 undergraduate students from Nakhon Si Thammarat Rajabhat University. Purposive Sampling method : Select qualified students who are currently studying at the bachelor's degree level, have experience in using digital technology for learning, and are willing to participate in the online questionnaire. This study employed a quantitative research approach. Using an online questionnaire as the research instrument. Statistical analyses included frequency, percentage, mean, standard deviation and multiple regression analysis. The findings revealed that the most influential factor affecting students' competency in digital technology and innovation usage was innovation skill development, followed by motivation and attitude. Which can jointly predict the variance of students' digital technology and innovation competence by 87.60 percent with statistical significance at the 0.05 level. The research results found that the approach to promoting students' competence should focus on developing innovative skills, motivation and attitude through practical learning, using technology to increase teaching and learning efficiency.

Keywords: Competency, Digital technology, Innovation, Bachelor's degree student

บทนำ

ในช่วงหลายปีที่ผ่านมาการเปลี่ยนแปลงทางเทคโนโลยีดิจิทัลได้ส่งผลกระทบต่อการศึกษาอย่างมาก ความสามารถในการปรับตัวเข้ากับเทคโนโลยีสมัยใหม่และการพัฒนานวัตกรรมกลายเป็นปัจจัยสำคัญที่ส่งผลต่อความสำเร็จของนักศึกษาในศตวรรษที่ 21 ความก้าวหน้าของเทคโนโลยีทำให้มหาวิทยาลัยต่าง ๆ ทั่วโลกต้องปรับเปลี่ยนวิธีการสอนและรูปแบบการเรียนรู้ เพื่อเสริมสร้างทักษะที่จำเป็นสำหรับนักศึกษาในการใช้เทคโนโลยีดิจิทัลอย่างมีประสิทธิภาพ ซึ่งรวมถึงการประยุกต์ใช้นวัตกรรมที่ช่วยเพิ่มประสิทธิภาพการเรียนรู้และการทำงาน (กาญจนา เดชสม และรุ่งชัชดาพร เวหะชาต, 2564)

มหาวิทยาลัยราชภัฏนครศรีธรรมราช ซึ่งเป็นหนึ่งในมหาวิทยาลัยที่เน้นการพัฒนาความรู้และทักษะของนักศึกษาเพื่อให้สอดคล้องกับการเปลี่ยนแปลงทางเทคโนโลยีและสังคมในปัจจุบัน ได้พยายามส่งเสริมให้นักศึกษาใช้เทคโนโลยีดิจิทัลและนวัตกรรมเป็นส่วนหนึ่งของกระบวนการเรียนรู้และการพัฒนา

ตนเองเพื่อให้สามารถแข่งขันในตลาดแรงงานที่ต้องการทักษะด้านเทคโนโลยี อย่างไรก็ตามพบว่าแม้นักศึกษาจะมีการใช้งานเทคโนโลยีในชีวิตประจำวัน แต่ระดับความสามารถสมรรถนะในการใช้เทคโนโลยีอย่างมีประสิทธิภาพนั้นยังคงต้องการการพัฒนามากยิ่งขึ้น โดยเฉพาะการประยุกต์ใช้ในด้านการศึกษาและการสร้างนวัตกรรมใหม่ ๆ ได้เน้นให้ความสำคัญกับการพัฒนาทักษะทางด้านดิจิทัล และนวัตกรรมของนักศึกษาในระดับอุดมศึกษา เนื่องจากสภาพแวดล้อมการทำงานที่มีการเปลี่ยนแปลงอยู่ตลอดเวลา นักศึกษาจึงต้องมีความสามารถในการใช้งานเทคโนโลยีเพื่อการศึกษาและการทำงานอย่างมีประสิทธิภาพ การเข้าใจถึงปัจจัยที่ส่งผลต่อสมรรถนะการใช้เทคโนโลยีของนักศึกษาจึงเป็นประเด็นที่มีความสำคัญ และมีประโยชน์ในการพัฒนาหลักสูตร และแนวทางการสอนที่ตอบสนองต่อความต้องการในปัจจุบันการเติบโตของเทคโนโลยีในทุกภาคส่วนทำให้ทักษะด้านดิจิทัล และนวัตกรรมเป็นทักษะที่สำคัญนักศึกษาที่จะเข้าสู่ตลาดแรงงานทักษะเหล่านี้ไม่เพียงแต่ช่วยให้การเรียนรู้มีประสิทธิภาพมากขึ้นเท่านั้นแต่ยังทำให้นักศึกษามีความพร้อมสำหรับความต้องการในสถานการณ์ที่เปลี่ยนแปลงอยู่เสมอ สถาบันการศึกษาทั่วโลก รวมถึงมหาวิทยาลัยราชภัฏนครศรีธรรมราช ได้รับการกระตุ้นให้ส่งเสริมการใช้เทคโนโลยีในทุกกระบวนการการศึกษา โดยเน้นให้มีการพัฒนาหลักสูตรที่เน้นการใช้เทคโนโลยีดิจิทัลและการพัฒนานวัตกรรมให้กับนักศึกษา

จากงานวิจัยที่เกี่ยวข้องในช่วงปี 2563-2567 มีการระบุว่าปัจจัยหลักที่มีผลต่อสมรรถนะด้านเทคโนโลยีและนวัตกรรมของนักศึกษารวมถึงทัศนคติ แรงจูงใจส่วนบุคคล การสนับสนุนจากครอบครัวและสถาบัน และประสบการณ์การใช้เทคโนโลยี (กมลชนก โยธาจันทร์, 2565) ซึ่งปัจจัยเหล่านี้สามารถเป็นตัวแปรสำคัญที่ส่งผลต่อระดับความสามารถของนักศึกษาในการใช้เทคโนโลยี ในปัจจุบันเทคโนโลยีดิจิทัลได้เข้ามามีบทบาทสำคัญในชีวิตประจำวันและการทำงานมากขึ้น โดยเฉพาะอย่างยิ่งในสถาบันการศึกษาที่ต้องการพัฒนานักศึกษาให้มีทักษะและความสามารถในการใช้เทคโนโลยีอย่างมีประสิทธิภาพเพื่อให้ทันต่อการเปลี่ยนแปลงทางเศรษฐกิจและสังคม (กัญญ์รัชการย์ เลิศอมรศักดิ์, 2567) เทคโนโลยีดิจิทัลเป็นสิ่งที่จำเป็นต่อการสร้างสรรค์นวัตกรรมและส่งเสริมการเรียนรู้ ซึ่งทักษะเหล่านี้จะช่วยให้นักศึกษามีความพร้อมในการเผชิญกับสภาพแวดล้อมที่เปลี่ยนแปลงอย่างรวดเร็วและซับซ้อน และมหาวิทยาลัยช่วยพัฒนาในด้านวิชาการก็จะทำให้สามารถขยายจำนวนเด็กด้อยโอกาสให้เข้าสู่การศึกษา และเป็นผู้มีทักษะด้านดิจิทัล (Digital Talent) ต่อไปข้างหน้าได้ (สำนักงานสภานโยบายการอุดมศึกษา วิทยาศาสตร์ วิจัยและนวัตกรรมแห่งชาติ (สอวช), (2565) การวิจัยนี้มีความสำคัญอย่างยิ่งต่อการทำความเข้าใจถึงปัจจัยที่ส่งผลต่อสมรรถนะการใช้เทคโนโลยีของนักศึกษา ซึ่งจะช่วยให้สถาบันการศึกษาสามารถพัฒนาหลักสูตรและกิจกรรมการเรียนการสอนที่เหมาะสมเพื่อสนับสนุนการเรียนรู้และเพิ่มขีดความสามารถในการใช้งานเทคโนโลยีได้อย่างมีประสิทธิภาพ

จากการศึกษางานวิจัยที่เกี่ยวข้อง พบว่าการวิจัยส่วนใหญ่ให้ความสำคัญกับการพัฒนาทักษะด้านเทคโนโลยีดิจิทัล หรือทักษะนวัตกรรมแยกกันเป็นรายด้าน โดยเฉพาะในระดับมหาวิทยาลัยขนาดใหญ่หรือสถาบันในเขตตัวเมืองใหญ่ อย่างไรก็ตามงานวิจัยส่วนใหญ่ยังขาดงานวิจัยที่ศึกษาความเชื่อมโยงของปัจจัยด้านแรงจูงใจ ทัศนคติ และการพัฒนาทักษะนวัตกรรมที่ส่งผลร่วมกันต่อสมรรถนะในการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษาในระดับปริญญาตรีในบริบทของมหาวิทยาลัยท้องถิ่น เช่น มหาวิทยาลัยราชภัฏ ซึ่งมีข้อจำกัดด้านสิ่งสนับสนุนการเรียนรู้และทรัพยากร โอกาสเข้าถึงเทคโนโลยีดิจิทัล และรูปแบบการจัดการเรียนรู้ที่แตกต่างไป งานวิจัยนี้จึงมุ่งเติมเต็มช่องว่างดังกล่าว โดยวิเคราะห์ปัจจัยเชิงทำนายที่มีอิทธิพลต่อสมรรถนะของนักศึกษา พร้อมทั้งนำเสนอแนวทางการส่งเสริมสมรรถนะอย่างเป็นระบบที่สามารถนำไปประยุกต์ใช้ในการพัฒนาหลักสูตร การจัดกิจกรรมเสริมสร้างทักษะตามอัตลักษณ์ของสาขา และการ

วางแผนเชิงยุทธศาสตร์เพื่อพัฒนาศักยภาพของนักศึกษาให้สอดคล้องกับการเปลี่ยนแปลงในยุคดิจิทัล และนวัตกรรมอย่างยั่งยืน

ดังนั้นผู้วิจัยจึงสนใจเรื่อง “การศึกษาปัจจัยที่ส่งผลต่อสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏนครศรีธรรมราช” ซึ่งจะช่วยการผลักดันกระตุ้นทุกภาคส่วนในการพัฒนาหลักสูตร กิจกรรมการเรียนการสอนที่เหมาะสม เพื่อสนับสนุนการเรียนรู้ และเพิ่มขีดความสามารถในการใช้งานเทคโนโลยีดิจิทัล และนวัตกรรมได้อย่างมีประสิทธิภาพ

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาระดับปัจจัยที่ส่งผลต่อสมรรถนะการใช้เทคโนโลยีดิจิทัล และนวัตกรรมของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏนครศรีธรรมราช
2. เพื่อศึกษาแนวทางการส่งเสริมสมรรถนะการใช้เทคโนโลยีดิจิทัล และนวัตกรรมของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏนครศรีธรรมราช

แนวคิด ทฤษฎี กรอบแนวคิด

แนวคิดและทฤษฎีของสมรรถนะทางเทคโนโลยีดิจิทัลและนวัตกรรม

สมรรถนะทางเทคโนโลยีดิจิทัล (Digital Competency) หมายถึง ความสามารถของบุคคลในการใช้เทคโนโลยีดิจิทัลอย่างมีประสิทธิภาพเพื่อตอบสนองความต้องการในบริบทต่าง ๆ ไม่ว่าจะเป็นด้านการศึกษา การทำงาน หรือชีวิตประจำวัน แนวคิดและทฤษฎีสำคัญที่เกี่ยวข้อง ได้แก่

Davis (1989) อธิบายทฤษฎีการยอมรับและการใช้เทคโนโลยี (Technology Acceptance Model - TAM) ว่าความตั้งใจของบุคคลในการใช้เทคโนโลยีขึ้นอยู่กับสองปัจจัยหลัก ได้แก่ การรับรู้ประโยชน์ (Perceived Usefulness - PU) ความเชื่อว่าเทคโนโลยีนั้นจะช่วยเพิ่มประสิทธิภาพ การรับรู้ความง่ายในการใช้ (Perceived Ease of Use - PEOU) ความเชื่อว่าเทคโนโลยีสามารถใช้งานได้ง่าย TAM ถูกใช้เพื่อวิเคราะห์ปัจจัยที่ส่งผลต่อการนำเทคโนโลยีมาใช้ในด้านการศึกษาและธุรกิจ

Bandura (1986) อธิบายทฤษฎีการเรียนรู้ทางสังคม (Social Learning Theory - SLT) ว่าการเรียนรู้ของบุคคลเกิดขึ้นจากการสังเกตและเลียนแบบพฤติกรรมของผู้อื่น การพัฒนาสมรรถนะทางเทคโนโลยีจึงสามารถเกิดขึ้นได้ผ่านการฝึกอบรม การใช้สื่อดิจิทัล และการเรียนรู้ร่วมกันในสังคม

McClelland (1973) อธิบายทฤษฎีสมรรถนะ (Competency Theory) ว่าสมรรถนะ หมายถึง ชุดของทักษะ ความรู้ และพฤติกรรมที่จำเป็นต่อการปฏิบัติงานอย่างมีประสิทธิภาพ แนวคิดนี้สามารถนำมาใช้ในการประเมินสมรรถนะทางเทคโนโลยีสารสนเทศของนักศึกษา

Gilster (1997) อธิบายทฤษฎีการรู้ดิจิทัล (Digital Literacy Theory) ว่าการรู้ดิจิทัล (Digital Literacy) คือ ความสามารถในการเข้าใจและใช้ข้อมูลจากแหล่งดิจิทัลอย่างมีวิจารณญาณ ซึ่งเป็นปัจจัยสำคัญในการพัฒนาสมรรถนะทางเทคโนโลยีของนักศึกษา

European Commission (2017) อธิบายกรอบสมรรถนะดิจิทัล (European Digital Competence Framework) ว่าสมรรถนะดิจิทัลประกอบด้วย 5 ด้าน ได้แก่ การรู้ข้อมูลและการรู้สารสนเทศ (Information and Data Literacy) การสื่อสารและการทำงานร่วมกัน (Communication and Collaboration) การสร้างเนื้อหาดิจิทัล (Digital Content Creation) ความปลอดภัยดิจิทัล (Safety) การแก้ปัญหาดิจิทัล (Problem-Solving in Digital Environments)

สรุปว่า สมรรถนะการใช้เทคโนโลยีดิจิทัล และนวัตกรรม เป็นแนวคิดที่มีความสำคัญต่อการพัฒนาทักษะความสามารถของบุคคลในการใช้เทคโนโลยีดิจิทัลอย่างมีประสิทธิภาพเพื่อตอบสนองความต้องการในบริบทต่าง ๆ โดยเฉพาะในการเรียนรู้ การทำงาน และการดำรงชีวิตอย่างมีประสิทธิภาพในโลกยุคดิจิทัล ประกอบด้วย การเข้าถึงและใช้เทคโนโลยีดิจิทัล การทดลองใช้เทคโนโลยีในการพัฒนานวัตกรรม ใช้เทคโนโลยีเพื่อสื่อสาร แลกเปลี่ยน และทำงานร่วมกับผู้อื่น

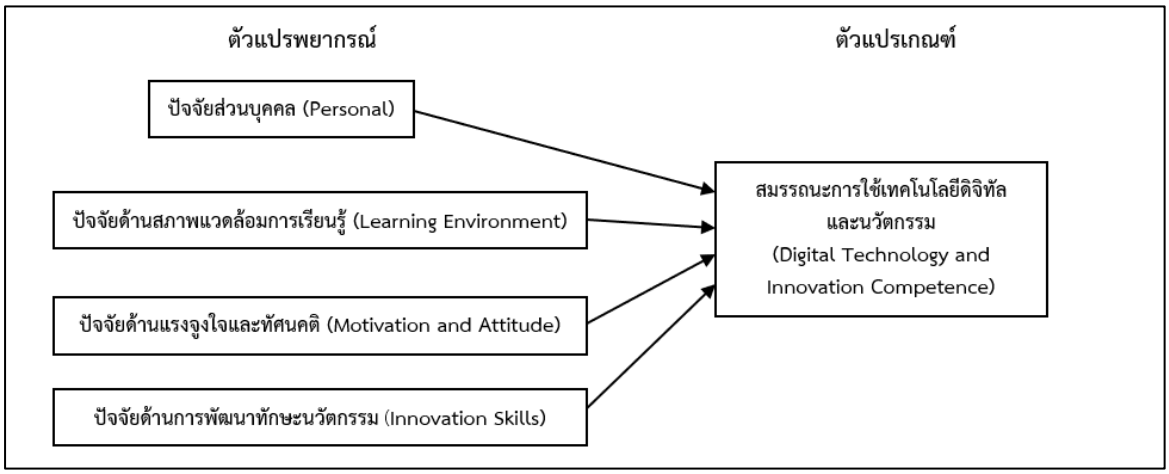
ปัจจัยด้านสภาพแวดล้อมการเรียนรู้ เป็นปัจจัยและสภาวะแวดล้อมต่าง ๆ ที่อยู่รอบตัวผู้เรียน ซึ่งส่งผลต่อประสิทธิภาพและประสิทธิผลของการเรียนรู้ ปัจจัยเหล่านี้สามารถแบ่งออกเป็นหลายด้าน เช่น ด้านกายภาพ ด้านสังคม และด้านจิตวิทยา งานวิจัยของ กมลชนก โยธาจันทร์ (2565) กล่าวว่า ปัจจัยด้านสภาพแวดล้อมทางการเรียนรู้ (Learning Environment), ปัจจัยด้านเทคโนโลยีดิจิทัล (Digital Technology), ปัจจัยด้านการสนับสนุนจากครูและผู้ปกครอง (Teacher and Parental Support), และปัจจัยด้านแรงจูงใจภายใน (Intrinsic Motivation) โดยพบว่าปัจจัยที่มีอิทธิพลสูงสุด คือ ปัจจัยด้านสภาพแวดล้อมทางการเรียนรู้ ซึ่งส่งผลเชิงบวกต่อการพัฒนาทักษะการเรียนรู้และนวัตกรรมของนักเรียน

ปัจจัยด้านแรงจูงใจและทัศนคติ เป็นองค์ประกอบสำคัญที่ส่งผลต่อพฤติกรรมและการตัดสินใจของบุคคลในด้านต่าง ๆ ปัจจัยด้านแรงจูงใจ (Motivation) แรงจูงใจ หมายถึง พลังภายในที่กระตุ้นให้บุคคลดำเนินการหรือบรรลุเป้าหมายที่ต้องการ ปัจจัยด้านทัศนคติ (Attitude) ทัศนคติ หมายถึง ความรู้สึกหรือความคิดเห็นที่บุคคลมีต่อสิ่งใดสิ่งหนึ่ง ซึ่งมีผลต่อพฤติกรรมและการตัดสินใจในงานของ จิรัชญา สุขยืน และพรรณทิพย์ อย่างกลั่น (2566) กล่าวว่าปัจจัยด้านทักษะและแรงจูงใจส่งผลเชิงบวกต่อการปรับตัวของนักบัญชียุคดิจิทัล ด้านความเกี่ยวข้องกับการตัดสินใจ ด้านการบรรลุเป้าหมายความสำเร็จด้านความรวดเร็วในการปฏิบัติ และด้านการใช้ทรัพยากรอย่างมีประสิทธิภาพงาน

ปัจจัยด้านการพัฒนาทักษะนวัตกรรม เป็นปัจจัยที่มีบทบาทสำคัญในการเสริมสร้างและพัฒนาทักษะในการคิดค้นหรือพัฒนาแนวคิดและสิ่งใหม่ ๆ ที่สามารถนำไปใช้ประโยชน์ได้ในสภาพแวดล้อมที่เปลี่ยนแปลงอยู่ตลอดเวลา โดยรวมถึงหลายปัจจัยที่สามารถช่วยผลักดันการพัฒนานวัตกรรม งานวิจัยของ รุ่งนภา ทิพย์สุวรรณ และกัญญ์รัชการย์ เลิศอมรศักดิ์ (2567) กล่าวว่า การพัฒนานวัตกรรมการจัดการเรียนรู้เพื่อพัฒนาทักษะการคิดสร้างสรรค์ และนวัตกรรมของนักศึกษาระดับปริญญาตรี คณะครุศาสตร์ นักศึกษามีทักษะการคิดสร้างสรรค์และนวัตกรรมโดยภาพรวมที่เพิ่มขึ้นมาอยู่ในระดับดีมาก ผลการศึกษาระดับความพึงพอใจของนักศึกษาระดับปริญญาตรี คณะครุศาสตร์ มหาวิทยาลัยราชภัฏสวนสุนันทา ที่มีต่อแผนการสอน อยู่ในระดับพึงพอใจมากที่สุดทั้งสองกลุ่มเรียน

จากการทบทวนวรรณกรรมที่เกี่ยวข้องพบว่า สมรรถนะในการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษาไม่ได้ขึ้นอยู่เพียงแค่ทักษะเชิงเทคนิค และเชิงปฏิบัติเท่านั้น แต่ยังมีปัจจัยเชิงจิตวิทยา และการเรียนรู้ร่วมด้วย โดยเฉพาะอย่างยิ่งปัจจัยด้านแรงจูงใจและทัศนคติ ซึ่งมีอิทธิพลต่อความตั้งใจในการเรียนรู้และการใช้เทคโนโลยี (Ryan & Deci, 2000) ขณะเดียวกัน การพัฒนาทักษะนวัตกรรมเป็นปัจจัยสำคัญที่ช่วยส่งเสริมการนำเทคโนโลยีไปประยุกต์ใช้เพื่อสร้างคุณค่าใหม่ ดังนั้น กรอบแนวคิดในการวิจัยครั้งนี้จึงกำหนดให้แรงจูงใจและทัศนคติ รวมถึงการพัฒนาทักษะนวัตกรรม และสภาพแวดล้อมการเรียนรู้เป็นตัวแปรพยากรณ์ที่มีบทบาทในการทำนายสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษา ซึ่งสามารถใช้เป็นพื้นฐานในการออกแบบแนวทางการส่งเสริมอย่างเป็นระบบต่อไป

กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

งานวิจัยนี้เป็นการวิจัยเชิงปริมาณ (Quantitative Research) มีรายละเอียดดังต่อไปนี้

ประชากรและกลุ่มตัวอย่าง

ประชากรที่ใช้ในการวิจัย คือ นักศึกษามหาวิทยาลัยราชภัฏนครศรีธรรมราช จำนวนประชากรทั้งหมด 7,641 คน (มหาวิทยาลัยราชภัฏนครศรีธรรมราช, 2567) ดังนั้นจึงใช้วิธีการคำนวณจำนวนประชากรโดยใช้สูตรของ Cochran (1977) ได้ขนาดตัวอย่างเท่ากับ 400 ตัวอย่าง การเก็บรวบรวมข้อมูลผู้วิจัยใช้วิธีการสุ่มตัวอย่างแบบเจาะจง (Purposive Sampling) คัดเลือกนักศึกษาที่มีคุณสมบัติ กำลังศึกษาอยู่ในระดับปริญญาตรี ชั้นปีที่ 1-4 ประจำปีการศึกษา 2567 มีประสบการณ์ในการใช้เทคโนโลยีดิจิทัลเพื่อการเรียน ยินดีเข้าร่วมตอบแบบสอบถามออนไลน์ ซึ่งมีข้อคำถามคัดกรองจากการทบทวนวรรณกรรม โดยเลือกตัวอย่างนักศึกษา มหาวิทยาลัยราชภัฏนครศรีธรรมราช จากการสุ่มตัวอย่างแบบเจาะจง (Purposive Sampling) ที่มีคุณสมบัติเป็นนักศึกษาอยู่ในระดับปริญญาตรี ชั้นปีที่ 1-4 ประจำปีการศึกษา 2567 และกำลังศึกษาในคณะต่าง ๆ ในมหาวิทยาลัยราชภัฏนครศรีธรรมราช ประกอบด้วย 5 คณะ ประกอบด้วย คณะครุศาสตร์, คณะมนุษยศาสตร์และสังคมศาสตร์, คณะวิทยาศาสตร์และเทคโนโลยี คณะวิทยาการจัดการ และคณะเทคโนโลยีอุตสาหกรรม เพื่อการตอบคำถามการวิจัย แล้วดำเนินการเก็บแบบสอบถามจนได้ตัวอย่างครบจำนวน

วิธีการสร้างเครื่องมือการวิจัย

การทบทวนวรรณกรรม ศึกษาเอกสารและงานวิจัยที่เกี่ยวข้องกับปัจจัยที่ส่งผลต่อสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏนครศรีธรรมราช ได้แก่ ปัจจัยด้านสภาพแวดล้อมการเรียนรู้ ปัจจัยด้านแรงจูงใจและทัศนคติ ปัจจัยด้านการพัฒนาทักษะนวัตกรรม สมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม เพื่อนำมาเป็นแนวทางในการสร้างแบบสอบถาม

นำแบบสอบถามที่สร้างขึ้นเสนอต่อผู้ทรงคุณวุฒิจำนวน 3 ท่าน เพื่อพิจารณาความเที่ยงตรงเชิงเนื้อหา (Content Validity) แล้วนำมาหาค่าดัชนีความสอดคล้อง (Index of Item-objective Congruence : IOC) โดยข้อคำถามที่มีค่า IOC มากกว่า 0.60 แสดงว่ามีความเที่ยงตรงตามวัตถุประสงค์การวิจัยและ

สามารถนำไปใช้ ผลการวิเคราะห์ พบว่า ข้อคำถามทั้งหมดมีค่า IOC มากกว่า 0.67 โดยภาพรวมทุกข้อมีค่า IOC ตั้งแต่ 0.67 ถึง 1.00

นำแบบสอบถามที่ผ่านการวิเคราะห์หาความเที่ยงตรงของเนื้อหาไปทดลองใช้ (Try Out) กับนักศึกษาที่ไม่ใช่กลุ่มตัวอย่าง จำนวน 30 ชุด และนำไปวิเคราะห์หาความเชื่อถือได้ (Reliability) โดยใช้วิธีหาค่าสัมประสิทธิ์แอลฟาของครอนบาค (Cronbach's Alpha Coefficient) ซึ่งการประเมินความเที่ยงตรงสัมประสิทธิ์แอลฟาได้มีการพิจารณาจากเกณฑ์การประเมินความเที่ยงสัมประสิทธิ์แอลฟาของครอนบาค (Nunnally & Bernstein, 1994)

ผลการทดสอบความเชื่อถือได้ของแบบสอบถาม พบว่า ตัวแปรปัจจัยด้านสภาพแวดล้อมการเรียนรู้ ปัจจัยด้านแรงจูงใจและทัศนคติ ปัจจัยด้านการพัฒนาทักษะนวัตกรรม สมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม มีค่าสัมประสิทธิ์ความเชื่อถือได้ 0.905, 0.910, 0.934 และ 0.965 ตามลำดับ ดังนั้นในการหาค่าความเชื่อมั่นโดยหาค่าสัมประสิทธิ์แอลฟาของครอนบาค (Cronbach's Alpha Coefficient) ถือว่ามาตรวัดที่ใช้มีความน่าเชื่อถือได้ในระดับดี

นำแบบสอบถามฉบับสมบูรณ์ไปใช้ในการเก็บรวบรวมข้อมูลต่อไป

เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล

เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล คือ แบบสอบถามออนไลน์ (Google Form) ที่ผู้วิจัยสร้างขึ้นจากการทบทวนวรรณกรรม แบ่งออกเป็น 3 ตอน

ตอนที่ 1 ข้อมูลส่วนบุคคลของผู้ตอบแบบสอบถาม ได้แก่ เพศ อายุ คณะที่กำลังศึกษา ประสบการณ์ในการใช้เทคโนโลยีดิจิทัล ลักษณะเป็นแบบสอบถามแบบเลือกตอบเพียงข้อเดียว

ตอนที่ 2 ข้อคำถามเกี่ยวกับปัจจัยด้านสภาพแวดล้อมการเรียนรู้ ปัจจัยด้านแรงจูงใจและทัศนคติ ปัจจัยด้านการพัฒนาทักษะนวัตกรรม และปัจจัยสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม ลักษณะเป็นแบบสอบถามแบบมาตราส่วนประมาณค่า 5 ระดับ (Rating Scale)

ลักษณะเป็นแบบสอบถามใช้มาตรวัดแบบประมาณค่า 5 ระดับ (Rating Scale) โดยมีการกำหนดเกณฑ์การให้คะแนน ดังนี้

ระดับความเห็น	5	หมายถึง	เห็นด้วยมากที่สุด
ระดับความเห็น	4	หมายถึง	เห็นด้วยมาก
ระดับความเห็น	3	หมายถึง	เห็นด้วยปานกลาง
ระดับความเห็น	2	หมายถึง	เห็นด้วยน้อย
ระดับความเห็น	1	หมายถึง	เห็นด้วยน้อยที่สุด

ตอนที่ 3 ข้อเสนอแนะเพิ่มเติม

การวิเคราะห์ข้อมูลและสถิติที่ใช้

สถิติเชิงพรรณนา ได้แก่ ค่าความถี่ (Frequency) และหาค่าร้อยละ (Percentage) ใช้วิเคราะห์ข้อมูลเพื่ออธิบายข้อมูลที่ได้จากการเก็บแบบสอบถามตอนที่ 1 และค่าเฉลี่ย (Mean) และค่าเบี่ยงเบนมาตรฐาน (Standard Deviation) เพื่ออธิบายข้อมูลที่ได้จากการเก็บแบบสอบถามตอนที่ 2

สถิติเชิงอนุมานใช้การวิเคราะห์ใช้การวิเคราะห์สถิติการถดถอยแบบพหุคูณ (Multiple Regression Analysis) ในการทดสอบสมมติฐาน

ผลการวิจัย

ผลการวิเคราะห์ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม พบว่าผู้ตอบแบบสอบถามส่วนใหญ่เป็นเพศหญิง จำนวน 268 คน คิดเป็นร้อยละ67 อายุ 20-30 ปี จำนวน 301 คน คิดเป็นร้อยละ75.3 คณะที่กำลังศึกษาส่วนใหญ่ คือ คณะวิทยาการจัดการ จำนวน 259 คน คิดเป็นร้อยละ 64.8 ประสบการณ์ใช้เทคโนโลยีดิจิทัล ส่วนใหญ่ คือ 5-10 ปี จำนวน 176 คน คิดเป็นร้อยละ 44

ตารางที่ 1 ข้อมูลการแจกแจงลักษณะประชากร ด้านเพศ, อายุ, คณะที่กำลังศึกษา และประสบการณ์ใช้เทคโนโลยีดิจิทัล

ข้อมูลการแจกแจงลักษณะประชากร	จำแนกตาม	ความถี่ (Frequency)	ร้อยละ (Percent)
เพศ	ชาย	132	33
	หญิง	268	67
อายุ	ต่ำกว่า 20 ปี	99	24.7
	20-30 ปี	301	75.3
คณะที่กำลังศึกษา	คณะครุศาสตร์	35	8.8
	คณะมนุษยศาสตร์และสังคมศาสตร์	22	5.5
	คณะวิทยาศาสตร์และเทคโนโลยี	58	14.5
	คณะวิทยาการจัดการ	259	64.8
	คณะเทคโนโลยีอุตสาหกรรม	26	6.5
ประสบการณ์ใช้เทคโนโลยีดิจิทัล	ต่ำกว่า 5 ปี	89	22.3
	5 - 10 ปี	176	44
	11 ปี ขึ้นไป	135	33.8

ตารางที่ 2 ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐานของปัจจัยด้านสภาพแวดล้อมการเรียนรู้ ปัจจัยด้านแรงจูงใจและทัศนคติ ปัจจัยด้านการพัฒนาทักษะนวัตกรรม และสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม

ตัวแปร	$\overline{X}$	S.D.	แปลความหมาย
ปัจจัยด้านสภาพแวดล้อมการเรียนรู้	**4.51**	**0.74**	**มาก**
1. การสนับสนุนจากอาจารย์	4.49	0.78	มาก
2. การเข้าถึงทรัพยากรทางเทคโนโลยี	4.53	0.73	มาก
3. การจัดกิจกรรมหรือโครงการที่ส่งเสริมการคิดนอกกรอบและสร้างสรรค์นวัตกรรม	4.48	0.76	มาก
4. การเรียนรู้และพัฒนาทักษะนวัตกรรมในบริบทของการศึกษา	4.53	0.72	มาก
5. การพัฒนาหลักสูตรที่เน้นทักษะนวัตกรรม	4.52	0.72	มาก

ตารางที่ 2 (ต่อ)

ตัวแปร	$\bar{X}$	S.D.	แปลความหมาย
ปัจจัยด้านแรงจูงใจและทัศนคติ	**4.54**	**0.69**	**มาก**
1. แรงจูงใจในการพัฒนาทักษะ	4.55	0.67	มาก
2. ทัศนคติต่อการใช้เทคโนโลยีดิจิทัล	4.54	0.71	มาก
3. มีแรงจูงใจด้านเทคโนโลยีดิจิทัลได้รับการยอมรับในกลุ่มเพื่อน	4.50	0.74	มาก
และสังคม	4.58	0.64	มาก
4. มีทัศนคติเชิงบวกต่อการเรียนรู้และการใช้นวัตกรรมใหม่ ๆ	4.55	0.69	มาก
5. สามารถเรียนรู้วิธีใช้เทคโนโลยีดิจิทัลใหม่ ๆ ได้ด้วยตัวเอง			
ปัจจัยด้านการพัฒนาทักษะนวัตกรรม	**4.53**	**0.71**	**มาก**
1. การมีส่วนร่วมในกิจกรรมพัฒนาทักษะ	4.55	0.69	มาก
2. การใช้เทคโนโลยีเพื่อสร้างสรรค์ผลงาน	4.53	0.71	มาก
3. การจัดกิจกรรมหรือโครงการที่ส่งเสริมการคิดนอกกรอบและ	4.53	0.71	มาก
สร้างสรรค์นวัตกรรม			
4. การเรียนรู้และพัฒนาทักษะนวัตกรรมในบริบทของการศึกษา	4.52	0.73	มาก
5. การพัฒนาหลักสูตรที่เน้นทักษะนวัตกรรม	4.54	0.74	มาก
สมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม	**4.51**	**0.73**	**มาก**
1. ความสามารถในการเลือกใช้เทคโนโลยีดิจิทัลให้เหมาะสม	4.51	0.72	มาก
2. ทักษะการคิดวิเคราะห์และการแก้ปัญหาด้วยนวัตกรรม	4.51	0.73	มาก
3. การสร้างสรรค์ผลงานที่ตอบสนองความต้องการของ	4.51	0.73	มาก
สถานการณ์จริง	4.53	0.73	มาก
4. ความสามารถในการทำงานร่วมกันผ่านแพลตฟอร์มดิจิทัล	4.53	0.73	มาก
5. ความมั่นใจในสมรรถนะของตนเองในการใช้เทคโนโลยีเพื่อการ	4.53	0.74	มาก
เรียนรู้และทำงาน			

จากตารางที่ 2 แสดงผลการวิเคราะห์ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐานของปัจจัยด้านสภาพแวดล้อมการเรียนรู้ ปัจจัยด้านแรงจูงใจและทัศนคติ ปัจจัยด้านการพัฒนาทักษะนวัตกรรม และสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม พบว่า ปัจจัยด้านแรงจูงใจและทัศนคติ มีค่าเฉลี่ยสูงสุด (ค่าเฉลี่ย 4.54) รองลงมา ได้แก่ ปัจจัยด้านการพัฒนาทักษะนวัตกรรม ปัจจัยด้านสภาพแวดล้อมการเรียนรู้ ตามลำดับ ส่วนตัวแปรตาม ได้แก่ สมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม มีค่าเฉลี่ยอยู่ในระดับมาก (ค่าเฉลี่ย 4.51)

ผลการทดสอบสมมติฐาน

ตารางที่ 3 ผลการวิเคราะห์การถดถอยพหุคูณของตัวแปรสภาพแวดล้อมการเรียนรู้ แรงจูงใจและทัศนคติ การพัฒนาทักษะนวัตกรรม ที่ส่งผลต่อสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม

ตัวแปร	การวิเคราะห์ผลทางสถิติ						
	b	S.E.	BETA	t	p	Tolerance	VIF
ค่าคงที่	0.004	0.088		0.041	0.968		
สภาพแวดล้อมการเรียนรู้	0.040	0.039	0.039	1.012	0.312	0.207	4.832
แรงจูงใจและทัศนคติ	0.059	0.046	0.332	7.704	0.000*	0.169	5.924
การพัฒนาทักษะนวัตกรรม	0.164	0.042	0.593	14.314	0.000*	0.183	5.471

$R = 0.936$, $R^2 = 0.876$, $Adj.R^2 = 0.875$, $SEE = 0.237$

* มีนัยสำคัญทางสถิติที่ระดับ 0.05

จากตารางที่ 3 พบว่า ค่า VIF ของตัวแปรทั้งหมดอยู่ระหว่าง 4.832 ถึง 5.924 และค่า Tolerance ของตัวแปรทั้งหมดอยู่ระหว่าง 0.169 ถึง 0.207 จากการวิเคราะห์ผลถดถอยพหุเพื่อตรวจสอบความสัมพันธ์ระหว่างตัวแปรพยากรณ์ กับสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษา พบว่าตัวแปรพยากรณ์ที่นำเข้าสมการ ได้แก่ สภาพแวดล้อมการเรียนรู้ แรงจูงใจและทัศนคติ และการพัฒนาทักษะนวัตกรรม ได้รับการตรวจสอบความเป็นอิสระของกันและกันด้วยค่าสถิติ Tolerance และ Variance Inflation Factor (VIF) ซึ่งเป็นเครื่องมือมาตรฐานในการวินิจฉัยปัญหา (Multicollinearity) ค่าดัชนี VIF ที่เหมาะสมควรมีค่าน้อยกว่า 5 หากมีค่าสูงกว่าอาจแสดงถึงปัญหาความสัมพันธ์เชิงเส้นสูงระหว่างตัวแปรอิสระ ซึ่งอาจส่งผลต่อความแม่นยำของค่าสัมประสิทธิ์ในสมการถดถอย (Hair Jr et al, 2010) ค่าที่สูงกว่า 5 ของบางตัวแปรนั้นอาจบ่งชี้ถึงแนวโน้มของปัญหา Multicollinearity ระดับปานกลาง แม้ยังไม่ถึงระดับวิกฤต (เช่น VIF > 10) (O'brien, 2007) แม้มีแนวโน้ม Multicollinearity ดังกล่าว แต่โมเดลยังมีประสิทธิภาพในการพยากรณ์ โดยมีค่า $R^2 = 0.876$ และ $Adj. R^2 = 0.875$ ซึ่งสะท้อนว่าตัวแปรอิสระร่วมกันสามารถอธิบายความแปรปรวนของสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมได้สูงถึง 87.5% และตัวแปรสำคัญมีนัยสำคัญทางสถิติอย่างชัดเจน จึงสามารถยอมรับสมการถดถอยได้ในภาพรวม

สภาพแวดล้อมการเรียนรู้ แรงจูงใจและทัศนคติ การพัฒนาทักษะนวัตกรรม มีความสัมพันธ์กับสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม โดยมีค่าสัมประสิทธิ์สหสัมพันธ์เท่ากับ 0.936 ซึ่งมีความสัมพันธ์รวมของตัวแปรอิสระทั้ง 3 กับตัวแปรตาม มีค่าสูงมาก ดังแสดงในตารางที่ 4

ตารางที่ 4 ผลแสดงความสัมพันธ์รายคู่ของตัวแปร

คู่ตัวแปร	ค่าสหสัมพันธ์ (r)	ระดับความสัมพันธ์
นวัตกรรม–สภาพแวดล้อม	0.838	สูง
นวัตกรรม–แรงจูงใจ	0.892	สูงมาก
นวัตกรรม–เทคโนโลยีดิจิทัล	0.921	สูงมาก
สภาพแวดล้อม–แรงจูงใจ	0.870	สูงมาก
สภาพแวดล้อม–เทคโนโลยีดิจิทัล	0.859	สูง
แรงจูงใจ–เทคโนโลยีดิจิทัล	0.886	สูงมาก

และสามารถร่วมกับพยากรณ์สมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม ได้ร้อยละ 87.60 (R^2 = 0.876) อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 มีค่าความคลาดเคลื่อนมาตรฐานในการพยากรณ์เท่ากับ 0.237

เมื่อพิจารณาค่าสัมประสิทธิ์ถดถอย พบว่า ปัจจัยที่สามารถพยากรณ์สมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมเรียงตามลำดับความสำคัญ คือ ปัจจัยด้านการพัฒนาทักษะนวัตกรรม ปัจจัยด้านแรงจูงใจและทัศนคติ โดยมีค่าสัมประสิทธิ์ถดถอยมาตรฐานเท่ากับ 0.593 และ 0.332 ตามลำดับ อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 ส่วนปัจจัยด้านสภาพแวดล้อมการเรียนรู้ไม่มีอิทธิพลต่อสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม

สมการพยากรณ์สมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม สามารถเขียนได้ดังนี้

$$Y = 0.004 + 0.059X_1 + 0.164X_2$$

โดยที่

Y = สมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรม

X_1 = ปัจจัยด้านแรงจูงใจและทัศนคติ

X_2 = ปัจจัยด้านการพัฒนาทักษะนวัตกรรม

การศึกษาแนวทางการส่งเสริมสมรรถนะการใช้เทคโนโลยีดิจิทัล และนวัตกรรมของนักศึกษาปริญญาตรี มหาวิทยาลัยราชภัฏนครศรีธรรมราช ซึ่งผลวิจัยพบว่าแรงจูงใจและทัศนคติ และ การพัฒนาทักษะนวัตกรรมเป็นปัจจัยที่มีอิทธิพลต่อสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษา ดังนั้น แนวทางในการส่งเสริมสมรรถนะของนักศึกษาควรมุ่งเน้นไปที่ปัจจัยดังกล่าว โดยสามารถดำเนินการได้ด้วยการพัฒนาทักษะนวัตกรรม โดยทางมหาวิทยาลัยมีการจัดหลักสูตรฝึกอบรมด้านเทคโนโลยีและนวัตกรรม มีการพัฒนาหลักสูตรระยะสั้นเกี่ยวกับเทคโนโลยีใหม่ ๆ เช่น AI, IoT, Big Data เปิดโอกาสให้นักศึกษาได้เรียนรู้ผ่านแพลตฟอร์มออนไลน์ในธุรกิจปัจจุบันหรือแพลตฟอร์มออนไลน์ของมหาวิทยาลัย ส่งเสริมให้นักศึกษาได้พัฒนาโครงการจริงที่สามารถนำไปใช้ประโยชน์ในชีวิตประจำวัน หรือต่อยอดเป็นธุรกิจได้ สนับสนุนการแข่งขันพัฒนาเทคโนโลยีเพื่อแก้ปัญหาในชุมชน สร้างศูนย์นวัตกรรมและเทคโนโลยีภายในมหาวิทยาลัยจัดตั้ง Co-Working Space เพื่อให้นักศึกษาได้ฝึกพัฒนาเทคโนโลยีและนวัตกรรมใหม่ การเสริมสร้างแรงจูงใจและทัศนคติที่ดีต่อเทคโนโลยีและนวัตกรรม โดยการสร้างบรรยากาศการเรียนรู้ที่กระตุ้นความสนใจใช้เทคนิคการให้รางวัลสำหรับนักศึกษาที่มีความก้าวหน้าในการพัฒนาทักษะด้านเทคโนโลยี ส่งเสริมโอกาสในการพัฒนาต่อยอดสู่การเป็นผู้ประกอบการดิจิทัล จัดโครงการบ่มเพาะธุรกิจ Startup สำหรับนักศึกษา เพื่อให้นักศึกษาสามารถนำเทคโนโลยีดิจิทัลไปใช้ในการสร้างสรรค์ผลิตภัณฑ์หรือบริการใหม่ ๆ นำเทคโนโลยีดิจิทัลมาประยุกต์ใช้ในการเรียนการสอนใช้ระบบ Learning Management System (LMS) เพื่อเพิ่มประสิทธิภาพในการจัดการเรียนรู้ ใช้ AR/VR หรือ Simulation Software เพื่อให้นักศึกษาได้สัมผัสกับเทคโนโลยีที่ทันสมัย มีการสนับสนุนทุนวิจัยและทุนพัฒนาโครงการสำหรับนักศึกษาที่มีแนวคิดสร้างสรรค์ด้านเทคโนโลยี ปรับปรุงหลักสูตรให้ทันสมัยและตรงกับความต้องการของตลาดแรงงานด้านเทคโนโลยีดิจิทัล บูรณาการการเรียนรู้ด้านเทคโนโลยีดิจิทัลเข้ากับทุกสาขาวิชา มีการสร้างความร่วมมือระหว่างมหาวิทยาลัยกับภาคอุตสาหกรรมหรือสถานประกอบการธุรกิจที่ใช้เทคโนโลยีขั้นสูง เป็นปัจจัยสำคัญที่ส่งผลต่อสมรรถนะในการใช้เทคโนโลยีดิจิทัลและนวัตกรรมนั้น ดังนั้นควรส่งเสริมการทำแผนพัฒนา Competency เป็นรายบุคคล (Individual Digital Competency Roadmap) ส่งเสริมให้นักศึกษาร่วมโครงการวิจัยเชิงสร้างสรรค์ หรือบ่มเพาะไอเดียนวัตกรรมเชิงพาณิชย์ เพื่อสร้างนวัตกรรม

สร้างทักษะให้กับนักศึกษาได้ ส่งเสริมการเรียนรู้แบบ Active Learning เช่น โครงงาน สร้างสรรค์แอปพลิเคชั่น หรือสื่อดิจิทัลต่าง ๆ ในอนาคตมหาวิทยาลัยสามารถบูรณาการผลการวิจัยเข้าสู่แผนยุทธศาสตร์ด้านการผลิตบัณฑิตในยุคดิจิทัลในอนาคตได้

การอภิปรายผล

จากผลการศึกษาชี้ให้เห็นว่า ตัวแปรพยากรณ์ทั้งหมดในกรอบความคิดจะมีนัยสำคัญตามสมมติฐานบางตัวเท่านั้น เรียงจากค่าที่ส่งอิทธิพลที่ส่งผลต่อสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษามากไปน้อย ได้แก่ การพัฒนาทักษะนวัตกรรม รองลงมา คือ แรงจูงใจและทัศนคติ ทั้งนี้เนื่องจากแรงจูงใจและทัศนคติ เป็นสิ่งที่ขับเคลื่อนในการเรียนรู้ และการลงมือทำ สร้างโดยการมีความคิดสร้างสรรค์ การแก้ปัญหา และการคิดเชิงออกแบบ (Design Thinking) เป็นรากฐานของการใช้นวัตกรรม ในขณะที่การพัฒนาทักษะนวัตกรรมเป็นเครื่องมือที่ทำให้เกิดการลงมือทำนั้นมีทิศทาง และประสิทธิภาพ ทั้งสองปัจจัยสามารถทำนายในการนำไปสู่การมีสมรรถนะในการใช้เทคโนโลยีดิจิทัล และนวัตกรรมอย่างแท้จริง

จะเห็นว่าตัวแปรพยากรณ์ทั้งหมดเกี่ยวข้องกับตัวแปรการใช้เทคโนโลยีดิจิทัลและนวัตกรรม และยังเป็นตัวทำนายสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมได้ เช่น การพัฒนาทักษะนวัตกรรมในการใช้ความคิดสร้างสรรค์ (Creativity) ทำให้นักศึกษาสามารถใช้เทคโนโลยีดิจิทัลเพื่อสร้างแนวคิดใหม่ ๆ และแก้ปัญหาได้อย่างมีประสิทธิภาพ การเรียนรู้ผ่านเทคโนโลยี (Digital Learning Skills) ทำให้นักศึกษาสามารถใช้แพลตฟอร์มดิจิทัลเพื่อพัฒนาความรู้ด้านนวัตกรรมในการพัฒนาตนเองให้มีความสามารถในการประยุกต์ใช้เครื่องมือดิจิทัลเพื่อนำเสนอแนวทางใหม่ ๆ ในการเรียนการสอนได้

ผลการวิจัยครั้งนี้ยืนยันการทำนายของตัวแปรการพัฒนาทักษะนวัตกรรม ที่มีอิทธิพลต่อสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษา ซึ่งสอดคล้องกับงานวิจัยก่อนหน้านี้โดย กัญญ์รัชการย์ เลิศอมรศักดิ์ (2567) กล่าวว่านวัตกรรมการจัดการเรียนรู้เพื่อพัฒนาทักษะการคิดสร้างสรรค์และนวัตกรรมของนักศึกษาระดับปริญญาตรี คณะครุศาสตร์ มหาวิทยาลัยราชภัฏสวนสุนันทาที่ได้ คือ รายวิชานวัตกรรมและเทคโนโลยีสารสนเทศ เพื่อการสื่อสารการศึกษาและการเรียนรู้ ผลการพัฒนาทักษะการคิดสร้างสรรค์และนวัตกรรมของนักศึกษา พบว่า นักศึกษามีทักษะการคิดสร้างสรรค์และนวัตกรรมโดยภาพรวมที่เพิ่มขึ้นมาอยู่ในระดับดีมาก และงานวิจัยยังสอดคล้องกับงานของ อลงกต ยะไวทย์, ณัฐวัฒม์ วงษ์ชวลิตกุล และณัชติพงศ์ อูทอง (2567) การพัฒนาทักษะการคิดเชิงนวัตกรรมด้วยการบูรณาการความรู้กับการทำงานของนักศึกษาหลักสูตรประกาศนียบัตรบัณฑิต สาขาวิชาชีพครู เพื่อสร้างแนวทางการพัฒนาทักษะการคิดเชิงนวัตกรรมด้วยการบูรณาการความรู้กับการทำงานให้เกิดการถ่ายโยงระหว่างทฤษฎี และปฏิบัติในสภาพจริงของสถานศึกษา ศึกษาผลการเรียนรู้ของนักศึกษาหลังใช้แนวทางการพัฒนาทักษะการคิดเชิงนวัตกรรมด้วยการบูรณาการความรู้กับการทำงาน ผลการวิจัยครั้งนี้ยังยืนยันถึงอิทธิพลของแรงจูงใจและทัศนคติ ต่อสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษา ซึ่งสอดคล้องกับงานของ ฐาปนี เพ็งสุข (2566) กล่าวว่า ปัจจัยที่มีอิทธิพลต่อความตั้งใจใช้เทคโนโลยีดิจิทัลเพื่อการเรียนรู้ในชีวิตประจำวันของเจเนอเรชันซี มีความสอดคล้องกับข้อมูลเชิงประจักษ์ ได้รับอิทธิพลทางตรงเชิงบวกจากแรงจูงใจรู้สารสนเทศ 2) ความคาดหวังในประสิทธิภาพ ได้รับอิทธิพลทางตรงเชิงบวกจากการรู้สารสนเทศ และ 3) ความตั้งใจใช้งานเทคโนโลยีดิจิทัลได้รับอิทธิพลทางตรงเชิงบวกจากความคาดหวังจากความพยายามกับความคาดหวังในประสิทธิภาพ นอกจากนี้ยังได้รับอิทธิพลทางอ้อมจากการรู้สารสนเทศ และ

สอดคล้องงานวิจัยของ พิรดา ผาคำ (2564) กล่าวว่า ทัศนคติเชิงบวกส่งผลให้ผู้เรียนเกิดการยอมรับการเรียนออนไลน์ การรับรู้ความสามารถของตนเองเชิงบวกเป็นปัจจัยที่ช่วยกระตุ้นให้ผู้เรียนสร้างความมั่นใจและตอบสนองต่อการเรียนรู้ออนไลน์ได้อย่างมีประสิทธิภาพมากยิ่งขึ้น

แนวทางการส่งเสริมสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษา ควรมุ่งเน้นไปที่การพัฒนาทักษะนวัตกรรม และแรงจูงใจและทัศนคติ ผ่านการเรียนรู้เชิงปฏิบัติ การใช้เทคโนโลยีเพื่อเพิ่มประสิทธิภาพการเรียนการสอน และการเชื่อมโยงกับภาคอุตสาหกรรมเพื่อให้นักศึกษาได้รับประสบการณ์จริง ซึ่งจะช่วยให้พวกเขามีความพร้อมต่อการเปลี่ยนแปลงในยุคดิจิทัล และสามารถประยุกต์ใช้เทคโนโลยีในการทำงาน และชีวิตประจำวันได้อย่างมีประสิทธิภาพ

จากการวิจัยนี้เห็นได้ว่าสภาพแวดล้อมการเรียนรู้ เป็นปัจจัยที่ไม่ส่งผลต่อสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษาปริญญาตรีได้ตามที่คาดหวัง ควรมีแนวทางการปรับปรุงในการออกแบบหลักสูตรการเรียนการสอนเสริมสร้างเนื้อหาดิจิทัล โดยการผสมผสานเทคโนโลยีในการเรียนการสอนให้เข้ากับทุกหลักสูตร มีการสร้างสภาพแวดล้อมการเรียนรู้ที่เน้นการเรียนรู้แบบร่วมมือ เช่น การใช้เครื่องมือออนไลน์ในการสื่อสาร เพิ่มการสนับสนุนจากอาจารย์และบุคลากรในสาขา มีการอบรมและพัฒนาทักษะของอาจารย์ อาจารย์ควรได้รับการฝึกอบรมให้สามารถใช้เทคโนโลยีดิจิทัลในการสอนและพัฒนาวิธีการเรียนการสอนที่ทันสมัย มหาวิทยาลัยสร้างการเข้าถึงเทคโนโลยีและทรัพยากรดิจิทัลให้มากขึ้น เช่น การให้เข้าถึงอุปกรณ์และอินเทอร์เน็ต นักศึกษาควรได้รับการสนับสนุนทางด้านอุปกรณ์และการเข้าถึงอินเทอร์เน็ตที่มีความเร็ว และเสถียรเพื่อการเรียนรู้ดิจิทัลให้มากพอ การสนับสนุนการเรียนรู้นอกห้องเรียนส่งเสริมการเรียนรู้ตลอดชีวิตด้วยการเข้าถึงแหล่งข้อมูลออนไลน์ เช่น คอร์สออนไลน์, e-learning platforms, MOOCs เป็นต้น

การพัฒนาสภาพแวดล้อมการเรียนรู้เพื่อส่งเสริมสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมในนักศึกษาปริญญาตรี สามารถทำได้โดยการออกแบบหลักสูตรที่มีการประยุกต์ใช้เทคโนโลยี, การฝึกปฏิบัติจริง, การเรียนรู้ร่วมกันในรูปแบบดิจิทัล, การพัฒนาทักษะของอาจารย์ และการจัดเตรียมทรัพยากรดิจิทัลที่เหมาะสมเพื่อให้นักศึกษาได้เตรียมพร้อมสำหรับการทำงานในสังคมดิจิทัลได้

ข้อเสนอแนะ

การนำเสนอในตอนนี้ผู้วิจัยแบ่งออกเป็น 2 ส่วน คือ (1) ข้อเสนอแนะในการนำผลวิจัยไปใช้ประโยชน์ และ (2) ข้อเสนอแนะในการทำวิจัยครั้งต่อไป

(1) ข้อเสนอแนะในการนำผลวิจัยไปใช้ประโยชน์

1. หลักสูตรการเรียนการสอน ปรับปรุงหลักสูตรให้สอดคล้องกับสมรรถนะดิจิทัลที่จำเป็น โดยเพิ่มเนื้อหาเกี่ยวกับเทคโนโลยีดิจิทัล นวัตกรรม และการประยุกต์ใช้ในสาขาวิชาต่างๆ มีการนำสื่อการเรียนรู้ดิจิทัล เช่น e-Learning, MOOCs, และเครื่องมือ AI มาใช้เป็นส่วนหนึ่งของการเรียนการสอน เพื่อให้นักศึกษาได้ใช้เทคโนโลยีในการแก้ปัญหาได้จริง

2. อาจารย์และบุคลากร สนับสนุนให้อาจารย์พัฒนาทักษะด้านเทคโนโลยีดิจิทัล เพื่อสามารถออกแบบการเรียนการสอนที่เหมาะสม สร้างเครือข่ายความร่วมมือกับมหาวิทยาลัย และองค์กรอื่น ๆ ในการแลกเปลี่ยนแนวทางการสอนที่ใช้เทคโนโลยี

3. โครงสร้างพื้นฐานของมหาวิทยาลัย ปรับปรุงระบบ Smart University เช่น การใช้ IoT, Big Data และ AI เพื่อสนับสนุนการเรียนรู้จัดตั้ง Digital Learning Hub หรือพื้นที่สำหรับนักศึกษาในการเรียนรู้

และทดลองใช้นวัตกรรมใหม่ ๆ และพัฒนาแพลตฟอร์มออนไลน์สำหรับการเรียนรู้และการฝึกอบรมให้กับนักศึกษา

(2) ข้อเสนอแนะในการทำวิจัยครั้งต่อไป

1. การวิจัยครั้งนี้ทำการศึกษาในมหาวิทยาลัยราชภัฏนครศรีธรรมราชเท่านั้น ผู้วิจัยข้อเสนอแนะให้ทำการศึกษาเกี่ยวกับสมรรถนะการใช้เทคโนโลยีดิจิทัลและนวัตกรรมของนักศึกษา สายอุดมศึกษา และสายอาชีวศึกษา ให้มีความหลากหลายและแตกต่างของกลุ่มตัวอย่างมากยิ่งขึ้น

2. ควรมีการขยายขอบเขตของกลุ่มตัวอย่างไปสู่กลุ่มที่อยู่ในช่วงอายุอื่น กลุ่มนักเรียนมัธยมศึกษาตอนปลาย เพื่อให้ได้มีองค์ความรู้ที่ครอบคลุมสำหรับการพัฒนาปรับปรุงการศึกษา พัฒนาศักยภาพของนักเรียน และเพิ่มขีดความสามารถของบุคลากรในการใช้เทคโนโลยีดิจิทัล และนวัตกรรมให้เกิดประโยชน์สูงสุด

3. ควรมีการวิจัยแบบผสานวิธี โดยมีการวิจัยเชิงคุณภาพร่วมกับการวิจัยเชิงปริมาณ เพื่อค้นหาและวิเคราะห์ปัญหา ความต้องการจำเป็น และสถานภาพการใช้เทคโนโลยีดิจิทัลของบุคลากร และนักศึกษาเพื่อเปลี่ยนผ่านไปสู่การเป็นมหาวิทยาลัยราชภัฏดิจิทัล

เอกสารอ้างอิง

กมลชนก โยธาจันทร์. (2565). ปัจจัยเชิงสาเหตุที่ส่งผลต่อทักษะการเรียนรู้และนวัตกรรมในศตวรรษที่ 21 ของนักเรียนระดับมัธยมศึกษา จังหวัดลพบุรี (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยศิลปากร, กรงเทพฯ.

กัญญ์รัชการย์ เลิศอมรศักดิ์. (2567). การพัฒนานวัตกรรมการจัดการเรียนรู้ เพื่อพัฒนาทักษะการคิดสร้างสรรค์ และนวัตกรรม ของนักศึกษาระดับปริญญาตรี คณะครุศาสตร์ มร. ส ส. มจร. การพัฒนาสังคม, 9(1), 1–13.

กาญจนา เดชสม และรุ่งชัชดาพร เวหะชาต. (2564). การพัฒนาความเป็นพลเมืองดิจิทัลของนักเรียนในศตวรรษที่21. วารสารมหาวิทยาลัยพายัพ, 31(1), 151–163.

จิรัชญา สุขยืน และพรรณทิพย์ อย่างกลั่น. (2566). ปัจจัยด้านทักษะ และแรงจูงใจที่ส่งผลต่อการปรับตัวของนักบัญชียุคดิจิทัล ในภาคตะวันออก. วารสารสังคมศาสตร์เพื่อการพัฒนาท้องถิ่น มหาวิทยาลัยราชภัฏมหาสารคาม, 7(4), 160–169.

ฐาปนี เพ็งสุข. (2566). โมเดลเชิงสาเหตุของปัจจัยที่มีอิทธิพลต่อความตั้งใจใช้เทคโนโลยีดิจิทัล เพื่อการเรียนรู้ในชีวิตประจำวันของเจเนอเรชันซี (GENERATION Z). วารสารวิทยาการจัดการ มหาวิทยาลัยราชภัฏอุดรธานี, 5(4), 13–29.

พิรดา ผาคำ. (2564). แนวทางการส่งเสริมสมรรถนะดิจิทัลของนักศึกษาระดับปริญญาตรี คณะศึกษาศาสตร์มหาวิทยาลัยเชียงใหม่ ในยุคการศึกษา 4.0. (ดุษฎีนิพนธ์ปริญญาดุษฎีบัณฑิต). มหาวิทยาลัยเชียงใหม่, เชียงใหม่.

รุ่งนภา ทิพย์สุวรรณ และกัญญ์รัชการย์ เลิศอมรศักดิ์. (2567). แนวทางการพัฒนาการบริหารจัดการด้านวิจัย นวัตกรรม และสิ่งประดิษฐ์อาชีวศึกษาของสถานศึกษาสังกัดอาชีวศึกษา จังหวัดสุราษฎร์ธานี. วารสารสิรินธรปริทรรศน์, 25(2), 32–39.

มหาวิทยาลัยราชภัฏนครศรีธรรมราช. (2567). รายงานสถิติจำนวนนิสิตปัจจุบัน. สืบค้นเมื่อ 1 ธันวาคม 2567 จาก http://regis.nstru.ac.th

สำนักงานสภานโยบายการอุดมศึกษา วิทยาศาสตร์ วิจัยและนวัตกรรมแห่งชาติ (สอวช.). (2565). กระทรวง อว. ผนึกกำลังกระทรวงดิจิทัลฯ และพันธมิตร ร่วมสร้างระบบนิเวศพัฒนาบุคลากรด้านดิจิทัลอย่างยั่งยืนในประเทศไทย. สืบค้นเมื่อ 8 กุมภาพันธ์ 2568 จาก https://www.nxpo.or.th/th/13835

อลงกต ยะไวทย์, ณัฐวัฒม์ วงษ์ชวลิตกุล และณัชติพงศ์ อูทอง. (2567). การพัฒนาทักษะการคิดเชิงนวัตกรรมด้วยการบูรณาการความรู้ กับการทำงานของนักศึกษาหลักสูตรประกาศนียบัตรบัณฑิตสาขาวิชาชีพครู. สิกขาวารสารศึกษาศาสตร์, 11(1), 188–202.

Bandura, A. (1986). Social foundations of thought and action. Englewood Cliffs, NJ, 1986(23–28), 2.

Cochran, W. G. (1977). Sampling techniques. 3rd Edition. New York : John Wiley.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS quarterly, 13(3), 319–340.

European Commission. (2017). DigComp 2.1: The European Digital Competence Framework for Citizens. Retrieved from https://ec.europa.eu/jrc/en/digcomp

Gilster, P. (1997). Digital literacy. New York : John Wiley & Sons, Inc.

Hair Jr, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate data analysis. New York : Pearson Education.

McClelland, D. C. (1973). Testing for competence rather than for “intelligence”. American psychologist, 28(1), 1.

Nunnally, J., & Bernstein, I. (1994). Psychometric Theory (3rd ed.). New York : McGraw-Hill.

O’brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. Quality & quantity, 41(5), 673–690.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. Contemporary educational psychology, 25(1), 54–67.

คุณภาพการให้บริการตามความคิดเห็นของผู้ใช้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี

Service Quality According to the Opinions of users of the Provincial Electricity Authority, Surat Thani branch

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บทคัดย่อ

การวิจัยนี้เป็นการศึกษาคุณภาพบริการด้วย SERVQUAL Model มีวัตถุประสงค์เพื่อ 1) ศึกษาปัจจัยส่วนบุคคลและความคิดเห็นของผู้ใช้บริการที่มีต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี และ 2) เปรียบเทียบความคิดเห็นของผู้ใช้บริการที่มีต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี จำแนกตามปัจจัยส่วนบุคคล ใช้แบบสอบถามในการเก็บรวบรวมข้อมูลจากผู้ที่มาใช้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี จำนวน 400 คน โดยการสุ่มตัวอย่างแบบตามสะดวก (Convenience Sampling) สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ค่าความถี่ ค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และสถิติเชิงอนุมานที่ใช้ในการทดสอบสมมุติฐาน ได้แก่ Independent Sample t-test One-Way ANOVA (ค่า F-test)

ผลการวิจัย พบว่า ผู้ใช้บริการมีความคิดเห็นต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี ในภาพรวม มีความพึงพอใจอยู่ในระดับมาก เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านการให้ความมั่นใจแก่ผู้ใช้บริการ มีระดับค่าเฉลี่ยสูงสุด รองลงมา คือ ด้านความเป็นรูปธรรมของบริการ ด้านการตอบสนองต่อผู้ใช้บริการ ด้านความเชื่อถือไว้ใจได้ และ ด้านความเอาใจใส่ ตามลำดับ ผลการเปรียบเทียบความคิดเห็นของผู้ใช้บริการที่มีต่อคุณภาพการให้บริการ จำแนกตามปัจจัยส่วนบุคคล พบว่า ผู้ใช้บริการที่มีเพศ อายุ และสถานภาพ ที่แตกต่างกัน มีความคิดเห็นต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี ไม่แตกต่างกัน แต่ผู้ใช้บริการที่มีระดับการศึกษา อาชีพ และรายได้เฉลี่ยต่อเดือนแตกต่างกัน มีความคิดเห็นต่อคุณภาพการให้บริการการไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานีแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 ทั้งนี้การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี และสาขาอื่น ๆ ในบริบทที่ใกล้เคียงกัน สามารถนำผลการวิจัยไปพัฒนาและปรับปรุงคุณภาพการให้บริการให้ดียิ่งขึ้นได้

คำสำคัญ: คุณภาพการให้บริการ, ผู้ใช้บริการ, การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี

Abstract

This research is a study of service quality using the SERVQUAL Model. The objectives are to 1) study personal factors and opinions of service users towards the service quality of the Provincial Electricity Authority, Surat Thani Branch, and 2) compare opinions of service users towards the service quality of the Provincial Electricity Authority, Surat Thani Branch, classified by personal factors. A questionnaire was used to collect data from 400 service users of the Provincial Electricity Authority, Surat Thani Branch, using convenience sampling. The statistics used for data analysis were frequency, percentage, mean, standard deviation, and inferential statistics used for hypothesis testing were Independent Sample t-test, One-Way ANOVA (F-test).

The research results found that users had opinions on the service quality of the Provincial Electricity Authority, Surat Thani Branch, overall, with a high level of satisfaction. When considering each aspect, it was found that the aspect of providing confidence to users had the highest average level, followed by the aspect of tangible service, the aspect of responsiveness to users, the aspect of trustworthiness, and the aspect of caring, respectively. The results of comparing users' opinions on the service quality classified by personal factors found that users with different genders, ages, and statuses had similar opinions on the service quality of the Provincial Electricity Authority, Surat Thani Branch. However, users with different levels of education, occupations, and average monthly incomes had different opinions on the service quality of the Provincial Electricity Authority, Surat Thani Branch, with statistical significance at the 0.05 level. The Provincial Electricity Authority, Surat Thani Branch, and other branches in similar contexts can use the research results to develop and improve the quality of services.

Keywords: Service quality, Service users, Provincial Electricity Authority, Surat Thani Branch

บทนำ

การไฟฟ้าส่วนภูมิภาค (กฟภ.) เป็นรัฐวิสาหกิจประเภทสาธารณูปโภคที่อยู่ภายใต้การกำกับดูแลของกระทรวงมหาดไทย มีภารกิจหลักในการจัดหาและให้บริการพลังงานไฟฟ้าแก่ประชาชน ภาคธุรกิจและภาคอุตสาหกรรมต่าง ๆ (การไฟฟ้าส่วนภูมิภาค, 2563ก) ในปัจจุบันความต้องการใช้ไฟฟ้าภายในประเทศมีแนวโน้มเพิ่มสูงขึ้นอย่างต่อเนื่อง ส่งผลให้การพัฒนาคุณภาพการให้บริการเป็นประเด็นที่มีความสำคัญยิ่ง การไฟฟ้าส่วนภูมิภาคจึงมุ่งเน้นการยกระดับมาตรฐานการให้บริการเพื่ออำนวยความสะดวกให้กับประชาชน สร้างความพึงพอใจ ภาพลักษณ์ที่ดี และความเชื่อมั่นต่อองค์กร (กันยามาส แก้วกมล และภัทรนันท์ สุรชาตรี, 2563) การให้บริการด้านสาธารณูปโภคขั้นพื้นฐาน โดยเฉพาะไฟฟ้ามีความสำคัญอย่างยิ่งต่อการพัฒนาคุณภาพชีวิตของประชาชนและการพัฒนาเศรษฐกิจของประเทศ (การไฟฟ้าส่วนภูมิภาค, 2563ข) ด้วยเหตุนี้ การไฟฟ้าส่วนภูมิภาคจึงต้องพัฒนาคุณภาพการให้บริการอย่างต่อเนื่อง สอดคล้องกับนโยบายการปฏิรูปรัฐวิสาหกิจที่มุ่งเน้นการพัฒนาคุณภาพการให้บริการและการสร้างความพึงพอใจแก่ผู้ใช้บริการ รวมถึงยุทธศาสตร์ชาติที่กำหนดให้ภาครัฐต้องยึดประชาชนเป็น

ศูนย์กลาง ตอบสนองความต้องการและให้บริการอย่างสะดวก รวดเร็ว โปร่งใส (สำนักงานคณะกรรมการพัฒนาการเศรษฐกิจและสังคมแห่งชาติ, 2561) นอกจากนี้ ยังมีการขับเคลื่อนองค์กรไปสู่ PEA Digital Utility เพื่อยกระดับการให้บริการด้วยเทคโนโลยีดิจิทัล อันจะนำไปสู่การเป็นองค์กรที่เป็นเลิศด้านธุรกิจพลังงานไฟฟ้า ตอบสนองความคาดหวังของลูกค้า และร่วมสร้างคุณค่าสู่สังคมและสิ่งแวดล้อม

จากรายงานผลการสำรวจความพึงพอใจของผู้ใช้บริการในปี 2566 พบว่า ความพึงพอใจโดยรวมต่อการให้บริการ ของ กฟภ. มีค่าเฉลี่ยเท่ากับ 4.60 ซึ่งอยู่ในระดับดีมาก แต่อย่างไรก็ตาม ยังมีข้อร้องเรียนเกี่ยวกับคุณภาพการให้บริการในหลายด้าน เช่น ระยะเวลาการให้บริการ ความถูกต้องของการจดหน่วยไฟฟ้า และการแก้ไขปัญหาไฟฟ้าขัดข้อง นอกจากนี้ ในพื้นที่ให้บริการบางแห่งยังพบปัญหาการล่าช้าในการดำเนินงานภายในสำนักงาน ซึ่งเกิดจากการที่ผู้ใช้บริการเข้ามาใช้บริการในเวลาใกล้เคียงกัน ทำให้เจ้าหน้าที่ไม่สามารถให้บริการได้พร้อมกัน การไฟฟ้าส่วนภูมิภาคได้เห็นถึงความสำคัญของปัญหาดังกล่าว จึงมีความพยายามอย่างยิ่งในการแก้ปัญหาเพื่อพัฒนาคุณภาพการให้บริการให้ดียิ่งขึ้น (การไฟฟ้าส่วนภูมิภาค, 2566)

จังหวัดสุราษฎร์ธานีเป็นศูนย์กลางเศรษฐกิจที่สำคัญของภาคใต้ มีการขยายตัวของภาคธุรกิจอุตสาหกรรม และการท่องเที่ยวอย่างต่อเนื่อง ส่งผลให้ความต้องการใช้ไฟฟ้าเพิ่มสูงขึ้น โดยจังหวัดสุราษฎร์ธานีเป็นจังหวัดที่มีการใช้ไฟฟ้ามากที่สุดของภาคใต้อยู่ที่ 551.4 MW หรือประมาณ 18% ของความต้องการใช้ไฟฟ้าทั้งหมด (ผู้จัดการออนไลน์, 2567) การพัฒนาคุณภาพการให้บริการของการไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี จึงมีความสำคัญอย่างยิ่งต่อการส่งเสริมการลงทุน การพัฒนาเศรษฐกิจท้องถิ่น และการยกระดับคุณภาพชีวิตของประชาชน และเพื่อให้สอดคล้องกับวิสัยทัศน์ขององค์กรในการเป็นองค์กรที่เป็นเลิศด้านธุรกิจพลังงานไฟฟ้า ตอบสนองความคาดหวังของลูกค้า และร่วมสร้างคุณค่าสู่สังคมและสิ่งแวดล้อม

ด้วยเหตุนี้ ผู้วิจัยจึงเห็นถึงความสำคัญของการศึกษาว่า ผู้ใช้บริการมีความคิดเห็นเกี่ยวกับคุณภาพการให้บริการของการไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานีอย่างไร และการศึกษาถึงปัจจัยส่วนบุคคลจะช่วยให้การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี สามารถออกแบบและกำหนดแนวทางในการพัฒนาคุณภาพการให้บริการที่ตรงกับความต้องการของผู้ใช้บริการและสอดคล้องกับบริบทของพื้นที่ อันจะนำไปสู่การยกระดับประสิทธิภาพการให้บริการและความพึงพอใจของผู้ใช้บริการได้อย่างยั่งยืน

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาปัจจัยส่วนบุคคลและความคิดเห็นของผู้ใช้บริการที่มีต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี
2. เพื่อเปรียบเทียบความคิดเห็นของผู้ใช้บริการที่มีต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี จำแนกตามปัจจัยส่วนบุคคล

แนวคิด ทฤษฎี กรอบแนวคิด

แนวคิดและทฤษฎีเกี่ยวกับคุณภาพการให้บริการ

ภาวิณี ทองแย้ม (2560) ได้ให้ความหมายคุณภาพการให้บริการว่าหมายถึง ความสามารถในการตอบสนองความต้องการของธุรกิจบริการที่จะสร้างความแตกต่างของธุรกิจให้เหนือกว่าคู่แข่ง เสนอคุณภาพการให้บริการที่ตรงกับความคาดหวัง บริการถูกใจ ผู้รับบริการได้รับสิ่งที่ต้องการ ณ สถานที่ที่ผู้รับบริการต้องการและในรูปแบบตามที่คาดหวัง

ศุภิสรา ศรีอุทารวงศ (2565) ได้ให้ความหมายของคุณภาพการให้บริการ หมายถึง ลักษณะและความสามารถของผู้ให้บริการในการตอบสนองตามความต้องการของลูกค้าให้เข้ากับความคาดหวัง โดยมุ่งหวังที่จะทำให้ลูกค้าพอใจเกินกว่าที่คาดหวังไว้ เป็นปัจจัยสำคัญที่ช่วยให้ธุรกิจสามารถสร้างความแตกต่างที่เหนือกว่าคู่แข่งได้ ลูกค้าสามารถประเมินและวัดคุณภาพการให้บริการจากลักษณะของบริการที่มองเห็นได้ (Tangibles) ความเชื่อถือได้ (Reliability) ความตอบสนองต่อคำถามของลูกค้า (Responsiveness) ความมั่นใจในการให้บริการ (Assurance) และการให้ความเอาใจใส่ (Empathy) ซึ่งเป็นเครื่องมือที่ช่วยสร้างค่าคุณภาพของสินค้าและความพึงพอใจของบริการต่อลูกค้า

Ramya, Kowsalya & Dharanipriya (2019) ได้ให้ความหมายของคุณภาพบริการ (Service Quality) ไว้ว่า เป็นความสามารถของผู้ให้บริการในการตอบสนองลูกค้าอย่างมีประสิทธิภาพ ซึ่งจะทำให้สามารถดำเนินธุรกิจได้อยางดีขึ้นในภาคบริการด้วยการส่งมอบ “คุณภาพ” ที่เป็นองค์ประกอบสำคัญที่จะทำให้ธุรกิจบริการประสบความสำเร็จ เป็นทั้งผลกำไรและความพึงพอใจของลูกค้า และเนื่องจากการบริการนี้เป็นสิ่งที่จับต้องไม่ได้ (Intangibles) ทำให้จำเป็นต้องมีการวางกรอบการทำงานไว้อย่างชัดเจนสำหรับการวัดผลคุณภาพบริการ ซึ่งคุณภาพบริการนั้นถูกประเมินจากการรรับรู้ของลูกค้า หรือ Customer Perceived

Lewis & Bloom (1983) ยังได้กล่าวถึง คุณภาพบริการที่เป็นตัวชี้วัดระดับความพึงพอใจต่อการบริการที่ส่งไปถึงผู้รับบริการว่าตรงกับความต้องการของผู้รับบริการมากน้อยเพียงใด โดยผลลัพธ์นี้เกิดจากการที่ลูกค้าประเมินคุณภาพของการบริการที่ลูกค้ารับรู้ จากการที่ลูกค้าเปรียบเทียบการบริการที่ได้รับ กับความคาดหวังที่จะได้รับ

Parasuraman, Zeithaml & Berry (2013) และเชิดชาติ ตะโกจีน (2559) ได้กล่าวถึงการสร้างมิติแห่งการบริการ เพื่อให้มั่นใจว่าการบริการของเรานั้นดีพอที่จะทำให้ลูกค้ารู้สึกว่าได้รับคุณค่าจากต้นทุนที่ได้ใช้จ่ายออกไป เพื่อสร้างความผูกพันระยะยาว ซึ่งต่างก็กำหนดมิติคุณภาพการบริการออกเป็น 5 มิติ ได้แก่ รูปธรรมของบริการ (Tangibles) ความน่าเชื่อถือ (Reliability) การตอบสนองต่อผู้รับบริการ (Responsiveness) ความมั่นใจ (Assurance) และ การดูแลเอาใจใส่ (Empathy)

ดังนั้นผู้วิจัยจึงได้นำคุณภาพการบริการ 5 ด้าน ได้แก่ ด้านความเป็นรูปธรรมของบริการ ด้านความเชื่อถือไว้วางใจได้ ด้านการตอบสนองต่อผู้ใช้บริการ ด้านการให้ความมั่นใจ และด้านความเอาใจใส่มาเป็นแนวคิดสำคัญสำหรับการศึกษาครั้งนี้ เนื่องจากความสำเร็จของการให้บริการส่วนหนึ่งขึ้นอยู่กับการประเมินผล เพื่อทำการปรับปรุงพัฒนาคุณภาพการให้บริการให้ดียิ่งขึ้น

ทบทวนวรรณกรรม

วิวัฒน์ อยู่พร้อม (2564) ได้ทำการศึกษาเรื่อง คุณภาพการให้บริการที่มีผลต่อความพึงพอใจในการใช้บริการของผู้ใช้ไฟฟ้าประเภทอยู่อาศัยในพื้นที่บริการของการไฟฟ้าส่วนภูมิภาค อำเภอเมืองปทุมธานี จังหวัดปทุมธานี ผลการศึกษาพบว่า กลุ่มตัวอย่างมีความคิดเห็นต่อคุณภาพการให้บริการของการไฟฟ้าส่วนภูมิภาค โดยภาพรวมและรายด้านอยู่ในระดับมาก และผลการทดสอบสมมติฐานเพศ ที่แตกต่างกัน มีผลต่อภาพรวมความพึงพอใจในการใช้บริการ การไฟฟ้าส่วนภูมิภาค อำเภอเมือง ที่แตกต่างกัน โดยเพศชายมีความพึงพอใจในการใช้บริการมากกว่าเพศหญิง และยังพบว่าปัจจัยในด้านระดับการศึกษา อาชีพ และรายได้เฉลี่ยต่อเดือน ที่แตกต่างกัน มีผลต่อความพึงพอใจในการใช้บริการ การไฟฟ้าส่วนภูมิภาค อำเภอเมือง จังหวัดปทุมธานี แตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

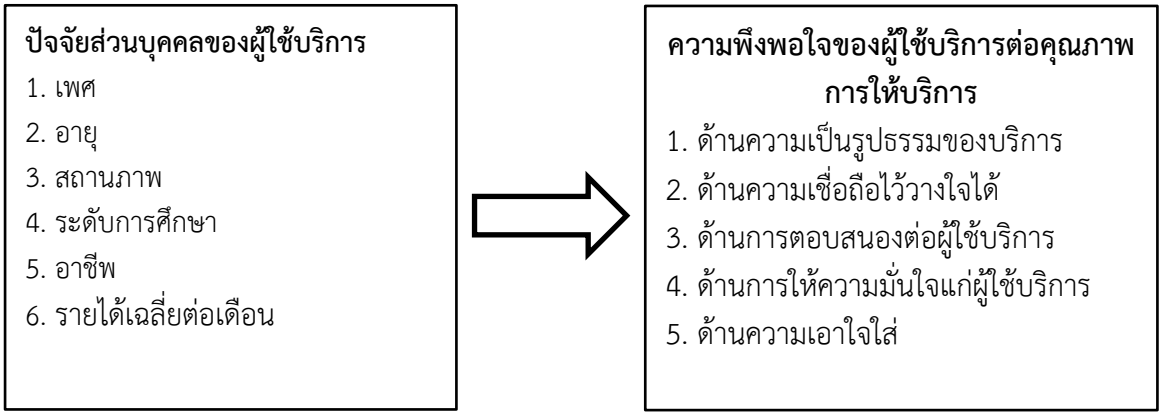
กันยามาส แก้วกมล และภัทรนันท์ สุรชาตรี (2563) ได้ทำการศึกษาเรื่อง การบริหารจัดการที่มีผลต่อการให้บริการสมัยใหม่ในยุค PEA 4.0 ของผู้ใช้บริการการไฟฟ้าส่วนภูมิภาค จังหวัดพระนครศรี

อยุธยา ผลการศึกษาพบว่า การเปรียบเทียบความพึงพอใจของผู้ใช้บริการการไฟฟ้าส่วนภูมิภาคยุค PEA 4.0 จังหวัดพระนครศรีอยุธยา จำแนกตามเพศ โดยรวมและรายด้าน มีระดับความพึงพอใจในการบริการของการไฟฟ้าส่วนภูมิภาคยุค PEA 4.0 ไม่แตกต่างกัน โดยเพศหญิงมีความพึงพอใจในการใช้บริการมากกว่าเพศชาย แต่ผู้ใช้บริการที่มีอายุ สถานภาพสมรส ระดับการศึกษา อาชีพ ต่างกัน มีระดับความพึงพอใจในการบริการของการไฟฟ้าส่วนภูมิภาคยุค PEA 4.0 โดยภาพรวม แตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

วิเชียร สารกาศ (2560) ได้ทำการศึกษาเรื่อง ความพึงพอใจต่อการให้บริการของการไฟฟ้าส่วนภูมิภาค อำเภอวัฒนานคร จังหวัดสระแก้ว สามารถสรุปผลการทดสอบสมมติฐานได้ว่า ปัจจัยส่วนบุคคลด้านอายุ ระดับการศึกษา รายได้เฉลี่ยต่อเดือน และอาชีพ มีผลกับความพึงพอใจต่อการให้บริการของการไฟฟ้าส่วนภูมิภาคอำเภอวัฒนานคร จังหวัดสระแก้ว

กรอบแนวคิดการวิจัย

ตัวแปรอิสระ (Independent Variables) **ตัวแปรตาม (Dependent Variables)**



สมมติฐานของการวิจัย

ปัจจัยส่วนบุคคลที่แตกต่างกันส่งผลต่อความคิดเห็นของผู้ใช้บริการต่อคุณภาพการให้บริการของการไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี อย่างมีนัยสำคัญทางสถิติ

วิธีดำเนินการวิจัย

ประชากรและกลุ่มตัวอย่าง

ประชากรที่ใช้ในการวิจัยครั้งนี้ คือ ผู้ที่เคยมาใช้บริการ ณ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี โดยไม่ทราบจำนวนประชากรที่แน่นอน จึงมีการกำหนดกลุ่มตัวอย่างโดยใช้สูตรคำนวณแบบไม่ทราบจำนวนประชากร โดยใช้สูตรของ W.G. Cochran (1977 อ้างถึงใน ยุทธ ไกยวรรณ์, 2561) ที่มีค่าระดับความเชื่อมั่นร้อยละ 95 ที่ระดับนัยสำคัญทางสถิติ 0.05 จากการคำนวณได้ขนาดกลุ่มตัวอย่างเท่ากับ 384 ตัวอย่าง เพื่อป้องกันความผิดพลาดที่อาจเกิดขึ้นจากการตอบแบบสอบถามไม่ครบถ้วน อีกทั้งเพื่อให้มีความสมบูรณ์ของข้อมูล ผู้วิจัยจึงทำการกำหนดขนาดของกลุ่มตัวอย่างเพิ่ม เท่ากับ 400 ตัวอย่าง ซึ่งผู้วิจัยใช้วิธีการสุ่มตัวอย่างแบบสะดวก (Convenience Sampling) โดยการแจกแบบสอบถามให้กับผู้ที่เคยมาใช้บริการ ณ การไฟฟ้าส่วนภูมิภาค สาขาเมือง สุราษฎร์ธานี ในระหว่างวันที่ 15 กรกฎาคม - 31 กันยายน พ.ศ. 2567

เครื่องมือที่ใช้ในการวิจัย

สำหรับการวิจัยในครั้งนี้ เครื่องมือที่ใช้ คือ แบบสอบถาม (Questionnaire) ผู้วิจัยได้สร้างขึ้นเพื่อเป็นการศึกษาคุณภาพการให้บริการตามความคิดเห็นของผู้ใช้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี โดยได้แบ่งแบบสอบถามออกเป็น 3 ส่วน ดังนี้

ส่วนที่ 1 ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม ได้แก่ เพศ อายุ สถานภาพ ระดับการศึกษา อาชีพ และรายได้เฉลี่ยต่อเดือน มีลักษณะให้เลือกตอบ

ส่วนที่ 2 ข้อมูลเกี่ยวกับความคิดเห็นต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี ประกอบด้วย 5 ด้าน ได้แก่ ด้านความเป็นรูปธรรมของบริการ ด้านความเชื่อถือไว้ใจได้ ด้านการตอบสนองต่อผู้ใช้บริการ ด้านการให้ความมั่นใจแก่ผู้ใช้บริการ และด้านความเอาใจใส่ โดยมีเกณฑ์การให้คะแนนตามมาตรวัด (Rating Scale) ของลิเคิร์ท 5 ระดับ ได้แก่ 5 พึงพอใจมากที่สุด 4 พึงพอใจมาก 3 พึงพอใจปานกลาง 2 พึงพอใจน้อย และ 1 พึงพอใจน้อยที่สุด

สามารถแปลความหมายของระดับคะแนน ได้ดังนี้ (ณรงค์ โพธิ์พฤกษานันท์, 2551)

ค่าเฉลี่ย	ระดับความคิดเห็น
4.21 - 5.00	มีระดับความพึงพอใจมากที่สุด
3.41 - 4.20	มีระดับความพึงพอใจมาก
2.61 – 3.40	มีระดับความพึงพอใจปานกลาง
1.81 – 2.60	มีระดับความพึงพอใจน้อย
1.00 – 1.80	มีระดับความพึงพอใจน้อยที่สุด

ส่วนที่ 3 ข้อเสนอแนะเพิ่มเติม มีลักษณะเป็นคำถามปลายเปิด

เพื่อให้เครื่องมือที่ใช้ในการวิจัยมีคุณภาพ ผู้วิจัยได้ทดสอบคุณภาพของแบบสอบถามโดยให้ผู้ทรงคุณวุฒิจำนวน 3 ท่าน พิจารณาในด้านความถูกต้องของโครงสร้างเนื้อหา (Content Validity) ของแบบสอบถาม โดยเลือกเฉพาะข้อคำถามที่มีค่าดัชนีความสอดคล้องของคำถามแต่ละข้อกับวัตถุประสงค์ (Index of Item Objective Congruence : IOC) มากกว่า 0.50 และนำแบบสอบถามที่ปรับปรุงแล้วไปทดสอบ (Try Out) กับกลุ่มตัวอย่าง จำนวน 30 ราย เพื่อหาค่าความเชื่อมั่น (Reliability) โดยวิธีการวิเคราะห์ค่าสัมประสิทธิ์ของครอนบาค (Cronbach’s alpha coefficient) พบว่า ค่าความเชื่อมั่นของแบบสอบถามอยู่ระหว่าง 0.79 - 0.92 ซึ่งมีค่ามากกว่า 0.70 (กัลยา วานิชย์ปัญชา, 2549) ถือว่าแบบสอบถามมีความเชื่อมั่นในระดับสูง สามารถใช้เก็บข้อมูลได้ โดยมีค่าความเชื่อมั่นของแบบสอบถามตามตัวแปรแต่ละด้าน ดังนี้ ด้านความเป็นรูปธรรมของบริการ ค่าความเชื่อมั่นเท่ากับ 0.89 ด้านความเชื่อถือไว้ใจได้ ค่าความเชื่อมั่นเท่ากับ 0.87 ด้านการตอบสนองต่อผู้ใช้บริการ ค่าความเชื่อมั่นเท่ากับ 0.92 ด้านการให้ความมั่นใจแก่ผู้ใช้บริการ ค่าความเชื่อมั่นเท่ากับ 0.86 และด้านความเอาใจใส่ ค่าความเชื่อมั่นเท่ากับ 0.79

การเก็บรวบรวมข้อมูล

ผู้วิจัยดำเนินการเก็บรวบรวมข้อมูลจากแบบสอบถามออนไลน์ด้วยตนเอง โดยสร้างจาก Google Forms ซึ่งผู้วิจัยจัดส่งแบบสอบถามออนไลน์ให้กลุ่มตัวอย่าง จำนวน 400 คน ผ่านช่องทางออนไลน์ และนำผลที่ได้จากการเก็บแบบสอบถามไปวิเคราะห์ข้อมูลทางสถิติด้วยเครื่องคอมพิวเตอร์และโปรแกรมสำเร็จรูป ทำการศึกษาค้นคว้าข้อมูลเพิ่มเติมจากแหล่งต่าง ๆ ได้แก่ หนังสือ ตำรา บทความ วารสาร ข้อมูลจากหน่วยงานของภาครัฐและเอกชน ข้อมูลจากอินเตอร์เน็ต เพื่อใช้ประกอบในเนื้อหาของงานวิจัย และนำไปใช้ในการวิเคราะห์ข้อมูล

การวิเคราะห์ข้อมูล

วิเคราะห์ข้อมูลโดยใช้โปรแกรมคอมพิวเตอร์สำเร็จรูป ซึ่งสามารถวิเคราะห์ข้อมูลได้ดังนี้

1. การวิเคราะห์ข้อมูลปัจจัยส่วนบุคคล โดยใช้สถิติค่าความถี่ (Frequency) และค่าร้อยละ (Percentage)

2. การวิเคราะห์ความคิดเห็นต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี โดยใช้สถิติค่าเฉลี่ย (Mean) และส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation)

3. การทดสอบสมมุติฐานปัจจัยส่วนบุคคลที่แตกต่างกันมีความคิดเห็นต่อคุณภาพการให้บริการการไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี แตกต่างกัน สถิติเชิงอนุมานที่ใช้ในการทดสอบสมมุติฐานได้แก่ Independent Sample t-test One-Way ANOVA (F-test)

ผลการวิจัย

1. ลักษณะปัจจัยส่วนบุคคลของกลุ่มตัวอย่าง

ตารางที่ 1 แสดงจำนวน และค่าร้อยละของผู้ตอบแบบสอบถาม

ปัจจัยส่วนบุคคล	จำนวน (คน)	ร้อยละ
เพศ		
ชาย	156	39.00
หญิง	244	61.00
อายุ		
ต่ำกว่า 30 ปี	123	30.75
31 – 40 ปี	98	24.5
41 – 50 ปี	105	26.25
51 – 60 ปี	45	11.25
มากกว่า 60 ปีขึ้นไป	29	7.25
สถานภาพ		
โสด	275	68.75
สมรส	103	25.75
หม้าย/หย่าร้าง	22	5.50
ระดับการศึกษา		
ต่ำกว่าปริญญาตรี	112	28.00
ปริญญาตรี	264	66.00
สูงกว่าปริญญาตรี	24	6.00
อาชีพ		
ข้าราชการ/รัฐวิสาหกิจ	89	22.25
พนักงานบริษัทเอกชน	112	28.00
ธุรกิจส่วนตัว/รับจ้างทั่วไป	102	25.50
นักเรียน/นักศึกษา	97	24.25

ตารางที่ 1 (ต่อ)

ปัจจัยส่วนบุคคล	จำนวน (คน)	ร้อยละ
อาชีพ		
ข้าราชการ/รัฐวิสาหกิจ	89	22.25
พนักงานบริษัทเอกชน	112	28.00
ธุรกิจส่วนตัว/รับจ้างทั่วไป	102	25.50
นักเรียน/นักศึกษา	97	24.25
รายได้เฉลี่ยต่อเดือน		
ต่ำกว่า 15,000 บาท	151	37.75
15,001 – 20,000 บาท	108	27.00
20,001 – 25,000 บาท	78	19.5
25,001 – 30,000 บาท	36	9.00
มากกว่า 30,000 บาท	27	6.75

จากตารางที่ 1 พบว่า ผู้ตอบแบบสอบถามส่วนใหญ่เป็นเพศหญิง จำนวน 244 คน คิดเป็นร้อยละ 61.00 ส่วนใหญ่มีอายุต่ำกว่า 30 ปี จำนวน 123 คน คิดเป็นร้อยละ 30.75 มีสถานภาพโสด จำนวน 275 คน คิดเป็นร้อยละ 68.75 มีระดับการศึกษาปริญญาตรี จำนวน 264 คน คิดเป็นร้อยละ 66.00 มีอาชีพพนักงานบริษัทเอกชน จำนวน 112 คน คิดเป็นร้อยละ 28.00 และมีรายได้เฉลี่ยต่อเดือนต่ำกว่า 15,000 บาท จำนวน 151 คน คิดเป็นร้อยละ 37.75

2. ความคิดเห็นของผู้ใช้บริการที่มีต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี

ตารางที่ 2 แสดงค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และความคิดเห็นเกี่ยวกับคุณภาพการให้บริการการไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี

คุณภาพการให้บริการ	$\bar{x}$	S.D.	การแปลค่า
1. ด้านความเป็นรูปธรรมของบริการ			
1.1 มีที่จอดรถเหมาะสมและเพียงพอ มีความสะดวกสบาย	4.23	0.53	พึงพอใจมากที่สุด
1.2 ความเหมาะสมในการแต่งกายของพนักงาน	4.16	0.47	พึงพอใจมาก
1.3 ความทันสมัยของเครื่องมือและอุปกรณ์ที่ให้บริการ	4.07	0.68	พึงพอใจมาก
1.4 มีการจัดพื้นที่รองรับผู้ใช้บริการอย่างเพียงพอ	4.03	0.72	พึงพอใจมาก
1.5 มีป้ายสัญลักษณ์ที่ชัดเจน สามารถสังเกตได้ง่ายในการติดต่อ	4.14	0.32	พึงพอใจมาก

ตารางที่ 2 (ต่อ)

คุณภาพการให้บริการ	$\bar{x}$	S.D.	การแปลค่า
2. ด้านความเชื่อถือไว้ใจได้			
2.1 พนักงานให้บริการเป็นไปอย่างถูกต้อง และแม่นยำ	4.18	0.59	พึงพอใจมาก
2.2 พนักงานสามารถให้คำแนะนำ ตอบข้อซักถาม และอธิบายได้อย่างชัดเจน	4.05	0.71	พึงพอใจมาก
2.3 การแก้ไขปญหาให้กับผู้ใชบริการมีความเรียบร้อย และตรงตามกำหนดเวลาที่แจงไว	3.98	0.62	พึงพอใจมาก
2.4 มีการให้บริการตรงตามเวลาที่มีการระบุไว้	3.87	0.45	พึงพอใจมาก
2.5 ระบบการทำงานมีความเป็นมืออาชีพนาเชื่อถือ	4.21	0.35	พึงพอใจมาก
3. ด้านการตอบสนองต่อผู้ใช้บริการ			
3.1 ให้บริการตรงกับความต้องการของผู้ใช้บริการ	4.13	0.93	พึงพอใจมาก
3.2 ไม่มีความซับซ้อนในกระบวนการให้บริการสามารถให้บริการได้อย่างรวดเร็ว	4.27	0.83	พึงพอใจมากที่สุด
3.3 พนักงานให้บริการมีความเอาใจใส่ กระตือรือร้น และเต็มใจให้บริการ	4.15	0.79	พึงพอใจมาก
3.4 การไฟฟ้ามีช่องทางสำหรับรับข้อเสนอแนะหรือข้อร้องเรียนการให้บริการและให้การแก้ไขปัญหาอย่างทันที	3.96	0.56	พึงพอใจมาก
3.5 การไฟฟ้ามีระบบจัดคิวและระยะเวลาในการรอให้บริการที่ชัดเจน	3.89	0.48	พึงพอใจมาก
4. ด้านการให้ความมั่นใจแก่ผู้ใช้บริการ			
4.1 พนักงานมีความละเอียด รอบคอบ และการปฏิบัติหน้าที่เป็นขั้นเป็นตอน	4.17	0.85	พึงพอใจมาก
4.2 พนักงานเป็นผู้ที่มีทักษะ มีความรู้ความสามารถและประสบการณ์ในการปฏิบัติงาน	4.21	0.93	พึงพอใจมากที่สุด
4.3 พนักงานมีความรับผิดชอบในการให้บริการ	4.15	0.88	พึงพอใจมาก
4.4 มีมาตรฐานของการใหบริการที่ทำใหผู้ใช้บริการมั่นใจทุกครั้งในการใชบริการ	4.23	0.93	พึงพอใจมากที่สุด
5. ด้านความเอาใจใส่			
5.1 พนักงานเข้าใจในความจำเป็นและความต้องการที่แตกต่างกันของผู้ใช้บริการ	3.92	0.81	พึงพอใจมาก

ตารางที่ 2 (ต่อ)

คุณภาพการให้บริการ	$\bar{x}$	S.D.	การแปลค่า
5.2 พนักงานให้ความสำคัญกับผู้ใช้บริการทุกคนอย่างเท่าเทียมกัน	4.09	0.78	พึงพอใจมาก
5.3 เมื่อผู้ใช้บริการเกิดความสงสัย พนักงานพร้อมอธิบายและเต็มใจช่วยเหลือ	3.83	0.86	พึงพอใจมาก
5.4 พนักงานแสดงออกถึงความเอื้ออาทรในการให้บริการ	3.95	0.68	พึงพอใจมาก
ความพึงพอใจโดยรวม	**4.08**	**0.67**	**พึงพอใจมาก**

จากตารางที่ 2 พบว่า ผู้ตอบแบบสอบถามมีความคิดเห็นโดยรวมต่อคุณภาพการให้บริการ ในภาพรวม มีความพึงพอใจในระดับมาก มีค่าเฉลี่ย 4.08 และเมื่อพิจารณาคุณภาพการให้บริการ เป็นรายด้าน พบว่า ผู้ตอบแบบสอบถามมีความคิดเห็นทุกด้านอยู่ในระดับมาก โดยเรียงลำดับค่าเฉลี่ยที่มากที่สุด คือ ด้านการให้ความมั่นใจแก่ผู้ใช้บริการ รองลงมาคือ ด้านความเป็นรูปธรรมของบริการ ด้านการตอบสนองลูกค้า ด้านความเชื่อถือไว้ใจได้ และด้านความเอาใจใส่ ตามลำดับ ซึ่งสามารถอธิบายแต่ละด้านได้ดังนี้

ด้านความเป็นรูปธรรมของบริการ พบว่า ผู้ตอบแบบสอบถามมีความพึงพอใจกับที่จอดรถเหมาะสมและเพียงพอ มีความสะดวกสบาย มีระดับค่าเฉลี่ยสูงสุด คือ ค่าเฉลี่ย 4.23 รองลงมา คือ ความเหมาะสมในการแต่งกายของพนักงาน มีค่าเฉลี่ย 4.16 มีป้ายสัญลักษณ์ที่ชัดเจน สามารถสังเกตได้ง่ายในการติดต่อ มีค่าเฉลี่ย 4.14 ความทันสมัยของเครื่องมือและอุปกรณ์ที่ให้บริการ มีค่าเฉลี่ย 4.07 และ มีการจัดพื้นที่รองรับผู้ใช้บริการอย่างเพียงพอ มีค่าเฉลี่ย 4.03 ตามลำดับ

ด้านความเชื่อถือไว้ใจได้ พบว่า ผู้ตอบแบบสอบถามมีความพึงพอใจกับระบบการทำงานมีความเป็นมืออาชีพนาเชื่อถือ มีระดับค่าเฉลี่ยสูงสุด คือ ค่าเฉลี่ย 4.21 รองลงมา คือ พนักงานให้บริการเป็นไปอย่างถูกต้อง และแม่นยำ มีค่าเฉลี่ย 4.18 มีพนักงานสามารถให้คำแนะนำ ตอบข้อซักถาม และอธิบายได้อย่างชัดเจน มีค่าเฉลี่ย 4.05 การแก้ไขปญหาใหกับผู้ใชบริการมีความเรียบร้อยและตรงตามกำหนดเวลาที่แจงไว้ มีค่าเฉลี่ย 3.98 และ มีการให้บริการตรงตามเวลาที่มีการระบุไว้ มีค่าเฉลี่ย 3.87 ตามลำดับ

ด้านการตอบสนองต่อผู้ใช้บริการ พบว่า ผู้ตอบแบบสอบถามมีความพึงพอใจกับไม่มีความซับซ้อนในกระบวนการให้บริการสามารถให้บริการได้อย่างรวดเร็ว มีระดับค่าเฉลี่ยสูงสุด คือ ค่าเฉลี่ย 4.27 รองลงมา คือ พนักงานให้บริการมีความเอาใจใส่ กระตือรือร้นและเต็มใจให้บริการ มีค่าเฉลี่ย 4.15 ให้บริการตรงกับความต้องการของผู้ใช้บริการ มีค่าเฉลี่ย 4.13 การไฟฟ้ามีช่องทางสำหรับรับข้อเสนอแนะหรือข้อร้องเรียนการให้บริการและให้การแก้ไขปัญหาอย่างทันที มีค่าเฉลี่ย 3.96 และการไฟฟ้ามีระบบจัดคิวและระยะเวลาในการรอให้บริการที่ชัดเจน มีค่าเฉลี่ย 3.89 ตามลำดับ

ด้านการให้ความมั่นใจแก่ผู้ใช้บริการ พบว่า ผู้ตอบแบบสอบถามมีความพึงพอใจกับการมีมาตรฐานของการใหบริการที่ทำใหผู้ใช้บริการมั่นใจทุกครั้งในการใช้บริการ มีระดับค่าเฉลี่ยสูงสุด คือ ค่าเฉลี่ย 4.23 รองลงมา คือ พนักงานเป็นผู้ที่มีทักษะ มีความรู้ความสามารถและประสบการณ์ในการปฏิบัติงาน มีค่าเฉลี่ย 4.21 พนักงานมีความละเอียด รอบคอบ และการปฏิบัติหน้าที่เป็นขั้นเป็นตอน มีค่าเฉลี่ย 4.17 และพนักงานมีความรับผิดชอบในการให้บริการ มีค่าเฉลี่ย 4.15 ตามลำดับ

ด้านความเอาใจใส่ พบว่า ผู้ตอบแบบสอบถามมีความพึงพอใจกับพนักงานให้ความสำคัญกับผู้ใช้บริการทุกคนอย่างเท่าเทียมกัน มีระดับค่าเฉลี่ยสูงสุด คือ ค่าเฉลี่ย 4.09 รองลงมา คือ พนักงานแสดงออกถึงความเอื้ออาทรในการให้บริการ มีค่าเฉลี่ย 3.95 พนักงานเข้าใจในความจำเป็นและความต้องการที่แตกต่างกันของผู้ใช้บริการ มีค่าเฉลี่ย 3.92 และเมื่อผู้ใช้บริการเกิดความสงสัย พนักงานพร้อมอธิบายและเต็มใจช่วยเหลือ มีค่าเฉลี่ย 3.83 ตามลำดับ

3. เปรียบเทียบความคิดเห็นของผู้ใช้บริการที่มีต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี ในภาพรวม จำแนกตามปัจจัยส่วนบุคคล

ตารางที่ 3 ค่าสถิติเปรียบเทียบความคิดเห็นของผู้ใช้บริการที่มีต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี จำแนกตามเพศ

เพศ	จำนวน	$\bar{x}$	S.D.	t	P-Value
ชาย	156	4.12	0.53	0.32	0.60*
หญิง	244	4.16	0.65		

*นัยสำคัญทางสถิติที่ระดับ 0.05

จากตารางที่ 3 ผลการเปรียบเทียบค่าเฉลี่ยระหว่างเพศ พบว่า ผู้ใช้บริการที่เป็นเพศหญิง มีความพึงพอใจต่อคุณภาพการให้บริการ มากกว่า เพศชาย และพบว่า ค่า P-value มีค่าเท่ากับ 0.60 ซึ่งมีค่ามากกว่า 0.05 แสดงว่า ผู้ใช้บริการที่มีเพศแตกต่างกัน มีความพึงพอใจต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี โดยรวม ไม่แตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

ตารางที่ 4 ค่าสถิติเปรียบเทียบความคิดเห็นของผู้ใช้บริการที่มีต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี ในภาพรวม

ปัจจัยส่วนบุคคล	คุณภาพการให้บริการการไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี				
	SS	DF	MS	F	P-Value
อายุ	19.97	4	0.56	0.11	0.07
สถานภาพ	14.50	2	0.32	0.66	0.16
ระดับการศึกษา	11.56	2	0.09	3.29	0.00*
อาชีพ	24.44	3	0.75	0.42	0.02*
รายได้เฉลี่ยต่อเดือน	18.63	4	1.32	2.12	0.00*

*นัยสำคัญทางสถิติที่ระดับ 0.05

จากตารางที่ 4 ผลการเปรียบเทียบความพึงพอใจของผู้ใช้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี ในภาพรวม สามารถอธิบายได้ดังนี้

ด้านอายุ พบว่า ค่า P-value มีค่าเท่ากับ 0.07 ซึ่งมีค่ามากกว่า 0.05 แสดงว่า ผู้ใช้บริการที่มีอายุที่แตกต่างกัน มีความคิดเห็นต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี ไม่แตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

ด้านสถานภาพ พบว่า ค่า P-value มีค่าเท่ากับ 0.16 ซึ่งมีค่ามากกว่า 0.05 แสดงว่า ผู้ใช้บริการที่มีสถานภาพ ที่แตกต่างกัน มีความคิดเห็นต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี ไม่แตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

ด้านระดับการศึกษา พบว่า ค่า P-value มีค่าเท่ากับ 0.00 ซึ่งมีค่าน้อยกว่า 0.05 แสดงว่า ผู้ใช้บริการที่มีระดับการศึกษา ที่แตกต่างกัน มีความคิดเห็นต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี แตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

ด้านอาชีพ พบว่า ค่า P-value มีค่าเท่ากับ 0.02 ซึ่งมีค่าน้อยกว่า 0.05 แสดงว่า ผู้ใช้บริการที่มีอาชีพ ที่แตกต่างกัน มีความคิดเห็นต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี แตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

ด้านรายได้เฉลี่ยต่อเดือน พบว่า ค่า P-value มีค่าเท่ากับ 0.00 ซึ่งมีค่าน้อยกว่า 0.05 แสดงว่า ผู้ใช้บริการที่มีรายได้เฉลี่ยต่อเดือน ที่แตกต่างกัน มีความคิดเห็นต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

สรุปและอภิปรายผล

การวิจัยครั้งนี้เป็นการศึกษาเรื่อง คุณภาพการให้บริการของผู้ใช้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี สามารถสรุปและอภิปรายผลตามวัตถุประสงค์การวิจัย ดังนี้

1. ลักษณะปัจจัยส่วนบุคคลของผู้ใช้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี โดยมีผู้ตอบแบบสอบถามส่วนใหญ่เป็นเพศหญิง จำนวน 244 คน คิดเป็นร้อยละ 61.00 มีอายุต่ำกว่า 30 ปี จำนวน 123 คน คิดเป็นร้อยละ 30.75 มีสถานภาพโสด จำนวน 275 คน คิดเป็นร้อยละ 68.75 มีระดับการศึกษาปริญญาตรี จำนวน 264 คน คิดเป็นร้อยละ 66.00 มีอาชีพพนักงานบริษัทเอกชน จำนวน 112 คน คิดเป็นร้อยละ 28.00 และมีรายได้เฉลี่ยต่อเดือนต่ำกว่า 15,000 บาท จำนวน 151 คน คิดเป็นร้อยละ 37.75 ผู้ตบแบบสอบถามมีความคิดเห็นต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี โดยรวมมีความพึงพอใจอยู่ในระดับมาก เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านการให้ความมั่นใจแก่ผู้ใช้บริการ มีระดับค่าเฉลี่ยสูงสุด รองลงมา คือ ด้านความเป็นรูปธรรมของบริการ ด้านการตอบสนองต่อผู้ใช้บริการ ด้านความเชื่อถือไว้ใจได้ และด้านความเอาใจใส่ ตามลำดับ สอดคล้องกับงานวิจัยของ แสงทอง สุผาวัน, วิภาภรณ์ ศรีหาธาตุ, และปัณชิกา ลับเหลี่ยม (2566) ได้ทำการศึกษาเรื่อง คุณภาพการให้บริการที่ส่งผลต่อความพึงพอใจของผู้ใช้บริการการไฟฟ้าส่วนภูมิภาค (สาขาย่อย) จังหวัดหนองบัวลำภู พบว่า คุณภาพการให้บริการที่ผู้ใช้บริการรับรู้โดยภาพรวมและรายด้านอยู่ในระดับมากทุกด้าน ได้แก่ ด้านความสามารถ ด้านความน่าเชื่อถือ ด้านการเข้าถึงลูกค้า และด้านการตอบสนองของลูกค้า สอดคล้องกับงานวิจัยของ วิรัตน์ ชนะสิมมา และทตมัล แสงสว่าง (2564) ได้ทำการศึกษาเรื่อง คุณภาพการให้บริการที่ส่งผลต่อความพึงพอใจของประชาชนที่ชำระภาษีท้องถิ่นกับเทศบาลตำบลหนองนาคำ กรณีศึกษาตำบลบ้านโคก อำเภอหนองนาคำ จังหวัดขอนแก่น พบว่า คุณภาพการให้บริการจัดเก็บภาษีท้องถิ่นของเทศบาลตำบลหนองนาคำ ด้านความน่าเชื่อถือได้ ด้านการตอบสนอง ด้านความมั่นใจ ด้านการเอาใจใส่ และด้านสิ่งที่จับต้องได้ ในภาพรวม มีระดับความคิดเห็นอยู่ในระดับมาก และสอดคล้องกับงานวิจัยของ ฐิศิณีฐ์ รุ่งสว่าง (2566) ได้ทำการศึกษาเรื่อง คุณภาพการให้บริการส่งผลต่อการตัดสินใจของผู้มารับบริการของโรงพยาบาลแห่งหนึ่ง ในจังหวัดกาญจนบุรี พบว่า ผู้มารับบริการในโรงพยาบาลแห่งหนึ่งในจังหวัดกาญจนบุรี มีระดับความคิดเห็นในคุณภาพการให้บริการ โดยรวมอยู่ในระดับมาก ได้แก่ ด้านความเป็นรูปธรรม รองลงมาคือ ด้านความน่าเชื่อถือในการให้บริการ ด้านการตอบสนองต่อความต้องการการบริการ ด้านการสร้างความมั่นใจให้แก่ผู้ใช้บริการ และด้านความเห็นอกเห็นใจ

2. ผลการเปรียบเทียบความคิดเห็นของผู้ใช้บริการที่มีต่อคุณภาพการให้บริการ การไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี จำแนกตามปัจจัยส่วนบุคคล ในภาพรวม พบว่า ผู้ใช้บริการที่มี เพศ อายุ และสถานภาพ ที่แตกต่างกัน มีความคิดเห็นต่อคุณภาพการให้บริการการไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี ไม่แตกต่างกัน อาจเป็นเพราะการไฟฟ้าส่วนภูมิภาค มีการกำหนดมาตรฐานการให้บริการที่ชัดเจน พนักงานได้รับการฝึกอบรมให้ปฏิบัติตามขั้นตอนเดียวกัน ทำให้ทุกคนได้รับประสบการณ์บริการที่คล้ายคลึงกัน ไม่ว่าจะเป็นเพศ อายุ หรือสถานภาพใดก็ตาม สอดคล้องกับงานวิจัยของ อัญชลี ละมัย (2565) ได้ทำการศึกษาเรื่อง ความคาดหวังและการรับรู้คุณภาพบริการของประชาชนหน่วยปฏิบัติการแพทย์ฉุกเฉิน เทศบาลตำบลจุน อำเภอจุน จังหวัดพะเยา จากผลการศึกษาข้อมูลเปรียบเทียบความแตกต่างความคาดหวังและรับรู้ของคุณภาพบริการหน่วยปฏิบัติการแพทย์ฉุกเฉิน จำแนกตามคุณลักษณะส่วนบุคคล ในภาพรวม พบว่า เพศ อายุ สถานภาพ ที่ต่างกัน มีความคาดหวังและการรับรู้ต่อคุณภาพบริการหน่วยปฏิบัติการแพทย์ฉุกเฉิน ที่ไม่แตกต่างกัน และสอดคล้องกับงานวิจัยของ ชมสุภัค ครุฑกะ, ฐิติรัตน์ มีเพิ่มพูนศรี, สุวรรณี เดชวรชัย, ณัฐวุฒิ ฮันตระกูล, และปิยะนุช เงินชูศรี (2564) ได้ทำการศึกษาเรื่อง ความคาดหวังของผู้รับบริการที่มีต่อคุณภาพการให้บริการธุรกิจโฮสเทล ในเขตกรุงเทพมหานคร พบว่า ผู้รับบริการที่มี เพศ อายุ ที่แตกต่างกัน มีความคาดหวังต่อคุณภาพการให้บริการธุรกิจโฮสเทล ในภาพรวม ไม่แตกต่างกัน แต่ทั้งนี้ ความคิดเห็นของผู้ใช้บริการที่มีต่อคุณภาพการให้บริการการไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี ที่มีระดับการศึกษา อาชีพ และรายได้เฉลี่ยต่อเดือน แตกต่างกัน มีความคิดเห็นต่อคุณภาพการให้บริการการไฟฟ้าส่วนภูมิภาค สาขาเมืองสุราษฎร์ธานี แตกต่างกัน อาจเป็นเพราะผู้ที่มีระดับการศึกษาสูงและมีรายได้สูงอาจมีความคาดหวังต่อบริการที่สูงกว่าและอาจมีความเข้าใจในกระบวนการหรือขั้นตอนการให้บริการแตกต่างกัน อีกทั้งผู้ประกอบอาชีพบางประเภทต้องการการบริการที่รวดเร็วและมีประสิทธิภาพสูง จึงส่งผลต่อการรับรู้และมีความคาดหวังต่อคุณภาพการให้บริการต่างกัน สอดคล้องกับงานวิจัยของ สาวิณี สุขีวรรณ์ และภัทรนันท สุรชาตรี (2565) ได้ทำการศึกษาเรื่อง คุณภาพการให้บริการธนาคารออมสิน สาขาท็อปส์พลาซ่าสิงห์บุรี จังหวัดสิงห์บุรี ผลการเปรียบเทียบปัจจัยที่ส่งผลต่อคุณภาพในการให้บริการของธนาคารออมสิน สาขาท็อปส์พลาซ่าสิงห์บุรี จังหวัดสิงห์บุรี จำแนกตามปัจจัยส่วนบุคคล พบว่า ระดับการศึกษา อาชีพ และรายได้ต่อเดือนต่างกัน มีคุณภาพในการให้บริการของธนาคารออมสิน สาขาท็อปส์พลาซ่าสิงห์บุรี จังหวัดสิงห์บุรี แตกต่างกัน สอดคล้องกับงานวิจัยของ วิเชียร สารกาศ (2560) ได้ทำการศึกษาเรื่อง ความพึงพอใจต่อการให้บริการของการไฟฟ้าส่วนภูมิภาค อำเภอวัฒนานคร จังหวัดสระแก้ว พบว่า ปัจจัยส่วนบุคคลด้านระดับการศึกษา รายได้เฉลี่ยต่อเดือน และอาชีพ มีผลกับความพึงพอใจต่อการให้บริการของการไฟฟ้าส่วนภูมิภาค อำเภอวัฒนานคร จังหวัดสระแก้ว และสอดคล้องกับงานวิจัยของ วิวัฒน์ อยู่พร้อม (2564) ได้ทำการศึกษาเรื่อง คุณภาพการให้บริการที่มีผลต่อความพึงพอใจในการใช้บริการของผู้ใช้ไฟฟ้าประเภทอยู่อาศัยในพื้นที่บริการของการไฟฟ้าส่วนภูมิภาค อำเภอเมืองปทุมธานี จังหวัดปทุมธานี พบว่า ปัจจัยส่วนบุคคลของผู้ใช้บริการไฟฟ้าในด้านระดับการศึกษา อาชีพ และรายได้เฉลี่ยต่อเดือน ที่แตกต่างกัน มีผลต่อความพึงพอใจในการใช้บริการ การไฟฟ้าส่วนภูมิภาค อำเภอเมือง จังหวัดปทุมธานี แตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

ข้อเสนอแนะ

ข้อเสนอแนะสำหรับการนำผลวิจัยไปใช้

1. ควรมีการจัดพื้นที่รองรับผู้ใช้บริการให้เพียงพอ ออกแบบและปรับปรุงพื้นที่ให้บริการให้มีความเหมาะสมและเพียงพอต่อจำนวนผู้ใช้บริการในแต่ละช่วงเวลา โดยอาจพิจารณาขยายพื้นที่นั่งรอ เพิ่มที่นั่งให้ครอบคลุมความต้องการ ตลอดจนจัดสรรพื้นที่ให้มีระบบระบายอากาศและความสะดวกสบาย เพื่อสร้างบรรยากาศที่ดีและลดความแออัด ซึ่งมีผลโดยตรงต่อความพึงพอใจของผู้มาใช้บริการ

2. ควรมีการบริหารจัดการเวลาการให้บริการอย่างเป็นระบบ โดยอาจกำหนดเวลานัดหมายล่วงหน้า หรือใช้เทคโนโลยีในการจัดคิวล่วงหน้า เพื่อให้สามารถควบคุมระยะเวลาในการให้บริการได้อย่างแม่นยำ การให้บริการตรงเวลาไม่เพียงแต่ช่วยลดความไม่พอใจของผู้ใช้บริการ แต่ยังเป็นการแสดงถึงความมีวินัยและความเป็นมืออาชีพของหน่วยงาน

3. ควรมีระบบจัดคิวและแจ้งระยะเวลาในการรออย่างชัดเจน เช่น ระบบออนไลน์ที่แสดงลำดับและเวลารอโดยประมาณ พร้อมทั้งมีป้ายแสดงสถานะการรออย่างชัดเจน เพื่อให้ผู้ใช้บริการสามารถวางแผนและเตรียมตัวได้ล่วงหน้า ซึ่งจะช่วยลดความเครียดและความไม่แน่นอนระหว่างรอรับบริการได้

4. ควรส่งเสริมการมีจิตสำนึกด้านความรับผิดชอบให้แก่พนักงานทุกคน ด้วยการจัดอบรมด้านจรรยาบรรณวิชาชีพ การให้บริการอย่างมืออาชีพ และความใส่ใจในหน้าที่ เพื่อให้พนักงานตระหนักถึงบทบาทในการสร้างประสบการณ์ที่ดีแก่ผู้ใช้บริการ พนักงานที่มีความรับผิดชอบจะสามารถลดข้อผิดพลาดและเพิ่มความเชื่อมั่นให้กับองค์กรได้

5. ควรพัฒนาทักษะด้านการสื่อสารและการบริการลูกค้าให้กับพนักงาน โดยเฉพาะการตอบคำถามและให้คำแนะนำอย่างชัดเจน ด้วยความเต็มใจและสุภาพ การมีพนักงานที่พร้อมอธิบายจะช่วยลดความสับสน เพิ่มความเข้าใจในขั้นตอนการใช้บริการ และสร้างความประทับใจในด้านการดูแลเอาใจใส่ผู้ใช้บริการ

ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

1. ควรใช้ระเบียบวิธีวิจัยเชิงคุณภาพเพิ่มเติม เช่น ใช้การวิธีวิจัยแบบผสม (Mixed Methods) การสัมภาษณ์เชิงลึก (In-depth Interview) การสนทนากลุ่ม (Focus Group) ร่วมกับผู้ให้บริการและผู้รับบริการ เพื่อค้นหาปัจจัยเชิงลึกที่ส่งผลต่อคุณภาพการให้บริการ ใช้การวิธีวิจัยแบบผสม (Mixed Methods)

2. ควรมีการศึกษาคุณภาพการให้บริการของการไฟฟ้าส่วนภูมิภาคในสาขาอื่น หรือเปรียบเทียบกับองค์กรที่ให้บริการสาธารณูปโภคประเภทอื่น เช่น การประปา หรือหน่วยงานราชการที่เกี่ยวข้อง เพื่อให้เห็นแนวทางการพัฒนาและปรับปรุงคุณภาพการให้บริการในบริบทที่แตกต่างกัน

เอกสารอ้างอิง

กันยามาส แก้วกมล และ ภัทรนันท์ สุรชาตรี. (2563). การบริหารจัดการที่มีผลต่อการให้บริการสมัยใหม่ในยุค PEA4.0 ของผู้ใช้บริการการไฟฟ้าส่วนภูมิภาค จังหวัดพระนครศรีอยุธยา. วารสารบัณฑิตศึกษามหาจุฬาขอนแก่น, 7(4), 409-422.

กัลยา วานิชย์บัญชา. (2547). หลักสถิติ (พิมพ์ครั้งที่ 7). กรุงเทพฯ : โรงพิมพ์จุฬาลงกรณ์มหาวิทยาลัย.

การไฟฟ้าส่วนภูมิภาค. (2563ก). ประวัติความเป็นมาการไฟฟ้าส่วนภูมิภาค. สืบค้นเมื่อ 30 มิถุนายน 2567 จาก https://www.pea.co.th/histo ry-pea_era4.

_____. (2563ข). การกำกับดูแลความยั่งยืน การไฟฟ้าส่วนภูมิภาคสำนักงานใหญ่. สืบค้นเมื่อ 2 กรกฎาคม 2567 จาก https://sustainability.pea.co.th/corporate-governance/

_____. (2566). ข้อมูลสถิติการให้บริการ รายงานผลความพึงพอใจการให้บริการของ PEA ประจำปี 2566 เปรียบเทียบลูกค้าตามรายภาค. สืบค้นเมื่อ 15 กันยายน 2567 จาก www.pea.co.th/disclosure/service-statistics.

ชมสุภัค ครุฑกะ, ฐิติรัตน์ มีเพิ่มพูนศรี, สุวรรณี เดชวรชัย, ณัฐวุฒิ ฮันตระกูล, และ ปิยะนุช เงินชูศรี (2564). ความคาดหวังของผู้รับบริการที่มีต่อคุณภาพการให้บริการธุรกิจโฮสเทลในเขตกรุงเทพมหานคร. วารสารการจัดการและการพัฒนา มหาวิทยาลัยราชภัฏอุบลราชธานี, 8(1), 65-79.

เชิดชาติ ตะโกจีน. (2559). อิทธิพลของความคาดหวังในคุณภาพการให้บริการแรงจูงใจในการใช้ บริการและภาพลักษณ์ของการรถไฟแห่งประเทศไทยที่มีผลต่อความตั้งใจในการใช้ บริการรถไฟโดยสารชั้น 1 (การค้นคว้าอิสระปริญญาบริหารธุรกิจมหาบัณฑิต). มหาวิทยาลัยกรุงเทพ, กรุงเทพฯ.

ฐิศิณีฐ์ รุ่งสว่าง. (2566). คุณภาพการให้บริการส่งผลต่อการตัดสินใจของผู้มารับบริการของโรงพยาบาลแห่งหนึ่ง ในจังหวัดกาญจนบุรี (การค้นคว้าอิสระหลักสูตรบริหารธุรกิจมหาบัณฑิต). มหาวิทยาลัยรามคำแหง สาขาวิทยบริการเฉลิมพระเกียรติ, กาญจนบุรี.

ณรงค์ โพธิ์พฤกษานันท์. (2551). ระเบียบวิธีวิจัย. กรุงเทพฯ : ส.เอเซียเพรส.

ผู้จัดการออนไลน์. (2567). สุราษฎร์ธานีครองแชมป์ใช้ไฟภาคใต้. สืบค้นเมื่อ 20 กันยายน 2567 จาก https://mgronline.com/business/detail/9670000049936

ภาวิณี ทองแย้ม. (2560). ความสำคัญของคุณภาพการบริการต่อความสำเร็จของธุรกิจ. วารสารเกษมบัณฑิต, 18(1), 219-232.

ยุทธ ไกยวรรณ์. (2561). หลักสถิติวิจัยและการใช้โปรแกรม SPSS (พิมพ์ครั้งที่ 5). กรุงเทพฯ: จุฬาลงกรณ์มหาวิทยาลัย.

วิเชียร สารกาศ. (2560). ความพึงพอใจต่อการให้บริการของการไฟฟ้าส่วนภูมิภาค อำเภอวัฒนานคร จังหวัดสระแก้ว (การค้นคว้าอิสระปริญญาบริหารธุรกิจมหาบัณฑิต). มหาวิทยาลัยบูรพา, ชลบุรี.

วิรัตน์ ชนะสิมมา และทตมัล แสงสว่าง. (2564). คุณภาพการให้บริการที่ส่งผลต่อความพึงพอใจของประชาชนที่ชำระภาษีท้องถิ่นกับเทศบาลตำบลหนองนาคำ กรณีศึกษาตำบลบ้านโคก อำเภอหนองนาคำ จังหวัดขอนแก่น. วารสารวิชาการและวิจัย มหาวิทยาลัยภาคตะวันออกเฉียงเหนือ, 11(2), 15-28.

วิวัฒน์ อยู่พร้อม. (2564). คุณภาพการให้บริการที่มีผลต่อความพึงพอใจในการใช้บริการของผู้ใช้ไฟฟ้าประเภทอยู่อาศัยในพื้นที่บริการของการไฟฟ้าส่วนภูมิภาคอำเภอเมืองปทุมธานี จังหวัดปทุมธานี. วารสารวิชาการการตลาดและการจัดการ มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี, 8(1), 18-30.

ศุภิสรา ศรีอุทารวงศ์. (2565). ปัจจัยที่มีผลต่อความพึงพอใจในการใช้บริการโรงแรมราคาประหยัดในจังหวัดเพชรบุรี (สารนิพนธ์การจัดการมหาบัณฑิต). มหาวิทยาลัยมหิดล, กรุงเทพฯ.

สาวิณี สุขีวรรณ์ และภัทรนันท สุรชาตรี. (2565). คุณภาพการให้บริการธนาคารออมสิน สาขาท็อปส์พลาซ่าสิงห์บุรี จังหวัดสิงห์บุรี. วารสารวิทยาการจัดการปริทัศน์, 24(2), 39-50.

แสงทอง สุผาวัน, วิภาภรณ์ ศรีหาธาตุ, และปัณชิกา ลับเหลี่ยม. (2566). คุณภาพการให้บริการที่ส่งผลต่อความพึงพอใจของผู้ใช้บริการการไฟฟ้าส่วนภูมิภาค (สาขาย่อย) จังหวัดหนองบัวลำภู. ใน กนกอร บุญมี (ประธาน), การประชุมวิชาการและการนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 11 และระดับ

นานาชาติ ครั้งที่ 9. มหาวิทยาลัยภาคตะวันออกเฉียงเหนือ, ขอนแก่น.

สำนักงานคณะกรรมการพัฒนาการเศรษฐกิจและสังคมแห่งชาติ. (2561). ยุทธศาสตร์ชาติ พ.ศ. 2561 – 2580. สืบค้นเมื่อ 15 กันยายน 2567 จาก https://www.nesdc.go.th/download/ document/ SumPlanOct2018.pdf

อัญชลี ละมัย. (2565). ความคาดหวังและการรับรู้คุณภาพบริการของประชาชนหน่วยปฏิบัติการแพทย์ฉุกเฉิน เทศบาลตำบลจุน อำเภอจุน จังหวัดพะเยา (การค้นคว้าอิสระหลักสูตรปริญญาสาธารณสุขศาสตรมหาบัณฑิต). มหาวิทยาลัยพะเยา, พะเยา.

Lewis, Mark and Parooj Bloom. (1983). Organization Behavior. New York : Mc Graw Hill.

Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (2013). A Conceptual Model of Service Quality and Its Implications for Future Research. Journal of Marketing, 49(4), 41 - 50.

Ramya, N., Kowsalya, A., and Dharanipriya, K. (2019). SERVICE QUALITY AND ITS DIMENSIONS. EPRA International Journal of Research and Development, 4(2), 38-41.

แรงจูงใจในการทำงานที่ส่งผลต่อความภาคภูมิใจในตนเองของผู้สูงอายุ ในชุมชนธารโต จังหวัดยะลา ประเทศไทย

Work Motivation Affecting Self-Esteem of the Elderly in Thanto community, Thanto District, Yala Province, Thailand

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บทคัดย่อ

การวิจัยนี้เป็นการวิจัยเชิงสำรวจ วัตถุประสงค์เพื่อศึกษาปัจจัยแรงจูงใจในการทำงานที่ส่งผลต่อความภาคภูมิในตนเองของผู้สูงอายุในชุมชนธารโต กลุ่มตัวอย่างคือผู้สูงอายุในชุมชนธารโต จำนวน 186 คน เก็บข้อมูลโดยใช้แบบสอบถาม การวิเคราะห์ข้อมูลโดยค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน สหสัมพันธ์แบบเพียร์สัน และสมการถดถอยพหุคูณ ผลการศึกษาพบว่า แรงจูงใจในการทำงานที่ส่งผลต่อความภาคภูมิใจในตนเองของผู้สูงอายุ คือ ความต้องการเป็นที่ยอมรับมีความสัมพันธ์ทางบวกกับความภาคภูมิในตนเองของผู้อายุ ($r = .520$, $p < .01$) มากที่สุด รองลงมาคือ ต้องการความมั่นคงมีความสัมพันธ์ทางบวกกับความภาคภูมิในตนเองของผู้อายุ ($r = .447$, $p < .01$) เงินเดือนและสวัสดิการที่ดีมีความสัมพันธ์ทางบวกกับความภาคภูมิในตนเองของผู้อายุ ($r = .417$, $p < .01$) และต้องการมีความภูมิใจในตนเองมีความสัมพันธ์ทางบวกกับความภาคภูมิในตนเองของผู้อายุ ($r = .411$, $p < .01$) ปัจจัยที่มีอำนาจในการพยากรณ์การความภูมิใจในตนเองของผู้สูงอายุ อย่างมีนัยสำคัญทางสถิติ ดังนี้ คือ ต้องการเป็นที่ยอมรับ ($t = 5.871$, $p = .000$) และต้องการความมั่นคง ($t = -3.921$, $p = .000$) ปัจจัยเหล่านี้มีอำนาจการพยากรณ์ร้อยละ 32.7 ค่าความคลาดเคลื่อนมาตรฐานของการพยากรณ์ .427 สำหรับแนวทางการความภาคภูมิใจในตนเองของผู้สูงอายุในการทำงาน ควรส่งเสริมผู้สูงอายุให้มีโอกาสในการทำงานอย่างเหมาะสมตามสมรรถนะ ความถนัด และส่งเสริมให้ผู้สูงอายุมีส่วนร่วมกับกิจกรรมเพิ่มความรู้และทักษะด้านอาชีพ

คำสำคัญ: แรงจูงใจในการทำงาน, ความภูมิใจในตนเอง, ผู้สูงอายุ

Abstract

This research was survey research. The purpose of this research is to study the motivation factors for work that affect the self-esteem of the elderly in the Thanto community. The sample group consisted of 186 elderly people in the Thanto community. Data were collected using a questionnaire. Data analysis using percentage, mean, standard deviation, Pearson's correlation coefficient, and multiple regression. The results of the study found that the motivation to work that affected the self-esteem of the elderly was the need to be accepted, which had the highest positive relationship with the self-esteem of the elderly ($r = .520$, $p < .01$). The next was the need for security, which had a positive relationship with the self - esteem of the elderly ($r = .447$, $p < .01$). Good salary and benefits had a positive relationship with the self-esteem of the elderly ($r = .417$, $p < .01$). The need to have self - esteem had a positive relationship with the self - esteem of the elderly ($r = .411$, $p < .01$). The factors that significantly predicted the self - esteem of the elderly were as follows: the need to be accepted ($t = 5.871$, $p = .000$) and the need for security ($t = -3.921$, $p = .000$). These factors have a predictive power of 32.7 percent, with a standard error of .427. For the approach to the elderly's self-esteem in working, the elderly should be encouraged to have appropriate work opportunities according to their abilities and aptitudes, and the elderly should be encouraged to participate in activities to increase their knowledge and professional skills.

Keywords: Work Motivation, self - esteem, Elderly

บทนำ

จากรายงานสถานการณ์ผู้สูงอายุในประเทศไทย ชี้ให้เห็นว่าทุกพื้นที่ของประเทศไทยได้ก้าวเข้าสู่ยุคสังคมผู้สูงอายุเต็มรูปแบบแล้ว โดยแทบทุกจังหวัดในประเทศไทยมีสัดส่วนประชากรที่มีอายุ 60 ปีขึ้นไปมากกว่าร้อยละ 10 และในปี พ.ศ.2573 ทุกจังหวัดจะมีสัดส่วนประชากรสูงวัย มากกว่าร้อยละ 20 ขณะที่บางจังหวัดอาจมีสัดส่วนสูงถึงร้อยละ 30 (ธนาคารแห่งประเทศไทย, 2561) ดังนั้นประเทศไทยจึงให้ความสำคัญในการรองรับภาวะผู้สูงอายุเพิ่มขึ้น โดยการกำหนดยุทธ์ศาสตร์ 3S: Strong (ส่งเสริมผู้สูงอายุให้แข็งแรง) Security (ส่งเสริมให้มีการออมและมีงานทำ) และ Social Participation (ส่งเสริมให้ผู้สูงอายุมีกิจกรรมที่มีส่วนร่วมกับสังคม) เพื่อส่งเสริมคุณภาพชีวิตที่ดีของผู้สูงอายุทั้งในระดับประเทศและระดับชุมชน โดยในปี ค.ศ. 2017 ประเทศไทยได้มีการออกกฎหมายสนับสนุนการจ้างงานผู้สูงอายุ โดยกำหนดให้หน่วยงานเอกชนและบริษัทที่จ้างงานพนักงานผู้สูงอายุที่มีอายุตั้งแต่ 60 ปีเป็นต้นไป สามารถใช้สิทธิ์ยกเว้นภาษีเงินได้นิติบุคคล ได้ร้อยละ 100 ของเงินที่จ่ายให้แก่ลูกจ้างสูงอายุ (ประชาชาติธุรกิจ, 2561) เพื่อให้ผู้สูงอายุสามารถทำงานได้มากขึ้นและแก้ไขปัญหาการขาดแคลนแรงงาน ถึงแม้ว่าทั้งภาครัฐและเอกชนร่วมมือกันส่งเสริมให้ผู้สูงอายุได้มีงานทำพบว่า ผู้สูงอายุในประเทศไทยทั้งสิ้น 11.35 ล้านคน (16.8%) ของประชากร มีผู้สูงอายุที่ทำงาน จำนวน 4.06 ล้านคน (35.8%) ส่วนใหญ่ผู้สูงอายุเป็นแรงงานนอกระบบ จำนวน 3.59 ล้านคน (88.3%) และผู้สูงอายุที่เป็นแรงงานในระบบ 0.47 ล้านคน (11.7%)

ส่วนที่เหลือเป็นผู้สูงอายุที่ไม่มีงานทำ (กรมกิจการผู้สูงอายุ, 2560) ดังนั้นจึงจำเป็นอย่างยิ่งที่ผู้สูงอายุต้องพึ่งพาตนเองโดยอาศัยเงินจากการประกอบอาชีพและมีรายได้จากความสามารถของผู้สูงอายุ

จากข้อมูลการทำงานของผู้สูงอายุในประเทศไทยที่มีประมาณ 11 ล้านคน ในจำนวนนี้มีผู้สูงอายุประมาณ 4 ล้านคนที่ประกอบอาชีพและมีรายได้ แบ่งเป็นผู้ทำงานในระบบ 4.77 แสนคน และนอกระบบ 3.58 ล้านคน ส่วนที่เหลือเป็นผู้สูงอายุที่ไม่มีงานทำ โดย ศุภชัย ศรีสุชาติ (2562) ได้กล่าวว่า สร้างหลักประกันความมั่นคงของผู้สูงอายุ สิ่งสำคัญคือ ผู้สูงอายุควรทำงานเพื่อให้มีรายได้อย่างต่อเนื่องโดยเฉพาะกลุ่มผู้สูงอายุที่อยู่ในระบบประกันสังคม แรงงานนอกระบบ และส่งเสริมให้ผู้สูงอายุที่ไม่มีงานทำได้มีโอกาสในการทำงานและสร้างรายได้เพิ่มมากขึ้น จากการศึกษาของ ลิขิตา เฉลิมพลโยธิน, ประสพ-ชัยพสุนนท์ และธีรวัฒน์ จันทึก. (2561) พบว่า คุณภาพชีวิตที่ดีของผู้สูงอายุมีความสัมพันธ์กับปัจจัย 2 ด้าน คือ การทำงานที่สอดคล้องกับความสนใจและความถนัดของตนเอง และการมีส่วนร่วมกับกิจกรรมต่าง ๆ ตามความรู้ความชำนาญของตนเอง ซึ่งปัจจัยเหล่านี้ทำให้ผู้สูงอายุเกิดความพึงพอใจและเกิดความภาคภูมิใจในตนเอง อีกด้านหนึ่งการทำงานของผู้สูงอายุเป็นการลดปัญหาการขาดแคลนแรงงาน (กรมแรงงาน, 2560) ส่วนใหญ่อาชีพของผู้สูงอายุคือ ผู้ปฏิบัติงานที่มีฝีมือด้านการเกษตรและประมง 56.5% พนักงานบริการและผู้จำหน่ายสินค้า 19.6% ช่างฝีมือและผู้ปฏิบัติงานที่เกี่ยวข้อง 8.6% ผู้ประกอบวิชาชีพงานพื้นฐาน ร้อยละ 7.2 ผู้ปฏิบัติงานด้านการประกอบ ร้อยละ 3.1 ผู้จัดการ/ข้าราชการระดับอาวุโส ร้อยละ 2.8 ผู้ประกอบวิชาชีพด้านต่าง ๆ ร้อยละ 1.2 เจ้าหน้าที่เทคนิคฯ ร้อยละ 0.7 และเสมียน ร้อยละ 0.3 โดยได้รับค่าจ้างเฉลี่ยต่อเดือนประมาณ 11,600 บาท

การประมาณการความต้องการจ้างแรงงานผู้สูงอายุในภาคเศรษฐกิจจึงเป็นประโยชน์ต่อการกำหนดนโยบายและมาตรการที่เกี่ยวข้อง เพื่อสร้างโอกาสในการทำงานของผู้สูงอายุในอนาคต จากข้อมูลขององค์การเพื่อความร่วมมือทางเศรษฐกิจและการพัฒนาของประเทศกลุ่มยุโรป หรือ OECD กล่าวว่าอัตราการจ้างงานผู้สูงอายุมีจำนวนมากขึ้นเรื่อย ๆ โดยพบว่า ในปี พ.ศ. 2543 ถึง พ.ศ. 2559 มีการจ้างงานผู้ที่มีอายุระหว่าง 55 - 64 ปี เพิ่มขึ้นกว่าร้อยละ 14 จากร้อยละ 44 ไปเป็น ร้อยละ 58.4 ในขณะที่กลุ่มแรงงานที่มีอายุระหว่าง 24 - 54 ปี มีอัตราการเพิ่มขึ้นเพียงเล็กน้อย จากร้อยละ 76.8 เป็นร้อยละ 79.5 โดยประเทศอินโดนีเซียเป็นประเทศที่มีการจ้างงานผู้สูงอายุสูงที่สุด รองลงมาคือ เกาหลีใต้ และญี่ปุ่น (ประชาชาติธุรกิจ, 2561) ดังนั้นการส่งเสริมให้ผู้สูงอายุมีโอกาสในการทำงานได้อย่างจริงจัง ในกรณีที่ผู้สูงอายุยังมีความต้องการทำงาน เนื่องจากเห็นว่าตนเองยังมีความสามารถและมีสุขภาพแข็งแรงเพียงพอที่จะทำงานได้ นอกจากเป็นการช่วยให้ผู้สูงอายุมีรายได้โดยไม่ต้องพึ่งพิงบุตรหลานหรือความช่วยเหลือจากทางภาครัฐแล้ว ยังสามารถช่วยลดภาระของประชากรวัยทำงานในการดูแลผู้สูงอายุได้อีกทางหนึ่งด้วย

การที่ผู้สูงอายุมีการทำงานและสามารถทำรายได้ให้แก่ตนเองย่อมสร้างความภาคภูมิใจให้เกิดขึ้นแก่ตนเองได้ ซึ่งความภาคภูมิใจในตนเอง (Self – esteem) เป็นสถานะของจิตใจ เป็นความรู้สึกมีค่าเกี่ยวกับตนเอง การรับรู้ของบุคคลเกี่ยวกับตนเอง ทั้งในด้านบวกและด้านลบและสามารถเข้าใจถึงการทำหน้าที่ในระยะยาวของบุคคล บุคคลคิดและรู้สึกเกี่ยวกับตัวเอง ใน 3 แนวคิดที่ต่างอิสระต่อกัน ได้แก่ 1) ความภาคภูมิใจในลักษณะของผลลัพธ์ (Outcome) ซึ่งเน้นไปที่กระบวนการสร้างและการยับยั้ง 2) ความภาคภูมิใจในลักษณะของการจูงใจตนเอง (Self - motive) บุคคลมีแนวโน้มที่จะประเมินตนเองในทิศทางคงเดิมและเพิ่มขึ้น และ 3) ความภาคภูมิใจในลักษณะตัวกันชน (Buffer) เป็นการปกป้องสิ่งที่เป็นอันตรายความภาคภูมิใจในตนเองมีความสัมพันธ์กับตัวแปรหลายตัวทางจิตวิทยาเชิงบวกและผลลัพธ์ทางสังคมรวมไปถึงการปรับตัวทางจิตวิทยา (Psychological Adjustment) อารมณ์ทางบวก (Positive Emotion)

ความมั่นใจทางสังคม (Social Confidence) พฤติกรรมเอื้อต่อสังคม (Prosocial Behaviors) การทำงานอย่างปกติสุข (Work Well Being) ความพึงพอใจในสัมพันธภาพ (Satisfying Relationships) และความพึงพอใจในชีวิตทั้งหมด (Overall Life Satisfaction) (Orth, Robins, Widaman, & Conger, 2013) เพื่อให้สามารถดำเนินชีวิตได้อย่างมีความภาคภูมิใจในตนเอง หากมีการสร้างเสริมทักษะทางด้านอาชีพเพื่อให้ผู้สูงอายุได้มีอาชีพ สามารถดูแลตนเองได้ ลดการเป็นภาระของครอบครัวและสังคม ย่อมส่งผลต่อการเกิดความภาคภูมิใจในตนเองของผู้สูงอายุ

ตำบลธารโตมีพื้นที่ทั้งหมดประมาณ 40 ตารางกิโลเมตร หรือประมาณ 25,000 ไร่ ภูมิประเทศส่วนใหญ่เป็นภูเขาสูงแบบลูกคลื่นลอนลึกถึงตื้นสลับซับซ้อน ประชากรส่วนใหญ่เป็นชาวไทยเชื้อสายมลายู ประมาณร้อยละ 60 และชาวไทยพุทธ ประมาณร้อยละ 40 ซึ่งรวมชาวไทยเชื้อสายจีนและชาวไทยจากภาคต่าง ๆ ที่อพยพมาตั้งถิ่นฐานใหม่ในเขตนิคมใหม่ทั้ง 3 แห่ง ได้แก่ นิคมสร้างตนเองธารโต นิคมสร้างตนเองเบตง และนิคมสร้างตนเองพัฒนาภาคใต้ (นิคมกือลอง) ประชากรส่วนใหญ่มีอาชีพเกษตรกรรม สวนผลไม้ และทำประมงน้ำจืด ซึ่งประชากรกลุ่มผู้สูงอายุมักจะอยู่บ้านและมีภาระในการดูแลบ้าน ประกอบอาหาร และดูแลหลาน ไม่มีอาชีพที่ก่อให้เกิดรายได้เป็นของตนเอง ต้องคอยรับความช่วยเหลือจากลูกหลานและหน่วยงานภาครัฐ จากบริบทของพื้นที่ตำบลธารโตที่มีการอาศัยอยู่อย่างเป็นนิคมและมีจำนวนผู้สูงอายุที่มากทำให้การเสริมสร้างแรงจูงใจในการทำงานเป็นสิ่งสำคัญ เพื่อให้ผู้สูงอายุรู้สึกว่าตนเองมีคุณค่าและมีความภาคภูมิในตนเองเพื่อเป็นแรงขับเคลื่อนให้สามารถอยู่ในสังคมได้อย่างสงบสุขและไม่เป็นภาระแก่สังคม

จากปัญหาดังกล่าวคณะผู้วิจัย จึงมีความประสงค์ที่จะศึกษาปัจจัยแรงจูงใจในการทำงานที่ส่งผลต่อความภาคภูมิในของผู้สูงอายุในชุมชนธารโตจังหวัดยะลา ซึ่งความภาคภูมิใจของผู้สูงอายุจะเกิดขึ้นได้ก็ต่อเมื่อค้นหาความสามารถและความถนัดของผู้สูงอายุ พร้อมทั้งนำความสามารถ ความถนัด ทักษะเหล่านั้นมาสร้างคุณประโยชน์ต่อทั้งตัวผู้สูงอายุและชุมชน และเพื่อหาแนวทางที่จะทำให้ชุมชนตระหนักถึงความสำคัญและเห็นค่าความเป็นมนุษย์ของผู้สูงอายุต่อไป

วัตถุประสงค์ของการวิจัย

เพื่อศึกษาปัจจัยแรงจูงใจในการทำงานที่ส่งผลต่อความภาคภูมิในของผู้สูงอายุในชุมชนธารโต จังหวัดยะลา

แนวคิด ทฤษฎี กรอบแนวคิด

1. แนวคิดของผู้สูงอายุ

ความหมายของผู้สูงอายุ นักวิชาการได้ให้ความหมายหรือคำนิยามของคำว่า “ผู้สูงอายุ” ไว้ดังนี้

สำหรับประเทศไทย ผู้สูงอายุ ตามพระราชบัญญัติผู้สูงอายุ พ.ศ.2553 (กระทรวงพัฒนาสังคมและความมั่นคงของมนุษย์, 2554) หมายความว่า บุคคลซึ่งมีอายุเกินกว่า 60 ปีบริบูรณ์ขึ้นไป และมีสัญชาติไทย

ความชราหรือสูงอายุ (Ageing หรือ Elderly) หมายถึง กระบวนการเปลี่ยนแปลงภายในร่างกายที่เริ่มมีการเสื่อมสะสมของเซลล์ขึ้นเรื่อย ๆ มีการสูญเสียและตายในที่สุด (Bergeman, 1997; Arking & Arking, 2006; Masoro, 2006) ซึ่งเป็นการจำกัดความโดยพิจารณาจากสภาพของร่างกายเป็นหลักในบางประเทศ เช่น ประเทศในแถบยุโรป และอเมริกาเหนือ กำหนดให้บุคคลที่มีอายุตั้งแต่ 65 ปีขึ้นไปเป็นผู้สูงอายุ (Drolet, Schwarz & Yoon, 2010)

องค์การอนามัยโลก (World Health Organization, 2000) กำหนดให้ผู้สูงอายุคือผู้มีอายุตั้งแต่ 60 ปีขึ้นไป และแบ่งผู้สูงอายุออกเป็น 3 กลุ่ม ได้แก่

1) ผู้สูงอายุตอนต้น (elderly) มีอายุระหว่าง 60 – 74 ปี
2) คนชรา (old) มีอายุระหว่าง 75 - 90 และ
3) คนชรามาก (very old) มีอายุ 90 ปีขึ้นไป

อัตราการเพิ่มขึ้นของผู้อายุในสังคมไทยเป็นความท้าทายที่สำคัญในการสร้างความมั่นคงทางการเงิน การคลังของรัฐบาล เนื่องจากผู้สูงอายุอาจมีเงินเก็บหรือเงินออม รวมถึงรายได้ที่ไม่เพียงพอในการดำเนินชีวิต เพราะเงินออมของผู้สูงอายุคือ รายได้ที่มั่นคง แต่จากการสำรวจเศรษฐกิจและสังคมครัวเรือนในปี 2556 พบว่า มีเพียง 1 ใน 4 ของคนไทยที่สามารถออมเงินได้ในระดับที่ตั้งใจไว้สำหรับการเกษียณอายุ ในขณะที่ร้อยละ 34 กำลังดำเนินการตามแผนการออมอยู่ และร้อยละ 41 ยังไม่มีแผนการออมอย่างเป็นรูปธรรมหรือกำลังเริ่มวางแผนการออม ดังนั้นผู้สูงอายุบางส่วนต้องพึงพาลูกหลานให้ดูแลและในส่วนนี้ก็เริ่มประสบปัญหาเพราะครอบครัวคนไทยมีลูกน้อยลง ดังนั้นการเก็บออมเงินและการสร้างรายได้ให้เพียงพอในการดำเนินชีวิตจึงเป็นเรื่องจำเป็น โดยในปี พ.ศ. 2561 ศูนย์พัฒนาคุณภาพชีวิตและส่งเสริมอาชีพผู้สูงอายุ (ศพอส.) กล่าวถึงรายได้ของผู้สูงอายุว่า ผู้สูงอายุมีรายได้หลักจากครอบครัว เงินช่วยเหลือจากรัฐบาล เงินเดือนและแหล่งรายได้อื่น ๆ ในปี พ.ศ. 2537 ผู้สูงอายุมีรายได้จากสมาชิกในครอบครัวเป็นหลักร้อยละ 61 ของรายได้ทั้งหมด เมื่อประเทศไทยก้าวเข้าสู่สังคมผู้สูงอายุและมีจำนวนคนวัยทำงานลดลง ทำให้ผู้สูงอายุพึ่งพารายได้จากครอบครัวน้อยลงเหลือเพียงร้อยละ 43 ในปี พ.ศ. 2557 และพึ่งพารัฐบาลมากขึ้น ทำให้ภาครัฐมีภาระค่าใช้จ่ายด้านสวัสดิการเพิ่มขึ้นในอนาคต จากการสำรวจของกรมกิจการผู้สูงอายุ ในปี พ.ศ. 2560 พบว่า ผู้สูงอายุบางส่วนจำนวน 4.06 ล้านคน หรือคิดเป็นร้อยละ 35.8 ของผู้สูงอายุทั่วประเทศยังคงทำงานอยู่ด้วยเหตุผลเพราะสุขภาพแข็งแรง/ยังมีแรงทำงาน ร้อยละ 47.7 ต้องหารายได้เลี้ยงครอบครัวหรือตนเอง ร้อยละ 43.4 เพราะเป็นอาชีพประจำไม่มีผู้ดูแลแทน ร้อยละ 3.4 ใช้เวลาว่างให้เป็นประโยชน์ ร้อยละ 2.2 และช่วยเหลือบุตรหลาน/สมาชิกในครัวเรือน ร้อยละ 1.6 อย่างไรก็ตามเพื่อแก้ปัญหาการลดลงของวัยแรงงานที่จะส่งผลต่อการขาดแคลนแรงงาน ปัญหาความมั่นคงด้านทางการเงิน คุณภาพชีวิตของผู้สูงอายุ และลดพึ่งพาจากบุตรหลานให้น้อยลง จึงควรส่งเสริมการใช้ประโยชน์จากศักยภาพของผู้สูงอายุตามความพร้อม ทั้งจากการทำงาน ทำกิจกรรม และมีส่วนร่วมในสังคมจะช่วยเสริมคุณค่าของผู้สูงอายุและมีสุขภาพที่ดีขึ้น ขณะเดียวกัน การช่วยให้ผู้สูงอายุมีรายได้พอเพียงต่อการดำรงชีวิต โดยไม่ต้องพึ่งพิงบุตรหลานและภาครัฐเป็นการช่วยลดปัญหาการขาดแคลนแรงงาน ตลอดจนเป็นกำลังในการขับเคลื่อนการพัฒนาประเทศอีกด้วย

2. แนวคิดของแรงจูงใจในการทำงาน

การประกอบอาชีพเป็นภาระหน้าที่อย่างหนึ่งของมนุษย์ในการดำรงชีวิตอยู่ในสังคม ซึ่งส่งผลต่อการดำเนินชีวิตให้อยู่ได้ในระยะยาว เพราะอาชีพไม่ใช่การตอบสนองความต้องการด้านเศรษฐกิจเท่านั้น แต่ยังตอบสนองความต้องการด้านอื่น ๆ เช่น ด้านสังคมและจิตใจ เป็นต้น โดย สมภพ สุวรรณรัฐิ (2563) อธิบายว่า อาชีพ มีความหมายว่า การปฏิบัติงานที่ก่อให้เกิดรายได้เป็นผลตอบแทน โดยมีการลงทุน ลงแรง และใช้ความรู้ความสามารถในการปฏิบัติงาน ดังนั้นการประกอบอาชีพหรือการเลือกอาชีพจึงมีความสำคัญต่อชีวิตของมนุษย์ เพราะการเลือกอาชีพที่เหมาะสมจะก่อให้เกิดโอกาสความก้าวหน้า และในทางตรงกันข้ามหากเลือกอาชีพที่ไม่เหมาะสมก็จะประสบความล้มเหลวได้เช่นกัน โดยทั่วไปการเลือกอาชีพใดอาชีพหนึ่งนั้น สิ่งสำคัญจะต้องให้เป็นไปตามแนวถนัดของแต่ละคนเป็นสำคัญ แนวถนัดนี้ถือเป็น

ความสามารถเฉพาะตัวของแต่ละบุคคล หากได้รับการฝึกฝนหรือได้รับการศึกษาเพิ่มเติม ก็จะยิ่งเป็นแนวทางที่ดีที่สุดในการที่จะเลือกอาชีพสำหรับบุคคลนั้น แต่อย่างไรก็ตาม การเลือกประกอบอาชีพยังขึ้นอยู่กับอุปสงค์และอุปทานในด้านอาชีพนั้น ๆ ด้วย อาชีพที่ได้รับการยกย่องจากสังคมก็จะมีผู้เลือกประกอบอาชีพนั้นมาก หรือบางอาชีพมีความเป็นอิสระรายได้ดีก็จะมีผู้ประกอบอาชีพนั้น ๆ มากเช่นเดียวกัน

นอกจากนี้ Ginzberg (1930 อ้างอิงใน อรนุช ศรีบาล, 2559) ยังได้สรุปปัจจัยหรือแรงจูงใจในกระบวนการเลือกอาชีพของบุคคลว่าเป็นรากฐานของทฤษฎี ดังต่อไปนี้

1. สภาพความเป็นจริง (Reality) ของบุคคล ได้แก่ ความสามารถ ความถนัดและโอกาสทางสังคม หากบุคคลอยู่ในสังคมที่ไม่ได้ศึกษาเล่าเรียน มักจะประกอบอาชีพที่ค่าตอบแทนน้อย เนื่องจากขาดทักษะหรือขาดโอกาสในการเรียนรู้

2. ระดับการศึกษา (Education Process) บุคคลถ้าได้รับการศึกษามาก ก็ย่อมจะมีช่องทางในการเลือกประกอบอาชีพได้มากขึ้น

3. อารมณ์ (Emotional Factor) มีความเกี่ยวข้องกับการเลือกชนิดหรือประเภทของอาชีพ โดยเฉพาะอาชีพทางด้านศิลปะ เช่น อาชีพนักแสดง นักออกแบบ เป็นต้น

4. ค่านิยม (Personal Values) มีผลต่อการเลือกอาชีพของบุคคลในด้านของค่าตอบแทนและวัตถุ โดยบุคคลมักจะเลือกประกอบอาชีพที่ค่าตอบแทนสูง เช่น อาชีพแพทย์ นักธุรกิจ วิศวกร เป็นต้น

E - learning ของมหาวิทยาลัยมหาสารคาม (มหาวิทยาลัยมหาสารคาม, 2558) ได้กล่าวว่า การจูงใจหรือแรงจูงใจ (Motivation) หมายถึง ความต้องการที่เกิดขึ้นจากการถูกกระตุ้นหรือยั่วยุให้บุคคลเคลื่อนไหวหรือแสดงพฤติกรรม ไปยังจุดหมายปลายทางหรือเป้าหมายที่กำหนดไว้ โดยมีแรงจูงใจเป็นแรงผลักดันให้พฤติกรรมแสดงออกมา เช่น แรงจูงใจในการแสวงหาอาหาร แรงจูงใจในการไปเดินทางพักผ่อน ซึ่งลักษณะของแรงจูงใจ มีดังนี้

1. แรงจูงใจเกิดเนื่องจากความต้องการที่ยังไม่ได้รับการตอบสนอง
2. แรงจูงใจเป็นตัวกระตุ้นให้เกิดการกระทำหรือแสดงพฤติกรรม
3. แรงจูงใจเป็นตัวกำหนดพฤติกรรมต่าง ๆ ที่แสดงออกมา
4. แรงจูงใจจะเป็นตัวลดความเครียดหรือความไม่สมดุล
5. แรงจูงใจจะแตกต่างกันในแต่ละบุคคลและในเวลาที่เปลี่ยนแปลง

แรงจูงใจในการทำงานเป็นปัจจัยกระตุ้นที่ช่วยผลักดันหรือขับเคลื่อนในการทำงานที่เกิดจากภายในและภายนอกของบุคคลที่สามารถจูงใจบุคคลให้เกิดพฤติกรรมการทำงาน ให้เสร็จสิ้นและประสบความสำเร็จ รวมถึงการเกิดความรู้สึกพึงพอใจในผลสำเร็จของงานนั้น อย่างไรก็ตาม ในงานวิจัยนี้มุ่งเน้นการศึกษาปัจจัยแรงจูงใจในการทำงาน แบ่งการศึกษาออกเป็น 4 ตัวแปร ประกอบด้วย ความต้องการความมั่นคง เงินเดือนและสวัสดิการ ต้องการมีความภูมิใจในตนเอง และต้องการเป็นที่ยอมรับ

3. แนวคิดความภาคภูมิใจในตนเอง

ความภาคภูมิใจในตนเอง หมายถึง ความรู้สึกของแต่บุคคลที่มีต่อตนเองเป็นการมองและประเมินค่าความรู้สึกและอารมณ์เกี่ยวกับอัตมโนทัศน์ของตน ความภาคภูมิใจในตนเองเป็นตัวแปรเชิงคุณลักษณะระดับของความภาคภูมิใจในตนเองของแต่ละบุคคลขึ้นอยู่กับความรู้สึกของบุคคลนั้น (Anderman & Anderman, 2014) คาร์ล โรเจอร์ และอับบราฮัม มาสโลว์นักจิตวิทยาในกลุ่มทฤษฎีมนุษยนิยม (Humanistic Theory) ได้กล่าวถึง แนวคิดเกี่ยวกับความภาคภูมิใจตนเองว่าเป็นความต้องการโดย

ธรรมชาติของมนุษย์อันเป็นเครื่องมือสำคัญควบคู่กับพัฒนาการและพฤติกรรม โดยมาสโลว์ได้จัดอันดับของความภาคภูมิใจในตนเองว่าเป็นความต้องการของมนุษย์ในขั้นของความต้องการชื่อเสียง ส่วนโรเจอร์ได้กล่าวถึงความภาคภูมิใจในตนเองว่าเป็นสิ่งที่ทำให้เกิดการยอมรับตนเอง และเกิดความสอดคล้อง นักจิตวิทยาทั้งสองคนมีความคิดเห็นตรงกันว่า ความภาคภูมิใจในตนเองจะนำไปสู่การเป็นมนุษย์ที่มีสุขภาวะที่ดี ในมุมมองของมนุษนิยมความภาคภูมิใจในตนเองมีความเกี่ยวข้องกับความสามารถในระดับสูงของมนุษย์ เช่น ความมีเหตุผล การตัดสินใจ และความรับผิดชอบ (Mrunk, 2006) บุคคลที่มีความภาคภูมิใจในตนเองสามารถปรับสมดุลระหว่างความสามารถตามที่เป็นจริงกับความสามารถที่อาจเกิดขึ้นได้ ซึ่งอยู่กับการตั้งเป้าหมายว่ามีความเหมาะสมกับสถานการณ์หรือสูงจนเกินไป หากบุคคลไม่สามารถจัดการความคิด และใช้อารมณ์มากกว่าเหตุผลอาจส่งผลต่อความภาคภูมิใจในตนเอง ซึ่งจะนำไปสู่ความรู้สึกท้อถอย การสงสัยและไม่แน่ใจในความสามารถของตนเอง และความกลัว ความเจ็บปวดทางด้านจิตใจ เช่น ความวิตกกังวลหรือความละอายใจ ความรู้สึกด้านลบที่เกิดขึ้นเหล่านี้จะถูกส่งไปยังจิตไร้สำนึกซึ่งไม่ได้ส่งผลดีกับบุคคลนั้น ความภาคภูมิใจในตนเองสัมพันธ์กับความเชื่อและคุณค่า (Buckler & Castle, 2014)

4. งานวิจัยที่เกี่ยวข้อง

เมธารัตน์ จันตะนี (2557) ศึกษาความต้องการพัฒนาอาชีพของผู้สูงอายุ ในตำบลสามบัณฑิต อำเภออุทัย จังหวัดพระนครศรีอยุธยา พบว่า ผู้สูงอายุส่วนใหญ่มีรายได้จากเงินสนับสนุนของรัฐบาล มีความรู้/ความถนัด ในอาชีพด้านเกษตรกรรม และในอนาคตต้องการประกอบอาชีพเกี่ยวกับด้านเกษตรกรรม มีความต้องการให้หน่วยงานรัฐบาลช่วยในเรื่องสนับสนุนงบประมาณให้องค์การบริหารส่วนตำบล (อบต.) เป็นผู้ดูแลคุณภาพชีวิตของผู้สูงอายุ และรัฐบาลช่วยเหลือผู้สูงอายุด้านเบี้ยยังชีพ

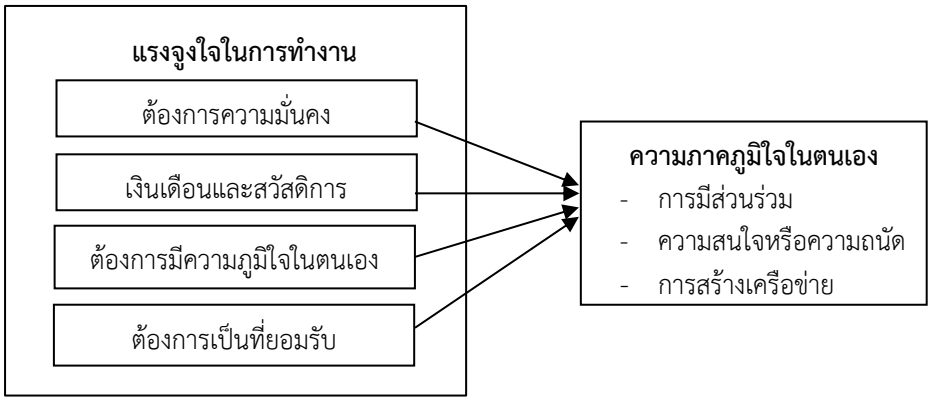
สุกัญญา หวันล่าโส๊ะ (2557) ศึกษาแนวทางการส่งเสริมอาชีพสำหรับผู้สูงอายุ เทศบาลตำบลบ้านไร่ อำเภอหาดใหญ่ จังหวัดสงขลา มีวัตถุประสงค์เพื่อศึกษาความต้องการของผู้สูงอายุในเรื่องการฝึกอบรมวิชาชีพ และแนวทางการส่งเสริมอาชีพผู้สูงอายุ เทศบาลตำบลบ้านไร่ อำเภอหาดใหญ่ จังหวัดสงขลา พบว่า ความต้องการของผู้สูงอายุในเรื่องการฝึกอบรมวิชาชีพ และแนวทางการส่งเสริมอาชีพผู้สูงอายุนั้น พบว่า ผู้สูงอายุมีความต้องการในการฝึกอบรมวิชาชีพ โดยอาชีพส่วนใหญ่ที่ผู้สูงอายุต้องการฝึกอบรม คือ อาชีพนวดแพทย์แผนไทย ทำลูกประคบ และอาชีพทำดอกไม้จัน ซึ่งหน่วยงานเทศบาลตำบลบ้านไร่ ควรมีการจัดอบรมให้ความรู้ ความเข้าใจโดยมีวิทยากรมาให้ความรู้ สร้างกิจกรรมสานความสัมพันธ์ในชุมชน สนับสนุนการรวมกลุ่มอาชีพ ส่งเสริมกลุ่มอาชีพในท้องถิ่นที่มีอยู่แล้ว ส่งเสริม สนับสนุน งบประมาณ วัสดุอุปกรณ์ เครื่องมือต่าง ๆ ที่เหมาะสมต่อการประกอบอาชีพ ควรมีการจัดตั้งแหล่งเงินทุน ส่งเสริมด้านการประชาสัมพันธ์ผลิตภัณฑ์ และจัดหาสถานที่จำหน่ายผลิตภัณฑ์ของชุมชน จัดวิทยากรมาอบรมให้ความรู้ด้านการบัญชีการจัดการการเงินและงบประมาณ การจัดการผลิต การจัดการทรัพยากรมนุษย์ การวางแผนและการจัดการตลาด จัดโครงการการส่งเสริมอาชีพในท้องถิ่น มีการติดตามประเมินผล ปรับปรุงแก้ไขพัฒนา เพื่อสร้างความเข้มแข็งในอาชีพตรงกับความต้องการของผู้สูงอายุในท้องถิ่น และให้สอดคล้องกับวิถีชีวิต โดยอาศัยภูมิปัญญาและทรัพยากรท้องถิ่นเพื่อเสริมสร้างสมรรถนะการสร้างผลผลิต และผลิตภัณฑ์ตลอดจนส่งเสริมอาชีพ สร้างโอกาสให้เกิดการทำงาน สร้างรายได้ สร้างความเข้มแข็งในอาชีพ อันเป็นประโยชน์ต่อการพัฒนาอาชีพและนำไปสู่ความต้องการของผู้สูงอายุอย่างแท้จริง

ชินวร เกื้อทาน และมาลี ไชยเสนา (2558) ศึกษาแนวทางการส่งเสริมอาชีพผู้สูงอายุในองค์การบริหารส่วนตำบลพรสวรรค์ อำเภอนาจะหลวย จังหวัดอุบลราชธานี พบว่า (1) สภาพการส่งเสริมอาชีพ

ผู้สูงอายุในองค์การบริหารส่วนตำบลพรสวรรค์ ไม่มีแผนงานที่ชัดเจนเป็นระบบ ไม่มีการกำหนดเวลาการดำเนินงานที่ชัดเจน เนื่องจากส่วนใหญ่มีการดำเนินการเพื่อขอรับการสนับสนุนงบประมาณจากหน่วยงานอื่น มีการดำเนินการแก้ไขปัญหาความเดือดร้อนโดยจัดสรรงบประมาณและฝึกอบรมให้ความรู้ในด้านอาชีพให้ตามความจำเป็น เนื่องจากงบประมาณมีจำกัด (2) แนวทางการพัฒนาการส่งเสริมอาชีพผู้สูงอายุควรให้ผู้ที่มีส่วนเกี่ยวข้องรวมถึงผู้สูงอายุร่วมประชุมเพื่อหาแนวทางส่งเสริมอาชีพร่วมกัน โดยวางแผนเป็นระบบชัดเจน และให้ความสำคัญกับการส่งเสริมอาชีพผู้สูงอายุโดยสนับสนุนงบประมาณ จัดหาวัสดุอุปกรณ์ และจัดฝึกอบรมให้แก่กลุ่มอาชีพผู้สูงอายุอย่างสม่ำเสมอ เพื่อสร้างความเข้มแข็งให้แก่ผู้สูงอายุมีอาชีพที่มั่นคง มีรายได้ที่เพียงพอแก่การยังชีพและพึ่งพาตนเองได้

นนทยา อิทธิชินบัญชร (2559) ได้ศึกษาแนวทางการสร้างอาชีพเพื่อเพิ่มมูลค่าทางเศรษฐกิจให้กับผู้สูงอายุในจังหวัดศรีสะเกษ มีวัตถุประสงค์เพื่อศึกษาศักยภาพและคุณค่าในตนเองของผู้สูงอายุใน จังหวัดศรีสะเกษ และเพื่อศึกษาแนวทางการสร้างอาชีพเพื่อเพิ่มมูลค่าทางเศรษฐกิจให้กับผู้สูงอายุในจังหวัดศรีสะเกษ ผลการศึกษาพบว่า การสังเคราะห์ข้อมูลเชิงอุปมาน (Inductive Method) ศักยภาพของผู้สูงอายุในจังหวัดศรีสะเกษ พบศักยภาพ 6 กลุ่ม ประกอบด้วย 1) กลุ่มช่างและการจักสาน 2) กลุ่มศิลปวัฒนธรรม 3) กลุ่มดูแลสุขภาพ 4) กลุ่มทอผ้าและปักผ้า 5) กลุ่มการทำเกษตรและเลี้ยงสัตว์ 6) กลุ่มประกอบการค้าขายและบริการ ซึ่งผู้สูงอายุในจังหวัดศรีสะเกษ มองเห็นคุณค่าตนเองอยู่ในระดับสูงมากในด้านภาคภูมิใจในตนเอง มองตนเองในแง่ดี มีความเคารพนับถือตนเอง ปัจจุบันยังมีอะไรที่น่าทำอีกมากมายในชีวิต และตนเองมีคุณค่าเท่าเทียมกับผู้อื่น สำหรับแนวทางในการสร้างอาชีพเพื่อเพิ่มมูลค่าทางเศรษฐกิจให้กับผู้สูงอายุในจังหวัดศรีสะเกษ เพื่อขับเคลื่อนในการนำไปสู่ความสำเร็จ (Success Model) จะใช้ PINS Model หรือโมเดลเข็มหมุด ประกอบด้วย ด้านการมีส่วนร่วม (Participation: P) ด้านความสนใจ ความถนัดของผู้สูงอายุ และผลประโยชน์ที่จะได้รับ (Interest: I) ด้านการสร้างเครือข่าย (Network: N) และด้านการสนับสนุนส่งเสริมจากภาครัฐและภาคเอกชน (Support: S)

จากการศึกษาแนวคิด ทฤษฎี และวรรณกรรมที่เกี่ยวข้องกับแรงจูงในการทำงานที่เกี่ยวข้องกับการประกอบอาชีพ การสร้างรายได้จากความสามารถของผู้สูงอายุ คณะผู้วิจัยจึงได้กำหนดกรอบในการวิจัย ดังภาพที่ 1 โดยมีตัวแปรอิสระคือปัจจัยแรงจูงใจในการทำงาน 4 ตัวแปร ประกอบด้วย ความต้องการความมั่นคง เงินเดือนและสวัสดิการ ต้องการมีความภูมิใจในตนเอง และต้องการเป็นที่ยอมรับ (นนทยา อิทธิชินบัญชร, 2559; สมภพ สุวรรณรัฐิ, 2563; พัชรพงศ์ ชวนชม, ธีระวัฒน์ จันทึก และพิทักษ์ ศิริวงศ์, 2561) ซึ่งเป็นตัวแปรตาม คือ ความภาคภูมิใจในตนเอง (ภูมิวัฒน์ พรวนสุข, 2558; นนทยา อิทธิชินบัญชร , 2559)



ภาพที่ 1 กรอบแนวคิดในการวิจัย

วิธีดำเนินการวิจัย

ผู้วิจัยได้ทำการศึกษา โดยเก็บข้อมูลจากกลุ่มผู้ที่มีอายุ 60 ปีขึ้นไปและอาศัยอยู่ในตำบลธารโต อำเภอธารโต จังหวัดยะลา ตั้งแต่ 1 ปีขึ้นไป วิธีการดำเนินการวิจัย ดังนี้

1. ประชากรและกลุ่มตัวอย่าง

ประชากรสำหรับการศึกษาครั้งนี้ คือ ผู้สูงอายุที่มีอายุเกินกว่า 60 ปีบริบูรณ์ขึ้นไป ที่อาศัยอยู่ในพื้นที่ตำบลธารโต อำเภอธารโต จังหวัดยะลา จำนวน 360 คน (กรมสนับสนุนบริการสุขภาพ, 2566)

กลุ่มตัวอย่างสำหรับการศึกษาครั้งนี้ คือ ผู้สูงอายุที่อาศัยอยู่ในพื้นที่ตำบลธารโต อำเภอธารโต จังหวัดยะลา มาเป็นเวลาตั้งแต่ 1 ปีขึ้นไป จำนวน 186 คน โดยการใช้ตารางสำเร็จรูปของ Krejcie and Morgan (1970) โดยใช้วิธีการสุ่มตัวอย่างแบบสะดวก (Convenience Sampling)

2. เครื่องมือที่ใช้ในการวิจัย

เครื่องมือที่ใช้ในการวิจัยใช้ในการวิจัย คือ แบบสอบถามมีโครงสร้าง (Structured Questionnaire) ในการเก็บรวมรวมข้อมูลจากกลุ่มตัวอย่างผู้สูงอายุในพื้นที่ตำบลธารโต อำเภอธารโต จังหวัดยะลา โดยแบบสอบถาม แบ่งออกเป็น 3 ตอน ดังนี้

ตอนที่ 1 ข้อมูลทั่วไปของผู้สูงอายุ มีลักษณะข้อคำถามเป็นแบบตรวจสอบรายการ (Checklist) ได้แก่ เพศ สถานภาพ ช่วงอายุ ระดับการศึกษา ระยะเวลาที่อาศัยอยู่ในตำบลธารโต อาชีพ รายได้ต่อเดือน และแหล่งรายได้หลัก

ตอนที่ 2 แรงจูงใจในการสร้างอาชีพของผู้สูงอายุ มีลักษณะข้อคำถามเป็นแบบมาตราส่วนประมาณค่า (Likert scale) ประกอบด้วย 4 ด้าน คือ ด้านต้องการความมั่นคง ด้านเงินเดือนและสวัสดิการที่ดี ด้านต้องการความภาคภูมิใจในตนเอง และด้านต้องการเป็นที่ยอมรับ

ตอนที่ 3 การสร้างอาชีพจากความสามารถของผู้อายุ มีลักษณะข้อคำถามเป็นแบบมาตราส่วนประมาณค่า (Likert scale) ประกอบด้วย 3 ด้าน ดังนี้ ด้านการมีส่วนร่วม ด้านความสนใจหรือความถนัด และด้านการสร้างเครือข่าย

3. การตรวจสอบคุณภาพของแบบสอบถาม

คณะผู้วิจัยได้ดำเนินการตรวจสอบคุณภาพของแบบสอบถามด้วยความเที่ยงตรง โดยได้ค่าดัชนีความสอดคล้องระหว่างข้อคำถามกับวัตถุประสงค์หรือเนื้อหา (IOC: Index of Item Objective Congruence) อยู่ระหว่าง 0.67 – 1.00 และการทดสอบความเชื่อมั่น (Reliability) ของแบบสอบถามโดยการหาค่าแอลฟ่าของครอนบาคที่ค่าความเชื่อมั่น 95% ในงานวิจัยนี้ค่าความเชื่อมั่นของแบบสอบถามทั้งฉบับมีค่าเท่ากับ 0.899

4. ผู้วิจัยได้ทำการรวบรวมข้อมูลปฐมภูมิ (Primary Data) จากแบบสอบถามซึ่งผ่านการตรวจสอบและแก้ไขแล้ว โดยผู้วิจัยและผู้ช่วยนักวิจัยสอบถามและรับคืนแบบสอบถามด้วยตนเองจากกลุ่มตัวอย่างผู้ที่มีอายุ 60 ปีขึ้นไป จำนวน 186 คน ผู้วิจัยนำข้อมูลที่ได้จากการเก็บรวบรวมมาวิเคราะห์ข้อมูลโดยใช้โปรแกรมสำเร็จรูป ด้วยสถิติเชิงพรรณนา ประกอบด้วย ค่าความถี่ (Frequency) ค่าร้อยละ (Percentage) ค่าเฉลี่ยเลขคณิต (Mean) และส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation) และในส่วนของการวิเคราะห์ข้อมูลปัจจัยด้านอาชีพที่มีอิทธิพลต่อการสร้างอาชีพของผู้สูงอายุในพื้นที่ตำบลธารโต อำเภอธารโต จังหวัดยะลา ใช้สถิติสหสัมพันธ์แบบเพียร์สัน (Pearson Product Moment Correlation) และสมการถดถอยพหุคูณ (Multiple Regression) แบบปกติ (Enter) เพื่อหาอำนาจในการพยากรณ์

ผลการวิจัย

1. ข้อมูลทั่วไปของผู้สูงอายุ พบว่า กลุ่มตัวอย่างผู้สูงอายุ จำนวน 186 คน ส่วนใหญ่เป็นผู้สูงอายุผู้หญิง ร้อยละ 50.50 มีสถานภาพคืออาศัยอยู่กับคู่สมรส ร้อยละ 62.20 มีอายุระหว่าง 60 – 64 ปี ร้อยละ 38.20 มีการศึกษาระดับประถม ร้อยละ 58.10 ระยะเวลาที่อยู่อาศัยในพื้นที่ตำบลธารโต อำเภอธารโต จังหวัดยะลา ตั้งแต่ 61 ปีขึ้นไป ร้อยละ 27.40 โดยมีอาชีพเกษตรกร ร้อยละ 61.30 มีรายได้ต่อเดือน 5,001 – 10,000 บาท ร้อยละ 26.90 และมีแหล่งรายได้หลักมาจากการทำงาน ร้อยละ 50.00

2. ระดับแรงจูงใจในการทำงาน (ประกอบอาชีพ) ภาพรวมอยู่ในระดับมาก ($\overline{X}$ = 3.59, SD = 0.13) เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านที่มีแรงจูงใจมากที่สุด คือ ต้องการความมั่นคงอยู่ในระดับมาก ($\overline{X}$ = 3.75, SD = 0.03) รองลงมา คือ เงินเดือนและสวัสดิการที่ดีอยู่ในระดับมาก ($\overline{X}$ = 3.62, SD = 0.06) ต้องการมีความภูมิใจในตนเองอยู่ในระดับมาก ($\overline{X}$ = 3.52, SD = 0.04) และน้อยที่สุด คือ ต้องการเป็นที่ยอมรับอยู่ในระดับปานกลาง ($\overline{X}$ = 3.46, SD = 0.06)

3. ระดับความภาคภูมิใจในตนเองของผู้สูงอายุ ภาพรวมอยู่ในระดับมาก ($\overline{X}$ = 3.71, SD = 0.15) เมื่อพิจารณาเป็นรายด้าน พบว่า ด้านที่มีค่าเฉลี่ยมากที่สุด คือ ความสนใจหรือความถนัดอยู่ในระดับมาก ($\overline{X}$ = 3.84, SD = 0.07) รองลงมา คือ การมีส่วนร่วมอยู่ในระดับมาก ($\overline{X}$ = 3.81, SD = 0.05) และน้อยที่สุด คือ การสร้างเครือข่ายอยู่ในระดับปานกลาง ($\overline{X}$ = 3.56, SD = 0.05)

4. ผลการวิเคราะห์ค่าสัมประสิทธิ์สหสัมพันธ์ระหว่างปัจจัยแรงจูงใจในการทำงานที่มีผลต่อความภาคภูมิใจในตนเองของผู้สูงอายุ พบว่า มีตัวแปรอิสระ 4 ตัวแปร ที่มีความสัมพันธ์กับความภาคภูมิใจในตนเองของผู้สูงอายุ อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.01 คือ ต้องการเป็นที่ยอมรับมีความสัมพันธ์ทางบวกต่อความภาคภูมิใจในตนเองของผู้สูงอายุ ($r = 0.520, p < 0.01$) มากที่สุด รองลงมาคือต้องการความมั่นคงมีความสัมพันธ์ทางบวกต่อความภาคภูมิใจในตนเองของผู้สูงอายุ ($r = 0.447, p < 0.01$) เงินเดือนและสวัสดิการที่ดีมีความสัมพันธ์ทางบวกต่อความภาคภูมิใจในตนเองของผู้สูงอายุ ($r = 0.417, p < 0.01$) และต้องการมีความภูมิใจในตนเองมีความสัมพันธ์ทางบวกต่อความภาคภูมิใจในตนเองของผู้สูงอายุ ($r = 0.411, p < 0.01$) ดังตารางที่ 1

ตารางที่ 1 แสดงการวิเคราะห์ค่าสัมประสิทธิ์สหสัมพันธ์ของเพียร์สันระหว่างปัจจัยแรงจูงใจในการทำงานที่มีผลต่อความภาคภูมิใจในตนเอง

ปัจจัย		X_1	X_2	X_3	X_4	Y
ต้องการความมั่นคง	X_1	-				
เงินเดือนและสวัสดิการที่ดี	X_2	0.634**	-			
ต้องการมีความภูมิใจในตนเอง	X_3	0.506**	0.454**	-		
ต้องการเป็นที่ยอมรับ	X_4	0.452**	0.521**	0.498**	-	
ความภาคภูมิใจในตนเอง	Y	0.447**	0.417**	0.411**	0.520**	-

** มีนัยสำคัญทางสถิติที่ ระดับ .01 * มีนัยสำคัญทางสถิติที่ ระดับ .05

5. ผลการวิเคราะห์ค่าสัมประสิทธิ์ถดถอยพหุคูณแบบปกติ (Enter Multiple Regression Analysis) ของปัจจัยแรงจูงใจในการทำงานที่ส่งผลต่อความภาคภูมิใจในตนเอง (Self - esteem) ของผู้สูงอายุในชุมชนธารโต จังหวัดยะลา

ในการทดสอบสมมติฐานใช้การวิเคราะห์การถดถอยพหุคูณ (Multiple Linear Regression) คณะผู้วิจัยได้ดำเนินการตรวจสอบเงื่อนไขของการวิเคราะห์การถดถอย ดังนี้

1. ค่าเฉลี่ยของค่าคลาดเคลื่อน = 0 จากการทดสอบค่าเฉลี่ยของค่าคลาดเคลื่อน พบว่า มีค่า t = .000, df = 185, Sig. = 1.00 ซึ่งมีค่ามากกว่า α = .05 ดังนั้นจึงยอมรับ H_0 กล่าว คือ ค่าเฉลี่ยของค่าคลาดเคลื่อน = 0

2. ค่าคลาดเคลื่อนมีการแจกแจงแบบปกติ จากการทดสอบการแจกแจงโดยใช้สถิติ Kolmogorov -Smirnov Test (K - S Test) พบว่า มีค่า Statistic = .076, df = 186, Sig. = .101 ซึ่งมีค่ามากกว่า α = .05 ดังนั้นจึงยอมรับ H_0 กล่าว คือ ค่าคลาดเคลื่อนมีการแจกแจงแบบปกติ

3. ค่าคลาดเคลื่อนต้องเป็นอิสระกัน (Autocorrelation) จากการทดสอบด้วยสถิติ Durbin – Watson พบว่า มีค่าเท่ากับ 2.160 โดยค่าดังกล่าวอยู่ระหว่าง 1.5 และ 2.5 ดังนั้นจึงยอมรับ H_0 กล่าวคือ ค่าคลาดเคลื่อนเป็นอิสระกัน

4. ตัวแปรอิสระแต่ละตัวต้องไม่มีความสัมพันธ์กัน (Multicollinearity) จากการทดสอบโดยใช้สถิติ Tolerance และ Variance Inflation Factor (VIF) พบว่า ค่า Tolerance ของตัวแปรมีค่าเท่ากับ 0.676, 0.324, 0.405 และ 0.184 ส่วนค่า Variance Inflation Factor (VIF) มีค่าเท่ากับ 1.48, 3.086, 2.472 และ 5.428 จากค่าดังกล่าว ค่าสถิติTolerance ของตัวแปรมีค่าไม่ใกล้ศูนย์ 0 และมีค่า Variance Inflation Factor มีค่าน้อยกว่า 10 ทุกตัว ดังนั้นจึงสรุปได้ว่า ตัวแปรอิสระทุกตัวไม่มีระดับความสัมพันธ์ซึ่งกันและกัน เป็นตัวแปรที่อิสระต่อกัน ซึ่งถือว่าระดับความสัมพันธ์ของตัวแปรอิสระทุกตัวไม่ก่อให้เกิด Multicollinearity

ในการทดสอบข้อตกลงเบื้องต้น พบว่า เป็นไปตามเงื่อนไขที่กำหนดไว้ ดังนั้นข้อมูลดังกล่าวนี้สามารถใช้สถิติการถดถอยพหุคูณ (Multiple Linear Regression) ในการวิเคราะห์ข้อมูลได้ โดยกลุ่มตัวอย่างคือผู้สูงอายุในพื้นที่ตำบลธารโต อำเภอธารโต จังหวัดยะลา จำนวน 186 ตัวอย่าง ตัวแปรพยากรณ์ที่ส่งผลต่อความภาคภูมิใจในตนเองของผู้สูงอายุ อย่างมีนัยสำคัญที่ระดับ 0.01 คือ ต้องการเป็นที่ยอมรับ และตัวแปรพยากรณ์ที่ส่งผลต่อความภาคภูมิใจในตนเองของผู้สูงอายุ อย่างมีนัยสำคัญที่ระดับ 0.05 คือต้องการความมั่นคง ซึ่งส่งผลทางบวก มีค่าสัมประสิทธิ์สหสัมพันธ์พหูคูณ (R) เท่ากับ 0.581 มีอำนาจการพยากรณ์ร้อยละ 33.8 และพบว่า ตัวแปรทำนาย มีความสัมพันธ์ทางบวกกับความสามารถของผู้สูงอายุที่นัยสำคัญทางสถิติที่ระดับ 0.01 ดังตารางที่ 2 - 3

ตารางที่ 2 แสดงผลการวิเคราะห์สหสัมพันธ์พหุคูณกำลังสองของค่าสหสัมพันธ์พหุคูณที่ปรับแก้ และค่าความคลาดเคลื่อนมาตรฐาน

Model	R	R Square	Adjusted R Square	Std. Error Of the Estimate
1	0.581	0.338	0.323	0.426

ตารางที่ 3 แสดงความแปรปรวนที่ได้จากการวิเคราะห์การถดถอยพหุคูณแบบปกติ

Source of Variation	SS	df	MS	F	Sig.
Regression	16.767	4	4.192	23.103**	0.000
Residual	32.839	181	0.181		
Total	49.606	185			

** มีนัยสำคัญทางสถิติที่ ระดับ .01

ตารางที่ 4 แสดงผลการวิเคราะห์การถดถอยพหุคูณแบบปกติ

ตัวแปร		b	SE_b	β	t	Sig.
ต้องการความมั่นคง	X_1	0.147	0.062	0.195	8.077	0.020*
เงินเดือนและสวัสดิการที่ดี	X_2	0.051	0.068	0.063	2.355	0.450
ต้องการมีความภูมิใจในตนเอง	X_3	0.095	0.063	0.114	0.757	0.132
ต้องการเป็นที่ยอมรับ	X_4	0.259	0.057	0.342	1.512	0.000**
R = 0.581	R^2 = 0.338			F = 42.014**		
SE_{est}= 0.426	R^2_{adj} = 0.323			a = 1.486		

** มีนัยสำคัญทางสถิติที่ ระดับ .01, * มีนัยสำคัญทางสถิติที่ ระดับ .05

จากตารางที่ 4 พบว่า ปัจจัยด้านความต้องการความมั่นคง (X_1) ด้านเงินเดือนและสวัสดิการที่ดี (X_2) ด้านต้องการมีความภูมิใจในตนเอง (X_3) และด้านต้องการเป็นที่ยอมรับ (X_4) มีค่าสัมประสิทธิ์ถดถอย (b) ที่ 0.147, 0.051, 0.095 และ 0.259 ตามลำดับ ในขณะที่ค่าสัมประสิทธิ์การถดถอยมาตรฐาน (β) อยู่ที่ 0.195, 0.063, 0.114 และ 0.342 ตามลำดับ ปัจจัยทั้ง 4 ด้านรวมกันส่งผลต่อความภาคภูมิใจในตนเองของผู้สูงอายุ โดยมีค่าสัมประสิทธ์สหสัมพันธ์พหุคูณ (R) เท่ากับ 0.581 ค่าความคลาดเคลื่อนมาตรฐานของการพยากรณ์เท่ากับ 0.426 ตัวแปรพยากรณ์ที่ส่งผลทางบวกต่อความภาคภูมิใจในตนเองของผู้สูงอายุ อย่างมีนัยสำคัญทางสถิติที่ 0.01 คือ ความต้องการเป็นที่ยอมรับ (X_4) และตัวแปรพยากรณ์ที่ส่งผลทางบวกต่อความภาคภูมิใจในตนเองของผู้สูงอายุ อย่างมีนัยสำคัญทางสถิติที่ 0.05 คือความต้องการความมั่นคง (X_1)

สรุปและอภิปรายผล

สรุปผล

กลุ่มตัวอย่างผู้สูงอายุ จำนวน 186 คน พบว่า ส่วนใหญ่เป็นผู้สูงอายุผู้หญิง ร้อยละ 50.50 มีสถานภาพคืออาศัยอยู่กับคู่สมรส ร้อยละ 62.20 มีอายุระหว่าง 60 – 64 ปี ร้อยละ 38.20 มีการศึกษาระดับประถม ร้อยละ 58.10 ระยะเวลาที่อยู่อาศัยในพื้นที่ตำบลธารโต อำเภอธารโต จังหวัดยะลา ตั้งแต่ 61 ปีขึ้นไป ร้อยละ 27.40 โดยมีอาชีพเกษตรกร ร้อยละ 61.30 มีรายได้ต่อเดือน 5,001 – 10,000 บาท ร้อยละ 26.90 และมีแหล่งรายได้หลักมาจากการทำงาน ร้อยละ 50.00 กลุ่มตัวอย่างผู้สูงอายุในพื้นที่ตำบลธารโต อำเภอธารโต จังหวัดยะลา จำนวน 186 คน เมื่อพิจารณาค่าสัมประสิทธิ์สหสัมพันธ์ระหว่างการสร้างอาชีพของผู้สูงอายุกับตัวแปรอื่น ๆ พบว่า มีตัวแปรอิสระ 4 ตัวแปร ที่มีความสัมพันธ์กับความภาคภูมิใจในตนเองของผู้สูงอายุ อย่างมีนัยสำคัญทางสถิติที่ระดับ .01 คือ ต้องการเป็นที่ยอมรับมีความสัมพันธ์ทางบวกต่อความภาคภูมิใจในตนเองของผู้สูงอายุ ($r = 0.520, p < 0.01$) มากที่สุด รองลงมาคือต้องการความมั่นคงมีความสัมพันธ์ทางบวกต่อความภาคภูมิใจในตนเองของผู้สูงอายุ ($r = 0.447, p < 0.01$) เงินเดือนและสวัสดิการที่ดีมีความสัมพันธ์ทางบวกต่อความภาคภูมิใจในตนเองของผู้สูงอายุ ($r = 0.417, p < 0.01$) และต้องการมีความภูมิใจในตนเองมีความสัมพันธ์ทางบวกต่อความภาคภูมิใจในตนเองของผู้สูงอายุ ($r = 0.411, p < 0.01$) กลุ่มตัวอย่างคือ ผู้สูงอายุในพื้นที่ตำบลธารโต อำเภอธารโต จังหวัดยะลา จำนวน 186 ตัวอย่าง ตัวแปรพยากรณ์ที่ส่งผลต่อความภาคภูมิใจในตนเองของผู้สูงอายุ อย่างมีนัยสำคัญที่ระดับ 0.01 คือ ต้องการเป็นที่ยอมรับ และตัวแปรพยากรณ์ที่ส่งผลต่อความภาคภูมิใจในตนเองของผู้สูงอายุ อย่างมีนัยสำคัญที่ระดับ 0.05 คือ ต้องการความมั่นคง ซึ่งส่งผลทางบวก

มีค่าสัมประสิทธิ์สหสัมพันธ์พหูคูณ (R) เท่ากับ 0.581 มีอำนาจการพยากรณ์ร้อยละ 33.8 กลุ่มตัวอย่างคือ ผู้สูงอายุในพื้นที่ตำบลธารโต อำเภอธารโต จังหวัดยะลา จำนวน 186 ตัวอย่าง พบว่า ตัวแปรย่อยที่มีอำนาจในการพยากรณ์ความภาคภูมิใจในตนเองของผู้สูงอายุ อย่างมีนัยสำคัญทางสถิติที่เรียงลำดับดังนี้ คือ ต้องการเป็นที่ยอมรับ (t = 5.871, sig. = 0.000) และต้องการความมั่นคง (t = -3.921, sig. = 0.000) มีค่าสัมประสิทธิ์สหสัมพันธ์พหูคูณ (R) เท่ากับ 0.572 มีอำนาจการพยากรณ์ร้อยละ 32.7 ค่าความคลาดเคลื่อนมาตรฐานของการพยากรณ์ (SE_{est}) เท่ากับ 0.427

อภิปายผล

จากการศึกษาข้อมูลพื้นฐานของผู้สูงอายุ ตำบลธารโต อำเภอธารโต จังหวัดยะลา จำนวน 186 คน พบว่าผู้สูงอายุส่วนใหญ่เป็นผู้หญิง อาศัยอยู่กับคู่สมรส มีอายุระหว่าง 60 – 64 ปี มีการศึกษาระดับประถม มีรายได้ต่อเดือน 5,001 – 10,000 บาท และมีแหล่งรายได้หลักมาจากการทำงานด้วยตนเอง สอดคล้องกับผลการวิจัยของ สมภพ สุวรรณรัฐ (2563) เรื่องรูปแบบการส่งเสริมอาชีพเพื่อพัฒนาคุณภาพชีวิตผู้สูงอายุในเขตภาคกลาง พบว่า ความมั่นคงทางเศรษฐกิจของผู้สูงอายุ อยู่ในระดับต่ำ เนื่องจากรายได้ต่อเดือนน้อย และมีเงินออมน้อยเมื่อเปรียบเทียบกับรายจ่าย และพบว่า ผู้สูงอายุบางส่วนมีหนี้สินที่ต้องจ่ายเป็นรายเดือนอีกด้วย สิ่งเหล่านี้เป็นปัญหาด้านการเงินของผู้สูงอายุ ซึ่งสอดคล้องกับ ภูมิวัตน์ พรวนสุข (2558) พบว่า ปัญหาการพัฒนาคุณภาพชีวิตของผู้สูงอายุคือ ปัญหาด้านการเงินและการงานอยู่ในระดับมาก เนื่องจากหน่วยงานในท้องถิ่นมีงบประมาณในการส่งเสริมอาชีพ ความรู้ และทักษะเกี่ยวกับการประกอบอาชีพไม่เพียงพอ จึงทำให้ผู้สูงอายุไม่สามารถหารายได้เพิ่มจากการประกอบอาชีพที่เหมาะสมกับความสามารถหรือศักยภาพที่มีอยู่ในขณะที่รายจ่ายเพิ่มขึ้นจากสภาวะเศรษฐกิจที่เปลี่ยนแปลง จึงทำให้คนกลุ่มนี้ต้องพึงพาสวัสดิการของภาครัฐ

จากการศึกษาปัจจัยแรงจูงใจในการทำงานที่ส่งผลต่อความภาคภูมิใจในตนเองของผู้สูงอายุตำบลธารโต อำเภอธารโต จังหวัดยะลา ด้วยการพิจารณาค่าสัมประสิทธิ์สัมพันธ์ระหว่างความสามารถของผู้สูงอายุกับตัวแปรอื่น ๆ พบว่า ปัจจัยแรงจูงใจที่มีผลต่อความภาคภูมิใจในตนเองของผู้สูงอายุ มี 2 ตัวแปร ดังนี้

1. ความต้องการเป็นที่ยอมรับมีความสัมพันธ์ทางบวกกับความภาคภูมิใจในตนเองของผู้สูงอายุ จากการทดสอบสมมุติฐาน พบว่า ความต้องการเป็นที่อย่างรับมีความสัมพันธ์ทางบวกกับความภาคภูมิใจในตนเองของผู้สูงอายุ อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.01 ทั้งนี้อาจเป็นเพราะความภาคภูมิใจในตนเองในส่วนของความต้องการเป็นที่ยอมรับเทียบเท่าได้กับความต้องการของมนุษย์ในขั้นของความต้องการชื่อเสียงตามทฤษฎีความต้องการตามลำดับขั้นพื้นฐานของมัสโลว์ (Maslow, 1970) ด้านความต้องการเป็นที่ยอมรับของคนในครอบครัว เพื่อนฝูง หรือคนรอบข้าง ด้วยการรับรู้ความเคลื่อนไหวและข่าวสารในชุมชน หรือการให้ความสนใจอาชีพของคนในชุมชน รวมถึงการมีส่วนร่วมแสดงความคิดเห็นหรือการเสนอแนวทางแก้ไขปัญหาอุปสรรคต่าง ๆ เกี่ยวกับอาชีพของคนในชุมชน เพื่อให้ได้ข้อมูลมาวิเคราะห์อาชีพและทำให้ผู้สูงอายุเกิดแรงจูงใจในการเลือกประกอบอาชีพ สอดคล้องกับ พัชรพงศ์ ชวนชม และคณะ (2561) พบว่า ผู้สูงอายุให้ความสำคัญกับงานหรือกิจกรรมที่ได้รับการยอมรับจากสังคมและคนรอบข้าง โดยเฉพาะงานประเภทด้านให้คำปรึกษา ให้คำแนะนำ หรืองานที่ต้องใช้ประสบการณ์และความสัมพันธ์ที่สั่งสมมาก่อนวัยผู้สูงอายุ สอดคล้องกับ ลิขิตา เฉลิมพลโยธิน และคณะ (2561) กล่าวว่า ความสามารถของผู้สูงอายุที่มีประสบการณ์และมีความรู้ จะสามารถถ่ายทอดประสบการณ์ต่าง ๆ เพื่อเป็นภูมิปัญญาให้ชนรุ่นหลังได้สืบทอดได้ ซึ่งประสบการณ์และความรู้เหล่านี้จะส่งผลต่อความพึงพอใจ ความมั่นคง ความสำเร็จในการประกอบอาชีพ และทำให้เกิดสิทธิผลประโยชน์ที่จะได้รับในอนาคตทั้งที่รูปแบบเงิน สวัสดิการต่าง ๆ จนเป็นที่ยอมรับของสังคม เพื่อสนองความต้องการของผู้สูงอายุให้เกิดแรงจูงใจและกำลังใจในการประกอบอาชีพยิ่งขึ้น

2. ความต้องการความมั่นคงมีความสัมพันธ์ทางบวกกับความภาคภูมิใจในตนเองของผู้สูงอายุ การทดสอบสมมุติฐาน พบว่า ความต้องการความมั่นคงมีความสัมพันธ์ทางบวกกับความภาคภูมิใจในตนเองของผู้สูงอายุ อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.01 ทั้งนี้อาจเป็นเพราะการมีความมั่นคงในขณะที่ตนเองอายุมากนั้นย่อมแสดงออกได้ถึงความสามารถในการทำงานและส่งผลให้มีสถานะทางการเงินที่มีความมั่นคงเพียงพอที่จะดูแลตนเองได้โดยที่ไม่ต้องเป็นภาระแก่ครอบครัวและสังคม เช่นเดียวกับโรเจอร์ ได้กล่าวถึงความภาคภูมิใจในตนเองว่าเป็นสิ่งที่ทำให้เกิดการยอมรับตนเอง และความภาคภูมิใจในตนเองจะนำไปสู่การเป็นมนุษย์ที่มีสุขภาวะที่ดี ซึ่งการประกอบอาชีพที่มีโอกาสก้าวหน้า มีความมั่นคง มีรายได้สม่ำเสมอ และสามารถทำได้จนถึงวัยเกษียณอายุ สอดคล้อง สำนักงานส่งเสริมและสนับสนุนวิชาการ 3, กระทรวงการพัฒนาสังคมและความมั่นคงของมนุษย์ (2558) ศึกษาการจัดสวัสดิการที่เหมาะสมสำหรับผู้สูงอายุในแต่ละช่วงวัย กล่าวว่า วัยผู้สูงอายุที่มีเรื่องของสมรรถภาพร่างกายเข้ามาเกี่ยวข้องกับการทำงานหารายได้ ว่ามีข้อจำกัดมากมาย ในขณะเดียวกันผู้สูงอายุจำนวนหนึ่งยังคงต้องทำงานหารายได้อยู่ด้วยเหตุผลหลายประการ ซึ่งงานที่ทำและค่าตอบแทนที่ได้รับเป็นไปตามศักยภาพและความสามารถตามความถนัด ดังนั้นรายได้หรือค่าตอบแทนที่ผู้สูงอายุได้รับไม่เพียงพอกับค่าใช้จ่ายในการดำรงชีพส่งผลให้ความสุขลดลง สอดคล้องกับ สาธิตา พงษ์เสน่ห์ (2562) ศึกษาความพึงพอใจในชีวิตของผู้สูงอายุชมรมผู้สูงอายุ เทศบาลตำบลโนนสูง อำเภอขุนหาญ จังหวัดศรีสะเกษ พบว่า ผู้สูงอายุที่การประกอบอาชีพและความเพียงพอของรายได้ต่างกัน มีความพึงพอใจในชีวิตแตกต่างกันกล่าวได้ว่า ผู้สูงอายุที่ประกอบอาชีพมีความพึงพอใจในชีวิตสูงกว่าผู้สูงอายุที่ไม่ได้ประกอบอาชีพ เพราะผู้สูงอายุในพื้นที่ตำบลธารโตมีอาชีพเกษตรกรและสามารถทำงานได้ตามสภาพร่างกายถึงแม้ว่าจะเป็นผู้สูงวัยก็ตาม โดยค่าจ้างหรือรายได้ที่ได้รับจะขึ้นอยู่กับผลผลิตและฤดูกาล ส่งผลให้สถานการณ์ด้านการเงินของผู้สูงอายุในบางช่วงเวลาจึงไม่เพียงพอกับค่าใช้จ่าย ดังนั้นแรงจูงใจในการเลือกประกอบอาชีพของผู้สูงอายุจึงเป็นเรื่องของความมั่นคงทางด้านอาชีพและการมีรายได้สม่ำเสมอ

ข้อเสนอแนะ

1. จากผลการวิจัย พบว่า ต้องการความมั่นคงและต้องการเป็นที่ยอมรับส่งผลต่อความภาคภูมิใจในตนเองของผู้สูงอายุ ดังนั้นการส่งเสริมให้ผู้สูงอายุมีทักษะและความสามารถในการประกอบอาชีพก็จะทำให้ผู้สูงอายุเห็นคุณค่าในตนก่อให้เกิดความภาคภูมิใจในตนเองทำให้มีความสุขในการดำรงชีวิตและไม่มองว่าตนเองเป็นภาระของบุคคลรอบข้าง

2. หน่วยงานที่เกี่ยวข้อง ได้แก่ องค์การบริหารส่วนตำบล ส่วนท้องถิ่น สำนักงานพัฒนาสังคมและความมั่นคงของมนุษย์ สำนักงานแรงงาน และหน่วยงานที่เกี่ยวข้องกับสวัสดิการคุ้มครองแรงงาน ควรสนับสนุนในการนำแนวทางการพัฒนาอาชีพของผู้สูงอายุผ่านตัวแทนในชุมชน กรรมการชุมชน หรือโรงเรียน/วัด/มัสยิดในชุมชน ไปสู่การสร้างรายได้ในการประกอบอาชีพให้ผู้สูงอายุในชุมชนอย่างต่อเนื่องเพื่อให้ผู้สูงอายุมีรายได้เพิ่มและลดการพึงพาสวัสดิการของรัฐเป็นรายได้หลัก

3. หน่วยงานภาครัฐ ระดับภูมิภาค ระดับจังหวัด ระดับท้องถิ่น ควรเตรียมการให้ความรู้ ความเข้าใจกับผู้ที่กำลังเข้าสู่ช่วงผู้สูงวัย เพื่อเตรียมความพร้อมในการประกอบอาชีพที่ต่อเนื่องจากอาชีพเดิมหรือการประกอบอาชีพที่เหมาะสมกับความสามารถหรือความถนัดของผู้สูงอายุ รวมทั้งการส่งเสริมให้ผู้สูงอายุมีส่วนร่วมในกิจกรรมการพัฒนาอาชีพและกิจกรรมนันทนาการที่มุ่งให้ผู้สูงอายุเกิดการพัฒนาความสามารถอย่างต่อเนื่อง

4. โรงเรียน/วัด/มัสยิด ควรสร้างเครือข่ายการทำงานร่วมกับชุมชนในการพัฒนาการประกอบอาชีพสำหรับผู้สูงอายุ โดยการให้ข้อมูลการประกอบอาชีพหรือการฝึกทักษะอาชีพต่าง ๆ รวมถึงการจัดกิจกรรมต่าง ๆ ที่ส่งเสริมความสามารถและความถนัดของผู้สูงอายุ โดยการส่งเสริมให้มีการรวมกลุ่มของคนหลายช่วงวัย เพื่อให้เกิดการแลกเปลี่ยนเรียนรู้ซึ่งกันและกัน

เอกสารอ้างอิง

กระทรวงพัฒนาสังคมและความมั่นคงของมนุษย์. (2554). พระราชบัญญัติผู้สูงอายุ พ.ศ. 2553. กรุงเทพฯ: สำนักส่งเสริมและพิทักษ์ผู้สูงอายุ.

กรมกิจการผู้สูงอายุ. (2560). ชุดความรู้การดูแลตนเองและพัฒนาศักยภาพผู้สูงอายุ ด้านความมั่นคงในชีวิต. กรุงเทพฯ: กระทรวงการพัฒนาสังคมและความมั่นคงของมนุษย์.

กรมสนับสนุนบริการสุขภาพ. (2566). รายงานข้อมูลอำเภอธารโต จังหวัดยะลา. นนทบุรี: กรมสนับสนุนบริการสุขภาพ.

กรมแรงงาน. (2560). แผนปฏิบัติการประจำปีงบประมาณ พ.ศ. 2560. กรุงเทพฯ: กระทรวงแรงงาน.

ชินวร เกื้อทาน และมาลี ไชยเสนา. (2558, มีนาคม 29). แนวทางการส่งเสริมอาชีพผู้สูงอายุในองค์การบริหารส่วนตำบลพรสวรรค์ อำเภอนาจะหลวย จังหวัดอุบลราชธานี. การประชุมวิชาการนำเสนอผลงานวิจัยระดับบัณฑิตศึกษา. ครั้งที่ 7. มหาวิทยาลัยราชภัฏอุบลราชธานี, อุบลราชธานี.

ธนาคารแห่งประเทศไทย. (2561). รายงานสถานการณ์ผู้สูงอายุในประเทศไทย. กรุงเทพฯ: ธนาคารแห่งประเทศไทย.

นนทยา อิทธิชินบัญชร. (2559). แนวทางการสร้างอาชีพเพื่อเพิ่มมูลค่าทางเศรษฐกิจให้กับผู้สูงอายุในจังหวัดศรีสะเกษ. วารสารปัญญาภิวัฒน์, 8(1), 111–121.

ประชาชาติธุรกิจ. (2561). ความต้องการจ้างแรงงานผู้สูงอายุในภาคเศรษฐกิจ. สืบค้นเมื่อ 7 มีนาคม 2566 จาก https://www.prachachat.net/sd-plus/sdplus-sustainability/news-1573608

พัชรพงศ์ ชวนชม, ธีระวัฒน์ จันทึก และพิทักษ์ ศิริวงศ์. (2561). ลักษณะงานที่เหมาะสมกับแรงงานผู้สูงอายุ. Journal of Humanities and Social Sciences Valaya Alongkorn, 13(1), 107-116.

ภูมิวัฒน์ พรวนสุข. (2558). แนวทางการพัฒนาคุณภาพชีวิตผู้สูงอายุขององค์กรปกครองส่วนท้องถิ่นในเขตจังหวัดแพร่. วารสารบัณฑิตวิทยาลัยพิชญทรรศน์, 10(1), 83-93.

มหาวิทยาลัยมหาสารคาม. (2558). E-learning การจูงใจหรือแรงจูงใจ (Motivation). มหาสารคาม: มหาวิทยาลัยมหาสารคาม.

เมธารัตน์ จันตะนี. (2557). ศึกษาความต้องการพัฒนาอาชีพของผู้สูงอายุในตำบลสามบัณฑิต อำเภออุทัย จังหวัดพระนครศรีอยุธยา. วารสารวิจัยราชภัฏกรุงเก่า สาขามนุษยศาสตร์และสังคมศาสตร์, 1(1), 1–6.

ลิขิตา เฉลิมพลโยธิน, ประสพชัย พสุนนท์ และธีรวัฒน์ จันทึก. (2561). ปัจจัยที่มีผลต่อขวัญกำลังใจในการปฏิบัติงานของพนักงานระดับปฏิบัติการในโรงแรม เขตอำเภอหัวหิน. Journal of Humanities and Social Sciences Thonburi University, 12(28), 212–222.

ศุภชัย ศรีสุชาติ. (2562). รายงานศึกษาวิจัยทิศทางการจ้างงานของประเทศไทยในยุคอุตสาหกรรม 4.0. กรุงเทพฯ: สำนักงานศูนย์วิจัยและให้คำปรึกษาแห่งมหาวิทยาลัยธรรมศาสตร์.

สาธิตา พงษ์เสน่ห์. (2562). ความพึงพอใจในชีวิตของผู้สูงอายุ ชมรมผู้สูงอายุเทศบาลตำบลโนนสูง อำเภอขุนหาญ จังหวัดศรีสะเกษ. สืบค้นเมื่อ 7 มีนาคม 2566 จาก https://www.researchgate.net/profile/Psychology-And-Guidance-Silpakorn2/publication/341998699_khwamphungphxcinichiwitkhxngphusungxayu_chmrmphusungxayuthesbaltablnonsung_xaphexkhunhay_canghwadsrisakes/links/5eddca2c92851c9c5e8f9f12/khwamphungphxcinichiwitkhxngphusungxayuchmrmphusungxayu thesbaltablnonsung-xaphexkhunhaycanghwadsrisakes.pdf

สุกัญญา หวันลำโส๊ะ. (2557, พฤษภาคม 9). แนวทางการส่งเสริมอาชีพสำหรับผู้สูงอายุเทศบาลตำบลบ้านไร่ อำเภอหาดใหญ่จังหวัดสงขลา. การประชุมหาดใหญ่วิชาการระดับชาติและนานาชาติ ครั้งที่ 5, มหาวิทยาลัยหาดใหญ่, สงขลา.

สมภพ สุวรรณรัฐ. (2563). รูปแบบการส่งเสริมอาชีพเพื่อพัฒนาคุณภาพชีวิตผู้สูงอายุในเขตภาคกลาง. วารสารวิชาการ สถาบันการอาชีวศึกษาภาคเหนือ, 3(4), 311–320.

สำนักงานส่งเสริมและสนับสนุนวิชาการ 3, กระทรวงการพัฒนาสังคมและความมั่นคงของมนุษย์. (2558). คู่มือการศึกษาการส่งเสริมรูปแบบการจัดสวัสดิการสังคมแก่เครือข่าย. กรุงเทพฯ: กระทรวงการพัฒนาสังคมและความมั่นคงของมนุษย์.

อรนุช ศรีบาล. (2559). การวางแผนในการประกอบอาชีพของนักศึกษาคณะศิลปกรรมศาสตร์ มหาวิทยาลัยธรรมศาสตร์ ศูนย์รังสิต. สารนิพนธ์ศิลปศาสตรมหาบัณฑิต, มหาวิทยาลัยธรรมศาสตร์, ปทุมธานี.

Anderman, E. M. & Anderman, L. M. (2014). Classroom motivation. New Jersey: Pearson.

Arking, R., & Arking, B. (2006). Biology of aging: observations and principles. Oxford: University Press.

Bergeman, C. S. (1997). Aging: Genetic and environmental influences. New York: Sage Publications.

Buckler, S. & Castle, S. (2014). Psychology for teacher. California: Sage.

Drolet, A., Schwarz, N., & Yoon, C. (2010). The aging consumer: Perspectives from psychology and economics. New York: Routledge.

Krejcie, R. V. & Morgan, D. W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30 (3), 607-610.

Maslow, A. (1970). Motivation and personality (2nd ed.). New York: Harpers and Row.

Masoro, E. J. (2006). Caloric restriction and aging: controversial issues. The Journals of Gerontology Series A: Biological Sciences and Medical Sciences, 61(1), 14-19.

Mrunk, C. J. (2006). Self – esteem research, theory, and practice. (3rd ed.). New York: Springer.

Orth, U., Robins, R. W., Widaman, K. F., & Conger, R. D. (2013). Is low self-esteem a risk factor for depression? Findings from a longitudinal study of mexican-origin youth. Developmental Psychology, 50, 622-633. http://dx.doi.org/10.1037/a0033817

World Health Organization. (2000). The world health report 2000 – health systems: improving performance. Geneva: World Health Organization.

ปัจจัยที่มีอิทธิพลต่อการตัดสินใจเลือกซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ของนักศึกษามหาวิทยาลัยหาดใหญ่

Factors Influencing the Decision to Purchase Products Through Online and Offline Channels Among Hatyai University Students

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บทคัดย่อ

การซื้อสินค้าออนไลน์ในยุคปัจจุบันได้รับความนิยมเพิ่มขึ้นอย่างต่อเนื่อง โดยเฉพาะกลุ่มนักศึกษา ซึ่งเป็นผู้บริโภคที่คุ้นชินกับเทคโนโลยีและมีพฤติกรรมการบริโภคที่เปลี่ยนแปลงไป งานวิจัยนี้มีวัตถุประสงค์เพื่อ 1) เพื่อศึกษาปัจจัยที่มีอิทธิพลต่อการตัดสินใจเลือกซื้อสินค้าผ่านช่องทางออนไลน์ ของนักศึกษามหาวิทยาลัยหาดใหญ่ และ 2) เพื่อเปรียบเทียบพฤติกรรมการซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ โดยใช้ระเบียบวิธีวิจัยเชิงปริมาณ กลุ่มตัวอย่างเป็นนักศึกษามหาวิทยาลัยหาดใหญ่ จำนวน 507 คน ซึ่งถูกสุ่มเลือกแบบสุ่มอย่างง่าย (Simple Random Sampling) เก็บรวบรวมข้อมูลโดยใช้แบบสอบถาม และวิเคราะห์ข้อมูลด้วยสถิติเชิงพรรณนา ได้แก่ ค่าเฉลี่ย ร้อยละ และส่วนเบี่ยงเบนมาตรฐาน และการวิเคราะห์เปรียบเทียบ การทดสอบค่า t-test และ ANOVA และการวิเคราะห์ความสัมพันธ์ การวิเคราะห์สัมประสิทธิ์สหสัมพันธ์ (Correlation)

ผลการศึกษา พบว่า พฤติกรรมการเลือกซื้อในด้าน ความเชื่อว่าคุณภาพของสินค้าออนไลน์ดีกว่า มีค่า F = 1.184 และค่า Sig = 0.307 ซึ่งมากกว่า 0.05 แสดงว่าไม่มีความแตกต่างที่มีนัยสำคัญทางสถิติ

ด้านความสะดวกในการซื้อผ่านออนไลน์ มีค่า F = 1.547, p = 0.214 ด้านช่องทางที่ใช้บ่อยที่สุด มีค่า F = 0.845, p = 0.430 ด้านประสบการณ์การซื้อที่ดี มีค่า F = 0.398, p = 0.672 แสดงให้เห็นว่านักศึกษาไม่มีความแตกต่างในระดับนัยสำคัญ ระหว่างช่องทางการซื้อทั้งสามกลุ่ม (ออนไลน์, ออฟไลน์ และทั้งสองช่องทางร่วมกัน) และจากผลการวิเคราะห์ Tukey HSD ยืนยันว่าไม่มีคู่กลุ่มใดมีความแตกต่างของค่าเฉลี่ยอย่างมีนัยสำคัญเช่นกัน การวิเคราะห์ความสัมพันธ์ระหว่างปัจจัย (Correlation Analysis) สำหรับการวิเคราะห์ความสัมพันธ์โดยใช้ Pearson's Correlation Coefficient ระหว่างตัวแปรปัจจัยกับพฤติกรรมการซื้อสินค้า พบว่า ความสะดวกสบายในการใช้งานเว็บไซต์หรือแอปพลิเคชัน มีความสัมพันธ์เชิงบวก ในระดับปานกลาง (r = 0.496, p < 0.01) กับการเลือกซื้อสินค้าออนไลน์ ความน่าเชื่อถือของผู้ขายมีความสัมพันธ์เชิงบวกในระดับต่ำถึงปานกลาง (r = 0.312, p < 0.01) โปรโมชั่นและส่วนลดมีความสัมพันธ์ในระดับต่ำ (r = 0.280, p < 0.05) กับพฤติกรรมการซื้อซ้ำ ผลดังกล่าวแสดงให้เห็นว่า ปัจจัยต่าง ๆ โดยเฉพาะ "ความสะดวก" และ "ความน่าเชื่อถือ" มีบทบาทต่อการตัดสินใจซื้ออย่างมีนัยสำคัญ แม้ว่าความสัมพันธ์จะไม่อยู่ในระดับสูงมากนัก

คำสำคัญ: ซื้อสินค้าออนไลน์, พฤติกรรมผู้บริโภค, ปัจจัยที่มีอิทธิพล คุณภาพของสินค้า, ความสะดวกสบาย, การตลาดดิจิทัล, นักศึกษา

Abstract

The growing prevalence of online shopping has notably influenced consumer behavior, particularly among university students who are well-acquainted with digital technologies. This study aims to 1) examine the factors influencing online purchasing decisions among students at Hatyai University, and 2) compare consumer behaviors between online and offline shopping channels. A quantitative research design was employed, utilizing a sample of 507 students selected through simple random sampling. Data were collected via structured questionnaires and analyzed using descriptive statistics (mean, percentage, standard deviation), inferential statistics (t-test and ANOVA), and correlation analysis.

The study revealed that purchasing behavior regarding the belief that the quality of products purchased online is better showed an F-value of 1.184 and a significance level (Sig.) of 0.307, which is greater than 0.05, indicating no statistically significant difference. Similarly, the factor of convenience in purchasing online yielded an F-value of 1.547 (p = 0.214), the most frequently used purchasing channel had an F-value of 0.845 (p = 0.430), and the experience of having a good shopping experience resulted in an F-value of 0.398 (p = 0.672). These results suggest that there are no statistically significant differences among the three groups (online, offline, and both online and offline channels). Additionally, the Tukey HSD test confirmed that there were no significant differences in the mean scores among any of the pairwise comparisons. The correlation analysis using Pearson's Correlation Coefficient between influencing factors and purchasing behavior showed that: Convenience in using websites or applications had a moderate positive

correlation with online purchasing behavior ($r = 0.496$, $p < 0.01$). Seller credibility had a low to moderate positive correlation ($r = 0.312$, $p < 0.01$). Promotions and discounts had a low-level correlation ($r = 0.280$, $p < 0.05$) with repeat purchasing behavior.

These results indicate that various factors especially “convenience” and “credibility” play a statistically significant role in students’ purchasing decisions, although the strength of the correlations was not high.

Keywords: Online shopping, Consumer behavior, Influencing factors, Digital marketing, University students

บทนำ

ปัจจุบันเทคโนโลยีดิจิทัลมีบทบาทสำคัญในการเปลี่ยนแปลงพฤติกรรมของผู้บริโภค โดยเฉพาะในด้านการซื้อขายสินค้า และบริการผ่านแพลตฟอร์มอีคอมเมิร์ซและโซเชียลมีเดียต่าง ๆ อุตสาหกรรมการค้าออนไลน์ (E-Commerce) ได้เติบโตอย่างก้าวกระโดดในช่วงทศวรรษที่ผ่านมา จากข้อมูลของสำนักงานพัฒนาธุรกรรมทางอิเล็กทรอนิกส์ (ETDA) รายงานว่าในปี 2566 มูลค่าอีคอมเมิร์ซของไทยจะเพิ่มขึ้นเป็น 5.96 ล้านล้านบาท จาก 5.43 ล้านล้านบาท ในปี 2565 โดยมีอุตสาหกรรมที่เติบโตมากที่สุด คือ อุตสาหกรรมประกันภัย ที่คาดว่าจะเติบโตสูงถึง ร้อยละ 31 รองลงมาคือ อุตสาหกรรมศิลปะและความบันเทิง และการค้าปลีกและค้าส่งที่เติบโตตามลำดับ โดยเฉพาะการซื้อสินค้าผ่านช่องทางออนไลน์ที่ได้รับความนิยมมากขึ้นในกลุ่มนักศึกษาและเยาวชน ซึ่งมีความคุ้นเคยกับเทคโนโลยีและสะดวกสบายในการจับจ่ายซื้อสินค้าออนไลน์ สืบเนื่องจาก ความก้าวหน้าของอินเทอร์เน็ต สมาร์ตโฟน และโครงสร้างพื้นฐานด้านเทคโนโลยีที่เอื้ออำนวยต่อการทำ ธุรกรรมออนไลน์ การซื้อขายผ่านแพลตฟอร์มดิจิทัลได้รับความนิยมเพิ่มขึ้นอย่างต่อเนื่อง โดยเฉพาะในหมู่เยาวชนและนักศึกษา ซึ่งเป็นกลุ่มที่มีความคุ้นเคยกับเทคโนโลยี และมีพฤติกรรม การบริโภค ที่เปลี่ยนแปลงไปตามกระแสของสื่อออนไลน์

สำนักงานพัฒนาธุรกรรมทางอิเล็กทรอนิกส์ (ETDA) (2566) ระบุว่า คนไทยใช้เวลาเฉลี่ยมากกว่า 8 ชั่วโมงต่อวันบนอินเทอร์เน็ต โดยการซื้อขายผ่านช่องทางออนไลน์คิดเป็นสัดส่วนที่เพิ่มขึ้นทุกปี มูลค่าของธุรกิจอีคอมเมิร์ซในประเทศไทยในปี 2566 อยู่ที่มากกว่า 700,000 ล้านบาท ซึ่งสะท้อนให้เห็นถึงแนวโน้มของผู้บริโภคที่หันมาซื้อสินค้าผ่านช่องทางดิจิทัลมากขึ้น นอกจากนี้ ข้อมูลจาก Statista (2023) ยังระบุว่าประเทศไทยติดอันดับต้น ๆ ของประเทศในเอเชียตะวันออกเฉียงใต้ที่มีอัตราการเติบโตของตลาดอีคอมเมิร์ซสูง โดยเฉพาะกลุ่มผลิตภัณฑ์แฟชั่น อุปกรณ์อิเล็กทรอนิกส์ และสินค้าสุขภาพ และความงาม

การซื้อสินค้าผ่านช่องทางออนไลน์มีข้อดีหลายประการ เช่น ความสะดวกสบาย ในการสั่งซื้อและจัดส่งสินค้า ความสามารถในการเปรียบเทียบราคาจากหลายแหล่งในเวลาเดียวกัน รวมถึงโปรโมชั่นที่ดึงดูดใจ เช่น ส่วนลด คูปอง และระบบสะสมแต้ม ซึ่งเป็นกลยุทธ์ทางการตลาด ที่ช่วยกระตุ้นให้ผู้บริโภคตัดสินใจซื้อได้ง่ายขึ้น (Kotler & Keller, 2022) อย่างไรก็ตาม พฤติกรรมการตัดสินใจซื้อของผู้บริโภคในช่องทางออนไลน์ไม่ได้ขึ้นอยู่กับเพียงปัจจัยทางการตลาดเท่านั้น แต่ยังเกี่ยวข้องกับปัจจัยอื่น ๆ เช่น ความน่าเชื่อถือของร้านค้า คุณภาพของสินค้า ความปลอดภัย ของระบบการชำระเงิน และรีวิวจากผู้บริโภคคนอื่น ๆ ซึ่งเป็นข้อมูลสำคัญที่มีผลต่อการตัดสินใจซื้อ (Solomon, 2020)

นอกจากนี้ ปัจจัยทางจิตวิทยาและสังคมยังมีบทบาทสำคัญ ต่อพฤติกรรมการซื้อสินค้า ของนักศึกษา โดยเฉพาะอิทธิพลจากเพื่อน กลยุทธ์ทางการตลาดผ่านผู้มีอิทธิพล (Influencer Marketing)

และกระแสทางสังคมที่เปลี่ยนแปลงไปในแต่ละช่วงเวลา (Davis, 1989) นักศึกษาส่วนใหญ่มักมีแนวโน้มที่จะพึ่งพาความคิดเห็นของบุคคลอื่นในการตัดสินใจซื้อสินค้า โดยเฉพาะรีวิวจากผู้ใช้งานจริง หรือการแนะนำจากบุคคลที่พวกเขาเชื่อถือ

ประกอบกับ การแข่งขันในตลาดอีคอมเมิร์ซกำลังรุนแรงขึ้น โดยธุรกิจต่าง ๆ ต้องแข่งขันกันเพื่อสร้างประสบการณ์การซื้อสินค้าที่ดีที่สุดให้กับลูกค้า โดยเน้นการพัฒนาฟีเจอร์ใหม่ ๆ เช่น การพัฒนาระบบรีวิว, โปรโมชั่นที่ดึงดูดลูกค้า และการใช้เทคโนโลยีใหม่ ๆ เช่น ปัญญาประดิษฐ์ (AI) และ Affiliate Marketing เพื่อเพิ่มยอดขาย แต่ในขณะเดียวกันก็ยังมีผู้ประกอบการบางส่วนที่ยังไม่กล้าที่จะใช้เทคโนโลยีเหล่านี้ เนื่องจากขาดทรัพยากรที่เพียงพอหรือความมั่นใจในความเหมาะสมของเทคโนโลยีในธุรกิจของตน

แม้ว่าการซื้อสินค้าออนไลน์จะได้รับความนิยมสูง แต่การศึกษาเกี่ยวกับพฤติกรรมและปัจจัยที่มีผลต่อ การตัดสินใจซื้อของนักศึกษามหาวิทยาลัยหาดใหญ่ยังมีอยู่อย่างจำกัดงานวิจัยนี้ จึงมุ่งเน้นไปที่การศึกษาปัจจัยที่มีผลต่อการตัดสินใจซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ ของนักศึกษามหาวิทยาลัยหาดใหญ่ โดยพิจารณาปัจจัยด้านคุณภาพของสินค้า ความสะดวกสบาย ในการใช้งานเว็บไซต์ หรือ แอปพลิเคชัน ระบบการชำระเงิน ความน่าเชื่อถือของผู้ขาย รวมถึงอิทธิพลทางสังคมและจิตวิทยา ที่ส่งผลต่อการเลือกซื้อสินค้าออนไลน์และออฟไลน์

การซื้อสินค้าผ่านช่องทางออนไลน์มีข้อดีหลายประการ เช่น ความสะดวกสบาย ในการ สั่งซื้อและจัดส่งสินค้า ความสามารถในการเปรียบเทียบราคาจากหลายแหล่งในเวลาเดียวกัน รวมถึง โปรโมชั่นที่ดึงดูดใจ เช่น ส่วนลด คูปอง และระบบสะสมแต้ม (Kotler & Keller, 2022) อย่างไรก็ตาม ยังมีปัจจัยหลายประการที่มีผลต่อการตัดสินใจซื้อของนักศึกษา ซึ่งอาจเป็นได้ทั้งปัจจัยทางบวกและปัจจัยที่ทำให้เกิดความลังเล เช่น ความน่าเชื่อถือของร้านค้า คุณภาพของสินค้า ความปลอดภัย ของระบบการชำระเงิน และรีวิวจากผู้บริโภคคนอื่น ๆ (Solomon, 2020) นอกจากนี้ ยังมีปัจจัย ด้านจิตวิทยาและสังคมที่มีผลต่อการตัดสินใจซื้อ เช่น อิทธิพลจากเพื่อน การตลาดผ่านผู้มีอิทธิพล (Influencer Marketing) และกระแสนิยมในช่วงเวลาต่าง ๆ (Davis, 1989)

การซื้อสินค้าออนไลน์และออฟไลน์ ซึ่งได้รับความนิยมสูง แต่การศึกษาเกี่ยวกับพฤติกรรม และปัจจัยที่มีผลอิทธิพลการตัดสินใจซื้อของนักศึกษามหาวิทยาลัยหาดใหญ่ยังมีอยู่อย่างจำกัด งานวิจัยนี้ จึงมีเป้าหมาย เพื่อศึกษาปัจจัยที่มีผลต่อการตัดสินใจซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ของนักศึกษามหาวิทยาลัยหาดใหญ่ ซึ่งกลุ่มนักศึกษามหาวิทยาลัยหาดใหญ่ มีความชัดเจนทั้งในด้านการสะท้อนพฤติกรรมผู้บริโภคในยุคดิจิทัล, ความสำคัญในฐานะผู้บริโภคหลักในตลาดอีคอมเมิร์ซ, ความสะดวกในการเข้าถึงกลุ่มตัวอย่างที่มีความหลากหลาย, และผลกระทบที่สามารถนำไปใช้พัฒนากลยุทธ์การตลาดในท้องถิ่นได้อย่างมีประสิทธิภาพ โดยจะวิเคราะห์ปัจจัยต่าง ๆ เช่น คุณภาพของสินค้า ความสะดวกสบายในการใช้งานเว็บไซต์ หรือ แอปพลิเคชัน ระบบการชำระเงิน ความน่าเชื่อถือของผู้ขาย รวมถึงปัจจัยด้านสังคมและจิตวิทยา (สำนักงานพัฒนาธุรกรรมทางอิเล็กทรอนิกส์ (ETDA), 2566 ; Statista, 2023) ผลที่ได้จากการศึกษานี้ สามารถนำไปใช้ประโยชน์ในการปรับกลยุทธ์ ทางการตลาดของธุรกิจอีคอมเมิร์ซให้เหมาะสมกับกลุ่มเป้าหมายและช่วยให้ภาคธุรกิจ สามารถพัฒนาบริการที่ตอบสนองต่อความต้องการของนักศึกษาได้ดียิ่งขึ้น

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาปัจจัยที่มีอิทธิพลต่อการตัดสินใจซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ของนักศึกษามหาวิทยาลัยหาดใหญ่

2. เพื่อเปรียบเทียบพฤติกรรมการซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ของนักศึกษามหาวิทยาลัยหาดใหญ่

แนวคิด ทฤษฎี กรอบแนวคิด

ในยุคดิจิทัลปัจจุบันเทคโนโลยีได้เข้ามามีบทบาทสำคัญ ในการเปลี่ยนแปลงพฤติกรรมรูปแบบการซื้อขายสินค้า ส่งผลให้รูปแบบการดำเนินธุรกิจและพฤติกรรมผู้บริโภคเปลี่ยนแปลงไปจากเดิม โดยเฉพาะการซื้อสินค้าออนไลน์ ซึ่งกลายเป็นทางเลือกหลักของผู้บริโภค อย่างไรก็ตาม ช่องทางการซื้อสินค้ายังคงมีทั้งในรูปแบบออนไลน์และออฟไลน์ ซึ่งมีลักษณะและประสบการณ์ในการซื้อสินค้าที่แตกต่างกันไปจากพฤติกรรมผู้บริโภค เนื่องจากผู้ซื้อไม่จำเป็นต้องซื้อจากร้านค้าปลีก หรือผู้ขายและโรงงานผลิตสินค้าสามารถขายสินค้าให้กับผู้บริโภคได้โดยผ่านช่องทางการขายออนไลน์ (e-marketplace) ด้วยการส่งสินค้าผ่านธุรกิจบริการส่งพัสดุ (Delivery Service) และรับชำระเงินผ่านระบบ รับชำระเงินออนไลน์ (e-payment) เป็นต้น

1. ทฤษฎี TRB (Theory of Reasoned Behavior) หรือ ทฤษฎีพฤติกรรมที่มีเหตุผล เป็นทฤษฎีที่พัฒนาโดย Ajzen และ Fishbein ในปี 1975 เพื่ออธิบายพฤติกรรมของบุคคล โดยมองว่าพฤติกรรมของบุคคลไม่ได้เกิดจากปัจจัยภายนอก หรือสภาวะอารมณ์เพียงอย่างเดียว แต่เกิดจากการตัดสินใจที่มีเหตุผลโดยใช้ความคิดที่มีเหตุผลอย่างมีการวางแผน (Reasoned)

ประเด็นหลักของทฤษฎี TRB พฤติกรรมที่มีเหตุผล : พฤติกรรมของบุคคลเกิดจากการประเมินและตัดสินใจที่คำนึงถึงผลลัพธ์และเหตุผลที่เกี่ยวข้องกับพฤติกรรมนั้น ๆ บุคคลจะพิจารณาความคิดเห็นเกี่ยวกับพฤติกรรมและผลที่ตามมาก่อนที่จะดำเนินการทำพฤติกรรมนั้น

ตัวแปรหลักที่มีผลต่อการตัดสินใจ เจตจำนง (Intention) : ความตั้งใจในการทำพฤติกรรมหนึ่ง ๆ ซึ่งถือเป็นตัวแปรที่สำคัญที่สุดในทฤษฎี TRB เพราะมันเป็นตัวบ่งชี้ว่าบุคคลจะทำพฤติกรรมหรือไม่

ทัศนคติ (Attitude) : ความรู้สึกที่ดีหรือไม่ดีที่บุคคลมีต่อพฤติกรรมนั้น ๆ ซึ่งสามารถส่งผลกระทบต่อเจตจำนง

บรรทัดฐานทางสังคม (Subjective Norm) : ความเชื่อที่บุคคลมีเกี่ยวกับว่าผู้อื่นคาดหวังหรือสนับสนุนพฤติกรรมนั้น ๆ หรือไม่ ซึ่งทำให้พฤติกรรมมีแนวโน้มที่จะเกิดขึ้นตามความคิดเห็นของผู้อื่น

การเชื่อมโยงของตัวแปร : ทฤษฎี TRB อธิบายว่าการตัดสินใจที่จะทำพฤติกรรมหนึ่ง ๆ ขึ้นอยู่กับทั้งทัศนคติและบรรทัดฐานทางสังคม ซึ่งในที่สุดจะส่งผลต่อเจตจำนงและพฤติกรรมที่เกิดขึ้นจริง

เจตจำนง (Intention) เป็นตัวแปรหลักในการทำนายพฤติกรรม : หากบุคคลมีเจตจำนงที่แรงในการทำพฤติกรรมหนึ่ง พวกเขาจะมีแนวโน้มที่จะดำเนินการทำพฤติกรรมนั้น ๆ ในที่สุด

ช่องทางออนไลน์ (Online) หมายถึง เป็นการใช้สื่อรูปแบบออนไลน์เพื่อเจาะจงไปที่กลุ่มเป้าหมายผ่านทางข้อความ ภาพ เสียง วิดีโอ โดยใช้ช่องทางในรูปแบบแอพพลิเคชั่น และแพลตฟอร์มต่าง ๆ เช่น Facebook, Line, Email, Instagram, Search Engine เป็นต้น โดยแต่ละช่องทางมีวัตถุประสงค์ ในการทำการตลาดที่แตกต่างกัน

ช่องทางออฟไลน์ (Offline) หมายถึง การทำการตลาดในรูปแบบไม่มีการใช้ Internet โดยจะเน้นสื่อสารด้านเดียว เช่น ห้างสรรพสินค้า หนังสือพิมพ์ นิตยสาร โทรทัศน์ วิทยุ ป้ายโฆษณา Call Center เป็นต้น

พฤติกรรมผู้บริโภค คือ การตัดสินใจที่จะซื้อสินค้าหรือบริการ ถ้าซื้อจะซื้อที่ไหน เมื่อไร อย่างไร และซื้อจากใคร พฤติกรรมของมนุษย์ในการตัดสินใจซื้อสินค้าและบริการนั้น เพื่อตอบสนองความต้องการและความพึงพอใจของตนเอง

2. แนวคิดทฤษฎีที่เกี่ยวกับการศึกษาพฤติกรรมการเลือกซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ ได้แก่

2.1 ทฤษฎีความต้องการของมาสโลว์ (Maslow's Hierarchy of Needs) การตอบสนองความต้องการเพื่อให้เกิดความพึงพอใจของผู้บริโภคจะเกิดขึ้นได้ เมื่อสอดคล้องกับความต้องการพื้นฐานไปสู่ความต้องการที่สูงขึ้น ซึ่งพฤติกรรมผู้บริโภคเป็นเรื่องของการศึกษา การตอบ สนองความต้องการและความจำเป็น (Needs) ของผู้บริโภคเพื่อให้เกิดความพอใจ (Satisfaction) และการเข้าใจกระบวนการตัดสินใจซื้อสินค้าของ Phillip Kotler เป็นแนวทางสำคัญจะช่วยให้ผู้ขาย เข้าใจพฤติกรรมผู้บริโภคและสามารถวางกลยุทธ์เพื่อกระตุ้นให้เกิดการซื้อได้ (Maslow, A. H., 1943)

2.2 ทฤษฎีการยอมรับเทคโนโลยี (Technology Acceptance Model – TAM) ทฤษฎีนี้อธิบายว่าผู้บริโภคยอมรับและใช้งานเทคโนโลยี เช่น แพลตฟอร์มออนไลน์ โดยมี ปัจจัยหลัก 2 ประการที่ส่งผลต่อการเลือกซื้อสินค้าออนไลน์ คือ การรับรู้ประโยชน์ และการรับรู้ ความง่ายในการใช้งาน ซึ่งหากแพลตฟอร์มหรือช่องทางการซื้อออนไลน์ใช้งานง่าย และให้ประโยชน์กับผู้บริโภคก็จะช่วยกระตุ้นให้เกิดพฤติกรรมการซื้อสินค้าออนไลน์ โดยผ่านกระบวนการตัดสินใจซื้อของ Phillip Kotler เช่นกัน (Davis, 1989)

2.3 ทฤษฎีการรับรู้ความเสี่ยง (Perceived Risk Theory)

เป็นแนวคิดที่อธิบายว่าผู้บริโภครับรู้ถึงความเสี่ยงที่อาจเกิดขึ้นจากการตัดสินใจซื้อสินค้า และบริการอย่างไร โดยเฉพาะในการซื้อสินค้าออนไลน์ ซึ่งนักวิจัยหลายคนได้ศึกษาและขยายความแนวคิดนี้ไว้ดังนี้

Martin and Camarero (2008) กล่าวว่า การรับรู้ความเสี่ยง ในการซื้อสินค้าหรือใช้บริการออนไลน์ของลูกค้านั้น ขึ้นอยู่กับการเก็บข้อมูลส่วนตัวของลูกค้าที่เหมาะสม และมีการรักษาความปลอดภัยหากมีการเปิดเผยให้ทราบถึงข้อมูลของผู้จำหน่าย และรายละเอียดข้อมูลสินค้าหรือบริการครบถ้วนไม่เกิดข้อสงสัย ก็จะทำให้ผู้บริโภคมีการรับรู้ความเสี่ยงอยู่ในระดับต่ำ ซึ่งผู้บริโภคมีแนวโน้มจะค้นหาข้อมูลมากขึ้นก่อนตัดสินใจซื้อ

อดุลย์ จาตุรงคกุล และ ดลยา จาตุรงคกุล (2550) อธิบายว่า ปัจจัยสำคัญที่เกี่ยวข้องกับกระบวนการตัดสินใจซื้อของผู้บริโภค คือ ระดับความเสี่ยง (Level of Risk) ที่ผู้บริโภคสามารถรับรู้ได้ ความเสี่ยงเกี่ยวข้องกับความแน่นอนของการซื้อและผลที่เกิดขึ้นภายหลังจากการตัดสินใจซื้อสินค้าใด ๆ จะเกิดการรับรู้ความเสี่ยงของบุคคล เนื่องจากผู้ซื้อมีประสบการณ์ในสินค้านั้น ๆ

ศิริวรรณ เสรีรัตน์ (2563) กล่าวว่า การรับรู้ความเสี่ยง หมายถึง การที่ผู้บริโภครับรู้ถึงความเสี่ยงที่อาจเกิดขึ้นเมื่อซื้อผลิตภัณฑ์ไป โดยตราสินค้าจะเป็นหลักประกันตัวผลิตภัณฑ์ ทำให้ลดความเสี่ยงในการตัดสินใจซื้อผลิตภัณฑ์และผู้บริโภคอาจรับรู้ถึงความเสี่ยงที่แตกต่างกัน ในการซื้อและบริโภค ผลิตภัณฑ์ ซึ่งพบว่า ความเสี่ยงด้านคุณภาพและความเสี่ยงด้านความปลอดภัยมีอิทธิพลมากที่สุด ต่อการตัดสินใจของผู้บริโภคในการซื้อสินค้าออนไลน์

2.4 แนวคิดเกี่ยวกับการตลาดออฟไลน์

การตลาดออฟไลน์ (Offline Marketing) หมายถึง กลยุทธ์และกิจกรรมการตลาดที่ใช้ช่องทางและเครื่องมือที่ไม่ได้ใช้เทคโนโลยีดิจิทัลหรืออินเทอร์เน็ต เพื่อโปรโมทสินค้าหรือบริการการตลาดออฟไลน์มักเน้นการสร้างความสัมพันธ์ที่มีความเป็นส่วนตัวและสามารถจับต้องได้มากกว่า โดยการเข้าถึงลูกค้าโดยตรงผ่านช่องทางที่มีการสัมผัสจริง (Kotler & Keller, 2016) แม้ว่าในยุคดิจิทัลการตลาดออนไลน์จะเติบโตขึ้นอย่างรวดเร็ว แต่การตลาดออฟไลน์ยังคงมีบทบาทสำคัญ ในการเข้าถึงกลุ่มลูกค้าหลากหลาย โดยเฉพาะกลุ่มที่ยังพึ่งพาสื่อดั้งเดิม หรือมองหาประสบการณ์ที่จับต้องได้

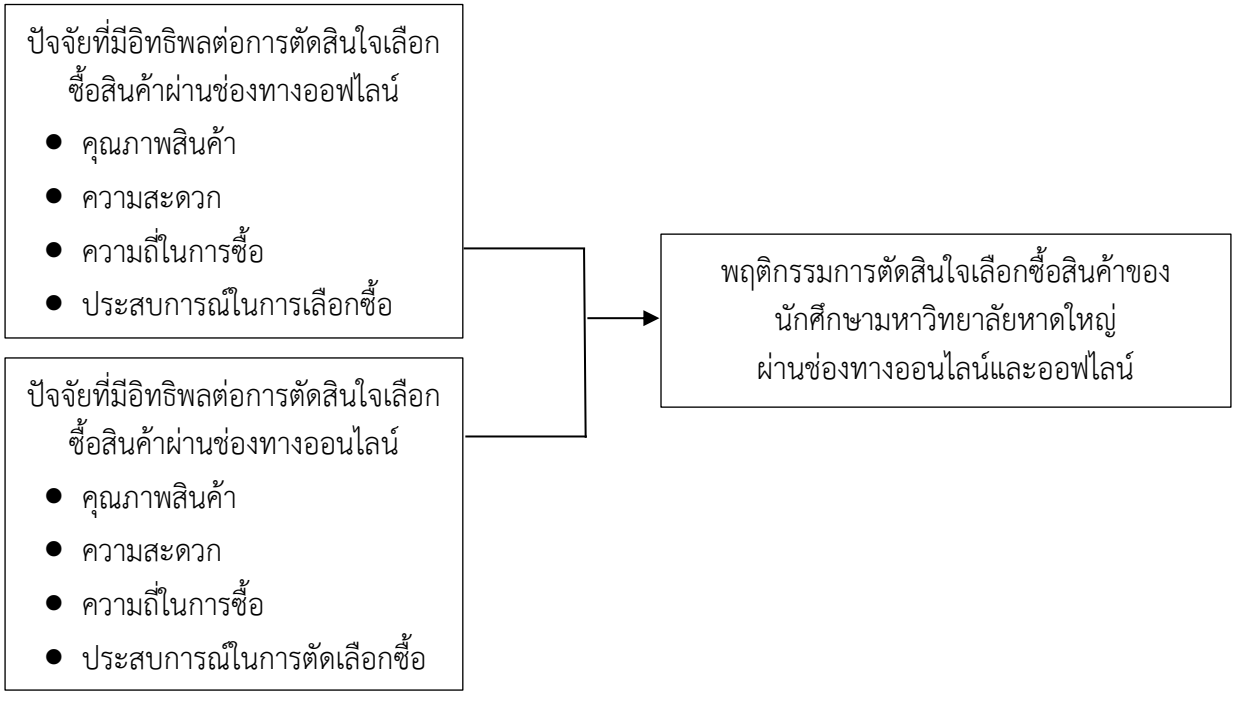
แนวคิดเกี่ยวกับการตลาดออนไลน์

การตลาดออนไลน์ (Online Marketing) หมายถึง การใช้เทคโนโลยีดิจิทัลและช่องทางออนไลน์เพื่อโปรโมทสินค้าหรือบริการ โดยมุ่งเน้นการเข้าถึงกลุ่มเป้าหมายอย่างมีประสิทธิภาพผ่านแพลตฟอร์มต่าง ๆ ที่มีอยู่ในอินเทอร์เน็ต เช่น เว็บไซต์ โซเชียลมีเดีย อีเมล และโฆษณาออนไลน์ การตลาดออนไลน์จึงเป็นเครื่องมือสำคัญที่ช่วยธุรกิจ ในการสร้างการรับรู้และเพิ่มยอดขายธุรกิจสามารถเชื่อมต่อและสร้างความสัมพันธ์กับลูกค้าได้อย่างมีประสิทธิภาพมากขึ้น ซึ่งช่วยให้เกิดการตอบสนองที่รวดเร็วและแม่นยำตามความต้องการของผู้บริโภค (Kotler & Keller, 2016)

การตลาดออนไลน์เกิดขึ้นจากการรวมตัวกันของเทคโนโลยี การเปลี่ยนแปลงพฤติกรรมผู้บริโภค และการปรับตัวของธุรกิจในยุคดิจิทัล ทำให้มีเครื่องมือและกลยุทธ์ใหม่ ๆ ที่ช่วยเพิ่มประสิทธิภาพในการทำการตลาดและสร้างความสัมพันธ์กับลูกค้าได้ดียิ่งขึ้นโดย (Chaffey & Smith, 2017)

จากแนวคิดที่กล่าวมาข้างต้น สามารถสรุปกรอบแนวคิดในการศึกษาพฤติกรรมผู้บริโภคในการเลือกซื้อสินค้าออนไลน์และออฟไลน์ได้ดังนี้

กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิด

วิธีดำเนินการวิจัย

การวิจัยนี้เป็นการวิจัยเชิงปริมาณ (Quantitative Research) ที่มุ่งเน้นการศึกษาพฤติกรรมการเลือกซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ของนักศึกษาในมหาวิทยาลัยหาดใหญ่ โดยใช้แบบสอบถามเป็นเครื่องมือหลักในการเก็บรวบรวมข้อมูล เพื่อให้ได้ข้อมูลที่สามารถนำไปวิเคราะห์และสรุปผลได้อย่างชัดเจนและน่าเชื่อถือ โดยแบบสอบถาม แบ่งออกเป็น 3 ส่วนหลัก

1. ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม ได้แก่ เพศ อายุ คณะ และ รายได้ต่อเดือน

2. ปัจจัยที่มีอิทธิพลต่อการตัดสินใจเลือกซื้อสินค้าผ่านช่องทางออฟไลน์ ได้แก่ คุณภาพสินค้า ความสะดวก ความถี่ในการซื้อ และประสบการณ์ในการเลือกซื้อ

3. พฤติกรรมการเลือกซื้อสินค้า ได้แก่ ความถี่ในการซื้อสินค้า ความพึงพอใจในการซื้อและเหตุผลที่เลือกซื้อสินค้า ผ่านช่องทางออนไลน์หรือออฟไลน์

โดยผู้วิจัยนำแบบสอบถามที่สร้างขึ้นเสนอต่อผู้ทรงคุณวุฒิจำนวน 3 ท่าน เพื่อพิจารณาความเที่ยงตรงเชิงเนื้อหา (Content Validity) แล้วนำมาหาค่าดัชนีความสอดคล้อง (Index of Item-objective Congruence : IOC) ซึ่งผลการวิเคราะห์ พบว่า ข้อคำถามโดยภาพรวมทุกข้อมีค่า IOC ตั้งแต่ 0.67 ถึง 1.00 และหาค่าความเชื่อมั่น (Reliability) โดยใช้วิธีหาค่าสัมประสิทธิ์แอลฟาของครอนบาค (Cronbach's Alpha Coefficient) เท่ากับ 0.80 ถึง 0.89

การเลือกกลุ่มตัวอย่าง: ใช้วิธีการสุ่มตัวอย่าง (Simple Random Sampling) เพื่อให้กลุ่มตัวอย่างสะท้อนความหลากหลายของนักศึกษา โดยได้กลุ่มตัวอย่าง จำนวน 507 คน จากมหาวิทยาลัยหาดใหญ่

การเก็บรวบรวมข้อมูล: ใช้แบบสอบถามที่ได้ออกแบบมาเพื่อศึกษาปัจจัยที่มีผลต่อการตัดสินใจซื้อสินค้าออนไลน์และออฟไลน์ โดยคำถามในแบบสอบถามจะครอบคลุมถึงปัจจัยต่าง ๆ เช่น คุณภาพของสินค้า, ความสะดวกสบาย, การส่งเสริมการขาย, บริการจัดส่ง, ความปลอดภัยในการชำระเงิน และอื่น ๆ โดยเก็บรวบรวมข้อมูลจากนักศึกษา มหาวิทยาลัยหาดใหญ่ทั้งหมด 6 คณะ ได้แก่ คณะบริหารธุรกิจ คณะนิติศาสตร์ คณะวิทยาศาสตร์และเทคโนโลยี คณะศึกษาศาสตร์และศิลปศาสตร์ คณะรัฐศาสตร์ คณะนิเทศศาตร์ และ 1 วิทยาลัย ได้แก่ วิทยาลัยนานาชาติดิษยะศริน ตั้งแต่ชั้นปีที่ 1 จนถึงปีที่ 4 ผ่านระบบ Google Form โดยกระจายผ่านช่องทางออนไลน์ และกระจายไปยังคณะต่าง ๆ

การวิเคราะห์ข้อมูล: ใช้สถิติเชิงพรรณนา เช่น ค่าเฉลี่ย, ร้อยละ, ส่วนเบี่ยงเบนมาตรฐาน และการทดสอบความสัมพันธ์โดยใช้การวิเคราะห์สหสัมพันธ์ (Correlation Analysis) เพื่อหาความสัมพันธ์ระหว่างตัวแปรอิสระ (เช่น คุณภาพสินค้า, โปรโมชั่น, ความสะดวกสบาย) และตัวแปรตาม (เช่น การตัดสินใจซื้อสินค้าออนไลน์หรือออฟไลน์) และการทดสอบการเปรียบเทียบ ใช้ t-test หรือ ANOVA เพื่อตรวจสอบความแตกต่างในพฤติกรรมการซื้อสินค้าของนักศึกษา เมื่อเทียบระหว่างช่องทางออนไลน์และออฟไลน์

ผลการวิจัย

การวิจัยเรื่องปัจจัยที่มีอิทธิพลต่อการตัดสินใจเลือกซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ของนักศึกษามหาวิทยาลัยหาดใหญ่ ผู้วิจัยได้นำเสนอผลการวิจัยออกเป็น 2 ตอนตามวัตถุประสงค์ ดังนี้

ตอนที่ 1 ผลวิเคราะห์ปัจจัยที่มีอิทธิพลต่อการตัดสินใจซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ของนักศึกษามหาวิทยาลัยหาดใหญ่

จากผลการวิจัย ปัจจัยที่มีอิทธิพลต่อการตัดสินใจซื้อสินค้าผ่านช่องทางออนไลน์ พบว่า อันดับสูงสุด คือความสะดวกสบายในการซื้อสินค้า มากที่สุดอยู่ในระดับ (4) จำนวน 191 คน คิดเป็นร้อยละ 37.6 อันดับ 2 คือการส่งเสริมการขาย (โปรโมชั่น ส่วนลด) มากที่สุดอยู่ในระดับ (4) จำนวน 172 คน คิดเป็นร้อยละ 33.9 อันดับ 3 คือบริการจัดส่งที่เร็ว มากที่สุดอยู่ในระดับ (4) จำนวน 163 คน คิดเป็นร้อยละ 34.1 อันดับ 4 คือ ความหลากหลายของสินค้ามากที่สุดอยู่ในระดับ (4) จำนวน 162 คน ร้อยละ 31.95 อันดับที่ 5 คือ ราคา มากที่สุดอยู่ในระดับ (4) จำนวน 156 คน คิดเป็นร้อยละ 30.7 และความน่าเชื่อถือผู้ขาย มากที่สุดอยู่ในระดับ (4) จำนวน 156 คน คิดเป็นร้อยละ 30.7 อันดับ 6 คือ ความปลอดภัยในการชำระเงิน มากที่สุดอยู่ในระดับ (4) จำนวน 153 คน คิดเป็นร้อยละ 30.17 ส่วนปัจจัยที่มีอิทธิพลต่อการตัดสินใจซื้อสินค้าผ่านช่องทางออฟไลน์ พบว่า อันดับสูงสุด คือการบริการของพนักงาน มากที่สุดอยู่ในระดับ (4) จำนวน 162 คน คิดเป็นร้อยละ 31.95 อันดับ 2 คือ การส่งเสริมการขาย (โปรโมชั่น ส่วนลด) มากที่สุดอยู่ในระดับ (4) จำนวน 160 คน คิดเป็นร้อยละ 31.5 อันดับ 3 คือความสะดวกในการเดินทางไปซื้อสินค้า มากที่สุดอยู่ในระดับ (4) จำนวน 159 คน คิดเป็นร้อยละ 31.36 อันดับ 4 คือการทดลองสินค้า (สามารถสัมผัสทดลองใช้) มากที่สุดอยู่ในระดับ (4) จำนวน 152 คน คิดเป็นร้อยละ 29.98 สถานที่ตั้งมากที่สุดอยู่ในระดับ (4) จำนวน 152 คน คิดเป็นร้อยละ 29.98 และความน่าเชื่อถือของร้านค้ามากที่สุดอยู่ในระดับ (4) จำนวน 152 คน คิดเป็นร้อยละ 29.98

ตอนที่ 2 ผลการวิเคราะห์การเปรียบเทียบพฤติกรรมการเลือกซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์

ตารางที่ 1 แสดงผลการวิเคราะห์ Anova ของตัวแปร เปรียบเทียบพฤติกรรมการซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์

ประเด็น		Sum of Squares	df	Mean Square	F	Sig
สินค้าที่ซื้อผ่านออนไลน์มีคุณภาพมากกว่าสินค้าที่ซื้อผ่านออฟไลน์	Between Groups	2.08	2	1.044	1.184	0.307
	Within Groups	444.598	504	0.882		
	Total	446.686	506			
สินค้าที่ซื้อผ่านช่องทางออนไลน์สะดวกกว่าการซื้อผ่านช่องทางออฟไลน์	Between Groups	1.603	2	0.801	1.547	0.214
	Within Groups	261.064	504	0.518		
	Total	262.667	506			
ท่านใช้มากกว่ากับการซื้อสินค้าผ่านช่องทางใด	Between Groups	1.301	2	0.651	0.845	0.430
	Within Groups	388.206	504	0.770		
	Total	389.307	506			
ท่านได้รับประสบการณีการซื้อสินค้าที่ดีมาจากช่องทางใด	Between Groups	.592	2	0.296	0.398	0.672
	Within Groups	374.939	504	0.744		
	Total	357.531	506			

จากการวิเคราะห์เปรียบเทียบพฤติกรรมการซื้อสินค้าระหว่างช่องทางออนไลน์และออฟไลน์ของนักศึกษา โดยใช้การวิเคราะห์ความแปรปรวน (One-way ANOVA) พบว่า

1. ด้านคุณภาพของสินค้านักศึกษาที่เชื่อว่า สินค้าที่ซื้อผ่านออนไลน์มีคุณภาพดีกว่าสินค้าที่ซื้อผ่านออฟไลน์ มีค่า F = 1.184 และ Sig = 0.307 แสดงว่าไม่มีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติ ($p > 0.05$)

2. ด้านความสะดวกในการซื้อ เมื่อเปรียบเทียบความสะดวกในการซื้อสินค้าระหว่างช่องทางต่าง ๆ พบค่า F = 1.547 และ Sig = 0.214 ไม่มีความแตกต่างอย่างมีนัยสำคัญทางสถิติ

3. ด้านความถี่ในการใช้งานช่องทางการเปรียบเทียบความถี่ในการใช้ช่องทาง (ออนไลน์, ออฟไลน์ หรือทั้งสองช่องทาง) พบค่า F = 0.845 และ Sig = 0.430 ไม่พบความแตกต่างอย่างมีนัยสำคัญทางสถิติ

4. ด้านประสบการณ์การซื้อที่ดี พบค่า F = 0.398 และ Sig = 0.672 ไม่มีความแตกต่างอย่างมีนัยสำคัญทางสถิติ

นอกจากนี้ เมื่อทำการทดสอบ Tukey's HSD เพื่อเปรียบเทียบคู่กลุ่มอย่างละเอียด พบว่า ไม่มีคู่กลุ่มใดที่มีค่าความแตกต่างอย่างมีนัยสำคัญเช่นกัน

ผลการวิเคราะห์สัมประสิทธิ์สหสัมพันธ์แบบเพียร์สัน (Pearson's Correlation Coefficient) ระหว่างปัจจัยต่าง ๆ กับพฤติกรรมการซื้อสินค้าพบว่า

1. ความสะดวกในการใช้งานเว็บไซต์/แอปพลิเคชัน มีความสัมพันธ์เชิงบวกในระดับปานกลางกับพฤติกรรมการซื้อออนไลน์ ($r = 0.496$, $p < 0.01$)

2. ความน่าเชื่อถือของผู้ขาย มีความสัมพันธ์เชิงบวกในระดับต่ำถึงปานกลาง ($r = 0.312$, $p < 0.01$)

3. โปรโมชั่นและส่วนลด มีความสัมพันธ์ในระดับต่ำ ($r = 0.280$, $p < 0.05$) กับพฤติกรรมการซื้อซ้ำ

ผลการวิเคราะห์นี้ชี้ให้เห็นว่า ปัจจัยด้านความสะดวก ความน่าเชื่อถือ และโปรโมชั่น มีบทบาทสำคัญต่อการตัดสินใจซื้อของนักศึกษา แม้ว่าในบางปัจจัยจะไม่อยู่ในระดับความสัมพันธ์สูงมากก็ตาม

ตารางที่ 2 ผลการเปรียบเทียบคู่ระหว่างช่องทางการซื้อสินค้าเปรียบเทียบผลต่างระหว่างกลุ่มคู่ต่าง ๆ Tukey HSD (Honestly Significant Difference)

ประเด็น	ช่องทาง	(J)Channel	Mean Difference (IJ)	Std Error	Sig	95.Confidence Interval	
						Lower Bound	Uper Bound
สินค้าที่ซื้อผ่านออนไลน์มีคุณภาพมากกว่าสินค้าที่ซื้อผ่านออฟไลน์	1	2	-0.151	0.101	0.249	-0.39	0.09
		3	0.022	0.171	0.991	-0.38	0.42
	2	1	0.151	0.101	0.292	-0.09	0.39
		3	0.173	0.185	0.621	-0.26	0.61
	3	1	-0.022	0.171	0.991	-0.42	0.38
		2	-0.173	0.185	0.621	-0.61	0.26
สินค้าที่ซื้อผ่านช่องทางออนไลน์สะดวกกว่าการซื้อผ่านช่องทางออฟไลน์	1	2	-0.108	0.077	0.339	-0.29	0.07
		3	-0.163	0.131	0.425	-0.47	0.14
	2	1	0.108	0.077	0.339	-0.07	0.29
		3	-0.055	0.142	0.921	-0.39	0.28
	3	1	0.163	0.131	0.425	-0.14	0.47
		2	0.055	0.142	0.921	-0.28	0.39

ประเด็น	ช่องทาง	(J)Channel	Mean Difference (IJ)	Std Error	Sig	95.Confidence Interval	
						Lower Bound	Uper Bound
ท่านใช้มากกว่ากับการซื้อสินค้าผ่านช่องทางใด	1	2	0.088	0.094	0.620	-0.31	0.13
		3	0.122	0.160	0.726	-0.25	0.50
	2	1	0.088	0.094	0.620	-0.15	0.31
		3	0.209	0.173	0.449	-0.20	0.62
	3	1	0.122	0.160	0.726	-0.50	0.25
		2	0.209	0.173	0.449	-0.62	0.20
ท่านได้รับประสบการณ์การซื้อสินค้าที่ดีมาจากช่องทางใด	1	2	-0.078	0.092	0.678	-0.29	0.14
		3	-0.028	0.157	0.983	-0.34	0.40
	2	1	-0.078	0.092	0.678	-0.14	0.29
		3	-0.105	0.170	0.810	-0.29	0.51
	3	1	-0.028	0.157	0.983	-0.40	0.34
		2	-0.105	0.170	0.810	-0.51	0.29

* 1= ช่องทาง ออนไลน์ * 2 = ช่องทาง ออฟไลน์ * 3 = ช่องทางออนไลน์ และออฟไลน์

ผลการเปรียบเทียบพฤติกรรมการซื้อสินค้าออนไลน์และออฟไลน์

ค่า F = 1.184, p = 0.307 ซึ่งมากกว่า 0.05 หมายความว่าไม่มีความแตกต่างที่มีนัยสำคัญทางสถิติระหว่างกลุ่มและการทดสอบ Tukey HSD ยืนยันว่าไม่มีคู่กลุ่มใดที่มีค่าเฉลี่ยแตกต่างกันอย่างมีนัยสำคัญผลของตัวแปรพฤติกรรมการซื้อสินค้า พบว่า สินค้าที่ซื้อผ่านออนไลน์มีคุณภาพดีกว่าสินค้าที่ซื้อผ่านออฟไลน์ ไม่มีความแตกต่างกันอย่างมีนัยสำคัญ ซึ่งมีค่า F = 1.547, p = 0.214 การซื้อสินค้าผ่านช่องทางออนไลน์สะดวกกว่าการซื้อผ่านช่องทางออฟไลน์ ซึ่งมีค่า F = 0.845, p = 0.430 ไม่มีความแตกต่างกันอย่างมีนัยสำคัญ และประสบการณ์ที่ได้รับจากการซื้อสินค้าที่ดี ซึ่งค่า F = 0.398, p = 0.672 ไม่มีความแตกต่างกันอย่างมีนัยสำคัญ

ดังนั้น ทั้งสามตัวแปรไม่มีค่าความแตกต่างกันอย่างมีนัยสำคัญระหว่างกลุ่ม ได้แก่ช่องทางออนไลน์ ออฟไลน์ และทั้งออนไลน์และออฟไลน์

สรุปผลการวิเคราะห์

จากการศึกษาพฤติกรรมการเลือกซื้อสินค้าของนักศึกษามหาวิทยาลัยหาดใหญ่ โดยมุ่งเน้นตามวัตถุประสงค์ของการวิจัย 2 ประการ สามารถสรุปผลการวิเคราะห์ได้ดังนี้

วัตถุประสงค์ที่ 1 เพื่อศึกษาปัจจัยที่มีอิทธิพลต่อการตัดสินใจซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ของนักศึกษามหาวิทยาลัยหาดใหญ่ ผลการวิจัยพบว่า ปัจจัยที่มีอิทธิพลต่อการตัดสินใจซื้อสินค้าออนไลน์ของนักศึกษามากที่สุด ได้แก่ คุณภาพของสินค้า และความสะดวกสบายในการซื้อสินค้า ทั้งสองปัจจัยนี้ มีความสำคัญอย่างยิ่งในการดึงดูดให้นักศึกษาเลือกใช้ช่องทางออนไลน์ในการซื้อสินค้า โดยเฉพาะในยุคที่เทคโนโลยีมีบทบาทสำคัญในชีวิตประจำวัน ในขณะเดียวกันปัจจัยที่มีอิทธิพลต่อการตัดสินใจซื้อสินค้าผ่านช่องทางออฟไลน์ ได้แก่ ประสบการณ์ในการเห็นและสัมผัสสินค้าจริง ซึ่งเป็นข้อได้เปรียบที่ช่องทางออนไลน์ไม่สามารถทดแทนได้อย่างเต็มที่ นอกจากนี้ การส่งเสริมการขาย (โปรโมชั่น/ส่วนลด) ยังเป็นอีกหนึ่งปัจจัยที่ส่งผลต่อการตัดสินใจซื้อสินค้าทั้งในช่องทางออนไลน์และออฟไลน์ โดยเฉพาะในแง่ของการสร้างแรงจูงใจผ่านข้อเสนอพิเศษและราคาที่สามารถแข่งขันได้

วัตถุประสงค์ที่ 2 เพื่อเปรียบเทียบพฤติกรรมการซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ของนักศึกษา มหาวิทยาลัยหาดใหญ่การวิเคราะห์พบว่า นักศึกษามีแนวโน้มเลือกซื้อสินค้าผ่านช่องทางออนไลน์มากกว่า โดยให้เหตุผลในด้านความสะดวกสบาย ความสามารถในการเปรียบเทียบราคา ความหลากหลายของสินค้า ช่องทางออนไลน์สามารถตอบสนองพฤติกรรมของนักศึกษาที่ต้องการความรวดเร็วและความยืดหยุ่นในการเลือกซื้อสินค้า อย่างไรก็ตาม สำหรับสินค้าบางประเภท เช่น เสื้อผ้าและเครื่องสำอาง นักศึกษายังคงนิยมใช้ช่องทาง ออฟไลน์ เนื่องจากต้องการสัมผัสหรือทดลองใช้จริงก่อนซื้อ ซึ่งเป็นประสบการณ์ที่ยังมีความสำคัญ โดยเฉพาะสำหรับสินค้าที่มีลักษณะเฉพาะตัว

นอกจากนี้ ปัจจัยด้านการบริการที่เป็นมิตรของพนักงาน และสถานที่ตั้งของร้านค้าก็มีบทบาทในการสร้างความประทับใจและส่งผลต่อการตัดสินใจซื้อสินค้าผ่านช่องทางออฟไลน์ ส่งผลให้พฤติกรรมการซื้อสินค้าของนักศึกษามีความหลากหลายและขึ้นอยู่กับลักษณะของสินค้า รวมถึงประสบการณ์ที่ต้องการจากการซื้อ ผู้ประกอบการจึงควรพัฒนากลยุทธ์ทางการตลาดแบบผสมผสานที่ตอบโจทย์ ทั้งในช่องทางออนไลน์และออฟไลน์ เพื่อให้สามารถตอบสนองความต้องการของกลุ่มลูกค้าได้อย่างมีประสิทธิภาพและยั่งยืน

อภิปรายผล

จากการศึกษาพบว่า ปัจจัยที่มีอิทธิพลต่อการตัดสินใจเลือกซื้อสินค้าผ่านช่องทางออนไลน์และออฟไลน์ของนักศึกษามหาวิทยาลัยหาดใหญ่ มีความสัมพันธ์อย่างมีนัยสำคัญกับปัจจัยด้านความสะดวกสบาย การส่งเสริมการขาย และความปลอดภัยในการชำระเงิน ในกรณีของการซื้อสินค้าออนไลน์ โดยปัจจัยเหล่านี้ ส่งผลโดยตรงต่อการตัดสินใจเลือกช่องทางการซื้อสินค้า ซึ่งสอดคล้องกับงานวิจัยที่ผ่านมา เช่น งานของ สิริกาญจน์ เศรษฐ์ชัยยันต์ (2556) และ อรอนงค์ ทองกระจ่าง (2560) ที่ระบุถึงความสำคัญของความสะดวกสบายและโปรโมชั่นในการดึงดูดผู้บริโภคออนไลน์ รวมถึงความปลอดภัยในการชำระเงินที่ได้รับการยืนยันจากงานวิจัยของ วศิรา สู้สกุลสิงห์ (2563) ว่าเป็นปัจจัยสำคัญต่อความเชื่อมั่นของผู้ซื้อ

นอกจากนี้ ยังพบความสัมพันธ์ระหว่างช่องทางการซื้อสินค้า กับ ประสบการณ์และทัศนคติของผู้บริโภค โดยนักศึกษาส่วนใหญ่เลือกซื้อสินค้าออนไลน์มากกว่าช่องทางออฟไลน์ เนื่องจากสามารถตอบสนองความต้องการด้านความสะดวกและการเปรียบเทียบสินค้าได้ดีกว่า ซึ่งสอดคล้องกับงานวิจัยของ เอริสา อูจีอีเอะ (2564) ที่กล่าวถึงการรับรู้ภาพลักษณ์และทัศนคติที่ส่งผลต่อการเลือกซื้อสินค้าออนไลน์ จากผลการศึกษานี้ แสดงให้เห็นถึง ความสัมพันธ์เชิงบวก ระหว่างปัจจัยด้านการตลาด (เช่น ความสะดวก โปรโมชั่น ความปลอดภัย) กับพฤติกรรมการเลือกซื้อสินค้าออนไลน์ของนักศึกษา ในขณะเดียวกัน การที่นักศึกษายังคงใช้ช่องทางออฟไลน์ในบางโอกาสสะท้อนให้เห็นถึงความสำคัญของประสบการณ์การซื้อสินค้าแบบสัมผัสจริง ซึ่งบ่งชี้ว่า ผู้ประกอบการควรพัฒนากลยุทธ์ที่ผสานทั้งสองช่องทาง (Online และ Offline) เพื่อรองรับพฤติกรรมที่หลากหลายและเปลี่ยนแปลงตามความต้องการของลูกค้า

ดังนั้น ความสัมพันธ์ระหว่างปัจจัยเหล่านี้ ชี้ให้เห็นว่าการพัฒนาช่องทางออนไลน์ที่เน้นความสะดวก ปลอดภัยและคุ้มค่า ควบคู่กับการปรับปรุงประสบการณ์ในช่องทางออฟไลน์ จะช่วยเพิ่มทั้งความพึงพอใจและความภักดีของลูกค้าในระยะยาวได้อย่างมีประสิทธิภาพ

ข้อเสนอแนะ

ข้อเสนอแนะเชิงวิชาการ

ขยายการวิเคราะห์เกี่ยวกับปัจจัยที่มีอิทธิพลต่อพฤติกรรมการซื้อของนักศึกษา โดยเพิ่มการพิจารณาปัจจัยทางจิตวิทยาหรืออิทธิพลจากโซเชียลมีเดีย

ข้อเสนอแนะเชิงปฏิบัติ

1. ผลการศึกษาสามารถนำไปใช้โดยธุรกิจในอำเภอหาดใหญ่ เพื่อพัฒนากลยุทธ์การตลาดที่เหมาะสมกับนักศึกษา

2. ธุรกิจออนไลน์ควรเน้นการพัฒนาประสบการณ์ผู้ใช้ให้ดีขึ้น เช่น การให้รีวิวที่น่าเชื่อถือการสร้างความมั่นใจในคุณภาพสินค้า

3. ธุรกิจออฟไลน์สามารถพัฒนากลยุทธ์ที่ใช้ประโยชน์จากประสบการณ์สัมผัสสินค้า และการให้บริการที่เป็นกันเองมากขึ้น

ข้อเสนอแนะสำหรับการวิจัยในอนาคต

1. ควรศึกษาพฤติกรรมการซื้อสินค้าในกลุ่มนักศึกษาตามช่วงอายุ หรือเปรียบเทียบกับประชากรกลุ่มอื่น เช่น พนักงานออฟฟิศ

2. ควรศึกษาปัจจัยที่มีผลต่อความภักดีของลูกค้าต่อช่องทางออนไลน์และออฟไลน์

3. ควรเพิ่มเติมการศึกษาเชิงคุณภาพเพื่อให้เข้าใจเชิงลึกเกี่ยวกับเหตุผลในการเลือกซื้อสินค้าผ่านแต่ละช่องทาง

4. ควรเพิ่มเติมการศึกษาทฤษฎีการรับรู้ความเสี่ยง (Perceived Risk Theory) เพื่อใช้ในการวิจัยในครั้งต่อไป ซึ่งเป็นทฤษฎีนี้เป็นทฤษฎีที่เกี่ยวกับการที่ผู้บริโภคมักจะมีความลังเลหรือเปลี่ยนพฤติกรรมการซื้อ หากเขารู้สึกว่าอาจเกิดความเสี่ยงจากการตัดสินใจนั้น โดยเฉพาะในสภาพแวดล้อมที่มีข้อมูลจำกัด เช่น การซื้อสินค้าออนไลน์

เอกสารอ้างอิง

วศิรา สู้สกุลสิงห์. (2563). ปัจจัยส่วนประสมทางการตลาดออนไลน์ที่ส่งผลต่อพฤติกรรมการตัดสินใจซื้อเสื้อผ้าแฟชั่นผ่านเว็บไซต์พาณิชย์อิเล็กทรอนิกส์ในเขตอำเภอเมือง จังหวัดพิษณุโลก. วารสารเศรษฐศาสตร์และบริหารธุรกิจ มหาวิทยาลัยทักษิณ, 12(1), 99-118.

ศิริวรรณ เสรีรัตน์. (2563). การรับรู้ความเสี่ยงในการซื้อสินค้าออนไลน์. วารสารการตลาดและการจัดการธุรกิจ, 15(2), 45-58.

สิริกาญจน์ เศรษฐ์ชัยยันต์. (2556). การศึกษาความแตกต่างปัจจัยส่วนประสมทางการตลาดระหว่างกลุ่มผู้ซื้อเครื่องสำอางผ่านช่องทางออนไลน์และกลุ่มผู้ซื้อเครื่องสำอางผ่านช่องทางออฟไลน์ ในเขตกรุงเทพมหานคร (วิทยานิพนธ์มหาบัณฑิต). มหาวิทยาลัยหอการค้าไทย, กรุงเทพฯ.

สำนักงานพัฒนาธุรกรรมทางอิเล็กทรอนิกส์ (ETDA). (2565). รายงานพฤติกรรมผู้ใช้อินเทอร์เน็ตในประเทศไทย ปี 2565. สืบค้นเมื่อ 20 พฤษภาคม 2565 จาก https://opendata.etda.or.th/dataset/iub_01_65/resource/24facd14-3d30-4fee-98a4-e6887733d3e7

อดุลย์ จาตุรงคกุล และ ดลยา จาตุรงคกุล. (2550) ปัจจัยที่มีผลต่อกระบวนการตัดสินใจซื้อของผู้บริโภค. วารสารการตลาดไทย, 12(3), 15-30.

อรอนงค์ ทองกระจ่าง. (2565). การศึกษาส่วนประสมทางการตลาด การยอมรับเทคโนโลยีและการสื่อสาร

แบบบอกต่อที่มีผลต่อการตัดสินใจซื้อสินค้าผ่านทางแอปพลิเคชัน Shopee (วิทยานิพนธ์มหาบัณฑิต). มหาวิทยาลัยกรุงเทพ, กรุงเทพฯ.

เอริสา อูจีอีเอะ. (2564). การสื่อสารการตลาดออนไลน์และออฟไลน์ที่ส่งผลต่อการรับรู้ภาพลักษณ์ตรา ทัศนคติ และความเชื่อถือไว้วางใจในตราชุดชั้นในของสตรีในกรุงเทพมหานคร (วิทยานิพนธ์มหาบัณฑิต). มหาวิทยาลัยกรุงเทพ, กรุงเทพฯ.

Ajzen, I., & Fishbein, M. (1980). Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ : Prentice-Hall.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319–340.

Martin, J., & Camarero, C. (2008). The effect of perceived risk on online shopping behavior: An empirical analysis. Journal of Consumer Behavior, 7(5), 262-272.

Maslow, A. H. (1943). A theory of human motivation. Psychological Review, 50(4), 370-396.

Kotler, P., & Keller, K. L. (2022). Marketing management (16th ed.). India : Pearson.

Solomon, M. R. (2020). Consumer behavior: Buying, having, and being (13th ed.). Hoboken, NJ: Pearson.

Statista. (2023). E-commerce in Thailand - statistics & facts. Retrieved from https://www.statista.com

ความสัมพันธ์ระหว่างปัจจัยส่วนบุคคลของผู้ใช้บริการกับคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี

Service Quality of Black Canyon Café at the Gas Station in Chaiya District, Surat Thani Province

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์ 1) เพื่อศึกษาปัจจัยส่วนบุคคลของผู้ใช้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี 2) เพื่อศึกษาระดับคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี 3) เพื่อศึกษาความสัมพันธ์ระหว่างปัจจัยส่วนบุคคลของผู้ใช้บริการกับคุณภาพการให้บริการ ร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี กลุ่มตัวอย่าง คือ ผู้ที่เคยใช้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี จำนวน 385 คน เครื่องมือที่ใช้ในการวิจัยคือ คือ แบบสอบถาม สถิติที่ใช้วิเคราะห์โดยใช้ ค่าความถี่ ค่าร้อยละ ค่าเฉลี่ย และค่าเบี่ยงเบนมาตรฐาน ทดสอบสมมติฐานโดยใช้สถิติ Chi square ด้วยวิธีของเปียร์สัน เพื่อวิเคราะห์ค่าความสัมพันธ์ของตัวแปร

ผลการวิจัยพบว่า

1. ปัจจัยส่วนบุคคลของผู้ตอบแบบสอบถาม พบว่า กลุ่มตัวอย่างส่วนใหญ่เป็นเพศ หญิง มีอายุระหว่าง 20 - 29 ปี มีระดับการศึกษาระดับปริญญาตรี มีสถานภาพสมรส มีอาชีพประกอบธุรกิจส่วนตัว มีรายได้เฉลี่ยต่อเดือน 30,001 - 40,000 บาท

2. ระดับความคิดเห็นต่อคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี พบว่า โดยภาพรวมอยู่ในระดับมาก

3. ผลทดสอบสมมติฐานปัจจัยส่วนบุคคลด้านเพศ อายุ ระดับการศึกษา และสถานภาพสมรส ไม่มีความสัมพันธ์กับคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี แต่ปัจจัยส่วนบุคคลด้าน อาชีพ และรายได้เฉลี่ยต่อเดือน มีความสัมพันธ์กับคุณภาพการให้บริการ ร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

คำสำคัญ: ปัจจัยส่วนบุคคลของผู้ใช้บริการ, คุณภาพการให้บริการ, แบล็คแคนยอน

Abstract

This research aims to: 1) study the personal factors of service users, 2) study the quality of service, and 3) study the relationship between personal factors of service users and service quality at the Black Canyon restaurant located at the PTT Chaiya Oil Gas Station, Surat Thani Province. The sample group consists of individuals who have used the services at the Black Canyon restaurant at the PTT Chaiya Oil Gas Station, Surat Thani Province, although the exact number is unknown. Therefore, resulting in a sample size of 3 8 5 individuals. The research instrument used was a questionnaire that was self-developed by the researcher, consisting of both closed-ended and open-ended questions. Data analysis was performed using the SPSS/PC+ program. Descriptive statistics were used to calculate frequencies and percentages. For the second part of the analysis, which involves opinions on service quality, descriptive statistics were used, including calculating means and standard deviations. Inferential statistics were used to analyze the relationship between variables using Pearson's Chi-square test.

The research findings are as follows:

1. Personal factors of the respondents: The majority of the sample were female, aged between 20 - 29 years, with a bachelor's degree. Most were married, worked in self-employed businesses, and had an average monthly income of 30,001 - 40,000 Baht.

2. Opinions on service quality at the Black Canyon restaurant, PTT Chaiya Oil Gas Station, Surat Thani: Overall, the service quality was rated as high.

3. Personal factors related to gender, age, education level, and marital status: There was no significant relationship between these personal factors and the quality of service at the Black Canyon restaurant, PTT Chaiya Oil Gas Station, Surat Thani. However, personal factors related to occupation and average monthly income showed a significant relationship with the service quality at the restaurant, with statistical significance at the 0.05 level.

Keywords: Personal Factors of Service Users, Service Quality, Black Canyon

บทนำ

ธุรกิจร้านอาหารและเครื่องดื่มมีบทบาทสำคัญในการสร้างรายได้และสนับสนุนการพัฒนาเศรษฐกิจในหลายประเทศ รวมถึงประเทศไทย โดยมีการแข่งขันที่สูงขึ้นอย่างต่อเนื่อง ส่งผลให้ผู้ประกอบการต้องมุ่งเน้นการพัฒนาคุณภาพการให้บริการ เพื่อสร้างความพึงพอใจให้กับลูกค้าและรักษาฐานลูกค้าให้มั่นคง การให้บริการที่มีคุณภาพถือเป็นปัจจัยสำคัญที่ส่งผลต่อความสำเร็จของธุรกิจร้านอาหารและเครื่องดื่ม เพราะนอกจากจะสามารถสร้างความประทับใจและความภักดีในแบรนด์แล้ว ยังช่วยในการดึงดูดลูกค้าใหม่ ๆ ให้เข้ามาใช้บริการอีกด้วย

ทั้งนี้ธุรกิจร้านอาหารและเครื่องดื่มในปี พ.ศ. 2568 คาดว่ามูลค่าตลาดรวมอยู่ที่ 657,000 ล้านบาทเติบโต 4.6% จากปี พ.ศ. 2567 จากภาคการท่องเที่ยวในประเทศที่ยังเติบโต การขยายสาขาของผู้ประกอบการไปยังภูมิภาค รวมถึงไลฟ์สไตล์ของผู้บริโภคและความต้องการอาหารและเครื่องดื่มใหม่ที่เพิ่มขึ้นช่วยหนุนการเติบโตของตลาด โดยผู้ประกอบการรายใหม่ทั้งผู้ประกอบการรายใหญ่และผู้ประกอบรายเล็ก (บุคคล) ยังให้ความสนใจเข้ามาลงทุนอย่างต่อเนื่อง โดยผู้ประกอบการในตลาดมีแผนที่จะขยายสาขาในกลุ่มแบรนด์ร้านอาหารและเครื่องดื่มเดิม รวมถึงการเปิดแบรนด์ร้านอาหารและเครื่องดื่มใหม่ครอบคลุมทุกกลุ่มลูกค้า (Segments) ของตลาด และส่วนใหญ่ยังคงเป็นกลุ่มร้านอาหารเอเชีย นอกจากนี้ การเพิ่มขึ้นของจำนวนร้านอาหารและเครื่องดื่มยังมาจากแนวโน้มการพัฒนาพื้นที่เชิงพาณิชย์ อาทิ ห้างสรรพสินค้า และอาคารสำนักงานเปิดใหม่เป็นปัจจัยสนับสนุนจำนวนร้านอาหารเพิ่มขึ้นเช่นกัน (ไทยโพสต์, 2567) นอกจากนี้การแข่งขันในธุรกิจยังมาจากการเข้ามาลงทุนของชาวต่างชาติ โดยในช่วง 1 - 2 ปี ที่ผ่านมา ธุรกิจร้านอาหารและเครื่องดื่มยังได้รับความสนใจจากชาวต่างชาติเข้ามาลงทุนในธุรกิจมากขึ้น สะท้อนได้จากข้อมูลของกรมพัฒนาธุรกิจการค้าพบว่า มูลค่าทุนจดทะเบียนร้านอาหารและเครื่องดื่มจำแนกตามสัญชาติเพิ่มขึ้นต่อเนื่อง โดยตั้งแต่ต้นปี พ.ศ. 2567 กลุ่มร้านอาหารและเครื่องดื่มจากจีนมีมูลค่าการลงทุนที่เร่งตัวขึ้น และแนวโน้มการเข้ามาลงทุนน่าจะเพิ่มสูงขึ้น ทั้งนี้การแข่งขันในธุรกิจที่รุนแรงก็ทำให้เกิดการหมุนเวียนเปิด-ปิดกิจการของผู้ประกอบการใหม่และเก่าเป็นจำนวนไม่น้อยเช่นกัน ซึ่งพบว่า ร้านอาหารปิดตัวเร่งขึ้น โดยในช่วง 10 เดือนแรกของปี พ.ศ. 2567 ร้านอาหารมีการจดทะเบียนยกเลิกธุรกิจสูงถึง 89% (YoY) ขณะที่การเปิดตัวใหม่ไม่เปลี่ยนแปลงเมื่อเทียบกับช่วงเดียวกันของปีก่อน (ศูนย์วิจัยกสิกรไทย, 2567)

ปัจจุบันธุรกิจประเภทร้านอาหารและเครื่องดื่มที่มีให้ผู้บริโภคสามารถเลือกได้หลากหลายประเภท และหนึ่งในธุรกิจที่กำลังเป็นที่นิยมเป็นอย่างมากในปัจจุบันคือ ธุรกิจร้านกาแฟ เนื่องจากพฤติกรรมการดื่มกาแฟของผู้บริโภคชาวไทยที่เปลี่ยนแปลงไป ซึ่งแต่เดิมชาวไทยนิยมดื่มกาแฟสำเร็จรูปเป็นส่วนใหญ่ แต่ปัจจุบันหันมานิยมเข้าร้านกาแฟสดคั่วบดที่มีการตกแต่งร้านหรูหราทันสมัยสะดวกสบายและมีบรรยากาศที่รื่นรมย์สำหรับการนั่งดื่มกาแฟมากขึ้น นอกจากนี้พฤติกรรมที่เปลี่ยนแปลงไปของผู้บริโภค โดยเฉพาะกลุ่มนักธุรกิจ นักศึกษา หรือวัยทำงาน ในยุคใหม่มักจะใช้ร้านกาแฟเป็นสถานที่พบปะสังสรรค์ พูดคุย หรือบางครั้งอาจจะใช้เป็นสถานที่ทำงานอีกด้วย เช่น ร้านกาแฟสตาร์บัคส์ ร้านคอฟฟี่เวิลด์ ร้านกาแฟอเมซอน ร้านอินทนิล เป็นต้น

โดย ในปัจจุบันนี้ “ร้านแบล็คแคนยอน” มีทั้งหมดประมาณ 370 สาขาในประเทศไทย และ 50 กว่าสาขาในต่างประเทศ ด้วยความมีมาตรฐานของรสชาติและการบริการ ทำให้ “ร้านแบล็คแคนยอน” สามารถครองใจคนรักกาแฟได้จนถึงทุกวันนี้ ซึ่งเป็นหนึ่งในแบรนด์ร้านอาหารและเครื่องดื่มที่มีชื่อเสียงในประเทศไทย มีสาขากระจายอยู่ทั่วประเทศ เป็นธุรกิจคนไทยรายแรกที่บุกเบิกธุรกิจร้านกาแฟ และได้ทำร้านกาแฟให้ต่างไปจากเดิมด้วยการเปิดร้านกาแฟควบคู่กับการขายอาหาร (Thailand Restaurant News, 2559) และเล็งเห็นถึงโอกาสในการเพิ่มศักยภาพทางการตลาดของสถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี จึงได้วางแนวคิดให้เป็นธุรกิจหนึ่งในสถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี ที่สร้างรายได้ให้กับสถานีบริการน้ำมัน และตอบสนองต่อไลฟ์สไตล์ของผู้บริโภคและคนเดินทางได้มากขึ้น ตลอดระยะเวลาที่ผ่านมา ร้านแบล็คแคนยอนถูกพัฒนาให้เป็นจุดนัดพบ สำหรับคนเดินทางแหล่งพักผ่อน ตัวร้านถูกออกแบบการวางพื้นที่การทำงานให้เหมาะสม กับขนาดพื้นที่ของสถานีบริการน้ำมัน

จากการแข่งขันของธุรกิจที่มีความรุนแรง ทำให้ธุรกิจต้องมีการปรับตัว อีกทั้งพฤติกรรมของผู้บริโภคที่มีความหลากหลายและซับซ้อนมากขึ้น ซึ่งเป็นปัจจัยสำคัญของธุรกิจบริการ โดยต้องการทั้งความแปลกใหม่ ประสบการณ์สุขภาพ ราคาสมเหตุสมผล ได้กลายมาเป็นมาตรฐานใหม่ของผู้บริโภคในปัจจุบัน และเทรนด์ความต้องการของผู้บริโภคที่ไม่ได้มีรูปแบบตายตัว ความจงรักภักดีต่อแบรนด์ต่ำและเปลี่ยนแปลงตามกระแสอย่างต่อเนื่อง ทำให้ผู้ประกอบการจำเป็นต้องปรับรูปแบบธุรกิจได้อย่างรวดเร็ว ร้านแบล็คแคนยอนได้ให้ความสำคัญกับการสร้างมาตรฐานคุณภาพในการให้บริการที่สม่ำเสมอซึ่งเป็นสิ่งจำเป็นต่อการสร้างชื่อเสียงและความน่าเชื่อถือ อย่างไรก็ตาม การแข่งขันในตลาดที่สูง และความคาดหวังของผู้บริโภคที่เพิ่มขึ้น ทำให้การรักษาคุณภาพการให้บริการเป็นเรื่องท้าทาย การศึกษาเกี่ยวกับคุณภาพการให้บริการของร้านแบล็คแคนยอนจึงเป็นเรื่องที่มีความสำคัญ เพราะข้อมูลที่ได้จะช่วยในการพัฒนากลยุทธ์การบริหารงานและการปรับปรุงการให้บริการให้ตอบสนองต่อความต้องการของลูกค้าได้อย่างมีประสิทธิภาพ

จากปัจจัยที่กล่าวมาข้างต้นการศึกษาความสัมพันธ์ระหว่างปัจจัยส่วนบุคคลของผู้ใช้บริการกับคุณภาพการให้บริการร้านแบล็ค แคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี จึงมีความสำคัญอย่างยิ่งต่อการพัฒนาธุรกิจของแบรนด์แบล็คแคนยอน เพื่อให้สอดคล้องกับความต้องการของลูกค้าในปัจจุบันและอนาคต รวมถึงการรักษาภาพลักษณ์และการแข่งขันในตลาด ทั้งนี้ผลการวิจัยยังสามารถนำไปประยุกต์ใช้กับร้านอาหารและเครื่องดื่มอื่นๆ ที่มีลักษณะการดำเนินงานคล้ายคลึงกันได้อีกด้วย

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาปัจจัยส่วนบุคคลของผู้ใช้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี
2. เพื่อศึกษาคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี
3. เพื่อศึกษาความสัมพันธ์ระหว่างปัจจัยส่วนบุคคลของผู้ใช้บริการกับคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี

สมมติฐานการทดสอบ

ปัจจัยส่วนบุคคลของผู้ใช้บริการมีความสัมพันธ์กับคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี

แนวคิด ทฤษฎี กรอบแนวคิด

จากผลงานที่เกี่ยวข้อง ผู้วิจัยได้สรุปปัจจัยคุณภาพการบริการของ พาราสุมาน, ซีเทมล์ และแบรรี่ (Parasuraman, Zeithamal, & Berry, 1985) มีดังรายละเอียด ต่อไปนี้

1. ความเป็นรูปธรรมของบริการ (Tangibles) คือ ลักษณะทางกายภาพที่ปรากฏให้ เห็นถึงสิ่งอำนวยความสะดวกต่าง ๆ ซึ่งได้แก่ เครื่องมือ อุปกรณ์ บุคลากร และการใช้สัญลักษณ์ หรือ เอกสารที่ใช้ในการติดต่อสื่อสารให้ผู้รับบริการได้สัมผัส และการบริการนั้นมีความเป็นรูปธรรมรับรู้ได้

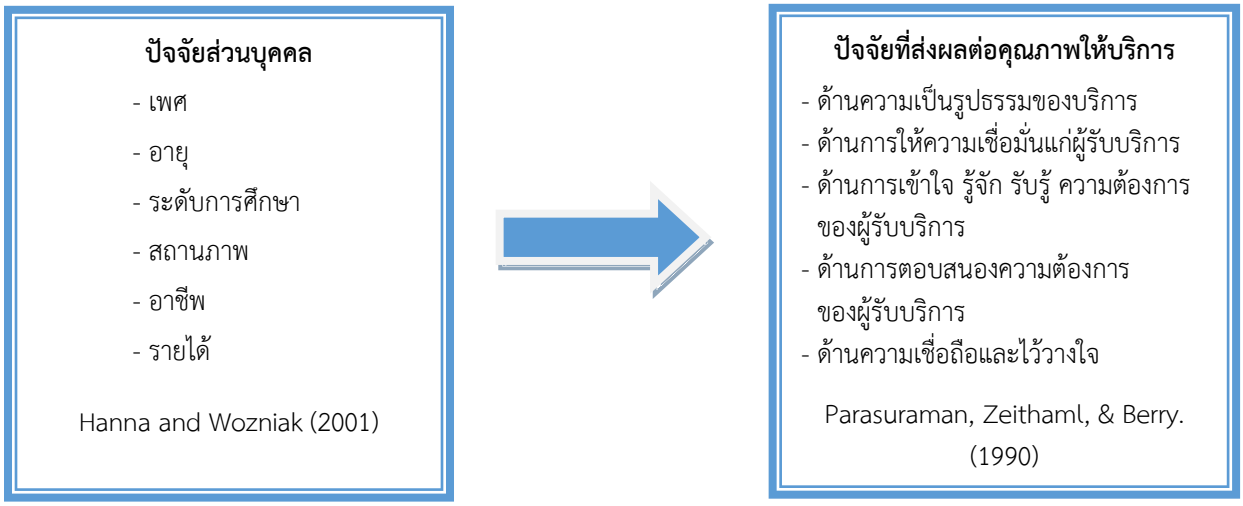
2. ความน่าเชื่อถือไว้วางใจได้ (Reliability) คือ ความสามารถในการให้บริการ ผู้รับบริการบริการที่ให้ทุกครั้งมีความถูกต้อง เหมาะสม และมีความสม่ำเสมอในทุกครั้งของบริการ ที่จะทำให้ผู้รับบริการรู้สึกว่าบริการที่ได้รับมีความน่าเชื่อถือ สามารถให้ความไว้วางใจได้

3. การตอบสนองความต้องการของผู้รับบริการ (Responsiveness) คือ ความพร้อม และความเต็มใจที่จะให้บริการ โดยสามารถตอบสนองความต้องการของผู้รับบริการได้อย่างทันท่วงที ผู้รับบริการสามารถเข้าถึงบริการได้ง่ายและได้รับความสะดวกจากการมาใช้บริการนี้

4. การให้ความเชื่อมั่นแก่ผู้รับบริการ (Assurance) คือ ผู้ให้บริการมีทักษะความรู้ ความสามารถในการให้บริการและตอบสนองความต้องการของผู้รับบริการด้วยความสุภาพ มีกริยาท่าทางและมารยาทที่ดีในการให้บริการสามารถที่จะทำให้ผู้รับบริการเกิดความไว้วางใจและเกิดความมั่นใจว่าจะได้บริการที่ดีที่สุด

5. การเข้าใจรู้จักรับรู้ความต้องการของผู้รับบริการ (Empathy) คือ ความสามารถ ในการดูแลความเอื้ออาทร เอาใจใส่ผู้รับบริการตามความต้องการที่แตกต่างกันของผู้รับบริการในแต่ละคน ต่อมาได้มีการพัฒนาให้เกิดความคล่องตัวโดยเน้นการพัฒนาการติดต่อสื่อสารและ การควบคุมระบบการติดต่อสื่อสารในองค์กรให้มีการติดต่อรวดเร็ว

กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิด

วิธีดำเนินการวิจัย

การศึกษาครั้งนี้เป็นการวิจัยเชิงสำรวจ ศึกษาความสัมพันธ์ระหว่างปัจจัยส่วนบุคคลของผู้ใช้บริการกับคุณภาพการให้บริการร้านแบล็ค แคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี โดยผู้ศึกษาได้ดำเนินการศึกษาตามขั้นตอนดังนี้

ประชากรที่ใช้ในการศึกษาวิจัยครั้งนี้ คือ ลูกค้าที่มาใช้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี ซึ่งไม่ทราบจำนวนที่แน่นอน

การกำหนดขนาดของกลุ่มตัวอย่างที่ใช้ในการวิจัย เนื่องจากผู้วิจัยไม่ทราบจำนวนที่แน่นอนของลูกค้าที่มาใช้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี

ดังนั้น ผู้วิจัยจึงใช้วิธีการกำหนดขนาดของกลุ่มตัวอย่าง โดยใช้สูตรคำนวณแบบไม่ทราบจำนวนประชากร โดยใช้สูตรกำหนดขนาดตัวอย่างของ Cochran (1977) กำหนดระดับค่าความเชื่อมั่นร้อยละ 95 และระดับความคลาดเคลื่อนร้อยละ 5 ซึ่งสูตรในการคำนวณที่ใช้ในการศึกษาครั้งนี้ คือ

$$n = \frac{p(1-p)(z)^2}{e2}$$

เมื่อ n แทน ขนาดของกลุ่มตัวอย่าง
P แทน ค่าเปอร์เซ็นต์ที่ต้องการจะสุ่มจากประชากรทั้งหมด
e แทน ค่าเปอร์เซ็นต์ความคลาดเคลื่อนจากการสุ่มตัวอย่าง
Z แทน ระดับความเชื่อมั่นที่ผู้วิจัยกำหนดไว้
ในที่นี้ใช้ระดับความเชื่อมั่นที่ 95 % Z มีค่าเท่ากับ 1.96

สำหรับการวิจัยครั้งนี้ ผู้วิจัยกำหนดสัดส่วนของประชากรโดยต้องการระดับความมั่นใจ 95% และยอมให้คลาดเคลื่อนได้ 5%

$$n = \frac{(0.05)(1-0.05)(1.96)^2}{0.05}$$

= 384.16 หรือประมาณ 385 ตัวอย่าง

การศึกษาครั้งนี้จึงใช้กลุ่มตัวอย่างทั้งสิ้น 385 ตัวอย่าง ใช้วิธีในการสุ่มกลุ่มตัวอย่างแบบไม่คำนึงถึงความน่าจะเป็นในการสุ่ม (Nonprobability Sampling) ซึ่งผู้วิจัยได้มีการเลือกสุ่มกลุ่มตัวอย่างโดยใช้วิธีการสุ่มกลุ่มตัวอย่างแบบสะดวก (Convenience Sampling) เพื่อเก็บให้ครบตามจำนวน

เครื่องมือที่ใช้ในการศึกษา คือ แบบสอบถาม ซึ่งผู้ศึกษาได้สร้างขึ้นด้วยตนเองประกอบด้วยคำถามชนิดปลายปิดและปลายเปิด แบ่งคำถามออกเป็น 3 ส่วน ได้แก่

ส่วนที่ 1 ข้อมูลของผู้ตอบแบบสอบถาม ได้แก่ เพศ อายุ ระดับการศึกษา สถานภาพสมรส อาชีพ รายได้เฉลี่ยต่อเดือน

ส่วนที่ 2 ข้อมูลเกี่ยวกับความคิดเห็นต่อคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี

ลักษณะของคำถามเป็นแบบมาตราส่วน (Rating Scale) 5 ระดับแบบลิเคิร์ท ซึ่งมีความหมายดังนี้

5 หมายถึง มีความคิดเห็นต่อคุณภาพการให้บริการระดับมากที่สุด
4 หมายถึง มีความคิดเห็นต่อคุณภาพการให้บริการระดับมาก
3 หมายถึง มีความคิดเห็นต่อคุณภาพการให้บริการระดับปานกลาง
2 หมายถึง มีความคิดเห็นต่อคุณภาพการให้บริการระดับน้อย
1 หมายถึง มีความคิดเห็นต่อคุณภาพการให้บริการระดับน้อยที่สุด

โดยใช้เกณฑ์ประเมินผลดังนี้ (ธานินทร์ ศิลป์จารุ, 2555: 466)

คะแนนเฉลี่ย 4.50 - 5.00 หมายถึง คุณภาพการให้บริการอยู่ในระดับมากที่สุด

คะแนนเฉลี่ย 3.50 - 4.49 หมายถึง คุณภาพการให้บริการอยู่ในระดับมาก
คะแนนเฉลี่ย 2.50 – 3.49 หมายถึง คุณภาพการให้บริการอยู่ในระดับปานกลาง
คะแนนเฉลี่ย 1.50 – 2.49 หมายถึง คุณภาพการให้บริการอยู่ในระดับน้อย
คะแนนเฉลี่ย 1.00 – 1.49 หมายถึง คุณภาพการให้บริการอยู่ในระดับน้อยที่สุด

ส่วนที่ 3 ข้อเสนอแนะ เพิ่มเติม ของผู้ที่มาใช้บริการ

การเก็บรวบรวมข้อมูล

1. ข้อมูลปฐมภูมิ (Primary Data) ในการเก็บรวบรวมข้อมูลนี้ เป็นการเก็บข้อมูลโดยการแจกแบบสอบถามให้กลุ่มตัวอย่าง ได้แก่ ผู้ที่มาใช้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี ตามจำนวนที่ได้กำหนดไว้โดยให้กลุ่มตัวอย่างตอบแบบสอบถามด้วยตนเอง

2. ข้อมูลทุติยภูมิ (Secondary Data) เป็นข้อมูลที่ได้จากการศึกษาค้นคว้า เก็บรวบรวมข้อมูลและเอกสารที่เกี่ยวข้องต่าง ๆ จากห้องสมุด รวมไปถึงการศึกษาค้นคว้าหาข้อมูลจากอินเตอร์เน็ต เพื่อใช้เป็นส่วนประกอบในเนื้อหาของงานวิจัยและนำไปใช้ในการวิเคราะห์ข้อมูล

ผลการวิจัย

1. ปัจจัยส่วนบุคคลของผู้ตอบแบบสอบถาม พบว่า กลุ่มตัวอย่างส่วนใหญ่เป็นเพศ หญิง มีอายุระหว่าง 20 - 29 ปี มีการศึกษาระดับปริญญาตรี มีสถานภาพสมรส มีอาชีพประกอบธุรกิจส่วนตัว มีรายได้เฉลี่ยต่อเดือน 30,001 - 40,000 บาท

2. แสดงความคิดเห็นต่อคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี โดยภาพรวมและในรายด้าน

ตารางที่ 1 แสดงระดับความคิดเห็นต่อคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี

คุณภาพการให้บริการ	$\bar{x}$	S.D.	ระดับความคิดเห็น
1. ด้านความเป็นรูปธรรมของบริการ	3.66	0.45	มาก
2. ด้านความน่าเชื่อถือและไว้วางใจ	3.77	0.47	มาก
3. ด้านการตอบสนองลูกค้า	3.86	0.36	มาก
4. ด้านการให้ความมั่นใจแก่ผู้ใช้บริการ	3.78	0.35	มาก
5. ด้านความเอาใจใส่	3.75	0.42	มาก
โดยภาพรวม	**3.76**	**0.27**	**มาก**

จากการศึกษา คุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี โดยภาพรวม พบว่า ผู้ใช้บริการให้ระดับคุณภาพการบริการอยู่ในระดับมาก ($\bar{X}$=3.76) และเมื่อพิจารณาเป็นรายด้าน พบว่า ผู้บริโภคมีระดับความคิดเห็นมากที่สุด ด้านการตอบสนองลูกค้า รองลงมา คือ ด้านการให้ความมั่นใจแก่ผู้ใช้บริการ ด้านความเชื่อถือและไว้วางใจ ด้านความเอาใจใส่ และด้านความเป็นรูปธรรมของบริการ ตามลำดับ

3. แสดงความสัมพันธ์ระหว่างปัจจัยส่วนบุคคลต่อคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี

ตารางที่ 2 แสดงความสัมพันธ์ระหว่างปัจจัยส่วนบุคคลต่อคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี

ปัจจัยส่วนบุคคล	คุณภาพการให้บริการโดยภาพรวม			
	ค่าสถิติ	Df	Asymp.sig (2-Sided)	ผลลัพธ์
เพศ	521.062	3	0.153	ยอมรับ HO
อายุ	28.553	4	0.635	ยอมรับ HO
ระดับการศึกษา	25.702	2	0.350	ยอมรับ HO
สถานภาพ	45.378	3	0.499	ยอมรับ HO
อาชีพ	78.867	4	0.000*	ปฏิเสธ HO
รายได้เฉลี่ยต่อเดือน	89.180	4	0.000*	ปฏิเสธ HO

จากการศึกษา ปัจจัยส่วนบุคคลที่มีต่อคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี โดยภาพรวม พบว่า ปัจจัยส่วนบุคคลด้านเพศ อายุ ระดับการศึกษา และสถานภาพสมรส ไม่มีความสัมพันธ์ กับคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี`แต่ปัจจัยส่วนบุคคลด้านอาชีพ และรายได้เฉลี่ยต่อเดือน มีความสัมพันธ์ กับคุณภาพการให้บริการร้านแบล็ค แคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี อย่างมีนัยสำคัญทางสถิติที่ระดับ .05

สรุปและอภิปรายผล

จากผลการศึกษาคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี ผู้วิจัยสามารถสรุปและอภิปรายผลได้ดังนี้

1. จากการศึกษา ความสัมพันธ์ระหว่างปัจจัยส่วนบุคคลของผู้ใช้บริการกับคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี โดยภาพรวมพบว่า ผู้ใช้บริการให้ระดับคุณภาพการบริการอยู่ในระดับมากทุกด้าน และเมื่อพิจารณาเป็นรายด้านพบว่า ผู้บริโภคมีระดับความคิดเห็นมากที่สุด ด้านการตอบสนองลูกค้า รองลงมาคือ ด้านการให้ความมั่นใจแก่ผู้ใช้บริการ ด้านความเชื่อถือและไว้วางใจ ด้านความเอาใจใส่ และด้านความเป็นรูปธรรมของบริการ ตามลำดับ ซึ่งสอดคล้องกับผลการศึกษาของ ภัสสร ธนาสุวิชากร, ชิณโสณ์ วิสิฐนิธิกิจา, และอิงอร ตั้นพันธ์. (2563) ได้ศึกษาเรื่อง คุณภาพการให้บริการร้านอาหารครัวไม้น้ำ ผลการศึกษาพบว่า คุณภาพการให้บริการร้านอาหารครัวไม้น้ำ อยู่ในระดับ ความสำคัญมาก และสอดคล้องกับผลการศึกษาของ กฤตยพร สุขพัฒน์ และสินีนาถ เริ่มลาวรรณ (2566) ได้ศึกษาเรื่อง คุณภาพการให้บริการที่ส่งผลต่อการตัดสินใจเลือกใช้บริการธุรกิจร้านกาแฟ ในเขตเทศบาลเมืองฉะเชิงเทรา จังหวัดฉะเชิงเทรา ผลการศึกษาพบว่า คุณภาพการให้บริการของธุรกิจ ร้านกาแฟ อยู่ในระดับความสำคัญมาก โดยเรียงลำดับค่าเฉลี่ยจากมากไปหาน้อย ได้แก่ การตอบสนองต่อผู้บริโภค การเข้าใจและรับรู้ความต้องการของผู้บริโภค ความน่าเชื่อถือไว้วางใจ การให้ความมั่นใจต่อผู้บริโภค และความเป็นรูปธรรมของบริการ

2. ผลการวิเคราะความสัมพันธ์ระหว่างปัจจัยส่วนบุคคลต่อคุณภาพการให้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี พบว่า ปัจจัยส่วนบุคคลด้าน เพศ อายุ ระดับการศึกษา และสถานภาพสมรส ไม่มีความสัมพันธ์กับคุณภาพคุณภาพการให้บริการ ร้านแบล็คแคนยอน

สาขาสถานีบริการน้ำมันปตท. ไชยาออยล์ จังหวัดสุราษฎร์ธานี `แต่ปัจจัยส่วนบุคคลด้านอาชีพ และรายได้เฉลี่ยต่อเดือน มีความสัมพันธ์กับคุณภาพคุณภาพการให้บริการ ร้านแบล็คแคนยอน สาขาสถานีบริการน้ำมันปตท. ไชยาออยล์ จังหวัดสุราษฎร์ธานี อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 สอดคล้องกับผลการศึกษาของ พงศกร อั้งสุพ่วง (2566) ได้ศึกษาเรื่อง ปัจจัยที่มีผลต่อการเลือกรับบริการร้านกาแฟพิเศษของผู้บริโภค ในเขตกรุงเทพมหานคร ผลการศึกษาพบว่า ปัจจัยด้านประชากรศาสตร์ในด้านเพศ อายุ ระดับการศึกษา ที่แตกต่างกัน มีผลต่อการเลือกรับบริการร้านกาแฟพิเศษของผู้บริโภคในเขตกรุงเทพมหานคร ไม่แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 สอดคล้องกับผลการศึกษาของ ณิชกานต์ หะริณพลสิทธิ์ และประภัสสร วิเศษประภา (2563) ได้ศึกษาเรื่อง คุณภาพการบริการที่ส่งผลต่อการตัดสินใจบริโภคกาแฟของพนักงานออฟฟิศ ในเขตกรุงเทพมหานคร ผลการศึกษาพบว่า ปัจจัยด้านประชากรศาสตร์ที่มีผลต่อการตัดสินใจบริโภคกาแฟ ด้านเพศ อายุสภานภาพ ที่แตกต่างกันไม่ส่งผลต่อการตัดสินใจบริโภคกาแฟของพนักงานออฟฟิศ ในเขตกรุงเทพมหานคร `ปัจจัยด้านประชากรศาสตร์ ด้านระดับการศึกษา มีผลต่อการตัดสินใจบริโภคกาแฟที่แตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 ไม่สอดคล้องกับผลการศึกษาของ ปกรณ์ วิชชุเวทิน (2560) ได้ศึกษาเรื่อง ปัจจัยที่มีอิทธิพลต่อการบริโภคกาแฟสดของผู้บริโภค ในเขตอำเภอเมือง จังหวัดสระบุรี ผลการศึกษาพบว่า ปัจจัยส่วน บุคคลด้านอายุ สถานภาพ ระดับการศึกษา ส่งผลต่อปัจจัยที่มีอิทธิพลต่อการบริโภคกาแฟสดของผู้บริโภค ในเขตอำเภอเมือง จังหวัดสระบุรี

ข้อเสนอแนะ

จากผลการศึกษาวิจัยเรื่อง คุณภาพการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี ดังนี้

ข้อเสนอแนะสำหรับการนำผลวิจัยไปใช้

1. ด้านความเป็นรูปธรรมของร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี ควรมีการปรับปรุงสภาพแวดล้อมทางให้ ทันสมัย สะอาดอยู่เสมอ เพิ่มป้ายบอกทาง และรายการสินค้าให้ชัดเจน

2. ด้านความเชื่อถือและไว้วางใจ ร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี ควรมีระบบติดตามคุณภาพอาหารและเครื่องดื่มอย่างเข้มงวด พัฒนาความสม่ำเสมอในการให้บริการทุกช่วงเวลา และจัดทำระบบรับฟังความคิดเห็น และแก้ไขปัญหาอย่างรวดเร็ว

3. ด้านการตอบสนองลูกค้า ร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี ควรรักษามาตรฐานการให้บริการที่รวดเร็วไว้ เพิ่มการฝึกอบรมพนักงานให้สามารถแก้ไขปัญหาเฉพาะหน้าได้ดียิ่งขึ้น พัฒนาระบบการจัดการคิวให้มีประสิทธิภาพมากขึ้นในช่วงเวลาเร่งด่วน

4. ด้านการให้ความมั่นใจแก่ร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี ควรจัดอบรมพนักงานเรื่องความรู้ในเรื่องผลิตภัณฑ์อย่างสม่ำเสมอ สร้างมาตรฐานการบริการที่เป็นระบบ และตรวจสอบได้ รวมถึงการแสดงใบรับรองมาตรฐานต่าง ๆ ให้ลูกค้าเห็นชัดเจน

5. ด้านความเอาใจใส่ ควรมีการฝึกอบรมพนักงานในการสังเกต และเข้าใจความต้องการของลูกค้า ทั้งนี้ การปรับปรุงในทุกด้านควรทำอย่างต่อเนื่อง และมีการประเมินผลเป็นระยะ เพื่อรักษาระดับคุณภาพการให้บริการที่ดีและพัฒนาให้ดียิ่งขึ้น

ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

1. ควรทำการศึกษาความต้องการของผู้ใช้บริการร้านแบล็คแคนยอน สถานีบริการน้ำมัน อำเภอไชยา จังหวัดสุราษฎร์ธานี ในเชิงคุณภาพ นอกเหนือจากการศึกษาเชิงสำรวจ ในครั้งต่อไป และควรจะทำการศึกษาที่เน้นเรื่องความพึงพอใจหรือความคาดหวังที่มีผลต่อคุณภาพการบริการ ซึ่งผลการวิจัยที่ได้อาจจะมีความแตกต่างกัน และนำไปประยุกต์ใช้แก้ปัญหาอื่น ๆ ได้อีก

2. การศึกษาครั้งนี้เกี่ยวกับคุณภาพการบริการ ซึ่งเกี่ยวข้องกับปัญหาที่เกิดขึ้นของกิจการเพื่อนำไปประยุกต์ใช้แก้ปัญหาที่เกิดขึ้น สำหรับการศึกษาครั้งต่อไปควรจะวิจัยเกี่ยวกับเรื่องอื่น ๆ ซึ่งสามารถนำมาใช้ประโยชน์กับกิจการหรือธุรกิจบริการอื่น ๆ เช่น ส่วนประสมทางการตลาด (7P's) การจัดการองค์กร (Organizing), การวิเคราะห์สภาพแวดล้อมองค์กร เป็นต้น

เอกสารอ้างอิง

กฤตยพร สุขพัฒน์ และสินีนาถ เริ่มลาวรรณ. (2566). คุณภาพการให้บริการที่ส่งผลต่อการตัดสินใจเลือกใช้บริการธุรกิจร้านกาแฟ ในเขตเทศบาลเมืองฉะเชิงเทรา จังหวัดฉะเชิงเทรา. วารสารวิจัยวิทยาการจัดการ มหาวิทยาลัยราชภัฏสุรินทร์, 7(3), 195-205.

ณิชกานต์ หะริณพลสิทธิ์ และประภัสสร วิเศษประภา. (2563). คุณภาพการบริการที่ส่งผลต่อการตัดสินใจบริโภคกาแฟของพนักงานออฟฟิศในเขตกรุงเทพมหานคร (การค้นคว้าอิสระบริหารธุรกิจมหาบัณฑิต). มหาวิทยาลัยรามคำแหง, กรุงเทพฯ.

ไทยโพสต์. (2567). ธุรกิจร้านอาหารและเครื่องดื่มในไทยเติบโตมูลค่าพุ่ง 6.5 แสนล้านในปี 68. สืบค้นเมื่อวันที่ 27 ธันวาคม 2567 จาก https://www.thaipost.net/economy-news/708957/

ธานินทร์ ศิลป์จารุ. (2555). การวิจัยและวิเคราะห์ข้อมูลทางสถิติด้วย SPSS และ AMOS (พิมพ์ครั้งที่ 13). นนทบุรี : เอส อาร์พริ้นติ้งแมสโปรดักส์.

ปกรณ์ วิชชุเวทิน. (2560). ปัจจัยที่มีอิทธิพล ต่อการบริโภคกาแฟสดของผู้บริโภคในเขตอำเภอเมืองจังหวัดสระบุรี. (หลักสูตรบริหารธุรกิจมหาบัณฑิต) วิทยาลัยพาณิชยศาสตร์. มหาวิทยาลัยบูรพา, ชลบุรี.

พงศกร อั้งสุพ่วง (2566). ปัจจัยที่มีผลต่อการเลือกรับบริการร้านกาแฟพิเศษของผู้บริโภคในเขตกรุงเทพมหานคร (บริหารธุรกิจมหาบัณฑิต) สาขาวิชานวัตกรรมทางธุรกิจ. มหาวิทยาลัยธรรมศาสตร์, กรุงเทพฯ.

ภัสสร ธนาสุวิชากร, ชิณโสณ์ วิสิฐนิธิกิจา, และอิงอร ตั้นพันธ์. (2563). คุณภาพการให้บริการร้านอาหารครัวไม้น้ำ. วารสารนาคบุตรปริทรรศน์ มหาวิทยาลัยราชภัฏนครศรีธรรมราช, 12(1), 86-96.

ศูนย์วิจัยกสิกรไทย. (2567) แนวโน้มธุรกิจร้านอาหารและเครื่องดื่ม. สืบค้นเมื่อวันที่ 25 ธันวาคม 2567 จาก https://media.settrade.com/settrade/Documents/2024/Dec/161224-K-Research-Restaurant-Industry.pdf

Black Canyon. (2567). ประวัติแบล็คแคนยอน. สืบค้นเมื่อวันที่ 27 ธันวาคม 2567 จาก https://www.blackcanyonthai.com/about_us.aspx?lang=TH.

Cochran, W. G. (1977). Sampling Techniques (3d ed.). New York: John Wiley & Sons Inc.

Hanna, N. & Wozniak, R. (2001). Consumer behavior: An applied approach. Upper Saddle River. NJ, Prentice Hall.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A Conceptual Model of Service Quality and its Implication for Future Research. Journal of Marketing, 49, 41-50.

Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1990). Delivering Quality Service Balancing Customer Perceptions and Expectations. USA: Collier Macmillan Publishers.

Thailand Restaurant News. (2559). ร้านกาแฟไทยสู่ร้านอาหารอาเซียน. สืบค้นเมื่อวันที่ 20 ตุลาคม 2567 จาก https://www.thailandrestaurantnew.com/food-business/black-canyon

การพัฒนาแผนการตลาดธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพของวิสาหกิจชุมชนตะวันฉาย จังหวัดระยอง ด้วยกระบวนการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม

Development of a Marketing Plan for Healthy Pineapple Cider Business of Tawanchai Community Enterprise, Rayong Province Using Participatory Action Research Process

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บทคัดย่อ

วิจัยนี้มีวัตถุประสงค์เพื่อวิเคราะห์แผนภูมิโมเดลธุรกิจ ปัจจัยแวดล้อมภายนอกและภายใน และพัฒนาแผนการตลาดธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพ ของวิสาหกิจชุมชนตะวันฉาย จังหวัดระยอง ด้วยกระบวนการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม (PAR) เนื่องด้วยวิสาหกิจชุมชนยังไม่มีความพร้อมเข้าสู่ตลาดของผลิตภัณฑ์ไซเดอร์สับปะรดเพื่อสุขภาพ ทีมงานวิจัยจึงได้เล็งเห็นถึงความสำคัญของการพัฒนาแผนการตลาดธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพร่วมกันระหว่าง มหาวิทยาลัยเทคโนโลยีราชมงคลตะวันออก วิสาหกิจชุมชนตะวันฉาย และสำนักงานเกษตรจังหวัดระยอง เพื่อให้ชุมชนสามารถพึ่งพาตนเองได้อย่างยั่งยืน ผ่านการสัมภาษณ์เชิงลึกกับผู้มีส่วนเกี่ยวข้อง จำนวน 2 ราย คือ ประธานวิสาหกิจชุมชน ตัวแทนสำนักงานเกษตรจังหวัดระยอง เป็นผู้ให้ข้อมูลหลัก ใช้วิธีการวิเคราะห์ข้อมูล คือ การวิเคราะห์เชิงเนื้อหา ผลการวิจัย พบว่า กระบวนการมีส่วนร่วมกันนำเสนอโมเดลธุรกิจที่ครอบคลุมกลุ่มลูกค้า ช่องการจัดการจำหน่าย และข้อได้เปรียบด้านวัตถุดิบท้องถิ่น รวมถึงการวิเคราะห์ปัจจัยแวดล้อมภายนอกและภายใน จะส่งผลให้เกิดการพัฒนาแผนการตลาดธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพ โดยแผนการตลาดที่เสนอเน้นการสร้างความแตกต่างด้วยคุณค่าทางสุขภาพ การส่งเสริมผ่านดิจิทัลมาร์เก็ตติ้ง การรีวิวจากผู้มีอิทธิพลทางการตลาด และการพัฒนาแผนการตลาดให้สามารถแข่งขันในตลาดสุขภาพที่มีแนวโน้มเติบโตอย่างต่อเนื่อง ข้อค้นพบเชิงกลยุทธ์ ปรับสูตรโดยการเน้นโภชนาการมากขึ้น สร้างการรับรู้ตราสินค้า การขยายตลาด และเพิ่มยอดขายผ่านกลยุทธ์ที่ตอบโจทย์ไลฟ์สไตล์ของผู้บริโภคยุคใหม่

คำสำคัญ: การพัฒนาแผนการตลาด, ไซเดอร์สับปะรดเพื่อสุขภาพ, วิสาหกิจชุมชนตะวันฉาย

Abstract

This research aimed to analyze the business model chart, external and internal environmental factors, and develop a marketing plan for the healthy pineapple cider business of the Tawanchai Community Enterprise in Rayong Province using the Participatory Action Research (PAR) process. Since the community enterprise was not yet ready to enter the market for healthy pineapple cider products, the research team saw the importance of developing a marketing plan for the healthy pineapple cider business together with the Rajamangala University of Technology Tawanchai, the Tawanchai Community Enterprise, and the Rayong Provincial Agricultural Office to enable the community to sustainably rely on itself. In-depth interviews were conducted with two stakeholders: the community enterprise president and a representative from the Rayong Provincial Agricultural Office, who provided key information. Content analysis was used to analyze the data. The research results found that the process of participating in presenting a business model that covers customer groups, distribution channels, and advantages of local raw materials, as well as the analysis of external and internal environmental factors, would result in the development of a marketing plan for the healthy pineapple cider business. The proposed marketing plan emphasizes creating differences through health value, promoting through digital marketing, reviews from market influencers, and developing a marketing plan that can compete in the health market that has a tendency to grow continuously. Strategic findings: adjusting the formula by focusing more on nutrition, creating brand awareness, expanding the market, and increasing sales through strategies that meet the lifestyles of modern consumers..

Keywords: Development of a Marketing Plan, Healthy Pineapple Cider Business, Tawanchai Community Enterprise

บทนำ

จากการดำเนินกิจกรรมบริการวิชาการและศึกษาดูงานของคณาจารย์และนักศึกษาระดับบัณฑิตศึกษา ของหลักสูตรเศรษฐศาสตรมหาบัณฑิต สาขาวิชาเศรษฐศาสตร์ผู้ประกอบการ และนักศึกษาหลักสูตรเศรษฐศาสตรบัณฑิต สาขาวิชาเศรษฐศาสตร์การประกอบการ คณะบริหารธุรกิจและเทคโนโลยีสารสนเทศ มหาวิทยาลัยเทคโนโลยีราชมงคลตะวันออก ซึ่งดำเนินงานตามแผนแม่บทการพัฒนาศักยภาพคนตลอดช่วงชีวิต ยุทธศาสตร์การจัดสรรงบประมาณด้านการพัฒนาและเสริมสร้างศักยภาพทรัพยากรมนุษย์ แผนงานการสร้างความเข้มแข็งให้สังคม ยุทธศาสตร์กระทรวงด้านการพัฒนาศักยภาพคน พันธกิจมหาวิทยาลัยด้านการบริการวิชาการและถ่ายทอดเทคโนโลยีชุมชนสังคม ประเด็นยุทธศาสตร์มหาวิทยาลัยด้านการบริการวิชาการแก่ชุมชนและสังคม และเพื่อการพึ่งพาตนเองได้อย่างยั่งยืน หลักสูตรจึงได้จัดกิจกรรมเพื่อนำองค์ความรู้จากการสอนและการวิจัยมาบริการวิชาการให้กับชุมชน พร้อมกับนำนักศึกษาของหลักสูตรไปศึกษาดูงานและฝึกปฏิบัติจริงในสถานประกอบการ เพื่อให้เกิดการบูรณาการร่วมกันระหว่างอาจารย์และนักศึกษาของหลักสูตรกับภาคธุรกิจในชุมชนและหน่วยงานของรัฐ (คณะบริหารธุรกิจ

และเทคโนโลยีสารสนเทศ, 2568)

จากนโยบายข้างต้น วิสาหกิจชุมชนตะวันฉาย จังหวัดระยอง จึงเป็นเป้าหมายของการวิจัยครั้งนี้ เนื่องจากเป็นพื้นที่ยุทธศาสตร์ของมหาวิทยาลัย อยู่ในความสนับสนุนของสำนักงานเกษตรจังหวัดระยอง และทีมงานวิจัยได้เคยเข้าไปบริการวิชาการให้กับวิสาหกิจชุมชนมาแล้ว เมื่อวันที่ 22 กุมภาพันธ์ พ.ศ. 2568 ทางวิสาหกิจชุมชนฯ จึงมีความต้องการนำองค์ความรู้จากการวิจัยมาเพื่อพัฒนาธุรกิจแปรรูปสับปะรดมาเป็นไซเดอร์สับปะรดเพื่อให้มีสินค้าที่หลากหลายและนำผลผลิตสับปะรดในชุมชนที่มีอยู่จำนวนมากมาทำให้เกิดมูลค่าเพิ่ม ซึ่งปัจจุบันทางวิสาหกิจชุมชนฯ มีเพียงสุราชุมชนที่เป็นผลิตภัณฑ์ชนิดเดียว ธุรกิจนี้อยู่ในอุตสาหกรรมเครื่องดื่มแอลกอฮอล์และเครื่องดื่มเพื่อสุขภาพ โดยมุ่งเน้นผลิตภัณฑ์ไซเดอร์สับปะรดที่มีคุณค่าทางโภชนาการและสามารถเป็นทางเลือกใหม่ให้กับผู้บริโภคที่ต้องการผลิตภัณฑ์แอลกอฮอล์จากผลไม้ธรรมชาติที่มีประโยชน์ต่อสุขภาพ (ประธานวิสาหกิจชุมชนตะวันฉาย, 2568)

ปัจจุบันตลาดเครื่องดื่มแอลกอฮอล์ในประเทศไทยมีแนวโน้มการเติบโต โดยเฉพาะในกลุ่มเครื่องดื่มที่ผลิตจากวัตถุดิบธรรมชาติและมีจุดขายด้านสุขภาพ ไซเดอร์สับปะรดเป็นผลิตภัณฑ์ที่สามารถตอบโจทย์ผู้บริโภคที่ต้องการเครื่องดื่มที่มีรสชาติหลากหลายและดีต่อสุขภาพ เนื่องจากเป็นเครื่องดื่มที่ได้จากการหมักน้ำสับปะรดด้วยกระบวนการธรรมชาติ โดยใช้ยีสต์ที่เหมาะสมเพื่อให้ได้เครื่องดื่มที่มีระดับแอลกอฮอล์ต่ำและยังคงคุณค่าทางโภชนาการสูง ประกอบด้วยสารต้านอนุมูลอิสระ วิตามิน และเอนไซม์ที่เป็นประโยชน์ต่อร่างกาย (สวรรยา ปัญญานันท์, วรรณรัตน์ เฉลิมแสนยากร, ชนกภัทร ผดุงอรรถ และลักษมี หมื่นศรีธาราม, 2564) อีกทั้งยังสามารถพัฒนาเป็นสินค้าเชิงชุมชนเพื่อส่งเสริมเศรษฐกิจท้องถิ่นได้ จากการดำเนินกิจกรรมของหลักสูตรที่ได้ทราบปัญหาการมีวัตถุดิบสับปะรดจำนวนมากจึงขายไม่ได้ราคา ปัจจุบันมีรายได้หลักจากการจำหน่ายสุราชุมชน และความต้องการผลักดันให้เกิดผลิตภัณฑ์ใหม่ตามแนวคิดการพัฒนาแบบองค์รวม หรือ BCG Model เพื่อยกระดับรายได้ให้กับวิสาหกิจชุมชนฯ แต่ยังไม่มีความพร้อมเข้าสู่ตลาดของผลิตภัณฑ์ไซเดอร์สับปะรดเพื่อสุขภาพ (ตัวแทนสำนักงานเกษตรจังหวัดระยอง, 2568) จึงเป็นปัญหาการวิจัยครั้งนี้ ทีมงานวิจัยจึงได้เล็งเห็นถึงความสำคัญของการพัฒนาแผนการตลาดธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพ ด้วยกระบวนการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม (Participatory Action Research: PAR) ร่วมกันระหว่าง มหาวิทยาลัยเทคโนโลยีราชมงคลตะวันออก วิสาหกิจชุมชนตะวันฉาย และสำนักงานเกษตรจังหวัดระยอง เพื่อให้ชุมชนสามารถพึ่งพาตนเองได้อย่างยั่งยืน

วัตถุประสงค์ของการวิจัย

1) เพื่อวิเคราะห์แผนภูมิโมเดลธุรกิจ

2) เพื่อวิเคราะห์ปัจจัยแวดล้อมภายนอกและภายใน

3) เพื่อพัฒนาแผนการตลาดธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพ ของวิสาหกิจชุมชนตะวันฉาย จังหวัดระยอง

แนวคิด ทฤษฎี กรอบแนวคิด

1. ไซเดอร์สับปะรดเพื่อสุขภาพ ไซเดอร์เป็นผลิตภัณฑ์หมักที่ให้ประโยชน์ต่อสุขภาพ โดยเฉพาะการใช้จุลินทรีย์ที่ดีต่อระบบทางเดินอาหาร เช่น โปรไบโอติก การใช้สับปะรดเป็นวัตถุดิบหลักสามารถเพิ่มมูลค่าทางเศรษฐกิจและลดของเสียจากการเกษตร การพัฒนาไซเดอร์สับปะรดควรพิจารณาในมิติของคุณค่าทางโภชนาการ (วิตามิน C, โพลีฟีนอล) และประโยชน์ต่อสุขภาพ (ระบบย่อยอาหาร, ระบบ

ภูมิคุ้มกัน) วิเคราะห์ กระบวนการหมัก และ จุลินทรีย์ที่เกี่ยวข้อง เช่น Acetobacter, Saccharomyces cerevisiae การยอมรับของผู้บริโภคและปัจจัยที่มีผลต่อการตัดสินใจซื้อ เช่น รสชาติ, บรรจุภัณฑ์, คุณค่าทางสุขภาพ (ชนกภัทร ผดุงอรรถ, สวรรยา ปัญญานันท์ และวรรณรัตน์ เฉลิมแสนยากร, 2561)

2. แผนภูมิโมเดลธุรกิจ (Business Model Canvas) คือ เครื่องมือเชิงกลยุทธ์ที่ผู้ประกอบการและธุรกิจ สามารถนำมาใช้เพื่อวิเคราะห์ และสื่อสารรูปแบบการดำเนินงานของธุรกิจตนให้กับบุคคลภายในองค์กรได้เข้าใจอย่างลึกซึ้ง องค์ประกอบด้วย 1) พาร์ทเนอร์หรือพันธมิตร (Key Partners) 2) กิจกรรมหลัก (Key Activities) 3) ทรัพยากรหลัก (Key Resources) 4) จุดเด่นของสินค้าหรือบริการ (Value Proposition) 5) ความสัมพันธ์กับลูกค้า (Customer Relationship) 6) กลุ่มลูกค้า (Customer Segments) 7) ช่องทางการสื่อสารและการจำหน่าย (Channels) 8) กลยุทธ์การเงิน (Revenue Streams) และ 9) โครงสร้างต้นทุน (Cost Structure) (กนกกาญจน์ เกตุแก้ว และสุวิต ศรีไหม, 2562)

3. การวิเคราะห์ปัจจัยแวดล้อมภายนอกและภายใน มีดังนี้ 1) การวิเคราะห์ปัจจัยแวดล้อมภายนอก ใช้เครื่องมือ คือ PESTEL Analysis ประกอบด้วย Political, Economic, Social, Techno - logical, Environmental และ Legal 2) การวิเคราะห์ปัจจัยแวดล้อมภายใน ใช้เครื่องมือ คือ SWOT Analysis ประกอบด้วย การวิเคราะห์ปัจจัยภายใน (จุดแข็ง - จุดอ่อน) และปัจจัยภายนอก (โอกาส - อุปสรรค) 3) วิเคราะห์การแข่งขันในอุตสาหกรรม ใช้เครื่องมือ คือ Porter's Five Forces ประกอบด้วย อำนาจต่อรองจากลูกค้า อำนาจต่อรองจากซัพพลายเออร์ การคุกคามของผู้ประกอบการรายใหม่ การคุกคามจากสินค้าทดแทน และการแข่งขันในอุตสาหกรรม และ 4) การวิเคราะห์ปัจจัยแวดล้อม (TOWS Matrix) ประกอบด้วย SO (Strengths - Opportunities), WO (Weaknesses - Opportunities), ST (Strengths - Threats) และ WT (Weaknesses - Threats) การใช้เครื่องมือข้างต้นจะช่วยให้เข้าใจสถานการณ์ทางธุรกิจได้ดียิ่งขึ้น (ชวัลวิทย์ สิทธิมงคลชัย, 2563)

4. การจัดทำแผนการตลาด แผนการตลาด คือ แนวทางที่องค์กรใช้เพื่อเข้าถึงและสร้างคุณค่าให้กับลูกค้า มีการวิเคราะห์ดังนี้ 1) Marketing Mix Theory (4Ps) เป็นการวิเคราะห์องค์ประกอบสำคัญของแผนการตลาด ได้แก่ Product, Price, Place และ Promotion 2) STP Marketing Theory เป็นการแบ่งส่วนตลาด (Segmentation), การเลือกเป้าหมาย (Targeting), และการวางตำแหน่งสินค้า (Positioning) และ 3) การวัดผลและการจัดสรรงบประมาณ (มานพ ชุ่มอุ่น และอาชวิน ใจแก้ว, 2563)

งานวรรณกรรมที่เกี่ยวข้อง

อุมาพร โวลา และอุดม สมบูรณ์ผล (2566) แนวทางการพัฒนาศักยภาพวิสาหกิจชุมชนผลิตภัณฑ์ผ้าไหมนาข่า จังหวัดอุดรธานี พบว่า (1) เศรษฐกิจฐานรากของวิสาหกิจชุมชนการสร้างสรรค์มูลค่าของผลิตภัณฑ์ลักษณะและความสามารถการบริหารจัดการ และพฤติกรรมของผู้บริโภค เป็นบทสะท้อนความสามารถในการแข่งขันทางศักยภาพวิสาหกิจชุมชนผลิตภัณฑ์ผ้าไหม นาข่า จังหวัดอุดรธานี (2) สภาพแวดล้อมในการพัฒนาศักยภาพวิสาหกิจ โดยอิงจากสิ่งที่ค้นพบจากปัจจัยดังนี้ 1) ปัจจัยภายในได้แก่ คณะกรรมการและสมาชิกกลุ่มการบริหารจัดการกลุ่ม การมีส่วนร่วมของสมาชิกกลุ่ม การส่งเสริมการเรียนรู้เงินทุนและผลิตภัณฑ์ 2) ปัจจัยภายนอก ได้แก่ สังคม และวัฒนธรรมเทคโนโลยีสารสนเทศสภาพเศรษฐกิจ การเมืองและกฎหมายเครือข่ายการสนับสนุนจากหน่วยงานภายนอกคู่แข่งขัน ลูกค้า และเจ้าของปัจจัยการผลิต และ 3) แนวทางการพัฒนาศักยภาพวิสาหกิจชุมชนผลิตภัณฑ์ผ้าไหม นาข่า จังหวัดอุดรธานี ได้แก่ การสร้างความได้เปรียบทางด้านต้นทุนการสร้างความแตกต่างในด้านรูปแบบของ

ผลิตภัณฑ์ผ้าไหม การพัฒนาขีดความสามารถของวิสาหกิจชุมชนการมุ่งตลาดเฉพาะส่วน และการสร้างภาพลักษณ์ที่ตอบสนองความต้องการที่ให้ทันสมัยให้เยาวชนคนรุ่นหลังได้ศึกษาเรียนรู้ต่อไป

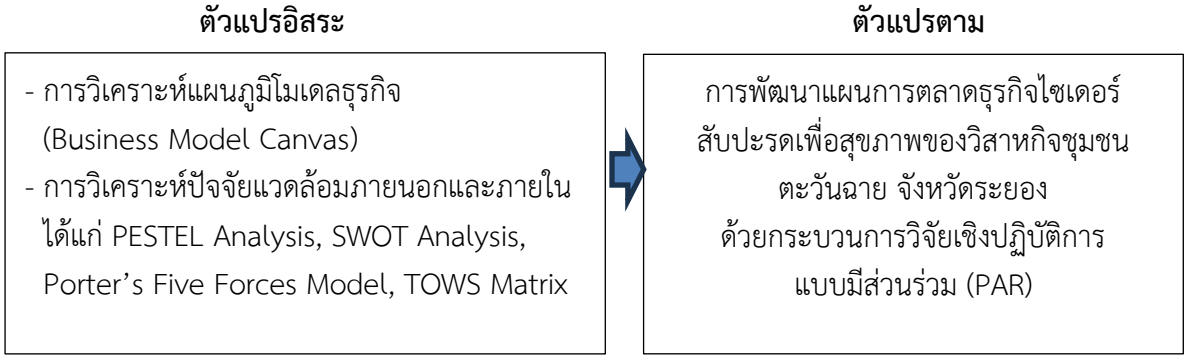
ชวัลวิทย์ สิทธิมงคลชัย (2563) ศึกษาแผนธุรกิจการผลิตและจัดจำหน่ายเครื่องดื่มแอลกอฮอล์ไซเดอร์ (Cider) แบรนด์ Hustler มุ่งวิเคราะห์ศักยภาพการแข่งขันและกลุ่มผู้บริโภค เพื่อกำหนดทิศทางการตลาดและกลยุทธ์ที่ชัดเจน รวมทั้งประเมินความเสี่ยงและเตรียมแผนสำรอง อุตสาหกรรมเครื่องดื่มแอลกอฮอล์เติบโตต่อเนื่อง ผู้บริโภคมีพฤติกรรมเปลี่ยนแปลงและสนใจเครื่องดื่มประเภทใหม่ ๆ แต่ยังมีอุปสรรคจากการผูกขาดตลาดและกฎหมายควบคุมที่ผู้ประกอบการรายใหม่ควรศึกษา ไซเดอร์แบรนด์ Hustler จะใช้วัตถุดิบผลไม้ไทยเพื่อสร้างความได้เปรียบด้านต้นทุนและส่งเสริมเอกลักษณ์ไทย ประเทศไทยมีข้อได้เปรียบในด้านการเกษตร ทำให้สามารถสร้างแบรนด์ที่โดดเด่น ทั้งในไทยและต่างประเทศ ช่องทางการจัดจำหน่ายจะเป็นผ่านผู้จัดจำหน่าย (Distributors) คาดว่าปีแรกธุรกิจจะมีรายได้ประมาณ 21 ล้านบาท โดยมีกำไรสุทธิคาดการณ์ที่ 8 ล้านบาท คิดเป็นร้อยละ 38 และคาดอัตราการเติบโตเฉลี่ยร้อยละ 5 ต่อปี

มานพ ชุ่มอุ่น และอาชวิน ใจแก้ว (2563) ศึกษาการออกแบบตราสินค้าโมเดลธุรกิจและกลยุทธ์การตลาดเชิงสร้างสรรค์ในผลิตภัณฑ์จากมะเกี๋ยงในจังหวัดเชียงใหม่ การวิจัยนี้มีวัตถุประสงค์เพื่อวิเคราะห์พฤติกรรมผู้บริโภคและห่วงโซ่อุปทานของผลิตภัณฑ์จากมะเกี๋ยง รวมถึงการออกแบบตราสินค้าและบรรจุภัณฑ์ พร้อมสร้างโมเดลธุรกิจและกลยุทธ์การตลาดด้วยการเก็บข้อมูลจากการสำรวจชุมชน การสนทนากลุ่ม และการสัมภาษณ์เชิงลึก พบว่า กลุ่มผู้บริโภคในชุมชนมักซื้อมะเกี๋ยงสดและดอง ในขณะที่ผู้บริโภคในเมืองนิยมซื้อผลิตภัณฑ์แปรรูปจากร้านค้าสมัยใหม่ โดยให้ความสำคัญกับตราสินค้าและคุณภาพ การวิเคราะห์ห่วงโซ่อุปทานแสดงว่าส่วนใหญ่ของปัจจัยการผลิตมาจากสมาชิกกลุ่ม ขณะที่กลุ่มสร้างมูลค่าเพิ่มจากการแปรรูปเป็นน้ำมะเกี๋ยงและแยม และนำผลิตภัณฑ์ไปจำหน่ายในตลาดสด ตราสินค้าใช้สัญลักษณ์ผลมะเกี๋ยงพันธุ์พื้นเมือง โดยคำขวัญคือ “มะเกี๋ยงจากธรรมชาติแท้ 100%”กลยุทธ์การตลาดเน้นการใช้ตราร่วมและผลิตภัณฑ์ที่ปลอดภัย ราคาในตลาดชุมชนถูกตั้งต่ำ ขณะที่ช่องทางจัดจำหน่ายใช้ทั้งร้านค้าชุมชน ตลาดสด และออนไลน์ พร้อมการส่งเสริมการตลาดแบบบูรณาการเพื่อสร้างการรับรู้ตราสินค้าในกลุ่มเป้าหมาย

กนกกาญจน์ เกตุแก้ว และสุวิต ศรีไหม (2562) ศึกษาโมเดลธุรกิจและการนำไปดำเนินการโมเดลธุรกิจเป็นการบริหารทรัพยากรหลักของกิจการทั้งระบบ เพื่อสร้างและส่งมอบคุณค่าให้แก่ลูกค้าให้กิจการสามารถทำกำไรได้ ส่วนองค์ประกอบของโมเดลธุรกิจจะประกอบด้วย 4 ส่วนหลัก ดังนี้ 1) กระบวนการหลักขององค์กร 2) ทรัพยากรหลัก 3) การสร้างและส่งมอบคุณค่าให้แก่ลูกค้า และ 4) รูปแบบการทำกำไร ส่วนการนำโมเดลธุรกิจไปดำเนินการจะประยุกต์ใช้แนวคิดของการนำกลยุทธ์ไปดำเนินการเนื่องจากพบว่ามีบางส่วนของสองคำนี้ที่มีความสัมพันธ์และเชื่อมโยงกัน เพื่อเป็นทิศทางช่วยให้องค์กรดำเนินไปอย่างเป็นระบบ และมีเป้าหมายเพื่อการบรรลุวัตถุประสงค์ขององค์กรเช่นเดียวกัน ซึ่งงานวิจัย พบว่า องค์กรจำนวนมากล้มเหลวในการนำกลยุทธ์ไปดำเนินการเพราะเกิดความผิดพลาดด้านต่าง ๆ ดังนี้ 1) ภาวะความเป็นผู้นำ 2) ด้านการสื่อสาร 3) การกำหนดความรับผิดชอบ 4) การบริหาร และ 5) การประเมินผลการดำเนินงาน ทำให้ผู้บริหารหรือผู้ประกอบการสามารถนำข้อมูลไปใช้เพื่อเป็นแนวทางในการศึกษาเกี่ยวกับโมเดลธุรกิจและสามารถนำไปดำเนินการได้จริง

ชนกภัทร ผดุงอรรถ และคณะ (2561) ศึกษาการพัฒนาผลิตภัณฑ์เครื่องดื่มเพื่อสุขภาพจากน้ำส้มสายชูหมักสับปะรดเพื่อการใช้ประโยชน์และเพิ่มมูลค่าสับปะรดเหลือทิ้ง ตำบลหนองพันจันทร์ อำเภอบ้านคำ จังหวัดราชบุรี พบว่า การพัฒนาผลิตภัณฑ์เครื่องดื่มเพื่อสุขภาพจากน้ำส้มสายชูหมักสับปะรดเป็นการต่อยอดและเพิ่มมูลค่าให้แก่น้ำสับปะรดที่ถูกคั้นแยกก่อนกระบวนการผลิตสับปะรดกวนที่ไม่ได้นำไปใช้ประโยชน์เพื่อนำมาผลิตเป็นผลิตภัณฑ์เพื่อสุขภาพที่มีมูลค่าสูง โดยเน้นกระบวนการวิจัยในห้องปฏิบัติการเพื่อให้ได้ผลิตภัณฑ์ต้นแบบ และการดำเนินการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วมเพื่อร่วมเรียนรู้กับกลุ่มวิสาหกิจชุมชน ในตำบลหนองพันจันทร์ เพื่อให้กลุ่มสามารถดำเนินการผลิตและพัฒนาผลิตภัณฑ์น้ำส้มสายชูหมักจากสับปะรดได้ด้วยตนเอง ได้ผลิตภัณฑ์ที่มีคุณภาพมาตรฐานตามที่กฎหมายกำหนดสามารถจำหน่ายได้ในท้องตลาด ส่งเสริมการเพิ่มรายได้ให้กับกลุ่ม นอกจากนี้กลุ่มยังสามารถต่อยอดและพัฒนาผลิตภัณฑ์เครื่องดื่มเพื่อสุขภาพจากน้ำส้มสายชูหมักสับปะรด ให้เป็นผลิตภัณฑ์เพื่อสุขภาพที่สามารถจำหน่ายได้ในท้องตลาด ซึ่งส่งผลให้เกิดการพัฒนาคุณภาพชีวิตอย่างยั่งยืนของกลุ่ม นอกจากนี้โครงการยังมุ่งเน้นการพัฒนาปรับปรุงโรงเรือนการผลิตให้ได้ตามมาตรฐาน GMP เพื่อรองรับการผลิตผลิตภัณฑ์แปรรูปจากสับปะรดอื่น ๆ ของกลุ่มวิสาหกิจในอนาคต

กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิด

วิธีดำเนินการวิจัย

งานวิจัยนี้ เป็นกระบวนการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม (Participatory Action Research: PAR) เนื่องด้วยวิสาหกิจชุมชนยังไม่มีความพร้อมเข้าสู่ตลาดของผลิตภัณฑ์ไซเดอร์สับปะรดเพื่อสุขภาพ ทีมงานวิจัยจึงได้เล็งเห็นถึงความสำคัญของการพัฒนาแผนการตลาดธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพด้วยกระบวนการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม (Participatory Action Research: PAR) ร่วมกันระหว่างมหาวิทยาลัยเทคโนโลยีราชมงคลตะวันออก วิสาหกิจชุมชนตะวันฉาย และสำนักงานเกษตรจังหวัดระยอง เพื่อให้ชุมชนสามารถพึ่งพาตนเองได้อย่างยั่งยืน โดยมีกลุ่มเป้าหมายคือ วิสาหกิจชุมชนตะวันฉาย ตำบลแม่น้ำคู้ อำเภอปลวกแดง จังหวัดระยอง โดยมีประธานวิสาหกิจชุมชน เป็นผู้ให้ข้อมูลหลักคนที่ 1 ร่วมกับตัวแทนจากสำนักงานเกษตรจังหวัดระยอง 1 ท่าน เป็นผู้ให้ข้อมูลหลักคนที่ 2 โดยอาจารย์ นักศึกษา ประธานวิสาหกิจชุมชน และตัวแทนจากสำนักงานเกษตรจังหวัดระยอง ร่วมกันวิเคราะห์แผนภูมิโมเดลธุรกิจ (Business Model Canvas) วิเคราะห์ปัจจัยแวดล้อมภายนอกและภายในและการพัฒนาแผนการตลาดธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพ จึงมีกระบวนการร่วมกัน 3 ขั้นตอนดังต่อไปนี้

1) ขั้นเตรียมการ: ทีมงานวิจัย ประธานวิสาหกิจชุมชน และตัวแทนจากสำนักงานเกษตรจังหวัดระยอง กำหนดโจทย์วิจัยและประเด็นที่ต้องการพัฒนาธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพ กำหนดวันลงพื้นที่เพื่อสัมภาษณ์กับผู้ให้ข้อมูล

2) ขั้นดำเนินการ: ทีมงานวิจัยดำเนินการสัมภาษณ์เชิงลึก (In-depth Interview) กับประธานวิสาหกิจชุมชน และตัวแทนจากสำนักงานเกษตรจังหวัดระยอง ซึ่งเป็นผู้ให้ข้อมูลหลัก โดยใช้เครื่องมือเก็บข้อมูล (Data Collection Tools) อย่างเป็นทางการ คือ แบบสัมภาษณ์กึ่งโครงสร้าง (Semi - structured Interview)

3) ขั้นการติดตามและประเมินผล: เมื่อทีมงานวิจัยเก็บรวบรวมข้อมูล ทำการวิเคราะห์ข้อมูล คือ การวิเคราะห์เชิงเนื้อหา (Content Analysis) และใช้ความเที่ยงตรงเชิงตีความ (Translation Validity) คือ การรวมเอาความเที่ยงตรงเฉพาะหน้า (Face Validity) และความเที่ยงตรงเชิงเนื้อหา (Content Validity) (ประสพชัย พสุนนท์, 2558) โดยมุ่งเน้นการค้นหาข้อสรุปและการตีความร่วมกัน เกี่ยวกับวิเคราะห์แผนภูมิโมเดลธุรกิจ ปัจจัยแวดล้อมภายนอกและภายใน และนำมาสู่การพัฒนาแผนการตลาดของธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพ

ผลการวิจัย

การวิจัยครั้งนี้ มีผลการวิจัยตามวัตถุประสงค์ ดังนี้

วัตถุประสงค์ที่ 1 เพื่อวิเคราะห์แผนภูมิโมเดลธุรกิจ จากการสัมภาษณ์เชิงลึกกับประธานวิสาหกิจชุมชนตะวันฉายและตัวแทนจากสำนักงานเกษตรจังหวัดระยอง สามารถได้ผลการวิเคราะห์แผนภูมิโมเดลธุรกิจไซเดอรสับปะรดเพื่อสุขภาพ ดังตารางที่ 1

ตารางที่ 1 Business Model Canvas ธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพ

หุ้นส่วนหลัก (Key Partners)	**กิจกรรมหลัก (Key Activities)**	**คุณค่าที่นำเสนอ (Value Proposition)**	**ความสัมพันธ์กับลูกค้า (Customer Relationships)**	**กลุ่มลูกค้า (Customer Segments)**
- กลุ่มเกษตรกรผู้ลูกสับปะรด - สำนักงานเกษตรจังหวัดระยอง (สนับสนุนด้านองค์ความรู้) - ร้านอาหาร คาเฟ่ และโรงแรม (เป็นตัวแทนจำหน่าย) - บริษัทขนส่งและแพลตฟอร์ม E-commerce	- การผลิตและควบคุมคุณภาพ - การทำตลาดส่งเสริมการขาย - การพัฒนาสูตรผลิตภัณฑ์ใหม่ - การบริหารจัดการซัพพลายเชนและโลจิสติกส์	- ใช้วัตถุดิบจากสับปะรดแท้ 100% - มีทั้งแบบมีแอลกอฮอล์และไม่มีแอลกอฮอล์ - กระบวนการผลิตคงคุณค่าทางโภชนาการ - บรรจุภัณฑ์เป็นมิตรกับสิ่งแวดล้อม  เครื่องหมายการค้าวิสาหกิจชุมชนตะวันฉาย	- รีวิวจากลูกค้าผ่านโซเชียลมีเดีย - โปรแกรมสมาชิกและส่วนลดพิเศษ - การให้ความรู้เกี่ยวกับไซเดอร์ผ่านคอนเทนต์ออนไลน์ - บริการหลังการขายและการรับฟังความคิดเห็นลูกค้า	- คนรักสุขภาพที่มองหาเครื่องดื่มที่ดีต่อร่างกาย - ผู้บริโภคที่ต้องการเครื่องดื่มแอลกอฮอล์ระดับต่ำ - นักท่องเที่ยวและชาวต่างชาติที่สนใจสินค้าท้องถิ่น - ร้านอาหาร โรงแรม และคาเฟ่ที่ต้องการเครื่องดื่มพิเศษ

ตารางที่ 1 (ต่อ)

<table>
<tr><th>หุ้นส่วนหลัก (Key Partners)</th><th>กิจกรรมหลัก (Key Activities)</th><th>คุณค่าที่นำเสนอ (Value Proposition)</th><th>ความสัมพันธ์กับลูกค้า (Customer Relationships)</th><th>กลุ่มลูกค้า (Customer Segments)</th></tr>
<tr><td rowspan="2"></td><td>ทรัพยากรหลัก (Key Resources)</td><td rowspan="2"></td><td>ช่องทาง (Channels)</td><td rowspan="2"></td></tr>
<tr><td>- วัตถุดิบสับปะรดจากเกษตรกรในท้องถิ่น
- เทคโนโลยีการหมัก และบรรจุภัณฑ์ที่ได้มาตรฐาน</td><td>- หน้าร้านที่ตั้งอยู่ในแหล่งชุมชน
- ร้านอาหาร คาเฟ่
- แพลตฟอร์มออนไลน์
- งานแฟร์และอีเวนต์เกี่ยวกับอาหารและสุขภาพ</td></tr>
<tr><td colspan="3">โครงสร้างต้นทุน (Cost Structure)</td><td colspan="2">รายได้ (Revenue Structure)</td></tr>
<tr><td colspan="3">- ต้นทุนวัตถุดิบสับปะรดและส่วนผสมอื่น ๆ
- ค่าแรงงานและค่าบริหารจัดการโรงงาน ค่าแรงพนักงาน
- ค่าโฆษณาและการทำตลาดออนไลน์
- ค่าขนส่งและกระจายสินค้า</td><td colspan="2">- รายได้จากการขายปลีกผ่านร้านค้า
- รายได้จากการขายผ่านแพลตฟอร์มเดลิเวอรี
- รายได้จากการจัดเวิร์กช็อปเกี่ยวกับไซเดอร์
- รายได้จากการขายส่งให้โรงแรม ร้านอาหาร</td></tr>
</table>

จากตารางที่ 1 ได้นำเสนอโมเดลธุรกิจที่ครอบคลุมกลุ่มลูกค้า ช่องการจัดการจำหน่าย และข้อได้เปรียบด้านวัตถุดิบท้องถิ่น ทำให้มีโอกาสในการได้กำไรและการเติบโตของตลาด

วัตถุประสงค์ที่ 2 เพื่อวิเคราะห์สภาพแวดล้อมภายนอกและภายใน มีการวิเคราะห์ดังนี้

1. การวิเคราะห์สภาพแวดล้อมภายนอกที่ส่งผลกระทบและโอกาสต่อธุรกิจ การดำเนินธุรกิจเครื่องดื่มไซเดอร์สับปะรดเพื่อสุขภาพมีปัจจัยหลายด้านที่ส่งผลต่อความสำเร็จ ใช้วิธีการวิเคราะห์ PESTEL Analysis ดังนี้

1) ปัจจัยด้านการเมือง (Political) รัฐบาลมีนโยบายควบคุมเครื่องดื่มแอลกอฮอล์อย่างเข้มงวด ส่งเสริมสุขภาพผ่านมาตรการภาษีและกฎหมายที่จำกัดการโฆษณาและการจำหน่าย ซึ่งส่งผลกระทบต่อการตลาดของผลิตภัณฑ์ไซเดอร์ อย่างไรก็ตาม การผลิตไซเดอร์เพื่อสุขภาพ (Soft Cider) ซึ่งไม่มีแอลกอฮอล์ อาจได้รับการสนับสนุนจากภาครัฐมากขึ้น

2) ปัจจัยด้านเศรษฐกิจ (Economic) การเติบโตของตลาดเครื่องดื่มเพื่อสุขภาพและแนวโน้มการบริโภคสินค้าจากธรรมชาติ ทำให้ไซเดอร์สับปะรดเป็นผลิตภัณฑ์ที่มีศักยภาพในการแข่งขัน โดยเฉพาะอย่างยิ่งเมื่อประเทศไทยเป็นผู้ผลิตผลไม้รายใหญ่และสามารถใช้วัตถุดิบในประเทศเพื่อลดต้นทุนการผลิต

3) ปัจจัยด้านสังคม (Social) การตระหนักรู้เกี่ยวกับสุขภาพและโภชนาการของผู้บริโภคเพิ่มขึ้น ส่งผลให้เครื่องดื่มเพื่อสุขภาพได้รับความนิยมมากขึ้น นอกจากนี้การส่งเสริมสินค้าชุมชนและเศรษฐกิจฐานรากยังช่วยสร้างภาพลักษณ์ที่ดีให้กับผลิตภัณฑ์ไซเดอร์สับปะรดอีกด้วย

4) ปัจจัยด้านเทคโนโลยี (Technology) การพัฒนานวัตกรรมในกระบวนการผลิตไซเดอร์ เช่น การใช้เทคนิคหมักที่ควบคุมคุณภาพ การใช้ระบบอัตโนมัติ และการประยุกต์ใช้ Internet of Things (IoT) ช่วยเพิ่มประสิทธิภาพการผลิต ลดต้นทุน และสร้างความแตกต่างให้กับผลิตภัณฑ์ เป็นต้น

5) ปัจจัยด้านสิ่งแวดล้อม (Environment) การเปลี่ยนแปลงสภาพภูมิอากาศส่งผลต่อปริมาณและคุณภาพของวัตถุดิบ เช่น สับปะรด ซึ่งอาจมีผลต่อการผลิตไซเดอร์ นอกจากนี้การใช้ทรัพยากรอย่างยั่งยืน เช่น การนำเปลือกและกากสับปะรดไปใช้เป็นปุ๋ยหรืออาหารสัตว์ ยังเป็นแนวทางที่ช่วยลดผลกระทบต่อสิ่งแวดล้อม

6) ปัจจัยด้านกฎหมาย (Legal) กฎหมายเกี่ยวกับการควบคุมเครื่องดื่มแอลกอฮอล์ การติดฉลากผลิตภัณฑ์ และมาตรฐานความปลอดภัยทางอาหาร เป็นสิ่งที่ผู้ประกอบการต้องให้ความสำคัญ การทำให้ผลิตภัณฑ์ได้รับการรับรองจากหน่วยงานที่เกี่ยวข้องจะช่วยเพิ่มความน่าเชื่อถือและโอกาสในการทำตลาดทั้งในและต่างประเทศ

2. การวิเคราะห์สภาพแวดล้อมภายใน ใช้วิธีวิเคราะห์ SWOT Analysis ประกอบด้วย

1) จุดแข็งและโอกาสของไซเดอร์สับปะรด ไซเดอร์สับปะรดเป็นเครื่องดื่มที่ใช้น้ำสับปะรดธรรมชาติ 100% ไม่มีสารเติมแต่งหรือสารกันบูด อุดมด้วยวิตามิน C และเอนไซม์ธรรมชาติ เช่น โบมิเลน (Bromelain) ที่ช่วยย่อยอาหาร ทำให้เป็นตัวเลือกที่ดีสำหรับผู้ที่รักสุขภาพ กลุ่มเป้าหมายหลักได้แก่ คนรุ่นใหม่ (Millennials, Gen Z), ผู้บริโภคที่ใส่ใจสุขภาพ และผู้ที่มองหาเครื่องดื่มจากธรรมชาติที่ไม่มีน้ำตาลเทียม โอกาสทางการตลาดอยู่ที่กระแสรักสุขภาพและการเลือกเครื่องดื่มธรรมชาติ ซึ่งกำลังเติบโต นอกจากนี้ยังสามารถขยายตลาดไปยังร้านอาหารสุขภาพ, คาเฟ่ และแพลตฟอร์มออนไลน์ เช่น Shopee และ Lazada เป็นต้น

2) จุดอ่อนและอุปสรรคของไซเดอร์สับปะรด จุดอ่อนเรื่องการรับรู้ตราสินค้า การพัฒนายังไม่ได้มาตรฐานออร์แกนิก ควบคุมต้นทุนการผลิต และมีอุปสรรคเรื่องกฎหมายเครื่องดื่มแอลกอฮอล์

3. วิเคราะห์การแข่งขันในอุตสาหกรรม

การวิเคราะห์ปัจจัยกดดันต่อธุรกิจหรือการประเมินความน่าสนใจของอุตสาหกรรม ใช้วิธีการวิเคราะห์ Porter’s Five Forces Model ประกอบด้วย 1) อำนาจต่อรองจากลูกค้า 2) อำนาจต่อรองจากซัพพลายเออร์ 3) การคุกคามของผู้ประกอบการรายใหม่ 4) การคุกคามจากสินค้าทดแทน และ 5) การแข่งขันในอุตสาหกรรม ธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพมีโอกาสเติบโตในตลาดเครื่องดื่มเพื่อสุขภาพที่กำลังมาแรง แต่เผชิญกับการแข่งขันสูงและการคุกคามจากสินค้าทดแทน ธุรกิจต้องใช้กลยุทธ์ที่เน้นความแตกต่าง การสร้างตราสินค้าที่แข็งแกร่ง และเครือข่ายจัดจำหน่ายที่ครอบคลุม เพื่อให้สามารถแข่งขันได้อย่างมีประสิทธิภาพ ดังตารางที่ 2

ตารางที่ 2 การวิเคราะห์ปัจจัยกดดันต่อธุรกิจหรือการประเมินความน่าสนใจของอุตสาหกรรม (Porter's Five Forces Model)

1. อำนาจต่อรองจากลูกค้า (Power of Customers) – ปานกลางถึงสูง	**ปัจจัยที่ส่งผลต่ออำนาจต่อรองของลูกค้า** - พฤติกรรมผู้บริโภคเปลี่ยนแปลงรวดเร็ว ผู้บริโภคที่ใส่ใจสุขภาพมีตัวเลือกมากขึ้น เช่น เครื่องดื่มโปรไบโอติก น้ำหมักผลไม้ และสมูทตี้ - ราคากับคุณค่าของผลิตภัณฑ์ หากไซเดอร์สับปะรดมีราคาสูงกว่าคู่แข่ง ลูกค้าอาจเปลี่ยนไปเลือกผลิตภัณฑ์อื่น - ช่องทางจัดจำหน่ายที่หลากหลาย ลูกค้าสามารถเลือกซื้อจากร้านค้าออนไลน์และออฟไลน์ ทำให้มีอำนาจต่อรองเรื่องราคาและคุณภาพ - การสร้างตราสินค้าและความภักดีต่อสินค้า (Brand Loyalty) ถ้าธุรกิจสามารถสร้างแบรนด์ที่แตกต่างและมีจุดขายที่แข็งแกร่ง อำนาจต่อรองของลูกค้าจะลดลง	**กลยุทธ์รับมือ** - เน้นความแตกต่างของสินค้า เช่น คุณค่าทางโภชนาการ การใช้วัตถุดิบออร์แกนิก หรือเทคนิคการหมักที่เป็นเอกลักษณ์ - สร้าง Loyalty Program หรือ Subscription Model เพื่อเพิ่มความผูกพันกับลูกค้า - เพิ่มการสื่อสารด้านคุณภาพและประโยชน์ของสินค้า เพื่อให้ลูกค้ายอมจ่ายในราคาที่สูงขึ้น
2. อำนาจต่อรองจากซัพพลายเออร์ (Power of Suppliers) – ปานกลาง	**ปัจจัยที่ส่งผลต่ออำนาจต่อรองของซัพพลายเออร์** - วัตถุดิบหลักคือสับปะรด หากเลือกใช้วัตถุดิบจากเกษตรกรเฉพาะกลุ่ม (เช่น สับปะรดออร์แกนิก) อาจมีข้อจำกัดด้านปริมาณและราคา - ต้นทุนการผลิตและการขนส่ง ราคาวัตถุดิบอาจขึ้นอยู่กับฤดูกาล ทำให้ต้นทุนผันผวน - ซัพพลายเออร์วัตถุดิบและขวดบรรจุภัณฑ์ หากมีซัพพลายเออร์จำนวนน้อย อำนาจต่อรองของพวกเขาจะสูงขึ้น - คุณภาพของเชื้อหมัก (Yeast) และเทคโนโลยีการผลิต หากธุรกิจต้องพึ่งพาซัพพลายเออร์เฉพาะทาง จะทำให้ต้นทุนเพิ่มขึ้น	**กลยุทธ์รับมือ** - หาพันธมิตรทางธุรกิจหรือสร้างเครือข่ายเกษตรกรเพื่อลดการพึ่งพาซัพพลายเออร์รายใหญ่ - กระจายแหล่งวัตถุดิบ และทำสัญญาระยะยาวกับซัพพลายเออร์เพื่อควบคุมต้นทุน - พัฒนาเทคโนโลยีการผลิตของตัวเองเพื่อลดการพึ่งพาภายนอก

ตารางที่ 2 (ต่อ)

3. การคุกคามของผู้ประกอบการรายใหม่ (Threat of New Entrants) – ปานกลาง	**ปัจจัยที่ส่งผลต่ออุปสรรคของผู้ประกอบการรายใหม่** - ต้นทุนการผลิตและเทคโนโลยีการผลิตไซเดอร์ต้องใช้เทคนิคหมัก **และอุปกรณ์เฉพาะทาง ซึ่งอาจเป็นอุปสรรคสำหรับผู้เล่นใหม่** - ต้นทุนตราสินค้าและการตลาด การสร้างการรับรู้และความเชื่อมั่นในตลาดเครื่องดื่มเพื่อสุขภาพต้องใช้ต้นทุนสูง - ข้อกำหนดทางกฎหมายและมาตรฐานอาหาร หากเป็นเครื่องดื่มแอลกอฮอล์ อาจต้องขอใบอนุญาตเพิ่มเติม ทำให้ผู้เล่นใหม่เข้ามาแข่งขันได้ยากขึ้น - เครือข่ายจัดจำหน่าย ผู้เล่นที่มีช่องทางการขายที่มั่นคง เช่น ซูเปอร์มาร์เก็ต หรือแพลตฟอร์มออนไลน์ จะได้เปรียบ	**กลยุทธ์รับมือ** - เน้นสร้างเอกลักษณ์ที่แตกต่าง เช่น รสชาติใหม่ การใช้ส่วนผสมจากธรรมชาติ หรือกระบวนการหมักเฉพาะ - ร่วมมือกับเครือข่ายร้านสุขภาพหรือทำ Co - Branding กับธุรกิจอื่นๆ เพื่อลดต้นทุนเข้าตลาด - พัฒนา Community ของลูกค้าเพื่อสร้างฐานผู้บริโภคที่ภักดี
4. การคุกคามจากสินค้าทดแทน (Threat of Substitutes) – สูง	**ปัจจัยที่ส่งผลต่อภัยคุกคามจากสินค้าทดแทน** - ผลิตภัณฑ์อื่นๆ ในตลาดเครื่องดื่มเพื่อสุขภาพ เช่น คอมบูชะ น้ำผลไม้หมัก โยเกิร์ตพร้อมดื่ม น้ำสมุนไพร เป็นต้น ซึ่งอาจแย่งตลาดเป้าหมายเดียวกัน - พฤติกรรมผู้บริโภคที่เปลี่ยนแปลง หากมีเครื่องดื่มที่ให้ประโยชน์ด้านสุขภาพเช่นเดียวกันแต่สะดวกกว่า อาจทำให้ไซเดอร์สับปะรดเสียส่วนแบ่งตลาด - ราคาของสินค้าทดแทน หากสินค้าทดแทนมีราคาถูกกว่า หรือหาซื้อง่ายกว่า ไซเดอร์สับปะรดอาจเสียเปรียบ	**กลยุทธ์รับมือ** - สร้างคุณค่าเฉพาะตัว เช่น สูตรหมักพิเศษ ประโยชน์ต่อสุขภาพเฉพาะด้าน หรือใช้วัตถุดิบที่หายาก - เน้นการตลาดที่สื่อสารความแตกต่างจากสินค้าทดแทน เช่น มีโพรไบโอติกสูง หรือมีสารต้านอนุมูลอิสระจากสับปะรด - ใช้แพลตฟอร์มออนไลน์และการตลาดแบบ Storytelling เพื่อสร้างภาพลักษณ์พรีเมียม

ตารางที่ 2 (ต่อ)

5. การแข่งขันในอุตสาหกรรม (Industry Rivalry) – สูง	**ปัจจัยที่ส่งผลต่อการแข่งขัน** - การแข่งขันด้านราคาและโปรโมชั่น ตราสินค้าที่มีต้นทุนต่ำสามารถทำราคาถูกกว่า ทำให้เกิดการแข่งขันสูง - ความหลากหลายของผลิตภัณฑ์ ผู้บริโภคมีตัวเลือกมาก ทำให้การสร้างความแตกต่างเป็นสิ่งจำเป็น - ต้นทุนโฆษณาและการตลาด แบรนด์ที่มีงบโฆษณาสูงจะได้เปรียบในการเข้าถึงลูกค้า	**กลยุทธ์รับมือ** - ใช้กลยุทธ์ **Niche Market** หรือเจาะกลุ่มลูกค้าเฉพาะทาง เช่น สายสุขภาพ สายมังสวิรัติ หรือผู้ที่ต้องการควบคุมน้ำตาล - พัฒนา **Product Innovation** เช่น รสชาติใหม่ หรือสูตรที่ช่วยเสริมสุขภาพเฉพาะด้าน - ใช้การตลาดเชิงประสบการณ์ เช่น จัดกิจกรรมชิมสินค้า หรือเปิด Pop-up Store เพื่อสร้าง Brand Awareness

ตลาดไซเดอร์ในไทยมีแบรนด์ระดับโลก เช่น Somersby และ Strongbow ที่มีจุดแข็งด้านการตลาดและการกระจายสินค้าที่ดี รวมถึงความหลากหลายของรสชาติ แต่มีข้อเสียคือ ราคาสูงและมีแอลกอฮอล์ทำให้ผู้บริโภคบางกลุ่มไม่สามารถเข้าถึงได้ สำหรับตลาดน้ำผลไม้มีคู่แข่งหลัก เช่น Tropicana และ 100 Plus ซึ่งเน้นผลิตภัณฑ์ที่สดชื่นและดีต่อสุขภาพ อย่างไรก็ตาม น้ำผลไม้เหล่านี้มักมีปริมาณน้ำตาลสูงและไม่ได้เน้นการหมักตามธรรมชาติ ทำให้ไซเดอร์สับปะรดสามารถใช้ความเป็นเครื่องดื่มหมักเพื่อสุขภาพเป็นจุดขายที่แตกต่าง

4. การวิเคราะห์ปัจจัยแวดล้อม (TOWS Matrix) ได้ผลการวิเคราะห์ดังนี้

1) SO (Strengths - Opportunities) ใช้จุดแข็งด้านกระบวนการผลิตธรรมชาติและความสดใหม่ เพื่อพัฒนาไซเดอร์สูตรใหม่ เช่น ไซเดอร์พร้อมโปรไบโอติก และขยายตลาดไปต่างประเทศ เป็นต้น

2) WO (Weaknesses - Opportunities) แก้ไขจุดอ่อนเรื่องการรับรู้ตราสินค้า โดยเพิ่มการตลาดผ่านโซเชียลมีเดียและร่วมมือกับ Influencers

3) ST (Strengths - Threats) สร้างความแตกต่างจากคู่แข่งด้วยกระบวนการผลิตแบบธรรมชาติ (Craft Cider) และมาตรฐานออร์แกนิก

4) WT (Weaknesses - Threats) ควบคุมต้นทุนการผลิต และสร้างเครือข่ายพันธมิตร เช่น ร้านอาหารเพื่อสุขภาพและคาเฟ่ เป็นต้น

จากผลการวิเคราะห์วัตถุประสงค์ที่ 2 ได้ทำการวิเคราะห์สภาพแวดล้อมภายนอกและภายในพบว่า ธุรกิจมีจุดแข็งด้านผลิตภัณฑ์และแผนการตลาดที่เสนอเน้นการสร้างความแตกต่างด้วยคุณค่าทางสุขภาพ การส่งเสริมผ่านดิจิทัลมาร์เก็ตติ้ง และการพัฒนาแบรนด์ให้สามารถแข่งขันในตลาดสุขภาพที่มีแนวโน้มเติบโตอย่างต่อเนื่อง

วัตถุประสงค์ที่ 3 เพื่อการพัฒนาแผนการตลาดธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพ ของวิสาหกิจชุมชนตะวันฉาย จังหวัดระยอง จากการสัมภาษณ์เชิงลึก ได้ผลการจัดทำแผนการตลาดและกำหนดกลยุทธ์การตลาดร่วมกัน ดังนี้

1. Marketing Mix Theory (4Ps) เป็นการวิเคราะห์องค์ประกอบสำคัญของแผนการตลาด และกำหนดกลยุทธ์ทางการตลาด ดังนี้

1) Product Development ขยายไลน์สินค้า เช่น ไซเดอร์ผสมสมุนไพรหรือผลไม้เขตร้อนเพื่อตอบโจทย์ผู้บริโภคที่ต้องการทางเลือกใหม่ มีการ Branding เน้นภาพลักษณ์ที่แตกต่างจากคู่แข่ง โดยใช้ไซเดอร์หมักธรรมชาติ ปราศจากสารเติมแต่งและส่งเสริมให้เป็นเครื่องดื่มสำหรับคนรักสุขภาพ

2) Pricing ใช้กลยุทธ์ตั้งราคาตามคุณค่า (Value - based Pricing) หรือการตั้งราคาต่ำช่วงเปิดตัว (Penetration Pricing) เพื่อดึงดูดลูกค้าใหม่

3) Distribution วางจำหน่ายผ่านช่องทางที่เข้าถึงกลุ่มเป้าหมายได้ดี เช่น ร้านสุขภาพ, คาเฟ่สุขภาพ และออนไลน์ (Shopee, Lazada, JD Central)

4) Promotion ใช้ Social Media Marketing (TikTok, Instagram) การรีวิวจาก Influencers และกิจกรรมทดลองชิมในฟิตเนสและร้านอาหาร

2. STP Marketing Theory เป็นการแบ่งส่วนตลาด (Segmentation), การเลือกเป้าหมาย (Targeting), และการวางตำแหน่งสินค้า (Positioning)

1) การแบ่งส่วนตลาด ถึงแม้ว่าจะยังไม่ได้จำหน่ายออกสู่ตลาด แต่มีการพัฒนาสินค้าโดยมีจุดขายที่เป็นเอกลักษณ์ คือ ไซเดอร์สับปะรดผลิตจากน้ำสับปะรดธรรมชาติ 100% ไม่มีสารเติมแต่งหรือสารกันบูด อุดมด้วยวิตามิน C และเอนไซม์ธรรมชาติ เช่น Bromelain ที่ช่วยย่อยอาหาร มีรสชาติหวานอมเปรี้ยว สดชื่น เหมาะสำหรับผู้รักสุขภาพ

2) การเลือกเป้าหมายที่เป็นตลาดเป้าหมาย เจาะกลุ่มคนรักสุขภาพ คนรุ่นใหม่ (Millennials, Gen Z) และผู้ที่มองหาเครื่องดื่มธรรมชาติที่ไม่มีน้ำตาลเทียม

3) การวางตำแหน่งสินค้า โดยการวิเคราะห์ตลาด ในตลาดเครื่องดื่มไซเดอร์เติบโตสูงโดยเฉพาะในกลุ่มคนรักสุขภาพและเครื่องดื่มธรรมชาติ มีการแข่งขันสูง จำเป็นต้องสร้างจุดเด่นที่แตกต่างจากไซเดอร์แอปเปิลทั่วไป

3. การวัดผลและการจัดสรรงบประมาณ ใช้งบประมาณแบ่งได้ดังนี้

- โฆษณาผ่านโซเชียลมีเดีย (Facebook, TikTok, Instagram) 25 - 30% ของงบประมาณ
- กิจกรรมทดลองชิม (Sampling & Events) 10 - 15%
- การทำ Customer Loyalty Program และ CRM 5 - 10% เพื่อสร้างฐานลูกค้าประจำ
- การวิเคราะห์ตลาดและการสำรวจผู้บริโภค 5 - 7% เพื่อปรับปรุงกลยุทธ์ตามแนวโน้มตลาด

จากการวิเคราะห์วัตถุประสงค์ที่ 3 จึงได้พัฒนาแผนการตลาดของไซเดอร์สับปะรดเพื่อสุขภาพที่ได้ข้อค้นพบที่มีนัยยะต่อการพัฒนาธุรกิจในอนาคต กล่าวคือ เน้นสร้างความแตกต่างจากคู่แข่งโดยชูจุดเด่นด้านสุขภาพใช้กลยุทธ์การตลาดดิจิทัลในการเข้าถึงกลุ่มเป้าหมาย การแข่งขันในตลาดไซเดอร์และน้ำผลไม้ค่อนข้างสูง แต่การนำเสนอไซเดอร์หมักธรรมชาติเป็นทางเลือกใหม่ สามารถช่วยให้ผลิตภัณฑ์นี้มีโอกาสเติบโตได้ดีในตลาดที่กำลังให้ความสำคัญกับสุขภาพและความเป็นธรรมชาติ โดยเน้นสร้างการรับรู้ตราสินค้า การขยายตลาด เพิ่มยอดขายผ่านกลยุทธ์ที่ตอบโจทย์ไลฟ์สไตล์ของผู้บริโภคยุคใหม่

สรุปและอภิปรายผล

การวิจัยครั้งนี้สรุปผลตามวัตถุประสงค์ ได้ดังนี้

วัตถุประสงค์ที่ 1 จากการสัมภาษณ์เชิงลึกกับประธานวิสาหกิจชุมชนตะวันฉายและตัวแทนจากสำนักงานเกษตรจังหวัดระยองได้มีการวิเคราะห์ Business Model Canvas ของธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพ โดยพบว่า องค์ประกอบสำคัญของธุรกิจ ประกอบด้วย 1) กลุ่มลูกค้า ได้แก่ คนรักสุขภาพที่มองหาเครื่องดื่มที่ดีต่อร่างกาย ผู้บริโภคที่ต้องการเครื่องดื่มแอลกอฮอล์ระดับต่ำ นักท่องเที่ยวและชาวต่างชาติที่สนใจสินค้าท้องถิ่น ร้านอาหาร โรงแรม และคาเฟ่ที่ต้องการเครื่องดื่มพิเศษ 2) ความสัมพันธ์กับลูกค้า ได้แก่ รีวิวจากลูกค้าผ่านโซเชียลมีเดีย โปรแกรมสมาชิกและส่วนลดพิเศษ การให้ความรู้เกี่ยวกับไซเดอร์ผ่านคอนเทนต์ออนไลน์ บริการหลังการขายและการรับฟังความคิดเห็นลูกค้า 3) ช่องทาง ได้แก่ หน้าร้านที่ตั้งอยู่ในแหล่งชุมชน ร้านอาหาร คาเฟ่ แพลตฟอร์มออนไลน์ (Shopee, Lazada, Facebook) งานแฟร์และอีเวนต์เกี่ยวกับอาหารและสุขภาพ 4) รายได้หลัก ได้แก่ การขายปลีก, ขายส่ง และเวิร์กช็อปเกี่ยวกับไซเดอร์ 5) คุณค่าที่นำเสนอ ได้แก่ ใช้สับปะรดแท้ 100% มีทั้งแบบมีแอลกอฮอล์และไม่มีแอลกอฮอล์ บรรจุภัณฑ์เป็นมิตรกับสิ่งแวดล้อม 6) หุ้นส่วนหลัก ได้แก่ เกษตรกรผู้ปลูกสับปะรด, ร้านอาหาร คาเฟ่ โรงแรม (ตัวแทนจำหน่าย) บริษัทขนส่ง และแพลตฟอร์ม E-commerce 7) กิจกรรมหลัก ได้แก่ การผลิตและควบคุมคุณภาพ การพัฒนาผลิตภัณฑ์ใหม่ การบริหารซัพพลายเชน 8) ทรัพยากรหลัก ได้แก่ วัตถุดิบสับปะรดจากเกษตรกรในท้องถิ่น โรงงานผลิตและเครื่องจักรที่ทันสมัย ทีมงานด้านการตลาดและการขาย เทคโนโลยีการหมักและบรรจุภัณฑ์ที่ได้มาตรฐาน 9) โครงสร้างต้นทุน ได้แก่ ค่าวัตถุดิบ, ค่าจ้างแรงงาน, ค่าขนส่ง

วัตถุประสงค์ที่ 2 การวิเคราะห์สภาพแวดล้อมภายนอกและภายใน พบว่า การวิเคราะห์สภาพแวดล้อมทางธุรกิจได้รับผลกระทบจากปัจจัยภายนอก (PESTEL Analysis) ได้แก่ 1) การเมืองนโยบายภาครัฐที่เข้มงวดต่อเครื่องดื่มแอลกอฮอล์ส่งผลต่อการโฆษณา แต่ไซเดอร์เพื่อสุขภาพที่ไม่มีแอลกอฮอล์อาจได้รับการสนับสนุนมากขึ้น 2) เศรษฐกิจ ความนิยมในเครื่องดื่มสุขภาพเพิ่มขึ้น และไทยเป็นผู้ผลิตสับปะรดรายใหญ่ ช่วยลดต้นทุนวัตถุดิบ 3) สังคม เทรนด์รักสุขภาพและการสนับสนุนสินค้าชุมชนช่วยสร้างโอกาสให้ตราสินค้า (Brand Building) 4) เทคโนโลยี การพัฒนาเทคนิคหมักและการควบคุมคุณภาพทำให้ผลิตภัณฑ์โดดเด่นขึ้น 5) สิ่งแวดล้อม การใช้บรรจุภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อมสามารถเพิ่มความได้เปรียบทางการแข่งขัน 6) กฎหมาย กฎระเบียบด้านฉลากและมาตรฐานอาหารต้องได้รับการปฏิบัติตามเพื่อเพิ่มความน่าเชื่อถือ

การวิเคราะห์สภาพแวดล้อมภายใน ใช้วิธีวิเคราะห์ SWOT Analysis ประกอบด้วย 1) จุดแข็งและโอกาสของไซเดอร์สับปะรด ไซเดอร์สับปะรดเป็นเครื่องดื่มที่ใช้น้ำสับปะรดธรรมชาติ 100% ไม่มีสารเติมแต่งหรือสารกันบูด อุดมด้วยวิตามิน C และเอนไซม์ธรรมชาติ เช่น โบมิเลน (Bromelain) ที่ช่วยย่อยอาหาร ทำให้เป็นตัวเลือกที่ดีสำหรับผู้ที่รักสุขภาพ โอกาสทางการตลาดอยู่ที่กระแสรักสุขภาพและการเลือกเครื่องดื่มธรรมชาติ ซึ่งกำลังเติบโต นอกจากนี้ยังสามารถขยายตลาดไปยังร้านอาหารสุขภาพ, คาเฟ่ และแพลตฟอร์มออนไลน์ เช่น Shopee และ Lazada เป็นต้น 2) จุดอ่อนและอุปสรรคของไซเดอร์สับปะรด จุดอ่อนเรื่องการรับรู้ตราสินค้า การพัฒนายังไม่ได้มาตรฐานออร์แกนิก ควบคุมต้นทุนการผลิตและมีอุปสรรคเรื่องกฎหมายเครื่องดื่มแอลกอฮอล์

การวิเคราะห์การแข่งขัน (Porter's Five Forces Model) ได้แก่ 1) อำนาจต่อรองของลูกค้าปานกลางถึงสูง ลูกค้ามีตัวเลือกมาก เช่น คอมบูชะ น้ำหมักผลไม้ เป็นต้น 2) อำนาจต่อรองของซัพพลายเออร์ ปานกลาง วัตถุดิบหลักคือ สับปะรดซึ่งต้องบริหารซัพพลายเชนให้ดี 3) การคุกคามจากคู่แข่งใหม่ ปานกลาง เนื่องจากการผลิตไซเดอร์ต้องใช้เทคโนโลยีเฉพาะทาง 4) การคุกคามจากสินค้าทดแทนสูง เช่น น้ำหมักสมุนไพร น้ำผลไม้ โยเกิร์ตพร้อมดื่ม เป็นต้น 5) การแข่งขันภายในอุตสาหกรรมสูง ตราสินค้าระดับโลก เช่น Somersby และ Strongbow เป็นต้น มีการตลาดที่แข็งแกร่ง

การวิเคราะห์ปัจจัยแวดล้อม (TOWS Matrix) ได้ผลการวิเคราะห์ดังนี้ 1) SO (Strengths - Opportunities) ใช้จุดแข็งด้านกระบวนการผลิตธรรมชาติและความสดใหม่ เพื่อพัฒนาไซเดอร์สูตรใหม่ เช่น ไซเดอร์พร้อมโปรไบโอติก และขยายตลาดไปยังต่างประเทศ 2) WO (Weaknesses - Opportunities) แก้ไขจุดอ่อนเรื่องการรับรู้ตราสินค้า โดยเพิ่มการตลาดผ่านโซเชียลมีเดียและร่วมมือกับ Influencers 3) ST (Strengths - Threats) สร้างความแตกต่างจากคู่แข่งด้วยกระบวนการผลิตแบบธรรมชาติ (Craft Cider) และมาตรฐานออร์แกนิก 4) WT (Weaknesses - Threats) ควบคุมต้นทุนการผลิต และสร้างเครือข่ายพันธมิตร เช่น ร้านอาหารเพื่อสุขภาพและคาเฟ่ เป็นต้น

วัตถุประสงค์ที่ 3 การพัฒนาแผนการตลาดไซเดอร์สับปะรดเพื่อสุขภาพ Marketing Mix Theory (4Ps) ได้แก่ 1) Product ไซเดอร์สับปะรดหมักจากธรรมชาติมีทั้งสูตรไม่มีแอลกอฮอล์และสูตรพิเศษ 2) Price ใช้ Value - based Pricing หรือราคาเปิดตัวต่ำ 3) Place วางจำหน่ายในร้านสุขภาพ, คาเฟ่, แพลตฟอร์มออนไลน์ 4) Promotion ใช้ Social Media Marketing, รีวิวจาก Influencers และ Sampling Events

การวิเคราะห์ STP Marketing Theory ได้แก่ 1) การแบ่งส่วนตลาด ถึงแม้ว่าจะยังไม่ได้จำหน่ายออกสู่ตลาด แต่มีการพัฒนาสินค้าโดยมีจุดขายที่เป็นเอกลักษณ์ คือ ไซเดอร์สับปะรดผลิตจากน้ำสับปะรดธรรมชาติ 100% ไม่มีสารเติมแต่งหรือสารกันบูด อุดมด้วยวิตามิน C และเอนไซม์ธรรมชาติ เช่น Bromelain ที่ช่วยย่อยอาหาร มีรสชาติหวานอมเปรี้ยว สดชื่น เหมาะสำหรับผู้รักสุขภาพ 2) การเลือกเป้าหมายที่เป็นตลาดเป้าหมาย เจาะกลุ่มคนรักสุขภาพ คนรุ่นใหม่ (Millennials, Gen Z) และผู้ที่มองหาเครื่องดื่มธรรมชาติที่ไม่มีน้ำตาลเทียม 3) การวางตำแหน่งสินค้า โดยการวิเคราะห์ตลาด ในตลาดเครื่องดื่มไซเดอร์เติบโตสูง โดยเฉพาะในกลุ่มคนรักสุขภาพและเครื่องดื่มธรรมชาติ มีการแข่งขันสูง จำเป็นต้องสร้างจุดเด่นที่แตกต่างจากไซเดอร์แอปเปิลทั่วไป

การวัดผลและงบประมาณแบ่งเป็นสัดส่วน ดังนี้ 1) โฆษณาผ่านโซเชียลมีเดีย (Facebook, TikTok, Instagram) 25-30% 2) กิจกรรมทดลองชิม (Sampling & Events) 10 - 15% 3) การทำ Customer Loyalty Program 5 - 10% 4) การวิเคราะห์ตลาดและการสำรวจผู้บริโภค 5 - 7%

แผนการตลาดของไซเดอร์สับปะรดเน้นสร้างความแตกต่างจากคู่แข่งโดยชูจุดเด่นด้านสุขภาพและใช้กลยุทธ์การตลาดดิจิทัลในการเข้าถึงกลุ่มเป้าหมาย การแข่งขันในตลาดไซเดอร์และน้ำผลไม้ค่อนข้างสูง แต่การนำเสนอไซเดอร์หมักธรรมชาติเป็นทางเลือกใหม่ สามารถช่วยให้ผลิตภัณฑ์นี้มีโอกาสเติบโตได้ดีในตลาดที่กำลังให้ความสำคัญกับสุขภาพและความเป็นธรรมชาติ โดยเน้นสร้างการรับรู้ตราสินค้า การขยายตลาด และเพิ่มยอดขายผ่านกลยุทธ์ที่ตอบโจทย์ไลฟ์สไตล์ของผู้บริโภคยุคใหม่

จากผลการวิจัยนี้ สามารถอภิปรายได้ว่าการวิจัยแบบมีส่วนร่วมโดยมีกลุ่มเป้าหมายคือ วิสาหกิจชุมชนตะวันฉาย ผู้ให้ข้อมูลทั้ง 2 ท่าน ต่างมีความเห็นตรงกันว่าไซเดอร์สับปะรดเพื่อสุขภาพเป็นผลิตภัณฑ์ที่มีโอกาสเติบโตสูงในตลาดเครื่องดื่มสุขภาพแต่เผชิญกับการแข่งขันที่รุนแรง ตราสินค้าจำเป็นต้องใช้

จุดเด่นด้านกระบวนการผลิตธรรมชาติ และกลยุทธ์การตลาดดิจิทัลเพื่อสร้างการรับรู้และเพิ่มยอดขาย การวางจำหน่ายผ่านแพลตฟอร์มออนไลน์และการทำแคมเปญกับผู้มีอิทธิพลทางการตลาด (Influencers) จะช่วยให้ผลิตภัณฑ์เข้าถึงกลุ่มลูกค้าได้มากขึ้น โอกาสในการพัฒนาสินค้า เช่น ไซเดอร์พร้อมโปรไบโอติก หรือสูตรสมุนไพร เป็นต้น จะช่วยสร้างความแตกต่างจากคู่แข่ง และทำให้ธุรกิจเติบโตได้ในระยะยาว ซึ่งมีความสอดคล้องกับงานของ มานพ ชุ่มอุ่น และอาชวิน ใจแก้ว (2563) พบว่า การออกแบบตราสินค้าและบรรจุภัณฑ์ พร้อมสร้างโมเดลธุรกิจและกลยุทธ์การตลาด และสอดคล้องกับ กนกกาญจน์ เกตุแก้ว และสุวิต ศรีไหม (2562) พบว่า โมเดลธุรกิจเป็นการบริหารทรัพยากรหลักของกิจการทั้งระบบ เพื่อสร้างและส่งมอบคุณค่าให้แก่ลูกค้าให้กิจการสามารถทำกำไรได้ ตามวัตถุประสงค์ข้อที่ 1 และสอดคล้องกับ ชวัลวิทย์ สิทธิมงคลชัย (2563) สร้างโมเดลธุรกิจ มุ่งวิเคราะห์ปัจจัยภายนอกและภายใน ศักยภาพการแข่งขันและกลุ่มผู้บริโภค เพื่อกำหนดทิศทางการตลาดและกลยุทธ์ที่ชัดเจน ตามวัตถุประสงค์ข้อที่ 1 , 2 และ 3 และสอดคล้องกับงานของ ชนกภัทร ผดุงอรรถ และคณะ (2561) ที่มีการพัฒนาผลิตภัณฑ์และแผนการตลาดน้ำส้มสายชูหมักจากสับปะรดได้ด้วยตนเอง ส่งเสริมการเพิ่มรายได้ให้กับกลุ่ม ส่งผลให้เกิดการพัฒนาคุณภาพชีวิตอย่างยั่งยืนของกลุ่ม ตามวัตถุประสงค์ขอที่ 3

นอกจากนี้ การวิจัยครั้งนี้ยังมีนัยสำคัญของผลการวิจัย (Implications) ต่อภาคธุรกิจชุมชน เช่น เกิดการพัฒนาการยกระดับมาตรฐานผลิตภัณฑ์ โดยผ่านมาตรฐานขององค์การอาหารและยา (อย.) และการเข้าสู่ตลาดออนไลน์ที่สามารถเพิ่มยอดขายได้อย่างมาก อย่างไรก็ตาม ข้อจำกัดของการวิจัย (Limitations) ได้แก่ ขอบเขตการวิจัยเฉพาะพื้นที่ ในกรณีนี้ได้ศึกษาเฉพาะวิสาหกิจชุมชนตะวันฉาย และมีผู้ให้ข้อมูลหลักจำนวน 2 ท่าน จึงอาจไม่สามารถอธิบายการศึกษาในพื้นที่อื่นได้

ข้อเสนอแนะ

การวิจัยครั้งนี้มีข้อเสนอแนะดังนี้

1. วิสาหกิจชุมชนตะวันฉาย มีการพัฒนาไซเดอร์สับปะรดเพื่อสุขภาพโดยเน้นสาระสำคัญ คือ โบมีเลน เพื่อตอบโจทย์ลูกค้าที่รักสุขภาพและแตกต่างจากคู่แข่ง

2. สำนักงานเกษตรจังหวัดระยอง ควรมีการสนับสนุนงบประมาณเพื่อการผลิตและการตลาดอย่างต่อเนื่อง ในการพัฒนาและต่อยอดไซเดอร์สับปะรดเพื่อสุขภาพ และมีการสนับสนุนวิสาหกิจชุมชนเข้าสู่มาตรฐาน อย. หรือ GI

ข้อเสนอแนะในการวิจัยในเชิงวิชาการครั้งต่อไป

1. ควรมีการศึกษาติดตามและประเมินผลความสำเร็จของธุรกิจไซเดอร์สับปะรดเพื่อสุขภาพของวิสาหกิจชุมชนตะวันฉายในระยะต่อไป

2. ควรมีการศึกษา "ความตั้งใจซื้อ" หรือ "การรับรู้ตราสินค้า" ของผู้บริโภคในวงกว้าง

เอกสารอ้างอิง

กนกกาญจน์ เกตุแก้ว และสุวิต ศรีไหม. (2562). โมเดลธุรกิจและการนำไปดำเนินการ. วารสารการจัดการสมัยใหม่, 17(1), 1-12.

คณะบริหารธุรกิจและเทคโนโลยีสารสนเทศ. (2568). รายงานผลดำเนินงานกิจกรรมบริการวิชาการและศึกษาดูงานของคณาจารย์และนักศึกษาระดับบัณฑิตศึกษา. กรุงเทพฯ: มหาวิทยาลัยเทคโนโลยีราชมงคลตะวันออก เขตพื้นที่จักรพงษภูวนารถ.

ชนกภัทร ผดุงอรรถ, สวรรยา ปัญญานันท์ และวรรณรัตน์ เฉลิมแสนยากร. (2561). การพัฒนาผลิตภัณฑ์เครื่องดื่มเพื่อสุขภาพจากน้ำส้มสายชูหมักสับปะรดเพื่อการใช้ประโยชน์และเพิ่มมูลค่าสับปะรดเหลือทิ้ง (รายงานวิจัยฉบับสมบูรณ์). ราชบุรี: มหาวิทยาลัยราชภัฏหมู่บ้านจอมบึง.

ชวัลวิทย์ สิทธิมงคลชัย. (2563). แผนธุรกิจการผลิตและจัดจำหน่ายสุราประเภทไซเดอร์. หลักสูตรการจัดการมหาบัณฑิต สาขาวิชาความเป็นผู้ประกอบการ (รายงานวิจัยฉบับสมบูรณ์). กรุงเทพฯ: มหาวิทยาลัยกรุงเทพ.

ตัวแทนสำนักงานเกษตรจังหวัดระยอง. (2568, กุมภาพันธ์ 22). สัมภาษณ์เชิงลึก.

ประธานวิสาหกิจชุมชนตะวันฉาย. (2568, กุมภาพันธ์ 22). สัมภาษณ์เชิงลึก.

ประสพชัย พสุนนท์. (2558). ความเที่ยงตรงของแบบสอบถามสำหรับงานวิจัยทางสังคมศาสตร์. วารสารสังคมศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ, 18(1), 375-396.

มานพ ชุ่มอุ่น และอาชวิน ใจแก้ว. (2563). การออกแบบตราสินค้าโมเดลธุรกิจและกลยุทธ์การตลาดเชิงสร้างสรรค์ในผลิตภัณฑ์จากมะเกี๋ยงในจังหวัดเชียงใหม่. วารสารการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม, 12(4), 14-29.

สวรรยา ปัญญานันท์, วรรณรัตน์ เฉลิมแสนยากร, ชนกภัทร ผดุงอรรถ และลักษมี หมื่นศรีธาราม. (2564). การพัฒนารูปแบบการผลิตแบคทีเรียน้ำส้มสายชูสำเร็จรูปเพื่อการผลิตสับปะรดไซเดอร์. วารสารเกษตรพระจอมเกล้า, 39(2), 141-147.

อุมาพร โวลา และอุดม สมบูรณ์ผล. (2566). แนวทางการพัฒนาศักยภาพวิสาหกิจชุมชนผลิตภัณฑ์ผ้าไหมนาข่า จังหวัดอุดรธานี. Journal of Roi Kaensarn Academi, 9(2), 95-111.

ปัจจัยส่วนประสมทางการตลาดที่มีผลต่อการตัดสินใจซื้ออิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน ในตำบลหนองตะพาน อำเภอบ้านค่าย จังหวัดระยอง

Marketing Mix Factors Affecting the Decision to Buy Interlocking Bricks from By-Products of Natural Lactic Acid Factories Mixed with Waste Materials from the Community in Nong Taphan Subdistrict, Ban Khai District, Rayong Province

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บทคัดย่อ

จากปัญหาราคาวัสดุก่อสร้างที่มีราคาที่สูงขึ้น การนำของเหลือทิ้งทางการเกษตรและอุตสาหกรรมจึงเป็นทางเลือกสำหรับการผลิตวัสดุที่ใช้ในงานก่อสร้าง งานวิจัยครั้งนี้มีวัตถุประสงค์ ดังนี้ 1) เพื่อศึกษาปัจจัยที่มีผลต่อการตัดสินใจ ซื้ออิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน และ 2) เพื่อกำหนดแนวทางการวางแผนการตลาด ทำการวิจัยเชิงปริมาณ ใช้แบบสอบถาม สุ่มตัวอย่างแบบ Quota Sampling จำนวน 400 คน จากผู้ซื้อในตำบลหนองตะพาน อำเภอบ้านค่าย จังหวัดระยอง ใช้สถิติพรรณนา และสถิติอนุมาน ได้แก่ การวิเคราะห์ถดถอยพหุคูณ ผลการศึกษา พบว่า ผู้ตอบแบบสอบถามจำนวน 400 คน ส่วนใหญ่เป็นเพศชาย ร้อยละ 54.80 มีอายุระหว่าง 51 – 60 ปี ร้อยละ 69.40 ระดับการศึกษาระดับมัธยมศึกษาตอนปลาย หรือ ปวส. ร้อยละ 40.50 มีอาชีพรับจ้างอิสระ / รับจ้างทั่วไป ร้อยละ 80.70 รายได้ต่อเดือนระหว่าง 15,001-20,000 บาท ร้อยละ 43.70 ปัจจัยส่วนประสมการตลาด 7P พบว่า ค่าเฉลี่ยมากที่สุดของแต่ละปัจจัย มีดังนี้ 1) ปัจจัยด้านผลิตภัณฑ์ คือ คุณค่าหลักคุณสมบัติ รูปแบบ ตรงตามความต้องการ 2) ปัจจัยด้านราคา คือ ราคาสามารถต่อรองได้ 3) ปัจจัยด้านช่องทางการจัดจำหน่าย คือ ทำเลที่ตั้งตั้งอยู่ในสถานที่เห็นชัดเจน 4) ปัจจัยด้านส่งเสริมการตลาด คือ ส่วนลดหรือของแถม 5) ปัจจัยด้านบุคคล คือ พนักงานมีความสุภาพและเป็นกันเอง 6) ปัจจัยด้านกระบวนการ คือ มีระยะเวลาจัดส่งสินค้าที่รวดเร็ว 7) ปัจจัยด้านลักษณะทางกายภาพ คือ สามารถค้นหาสินค้าได้ง่าย และปัจจัยด้านการตัดสินใจซื้อให้ความสำคัญมากที่สุด คือ การรับรู้ปัญหา การวิเคราะห์ถดถอยพหุคูณ พบว่า ปัจจัยที่ส่งผลต่อการตัดสินใจซื้อมากที่สุด อย่างมี

นัยสำคัญทางสถิติ 0.01 คือ ปัจจัยด้านบุคคล รองลงมาคือ ปัจจัยด้านการส่งเสริมการตลาด และปัจจัยด้านลักษณะทางกายภาพ ตามลำดับ นำมากำหนดแนวทางการวางแผนการตลาดของชุมชน คือ 1) พนักงานควรมีความสุภาพ เป็นกันเอง ให้ความรู้และแนะนำชี้แจงข้อสงสัยเกี่ยวกับสินค้าได้ดี 2) ให้ส่วนลดหรือของแถม ทำการตลาดเชิงกิจกรรมสร้างภาพลักษณ์เชิงบวก และ 3) มีการจัดเส้นทางให้ลูกค้าสามารถค้นหาสินค้าได้ง่าย มีปริมาณสินค้าเพียงพอ ไม่ขาดตลาด

คำสำคัญ: อิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติ, วัสดุเหลือใช้จากชุมชน

Abstract

Due to the problem of rising construction material prices, the utilization of agricultural and industrial waste is an alternative for the production of construction materials. This research has the following objectives: 1) To study the factors affecting the decision to purchase interlocking bricks from by-products of a natural lactic acid factory mixed with community waste materials and 2) To determine the marketing planning guidelines. A quantitative research was conducted using a questionnaire and a quota sampling of 400 buyers in Nong Taphan Sub-district, Ban Khai District, Rayong Province. Descriptive statistics and inferential statistics were used, including multiple regression analysis. The results of the study found that the majority of the 400 respondents were male (54.80%), aged between 51-60 years (69.40%), had a high school or vocational certificate (40.50%), and were freelancers/general employees (80.70%). Monthly income between 15,001-20,000 baht, 43.70 percent. The 7P marketing mix factors found that the highest average value of each factor is as follows: 1) Product factor: Main value, features, and form meet the needs. 2) Price factor: Negotiable price. 3) Distribution channel factor: Location in a clearly visible place. 4) Marketing promotion factor: Discount or free gift. 5) Personnel factor: Polite and friendly staff. 6) Process factor: Fast delivery time. 7) Physical characteristic factor: Easy to find products. The most important factor for purchasing decision is problem awareness. Multiple regression analysis found that the factor that affects the purchasing decision the most, with a statistical significance of 0.01, is the personal factor, followed by the marketing promotion factor and the physical characteristic factor, respectively. This is used to determine the community marketing plan as follows: 1) Staff should be polite, friendly, provide knowledge and explain doubts about the product well. 2) Provide discounts or free gifts, do marketing activities to create a positive image, and 3) arrange a route for customers to find products easily. There is sufficient product quantity, no shortage in the market.

Keywords: Interlocking Bricks from By-Products of Natural Lactic Acid Factories, Community Waste Materials

บทนำ

จากการดำเนินโครงการยกระดับเศรษฐกิจและสังคมรายตำบลแบบบูรณาการ (1 ตำบล 1 มหาวิทยาลัย) หรือ U2T ของคณะบริหารธุรกิจและเทคโนโลยีสารสนเทศ มหาวิทยาลัยเทคโนโลยีราชมงคลตะวันออก ในพื้นที่รับผิดชอบ คือ วิสาหกิจชุมชนธนาคารขยะออมทรัพย์บ้านไผ่ หมู่ 1 ตำบลหนองตะพาน อำเภอบ้านค่าย จังหวัดระยอง (คณะบริหารธุรกิจและเทคโนโลยีสารสนเทศ, 2565) วิสาหกิจชุมชนแห่งนี้ มีพันธกิจในการบริหารจัดการขยะให้ลดลงและเพิ่มมูลค่า ทั้งนี้ได้รับการสนับสนุนจากบริษัท พูแรค (ประเทศไทย) จำกัด เป็นผู้ผลิตกรดแลคติกธรรมชาติ ซึ่งในกระบวนการผลิตได้เกิดผลิตภัณฑ์พลอยได้คือ ไบโอมาส และยิปซั่ม จึงมีแนวคิดที่จะให้นักวิจัยนำผลิตภัณฑ์พลอยได้มาผสมกับฟางข้าว ซึ่งเป็นวัสดุเหลือใช้จากชุมชน นำมาผลิตอิฐบล็อกประสาน เพื่อการลดขยะและเพิ่มมูลค่า ตามหลักการพัฒนาเศรษฐกิจแบบองค์รวม (BCG Model) เพื่อการลดต้นทุนในการก่อสร้างให้กับชุมชน และเป็นการสร้างโอกาสด้านรายได้ให้กับชุมชนและบริษัทอีกทางหนึ่ง โดยบริษัทเป็นผู้สนับสนุนทุนวิจัยในครั้งนี้ (บริษัท พูแรค (ประเทศไทย) จำกัด, 2566) ดังนั้น ตำบลหนองตะพาน อำเภอบ้านค่าย จังหวัดระยอง จึงเป็นพื้นที่เป้าหมายที่มีความสำคัญในการเป็นต้นแบบการผลิต และการตลาดอิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน เนื่องจากชุมชนยังไม่มีความพร้อมทางการตลาดการวิจัยครั้งนี้ จึงมีความจำเป็นต้องทำการศึกษาปัจจัยส่วนประสมทางการตลาดที่มีผลต่อการตัดสินใจซื้ออิฐบล็อกประสานดังกล่าว เพื่อนำไปสู่การพัฒนาธุรกิจ กำหนดแนวทางการวางแผนการตลาดที่จะสามารถตอบสนองความต้องการของลูกค้าต่อไป

ด้วยการก่อสร้างในปัจจุบันนิยมใช้ชิ้นส่วนสำเร็จรูปมากยิ่งขึ้น เพื่อความสะดวกและรวดเร็วในการก่อสร้าง อิฐบล็อกจึงเป็นวัสดุก่อสร้างที่มีความสำคัญและมีประโยชน์อย่างมากต่องานก่อสร้างเกือบทุกชนิด แต่อิฐบล็อกผลิตมาจากการผสมระหว่างปูนซีเมนต์ ซึ่งเป็นตัวประสานกับทราย หินกรวดและน้ำจึงมีข้อเสียคือน้ำหนักมาก แม้ว่าจะมีเทคโนโลยีในการผลิตอิฐบล็อกมวลเบาโดยการใช้วัสดุเบาผสมแทนหิน ซึ่งผลิตจากการเผาดินเหนียว หินชนวน ด้วยความร้อนสูงทำให้เกิดมีฟองอากาศอยู่ในตัวหินจำนวนมากทำให้หินสังเคราะห์ที่ได้มีน้ำหนักเบาลงแต่มีผลเสียหลายประการตามมาคือ ความแข็งแรงของอิฐบล็อกจะลดลงมาก เนื่องจากวัสดุที่ผลิตได้จะมีความแข็งแรงต่ำกว่าหินมาก และอาจมีการหดตัวบ้างในระยะยาวการเพิ่มฟองอากาศในเนื้ออิฐบล็อกก็เป็นวิธีที่ต้องอาศัยเครื่องมือ อุปกรณ์และกรรมวิธีทางเคมีทำให้ได้อิฐบล็อกที่มีคุณภาพดีกว่าการใช้หินสังเคราะห์ เนื่องจากมีการกระจายของฟองอากาศสม่ำเสมอภายในอิฐบล็อก แต่อย่างไรก็ตาม ทั้งสองวิธีที่กล่าวมาข้างต้นเป็นการผลิตที่ต้องใช้ต้นทุนสูง จึงไม่เป็นที่นิยมเนื่องจากทำให้อิฐบล็อกมวลเบาที่ได้มีราคาแพงกว่าอิฐบล็อกธรรมดามาก ดังนั้นหากอิฐบล็อกที่ใช้มีน้ำหนักเบา แต่ยังคงรักษาคุณภาพและสมบัติที่ดีให้คงอยู่ ก็จะช่วยให้มีความสะดวกในการขนส่ง ประหยัดแรงงาน และช่วยลดระยะเวลาในการก่อสร้างลงได้ จึงมีนักวิจัยหลายท่านได้ให้ความสนใจโดยนำแกลบหรือขี้เถ้าแกลบมาใช้เป็นส่วนประกอบในผลิตภัณฑ์คอนกรีตต่าง ๆ (สมาคมพลังงานทดแทนสู่ชุมชนแห่งประเทศไทย, 2567)

จากสถานการณ์ในปัจจุบันประเทศไทยประสบปัญหาสินค้าราคาแพง ส่งผลทำให้ค่าครองชีพตลอดจนค่าวัสดุก่อสร้างต่าง ๆ มีราคาที่สูงขึ้นมาก จากปัญหาราคาวัสดุก่อสร้างที่มีราคาที่สูงขึ้น การนำของเหลือทิ้งทางการเกษตรและอุตสาหกรรม จึงเป็นทางเลือกสำหรับการผลิตวัสดุที่ใช้ในงานก่อสร้าง โดยเฉพาะวัสดุน้ำหนักเบา คือ อิฐบล็อกประสาน ซึ่งนอกจากจะช่วยลดต้นทุนในการผลิต โดยการช่วยให้มีความสะดวกในการขนส่ง ประหยัดแรงงาน และช่วยลดระยะเวลาในการก่อสร้างลงได้แล้ว ยังช่วยลดปัญหาสิ่งแวดล้อม โดยนำผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติและวัสดุเหลือใช้จาก

ชุมชนมาสร้างเป็นสินค้าใหม่ ซึ่งจะทำให้ขยะในชุมชนลดลงอีกด้วย

ดังนั้น งานวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาปัจจัยที่มีผลต่อการตัดสินใจซื้ออิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน เพื่อนำไปสู่การพัฒนาธุรกิจ กำหนดแนวทางการวางแผนการตลาดที่จะสามารถตอบสนองความต้องการของลูกค้า

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาปัจจัยที่มีผลต่อการตัดสินใจซื้ออิฐบล็อกประสาน จากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน
2. เพื่อกำหนดแนวทางการวางแผนการตลาด

สมมติฐาน

ปัจจัยด้านข้อมูลทั่วไปและปัจจัยส่วนประสมการตลาด 7P ส่งผลต่อการตัดสินใจซื้ออิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน

แนวคิด ทฤษฎี กรอบแนวคิด

1. ทฤษฎีส่วนประสมการตลาด 7P (Marketing Mix 7P's) มีองค์ประกอบ ดังนี้ (Kotler & Keller, 2022)

1) ผลิตภัณฑ์ (Product) หมายถึงสินค้าหรือบริการที่องค์กรนำเสนอแก่ลูกค้า ผลิตภัณฑ์ต้องสามารถตอบสนองความต้องการของลูกค้า และมีองค์ประกอบสำคัญ ได้แก่ คุณค่าหลักของสินค้า คุณสมบัติ รูปแบบ และตราสินค้า บริการเสริม เช่น การรับประกัน

2) ราคา (Price) คือจำนวนเงินที่ลูกค้าต้องจ่ายเพื่อแลกกับสินค้า การกำหนดราคาส่งผลต่อการรับรู้คุณค่าและความสามารถในการแข่งขันของธุรกิจ โดยมีแนวทางการตั้งราคา เช่น ตั้งราคาตามต้นทุน ตั้งราคาตามคุณค่าที่ลูกค้ารับรู้ ตั้งราคาตามคู่แข่ง

3) ช่องทางการจัดจำหน่าย (Place) หมายถึงวิธีที่สินค้าถูกส่งไปยังลูกค้า การจัดจำหน่ายสามารถทำได้ผ่านช่องทางแบบดั้งเดิม เช่น ร้านค้าปลีก หรือผ่านช่องทางดิจิทัล เช่น อีคอมเมิร์ซ

4) การส่งเสริมการตลาด (Promotion) หมายถึงกิจกรรมที่ใช้ในการสื่อสารและกระตุ้นให้เกิดการซื้อ เครื่องมือสื่อสารทางการตลาดประกอบด้วย โฆษณา การใช้สื่อมวลชน การส่งเสริมการขาย เช่น ส่วนลดหรือของแถม การตลาดเชิงกิจกรรม เช่น การสร้างภาพลักษณ์เชิงบวก เป็นต้น

5) บุคคล (People) เป็นปัจจัยสำคัญในธุรกิจบริการ คือ พนักงานมีบทบาทสำคัญในการสร้างประสบการณ์ที่ดีให้กับลูกค้า เช่น การฝึกอบรมพนักงานเพื่อให้บริการที่เป็นเลิศ เป็นต้น

6) กระบวนการ (Process) หมายถึงขั้นตอนที่ธุรกิจใช้ในการให้บริการแก่ลูกค้า กระบวนการที่มีประสิทธิภาพช่วยเพิ่มความพึงพอใจของลูกค้า เช่น ระบบจองโรงแรมที่ง่ายต่อการใช้งาน

7) หลักฐานทางกายภาพ (Physical Evidence) หมายถึงองค์ประกอบทางกายภาพที่ช่วยเสริมความน่าเชื่อถือของแบรนด์ หลักฐานทางกายภาพสามารถสร้างความประทับใจให้ลูกค้า เช่น การออกแบบร้านค้า หรือบรรจุภัณฑ์ที่สวยงาม

2. การตัดสินใจซื้อ

การตัดสินใจซื้อ (Consumer Decision-Making Process) เป็นกระบวนการที่ผู้บริโภคใช้ในการเลือกซื้อสินค้าหรือบริการ โดยทั่วไปสามารถแบ่งออกเป็น 5 ขั้นตอนหลัก (Kotler, P., & Keller, K. L. (2022) ได้แก่

1) การรับรู้ปัญหา (Problem Recognition) ผู้บริโภครู้สึกว่าตนเองมีความต้องการหรือปัญหาที่ต้องการแก้ไข เช่น ต้องการโทรศัพท์เครื่องใหม่เพราะเครื่องเก่าชำรุด

2) การค้นหาข้อมูล (Information Search) ผู้บริโภคทำการค้นหาข้อมูลเกี่ยวกับสินค้าหรือบริการที่สามารถตอบสนองความต้องการได้ แหล่งข้อมูลอาจมาจากประสบการณ์ส่วนตัว คำแนะนำจากผู้อื่น หรือข้อมูลออนไลน์

3) การประเมินทางเลือก (Evaluation of Alternatives) ผู้บริโภคนำข้อมูลที่ได้มาประเมินทางเลือก เปรียบเทียบคุณสมบัติ ราคา และแบรนด์ต่าง ๆ เพื่อหาสินค้าหรือบริการที่เหมาะสม

4) การตัดสินใจซื้อ (Purchase Decision) หลังจากพิจารณาทางเลือกแล้วผู้บริโภคจะตัดสินใจซื้อสินค้าหรือบริการโดยพิจารณาจากปัจจัยต่าง ๆ เช่น โปรโมชั่น ความน่าเชื่อถือของแบรนด์หรืออิทธิพลจากสังคม

5) พฤติกรรมหลังการซื้อ (Post-Purchase Behavior) ผู้บริโภคประเมินความพึงพอใจหลังจากการใช้สินค้าหรือบริการ หากได้รับประสบการณ์ที่ดีอาจเกิดความภักดีต่อแบรนด์ แต่หากไม่พอใจอาจนำไปสู่การร้องเรียนหรือไม่ซื้อซ้ำ

วรรณกรรมที่เกี่ยวข้อง

ภัทระ เกิดอินทร์, สุรศักดิ์ นิยมพานิชพัฒนา, ธนกฤต นิสดล และ อนุวัฒน์ พลหนุ่ย (2565) ศึกษาความเป็นไปได้ในการผลิตอิฐบล็อกประสานด้วยเศษพลาสติก พบว่า การเพิ่มปริมาณของเศษพลาสติกทำให้อิฐบล็อกประสานมีค่าการรับกำลังอัดลดลงและค่าการดูดซึมน้ำเพิ่มขึ้น เมื่อนำผลการทดสอบที่ได้เปรียบเทียบกับข้อกำหนดตามมาตรฐานผลิตภัณฑ์ชุมชน 602/2547 ของประเทศไทย พบว่า อิฐบล็อกประสานผสมเศษพลาสติก จัดเป็นบล็อกประสานชนิดไม่รับน้ำหนัก

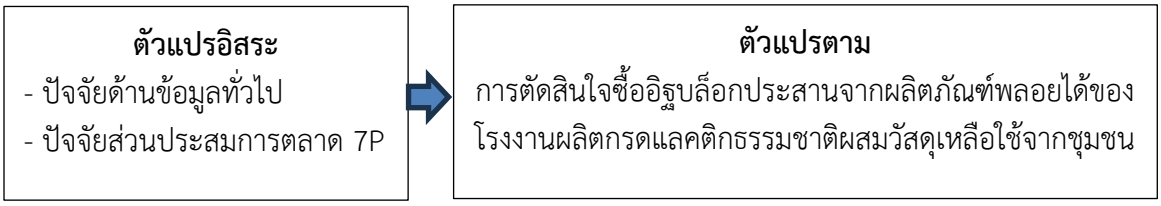
สรศักดิ์ สหชัยรุ่งเรือง และ ศักดิ์ชาย จันทร์เรือง (2563) ศึกษาปัจจัยส่วนประสมทางการตลาดและความไว้วางใจและขั้นตอนการตัดสินใจซื้อวัสดุก่อสร้าง ที่นำเข้าจากประเทศจีนของผู้ซื้อวัสดุก่อสร้างในอำเภอพนัสนิคม จังหวัดชลบุรี เป็นการวิจัยเชิงปริมาณ ศึกษาความเห็นของผู้ซื้อวัสดุก่อสร้างในอำเภอพนัสนิคม จังหวัดชลบุรี ถึงการให้ความสำคัญกับใช้ส่วนประสมทางการตลาด ความไว้วางใจและขั้นตอนการตัดสินใจซื้อวัสดุก่อสร้างที่นำเข้าจากประเทศจีน การวิจัยครั้งนี้ใช้แบบสอบถามจากผู้ซื้อวัสดุก่อสร้างในอำเภอพนัสนิคม จังหวัดชลบุรี จำนวน 440 คน และรวบรวมข้อมูลมาทำการวิเคราะห์โดยใช้สถิติค่าความถี่ ค่าสถิติร้อยละ พบว่ากลุ่มตัวอย่าง ส่วนใหญ่เป็นเพศชาย มีอายุ 35-39 ปี สถานภาพสมรส มีอาชีพพนักงานบริษัทเอกชนมีการศึกษาระดับปริญญาตรี และมีรายได้เฉลี่ยต่อเดือน 15,001-30,000 บาท ผลการวิจัยพบผู้ซื้อวัสดุก่อสร้างให้ความสำคัญกับส่วนประสมทางการตลาดในระดับ “มาก” โดยเฉพาะการให้บริการมากที่สุดให้ความสำคัญระดับ “มากที่สุด” ส่วนความไว้วางใจให้ความสำคัญในระดับ “มาก” ทุกประเด็น และให้ความสำคัญกับขั้นตอนการตัดสินใจซื้ออยู่ในระดับ “ปานกลาง” โดยเฉพาะด้านการติดตามและประเมินผลของการดำเนินการ ด้านการทำความเข้าใจในปัญหาและข้อเท็จจริงต่าง ๆ และด้านการดำเนินการให้เป็นไปตามผลของการตัดสินใจ ที่ให้ความสำคัญในระดับ “มาก” เรียงตามลำดับ

คณัสนันท์ อัจจุตมานัส และ ปราณี เอี่ยมลออภักดี (2561) ได้ศึกษาปัจจัยส่วนประสมทางการตลาดที่มีอิทธิพลต่อการตัดสินใจซื้ออิฐมวลเบาของกลุ่มช่างและร้านค้าวัสดุก่อสร้างในเขตเมือง จังหวัดนครราชสีมา มีวัตถุประสงค์เพื่อศึกษาพฤติกรรมการตัดสินใจซื้อสินค้าอิฐมวลเบาของกลุ่มร้านค้าวัสดุก่อสร้างและกลุ่มช่างในเขตเมือง จังหวัดนครราชสีมา โดยศึกษาจากผู้บริโภคสองกลุ่ม ได้แก่ กลุ่มร้านค้าวัสดุก่อสร้างและกลุ่มช่าง เพื่อศึกษาถึงความแตกต่างทางด้านปัจจัยส่วนประสมทางการตลาดที่มีผลต่อการตัดสินใจซื้อในแต่ละกระบวนการ จากการศึกษาพบว่ากระบวนการตัดสินใจซื้อทั้ง 5 ขั้นตอน โดยใช้ทฤษฎีของ Kotler สามารถอธิบายได้ดังนี้ 1) ขั้นตอนการตระหนักถึงปัญหา กลุ่มร้านค้าวัสดุก่อสร้างและกลุ่มช่าง มีความเห็นในทิศทางที่แตกต่างกันแต่เชื่อมโยงกัน โดยเริ่มจากช่างตระหนักถึงปัญหาจากความจำเป็นของการใช้งาน ส่วนของร้านค้ามีความจำเป็นที่ต้องจำหน่ายตามความต้องการของลูกค้า ซึ่งในกระบวนการตัดสินใจซื้อในขั้นตอนดังกล่าวอาจจะยังไม่เชื่อมโยงกับปัจจัยส่วนประสมทางการตลาดมากนัก 2) ขั้นตอนการค้นหาข้อมูล กลุ่มร้านค้าวัสดุก่อสร้างและกลุ่มช่างมีความเห็นในทิศทางเดียวกัน โดยให้ความเห็นว่าสินค้าอิฐมวลเบาเป็นที่รู้จักอยู่แล้ว และการใช้งานสินค้าไม่ได้มีความยุ่งยากหรือซับซ้อนแต่อย่างใด ฉะนั้นข้อมูลที่สนใจจะหาข้อมูลที่เกี่ยวข้องกับราคาและการส่งเสริมการตลาดของสินค้าเพื่อการสั่งซื้อมาใช้งานในกลุ่มช่าง และซื้อมาเพื่อจัดจำหน่ายต่อในกลุ่มร้านค้าวัสดุก่อสร้าง 3) การประเมินทางเลือกร้านค้าวัสดุก่อสร้างและกลุ่มช่าง มีความเห็นในทิศทางที่แตกต่างกัน กลุ่มช่างจะให้ความสำคัญด้านช่องทางการจัดจำหน่าย คือ การเลือกร้านที่ใกล้ที่สุดก่อนและนำราคามาประเมินทางเลือกร้านค้าในบริเวณเดียวกันในขณะที่ร้านค้าวัสดุก่อสร้างให้ความสำคัญกับการส่งเสริมการขาย โดยเฉพาะการส่งเสริมการตลาดสินค้าที่เน้นปริมาณการซื้อที่สูงแลกกับส่วนลดที่เพิ่มขึ้นหรือราคาที่ลดลง 4) ในด้านการตัดสินใจซื้อ กลุ่มร้านค้าวัสดุก่อสร้างและกลุ่มช่างมีความเห็นในทิศทางเดียวกัน โดยให้ความเห็นว่าจะตัดสินใจซื้ออิฐมวลเบาตราสินค้าใดก็ได้ที่ส่งผลต่อต้นทุนโดยรวมต่ำที่สุด และ 5) ด้านพฤติกรรมหลังการซื้อสินค้า ทั้ง 2 กลุ่ม มีการประเมินความพึงพอใจที่เหมือนกันโดยจะประเมินความพึงพอใจสินค้า หากพบปัญหาการใช้สินค้าส่งผลถึงความไม่พึงพอใจจะไม่บอกต่อ แต่จะแจ้งปัญหาดังกล่าวไปยังร้านค้าที่ตนเองซื้อสินค้า

ภัทรภร พลพฤกษ์ และ วัชระ ยี่สุ่นเทศ (2561) ได้ศึกษาปัจจัยส่วนประสมทางการตลาดที่มีอิทธิพลต่อกระบวนการการตัดสินใจใช้บริการธุรกิจรับเหมาก่อสร้าง โดยใช้วิธีการศึกษาเชิงปริมาณ (Quantitative Research) ตัวแปรอิสระ คือ ปัจจัยส่วนบุคคล ปัจจัยส่วนประสมทางการตลาด ตัวแปรตาม คือ กระบวนการการตัดสินใจใช้บริการธุรกิจรับเหมาก่อสร้าง ใช้แบบสอบถาม เป็นเครื่องมือในการรวบรวมข้อมูล สถิติที่ใช้ ในการวิเคราะห์ข้อมูลคือ ค่าสถิติ ค่าร้อยละ ค่าเฉลี่ย และทดสอบสมมติฐานโดยค่า t-test One-Way ANOVA และการวิเคราะห์สหสัมพันธ์แบบ Regression ผลการศึกษา พบว่าผู้ตอบแบบสอบถามส่วนใหญ่เป็นเพศชาย อายุ 45 ปีขึ้นไป จบการศึกษาระดับ ปริญญาตรี และมีตำแหน่งผู้บริหาร ปัจจัยส่วนประสมทางการตลาดด้านบุคคลผู้ตอบแบบสอบถามให้ความสำคัญเกี่ยวกับภาพลักษณ์และความเชื่อถือของฝ่ายบริหาร และการให้คำแนะนำ ชี้แนะลูกค้าได้ ด้านกระบวนการผู้ตอบแบบสอบถามให้ความสำคัญเกี่ยวกับการมีแผนการดำเนินงานก่อสร้างให้ลูกค้าอย่างชัดเจน และวัสดุที่ใช้เป็นไปตามที่ตกลง ข้อเสนอแนะที่ได้จากการศึกษาผู้ประกอบการธุรกิจรับเหมาก่อสร้างโรงงานควรให้ความสำคัญกับการคัดเลือกวัสดุอุปกรณ์ที่ได้มาตรฐาน ออกแบบงานก่อสร้างบนพื้นฐานวิศวกรรมให้ตรงกับวัตถุประสงค์ในการใช้งานของลูกค้า มีแผนการดำเนินงานก่อสร้างให้ลูกค้าอย่างชัดเจน มีระบบการควบคุมตรวจสอบงานทุกขั้นตอน และวัสดุที่ใช้เป็นไปตามตกลง บริหารจัดการต้นทุนในการก่อสร้างให้มีความได้เปรียบในเชิงการแข่งขันเพื่อให้สามารถกำหนดราคาให้ถูกกว่าคู่แข่งขัน ในคุณภาพที่ใกล้เคียงกันและสามารถ

ต่อรองราคาได้ มีช่องทางในการติดต่อสื่อสารที่อำนวยความสะดวกรวดเร็วให้กับลูกค้า สร้างความน่าเชื่อถือของบริษัทและผู้บริหารให้เป็นที่ยอมรับของลูกค้า เพื่อให้ลูกค้าเกิดความรู้สึกเชื่อมั่นและไว้วางใจ มีผลต่อการใช้บริการซ้ำมีการแนะนำบอกต่อ

กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิด

วิธีดำเนินการวิจัย

งานวิจัยนี้ เป็นการวิจัยเชิงปริมาณ (Quantitative Research) ใช้แบบสอบถามเพื่อเก็บรวบรวมข้อมูลปัจจัยที่มีผลต่อการตัดสินใจซื้ออิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน ทำการสุ่มตัวอย่างแบบ Quota sampling กับประชากรที่เป็นผู้ซื้อในตำบลหนองตะพาน อำเภอบ้านค่าย จังหวัดระยอง ประกอบด้วย หมู่ 1 บ้านไผ่ 58 คน, หมู่ 2 จำนวน 95 คน, หมู่ 3 จำนวน 58 คน, หมู่ 4 จำนวน 83 คน, หมู่ 5 จำนวน 89 คน และ หมู่ 6 จำนวน 17 คน จำนวนทั้งสิ้น 400 คน การกำหนดกลุ่มตัวอย่างโดยใช้สูตรของ Yamane (Yamane, T. (1967) ดังนี้

$$n = \frac{2,827}{1+2,827(0.05)^2} = 350 \text{ คน}$$

เพื่อป้องกันความผิดพลาด ในการเก็บข้อมูลจากกลุ่มตัวอย่าง ซึ่งดำเนินการเก็บตัวอย่างจำนวน 400 ชุด ดังตารางที่ 1

ตารางที่ 1 แสดงจำนวนประชากรและตัวอย่าง

หมู่บ้านที่	ประชากร (คน)	ตัวอย่าง (คน)
1. บ้านไผ่	408	58
2. บ้านเกาะ	673	95
3. บ้านหนองสะพาน	412	58
4. บ้านปากป่า	589	83
5. บ้านแหลมเหียง	628	89
6. บ้านคลองช้างตาย	117	17
รวม	**2,827**	**400**

ที่มา: กระทรวงสาธารณสุข, 2567

เครื่องมือที่ใช้ในการวิจัย คือ แบบสอบถาม สร้างขึ้นจากทฤษฎีส่วนประสมการตลาด 7P และการตัดสินใจซื้อ และการทบทวนวรรณกรรม แบ่งออกเป็น 3 ส่วน ได้แก่

ส่วนที่ 1 ปัจจัยด้านข้อมูลทั่วไปของผู้ตอบแบบสอบถาม ได้แก่ เพศ อายุ ระดับการศึกษา อาชีพ และรายได้ต่อเดือน

ส่วนที่ 2 ปัจจัยทางด้านส่วนประสมการตลาด 7P ประกอบด้วยข้อคำถาม แยกเป็นปัจจัย ดังนี้ 1) ปัจจัยด้านผลิตภัณฑ์ จำนวน 3 ข้อ 2) ปัจจัยด้านราคา จำนวน 3 ข้อ 3) ปัจจัยด้านช่องทางการจัดจำหน่าย จำนวน 3 ข้อ 4) ปัจจัยด้านส่งเสริมการตลาด จำนวน 3 ข้อ 5) ปัจจัยด้านบุคคล จำนวน 3 ข้อ 6) ปัจจัยด้านกระบวนการ จำนวน 3 ข้อ และ 7) ปัจจัยด้านลักษณะทางกายภาพ จำนวน 3 ข้อ

ส่วนที่ 3 การตัดสินใจซื้ออิฐบล็อกประสานของผู้บริโภค ข้อคำถามจำนวน 5 ข้อ ประกอบด้วย 1) การรับรู้ปัญหา 2) การค้นหาข้อมูล 3) การประเมินทางเลือก 4) พฤติกรรมหลังการซื้อ และ 5) การตัดสินใจซื้อ

เกณฑ์การให้คะแนนความคิดเห็น 5 ระดับ (Likert' s Scale) การตรวจสอบเครื่องมือที่ใช้ในการวิจัย เกณฑ์การแปลผลคะแนนความคิดเห็น 5 ระดับ ดังนี้

คะแนนเฉลี่ย	แปลความหมาย
4.51–5.00	เห็นด้วยมากที่สุด
3.51–4.50	เห็นด้วยมาก
2.51–3.50	เห็นด้วยปานกลาง
1.51–2.50	เห็นด้วยน้อย
1.00 –1.50	เห็นด้วยน้อยที่สุด

ผู้วิจัยทำการตรวจสอบเครื่องมือที่ใช้ในการวิจัย ได้แก่ แบบสอบถามใช้วิธีตรวจสอบความตรงในเนื้อหา (IOC) โดยผู้เชี่ยวชาญจำนวน 3 ท่าน และการใช้แบบสอบถามใช้วิธีตรวจสอบความเที่ยงของแบบสอบถามร่วมด้วย โดยทำการทดลองใช้แบบสอบถามกับกลุ่มเป้าหมาย จำนวน 20 คน ที่มีลักษณะใกล้เคียงกับกลุ่มเป้าหมายในการวิจัยก่อน โดยใช้ค่าสัมประสิทธิ์คอนบาร์ค ซึ่งมีค่าไม่ต่ำกว่า 0.8 จึงจะทำการเก็บข้อมูลจากแบบสอบถามกับกลุ่มเป้าหมายในการวิจัยต่อไป จากการตรวจสอบพบว่าคะแนนจากผู้เชี่ยวชาญ 3 ท่าน คือ 0.9 และค่าสัมประสิทธิ์คอนบาร์ค เท่ากับ 0.825 การเก็บรวบรวมข้อมูล ได้แก่ 1) ข้อมูลปฐมภูมิ (Primary Data) เป็นข้อมูลด้วยการสำรวจภาคสนาม ใช้ข้อมูลในการเก็บรวบรวมข้อมูลโดยการนำแบบสอบถามไปให้กลุ่มตัวอย่างเป็นผู้ตอบแบบสอบถาม และ 2) ข้อมูลทุติยภูมิ (Secondary Data) เป็นข้อมูลที่อยู่ในรูปเอกสาร

การวิเคราะห์ข้อมูล นำข้อมูลไปวิเคราะห์โดยใช้โปรแกรมสำเร็จรูปทางสถิติ SPSS วิเคราะห์ข้อมูลเกี่ยวกับกลุ่มตัวอย่างและความคิดเห็นของผู้ตอบแบบสอบถาม โดยใช้การวิเคราะห์สถิติพรรณนา ได้แก่ ร้อยละ (Percentage) ค่าเฉลี่ย (Mean) และส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation) และสถิติอนุมาน คือ การวิเคราะห์ถดถอยพหุคูณ (Multiple Regression Analysis) โดยมีการตั้งสมมติฐานการทดสอบดังนี้

H0: ปัจจัยด้านข้อมูลทั่วไป ไม่ส่งผลต่อการตัดสินใจซื้ออิฐบล็อกประสานฯ ($b = 0$)

H1: ปัจจัยด้านข้อมูลทั่วไป ส่งผลต่อการตัดสินใจซื้ออิฐบล็อกประสานฯ ($b \neq 0$)

และ

H0: ปัจจัยส่วนประสมการตลาด 7P ไม่ส่งผลต่อการตัดสินใจซื้ออิฐบล็อกประสานฯ ($b = 0$)

H1: ปัจจัยส่วนประสมการตลาด 7P ส่งผลต่อการตัดสินใจซื้ออิฐบล็อกประสานฯ ($b \neq 0$)

ผลการวิจัย

การวิจัยครั้งนี้ มีผลการวิจัยตามวัตถุประสงค์ ดังนี้

วัตถุประสงค์ที่ 1 เพื่อศึกษาปัจจัยที่มีผลต่อการตัดสินใจซื้ออิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน พบว่าผู้ตอบแบบสอบถามจำนวน 400 คน ส่วนใหญ่เป็นเพศชาย ร้อยละ 54.80 รองลงมาเป็นเพศหญิง ร้อยละ 44.00 และมีอายุระหว่าง 51 – 60 ปี ร้อยละ 69.40 รองลงมาคืออายุ 41-50 ร้อยละ 25.70 ระดับการศึกษาระดับมัธยมศึกษาตอนปลาย หรือ ปวส. ร้อยละ 40.50 รองลงมาคือ ระดับอุดมศึกษา ร้อยละ 28.90 มีอาชีพรับจ้างอิสระ/รับจ้างทั่วไป ร้อยละ 80.70 รองลงมาเป็นเกษตรกร ร้อยละ 18.00 รายได้ต่อเดือนระหว่าง 15,001-20,000 บาท ร้อยละ 43.70 รองลงมาคือ ระหว่าง 10,001– 15,000 บาท ร้อยละ 33.10

ปัจจัยทางด้านส่วนประสมการตลาด 7P พบว่า 1. ปัจจัยด้านผลิตภัณฑ์ เมื่อพิจารณาพบว่า ข้อที่มีค่าเฉลี่ยมากที่สุด คือ คุณค่าหลักคุณสมบัติ รูปแบบ ตรงตามความต้องการ (ค่าเฉลี่ย 4.66, ส่วนเบี่ยงเบนมาตรฐาน 0.484) รองลงมาคือ บริการเสริม เช่น การรับประกัน (ค่าเฉลี่ย 4.55, ส่วนเบี่ยงเบนมาตรฐาน 0.506) 2. ปัจจัยด้านราคาเมื่อพิจารณา พบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือ ราคาสามารถต่อรองได้ (ค่าเฉลี่ย 4.86, ส่วนเบี่ยงเบนมาตรฐาน 0.351) รองลงมาคือ ราคาสินค้าเหมาะสมกับต้นทุน (ค่าเฉลี่ย 4.66, ส่วนเบี่ยงเบนมาตรฐาน 0.484) 3. ปัจจัยด้านช่องทางการจัดจำหน่ายเมื่อพิจารณา พบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือ ทำเลที่ตั้งตั้งอยู่ในสถานที่เห็นชัดเจน (ค่าเฉลี่ย 4.86, ส่วนเบี่ยงเบนมาตรฐาน 0.351) รองลงมาคือ ผ่านช่องทางแบบดั้งเดิม เช่น ร้านค้าปลีก (ค่าเฉลี่ย 4.52, ส่วนเบี่ยงเบนมาตรฐาน 0.509) 4. ปัจจัยด้านส่งเสริมการตลาดเมื่อพิจารณา พบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือ ส่วนลดหรือของแถม (ค่าเฉลี่ย 4.66, ส่วนเบี่ยงเบนมาตรฐาน 0.484) รองลงมาคือ การตลาดเชิงกิจกรรมสร้างภาพลักษณ์เชิงบวก (ค่าเฉลี่ย 4.55, ส่วนเบี่ยงเบนมาตรฐาน 0.506) 5. ปัจจัยด้านบุคคลเมื่อพิจารณาพบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือ พนักงานมีความสุภาพและเป็นกันเอง (ค่าเฉลี่ย 4.86, ส่วนเบี่ยงเบนมาตรฐาน 0.351) รองลงมาคือ พนักงานมีการให้ความรู้และแนะนำชี้แจงข้อสงสัยเกี่ยวกับสินค้าได้ดี (ค่าเฉลี่ย 4.66, ส่วนเบี่ยงเบนมาตรฐาน 0.484) 6. ปัจจัยด้านกระบวนการเมื่อพิจารณารายข้อ พบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือ มีระยะเวลาจัดส่งสินค้าที่รวดเร็ว (ค่าเฉลี่ย 4.86, ส่วนเบี่ยงเบนมาตรฐาน 0.351) รองลงมาคือ มีความรวดเร็วในการให้บริการ (ค่าเฉลี่ย 4.52, ส่วนเบี่ยงเบนมาตรฐาน 0.509) และ 7. ปัจจัยด้านลักษณะทางกายภาพเมื่อพิจารณาพบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือ สามารถค้นหาสินค้าได้ง่าย (ค่าเฉลี่ย 4.86, ส่วนเบี่ยงเบนมาตรฐาน 0.351) รองลงมาคือ มีปริมาณสินค้าเพียงพอ ไม่ขาดตลาด (ค่าเฉลี่ย 4.52, ส่วนเบี่ยงเบนมาตรฐาน 0.509)

ปัจจัยด้านการตัดสินใจซื้อ พบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือ การรับรู้ปัญหา (ค่าเฉลี่ย 4.69, ส่วนเบี่ยงเบนมาตรฐาน 0.471) รองลงมาคือ การประเมินทางเลือก (ค่าเฉลี่ย 4.69, ส่วนเบี่ยงเบนมาตรฐาน 0.471) การตัดสินใจซื้อ (ค่าเฉลี่ย 4.59, ส่วนเบี่ยงเบนมาตรฐาน 0.501) พฤติกรรมหลังการซื้อ (ค่าเฉลี่ย 4.59, ส่วนเบี่ยงเบนมาตรฐาน 0.501) และ การค้นหาข้อมูล (ค่าเฉลี่ย 4.48, ส่วนเบี่ยงเบนมาตรฐาน 0.509) ตามลำดับ

แบบจำลองการถดถอยพหุคูณของการตัดสินใจซื้ออิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน เป็นดังนี้

Decision = 3.597* + 0.691 People** + 0.537 Promotion** + 0.207 Physical** ---(1)

[2.373) [7.105] [6.590] [2.585]

(0.330) (0.295) (0.113)

R = 0.557 R-Square = 0.310 Std. Error of the Estimate = 1.419 F-stat = 59.276**

โดยที่ ** คือ ระดับนัยสำคัญทางสถิติ 0.01 ที่ความเชื่อมั่น ร้อยละ 99

* คือ ระดับนัยสำคัญทางสถิติ 0.05 ที่ความเชื่อมั่น ร้อยละ 95

ค่าใน [ ] คือ ค่า t-stat

ค่าใน ( ) คือ ค่า Standardized Coefficients Beta

หน่วยวัดของตัวแปร คือ คะแนนความคิดเห็น 5 ระดับ (Likert' s Scale)

ที่มา: จากการคำนวณ

จากแบบจำลองที่ (1) สามารถอธิบายได้ว่า ปัจจัยที่ส่งผลต่อการตัดสินใจซื้ออิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชนมากที่สุด อย่างมีนัยสำคัญทางสถิติ 0.01 คือ ปัจจัยด้านบุคคล (People) ส่งผลต่อการตัดสินใจซื้อ 0.691 หน่วย (ค่า t-stat = 7.105 และค่า Standardized Coefficients Beta = 0.330) รองลงมาคือ ปัจจัยด้านการส่งเสริมการตลาด (Promotion) ส่งผลต่อการตัดสินใจซื้อ 0.537 หน่วย (ค่า t-stat = 6.590 และค่า Standardized Coefficients Beta = 0.295) และปัจจัยด้านกายภาพส่งผลต่อการตัดสินใจซื้อ 0.207 หน่วย (ค่า t-stat = 2.585 และค่า Standardized Coefficients Beta = 0.113) ตามลำดับ ในขณะที่เมื่อศึกษาปัจจัยด้านข้อมูลทั่วไปของผู้ตอบแบบสอบถาม พบว่า ไม่ส่งผลต่อการตัดสินใจซื้อ ดังนั้นเมื่อไม่พิจารณาตัวแปรอิสระทั้งหมดในสมการ การตัดสินใจซื้อจะขึ้นอยู่กับปัจจัยอื่น 3.597 หน่วย อย่างมีนัยสำคัญทางสถิติ 0.05 และเมื่อพิจารณาภาพรวมของแบบจำลอง พบว่า ปัจจัยด้านบุคคล ด้านการส่งเสริมการตลาด และด้านลักษณะทางกายภาพ มีความสัมพันธ์กับการตัดสินใจซื้อระดับปานกลาง (R = 0.557) ตามแนวทางของ Evans (1996) และมีอิทธิพลต่อการตัดสินใจซื้อ ร้อยละ 31.0 (R-Square = 0.310) นั่นคือ มีอำนาจในการอธิบายระดับปานกลาง ตามแนวทางของ Cohen (1988) โดยมีค่าความคลาดเคลื่อนในการพยากรณ์ (Std. Error of the Estimate) = 1.419 หน่วย อย่างไรก็ตามแบบจำลองที่ได้มีความสามารถในการพยากรณ์การตัดสินใจซื้ออย่างมีนัยสำคัญทางสถิติ 0.01 (F-stat = 59.276**) นอกจากนี้ ค่าสัมประสิทธิ์การแปรปรวน (Coefficient of Variation: CV) ของตัวแปรทุกตัว พบว่า มีค่าไม่เกินร้อยละ 10 กล่าวคือ อยู่ระหว่าง ร้อยละ 5.97 - 7.39 แสดงว่าข้อมูลมีความน่าเชื่อถือ เนื่องจากมีการกระจายตัวน้อย นั่นคือ ส่วนเบี่ยงเบนมาตรฐานหรือความแปรปรวนน้อยเมื่อเทียบกับค่าเฉลี่ย (Kwak & Kim, 2017)

วัตถุประสงค์ที่ 2. เพื่อกำหนดแนวการวางแผนการตลาด

จากแบบจำลองการถดถอยพหุคูณของการตัดสินใจซื้ออิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน ที่พบว่า ปัจจัยด้านบุคคล ด้านการส่งเสริมการตลาด และด้านกายภาพสามารถนำมากำหนดแนวการวางแผนการตลาดของชุมชน และบริษัทได้ดังนี้ ปัจจัยด้านบุคคล เนื่องจากพนักงานมีบทบาทสำคัญในการสร้างประสบการณ์ที่ดีให้กับลูกค้า พนักงานจึงควรมีความสุภาพและเป็นกันเอง และให้ความรู้และแนะนำชี้แจงข้อสงสัยเกี่ยวกับสินค้าได้ดี

รองลงมาคือ ปัจจัยด้านการส่งเสริมการตลาด ควรมีการวางแผนการตลาดในการให้ส่วนลดหรือของแถม และทำการตลาดเชิงกิจกรรม เช่น การสร้างภาพลักษณ์เชิงบวก และปัจจัยด้านลักษณะทางกายภาพ ควรมีการออกแบบ องค์ประกอบทางกายภาพที่ช่วยเสริมความน่าเชื่อถือของธุรกิจ สามารถสร้างความประทับใจให้ลูกค้า โดยการจัดเส้นทางให้ลูกค้าสามารถค้นหาสินค้าได้ง่าย และมีปริมาณสินค้าเพียงพอไม่ขาดตลาด

สรุปและอภิปรายผล

การวิจัยครั้งนี้สรุปผลได้ว่า ผู้ตอบแบบสอบถามจำนวน 400 คน ส่วนใหญ่เป็นเพศชาย มีอายุระหว่าง 51 – 60 ปี ระดับการศึกษาระดับมัธยมศึกษาตอนปลาย หรือ ปวส. มีอาชีพรับจ้างอิสระ/รับจ้างทั่วไป รายได้ต่อเดือนระหว่าง 15,001-20,000 บาท ปัจจัยทางด้านส่วนประสมการตลาด 7P พบว่า 1) ปัจจัยด้านผลิตภัณฑ์ เมื่อพิจารณาพบว่า ข้อที่มีค่าเฉลี่ยมากที่สุด คือ คุณค่าหลักคุณสมบัติ รูปแบบตรงตามความต้องการ รองลงมาคือ บริการเสริม เช่น การรับประกัน 2) ปัจจัยด้านราคาเมื่อพิจารณาพบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือ ราคาสามารถต่อรองได้ รองลงมาคือราคาสินค้าเหมาะสมกับต้นทุน 3) ปัจจัยด้านช่องทางการจัดจำหน่ายเมื่อพิจารณา พบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือทำเลที่ตั้งตั้งอยู่ในสถานที่เห็นชัดเจน รองลงมาคือ ผ่านช่องทางแบบดั้งเดิม เช่น ร้านค้าปลีก 4) ปัจจัยด้านส่งเสริมการตลาดเมื่อพิจารณา พบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือ ส่วนลดหรือของแถม รองลงมาคือ การตลาดเชิงกิจกรรม เช่น การสร้างภาพลักษณ์เชิงบวก 5) ปัจจัยด้านบุคลากรเมื่อพิจารณาพบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือ พนักงานมีความสุภาพและเป็นกันเอง รองลงมาคือ พนักงานมีการให้ความรู้และแนะนำชี้แจงข้อสงสัยเกี่ยวกับสินค้าได้ดี 6) ปัจจัยด้านกระบวนการเมื่อพิจารณารายข้อ พบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือ มีระยะเวลาจัดส่งสินค้าที่รวดเร็ว รองลงมาคือ มีความรวดเร็วในการให้บริการ 7) ปัจจัยด้านลักษณะทางกายภาพเมื่อพิจารณาพบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือ สามารถค้นหาสินค้าได้ง่าย รองลงมาคือ มีปริมาณสินค้าเพียงพอไม่ขาดตลาด และปัจจัยด้านการตัดสินใจซื้อ พบว่า ข้อที่มีค่าเฉลี่ยมากที่สุดคือ การรับรู้ปัญหา รองลงมาคือการประเมินทางเลือก การตัดสินใจซื้อ พฤติกรรมหลังการซื้อ และ การค้นหาข้อมูลตามลำดับ แบบจำลองการถดถอยพหุคูณของการตัดสินใจซื้ออิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน เป็นดังนี้ Decision = 3.597* + 0.691 People** + 0.537 Promotion** + 0.207 Physical** พบว่า ปัจจัยที่ส่งผลต่อการตัดสินใจซื้ออิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน มากที่สุด อย่างมีนัยสำคัญทางสถิติ 0.01 คือ ปัจจัยด้านบุคคล ส่งผลต่อการตัดสินใจซื้อ 0.691 หน่วย รองลงมาคือ ปัจจัยด้านการส่งเสริมการตลาด ส่งผลต่อการตัดสินใจซื้อ 0.537 และปัจจัยด้านลักษณะทางกายภาพส่งผลต่อการตัดสินใจซื้อ 0.207 หน่วย ตามลำดับ แต่เมื่อไม่พิจารณาตัวแปรอิสระทั้งหมดในสมการ การตัดสินใจซื้อจะขึ้นอยู่กับปัจจัยอื่น 3.597 หน่วย อย่างมีนัยสำคัญทางสถิติ 0.05 และเมื่อพิจารณาภาพรวมของแบบจำลอง พบว่า ปัจจัยด้านบุคคล ด้านการส่งเสริมการตลาด และด้านลักษณะทางกายภาพ มีความสัมพันธ์กับการตัดสินใจซื้อระดับปานกลาง และมีอิทธิพลต่อการตัดสินใจซื้อ ร้อยละ 31.0 โดยมีค่าความคลาดเคลื่อนในการพยากรณ์ (Std. Error of the Estimate) = 1.419 หน่วย อย่างไรก็ตามแบบจำลองที่ได้มีความสามารถในการพยากรณ์การตัดสินใจซื้ออย่างมีนัยสำคัญทางสถิติ 0.01 นอกจากนี้ ค่าสัมประสิทธิ์การแปรปรวน (Coefficient of Variation: CV) ของตัวแปรทุกตัว พบว่า มีค่าไม่เกินร้อยละ 10 จากแบบจำลองพบว่า ปัจจัยด้านบุคคล ด้านการส่งเสริมการตลาด และด้านลักษณะ

ทางกายภาพ สามารถนำมากำหนดแนวการวางแผนการตลาดของชุมชนและบริษัทได้ดังนี้ ปัจจัยด้านบุคคล เนื่องจากพนักงานมีบทบาทสำคัญในการสร้างประสบการณ์ที่ดีให้กับลูกค้า พนักงานจึงควรมีความสุภาพและเป็นกันเอง และให้ความรู้และแนะนำชี้แจงข้อสงสัยเกี่ยวกับสินค้าได้ดี รองลงมาคือ ปัจจัยด้านการส่งเสริมการตลาด ควรมีการวางแผนการตลาดในการให้ส่วนลดหรือของแถม และทำการตลาดเชิงกิจกรรม เช่น การสร้างภาพลักษณ์เชิงบวก และปัจจัยด้านลักษณะทางกายภาพ ควรมีการออกแบบองค์ประกอบทางกายภาพที่ช่วยเสริมความน่าเชื่อถือของธุรกิจ สามารถสร้างความประทับใจให้ลูกค้า โดยการจัดเส้นทางให้ลูกค้าสามารถค้นหาสินค้าได้ง่าย และมีปริมาณสินค้าเพียงพอ ไม่ขาดตลาด

จากผลการวิจัยนี้ สามารถอภิปรายผลได้ว่า มีความสอดคล้องกับงานของ สรศักดิ์ สหชัยรุ่งเรือง และ ศักดิ์ชาย จันทร์เรือง (2563) พบว่า ผู้ซื้อวัสดุก่อสร้างในอำเภอพนัสนิคม จังหวัดชลบุรี ให้ความสำคัญกับส่วนประสมทางการตลาดในระดับมาก โดยให้ความสำคัญกับการให้บริการของพนักงานและความไว้วางใจที่มีต่อสินค้า ซึ่งมีความสอดคล้องกับงานวิจัยครั้งนี้ คือ ปัจจัยด้านบุคคล และปัจจัยด้านลักษณะทางกายภาพส่งผลต่อการตัดสินใจซื้อ ส่วนปัจจัยด้านการตัดสินใจซื้อ ผู้ซื้อให้ความสำคัญในกระบวนการตัดสินใจซื้อที่ต่างไปจากการวิจัยครั้งนี้ นั่นคือ ผู้ซื้อจะให้ความสำคัญด้านการติดตามและประเมินผลของการดำเนินการมากที่สุด รองลงมาคือ ด้านการทำความเข้าใจในปัญหา และข้อเท็จจริงต่าง ๆ และด้านการดำเนินการให้เป็นไปตามผลของการตัดสินใจ แต่การวิจัยครั้งนี้ ผู้ซื้อจะให้ความสำคัญกับการรับรู้ปัญหามากที่สุด รองลงมาคือการประเมินทางเลือก

ในขณะที่ งานวิจัยครั้งนี้มีความสอดคล้องกับ คณัสนันท์ อัจจุตมานัส และ ปราณี เอี่ยมลออภักดี (2561) พบว่าผู้บริโภคสองกลุ่ม ได้แก่ กลุ่มร้านค้าวัสดุก่อสร้างและกลุ่มช่าง ให้ความคิดเห็นด้านกระบวนการตัดสินใจซื้อ ได้แก่ การรับรู้ปัญหา การค้นหาข้อมูล การประเมินทางเลือก การตัดสินใจซื้อและพฤติกรรมหลังการซื้อ ที่มีความเชื่อมโยงในทิศทางเดียวกันทั้งสองกลุ่มเกี่ยวกับส่วนประสมทางการตลาด ด้านการส่งเสริมการตลาดและราคา ในส่วนของร้านค้าวัสดุก่อสร้างให้ความสำคัญกับการส่งเสริมการขาย โดยเฉพาะการส่งเสริมการตลาดสินค้าที่เน้นปริมาณการซื้อที่สูงแลกกับส่วนลดที่เพิ่มขึ้นหรือราคาที่ลดลง แต่ไม่สอดคล้องกับงานวิจัยครั้งนี้ ในด้านการตัดสินใจซื้อ พบว่ากลุ่มร้านค้าวัสดุก่อสร้างและกลุ่มช่างมีความเห็นในทิศทางเดียวกัน โดยให้ความเห็นว่าจะตัดสินใจซื้ออิฐมวลเบาจากตราสินค้าใดก็ได้ที่ส่งผลต่อต้นทุนโดยรวมต่ำที่สุด

นอกจากนี้ งานวิจัยครั้งนี้มีความสอดคล้องกับ ภัทรภร พลพฤกษ์ และ วัชระ ยี่สุ่นเทศ (2561) พบว่า ปัจจัยส่วนประสมทางการตลาดที่มีอิทธิพลต่อกระบวนการการตัดสินใจใช้บริการธุรกิจรับเหมาก่อสร้าง คือ ด้านบุคคล โดยผู้ตอบแบบสอบถามให้ความสำคัญเกี่ยวกับภาพลักษณ์และความเชื่อถือของฝ่ายบริหาร และการให้คำแนะนำ ชี้แนะลูกค้าได้ และยังมีความสอดคล้องในด้านการวางแผนการตลาด กล่าวคือ 1) ปัจจัยด้านบุคคล ซึ่งเป็นผู้ประกอบการธุรกิจรับเหมาก่อสร้างโรงงานและพนักงานควรให้ความรู้และแนะนำชี้แจงข้อสงสัยเกี่ยวกับสินค้าได้ดี โดยให้ความสำคัญกับการคัดเลือกวัสดุอุปกรณ์ที่ได้มาตรฐาน 2) ปัจจัยด้านการส่งเสริมการตลาด มีการทำการตลาดเชิงกิจกรรม การสร้างภาพลักษณ์เชิงบวก สร้างความน่าเชื่อถือของบริษัทและผู้บริหารให้เป็นที่ยอมรับของลูกค้า และ 3) ปัจจัยด้านลักษณะทางกายภาพ มีการออกแบบงานก่อสร้างบนพื้นฐานวิศวกรรมให้ตรงกับวัตถุประสงค์ในการใช้งานของลูกค้า มีแผนการดำเนินงานก่อสร้างให้ลูกค้าอย่างชัดเจน มีระบบการควบคุมตรวจสอบงานทุกขั้นตอนและวัสดุที่ใช้เป็นไปตามตกลง ซึ่งองค์ประกอบทางกายภาพนี้จะช่วยเสริมความน่าเชื่อถือของธุรกิจ เพื่อให้ลูกค้าเกิดความรู้สึกเชื่อมั่นและไว้วางใจ มีผลต่อการใช้บริการซ้ำมีการแนะนำบอกต่อ

จากการวิจัยครั้งนี้ จึงเป็นประโยชน์เชิงวิชาการ นำไปพัฒนาความรู้ในด้านการวางแผนพัฒนาการผลิตและแนวทางการวางแผนการตลาดอิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน ให้กับชุมชนในตำบลหนองตะพาน อำเภอบ้านค่าย จังหวัดระยอง เป็นการเพิ่มมูลค่าให้กับผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติและวัสดุเหลือใช้จากชุมชน ตลอดจนการให้ความสำคัญกับการพัฒนาทักษะของบุคลากร และทำการตลาดเชิงกิจกรรมสร้างภาพลักษณ์เชิงบวกเพื่อชุมชนสังคม ซึ่งจะทำให้เกิดการพัฒนาเศรษฐกิจได้อย่างยั่งยืน

ข้อเสนอแนะ

การวิจัยครั้งนี้ มีข้อเสนอแนะ ดังนี้

1. ชุมชนตำบลหนองตะพาน อำเภอบ้านค่าย จังหวัดระยอง และบริษัท พูแรค (ประเทศไทย) จำกัด ควรนำปัจจัยด้านบุคคล ด้านการส่งเสริมการตลาด และด้านลักษณะทางกายภาพ มากำหนดแนวการวางแผนการตลาดอิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน ดังนี้ 1) พนักงานควรมีความสุภาพ เป็นกันเอง ให้ความรู้และแนะนำชี้แจงข้อสงสัยเกี่ยวกับสินค้าได้ดี 2) ให้ส่วนลดหรือของแถม ทำการตลาดเชิงกิจกรรมสร้างภาพลักษณ์เชิงบวก และ 3) มีการจัดเส้นทางให้ลูกค้าสามารถค้นหาสินค้าได้ง่าย มีปริมาณสินค้าเพียงพอ ไม่ขาดตลาด

2. บริษัท พูแรค (ประเทศไทย) จำกัด ควรสนับสนุนด้านงบประมาณเพื่อการต่อยอดงานวิจัยและพัฒนาการตลาดให้กับวิสาหกิจชุมชนธนาคารขยะออมทรัพย์บ้านไผ่ หมู่ 1 และชุมชนตำบลหนองตะพาน อำเภอบ้านค่าย จังหวัดระยอง อย่างต่อเนื่อง

3. ข้อเสนอแนะทางวิชาการ ชุมชนและบริษัท พูแรค (ประเทศไทย) จำกัด ควรให้ความสำคัญกับการพัฒนาทักษะของบุคลากร และทำการตลาดเชิงกิจกรรมสร้างภาพลักษณ์เชิงบวกเพื่อชุมชนสังคม ซึ่งจะทำให้เกิดการพัฒนาเศรษฐกิจได้อย่างยั่งยืน

การวิจัยครั้งนี้ มีข้อเสนอแนะในการวิจัยครั้งต่อไป ดังนี้

1. ควรมีการศึกษาความต้องการใช้อิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน ในระดับจังหวัดและระดับประเทศ

2. ควรมีการศึกษาถึงความสามารถในการผลิตอิฐบล็อกประสานจากผลิตภัณฑ์พลอยได้ของโรงงานผลิตกรดแลคติกธรรมชาติผสมวัสดุเหลือใช้จากชุมชน ในระดับชุมชน หรือมีการสร้างเครือข่ายกับโรงงานผลิตอิฐในชุมชน เพื่อยกระดับเศรษฐกิจชุมชนและสามารถบริหารจัดการขยะและผลิตภัณฑ์พลอยได้จากโรงงานได้อย่างมีประสิทธิภาพ

เอกสารอ้างอิง

กระทรวงสาธารณสุข. (2567). 3 หมอ รายงานข้อมูลตำบลหนองตะพาน. สืบค้นเมื่อ 10 กุมภาพันธ์ 2567 จาก https://3doctor.hss.moph.go.th/.

คณะบริหารธุรกิจและเทคโนโลยีสารสนเทศ. (2565). โครงการยกระดับเศรษฐกิจและสังคมรายตำบลแบบบูรณาการ (1 ตำบล 1 มหาวิทยาลัย). กรุงเทพฯ : มหาวิทยาลัยเทคโนโลยีราชมงคลตะวันออก เขตพื้นที่จักรพงษภูวนารถ.

คณัสนันท์ อัจจุตมานัส และ ปราณี เอี่ยมลออภักดี. (2561). ปัจจัยส่วนประสมทางการตลาดที่มีอิทธิพลต่อการตัดสินใจซื้ออิฐมวลเบาของกลุ่มช่างและร้านค้าวัสดุก่อสร้างในเขตเมือง จังหวัดนครราชสีมา.

ใน ดร.อาทิตย อุไรรัตน (ประธาน), การประชุมนำเสนอผลงานวิจัยระดับบัณฑิตศึกษา ครั้งที่ 13. บัณฑิตวิทยาลัย มหาวิทยาลัยรังสิต, กรุงเทพฯ.

บริษัท พูแรค (ประเทศไทย) จำกัด. (2566). การพิจารณาข้อเสนอโครงการวิจัย. (รายงานการประชุม). ระยอง : บริษัท พูแรค (ประเทศไทย) จำกัด.

ภัทรภร พลพฤกษ์ และ วัชระ ยี่สุ่นเทศ. (2561). ปัจจัยส่วนประสมทางการตลาดที่มีอิทธิพลต่อกระบวนการการตัดสินใจใช้บริการธุรกิจรับเหมาก่อสร้าง. Research and Development Journal, Loei Rajabhat University, 13(44), 13–24.

ภัทระ เกิดอินทร์, สุรศักดิ์ นิยมพานิชพัฒนา, ธนกฤต นิสดล และ อนุวัฒน์ พลหนุ่ย. (2565). อิฐบล็อกประสานด้วยเศษพลาสติก. Industrial Technology Journal, 7(2), 137-148.

สรศักดิ์ สหชัยรุ่งเรือง และ ศักดิ์ชาย จันทร์เรือง. (2563). ปัจจัยส่วนประสมทางการตลาดและความไว้วางใจและขั้นตอนการตัดสินใจซื้อวัสดุก่อสร้างที่นำเข้าจากประเทศจีนของผู้ซื้อวัสดุก่อสร้างในอำเภอพนัสนิคม จังหวัดชลบุรี. วารสารบริหารธุรกิจ มหาวิทยาลัยแม่โจ้, 2(1), 53-66.

สมาคมพลังงานทดแทนสู่ชุมชนแห่งประเทศไทย. (2567). พลังงานชีวมวล. สืบค้นเมื่อ 7 กุมภาพันธ์ 2567 จาก http://reca.or.th/biomass/.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). New York, NY : Routledge.

Evans, J. D. (1996). Straightforward statistics for the behavioral sciences. Pacific Grove, CA : Brooks/Cole Publishing.

Kotler, P., & Keller, K. L. (2022). Marketing management (16th ed.). Harlow, England : Pearson Education.

Kwak, S. G., & Kim, J. H. (2017). Central limit theorem: The cornerstone of modern statistics. Korean Journal of Anesthesiology, 70(2), 144–156.

Yamane, T. (1967). Statistics: An introductory analysis (2nd ed.). New York, NY : Harper and Row.







(ระดับชาติ)

กลุ่มวิทยาศาสตร์

ปัจจัยที่มีอิทธิพลต่อความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพและพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุในจังหวัดนครศรีธรรมราช

Factors Influencing Electronic Health Information Literacy and Sel f- Care Health Behaviors Among Elderly in Nakhon Si Thammarat Province

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บทคัดย่อ

การวิจัยเชิงสำรวจนี้มีวัตถุประสงค์เพื่อศึกษาอิทธิพลทำนายของปัจจัยส่วนบุคคล พื้นที่อยู่อาศัย สถานะทางเศรษฐกิจ รูปแบบการอยู่อาศัย และความสามารถในการเข้าถึงสารสนเทศอิเล็กทรอนิกส์ต่อความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพและพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุตอนต้นในจังหวัดนครศรีธรรมราช กลุ่มตัวอย่างเป็นผู้สูงอายุอายุ 60-69 ปี จำนวน 329 คน จาก 23 อำเภอ ซึ่งได้มาจากการสุ่มแบบหลายขั้นตอน เครื่องมือที่ใช้เป็นแบบสอบถามที่ประกอบด้วย 3 ส่วน ได้แก่ ข้อมูลทั่วไป ความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ และพฤติกรรมการดูแลสุขภาพตนเอง วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา สถิติสหสัมพันธ์ของเพียร์สัน และการวิเคราะห์การถดถอยพหุคูณแบบปกติ ผลการวิจัยพบว่า ผู้สูงอายุตอนต้นมีความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพโดยรวมอยู่ในระดับปานกลาง (Mean = 3.09, S.D. = 0.85) มีพฤติกรรมการดูแลสุขภาพตนเองโดยรวมอยู่ในระดับปานกลาง (Mean = 3.09, S.D. = 0.67) ปัจจัยที่มีอิทธิพลทำนายความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพอย่างมีนัยสำคัญทางสถิติ ได้แก่ ประสบการณ์ในการใช้อินเทอร์เน็ต (β = 0.357, $p < 0.001$) และระดับการศึกษา (β = 0.287, $p < 0.001$) นอกจากนี้ความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพมีความสัมพันธ์เชิงบวกกับพฤติกรรมการดูแลสุขภาพตนเองในระดับปานกลาง ($r = 0.456$, $p < 0.001$) ผลการวิจัยนี้สามารถนำไปใช้ในการพัฒนาโปรแกรมส่งเสริมความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพและพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุในยุคดิจิทัล โดยเน้นการพัฒนาทักษะการใช้อินเทอร์เน็ตและการเข้าถึงข้อมูลสุขภาพออนไลน์ที่เหมาะสมกับระดับการศึกษาและบริบทของผู้สูงอายุ

คำสำคัญ: ความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ, พฤติกรรมการดูแลสุขภาพตนเอง, ผู้สูงอายุตอนต้น, สุขภาพดิจิทัล

Abstract

This survey research aimed to study the predictive influence of personal factors, residential area, economic status, living patterns, and electronic information access capability on electronic health literacy and self-care behaviors of early older adults in Nakhon Si Thammarat province. The sample consisted of 329 older adults aged 60-69 years from 23 districts, selected through multi-stage random sampling. The research instrument was a questionnaire consisting of 3 parts: general information, electronic health literacy, and self-care behaviors. Data were analyzed using descriptive statistics, Pearson's correlation, and Enter Multiple Regression Analysis. The results showed that early older adults had moderate levels of both electronic health literacy (Mean = 3.09, S.D. = 0.85) and self-care behaviors (Mean = 3.09, S.D. = 0.67). Factors significantly predicting electronic health literacy were internet experience (β = 0.357, $p < 0.001$) and education level (β = 0.287, $p < 0.001$). Furthermore, electronic health literacy had a moderate positive correlation with self-care behaviors ($r = 0.456$, $p < 0.001$). These findings can be applied to develop programs that promote electronic health literacy and self-care behaviors among older adults in the digital era, with emphasis on developing internet skills and access to online health information tailored to the educational level and context of older adults.

Keywords: Electronic Health Literacy, Self-Care Behaviors, Early Older Adults, Digital Health

บทนำ

ปัจจุบันการรับส่งข่าวสารที่ต้องการความรวดเร็วและมีปริมาณมากได้เข้ามามีส่วนสำคัญกับการดำเนินชีวิตประจำวันของประชาชน เทคโนโลยีดิจิทัล (Digital Technology) จึงได้เข้ามามีบทบาทสำคัญต่อการดำเนินชีวิตและระบบสุขภาพของประชาชน (ธัญธัช วิภัติภูมิประเทศ, 2562) สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพเข้ามามีบทบาทมากขึ้นในสถานการณ์สุขภาพดิจิทัลกับประชาชนทุกกลุ่มวัย แต่น้อยคนที่จะสามารถนำข้อมูลสุขภาพนั้นไปใช้ได้อย่างถูกต้อง (Stellefson et al., 2011) ผู้ใช้งานต้องมีทักษะในการหา ใช้งาน และประเมินแหล่งสารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพด้วยความสามารถในการแสวงหา สืบค้น ทำความเข้าใจและประเมินข้อมูลสุขภาพนั้น เรียกว่า “ความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ” (eHealth Literacy) (Norman & Skinner, 2006)

นอกจากความท้าทายทางด้านการเปลี่ยนแปลงของสังคมสุขภาพดิจิทัลในศตวรรษที่ 21 ประเทศไทยได้กลายเป็นสังคมผู้สูงอายุอย่างสมบูรณ์ (Completely Aged Society) ตั้งแต่ พ.ศ. 2564 โดยสัดส่วนของผู้สูงอายุเพิ่มขึ้นมากกว่าร้อยละ 20 ของประชาชนทั้งประเทศ (กรมกิจการผู้สูงอายุ, 2564) โดยจังหวัดนครศรีธรรมราชก็มีแนวโน้มผู้สูงอายุเพิ่มขึ้นเช่นกัน และได้เข้าสู่สังคมผู้สูงอายุโดยสมบูรณ์ (Aged Society) (Health Data Center, 2567)

การศึกษาในประเทศไทยเกี่ยวกับความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพและพฤติกรรมการดูแลสุขภาพตนเองในผู้สูงอายุยังมีจำกัด มีเพียงการศึกษาของนงลักษณ์ ทับประทุม (2560), ธนวิชญ์ แสนสองแคว (2559) และสุดารัตน์ ชูพันธ์ (2564) ที่ศึกษาความรอบรู้ด้านสุขภาพในผู้สูงอายุแต่ไม่ได้เน้นเฉพาะด้านสารสนเทศอิเล็กทรอนิกส์ ในขณะที่การศึกษาในต่างประเทศ เช่น Liu et al. (2020), Lee et al. (2022) และ Kim et al. (2023) ได้พบความสัมพันธ์ระหว่างความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพกับพฤติกรรมสุขภาพของผู้สูงอายุในบริบทที่แตกต่างกัน

ดังนั้น การศึกษาครั้งนี้จึงมุ่งศึกษาอิทธิพลทำนายของปัจจัยส่วนบุคคล พื้นที่อยู่อาศัย สถานะทางเศรษฐกิจ รูปแบบการอยู่อาศัย และความสามารถในการเข้าถึงสารสนเทศอิเล็กทรอนิกส์ต่อความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพและพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุในจังหวัดนครศรีธรรมราช เพื่อเป็นแนวทางในการพัฒนาความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพและส่งเสริมสุขภาพในผู้สูงอายุในยุคสุขภาพดิจิทัล ซึ่งจะส่งผลต่อการยกระดับคุณภาพชีวิตของผู้สูงอายุในระยะยาว

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาอิทธิพลทำนายของปัจจัยส่วนบุคคล พื้นที่อยู่อาศัย สถานะทางเศรษฐกิจ รูปแบบการอยู่อาศัย และความสามารถในการเข้าถึงสารสนเทศอิเล็กทรอนิกส์ต่อความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพของผู้สูงอายุในจังหวัดนครศรีธรรมราช
2. เพื่อศึกษาระดับความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพของผู้สูงอายุในจังหวัดนครศรีธรรมราช
3. เพื่อศึกษาระดับพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุในจังหวัดนครศรีธรรมราช
4. เพื่อศึกษาความสัมพันธ์ระหว่างความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพกับพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุในจังหวัดนครศรีธรรมราช

แนวคิด ทฤษฎี กรอบแนวคิด

การศึกษาครั้งนี้ใช้แนวคิด Lily Model ของ Norman and Skinner (2006) เป็นกรอบแนวคิดหลักในการศึกษาความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ และแนวคิดพฤติกรรมการดูแลตนเองของ Orem (1991) ในการศึกษาพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุ

แนวคิดความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ (eHealth Literacy)

Norman and Skinner (2006) ได้อธิบายเกี่ยวกับองค์ประกอบของความรอบรู้ด้านสุขภาพทั้ง 6 องค์ประกอบผ่านโมเดลลิลลี่ หรือ The Lily Model ในรูปของดอกลิลลี่ 6 กลีบเหลื่อมซ้อนกัน ประกอบด้วย 2 กลุ่มทักษะ คือ กลุ่มทักษะการวิเคราะห์ ประกอบด้วย ความรอบรู้ทักษะพื้นฐานการสื่อสาร (Traditional Literacy) ความรอบรู้สารสนเทศ (Information Literacy) การรู้เท่าทันสื่อ (Media Literacy) กลุ่มทักษะเฉพาะ ได้แก่ ความรอบรู้ด้านวิทยาศาสตร์ (Scientific Literacy) ความรอบรู้ด้านคอมพิวเตอร์ (Computer Literacy) ความรอบรู้ด้านสุขภาพ (Health Literacy) ความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ (eHealth Literacy) เป็นทักษะสำคัญที่ทำให้ประชาชนทุกกลุ่มวัยมีสุขภาพที่ดีจากการแสวงหาข้อมูลสารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพจากอินเทอร์เน็ตมาประกอบการตัดสินใจหรือการนำมาดูแลสุขภาพ (Robb and Shellenbarger, 2014) และกระตุ้นให้เกิดการเปลี่ยนแปลงพฤติกรรมสุขภาพและการตัดสินใจเชิงบวก (Brown & Dickson, 2010)

แนวคิดพฤติกรรมการดูแลสุขภาพตนเอง (Self-Care Behavior)

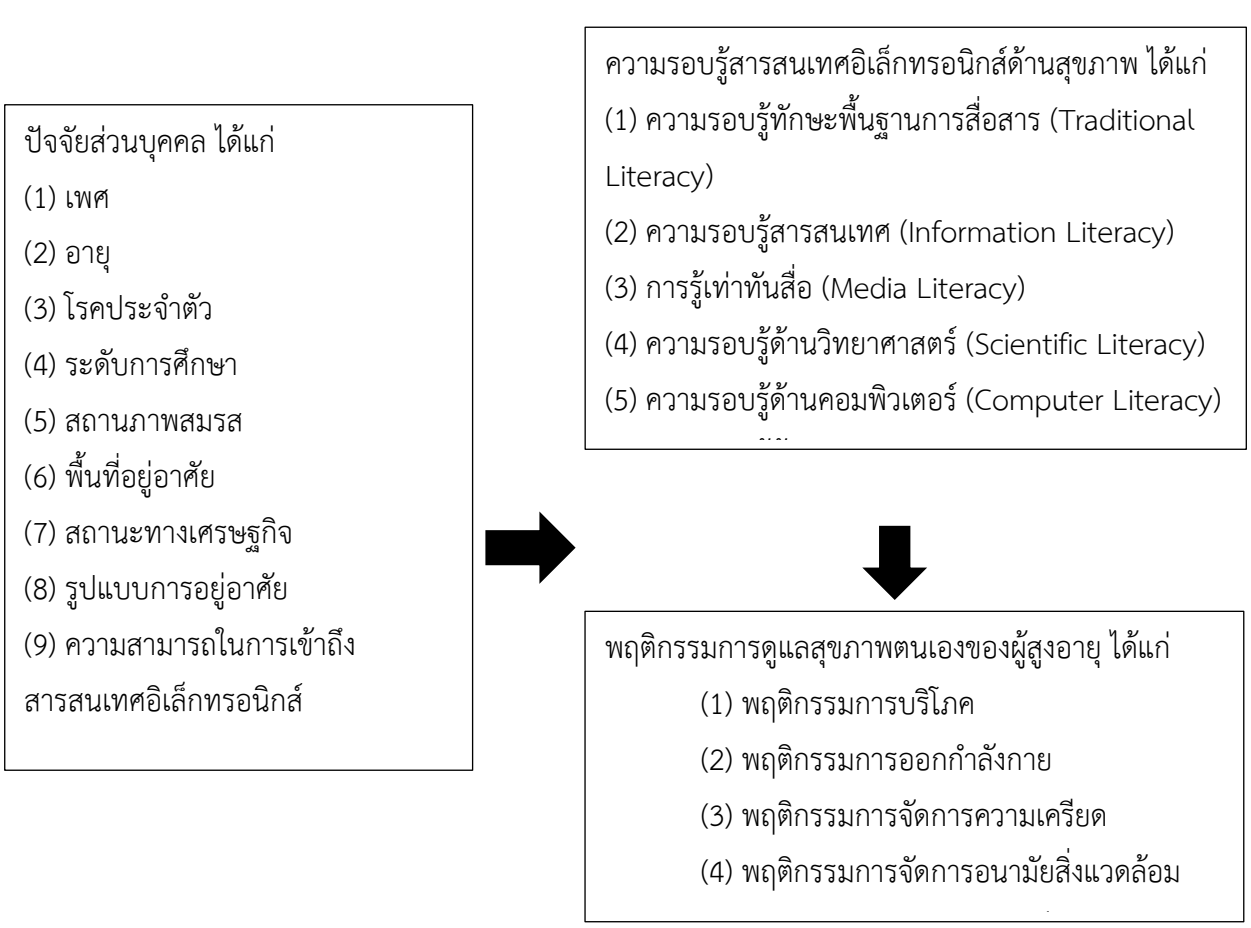
พฤติกรรมการดูแลตนเอง (Self-Care Behavior) เป็นพฤติกรรมที่ผู้สูงอายุกระทำเพื่อคงไว้ซึ่งสุขภาพที่ดีและคุณภาพชีวิตที่ดีด้วยตนเองและลดการพึ่งพาผู้อื่น ตั้งแต่การป้องกันไม่ให้เกิดโรค การส่งเสริมสุขภาพให้แข็งแรง การรักษา และบำบัดฟื้นฟูทั้งสุขภาพร่างกายและจิตใจหลังการเจ็บป่วย (Orem, 1991) จากการทบทวนวรรณกรรมเกี่ยวกับพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุไทย สามารถแบ่งด้านของพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุตามลักษณะของพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุ ได้แก่ พฤติกรรมการดูแลตนเองที่จำเป็นโดยทั่วไป คือ ด้านการบริโภคอาหาร ด้านการออกกำลังกาย และด้านการจัดการอนามัยสิ่งแวดล้อม พฤติกรรมการดูแลตนเองตามพัฒนาการ คือ ด้านการจัดการความเครียด และพฤติกรรมการดูแลตนเองที่จำเป็นเมื่อมีปัญหาด้านสุขภาพ คือ ด้านการดูแลตนเองในภาวะเจ็บป่วย (ฐิตินันท์ นาคผู้ และ อาจินต์ สงทับ, 2562)

ปัจจัยที่มีความสัมพันธ์กับความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพและพฤติกรรมการดูแลสุขภาพตนเอง

จากการทบทวนวรรณกรรม พบว่าปัจจัยที่มีความสัมพันธ์กับความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพและพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุ ได้แก่ เพศ อายุ โรคประจำตัว ระดับการศึกษา สถานภาพสมรส พื้นที่อยู่อาศัย สถานะทางเศรษฐกิจ รูปแบบการอยู่อาศัย และความสามารถในการเข้าถึงสารสนเทศอิเล็กทรอนิกส์ (นงลักษณ์ ทับประทุม, 2560; ธนวิชญ์ แสนสองแคว, 2559; สุขประเสริฐ ทับสี, 2563; สุดารัตน์ ชูพันธ์, 2564; จารุเพ็ญ ภูจอมจิต, 2565) นอกจากนี้ จากการศึกษาในต่างประเทศพบว่า ความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพมีความสัมพันธ์กับพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุ (Xie et al., 2022; Kim et al., 2023)

กรอบแนวคิดการวิจัย

จากการทบทวนวรรณกรรมและงานวิจัยที่เกี่ยวข้อง ผู้วิจัยได้กำหนดกรอบแนวคิดการวิจัย ดังนี้



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

1. รูปแบบการวิจัย

การวิจัยนี้เป็นการวิจัยเชิงปริมาณแบบภาคตัดขวาง (Cross-sectional Study) มีวัตถุประสงค์เพื่อศึกษาอิทธิพลทำนายของปัจจัยส่วนบุคคล พื้นที่อยู่อาศัย สถานะทางเศรษฐกิจ รูปแบบการอยู่อาศัย และความสามารถในการเข้าถึงสารสนเทศอิเล็กทรอนิกส์ต่อความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพและพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุในจังหวัดนครศรีธรรมราช

2. ประชากรและกลุ่มตัวอย่าง

ประชากร ผู้สูงอายุที่มีอายุตั้งแต่ 60 ปีขึ้นไป ทั้งเพศชายและหญิง ที่อาศัยอยู่ในจังหวัดนครศรีธรรมราช ทั้ง 23 อำเภอ จำนวนทั้งหมด 276,677 คน (ข้อมูล ณ วันที่ 29 มิถุนายน 2564)

กลุ่มตัวอย่าง ผู้สูงอายุตอนต้นที่มีอายุ 60-69 ปี ทั้งเพศชายและหญิง ที่อาศัยอยู่ในจังหวัดนครศรีธรรมราช จำนวน 329 คน คำนวณขนาดกลุ่มตัวอย่างโดยใช้สูตรของ Daniel (1995) ที่ระดับความเชื่อมั่นร้อยละ 95 และเพิ่มขนาดตัวอย่างอีกร้อยละ 10 เพื่อป้องกันข้อมูลสูญหาย

วิธีการสุ่มตัวอย่าง ใช้การสุ่มแบบหลายขั้นตอน (Multistage Random Sampling) โดยแบ่งประชากรเป็น 23 กลุ่มตามอำเภอ กำหนดจำนวนตัวอย่างในแต่ละอำเภอตามสัดส่วนของประชากรผู้สูงอายุ และเลือกกลุ่มตัวอย่างโดยวิธีการสุ่มแบบโควตา (Quota Sampling) ตามช่วงอายุและอำเภอ

เกณฑ์การคัดเลือกกลุ่มตัวอย่าง (Inclusion Criteria) อายุ 60-69 ปี อาศัยอยู่ในจังหวัดนครศรีธรรมราชมากกว่า 6 เดือน สมัครใจเข้าร่วมการวิจัยมีความพร้อมทางร่างกายและจิตใจ และมีโทรศัพท์เคลื่อนที่หรือแท็บเล็ตของตนเองที่สามารถเข้าใช้งานอินเทอร์เน็ตได้

3. เครื่องมือที่ใช้ในการวิจัย

เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลเป็นแบบสอบถาม (Questionnaire) ประกอบด้วย 3 ส่วน ดังนี้

ส่วนที่ 1 แบบสอบถามข้อมูลทั่วไป เป็นข้อคำถามแบบเลือกตอบ (Check List) จำนวน 10 ข้อ ได้แก่ เพศ อายุ โรคประจำตัว ระดับการศึกษา สถานภาพสมรส พื้นที่อยู่อาศัย ความเพียงพอของรายได้ ลักษณะการอยู่อาศัย และความสามารถในการเข้าถึงสารสนเทศอิเล็กทรอนิกส์

ส่วนที่ 2 แบบสอบถามความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ ประยุกต์จากเครื่องมือวัดมาตรฐาน eHEALS ของ Norman and Skinner (2006b) ร่วมกับข้อคำถามที่ผู้วิจัยพัฒนาขึ้น มีลักษณะเป็นมาตราส่วนประมาณค่า (Rating Scale) 5 ระดับ จำนวน 13 ข้อ คะแนนความรอบรู้อยู่ระหว่าง 13-65 คะแนน โดยคะแนนยิ่งสูงแสดงว่ามีความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพยิ่งสูง

ส่วนที่ 3 แบบสอบถามพฤติกรรมการดูแลสุขภาพตนเอง ประกอบด้วยข้อคำถาม 30 ข้อ ครอบคลุม 5 ด้าน ได้แก่ พฤติกรรมการบริโภค การออกกำลังกาย การจัดการความเครียด การจัดการอนามัยสิ่งแวดล้อม และการแสวงหาการรักษาพยาบาล เป็นมาตราส่วนประมาณค่า 5 ระดับ ตั้งแต่ “ปฏิบัติเป็นประจำ” ถึง “ไม่เคยปฏิบัติเลย” แบบสอบถามนี้มีลักษณะเป็นมาตราส่วนประมาณค่า (Rating Scale) 5 ระดับ คือ

5 คะแนน = ปฏิบัติเป็นประจำ (ปฏิบัติ 5-7 วันต่อสัปดาห์)
4 คะแนน = ปฏิบัติบ่อยครั้ง (ปฏิบัติ 3-4 วันต่อสัปดาห์)
3 คะแนน = ปฏิบัติบางครั้ง (ปฏิบัติ 1-2 วันต่อสัปดาห์)
2 คะแนน = ปฏิบัตินานๆ ครั้ง (ปฏิบัติ 1-3 ครั้งต่อเดือน)
1 คะแนน = ไม่เคยปฏิบัติเลย (ไม่เคยปฏิบัติเลยในช่วง 3 เดือนที่ผ่านมา)

การแปลผลคะแนนใช้เกณฑ์ของ Bloom โดยคำนวณจากคะแนนเฉลี่ยและร้อยละของคะแนนเต็ม แบ่งออกเป็น 3 ระดับ ดังนี้ ระดับมาก (ร้อยละ 80-100 หรือค่าเฉลี่ย 4.00-5.00) หมายถึง มีพฤติกรรมการดูแลสุขภาพตนเองที่ดี ระดับปานกลาง (ร้อยละ 60-79 หรือค่าเฉลี่ย 3.00-3.99) หมายถึง มีพฤติกรรมการดูแลสุขภาพตนเองพอใช้ ระดับน้อย (น้อยกว่าร้อยละ 60 หรือค่าเฉลี่ย 1.00-2.99) หมายถึง มีพฤติกรรมการดูแลสุขภาพตนเองที่ควรปรับปรุง

4. การตรวจสอบคุณภาพเครื่องมือ

4.1 ความตรงตามเนื้อหา (Content Validity)

ผู้วิจัยได้นำแบบสอบถามที่พัฒนาขึ้นไปตรวจสอบความตรงตามเนื้อหาโดยผู้ทรงคุณวุฒิ 3 ท่าน ซึ่งประกอบด้วย ผู้เชี่ยวชาญด้านสารสนเทศอิเล็กทรอนิกส์ ผู้เชี่ยวชาญด้านพฤติกรรมสุขภาพ และผู้เชี่ยวชาญด้านความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ โดยใช้วิธีการคำนวณค่าดัชนีความสอดคล้อง (IOC: Item Objective Congruence Index) ตามแนวคิดของ Rovinelli and Hambleton (1976) ผลการตรวจสอบพบว่า ข้อคำถามทั้งหมดมีค่า IOC อยู่ระหว่าง 0.67-1.00 ซึ่งมากกว่าเกณฑ์ที่กำหนด คือ 0.50 แสดงว่าข้อคำถามทุกข้อมีความสอดคล้องกับวัตถุประสงค์การวิจัยและนิยามที่ต้องการวัด คำนวณค่าดัชนีความตรงตามเนื้อหา (Content Validity Index: CVI) ประกอบด้วย 1) ค่า I-CVI (Item-level Content Validity Index) เป็นค่าความตรงของแต่ละข้อคำถาม พบว่ามีค่าอยู่ระหว่าง 0.75-1.00 ซึ่งสูงกว่าเกณฑ์ที่กำหนด คือ 0.80 2) ค่า S-CVI/Ave (Scale-level Content Validity Index / Average) เป็นค่าเฉลี่ยของค่า I-CVI ทั้งฉบับ พบว่า แบบสอบถามความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ มีค่า S-CVI/Ave = 0.92 แบบสอบถามพฤติกรรมการดูแลสุขภาพตนเองมีค่า S-CVI/Ave = 0.94 ค่า S-CVI/Ave ของแบบสอบถามทั้งสองส่วนมีค่ามากกว่า 0.90 ซึ่งแสดงว่าแบบสอบถามมีความตรงตามเนื้อหาในระดับดีมาก (Lynn, 1986; Polit & Beck, 2006) ผู้ทรงคุณวุฒิได้ให้ข้อเสนอแนะเพิ่มเติมในการปรับปรุงข้อคำถามบางข้อให้มีความชัดเจนมากขึ้น และผู้วิจัยได้ปรับปรุงตามข้อเสนอแนะก่อนนำไปทดลองใช้

4.2 ความเชื่อมั่นของเครื่องมือ (Reliability)

ผู้วิจัยได้นำแบบสอบถามที่ผ่านการตรวจสอบความตรงตามเนื้อหาและปรับปรุงแก้ไขแล้วไปทดลองใช้ (Try Out) กับผู้สูงอายุที่มีลักษณะคล้ายคลึงกับกลุ่มตัวอย่าง แต่ไม่ใช่กลุ่มตัวอย่างในการวิจัย จำนวน 30 ราย แล้วนำมาวิเคราะห์หาค่าความเชื่อมั่นโดยใช้สูตรสัมประสิทธิ์แอลฟาของครอนบาค (Cronbach's Alpha Coefficient) ได้ค่าความเชื่อมั่นดังนี้ 1) แบบสอบถามความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ มีค่าความเชื่อมั่นทั้งฉบับเท่ากับ 0.96 และรายด้านอยู่ระหว่าง 0.82-0.91 2) แบบสอบถามพฤติกรรมการดูแลสุขภาพตนเอง มีค่าความเชื่อมั่นทั้งฉบับเท่ากับ 0.92 และรายด้านอยู่ระหว่าง 0.78-0.87 ซึ่งค่าความเชื่อมั่นของแบบสอบถามทั้งสองส่วนมีค่ามากกว่า 0.70 แสดงว่าแบบสอบถามมีความเชื่อมั่นสูงและเหมาะสมสำหรับนำไปใช้ในการเก็บรวบรวมข้อมูล (Nunnally & Bernstein, 1994)

5. การพิทักษ์สิทธิ์กลุ่มตัวอย่าง

การวิจัยครั้งนี้ได้รับการพิจารณาและอนุมัติจากคณะกรรมการจริยธรรมการวิจัยในมนุษย์ของสำนักงานสาธารณสุขจังหวัดนครศรีธรรมราช เลขที่รับรอง NSTPH-REC 2023-021 ลงวันที่ 10 ธันวาคม 2566 ผู้วิจัยได้พิทักษ์สิทธิของกลุ่มตัวอย่างโดยจัดทำเอกสารชี้แจงวัตถุประสงค์การวิจัย ขั้นตอนการเก็บข้อมูล และสิทธิของผู้เข้าร่วมวิจัยเป็นภาษาไทยที่เข้าใจง่าย การเข้าร่วมวิจัยเป็นไปด้วย

ความสมัครใจและได้รับความยินยอมเป็นลายลักษณ์อักษร ผู้เข้าร่วมวิจัยสามารถถอนตัวได้ตลอดเวลาโดยไม่มีผลกระทบใด ๆ ข้อมูลทั้งหมดถูกเก็บเป็นความลับ นำเสนอในภาพรวม ไม่มีการเชื่อมโยงถึงผู้ให้ข้อมูลเป็นรายบุคคล และผู้วิจัยได้ระบุชื่อ เบอร์โทรศัพท์ และสถานที่ติดต่อของผู้วิจัยอย่างชัดเจนในเอกสารชี้แจงเพื่อให้ผู้เข้าร่วมวิจัยสามารถติดต่อสอบถามข้อมูลเพิ่มเติมได้

6. การเก็บรวบรวมข้อมูล

การวิจัยครั้งนี้ดำเนินการเก็บรวบรวมข้อมูลในช่วงเดือนมกราคม - มีนาคม 2567 ก่อนเริ่มดำเนินการผู้วิจัยประสานงานกับสำนักงานสาธารณสุขจังหวัดนครศรีธรรมราชเพื่อขออนุญาตเก็บข้อมูล จากนั้นติดต่อกับผู้รับผิดชอบงานผู้สูงอายุใน 23 อำเภอ เพื่อชี้แจงวัตถุประสงค์การวิจัย วิธีการเก็บข้อมูล และเกณฑ์การคัดเลือกกลุ่มตัวอย่างผู้รับผิดชอบงานผู้สูงอายุในแต่ละพื้นที่ช่วยคัดกรองผู้สูงอายุตามเกณฑ์ที่กำหนดและเชิญชวนให้เข้าร่วมการวิจัย พร้อมทั้งให้ความช่วยเหลือในการตอบแบบสอบถามออนไลน์ผ่าน Google Forms โดยเฉพาะกับผู้สูงอายุที่ไม่คุ้นเคยกับการใช้อุปกรณ์อิเล็กทรอนิกส์ ผู้เข้าร่วมวิจัย ทุกคนได้รับการชี้แจงวัตถุประสงค์ ประโยชน์ และความเสี่ยงที่อาจเกิดขึ้น และได้อ่านเอกสารชี้แจงพร้อมให้ความยินยอมในรูปแบบออนไลน์ก่อนเริ่มตอบแบบสอบถาม ระหว่างการเก็บข้อมูล ผู้วิจัยติดตามความก้าวหน้าและตรวจสอบคุณภาพข้อมูลทุกสัปดาห์ ระบบ Google Forms ช่วยตรวจสอบความสมบูรณ์เบื้องต้นโดยกำหนดให้ต้องตอบคำถามที่จำเป็นทุกข้อก่อนส่งแบบสอบถาม หากพบข้อมูลไม่สมบูรณ์ ผู้วิจัยจะติดต่อผู้รับผิดชอบในพื้นที่เพื่อตรวจสอบ และแก้ไขและภายหลังเสร็จสิ้นการเก็บข้อมูลตามจำนวนกลุ่มตัวอย่างที่กำหนด นำข้อมูลมาตรวจสอบความถูกต้องอีกครั้งและแปลงข้อมูลให้อยู่ในรูปแบบที่เหมาะสมสำหรับการวิเคราะห์ทางสถิติ โดยข้อมูลทั้งหมดถูกเก็บเป็นความลับ ไม่มีการระบุตัวตนของผู้ให้ข้อมูล และนำเสนอผลในภาพรวมเท่านั้น

7. การวิเคราะห์ข้อมูล

การวิเคราะห์ข้อมูลในงานวิจัยครั้งนี้ดำเนินการด้วยโปรแกรมคอมพิวเตอร์สำเร็จรูป โดยก่อนการวิเคราะห์หาความสัมพันธ์และอิทธิพลทำนายของตัวแปร ผู้วิจัยได้ตรวจสอบข้อตกลงเบื้องต้นทางสถิติอย่างครบถ้วน ผลการตรวจสอบข้อตกลงเบื้องต้นพบว่า ข้อมูลมีการแจกแจงแบบปกติเมื่อทดสอบด้วย Kolmogorov-Smirnov test โดยมีค่า $p > 0.05$ ความแปรปรวนของตัวแปรมีความเป็นเอกพันธ์ (Homoscedasticity) เมื่อทดสอบด้วย Levene's test ซึ่งพบว่ามีค่า $p > 0.05$ เช่นกัน การตรวจสอบความสัมพันธ์เชิงเส้นตรงระหว่างตัวแปรอิสระและตัวแปรตามด้วยแผนภาพการกระจาย (Scatter plot) แสดงให้เห็นว่าตัวแปรมีความสัมพันธ์เชิงเส้นตรง ซึ่งเป็นไปตามข้อตกลงเบื้องต้นสำหรับการวิเคราะห์ถดถอย การตรวจสอบภาวะร่วมเส้นตรงพหุ (Multicollinearity) ระหว่างตัวแปรอิสระซึ่งอาจส่งผลต่อความคลาดเคลื่อนในการวิเคราะห์ถดถอย พบว่าค่า Variance Inflation Factor (VIF) ของตัวแปรอิสระทุกตัวมีค่าระหว่าง 1.15-3.27 ซึ่งน้อยกว่า 10 และค่า Tolerance มีค่าระหว่าง 0.31-0.87 ซึ่งมากกว่า 0.1 แสดงว่าตัวแปรอิสระไม่มีความสัมพันธ์กันสูงเกินไปจนเกิดปัญหาภาวะร่วมเส้นตรงพหุ การตรวจสอบค่าส่วนเหลือ (Residual) จากการวิเคราะห์ถดถอยพบว่ามีการกระจายแบบปกติ ยืนยัน

ความเหมาะสมของตัวแบบการวิเคราะห์ถดถอยที่ใช้ในการศึกษา ภายหลังการตรวจสอบข้อตกลงเบื้องต้นทั้งหมดและพบว่าข้อมูลมีคุณสมบัติเหมาะสม จึงดำเนินการวิเคราะห์ความสัมพันธ์ระหว่างตัวแปรด้วยสถิติสหสัมพันธ์ของเพียร์สัน และวิเคราะห์ปัจจัยที่มีอิทธิพลทำนายความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพและพฤติกรรมการดูแลสุขภาพตนเองด้วยการวิเคราะห์การถดถอยพหุคูณแบบปกติ ที่ระดับนัยสำคัญ 0.05 ต่อไป

ผลการวิจัย

1. อิทธิพลทำนายของปัจจัยส่วนบุคคล พื้นที่อยู่อาศัย สถานะทางเศรษฐกิจ รูปแบบการอยู่อาศัย และความสามารถในการเข้าถึงสารสนเทศอิเล็กทรอนิกส์ต่อความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ

ผลการวิเคราะห์ถดถอยพหุคูณแบบปกติเพื่อหาปัจจัยที่มีอิทธิพลต่อความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพของผู้สูงอายุในจังหวัดนครศรีธรรมราช พบว่า โมเดลการทำนายมีความเหมาะสม ($F = 24.587$, $p < 0.001$) และมีอำนาจในการทำนายร้อยละ 42.3 ($R^2 = 0.423$, Adjusted $R^2 = 0.406$) โดยปัจจัยที่มีอิทธิพลต่อความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพอย่างมีนัยสำคัญทางสถิติ ได้แก่ ประสบการณ์ในการใช้อินเทอร์เน็ต ($\beta = 0.357$, $p < 0.001$) และระดับการศึกษา ($\beta = 0.287$, $p < 0.001$) ขณะที่ระยะเวลาในการใช้อินเทอร์เน็ต ($\beta = 0.107$, $p = 0.054$) อายุ ($\beta = -0.097$, $p = 0.089$) ความเพียงพอของรายได้ ($\beta = 0.065$, $p = 0.234$) และพื้นที่อยู่อาศัย ($\beta = 0.049$, $p = 0.367$) ไม่มีอิทธิพลต่อความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพอย่างมีนัยสำคัญทางสถิติ ดังแสดงในตารางที่ 1

ตารางที่ 1 ผลการวิเคราะห์ถดถอยพหุคูณของปัจจัยที่มีอิทธิพลต่อความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ

ตัวแปรทำนาย	B	SE	β	t	p-value
ค่าคงที่	1.428	0.523	-	2.731	0.007*
ประสบการณ์ในการใช้อินเทอร์เน็ต	0.419	0.077	0.357	5.442	< 0.001*
ระดับการศึกษา	0.382	0.088	0.287	4.341	< 0.001*
อายุ	-0.029	0.017	-0.097	-1.706	0.089
พื้นที่อยู่อาศัย	0.084	0.093	0.049	0.903	0.367
ความเพียงพอของรายได้	0.062	0.052	0.065	1.192	0.234
ระยะเวลาในการใช้อินเทอร์เน็ต	0.062	0.032	0.107	1.937	0.054

$R = 0.651$, $R^2 = 0.423$, Adjusted $R^2 = 0.406$, $F = 24.587$, $p < 0.001$

*มีนัยสำคัญทางสถิติที่ระดับ 0.05

2. ระดับความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพของผู้สูงอายุในจังหวัดนครศรีธรรมราช

ผลการวิเคราะห์ระดับความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพของผู้สูงอายุในจังหวัดนครศรีธรรมราช พบว่า โดยรวมอยู่ในระดับปานกลาง (Mean = 3.09, S.D. = 0.85) เมื่อพิจารณารายด้าน พบว่า ทุกด้านอยู่ในระดับปานกลาง โดยด้านที่มีค่าเฉลี่ยสูงสุด คือ ความรอบรู้ทักษะพื้นฐานการสื่อสาร (Mean = 3.48, S.D. = 0.92) รองลงมาคือ ความรอบรู้ด้านสุขภาพ (Mean = 3.27, S.D. = 0.98) ความรอบรู้ด้านวิทยาศาสตร์ (Mean = 3.16, S.D. = 0.89) ความรอบรู้สารสนเทศ (Mean = 3.12, S.D. = 1.01) การรู้เท่าทันสื่อ (Mean = 2.84, S.D. = 1.09) และด้านที่มีค่าเฉลี่ยต่ำสุด คือ ความรอบรู้ด้านคอมพิวเตอร์ (Mean = 2.69, S.D. = 1.17) ดังแสดงในตารางที่ 2

ตารางที่ 2 ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานของความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ

องค์ประกอบความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ	Mean	S.D.	ระดับ
1. ความรอบรู้ทักษะพื้นฐานการสื่อสาร	3.48	0.92	ปานกลาง
2. ความรอบรู้สารสนเทศ	3.12	1.01	ปานกลาง
3. การรู้เท่าทันสื่อ	2.84	1.09	ปานกลาง
4. ความรอบรู้ด้านวิทยาศาสตร์	3.16	0.89	ปานกลาง
5. ความรอบรู้ด้านคอมพิวเตอร์	2.69	1.17	ปานกลาง
6. ความรอบรู้ด้านสุขภาพ	3.27	0.98	ปานกลาง
ความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพโดยรวม	**3.09**	**0.85**	**ปานกลาง**

3. ระดับพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุในจังหวัดนครศรีธรรมราช

ผลการวิเคราะห์ระดับพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุในจังหวัดนครศรีธรรมราช พบว่า โดยรวมอยู่ในระดับปานกลาง (Mean = 3.09, S.D. = 0.67) เมื่อพิจารณารายด้าน พบว่า ด้านที่มีค่าเฉลี่ยสูงสุด คือ พฤติกรรมการแสวงหาการรักษาพยาบาล (Mean = 3.45, S.D. = 0.83) รองลงมาคือ พฤติกรรมการจัดการอนามัยสิ่งแวดล้อม (Mean = 3.38, S.D. = 0.78) พฤติกรรมการบริโภค (Mean = 3.15, S.D. = 0.79) พฤติกรรมการจัดการความเครียด (Mean = 2.97, S.D. = 0.95) ซึ่งทั้ง 4 ด้านอยู่ในระดับปานกลาง และด้านที่มีค่าเฉลี่ยต่ำสุด คือ พฤติกรรมการออกกำลังกาย (Mean = 2.53, S.D. = 1.12) ซึ่งอยู่ในระดับน้อย ดังแสดงในตารางที่ 3

ตารางที่ 3 ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐานของพฤติกรรมการดูแลสุขภาพตนเอง

พฤติกรรมการดูแลสุขภาพตนเอง	Mean	S.D.	ระดับ
1. พฤติกรรมการบริโภค	3.15	0.79	ปานกลาง
2. พฤติกรรมการออกกำลังกาย	2.53	1.12	น้อย
3. พฤติกรรมการจัดการความเครียด	2.97	0.95	ปานกลาง
4. พฤติกรรมการจัดการอนามัยสิ่งแวดล้อม	3.38	0.78	ปานกลาง
5. พฤติกรรมการแสวงหาการรักษาพยาบาล	3.45	0.83	ปานกลาง
พฤติกรรมการดูแลสุขภาพตนเองโดยรวม	**3.09**	**0.67**	**ปานกลาง**

4. ความสัมพันธ์ระหว่างความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพกับพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุในจังหวัดนครศรีธรรมราช

ผลการวิเคราะห์ความสัมพันธ์ระหว่างความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพกับพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุในจังหวัดนครศรีธรรมราช พบว่า มีความสัมพันธ์เชิงบวกในระดับปานกลางอย่างมีนัยสำคัญทางสถิติ ($r = 0.456$, $p < 0.001$) เมื่อพิจารณาความสัมพันธ์รายด้าน พบว่า มีความสัมพันธ์เชิงบวกอย่างมีนัยสำคัญทางสถิติในทุกด้าน โดยด้านที่มีความสัมพันธ์สูงสุด คือ พฤติกรรมการแสวงหาการรักษาพยาบาล ($r = 0.489$, $p < 0.001$) รองลงมาคือ พฤติกรรมการบริโภค ($r = 0.421$, $p < 0.001$) พฤติกรรมการจัดการอนามัยสิ่งแวดล้อม ($r = 0.385$, $p < 0.001$) พฤติกรรมการจัดการความเครียด ($r = 0.376$, $p < 0.001$) และด้านที่มีความสัมพันธ์ต่ำสุด คือ พฤติกรรมการออกกำลังกาย ($r = 0.302$, $p < 0.001$) ดังแสดงในตารางที่ 4

ตารางที่ 4 ค่าสัมประสิทธิ์สหสัมพันธ์ระหว่างความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพกับพฤติกรรมการดูแลสุขภาพตนเอง

พฤติกรรมการดูแลสุขภาพตนเอง	ค่าสัมประสิทธิ์สหสัมพันธ์ (r)	p-value
1. พฤติกรรมการบริโภค	0.421	< 0.001*
2. พฤติกรรมการออกกำลังกาย	0.302	< 0.001*
3. พฤติกรรมการจัดการความเครียด	0.376	< 0.001*
4. พฤติกรรมการจัดการอนามัยสิ่งแวดล้อม	0.385	< 0.001*
5. พฤติกรรมการแสวงหาการรักษาพยาบาล	0.489	< 0.001*
พฤติกรรมการดูแลสุขภาพตนเองโดยรวม	0.456	< 0.001*

*มีนัยสำคัญทางสถิติที่ระดับ 0.05

สรุปและอภิปรายผล

จากผลการวิจัยเรื่อง “ปัจจัยที่มีความสัมพันธ์กับความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพและพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุจังหวัดนครศรีธรรมราช” สามารถอภิปรายผลตามวัตถุประสงค์การวิจัย ดังนี้

ความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพของผู้สูงอายุ

ผลการวิจัยพบว่า ผู้สูงอายุตอนต้นจังหวัดนครศรีธรรมราชมีความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพโดยรวมอยู่ในระดับปานกลาง (Mean = 3.09, S.D. = 0.85) ซึ่งปัจจุบันมีการเข้าถึงเทคโนโลยีและสารสนเทศอิเล็กทรอนิกส์ได้ง่ายขึ้น ทำให้ผู้สูงอายุสามารถเรียนรู้และใช้งานได้มากขึ้น ประกอบกับนโยบายการส่งเสริมการใช้เทคโนโลยีดิจิทัลของกระทรวงสาธารณสุขและนโยบายดิจิทัลเพื่อเศรษฐกิจและสังคม (กระทรวงสาธารณสุข, 2563) เมื่อพิจารณาในรายด้าน พบว่า ความรอบรู้ด้านคอมพิวเตอร์มีคะแนนเฉลี่ยต่ำสุด (Mean = 2.69, S.D. = 1.17) ซึ่งสอดคล้องกับงานวิจัยของ Xie et al. (2022) ที่พบว่า ผู้สูงอายุส่วนใหญ่ยังมีข้อจำกัดในการใช้เทคโนโลยีคอมพิวเตอร์ และต้องการการสนับสนุนในการพัฒนาทักษะด้านนี้ ขณะที่ความรอบรู้ทักษะพื้นฐานการสื่อสารมีคะแนนเฉลี่ยสูงสุด (Mean = 3.48, S.D. = 0.92) ซึ่งอาจเกิดจากผู้สูงอายุมีประสบการณ์และความคุ้นเคยกับการสื่อสารรูปแบบดั้งเดิมมากกว่า

พฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุ

ผลการวิจัยพบว่า ผู้สูงอายุตอนต้นจังหวัดนครศรีธรรมราชมีพฤติกรรมการดูแลสุขภาพตนเองโดยรวมอยู่ในระดับปานกลาง (Mean = 3.09, S.D. = 0.67) ซึ่งการได้รับข้อมูลข่าวสารด้านสุขภาพผ่านช่องทางต่าง ๆ ทั้งจากบุคลากรทางการแพทย์ สื่อโทรทัศน์ และอินเทอร์เน็ต รวมถึงนโยบายการส่งเสริมสุขภาพผู้สูงอายุของกระทรวงสาธารณสุข เมื่อพิจารณาในรายด้าน พบว่า พฤติกรรมการออกกำลังกายมีคะแนนเฉลี่ยต่ำสุด (Mean = 2.53, S.D. = 1.12) อยู่ในระดับน้อย ซึ่งสอดคล้องกับงานวิจัยของสุดารัตน์ ชูพันธ์ (2564) ที่พบว่า ผู้สูงอายุมีพฤติกรรมการออกกำลังกายน้อยกว่าด้านอื่น ๆ ทั้งนี้อาจเนื่องจากข้อจำกัดทางด้านร่างกาย ปัญหาสุขภาพ และการขาดความรู้เกี่ยวกับการออกกำลังกายที่เหมาะสมกับวัย ขณะที่พฤติกรรมการแสวงหาการรักษาพยาบาลมีคะแนนเฉลี่ยสูงสุด (Mean = 3.45, S.D. = 0.83) ซึ่งสะท้อนให้เห็นถึงการตระหนักถึงความสำคัญของการดูแลสุขภาพและการเข้าถึงบริการทางการแพทย์ของผู้สูงอายุ

ปัจจัยที่มีความสัมพันธ์กับความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ

ผลการวิจัยพบว่าอายุมีความสัมพันธ์เชิงลบกับความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพอย่างมีนัยสำคัญทางสถิติ ($r = -0.247$, $p < 0.001$) แสดงให้เห็นว่า ผู้สูงอายุที่มีอายุมากขึ้นมีแนวโน้มที่จะมีความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพลดลง ซึ่งสอดคล้องกับงานวิจัยของ Kim et al. (2023) ที่พบว่า อายุเป็นปัจจัยที่มีผลต่อความสามารถในการใช้เทคโนโลยีและการเข้าถึงข้อมูลสุขภาพออนไลน์ของผู้สูงอายุ ระดับการศึกษามีความสัมพันธ์เชิงบวกกับความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพอย่าง มีนัยสำคัญทางสถิติ ($r = 0.421$, $p < 0.001$) และเป็นหนึ่งในปัจจัยที่สามารถทำนายความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพได้ ($\beta = 0.287$, $p < 0.001$) ซึ่งสอดคล้องกับงานวิจัยของ ธนวิชญ์

แสนสองแคว (2559) ที่พบว่า ระดับการศึกษามีความสัมพันธ์กับความรอบรู้ด้านสุขภาพของผู้สูงอายุ โดยผู้ที่มีระดับการศึกษาสูงจะมีพื้นฐานความรู้และทักษะในการเรียนรู้สิ่งใหม่ ๆ ได้ดีกว่า รวมถึงมีความสามารถในการประมวลผลข้อมูลและการตัดสินใจที่ดีกว่า ประสบการณ์ในการใช้อินเทอร์เน็ตเป็นปัจจัยที่มีความสัมพันธ์เชิงบวกกับความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพสูงสุด ($r = 0.457$, $p < 0.001$) และเป็นปัจจัยที่สามารถทำนายความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพได้ดีที่สุด ($\beta = 0.357$, $p < 0.001$) ซึ่งสอดคล้องกับงานวิจัยของ Stellefson et al. (2011) ที่พบว่า ประสบการณ์ในการใช้อินเทอร์เน็ตเป็นปัจจัยสำคัญที่มีผลต่อความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพ เนื่องจากยิ่งมีประสบการณ์ในการใช้อินเทอร์เน็ตมาก ยิ่งมีความคุ้นเคยและทักษะในการค้นหาประเมิน และใช้ข้อมูลสุขภาพออนไลน์ได้ดีขึ้น นอกจากนี้ พื้นที่อยู่อาศัย ความเพียงพอของรายได้ และระยะเวลาในการใช้อินเทอร์เน็ต ก็มีความสัมพันธ์เชิงบวกกับความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพอย่าง มีนัยสำคัญทางสถิติเช่นกัน ซึ่งสอดคล้องกับการศึกษาของ จารุเพ็ญ ภูจอมจิต (2565) ที่พบว่า ปัจจัยทางสังคมและเศรษฐกิจมีผลต่อการเข้าถึงและการใช้เทคโนโลยีสารสนเทศด้านสุขภาพของผู้สูงอายุ โดยผู้ที่อาศัยอยู่ในเขตเมืองและมีรายได้เพียงพอมีโอกาสเข้าถึงเทคโนโลยีและสารสนเทศด้านสุขภาพได้ดีกว่า

ความสัมพันธ์ระหว่างความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพกับพฤติกรรมการดูแลสุขภาพตนเอง

ผลการวิจัยพบว่า ความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพมีความสัมพันธ์เชิงบวกในระดับปานกลางกับพฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุตอนต้น อย่างมีนัยสำคัญทางสถิติ ($r = 0.456$, $p < 0.001$) แสดงให้เห็นว่า ผู้สูงอายุที่มีความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพสูงมีแนวโน้มที่จะมีพฤติกรรมการดูแลสุขภาพตนเองที่ดี ซึ่งสอดคล้องกับงานวิจัยของ Xie et al. (2022) และ Kim et al. (2023) ที่พบว่า ความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพมีความสัมพันธ์กับพฤติกรรมสุขภาพและผลลัพธ์ทางสุขภาพของผู้สูงอายุ เมื่อพิจารณาความสัมพันธ์ระหว่างความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพกับพฤติกรรมการดูแลสุขภาพตนเองรายด้าน พบว่า มีความสัมพันธ์เชิงบวกอย่างมีนัยสำคัญทางสถิติในทุกด้าน โดยด้านที่มีความสัมพันธ์สูงสุด คือ พฤติกรรมการแสวงหาการรักษาพยาบาล ($r = 0.489$, $p < 0.001$) ซึ่งสอดคล้องกับแนวคิดของ Norman and Skinner (2006) ที่กล่าวว่าความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพช่วยให้บุคคลสามารถแสวงหาข้อมูลสุขภาพที่ต้องการและนำมาใช้ในการตัดสินใจเกี่ยวกับสุขภาพได้อย่างเหมาะสม เช่น การตัดสินใจเข้ารับการรักษา การปฏิบัติตามคำแนะนำของแพทย์ การติดตามอาการ และการดูแลตนเองเมื่อเจ็บป่วย นอกจากนี้ ความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพยังมีความสัมพันธ์กับพฤติกรรมการบริโภค ($r = 0.421$, $p < 0.001$) และพฤติกรรมการจัดการอนามัยสิ่งแวดล้อม ($r = 0.385$, $p < 0.001$) ซึ่งสะท้อนให้เห็นว่าการเข้าถึงข้อมูลสุขภาพออนไลน์ช่วยให้ผู้สูงอายุมีความรู้และตระหนักถึงความสำคัญของการบริโภคอาหารที่มีประโยชน์และการอยู่ในสิ่งแวดล้อมที่เอื้อต่อสุขภาพมากขึ้น

ข้อเสนอแนะ

ข้อเสนอแนะในการนำผลการวิจัยไปใช้

1. หน่วยงานที่เกี่ยวข้องควรส่งเสริมการพัฒนาความรอบรู้สารสนเทศอิเล็กทรอนิกส์ด้านสุขภาพให้แก่ผู้สูงอายุ โดยเฉพาะด้านความรอบรู้ด้านคอมพิวเตอร์ซึ่งมีคะแนนเฉลี่ยต่ำสุด โดยอาจจัดอบรมการใช้เทคโนโลยีดิจิทัลและการเข้าถึงข้อมูลสุขภาพออนไลน์ที่เหมาะสมกับผู้สูงอายุ

2. ควรมีการพัฒนาโปรแกรมส่งเสริมพฤติกรรมการออกกำลังกายที่เหมาะสมกับผู้สูงอายุ ซึ่งเป็นด้านที่มีคะแนนเฉลี่ยต่ำสุด โดยอาจใช้เทคโนโลยีดิจิทัลเป็นเครื่องมือในการให้ความรู้และสร้างแรงจูงใจ เช่น แอปพลิเคชันสอนการออกกำลังกายสำหรับผู้สูงอายุ หรือคลิปวิดีโอสาธิตท่าออกกำลังกายที่เหมาะสมกับวัย

3. ควรมีการส่งเสริมการเข้าถึงอินเทอร์เน็ตและอุปกรณ์ดิจิทัลสำหรับผู้สูงอายุ โดยเฉพาะในพื้นที่ชนบทและผู้ที่มีรายได้น้อย เพื่อลดความเหลื่อมล้ำในการเข้าถึงข้อมูลสุขภาพดิจิทัล

4. บุคลากรทางการแพทย์และสาธารณสุขควรส่งเสริมให้ผู้สูงอายุใช้ข้อมูลสุขภาพออนไลน์ในการดูแลสุขภาพตนเอง โดยให้คำแนะนำเกี่ยวกับแหล่งข้อมูลที่น่าเชื่อถือและวิธีการประเมินความน่าเชื่อถือของข้อมูล

ข้อเสนอแนะในการวิจัยครั้งต่อไป

1. พัฒนาโมเดล eHealth Literacy 3 ระดับสำหรับผู้สูงอายุ โดยแบ่งเป็นระดับพื้นฐาน (สำหรับผู้ไม่มีประสบการณ์การใช้เทคโนโลยีดิจิทัล) ระดับปานกลาง (สำหรับผู้มีทักษะพื้นฐานแต่ขาดความมั่นใจ) และระดับสูง (สำหรับผู้คุ้นเคยกับเทคโนโลยี) พร้อมออกแบบกิจกรรมเสริมสร้างที่เหมาะสมกับแต่ละระดับ

2. สร้างเครือข่าย “ผู้ถ่ายทอดความรู้ดิจิทัลสุขภาพ” โดยพัฒนาศักยภาพ อสม. และจิตอาสาผู้สูงอายุในชุมชนให้เป็นผู้ให้คำแนะนำและสนับสนุนการใช้เทคโนโลยีสารสนเทศด้านสุขภาพแก่ผู้สูงอายุคนอื่น ๆ ในชุมชน เพื่อสร้างความยั่งยืนและขยายผลในวงกว้าง

3. พัฒนาแอปพลิเคชันส่งเสริมสุขภาพผู้สูงอายุเฉพาะท้องถิ่น ที่ออกแบบตามบริบทและความต้องการของผู้สูงอายุในจังหวัดนครศรีธรรมราช โดยเฉพาะด้านการออกกำลังกายและโภชนาการ พร้อมประเมินประสิทธิผลต่อพฤติกรรมการดูแลสุขภาพตนเอง และคุณภาพชีวิตของผู้สูงอายุในพื้นที่

เอกสารอ้างอิง

กรมกิจการผู้สูงอายุ กระทรวงพัฒนาสังคมและความมั่นคงของมนุษย์. (2564). สถานการณ์ผู้สูงอายุไทย พ.ศ. 2564. กรุงเทพฯ: บริษัทอมรินทร์พริ้นติ้งแอนด์พับลิชชิ่ง จำกัด (มหาชน).

กระทรวงสาธารณสุข. (2563). การพัฒนาระบบสุขภาพดิจิทัล (Digital Health) กระทรวงสาธารณสุข. นนทบุรี : กระทรวงสาธารณสุข.

จารุเพ็ญ ภูจอมจิต. (2565). ปัจจัยที่มีความสัมพันธ์กับการรับรู้และพฤติกรรมการดูแลสุขภาพของผู้สูงอายุในจังหวัดขอนแก่น. วารสารวิชาการสาธารณสุข, 31(2), 275-287.

ฐิตินันท์ นาคผู้ และ อาจินต์ สงทับ. (2562). พฤติกรรมการดูแลสุขภาพตนเองของผู้สูงอายุในพื้นที่โครงการร่วมกันสร้างชุมชนน่าอยู่. วารสารวิชาการสาธารณสุข, 28(1), 94-105.

ธัญธัช วิภัติภูมิประเทศ. (2562). ผลกระทบของเทคโนโลยีดิจิทัลต่อการเปลี่ยนแปลงทางสังคม. วารสารวไลยอลงกรณ์ปริทัศน์, 9(2), 163-175.

ระบบคลังข้อมูลด้านการแพทย์ Health Data Center. (2567). รายงานจำนวนประชากรผู้สูงอายุจังหวัดนครศรีธรรมราช. สืบค้นเมื่อ 30 มกราคม 2567, จาก https://hdcservice.moph.go.th

สุขประเสริฐ ทับสี. (2563). ความรอบรู้ด้านสุขภาพและพฤติกรรมสุขภาพของผู้สูงอายุในจังหวัดสุพรรณบุรี. วารสารวิชาการสาธารณสุข, 29(6), 1062-1073.

สุดารัตน์ ชูพันธ์. (2564). พฤติกรรมการส่งเสริมสุขภาพของผู้สูงอายุในจังหวัดสงขลา. วารสารการพัฒนาสุขภาพชุมชน, 9(3), 422-435.

Bujang, M. A., Sa'at, N., Sidik, T. M., & Joo, L. C. (2021). Sample size determination using likelihood ratio test for comparing nested logistic regression models. Epidemiology, Biostatistics and Public Health, 18(1), e16745.

Choi, H., Kim, S., & Ko, H. (2023). Digital literacy and eHealth literacy among older adults: A systematic review. Healthcare, 11(12), 1735.

Kim, K., Choi, J., & Park, Y. (2023). Relationship between eHealth literacy and health behaviors among older adults. International Journal of Environmental Research and Public Health, 20(3), 1967.

Lee, J., Hong, Y. A., & Cho, J. (2022). The roles of eHealth literacy in promoting healthy behaviors during the COVID-19 pandemic among older adults in South Korea. Healthcare, 10(6), 1098.

Liu, Z., Yuan, L., Huang, Y., & Zhang, Y. (2020). A model for digital health literacy to reduce health inequalities among older adults: Perspective from developing countries. Frontiers in Public Health, 8, 529942.

Norman, C. D., & Skinner, H. A. (2006). eHealth literacy: Essential skills for consumer health in a networked world. Journal of Medical Internet Research, 8(2), e9. https://doi.org/10.2196/jmir.8.2.e9

Orem, D. E. (1991). Nursing: Concepts of practice (4th ed.). St. Louis, MO: Mosby.

Paige, S. R., Miller, M. D., Krieger, J. L., Stellefson, M., & Cheong, J. (2018). Electronic health literacy across the lifespan: Measurement invariance study. Journal of Medical Internet Research, 20(7), e10434.

Wångdahl, J., Jaensson, M., Dahlberg, K., & Nilsson, U. (2020). The Swedish version of the electronic health literacy scale: Prospective psychometric evaluation study including thresholds levels. JMIR mHealth and uHealth, 8(2), e16316.

Xie, L., Cao, J., & Sun, F. (2022). eHealth literacy and health-related outcomes among Older adults: A systematic review. Journal of Advanced Nursing, 78(3), 665-676.

Zhou, X., Wang, W., Zhao, L., & Chen, A. (2021). Relationship between eHealth literacy and health literacy among older adults in rural China: The moderating role of social support. Journal of Nursing Management, 29(7), 2371-2379.

ความสัมพันธ์ระหว่างปัจจัยการทำงาน ภาวะสุขภาพกับคุณภาพการนอนของผู้สูงอายุที่ทำสวนยางพารา ในอำเภอทุ่งสง จังหวัดนครศรีธรรมราช

The Relationship Between Work Factors, Health Status, and Sleep Quality of Elderly People Who Work in Rubber Plantations in Thung Song District, Nakhon Si Thammarat Province

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บทคัดย่อ

การวิจัยครั้งนี้เป็นการศึกษาภาคตัดขวาง มีวัตถุประสงค์เพื่อศึกษาความสัมพันธ์ระหว่างปัจจัยการทำงาน ภาวะสุขภาพกับคุณภาพการนอนของผู้สูงอายุที่ทำสวนยางพารา ในอำเภอทุ่งสง จังหวัดนครศรีธรรมราช มีกลุ่มตัวอย่างจำนวน 417 คน จากผู้สูงอายุที่มีอายุตั้งแต่ 60 ปีขึ้นไปที่ประกอบอาชีพกรีดยางพารา ซึ่งได้จากการสุ่มตัวอย่างแบบชั้นภูมิ (Stratified Sampling) เก็บข้อมูลคุณภาพการนอนของผู้สูงอายุที่กรีดยางพาราโดยใช้แบบสัมภาษณ์ ประกอบด้วย ข้อมูลทั่วไป ภาวะสุขภาพ ปัจจัยด้านการทำงาน และแบบประเมินคุณภาพการนอนหลับ (PSQI) ฉบับแปลภาษาไทย วิเคราะห์ข้อมูลด้วยสถิติเชิงพรรณนา อธิบายข้อมูลทั่วไปของกลุ่มตัวอย่างและคุณภาพการนอนหลับไม่ดี และวิเคราะห์ความสัมพันธ์ระหว่างปัจจัยกับคุณภาพการนอนหลับไม่ดี โดยใช้สถิติทดสอบการถดถอยโลจิสติกแบบไบนารี (Binary logistic regression) และแสดงขนาดความสัมพันธ์ในรูปแบบ Adjust Odd Ratio (OR_{adj}) และ 95% Confidence interval (CI) ผลการศึกษาพบว่า ผู้สูงอายุที่ทำสวนยางพาราจำนวน 417 คน เป็นเพศชาย ร้อยละ 51.1 มีคุณภาพการนอนหลับไม่ดี ร้อยละ 56.6 และปัจจัยที่สัมพันธ์กับคุณภาพการนอนหลับไม่ดี

ได้แก่ เป็นโรคความดันโลหิตสูง (OR_{adj}=1.61, 95% CI=1.05-2.48) มีอาการปวดบริเวณร่างกาย (OR_{adj}= 1.89, 95% CI=1.13-3.15) และเวลาที่ใช้ในการกรีดยางมากกว่า 2 ชั่วโมงต่อคืน (OR_{adj}=1.71, 95% CI=1.03-2.86) ผู้สูงอายุที่ทำสวนยางพารามักเจอปัญหาคุณภาพการนอนหลับไม่ดีและมีปัญหาด้านภาวะสุขภาพ รวมทั้งมีปัจจัยด้านการทำงานมาเกี่ยวข้อง บริบทการทำสวนยางพาราจะส่งผลกระทบต่อการดำเนินชีวิต ดังนั้นบุคลากรทางด้านสาธารณสุขจำเป็นต้องเฝ้าระวัง และส่งเสริมให้ผู้สูงอายุมีการจัดการทำงานการกรีดยางและการนอนที่เหมาะสมเพื่อให้มีการนอนอย่างมีคุณภาพ

คำสำคัญ: คุณภาพการนอนหลับ, ผู้สูงอายุ, ภาวะสุขภาพ, อาชีพทำสวนยางพารา

Abstract

This cross-sectional study aimed to examine the relationship between work factors, health status, and sleep quality of elderly people who work in rubber plantations in Thung Song District, Nakhon Si Thammarat Province. A total of 417 elderly individuals aged 60 years and older, engaged in rubber plantation work, were selected through stratified sampling. Data were collected through interviews, which included general characteristics, work-related factors, and the Thai version of the (PSQI) to assess sleep quality among elderly rubber plantation workers. Descriptive statistics were used to summarize the general characteristics of the participants and the prevalence of poor sleep quality. The binary logistic regression was conducted to examine the associations between work-related factors and sleep quality outcomes, with results presented as Adjusted Odds Ratios (OR_{adj}) and 95% Confidence Intervals (CI). The results indicated that among the 417 elderly people rubber plantation workers, 51.1% were male, and 56.6% experienced poor sleep quality. Factors significantly associated with poor sleep quality including hypertension (OR_{adj}=1.61, 95% CI=1.05-2.48) , body pain (OR_{adj}=1.89, 95% CI=1.13-3.15), and the time used in rubber tapping for more than 2 hours (OR_{adj}=1.71, 95% CI=1.03-2.86). Elderly people working in rubber plantations often experience poor sleep quality due to various underlying health conditions and work-related factors. The nature of rubber plantation work can significantly impact their overall well-being. Therefore, public health personnel should monitor and support elderly workers in organizing their work schedules, tapping activities, and sleep routines to promote better sleep quality.

Keywords: Sleep Quality, Elderly People, Health Status, Rubber Plantations

บทนำ

ในปัจจุบันมีจำนวนประชากรผู้สูงอายุเพิ่มขึ้นอย่างต่อเนื่อง จากรายงานข้อมูลสถิติผู้สูงอายุไทย พ.ศ. 2565 พบว่ามีประชากรผู้สูงอายุ 60 ปีขึ้นไปเพิ่มขึ้นถึงร้อยละ 18.3 (มูลนิธิสถาบันวิจัยและพัฒนาผู้สูงอายุไทย, 2564; กรมกิจการผู้สูงอายุ, 2565) จากการสำรวจสุขภาพประชาชนไทย พบว่า ความชุกของโรคหลอดเลือดและหัวใจเพิ่มขึ้นตามอายุที่มากขึ้นและสูงสุดในช่วงอายุ 70-79 ปี (วิชัย เอกพลากร, หทัยชนก พรรคเจริญ และวราภรณ์ เสถียรนพเก้า, 2564) และปัญหาสุขภาพจิตที่พบบ่อยคือ ความวิตกกังวล ซึมเศร้า และนอนไม่หลับ (กรมสุขภาพจิต, 2558) ดังนั้นผู้สูงอายุเป็นวัยที่ควรดูแลเป็นพิเศษ จำเป็นต้องดูแลตนเองในทุกด้าน ควรทำงานที่เหมาะสม และสนใจในสิ่งจำเป็นต่อสุขภาพของตนเอง เช่น การพักผ่อนหรือนอนหลับ (กรมกิจการผู้สูงอายุ, 2564) ซึ่งเป็นหนึ่งในปัจจัยสำคัญที่ร่างกายได้รับการฟื้นตัวหลังจากทำกิจกรรมมาทั้งวัน และเป็นส่วนหนึ่งที่ส่งผลต่อการมีภาวะสุขภาพที่ดีในผู้สูงอายุ (สุรีรัตน์ ณ วิเชียร, 2564) โดยการนอนหลับที่จะทำให้ร่างกายแข็งแรงนั้นผู้สูงอายุต้องหลับแบบมีคุณภาพ

คุณภาพการนอนหลับเป็นพฤติกรรมและความรู้สึกเกี่ยวกับการนอนหลับตั้งแต่เข้านอนจนตื่นนอน เป็นการประเมินตนเองเบื้องต้นโดยใช้แบบประเมิน The Pittsburgh Sleep Quality Index (PSQI) ซึ่งการมีคุณภาพการนอนหลับที่ไม่ดีนั้นส่งผลกระทบอย่างมากต่อชีวิต หากไม่ได้รับการแก้ไขอย่างถูกวิธีจะกลายเป็นปัจจัยที่ส่งผลต่อร่างกายและจิตใจต่อไป จากการศึกษาของโชติมันต์ ชินวรารักษ์, สุขเจริญ ตั้งวงษ์ไชย และนัฏศรา ดำรงพิวัฒน์ (2561) พบว่าผู้สูงอายุมีคุณภาพการนอนหลับไม่ดี ร้อยละ 52.0 และหลายการศึกษาพบว่า คุณภาพการนอนหลับที่ไม่ดีพบมากในคนทำงานกะกลางคืนร้อยละ 30.7 (Centers for Disease Control and Prevention, 2021) ปัจจัยที่เกี่ยวข้องกับคุณภาพการนอนหลับมีหลายปัจจัย ได้แก่ ปัจจัยส่วนบุคคล ปัจจัยด้านสุขภาพ เช่น ความเครียด ความวิตกกังวล (นิจวรรณ เกิดเจริญ, ชัยพร วิศิษฐ์พงศ์อารีย์, ชัญญวัชร เผดิมพรร่มเย็น, ชิติพัทธ์ เจริญนพคุณศรี, ณัฏฐวุฒิ สิทธิศักดิ์, นทีธร อิ่มเอิบปฐม และ สรรเสริญ ศิริพัฒนาภรณ์, 2563) และปัจจัยด้านการประกอบอาชีพ ลักษณะการประกอบอาชีพทำให้กลุ่มเสี่ยงมีความแตกต่างกัน เช่น จำนวนชั่วโมงที่ทำงาน ระยะเวลาในการทำงาน เป็นต้น ซึ่งผู้สูงอายุบางคนอาจมีชั่วโมงทำงานไม่ปกติ นำไปสู่ปัญหาในการนอนหลับและคุณภาพการนอนหลับได้ ในปัจจุบันประเทศไทยมีผู้สูงอายุที่ยังทำงานอยู่ร้อยละ 36.47 (สำนักงานปลัด กระทรวงแรงงาน, 2565; สำนักงานสถิติแห่งชาติ, 2566) ส่วนใหญ่ประกอบอาชีพเกษตรและประมงมากถึงร้อยละ 57 ซึ่งอาชีพเกษตรกรแต่ละอาชีพมีลักษณะแตกต่างกัน แต่กลุ่มอาชีพเกษตรกรที่น่าสนใจอีกกลุ่มคือเกษตรกรที่มีหน้าที่กรีดยางซึ่งมีสภาพการทำงานที่มีลักษณะเฉพาะที่ต้องทำงานในเวลากลางคืนจนถึงกลางวัน (กัญญณัฐ โภคาพันธ์, 2561)

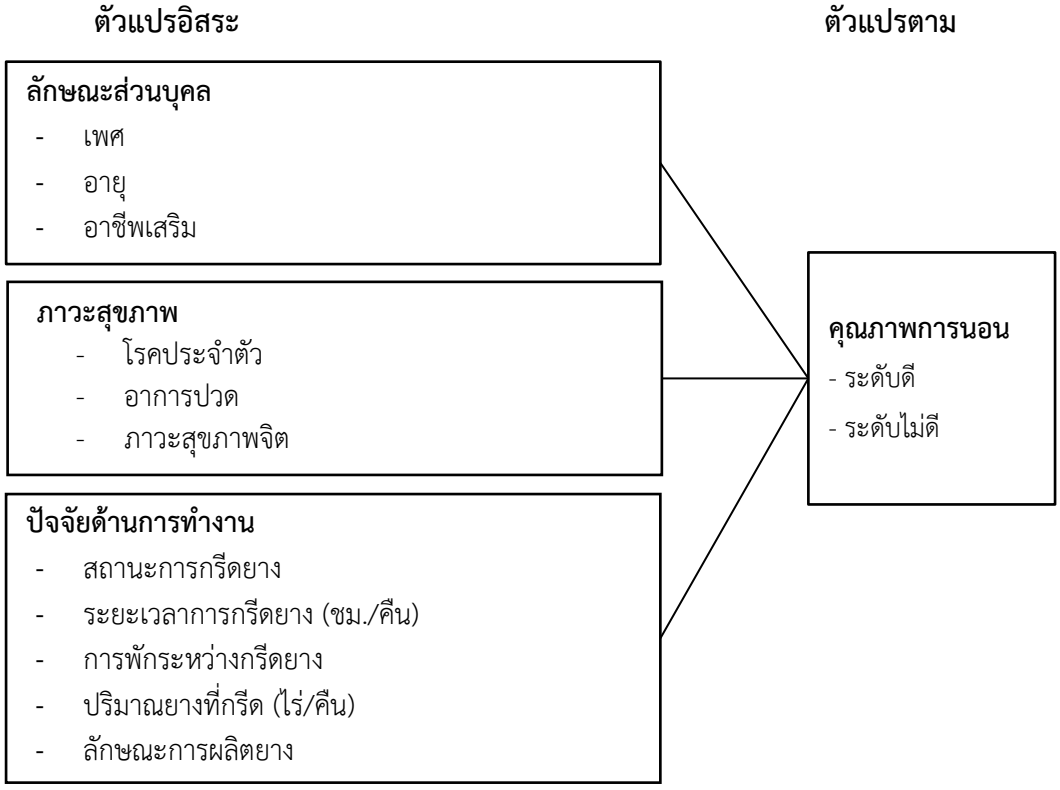
การทำเกษตรกรรมสวนยางพาราเป็นอาชีพที่สร้างรายได้หลักให้เกษตรกรสวนยาง เกี่ยวข้องกับฤดูกาล และในวันที่ฝนตกนั้นไม่สามารถกรีดยางได้ ทำให้ไม่สามารถประกอบอาชีพได้ตลอดทั้งปี ส่งผลให้มีวันว่างงานในช่วงดังกล่าวได้หากไม่มีงานอื่นทำควบคู่กันไป (อัศวเทพ ศุภเจริญกูล, อุทัย ปริญญาสุทธินันท์, เกษตรชัย และหีม และ บัญชา สมบูรณ์สุข, 2562) วิถีชีวิตโดยรวมต้องตื่นมากรีดยางช่วง 00.00 -

08.00 น. ต้องลุกมากรีดยางกลางดึก ต้องก้มและเงยเพื่อกรีดยาง เก็บน้ำยาง และหิ้วถังน้ำยางเป็นระยะทางไกล การทำงานอยู่ในช่วงเวลากลางคืนต่อเนื่องถึงเวลากลางวัน (เกษราวัลณ์ นิลวรางกูร, เกศินี สราญฤทธิชัย, ธีรศักดิ์ พาจันทร์ และ ศันสนีย์ สีต่างคำ, 2560) การทำงานกลางคืนเช่นนี้ทำให้เกษตรกร มีแบบแผนการนอนหลับพักผ่อนเปลี่ยนไป ทำให้นอนไม่เป็นเวลา และบางรายพักผ่อนไม่เพียงพอ เกิดความเมื่อยล้า และเกิดปัญหาสุขภาพอื่น ๆ ตามมา (เกษราวัลณ์ นิลวรางกูร, เกศินี สราญฤทธิชัย, ธีรศักดิ์ พาจันทร์ และศันสนีย์ สีต่างคำ, 2560; จุลจิรา ธีรชิตกุล, ขนิษฐา นาคะ และ ปิยะภรณ์ บุญพัฒน์, 2555) ทั้งนี้คนที่ว่างจากการกรีดยาง สามารถประกอบอาชีพเสริมอื่นเพื่อเพิ่มรายได้อีกทาง ส่งผลให้มีปัญหาการนอน และเกิดอาการแสดงของการนอนหลับไม่เพียงพอ จากการนอนหรือการทำงานของผู้สูงอายุที่กรีดยางในตอนกลางคืนเนื่องด้วยบริบทหรือด้วยอาชีพทำให้คนกลุ่มนี้มีปัญหาการนอน และไม่ได้เป็นไปตามทฤษฎีที่ควรจะนอน จำเป็นต้องเฝ้าระวังปัญหาที่เกิดขึ้นจากการนอนซึ่งจะส่งผลกระทบต่อการดำเนินชีวิตตามมา รวมไปถึงคุณภาพการนอนที่ไม่ดีในผู้สูงอายุจะนำไปสู่สาเหตุการเจ็บป่วย เกิดโรคทางกาย ซึ่งการศึกษาของ Li at al, (2014) พบว่าคุณภาพการนอนหลับไม่ดีมีความสัมพันธ์กับโรคเบาหวานและความดันโลหิตสูง นอกจากนี้พบว่าผลกระทบทางจิตใจ ทำให้เกิดความเครียด และความวิตกกังวล สิ่งเหล่านี้จะทำให้เกิดปัญหาสุขภาพจิตตามมาและขาดความสุขในชีวิต และเป็นปัจจัยให้เกิดอัตราการตายที่สูงขึ้น (สุรีรัตน์ ณ วิเชียร, 2564) ปัจจุบันยังมีผู้สูงอายุจำนวนไม่น้อยที่ยังคงประกอบอาชีพกรีดยางพารา ซึ่งจากการทบทวนวรรณกรรมพบว่า การทำงานกลางคืนและการนอนไม่เป็นเวลา มีความเกี่ยวข้องอย่างมีนัยสำคัญกับปัญหาคุณภาพการนอนที่ลดลง ปัจจัยเหล่านี้สะท้อนบริบทจริงของกลุ่มผู้สูงอายุที่ทำสวนยางพาราอย่างชัดเจน อย่างไรก็ตาม การศึกษาปัจจัยที่ส่งผลต่อคุณภาพการนอนในกลุ่มผู้สูงอายุโดยเฉพาะผู้ที่ทำงานสวนยางพารายังมีอยู่น้อยมาก และยังไม่มีการระบุปัจจัยที่มีผลกระทบอย่างชัดเจนในกลุ่มเฉพาะนี้ ด้วยตารางการทำงานแบบดั้งเดิมของอาชีพกรีดยางที่มีแนวโน้มเพิ่มภาระการทำงานต่อเนื่อง ส่งผลให้ผู้สูงอายุมีความเสี่ยงต่อปัญหาคุณภาพการนอนมากขึ้น การศึกษานี้จึงมีความจำเป็นอย่างยิ่ง เพื่อทำความเข้าใจปัจจัยที่สัมพันธ์กับคุณภาพการนอนในกลุ่มนี้อย่างเฉพาะเจาะจง นำไปสู่การพัฒนากลยุทธ์การป้องกัน ปรับสภาพแวดล้อมการทำงาน และวางแผนการดูแลสุขภาพที่เหมาะสม รวมทั้งช่วยเสริมสร้างคุณภาพชีวิตที่ดีขึ้นในระยะยาวสำหรับผู้สูงอายุที่ประกอบอาชีพสวนยางพารา

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาคุณภาพการนอนของผู้สูงอายุที่ทำสวนยางพารา ในอำเภอทุ่งสง จังหวัดนครศรีธรรมราช
2. เพื่อศึกษาความสัมพันธ์ระหว่างปัจจัยด้านลักษณะส่วนบุคคล ภาวะสุขภาพ และปัจจัยด้านการทำงานกับคุณภาพการนอนในผู้สูงอายุที่ทำสวนยางพารา ในอำเภอทุ่งสง จังหวัดนครศรีธรรมราช

แนวคิด ทฤษฎี กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

1. ระเบียบวิธีวิจัย

การวิจัยครั้งนี้ เป็นการวิจัยภาคตัดขวาง (Cross-sectional study)

2. ขั้นตอนการวิจัย

ประชากร คือ ผู้สูงอายุ 60 ปีขึ้นไป ประกอบอาชีพกรีดยางพาราที่อาศัยอยู่ในอำเภอทุ่งสง จังหวัดนครศรีธรรมราช

กลุ่มตัวอย่าง คือ ผู้สูงอายุ 60 ปีขึ้นไป ประกอบอาชีพกรีดยางพาราที่อาศัยอยู่ในอำเภอทุ่งสง จังหวัดนครศรีธรรมราช จำนวน 417 คน ผู้วิจัยคำนวณขนาดตัวอย่างโดยการประมาณค่าสัดส่วน Charan & Biswas, 2013) โดยที่ n เท่ากับ ขนาดตัวอย่างโดยประมาณ กำหนดให้ Z $\alpha/2$ แทนค่าความเชื่อมั่นมาตรฐาน เท่ากับ 1.96, p แทนตัวแปรในการศึกษาคุณภาพการนอนหลับ จากการศึกษาของ Thichumpa, Howteerakul , Suwannapong & Tantrakul (2018) พบว่ามีผู้สูงอายุที่มีคุณภาพการนอนหลับไม่ดี เท่ากับ 0.44, d แทนค่า maximum allowable error เท่ากับ 0.05 ซึ่งผู้วิจัยใช้การสุ่มตัวอย่างแบบหลายขั้นตอน (Multi-stage Sampling) แบ่งได้ดังนี้ 1) อำเภอทุ่งสงถูกเลือกจากการมีสัดส่วนจำนวนประชากรผู้สูงอายุ

ในปี 2566 (กรมการปกครอง, 2566) มากเป็นอันดับ 2 และเป็นอำเภอที่มีครัวเรือนขึ้นทะเบียนเกษตรกรสวนยางพารามากที่สุด 2) การศึกษานี้ศึกษาเพียง 12 ตำบล โดยตัดพื้นที่ในเขตชุมชนเมือง และไม่มีการปลูกสวนยางพาราออก 3) สุ่มเลือกตำบลละ 2 หมู่บ้าน ใช้วิธีการสุ่มอย่างง่ายโดยการจับฉลากเลือกหมู่บ้านในแต่ละตำบล 4) สุ่มจำนวนตัวอย่างของผู้สูงอายุที่กรีดยางพาราจากหมู่บ้านที่สุ่มได้ โดยคำนวณตามสัดส่วนขนาดของประชากร (Probability Proportional to Size) ผู้สูงอายุในแต่ละหมู่บ้านแล้วจึงทำการเลือกตัวอย่างโดยการสุ่มตัวอย่างแบบ Simple Random Sampling จากรายชื่อของผู้สูงอายุในแต่ละหมู่บ้าน เครื่องมือในการวิจัยครั้งนี้เป็นแบบสัมภาษณ์ประกอบด้วย 4 ส่วน ดังนี้

ส่วนที่ 1 ลักษณะส่วนบุคคล ได้แก่ เพศ อายุ อาชีพเสริม และโรคประจำตัว สร้างขึ้นเองโดยการทบทวนวรรณกรรมที่เกี่ยวข้องจากงานวิจัยที่ผ่านมา และจากการทบทวนวรรณกรรมอื่น ๆ

ส่วนที่ 2 ภาวะสุขภาพ ได้แก่ โรคประจำตัว อาการปวด และภาวะสุขภาพจิต มีค่าสัมประสิทธิ์อัลฟาของครอนบาค เท่ากับ 0.76

ส่วนที่ 3 ปัจจัยด้านการทำงาน ได้แก่ สถานการณ์กรีดยาง ระยะเวลาการกรีดยาง (ชม./คืน) การพักระหว่างกรีดยาง ปริมาณยางที่กรีด (ไร่/คืน) และลักษณะการผลิตยาง สร้างขึ้นเองโดยการทบทวนวรรณกรรมที่เกี่ยวข้องจากงานวิจัยที่ผ่านมา และจากการทบทวนวรรณกรรมอื่น ๆ

ส่วนที่ 4 คุณภาพการนอนของผู้สูงอายุ ใช้แบบประเมินคุณภาพการนอนหลับ The Pittsburgh Sleep Quality Index (PSQI) (Buysse at al, 1989) แปลเป็นภาษาไทยโดยตะวันชัย จิรประมุขพิทักษ์และวรัญ ตันชัยสวัสดิ์ (2540) มีจำนวน 19 ข้อ ประกอบด้วย 7 องค์ประกอบ มีคะแนนระหว่าง 0-21 คะแนน สำหรับเกณฑ์การแปลผลคะแนน แบ่งออกเป็น 2 ระดับ ได้แก่ มีคุณภาพการนอนหลับในระดับไม่ดี > 5 คะแนน และมีคุณภาพการนอนหลับในระดับดี ≤ 5 คะแนน มีค่าสัมประสิทธิ์อัลฟาของครอนบาค เท่ากับ 0.84 (Sitasuwan at al, 2014) และได้รับการตรวจสอบความตรงตามเนื้อหา (Content Validity) โดยผู้เชี่ยวชาญจำนวน 3 ท่าน โดยมีค่าดัชนีความสอดคล้องของแบบสัมภาษณ์ทั้งฉบับมีค่าเท่ากับ 0.94

3. การเก็บรวบรวมข้อมูล

ดำเนินการเก็บรวบรวมข้อมูลโดยใช้ระยะเวลา 4 เดือน ระหว่างเดือนกรกฎาคมถึงตุลาคม 2567 และผู้ตอบใช้เวลาตอบประมาณ 15 นาที ผู้วิจัยได้ลงพื้นที่เก็บข้อมูลร่วมกับผู้ช่วยเก็บข้อมูล และผู้ใหญ่บ้านก่อนจะดำเนินการให้ตอบแบบสัมภาษณ์ ผู้วิจัยอธิบายวิธีการเก็บข้อมูลเพื่อให้ผู้เข้าร่วมวิจัยเข้าใจข้อมูล หากผู้เข้าร่วมไม่สะดวกใจที่จะตอบคำถามหรือต้องการถอนตัวจากการศึกษานี้ ก็สามารถดำเนินการได้ทันที โดยผู้วิจัยสุ่มผู้สูงอายุที่กรีดยางรายใหม่ทดแทน และเมื่อดำเนินการลงพื้นที่เก็บข้อมูลแล้วเสร็จ ผู้วิจัยเก็บข้อมูลครบ 417 ชุด คิดเป็นร้อยละ 100 หลังจากนั้นผู้วิจัยเป็นผู้ตรวจความเรียบร้อยและความครบถ้วนของข้อมูล และนำข้อมูลมาวิเคราะห์ผลโดยการใช้โปรแกรมสำเร็จรูป

4. การวิเคราะห์ข้อมูล

4.1 สถิติเชิงพรรณนา: Descriptive Analysis เพื่ออธิบายลักษณะทั่วไปของกลุ่มตัวอย่างและเพื่ออธิบายปัจจัยในการศึกษา ได้แก่ จำนวน ร้อยละ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน

4.2 สถิติเชิงอนุมาน: Inferential Analysis เพื่อวิเคราะห์ความสัมพันธ์ของปัจจัยต่าง ๆ และคุณภาพการนอนของผู้สูงอายุที่ทำสวนยางพารา ได้แก่

1) Binary Logistic Regression คำนวณค่า Odds Ratio (Crude OR)

2) Multivariate Logistic Regression คำนวณค่า Odds Ratio (Adjusted OR) เมื่อมีการควบคุมตัวแปรกวน

3) กำหนดค่านัยสำคัญที่ระดับ 0.05

การวิจัยครั้งนี้ผ่านการพิจารณาจริยธรรมจากคณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล (MUPH 2024-042) โดยผู้เข้าร่วมการวิจัยทุกคนรับทราบวัตถุประสงค์ของการวิจัย ประโยชน์ของการวิจัย และลงนามในเอกสารยินยอมเข้าร่วมการวิจัย ก่อนเก็บข้อมูล และสามารถถอนตัวได้ทุกเมื่อโดยไม่ต้องชี้แจงเหตุผลต่อผู้วิจัย

ผลการวิจัย

จากการศึกษากลุ่มตัวอย่างผู้สูงอายุที่ทำสวนยางพาราในอำเภอทุ่งสง จังหวัดนครศรีธรรมราช จำนวน 417 คน ผลการศึกษา พบว่า เป็นเพศชาย ร้อยละ 51.1 ส่วนใหญ่อยู่ในช่วงอายุ 60-65 ปี มีอายุเฉลี่ย 65.4 ปี ส่วนใหญ่ไม่มีการประกอบอาชีพเสริม ร้อยละ 74.6 มีโรคประจำตัว ร้อยละ 47.1 กรีดและเก็บผลผลิตยาง ร้อยละ 95.4 โดยปริมาณยางที่กรีดส่วนใหญ่ระยะอยู่ระหว่าง 6-10 ไร่ต่อคืน ร้อยละ 41.9 เวลาที่ใช้ในการกรีดยางส่วนใหญ่มากกว่า 2 ชั่วโมงต่อคืน ร้อยละ 79.6 มากกว่าครึ่งมีการพักระหว่างการกรีดยาง ร้อยละ 59.0 และมีการเก็บผลผลิตยางโดยวิธีเก็บน้ำยาง ร้อยละ 80.3

ตารางที่ 1 จำนวนและร้อยละของกลุ่มตัวอย่าง จำแนกตามคุณภาพการนอนหลับ (n = 417)

Sleep quality assessment	Number	%
คุณภาพการนอนหลับ		
ไม่ดี (คะแนน PSQI โดยรวม > 5)	236	56.6
ดี (คะแนน PSQI โดยรวม ≤ 5)	181	43.4
องค์ประกอบที่สำคัญของคุณภาพการนอน		
คุณภาพการนอนหลับเชิงอัตนัย		
ดีมาก	119	28.5
ค่อนข้างดี	241	57.8
ค่อนข้างแย่	51	12.2
แย่มาก	6	1.4
ระยะเวลาตั้งแต่เข้านอนจนกระทั่งหลับ		
≤ 15 นาที	206	49.4

ตารางที่ 1 (ต่อ)

Sleep quality assessment	Number	%
16 - 30 นาที	158	37.9
31 - 60 นาที	48	11.5
> 60 นาที	5	1.2
ระยะเวลาการนอนหลับในแต่ละคืน		
> 7 ชั่วโมง	40	9.6
6 - 7 ชั่วโมง	76	18.2
5 - 6 ชั่วโมง	91	21.8
< 5 ชั่วโมง	210	50.4
ประสิทธิผลของการนอนหลับ		
> 85 %	215	51.6
75 - 84 %	163	39.1
65 - 74 %	23	5.5
< 65 %	16	3.8
การใช้ยานอนหลับ		
ไม่เคยใช้	392	94.0
ใช้น้อยกว่า 1 ครั้งต่อสัปดาห์	18	4.3
ใช้ 1-2 ครั้งต่อสัปดาห์	2	0.5
ใช้ 3 ครั้งต่อสัปดาห์หรือมากกว่า	5	1.2

จากตารางที่ 1 พบว่าผู้สูงมีอายุคุณภาพการนอนหลับไม่ดี ร้อยละ 56.6 และจากข้อมูลองค์ประกอบที่สำคัญของคุณภาพการนอน ส่วนใหญ่มีคุณภาพการนอนหลับเชิงอัตนัยค่อนข้างดี ร้อยละ 57.8 ใช้ระยะเวลาตั้งแต่เข้านอนจนกระทั่งหลับโดยประมาณไม่เกิน 15 นาที ร้อยละ 49.4 และส่วนใหญ่มีระยะเวลาการนอนหลับในแต่ละคืนน้อยกว่า 5 ชั่วโมง ร้อยละ 50.4 ซึ่งมากกว่าครึ่งมีประสิทธิผลการนอนหลับโดยปกติวิสัย มากกว่า 85 เปอร์เซ็นต์ ร้อยละ 51.6 และการใช้ยานอนหลับนั้นพบว่าส่วนใหญ่ ไม่เคยใช้ยานอนหลับเลย ร้อยละ 94.0

ปัจจัยที่มีความสัมพันธ์กับคุณภาพการนอนหลับไม่ดีโดยการวิเคราะห์อย่างหยาบ (Univariate Analysis) พบว่า ผู้สูงอายุที่มีอายุ 66–70 ปี (OR=0.64, 95% CI=0.38-0.95) ป่วยด้วยโรคความดันโลหิตสูง (OR=1.63, 95% CI = 1.07-2.47) มีอาการปวดบริเวณร่างกาย (OR=2.08, 95% CI= 1.27-3.41) มีความวิตกกังวล (OR=1.74, 95% CI=1.09-2.79) มีความเครียด (OR=2.56, 95% CI=1.13-5.82) เวลาที่ใช้ในการกรีดยางมากกว่า 2 ชั่วโมงต่อคืน (OR=1.83, 95% CI=1.13-2.96) มีการพักระหว่างการกรีดยาง

(OR=0.60, 95% CI=0.40-0.89) และผลิตยางด้วยวิธียางก้อนหรือยางแผ่น (OR=1.67, 95% CI=1.03-2.72) มีความสัมพันธ์อย่างมีนัยสำคัญทางสถิติกับคุณภาพการนอนหลับไม่ดีของผู้สูงอายุที่ทำสวนยางพาราในอำเภอทุ่งสง จังหวัดนครศรีธรรมราช (ตารางที่ 2)

ตารางที่ 2 จำนวน ร้อยละ และวิเคราะห์ความสัมพันธ์ระหว่างลักษณะส่วนบุคคล ภาวะสุขภาพ และปัจจัยด้านการทำงานกับคุณภาพการนอนในผู้สูงอายุที่ทำสวนยางพารา (n=417)

Variables	Sleep quality		OR	95%CI	p-value
	Poor n (%)	Good n (%)			
เพศ					
ชาย	122 (57.3)	91 (42.7)	1.00		
หญิง	114 (55.9)	90 (44.1)	0.95	0.64-1.39	0.774
อายุ (ปี)					
60 - 65	148 (61.7)	92 (38.3)	1.00		
66 – 70	53 (49.1)	55 (50.9)	0.60	0.38-0.95	0.028*
> 70	35 (50.7)	34 (49.3)	0.64	0.37-1.10	0.104
อาชีพเสริม					
ไม่มี	172 (55.3)	139 (44.7)	1.00		
มี	64 (60.4)	42 (39.6)	1.23	0.79-1.92	0.363
การมีโรคประจำตัว					
ไม่มี	116 (52.5)	105 (47.5)	1.00		
มี	120 (61.2)	76 (38.8)	1.43	0.97-2.11	0.073
ความดันโลหิตสูง					
ไม่ป่วย	144 (52.6)	130 (47.4)	1.00		
ป่วย	92 (64.3)	51 (35.7)	1.63	1.07-2.47	0.022*
เบาหวาน					
ไม่ป่วย	213 (57.1)	160 (42.9)	1.00		
ป่วย	23 (52.3)	21 (47.7)	0.82	0.44-1.54	0.541
ไขมันในเลือดสูง					
ไม่ป่วย	192 (54.9)	158 (45.1)	1.00		
ป่วย	44 (65.7)	23 (34.3)	1.57	0.91-2.72	0.104
อาการปวดบริเวณร่างกาย					

ตารางที่ 2 (ต่อ)

Variables	Sleep quality		OR	95%CI	p-value
	Poor n (%)	Good n (%)			
ไม่ปวด	34 (42.0)	47 (58.0)	1.00		
ปวด	202 (60.1)	134 (39.9)	2.08	1.27-3.41	0.003*
ความซึมเศร้า					
ปกติ	230 (56.2)	179 (43.8)	1.00		
ไม่ปกติ	6 (75.0)	2 (25.0)	2.34	0.47-11.71	0.303
ความวิตกกังวล					
ปกติ	170 (53.5)	148 (46.5)	1.00		
ไม่ปกติ	66 (66.7)	33 (33.3)	1.74	1.09-2.79	0.021*
ความเครียด					
ปกติ	211 (54.9)	173 (45.1)	1.00		
ไม่ปกติ	25 (75.8)	8 (75.24.2)	2.56	1.13-5.82	0.025*
ลักษณะการทำสวนยาง					
กรีดอย่างเดียว	13 (68.4)	6 (31.6)	1.00		
กรีดและเก็บ	223 (56.0)	175 (44.0)	0.59	0.22-1.58	0.292
ปริมาณยางที่กรีด (ไร่) (n=410)					
1 – 5	104 (53.6)	90 (46.4)	1.00		
6 – 10	117 (57.9)	85 (42.1)	1.19	0.80-1.77	0.388
> 10	9 (64.3)	5 (35.7)	1.56	0.50-4.82	0.442
เวลาที่ใช้ในการกรีดยาง (ชม./คืน)					
≤ 2.0	38 (44.7)	47 (55.3)	1.00		
> 2.0	198 (59.6)	134 (40.4)	1.83	1.13-2.96	0.014*
การพักระหว่างการกรีดยาง					
พัก	152 (61.8)	94 (38.2)	1.00		
ไม่พัก	84 (49.1)	87 (50.9)	0.60	0.40-0.89	0.011*
ลักษณะผลผลิตยาง					
ยางก้อนถ้วย/ยางแผ่น	38 (46.3)	44 (53.7)	1.00		
น้ำยาง	198 (59.1)	137 (40.9)	1.67	1.03-2.72	0.038*

* Significant level, p-value < 0.05

เมื่อวิเคราะห์ปัจจัยด้านการทำงานที่มีความสัมพันธ์กับคุณภาพการนอนหลับไม่ดีโดยการวิเคราะห์ควบคุมตัวแปรที่มีอิทธิพล (Multivariate Analysis) พบว่า เป็นโรคความดันโลหิตสูง (OR_{adj}= 1.61, 95% CI=1.05-2.48) มีอาการปวดบริเวณร่างกาย (OR_{adj}=1.89, 95% CI=1.13-3.15) และเวลาที่ใช้ในการกรีดยางมากกว่า 2 ชั่วโมงต่อคืน (OR_{adj}=1.71, 95% CI=1.03-2.86) มีความสัมพันธ์อย่างมีนัยสำคัญทางสถิติกับคุณภาพการนอนหลับไม่ดีของผู้สูงอายุที่ทำสวนยางพาราในอำเภอทุ่งสง จังหวัดนครศรีธรรมราช เมื่อควบคุมตัวแปรที่มีอิทธิพลต่อคุณภาพการนอนหลับไม่ดี (ตารางที่ 3)

ตารางที่ 3 การวิเคราะห์ Odds ratio ปัจจัยที่มีความสัมพันธ์กับคุณภาพการนอนในผู้สูงอายุที่ทำสวนยางพารา (n=417)

Variables	Crude		Adjusted**		p-value
	OR	95%CI	OR	95%CI	
ความดันโลหิตสูง					
ไม่ป่วย	1.00		1.00		
ป่วย	1.63	1.07-2.47	1.61	1.05-2.48	0.031*
อาการปวดโครงร่างและกล้ามเนื้อ					
ไม่ปวด	1.00		1.00		
ปวด	2.08	1.27-3.41	1.89	1.13-3.15	0.015*
เวลาที่ใช้ในการกรีดยาง (ชม./คืน) 05					
≤ 2.0	1.00		1.00		
> 2.0	1.83	1.13-2.96	1.71	1.03-2.86	0.040*

* Significant level, p-value < 0.05

**Adjusted ตัวแปรทุกตัวในตาราง และ ตัวแปรอายุ ความวิตกกังวล ความเครียด การพักระหว่างการกรีดยาง และลักษณะผลผลิตยาง

สรุปและอภิปรายผล

จากผลการศึกษาพบว่าความชุกของคุณภาพการนอนหลับไม่ดีในผู้สูงอายุที่ทำสวนยางพาราอยู่ที่ร้อยละ 56.6 ซึ่งใกล้เคียงกับผลการศึกษาในผู้สูงอายุจังหวัดขอนแก่น และการศึกษาในผู้สูงอายุชุมชนเขตเมืองจังหวัดนครสวรรค์ โดยมีความชุกของคุณภาพการนอนหลับไม่ดี ร้อยละ 58.43 (นุสบา ใจซื่อ และอภิญญา ธรรมแสง, 2564) โดยมีคุณภาพการนอนหลับเชิงอัตนัยค่อนข้างดี ร้อยละ 57.8 ใช้ระยะเวลาเข้านอนจนกระทั่งหลับโดยประมาณไม่เกิน 15 นาที ซึ่งเป็นช่วงเวลาปกติของการใช้ระยะเวลาเข้านอนจนกระทั่งหลับ ส่วนระยะเวลาการนอนหลับในแต่ละคืนน้อยกว่า 5 ชั่วโมง ร้อยละ 50.4 ซึ่งโดยทั่วไปผู้สูงอายุควรนอนหลับในเวลากลางคืนให้ได้ประมาณ 8 ชั่วโมง จะทำให้มีคุณภาพการนอนหลับดี ซึ่งนับว่า

กลุ่มตัวอย่างในการศึกษานี้มีจำนวนชั่วโมงหรือปริมาณการนอนที่ไม่เพียงพอตามช่วงอายุที่ควรจะนอนสำหรับผู้สูงอายุ และจากการศึกษา Sandberg at al. (2016) พบว่าเกษตรกรในเม็กซิโกส่วนใหญ่มีคุณภาพการนอนที่ดี ถึงแม้ว่าจะมีลักษณะการทำงานที่เป็นเกษตรกรเหมือนกัน แต่อาจมีความแตกต่างกันของอาชีพเกษตรกรที่มีความจำเพาะแต่ละอาชีพ หรืออาจเนื่องมาจากผู้สูงอายุที่ทำสวนยางพารายังคงประกอบอาชีพ ทำให้มีกิจกรรมตั้งแต่กลางคืนต่อเนื่องจนเช้า มีการใช้พลังงานลดลง และเวลาว่างในตอนกลางวันอาจมีการงีบหลับหรือพักผ่อนในตอนกลางวันมากขึ้น อาจมีผลให้นอนหลับยากในตอนกลางคืน แต่ส่วนใหญ่ผู้สูงอายุที่ทำสวนยางพาราจะนอนหลับง่าย เนื่องมาจากในเวลากลางคืนต้องตื่นมากรีดยาง มีกิจกรรมที่ต้องทำในช่วงกลางคืน อาจจะมีความเหนื่อยล้าสะสมในแต่ละวันจำเป็นต้องเข้านอนเร็วกว่าปกติ ซึ่งความแตกต่างดังกล่าวอาจส่งผลให้คุณภาพการนอนที่แตกต่างกันไปในแต่ละการศึกษา

จากการศึกษาพบว่าโรคความดันโลหิตสูง มีโอกาสทำให้มีคุณภาพการนอนหลับไม่ดี 1.61 เท่า (95% CI=1.05-2.48) เมื่อเทียบกับไม่มีโรคความดันโลหิตสูงอย่างมีนัยสำคัญทางสถิติ ข้อมูลสอดคล้องกับการวิจัยที่ผ่านมาของกัมปนาท สุริย์ กุลนิดา สุนันท์ศิริกูล และ กิตติยารัตน์ ต้นสุวรรณ์ (2565) พบว่าโรคความดันโลหิตสูงมีความสัมพันธ์กับคุณภาพการนอนหลับไม่ดีเป็น 2.66 ซึ่งสามารถอธิบายตามหลักพยาธิสรีรวิทยาโดยเมื่อการนอนหลับไม่ดี ทั้งนอนหลับยากขึ้น ตื่นกลางดึกหรือนอนตื่นเร็วกว่าปกติจะมีผลต่อกลไกทางร่างกาย (Jarrin at al, 2018) และในบริบทของผู้สูงอายุที่ประกอบอาชีพกรีดยางพารา ลักษณะการทำงานที่ต้องตื่นกลางดึกหรือทำงานในช่วงเวลากลางคืนสอดคล้องกับปัจจัยเสี่ยงดังกล่าว เพราะรูปแบบงานที่ไม่สอดคล้องกับนาฬิกาชีวภาพตามธรรมชาติ อาจยิ่งทำให้ผู้สูงอายุที่มีโรคความดันโลหิตสูงมีความเสี่ยงต่อการนอนหลับไม่ดีเพิ่มขึ้น นอกจากนี้ความเหนื่อยล้าสะสมจากการทำงานกลางคืนอาจส่งผลกระทบต่อการควบคุมความดันโลหิต

จากการศึกษาพบว่ามีอาการปวดบริเวณร่างกายมีโอกาสทำให้มีคุณภาพการนอนหลับไม่ดี 1.89 เท่า (95% CI=1.13-3.15) เมื่อเทียบกับไม่มีอาการปวดบริเวณร่างกาย อย่างมีนัยสำคัญทางสถิติ ซึ่งสอดคล้องกับการศึกษาของการศึกษาของกุสุมาลย์ รามศิริ (2543) ศึกษาคุณภาพการนอนหลับของผู้สูงอายุและพบว่าความเจ็บปวดเป็นปัจจัยด้านร่างกายที่รบกวนการนอนหลับมากที่สุด ซึ่งผู้ที่มีอาการปวดร่างกายในส่วนต่าง ๆ อาจเกิดความกังวลกับร่างกายตัวเองมากทำให้ส่งผลกระทบต่อคุณภาพการนอน การกรีดยางพาราเป็นงานที่ต้องอาศัยการเคลื่อนไหวซ้ำ ๆ ในบริบทของวิถีชีวิตของชาวสวนยางซึ่งไม่สามารถหยุดหรือเลื่อนเวลาได้ ประกอบกับความเสื่อมของระบบกล้ามเนื้อและกระดูกที่เกิดขึ้นตามวัย จึงทำให้อาการปวดเมื่อยสะสมและส่งผลต่อคุณภาพการนอน การไม่สามารถนอนหลับลึกได้อย่างต่อเนื่อง เนื่องจากอาการปวดอาจนำไปสู่คุณภาพการนอนที่ลดลงในระยะยาว

จากการศึกษาพบว่าผู้สูงอายุที่ใช้เวลาในการกรีดยางพารามากกว่า 2 ชั่วโมงต่อคืน มีโอกาสทำให้มีคุณภาพการนอนหลับไม่ดี 1.71 เท่า (95% CI=1.03-2.86) เมื่อเทียบกับใช้เวลาในการกรีดยางน้อยกว่าหรือเท่ากับ 2 ชั่วโมงต่อคืน อย่างมีนัยสำคัญทางสถิติ สอดคล้องกับการศึกษาของ Virtanen at al. (2009) พบว่าข้าราชการที่มีชั่วโมงทำงานที่ยาวนาน ซ้ำ ๆ มีความสัมพันธ์กับระยะเวลาการนอนหลับสั้นลง

(OR=3.24, 95% CI=1.45-7.27) และสอดคล้องกับการศึกษาก่อนหน้านี้ที่พบว่าแรงงานผู้สูงอายุที่ทำงานติดต่อกันนาน 30 นาที มีท่าทางการทำงานไม่เหมาะสมต้องยืนนาน ๆ มีการบิดเอี้ยวตัว และก้มตัวขณะทำงาน เป็นพฤติกรรมที่ไม่เหมาะสม อาจส่งผลต่อการเจ็บป่วยจากการประกอบอาชีพได้ (เกษราวัลณ์ นิลวรางกูร และคณะ, 2565) ถึงแม้ว่าชั่วโมงการทำงานจะมีผลต่อการนอนเหมือนกัน แต่อาจจะมีความแตกต่างกันในลักษณะของอาชีพ หรือรูปแบบของการทำงาน ซึ่งโดยทั่วไปการกรีดยางของเกษตรกรชาวสวนยางมีลักษณะการทำงานที่ต้องก้มและเงยเพื่อกรีดยางพารา ต้องตื่นมากรีดยางช่วง 00.00 - 08.00 น. ใช้เวลาในการกรีดยาง 2 - 4 ชั่วโมงต่อคืนโดยประมาณ ระยะเวลาจะแตกต่างกันไปตามปริมาณยางพาราที่กรีดของแตกละบุคคล (เกษราวัลณ์ นิลวรางกูร และคณะ, 2560) จะเห็นได้ว่าลักษณะการทำงานดังกล่าวอาจจะส่งผลให้คุณภาพการนอนหลับลดลงและนอนหลับได้น้อยลงได้

ข้อเสนอแนะ

1. ผู้สูงอายุที่เป็นโรคความดันโลหิตสูงและมีปัญหาการนอน ควรได้รับการคัดกรองเพิ่มเติมเกี่ยวกับคุณภาพการนอน และควรได้รับคำแนะนำในการจัดการการนอนที่เหมาะสม เช่น การปรับพฤติกรรมและลดปัจจัยเสี่ยง นอกจากนี้ ควรมีการติดตามผลผ่านคลินิกผู้ป่วยโรคเรื้อรังในโรงพยาบาลหรือ รพ.สต.

2. อาการปวดเมื่อยระบบโครงร่างและกล้ามเนื้อของผู้สูงอายุอาจเกิดจากโรคเรื้อรังหรือการทำงานหนักมีผลต่อคุณภาพการนอนของผู้สูงอายุที่ทำสวนยางพารา ควรส่งเสริมสุขภาพโดยให้คำแนะนำเรื่องการออกกำลังกายและยืดเหยียดกล้ามเนื้อผ่านเครือข่ายสุขภาพ เช่น ชมรมผู้สูงอายุ อสม. หรือคลินิก NCD นอกจากนี้ ควรมีโปรแกรมติดตามและประเมินอาการของผู้สูงอายุที่มีภาวะปวดเรื้อรัง

3. ผู้สูงอายุที่ทำงานหนัก เช่น กรีดยางหรือทำงานเกิน 2 ชั่วโมงต่อวัน อาจมีปัญหาคุณภาพการนอน ควรให้คำแนะนำในการปรับสมดุลระหว่างงานและการพักผ่อน รวมถึงลดชั่วโมงทำงานที่ส่งผลต่อสุขภาพ และมีการเฝ้าระวังผ่านชมรมผู้สูงอายุหรือหน่วยบริการสุขภาพ

อย่างไรก็ตามควรศึกษาผู้ที่ทำสวนยางพาราในประชากรกลุ่มอื่น ๆ ด้วย เนื่องจากมีลักษณะการทำงาน ศักยภาพ และรูปแบบการนอนที่แตกต่างกัน ซึ่งอาจส่งผลต่อสุขภาพไม่เหมือนกัน นอกจากนี้ควรขยายการศึกษาไปยังปัจจัยเสี่ยงด้านสุขภาพอื่น ๆ เช่น ความเสี่ยงด้านกายภาพ สารเคมี และอาชีวอนามัย เพื่อให้เข้าใจผลกระทบต่อสุขภาพในมิติที่ครอบคลุมมากขึ้น

เอกสารอ้างอิง

กัญญณัฐ โภคาพันธ์. (2561). ปัจจัยที่ส่งผลต่อความตั้งใจที่จะทำงานภายหลังเกษียณอายุราชการของข้าราชการกรุงเทพมหานคร. มนุษยศาสตร์ สังคมศาสตร์ และศิลปะ, 11, 136-149.

กัมปนาท สุริย์, กุลนิดา สุนันท์ศิริกูล และ กิตติยารัตน์ ต้นสุวรรณ์. (2565). คุณภาพของการนอนหลับและปัจจัยที่เกี่ยวข้องในผู้สูงอายุชุมชนเขตเมืองจังหวัดนครสวรรค์. วารสารวิชาการแพทย์และสาธารณสุข เขตสุขภาพที่ 3, 19, 15-27.

กุสุมาลย์ รามศิริ. (2543). คุณภาพการนอนหลับ ปัจจัยที่รบกวน และการจัดการกับปัญหาการนอนหลับของผู้สูงอายุ (วิทยานิพนธ์พยาบาลศาสตรมหาบัณฑิต). มหาวิทยาลัยเชียงใหม่, เชียงใหม่.

เกษราวัลณ์ นิลวรางกูร, เกศินี สราญฤทธิชัย, ธีรศักดิ์ พาจันทร์ และศันสนีย์ สีต่างคำ. (2560). การกรีดยาง การพักผ่อน และการดูแลตัวเองในการป้องกันปัญหาสายตาจากแสงไฟ. สืบค้นเมื่อ 20 มีนาคม 2566 จาก https://reqw.kku.ac.th/2020/book1/book1.pdf

เกษราวัลณ์ นิลวรางกูร, วันเพ็ญ ทรงคำ, ลดาวัลย์ พันธุ์พานิชย์, ศิมาลักษณ์ ดิถีสวัสดิ์เวทย์, จอนห์ เอฟ สมิธ และจักรกฤษณ์ ผูกจิตร. (2565). พฤติกรรมการป้องกันการเจ็บป่วยจากการประกอบอาชีพของแรงงานสูงวัยนอกระบบ. วารสารวิจัยการพยาบาลและสุขภาพ, 23, 55-66.

เกษราวัลณ์ นิลวรางกูร, วิจิตรา เสนา, เกศินี สราญฤทธิชัย, จอนห์ เอฟ สมิธ, ธีรศักดิ์ พาจันทร์ และศันสนีย์ สีต่างคำ. (2560). การพัฒนากระบวนการเรียนรู้ของชุมชนในการดูแลสุขภาพเกษตรกรสวนยางพารา ภาคตะวันออกเฉียงเหนือ (รายงานการวิจัย). ขอนแก่น : คณะพยาบาลศาสตร์ มหาวิทยาลัยขอนแก่น.

กรมการปกครอง กระทรวงมหาดไทย. (2566). โครงสร้างข้อมูลสถิติจำนวนประชากรไทยที่มีชื่ออยู่ในทะเบียนบ้านแยกรายอายุรายเดือน. สืบค้นเมื่อ 5 ตุลาคม 2566 จาก https://stat.bora.dopa.go.th/new_stat/webPage/statByMooBan.php?year=56&month=10

กรมกิจการผู้สูงอายุ กระทรวงการพัฒนาสังคมและความมั่นคงของมนุษย์. (2564). การดูแลผู้สูงอายุ. สืบค้นเมื่อ 3 มีนาคม 2566 จาก https://www.dop.go.th/th/know/15/741

กรมกิจการผู้สูงอายุ กระทรวงการพัฒนาสังคมและความมั่นคงของมนุษย์. (2565). สถิติผู้สูงอายุ สัญชาติไทย และ มีชื่ออยู่ในทะเบียนบ้าน มกราคม 2565. สืบค้นเมื่อ 3 มีนาคม 2566 จาก https://www.dop.go.th/th/know/side/1/1/1159

กรมสุขภาพจิต กระทรวงสาธารณสุข. (2558). แนวทางการดูแลทางด้านสังคมจิตใจของผู้สูงอายุเพื่อป้องกันปัญหาสุขภาพจิต. สืบค้นเมื่อ 20 มีนาคม 2566 จาก https://www.dop.go.th/download/knowledge/th1614750485-411_0.pdf

จุลจิรา ธีรชิตกุล, ขนิษฐา นาคะ และปิยะภรณ์ บุญพัฒน์. (2555). การจัดการอาการปวดเมื่อยกล้ามเนื้อของผู้สูงอายุที่มีอาชีพกรีดยางพารา. วารสารสภาการพยาบาล, 27(2), 134-147.

โชติมันต์ ชินวรารักษ์, สุขเจริญ ตั้งวงษ์ไชย และนัฏศรา ดำรงค์พิวัฒน์. (2561). คุณภาพการนอนหลับและปัจจัยที่เกี่ยวข้องในผู้สูงอายุที่หมู่บ้านประชานิเวศน์. วารสารสมาคมจิตแพทย์แห่งประเทศไทย, 63(2), 199-210

ตะวันชัย จิรประมุขพิทักษ์ และวรัญ ตันชัยสวัสดิ์. (2540). ปัญหาคุณภาพการนอนหลับของพยาบาลประจำการ โรงพยาบาลสงขลานครินทร์. วารสารสมาคมจิตแพทย์แห่งประเทศไทย, 42(3), 123-132.

นิจวรรณ เกิดเจริญ, ชัยพร วิศิษฐ์พงศ์อารีย์, ชัญญวัชร เผดิมพรร่มเย็น, ชิติพัทธ์ เจริญนพคุณศรี, ณัฏฐวุฒิ สิทธิศักดิ์, นทีธร อิ่มเอิบปฐม และ สรรเสริญ ศิริพัฒนาภรณ์. (2563). ปัจจัยด้านการทำงานที่เกี่ยวข้องกับคุณภาพการนอนหลับของพยาบาลวิชาชีพประจำหอผู้ป่วยในคณะแพทยศาสตร์วชิรพยาบาล. วชิรเวชสารและวารสารเวชศาสตร์เขตเมือง, 64, 43-58.

นุสบา ใจซื่อ และอภิญญา ธรรมแสง. (2564). ปัจจัยที่มีความสัมพันธ์กับคุณภาพการนอนหลับของผู้สูงอายุ ในตำบลหนองแซง อำเภอบ้านแฮด จังหวัดขอนแก่น. วารสารวิทยาศาสตร์สุขภาพและการสาธารณสุขชุมชน, 4, 81-95.

มูลนิธิสถาบันวิจัยและพัฒนาผู้สูงอายุไทย (มส.ผส.). (2564). สถานการณ์ผู้สูงอายุไทย พ.ศ. 2563. นครปฐม : สถาบันวิจัยประชากรและสังคม มหาวิทยาลัยมหิดล.

วิชัย เอกพลากร, หทัยชนก พรรคเจริญ และ วราภรณ์ เสถียรนพเก้า. (2564). การสำรวจสุขภาพประชาชนไทยโดยการตรวจร่างกาย ครั้งที่ 6 พ.ศ. 2562-2563. กรุงเทพฯ : คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล.

สุรีรัตน์ ณ วิเชียร. (2564). การนอนหลับของผู้สูงอายุในชุมชน. วารสารสภาการพยาบาล, 36(2), 18-31.

สำนักงานปลัด กระทรวงแรงงาน. (2565). สถานการณ์ด้านแรงงานประจำปี 2565. สืบค้นเมื่อ 20 เมษายน 2566 จาก https://bigdata.mol.go.th/lmis/upload/setup_portal_document/1/สถานการณ์ด้านแรงงาน -2563.pdf

สำนักงานสถิติแห่งชาติ กระทรวงดิจิทัลเพื่อเศรษฐกิจและสังคม. (2566). การสำรวจแรงงานนอกระบบ พ.ศ. 2565. สืบค้นเมื่อ 3 เมษายน 2566 จาก https://www.nso.go.th/nsoweb/nso/survey_detail/Jb

อัศวเทพ ศุภเจริญกูล, อุทัย ปริญญาสุทธินันท์, เกษตรชัย และหีม และบัญชา สมบูรณ์สุข. (2562) การปรับเปลี่ยนวิถีการดำรงชีพของเกษตรกรชาวสวนยางพาราในจังหวัดสงขลาภายใต้สถานการณ์ราคายางพาราผกผัน. วารสารมหาวิทยาลัยราชภัฏมหาสารคาม, 13(3), 71-80.

Buysse, D.J., Reynolds, C.F., Monk, T.H., Berman, S.R. & Kupfer, D.J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. Psychiatry Research, 28(2), 193-213.

Charan, J. & Biswas, T. (2013). How to Calculate Sample Size for Different Study Designs in Medical Research?. Indian J Psychol Med, 35(2), 121–126.

Caruso, C.C. (2014). Negative Impacts of Shiftwork and Long Work Hours. Rehabil Nurs, 39, 16-25.

Centers for Disease Control and Prevention. (2021). Shift Work and Sleep. Retrieved March 22, 2023 from https://blogs.cdc.gov/niosh-science-blog/2016/10/05/shift-work-and-sleep/

Colten, H.R. & Altevogt, B.M. (2006). Sleep disorders and sleep deprivation an unmet public health problem. Washington, DC: National Academies.

Jarrin, D.C., Alvaro, P.K., Bouchard, M.A., Jarrin, S.D., Drake, C.L. & Morin CM. (2018). Insomnia and hypertension:a systematic review. Sleep Med Rev, 41, 3-38.

Li, Y., Zhang, X., Winkelman, J.W., Redline, S., Hu, F.B., Stampfer, M., ... Gao, X. (2014). Association between insomnia symptoms and mortality: a prospective study of U.S. men. Circulation, 129(7), 737-746.

Sandberg, J.C., Nguyen, H.T., Quandt, S.A., Chen, H., Summers, P., Walker, F.O. & Arcury, T.A. (2016). Sleep Quality among Latino Farmworkers in North Carolina: Examination of the Job Control-Demand-Support Model. J Immigr Minor Health, 18(30), 532-541.

Sitasuwan, T., Bussaratid, S., Ruttanaumpawan, P., Chotinaiwattarakul, W. (2014). Reliability and validity of the Thai version of the Pittsburgh Sleep Quality Index. J Med Assoc Thai, 97(3), 57-67.

Thichumpa, W., Howteerakul, N., Suwannapong, N. & Tantrakul, V. (2018). Sleep quality and associated factors among the elderly living in rural Chiang Rai, northern Thailand. Epidemiol Health, 40, 1-9. (in Thai)

Virtanen, M., Ferrie, J.E., Gimeno, D., Vahtera, J., Elovainio, M., Manoux, A.S., ... Kivimaki, M. (2009). Long Working Hours and Sleep Disturbances: The Whitehall II Prospective Cohort Study. SLEEP, 36(6), 737-745.

พฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา สาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่

Behaviors of Safe Motorcycle Riding among Student of Community Public Health Department, Hatyai University

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บทคัดย่อ

การวิจัยในครั้งนี้เป็นการวิจัยเชิงปริมาณ เพื่อศึกษาความรู้เกี่ยวกับกฎจราจรพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัย และเพื่อเปรียบเทียบลักษณะส่วนบุคคลและความรู้เกี่ยวกับกฎจราจร ในการขับขี่รถจักยานยนต์กับพฤติกรรมของนักศึกษาสาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่ กลุ่มตัวอย่างคือ นักศึกษาสาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่ จำนวน 158 คน ภาคการศึกษาที่ 1 ปีการศึกษา 2566 เก็บรวบรวมข้อมูลโดยใช้แบบสอบถาม วิเคราะห์ข้อมูลด้วยสถิติ Paired t-test สถิติ One-way ANOVA และสถิติ Chi-square ผลการวิจัยพบว่า นักศึกษามีความรู้เกี่ยวกับกฎจราจร ในการขับขี่รถจักรยานยนต์ที่ปลอดภัยอยู่ในระดับสูง (ร้อยละ 92.4) มีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยอยู่ในระดับปานกลาง (ร้อยละ 57.0) การเปรียบเทียบข้อมูลส่วนบุคคลกับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา พบว่า ข้อมูลส่วนบุคคล ได้แก่ เพศ อายุ รายได้เฉลี่ยต่อเดือน การมีใบอนุญาตขับขี่ ประสบการณ์การขับขี่รถจักรยานยนต์ ประวัติการได้รับอุบัติเหตุ และระยะทางในการเดินทางที่แตกต่างกัน ส่งผลให้มีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยที่ไม่แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ 0.05 และการเปรียบเทียบความรู้เกี่ยวกับกฎจราจรกับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา พบว่า นักศึกษามีความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่

รถจักรยานยนต์ที่แตกต่างกันส่งผลให้มีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยที่ไม่แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ 0.05

คำสำคัญ: พฤติกรรมความปลอดภัย, พฤติกรรมการขับขี่, ความรู้เกี่ยวกับกฎจราจร

Abstract

This research is a quantitative study aimed to investigating the knowledge of traffic rules, safe motorcycle riding behaviors, and and comparing personal characteristics and knowledge of traffic rules in relation to motorcycle riding behaviors among student of community public health department, Hatyai university. The sample was 158 persons Community Public Health students from Hatyai University in the first semester of the 2566 academic year. Data were collected using the questionnaire, Data analysis was done using Paired t-test statistics, One-way ANOVA statistics, and Chi-square test. The research results showed that students had a high level of knowledge about traffic laws related to safe motorcycle riding (92.4%), a moderate level of safe motorcycle riding behaviors (57.0%), The comparing of personal characteristics with safe motorcycle riding behaviors among students revealed that personal characteristics, including gender, age, average monthly income, possession of a driving license, motorcycle riding experience, accident history, and different travel distances, did not result in statistically significant differences in safe motorcycle riding behaviors at the 0.05 significance level, and the comparing of knowledge about traffic laws with safe motorcycle riding behaviors among students showed that differences in students is knowledge about motorcycle riding traffic laws did not result in statistically significant differences in safe motorcycle riding behaviors at the 0.05 significance level.

Keywords: Safety behaviors, Driving behaviors, Knowledge of traffic laws

บทนำ

อุบัติเหตุจากการจราจรทางบกนับเป็นปัญหาสาธารณสุขสำคัญ ที่ส่งผลกระทบอย่างกว้างขวางต่อสังคมไทย ทั้งในแง่ของการสูญเสียชีวิต ภาระทางเศรษฐกิจ และความมั่นคงด้านสาธารณสุข แม้ว่าจะมีมาตรการด้านความปลอดภัยจราจรอยู่แล้ว แต่จำนวนผู้เสียชีวิตและบาดเจ็บยังคงเพิ่มขึ้นทุกปี ซึ่งสะท้อนให้เห็นว่าปัญหานี้ยังไม่ได้รับการแก้ไขอย่างมีประสิทธิภาพ พบว่า ผู้ที่มีอายุระหว่าง 36 - 60 ปี เป็นกลุ่มที่มีอัตราการเสียชีวิตสูงสุด ร้อยละ 38.53 รองลงมา คือ กลุ่มอายุ 25 - 35 ปี ร้อยละ 21.60 การสูญเสียบุคคลในช่วงวัยทำงานส่งผลกระทบต่อเศรษฐกิจ ครอบครัว และแรงงานของประเทศ จากรายงานของ

องค์การอนามัยโลก พบว่า ประเทศไทยเป็น 1 ใน 10 ประเทศที่มีอัตราการเสียชีวิตสูงสุดจากอุบัติเหตุจราจรทางบก โดยติดอันดับที่ 1 ของเอเชียตะวันออกเฉียงใต้ และอยู่อันดับที่ 8 ของโลก ในด้านอัตราการเสียชีวิตจากอุบัติเหตุทางถนน โดยในปี 2566 พบว่า มีผู้เสียชีวิตบนท้องถนน จำนวน 11,508 คน ทั้งนี้สาเหตุการเกิดอุบัติเหตุทางถนนมาจากรถจักรยานยนต์มากที่สุดถึงร้อยละ 80 และมีอัตราการเสียชีวิตสูงสุดเมื่อเทียบกับยานพาหนะประเภทอื่น ๆ โดยการบาดเจ็บและการเสียชีวิตจากอุบัติเหตุจราจรเป็นสาเหตุการป่วยและเสียชีวิตอันดับต้น ๆ ของประชากรไทย นอกจากนี้ข้อมูลของศูนย์ข้อมูลอุบัติเหตุเพื่อเสริมสร้างวัฒนธรรมความปลอดภัยทางถนน ระหว่างปี 2564 - 2565 พบว่า มีผู้ได้รับบาดเจ็บจากอุบัติเหตุทางถนน จำนวน 883,337 ราย และ 926,866 ราย ตามลำดับ และจำนวนผู้เสียชีวิตจากอุบัติเหตุในช่วงเวลาเดียวกันมี 13,622 ราย ในปี 2564 และ 15,012 ราย ในปี 2565 โดยสาเหตุการเกิดอุบัติเหตุบนท้องถนนส่วนใหญ่มาจากรถจักรยานยนต์ ร้อยละ 89.36 ในปี 2564 และร้อยละ 89.60 ในปี 2565 (ศูนย์ข้อมูลอุบัติเหตุเพื่อเสริมสร้างวัฒนธรรมความปลอดภัยทางถนน, 2566) สำหรับการเกิดอุบัติเหตุบนถนนอาจมีสาเหตุปัจจัยหลายด้านตามที่ ธวัชชัย เอกสันติ, กมลทิพย์ ลมไธสง, นิศารัตน์ มูลกระโทก, อนุสา ชินราช และ ศิริกัญญา ฤทธิ์แปลก (2564) ได้กล่าวถึง ได้แก่ ปัจจัยด้านบุคคล เช่น คนจำนวนขาดความรู้เกี่ยวกับกฎหมายจราจร การเป็นนักขับมือใหม่ที่ยังไม่มีทักษะขับขี่และไม่มีใบอนุญาตขับขี่ การมีพฤติกรรมการขับขี่ที่ไม่ปลอดภัย การมีพฤติกรรมเมาแล้วขับ การไม่สามารถบังคับใช้กฎหมายที่เข้มงวดเพื่อควบคุมพฤติกรรมผู้ขับขี่ได้อย่างมีประสิทธิภาพกับกลุ่มเด็กและเยาวชนได้อย่างจริงจัง ทำให้เด็กและเยาวชนยังคงมีพฤติกรรมขับขี่ที่ไม่ปลอดภัย นอกจากนี้ ปัจจัยด้านยานพาหนะ เช่น เครื่องยนต์บกพร่อง ขาดการบำรุงรักษา ยานพาหนะไม่ได้มาตรฐาน สภาพยางแตกหรือไม่มีดอกยาง รวมถึงระบบห้ามล้อที่อาจมีปัญหา เช่น เบรกแตก (นิภา เสียงสืบชาติ, 2549) และปัจจัยด้านสิ่งแวดล้อม เช่น ไฟส่องสว่างไม่เพียงพอ เครื่องหมายสัญญาณจราจรไม่สมบูรณ์ สภาพอากาศ เช่น ฝนตก ถนนลื่น (พวงเพ็ญ อ่อนสีบุตร, 2551) ซึ่งชี้ให้เห็นว่าปัญหานี้ยังไม่ได้รับการแก้ไขอย่างมีประสิทธิภาพ

การสวมหมวกนิรภัยช่วยป้องกันการสูญเสียชีวิต และช่วยลดระดับความรุนแรงของการบาดเจ็บสำหรับผู้ที่ไม่สวมหมวกนิรภัยมีโอกาสเสียชีวิตมากกว่าผู้สวมหมวกนิรภัยถึงสามเท่า (วัฒนวงศ์ รัตนวราห, 2557) การสวมหมวกนิรภัยช่วยลดการบาดเจ็บที่ศีรษะและลำคอหรือลดการสูญเสียชีวิต โดยมีกฎหมายบังคับให้สวมใส่หมวกนิรภัยทุกครั้งที่ขับขี่จักรยานยนต์

จากที่กล่าวมาข้างต้น ทำให้เห็นได้ว่าปัญหาอุบัติเหตุจราจรส่งผลทำให้ผู้คน สังคม และประเทศชาติต้องสูญเสียงบประมาณและทรัพยากรบุคคล โดยเฉพาะในกลุ่มวัยรุ่นที่กำลังศึกษาเล่าเรียนและวัยแรงงานที่เป็นกำลังสำคัญของประเทศชาติในอนาคต เนื่องจากพฤติกรรมการขับขี่ของวัยรุ่นมีความสามารถในการประเมินสถานการณ์ที่เป็นอันตรายจากการจราจรอยู่ในระดับต่ำ แต่มีการประเมินทักษะในการขับขี่ของตนเองไว้สูง ทำให้มีโอกาสเสี่ยงต่อการเกิดอุบัติเหตุจราจรสูง อีกทั้งผลการศึกษาพบว่า สาเหตุของการเกิดอุบัติเหตุกว่าร้อยละ 95 มาจากปัจจัยด้านบุคคล โดยพฤติกรรมการขับขี่ของกลุ่มวัยรุ่น ซึ่งเป็นช่วงวัยคึกคะนอง ชอบความตื่นเต้นท้าทาย จึงมีพฤติกรรมการขับขี่รถจักรยานยนต์ด้วยความประมาท การไม่สวมหมวกนิรภัยขณะขับขี่ การดื่มของมึนเมา การฝ่าฝืนกฎจราจร และขับขี่ด้วยความเร็วสูง (กาญจน์กรอง สุอังคะ, 2559)

อำเภอหาดใหญ่ จังหวัดสงขลา เป็นเมืองเศรษฐกิจ ธุรกิจภาคบริการและการท่องเที่ยว อีกทั้งยังเป็นเมืองศูนย์กลางการคมนาคมของภาคใต้ และเป็นเมืองที่มีสถานศึกษามีชื่อเสียงเป็นจำนวนมาก ไม่ว่าจะเป็นโรงเรียน สถาบันอาชีวศึกษา วิทยาลัย และมหาวิทยาลัย จึงส่งผลให้มีวัยรุ่นซึ่งเป็นกลุ่มเสี่ยงต่อการเกิดอุบัติเหตุจากรถจักรยานยนต์จำนวนมาก และจากการศึกษาเกี่ยวกับพฤติกรรมการใช้รถจักรยานยนต์ของกลุ่มนักศึกษา พบว่า ส่วนใหญ่ใช้รถจักรยานยนต์เป็นหลักในการเดินทาง เนื่องจากมีความสะดวกสบาย คล่องตัวรวดเร็วและประหยัดค่าใช้จ่าย ลักษณะของการเกิดอุบัติเหตุที่พบสูงที่สุด คือ รถประเภทต่าง ๆ มาเฉี่ยวชน รองลงมา คือ การเกิดอุบัติเหตุด้วยตนเอง ชนิษฎา ชูสุข, พนาลี ชีวกิดาการ, อารมณ์ มีรุ่งเรือง และ จิตราวดี ฐิตินันทกร (2557)

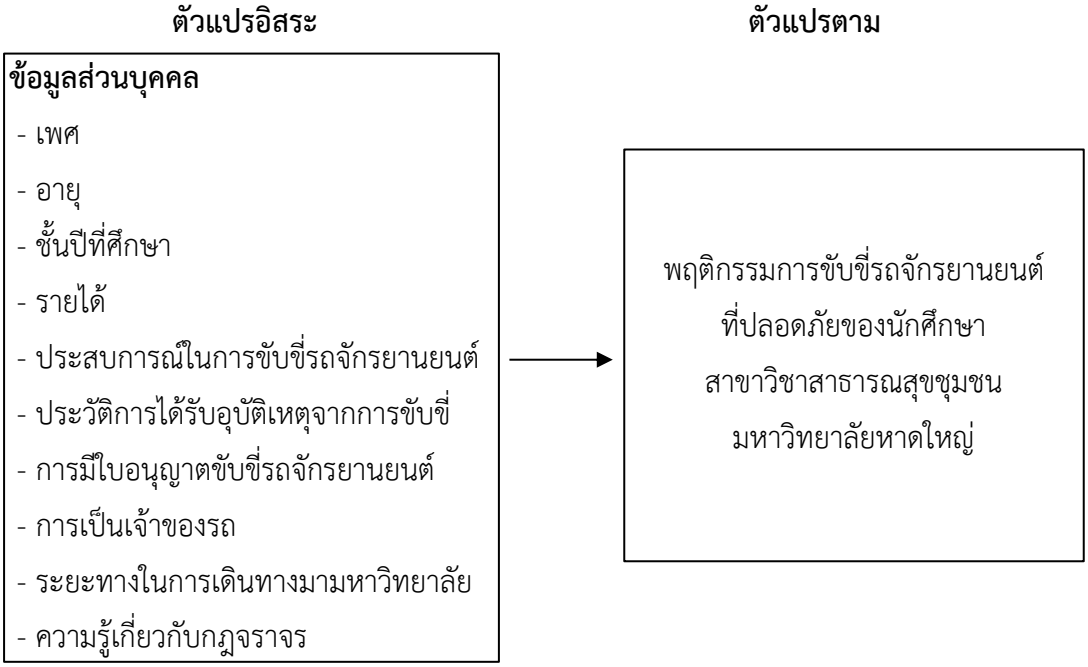
มหาวิทยาลัยหาดใหญ่ เป็นสถานศึกษาที่มีนักศึกษาใช้รถจักรยานยนต์เป็นพาหนะในการเดินทางมาศึกษาจำนวนมาก ซึ่งหากนักศึกษามีพฤติกรรมการขับขี่ที่ไม่ปลอดภัยก็อาจจะเป็นการส่งเสริมให้เกิดอันตรายในการขับขี่ได้ จากข้อมูลข้างต้นชี้ให้เห็นว่า รถจักรยานยนต์เป็นสาเหตุหลักของการเกิดอุบัติเหตุและการเสียชีวิตสูงสุดในช่วงเปิดภาคเรียน และพบว่า นักศึกษาสาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่ ส่วนใหญ่ใช้รถจักรยานยนต์ในการเดินทางจากที่พักมายังมหาวิทยาลัย และใช้ในการสัญจรระหว่างอาคารเรียนต่าง ๆ จากการสืบค้นข้อมูลของมหาวิทยาลัยหาดใหญ่ พบว่า ในอดีตที่ผ่านมาเคยเกิดอุบัติเหตุจากการขับขี่รถจักรยานยนต์กับนักศึกษาของมหาวิทยาลัยหาดใหญ่ ตั้งแต่บาดเจ็บเล็กน้อยจนถึงขั้นรุนแรง คือ มีอาการปวดบวมของร่างกายและมีผลกระทบต่อศีรษะ ดังนั้นผู้วิจัยจึงสนใจศึกษาพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา สาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่ เนื่องจากเป็นนักศึกษาในสาขาวิชาด้านสุขภาพ มีบทบาทสำคัญในการส่งเสริมและรักษาสุขภาพของประชาชน ดังนั้นการตระหนักถึงความปลอดภัยในการขับขี่รถจักรยานยนต์ จึงเป็นเรื่องที่ควรให้ความสำคัญอย่างมาก ไม่เพียงแต่เพื่อความปลอดภัยของตนเอง แต่ยังเป็นตัวอย่างที่ดีให้กับสังคม และเพื่อให้ได้ทราบถึงข้อมูลเบื้องต้น นำไปสู่การหาแนวทางวางแผนและยื่นข้อเสนอแนะให้กับมหาวิทยาลัยในการออกกฎระเบียบหรือออกนโยบายเกี่ยวกับการขับขี่รถจักรยานยนต์ที่ปลอดภัย ในมหาวิทยาลัยหาดใหญ่ เช่น การร่วมพัฒนาระบบบังคับใช้กฎหมายจราจร การส่งเสริมความรู้เกี่ยวกับความปลอดภัยบนท้องถนนผ่านการรณรงค์และการศึกษา หรือการพัฒนาหลักสูตรความปลอดภัยทางถนน การพัฒนามาตรฐานความปลอดภัยของยานพาหนะ นำไปสู่แนวทางในการลดจำนวนอุบัติเหตุทางถนน และสร้างความปลอดภัยที่ยั่งยืนให้กับสังคมไทยในอนาคตต่อไป

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาความรู้เกี่ยวกับกฎจราจรในการขับขี่รถจักรยานยนต์ของนักศึกษา สาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่
2. เพื่อศึกษาพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา สาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่

3. เพื่อเปรียบเทียบลักษณะส่วนบุคคล และความรู้เกี่ยวกับกฎจราจรในการขับขี่รถจักรยานยนต์กับพฤติกรรมของนักศึกษาสาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่

กรอบแนวคิดการวิจัย



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

รูปแบบการวิจัย

การศึกษาครั้งนี้เป็นการวิจัยเชิงปริมาณ (Quantitative Research)

ประชากรและกลุ่มตัวอย่าง

ประชากร ที่ใช้ในการศึกษาครั้งนี้ ได้แก่ นักศึกษาระดับปริญญาตรี สาขาวิชาสาธารณสุขชุมชน คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยหาดใหญ่ ตำบลคอหงส์ อำเภอหาดใหญ่ จังหวัดสงขลา ภาคการศึกษาที่ 1 ประจำปีการศึกษา 2566 จำนวน 262 คน

กลุ่มตัวอย่าง ที่ใช้ในการศึกษาครั้งนี้ ได้แก่ นักศึกษาระดับปริญญาตรี สาขาวิชาสาธารณสุขชุมชน คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยหาดใหญ่ ตำบลคอหงส์ อำเภอหาดใหญ่ จังหวัดสงขลา จำนวน 158 คน จากการคำนวณตามสูตรของ Taro Yamane กำหนดให้ค่าความคลาดเคลื่อน คือ 0.05 โดยมีเกณฑ์การคัดเลือกกลุ่มตัวอย่าง ดังนี้ เกณฑ์การคัดเข้า คือ เป็นนักศึกษาระดับปริญญาตรี สาขาวิชาสาธารณสุขชุมชน คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยหาดใหญ่ นักศึกษาที่ใช้รถจักรยานยนต์มาศึกษาในมหาวิทยาลัยหาดใหญ่ สมัครใจเข้าร่วมการวิจัย และเกณฑ์การคัดออก คือ เป็นนักศึกษาที่ไม่ใช้รถจักรยานยนต์มาศึกษาในมหาวิทยาลัยหาดใหญ่

เครื่องมือที่ใช้ในการวิจัย

เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลครั้งนี้เป็นแบบสอบถามเกี่ยวกับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา ประกอบด้วย 4 ตอน ดังนี้

ตอนที่ 1 ข้อมูลส่วนบุคคล ได้แก่ เพศ อายุ ชั้นปีที่ศึกษา รายได้ ประสบการณ์การขับขี่รถจักรยานยนต์ ประวัติการได้รับอุบัติเหตุจากการขับขี่ การมีใบอนุญาตขับขี่ การเป็นเจ้าของรถ และระยะทางในการเดินทางมามหาวิทยาลัย จำนวน 9 ข้อ เป็นข้อคำถามแบบเลือกตอบและเติมคำในช่องว่าง

ตอนที่ 2 แบบสอบถามเกี่ยวกับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัย ประกอบด้วย 1) ด้านเมาไม่ขับ 2) ด้านสวมหมวกนิรภัย 3) ด้านจักรยานยนต์ปลอดภัย 4) ด้านใบอนุญาตขับขี่ 5) ด้านการใช้ความเร็วตามกำหนด โดยมีคำถามพฤติกรรมการขับขี่รถจักรยานยนต์อย่างปลอดภัยตามกฎหมาย จำนวน 20 ข้อ ลักษณะคำถามแบบลิเคิร์ทสเกล (Likert Scale) 3 ระดับ โดยมีเกณฑ์การให้คะแนน ได้แก่ 3 คะแนน คือ มีการปฏิบัติเป็นประจำด้านการขับขี่รถจักรยานยนต์ที่ปลอดภัย 2 คะแนน คือ มีการปฏิบัติเป็นบางครั้งด้านการขับขี่รถจักรยานยนต์ที่ปลอดภัย และ 1 คะแนน คือ ไม่มีการปฏิบัติเลยด้านการขับขี่รถจักรยานยนต์ที่ปลอดภัย และมีเกณฑ์การแปลผล ได้แก่ 2.34 - 3.00 คือ มีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยระดับมาก 1.67 - 2.33 คือมีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยระดับปานกลาง และ 1.00 - 1.66 คือ มีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยระดับน้อย

ตอนที่ 3 แบบสอบถามเกี่ยวกับความรู้ด้านกฎหมายจราจรการขับขี่รถจักรยานยนต์ จำนวน 20 ข้อ เป็นข้อคำถามแบบเลือกตอบ 2 ตัวเลือก คือ ถูก และผิด โดยมีเกณฑ์การให้คะแนน ได้แก่ 1 คะแนน คือ ตอบถูก และ 0 คะแนน คือตอบผิด และมีเกณฑ์การแปลผล โดยอ้างอิงเกณฑ์ระดับคะแนนของ BLOOM (1971) ได้แก่ 16 - 20 คะแนน คือมีความรู้เกี่ยวกับกฎจราจรอยู่ในระดับสูง 12 - 15 คะแนน คือมีความรู้เกี่ยวกับกฎจราจรอยู่ในระดับปานกลาง และ 0 - 11 คะแนน คือมีความรู้เกี่ยวกับกฎจราจรอยู่ในระดับต่ำ

ตอนที่ 4 ข้อเสนอแนะเกี่ยวกับแนวทางการใช้ถนนอย่างปลอดภัย โดยเป็นข้อคำถามแบบปลายเปิด

การเก็บรวบรวมและวิเคราะห์ข้อมูล

ดำเนินการเก็บข้อมูลจากกลุ่มตัวอย่าง ระหว่างเดือนกันยายน-ตุลาคม 2566 วันจันทร์-ศุกร์ ตั้งแต่ 13.00 - 17.00 น. โดยใช้โปรแกรมสำเร็จรูปในการประมวลผล วิเคราะห์ข้อมูลด้วยสถิติเชิงปริมาณ เพื่อวิเคราะห์ข้อมูลส่วนบุคคล ได้แก่ ค่าเฉลี่ย ร้อยละ ส่วนเบี่ยงเบนมาตรฐาน และเพื่อเปรียบเทียบลักษณะส่วนบุคคลและความรู้เกี่ยวกับกฎจราจรในการขับขี่รถจักรยานยนต์กับพฤติกรรม วิเคราะห์ด้วยสถิติ Paired t-test คือ กลุ่มตัวอย่าง 1 กลุ่มโดยได้จากการสุ่มสถิติ One-way ANOVA เปรียบเทียบกลุ่มตัวอย่าง 2 กลุ่มขึ้นไป และสถิติ Chi-square ทดสอบความสัมพันธ์ระหว่างตัวแปร 2 ตัวแปร

ผลการวิจัย

ผู้วิจัยนำเสนอผลการวิจัยตามลำดับ ดังนี้

ข้อมูลส่วนบุคคล

จากข้อมูลส่วนบุคคลของกลุ่มตัวอย่างส่วนใหญ่ พบว่า ร้อยละ 91.8 เป็นเพศหญิง ร้อยละ 25.3 มีอายุ 19 ปี ร้อยละ 31.6 อยู่ระดับชั้นปีศึกษาปีที่ 2 ร้อยละ 53.8 รายได้เฉลี่ยต่อเดือนต่ำกว่า 5,000 บาท

ร้อยละ 30.4 มีประสบการณ์การขับขี่รถจักรยานยนต์ 4 - 6 ปี ร้อยละ 55.7 มีประวัติการได้รับอุบัติเหตุจากการขับขี่รถจักรยานยนต์ ได้แก่ ร้อยละ 81 ไม่เคยเกิดอุบัติเหตุ ร้อยละ 60.1 ไม่มีใบอนุญาตขับขี่รถจักรยานยนต์ และร้อยละ 57.6 ระยะทางจากที่พักมายังมหาวิทยาลัยหาดใหญ่ 1 - 5 กิโลเมตร

ความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์

จากข้อมูลความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์เป็นรายข้อ พบว่า กลุ่มตัวอย่างส่วนใหญ่ ร้อยละ 100 ตอบถูกมากที่สุดในเรื่องการออกกฎหมาย เพื่อบังคับใช้หมวกนิรภัยช่วยสร้างความปลอดภัยให้กับผู้ขับขี่รถจักรยานยนต์ รองลงมา ร้อยละ 99.7 เมื่อขับขี่รถจักรยานยนต์ในเขตชุมชนต้องลดความเร็วในการขับขี่และเมื่อเห็นสัญญาณไฟจราจรสีแดงควรหยุดรถทันที และส่วนใหญ่ร้อยละ 77.8 ตอบผิดมากที่สุดในเรื่องการสวมหมวกนิรภัยสามารถลดอุบัติเหตุได้ รองลงมา ร้อยละ 41.8 สัญลักษณ์ริมฟุตบาท ขาว-เหลือง หมายถึง ห้ามจอด (ดังตารางที่ 1)

ตารางที่ 1 แสดงจำนวน (ความถี่) และร้อยละความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์เป็นรายข้อ

ข้อความ	ความรู้	
	ถูก จำนวน (ร้อยละ)	ผิด จำนวน (ร้อยละ)
1. การออกกฎหมายเพื่อบังคับใช้หมวกนิรภัย ช่วยสร้างความปลอดภัย ให้กับผู้ขับขี่รถจักรยานยนต์	158 (100.0)	0 (0.0)
2. หมวกนิรภัยตามกฎหมายกำหนดมี 3 ประเภท คือ หมวกครึ่งใบ หมวกเต็มใบ หมวกปิดหน้า	139 (88.0)	19 (12.0)
3. การจราจร หมายถึง การใช้ทางของผู้ขับขี่ คนเดินเท้า เป็นต้น	123 (77.8)	35 (22.2)
4. รถ หมายความว่า ยานพาหนะทุกชนิด เว้นแต่รถไฟและรถราง	115 (72.8)	43 (27.2)
5. ห้ามรถจักรยานยนต์ หมายความว่า ห้ามรถจักรยานยนต์ผ่านเข้าไปในเขตทางที่ติดตั้งป้าย	152 (96.2)	6 (3.8)
6. ห้ามเลี้ยวซ้าย หมายความว่า ห้ามมิให้เลี้ยวรถไปทางซ้าย	151 (95.6)	7 (4.4)
7. ก่อนเลี้ยวควรให้สัญญาณไฟเลี้ยวในระยะก่อน 30 เมตร	153 (96.8)	5 (3.2)
8. สัญลักษณ์ริมฟุตบาท ขาว-เหลือง หมายถึง ห้ามจอด	92 (58.2)	66 (41.8)
9. เครื่องหมาย ⊖ หมายถึง ห้ามเข้า	139 (88.0)	19 (12.0)

ตารางที่ 1 (ต่อ)

ข้อความ	ความรู้	
	ถูก จำนวน (ร้อยละ)	ผิด จำนวน (ร้อยละ)
10. เครื่องหมาย ⃠ หมายถึง ห้ามจอด	142 (89.9)	16 (10.1)
11. การสวมหมวกนิรภัยสามารถลดอุบัติเหตุได้	35 (22.2)	123 (77.8)
12. ขณะเกิดอุบัติเหตุการสวมหมวกนิรภัยช่วยลดการบาดเจ็บได้	154 (97.5)	4 (2.5)
13. การมีความรู้เกี่ยวกับกฎหมายจราจรทำให้ขับขี่ได้อย่างปลอดภัย	154 (97.5)	4 (2.5)
14. หากปฏิบัติตามกฎหมายจราจรจะช่วยลดการเกิดอุบัติเหตุได้	156 (98.7)	2 (1.3)
15. การขับรถด้วยความเร็วต่ำกว่า 60 กิโลเมตร/ชั่วโมง สามารถลดการเกิดอุบัติเหตุลงได้	145 (91.8)	13 (8.2)
16. การสวมหมวกนิรภัยช่วยลดโอกาสการเสียชีวิตถึงสามเท่า	152 (96.2)	6 (3.8)
17. ผู้ขับขี่จำเป็นต้องมีใบอนุญาตขับขี่	157 (99.4)	1 (0.6)
18. ทุกคนที่ขับขี่รถจักรยานยนต์จะต้องปฏิบัติตามกฎหมายจราจร	154 (97.5)	4 (2.5)
19. เมื่อขับขี่รถจักรยานยนต์ในเขตชุมชนต้องลดความเร็วในการขับขี่	156 (99.7)	2 (1.3)
20. เมื่อเห็นสัญญาณไฟจราจรสีแดงควรหยุดรถทันที	156 (99.7)	2 (1.3)

จากข้อมูลระดับความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์ พบว่า กลุ่มตัวอย่างส่วนใหญ่ ร้อยละ 92.4 มีความรู้ในระดับสูง และรองลงมา ร้อยละ 7.6 มีความรู้อยู่ในระดับปานกลาง (ดังตารางที่ 2)

ตารางที่ 2 ระดับความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์

ระดับความรู้	จำนวน	ร้อยละ
1. สูง (16 - 20 คะแนน)	146	92.4
2. ปานกลาง (12 - 15 คะแนน)	12	7.6
3. ต่ำ (0 - 11 คะแนน)	0	0.0

พฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัย

จากข้อมูลพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา สาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่เป็นรายข้อ พบว่า กลุ่มตัวอย่างส่วนใหญ่ ร้อยละ 70.3 มีพฤติกรรมการปฏิบัติเป็นบางครั้งในเรื่องการสวมหมวกนิรภัยทุกครั้งในขณะขับขี่ รองลงมา ร้อยละ 65.8 การสวมหมวกนิรภัยทุกครั้งในการเดินทางมามหาวิทยาลัยหรือในระยะใกล้ และร้อยละ 66.5 มีพฤติกรรมการปฏิบัติเป็นประจำเรื่องการหยุดพักตามที่หยุดรถเมื่อรู้ว่ามีอาการมึนเมา รองลงมา ร้อยละ 64.6 การไม่ขับขี่รถจักรยานยนต์ในขณะมีอาการมึนเมา (ดังตารางที่ 3)

ตารางที่ 3 แสดงจำนวน (ความถี่) และร้อยละพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยเป็นรายข้อ

ข้อความ	การปฏิบัติ		
	เป็นประจำ จำนวน (ร้อยละ)	เป็นบางครั้ง จำนวน (ร้อยละ)	ไม่มีการปฏิบัติเลย จำนวน (ร้อยละ)
1. ท่านตรวจสอบสภาพรถจักรยานยนต์ให้พร้อมใช้งานตลอด	68 (43.0)	83 (52.5)	7 (4.4)
2. ก่อนเดินทางท่านตรวจสอบระบบเบรกทุกครั้ง	53 (33.5)	97 (61.4)	8 (5.1)
3. ก่อนเดินทางท่านตรวจสอบสภาพล้อยางทุกครั้ง	63 (39.9)	79 (50.0)	16 (10.1)
4. ก่อนเดินทางท่านตรวจสอบระบบไฟเลี้ยวและไฟส่องสว่างทุกครั้ง	68 (43.0)	77 (48.7)	13 (8.2)
5. ท่านมีการตรวจสอบวันหมดอายุของใบอนุญาตขับขี่	42 (26.6)	24 (21.5)	82 (51.9)
6. ท่านตรวจสอบใบอนุญาตขับขี่ 6 เดือนก่อนหมดอายุ	36 (22.8)	36 (22.8)	86 (54.4)
7. ท่านพกใบอนุญาตขับขี่ทุกครั้งขณะขับขี่	35 (22.2)	38 (24.1)	85 (53.8)
8. ท่านให้ความร่วมมือกับเจ้าหน้าที่ในการตรวจสอบใบอนุญาตขับขี่ทุกครั้ง	63 (39.9)	36 (22.8)	59 (37.3)
9. ท่านใช้ความเร็วไม่เกิน 40 กิโลเมตรต่อชั่วโมง การขับขี่ในมหาวิทยาลัยหาดใหญ่	56 (35.4)	91 (57.6)	11 (7.0)
10. ท่านใช้ความเร็วไม่เกิน 40 กิโลเมตรต่อชั่วโมง ในการขับขี่ในเขตชุมชน	62 (39.2)	88 (55.7)	8 (5.1)
11. ท่านใช้ความเร็วไม่เกิน 80 กิโลเมตรต่อชั่วโมง ในการขับขี่ในเขตเมือง	62 (39.2)	86 (54.4)	10 (6.3)
12. ท่านขับขี่รถจักรยานยนต์ตามมาตรฐานที่กำหนด เช่น การสวมหมวกนิรภัย การปฏิบัติตามกฎจราจร	63 (39.9)	86 (54.4)	9 (5.7)

และจากข้อมูลระดับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัย พบว่า กลุ่มตัวอย่างส่วนใหญ่ ร้อยละ 57.0 มีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยอยู่ในระดับปานกลาง และรองลงมา ร้อยละ 36.0 มีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยอยู่ในระดับน้อย (ดังตารางที่ 4)

ตารางที่ 4 ระดับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัย

ระดับพฤติกรรม	จำนวน	ร้อยละ
1. มาก (2.34 - 3.00 คะแนน)	11	7.0
2. ปานกลาง (1.67 - 2.33 คะแนน)	90	57.0
3. น้อย (1.00 - 1.66 คะแนน)	57	36.0

เมื่อพิจารณาระดับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยทั้ง 5 ด้าน พบว่า กลุ่มตัวอย่างมีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยในระดับปานกลาง ได้แก่ ด้านการมีใบอนุญาตขับขี่ มีค่าเฉลี่ยเท่ากับ 2.24 และด้านสวมหมวกนิรภัย มีค่าเฉลี่ยเท่ากับ 1.74 และมีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยในระดับน้อย ได้แก่ ด้านจักรยานยนต์ปลอดภัย มีค่าเฉลี่ยเท่ากับ 1.65 ด้านเมาไม่ขับ มีค่าเฉลี่ยเท่ากับ 1.61 และด้านการใช้ความเร็วที่กำหนด มีค่าเฉลี่ยเท่ากับ 1.59 ตามลำดับ (ดังตารางที่ 5)

ตารางที่ 5 ระดับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัย

ระดับพฤติกรรม	$\bar{x}$	S.D.	แปลผล
1. ด้านเมาไม่ขับ	1.61	0.86	น้อย
2. ด้านสวมหมวกนิรภัย	1.74	0.58	ปานกลาง
3. ด้านจักรยานยนต์ปลอดภัย	1.65	0.63	น้อย
4. ด้านการมีใบอนุญาตขับขี่	2.24	0.87	ปานกลาง
5. ด้านการใช้ความเร็วที่กำหนด	1.59	0.59	น้อย

การเปรียบเทียบข้อมูลส่วนบุคคล

การเปรียบเทียบข้อมูลส่วนบุคคลกับพฤติกรรมขับขี่ รถจักรยานยนต์ที่ปลอดภัยของนักศึกษาสาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่ พบว่า เพศ การมีใบอนุญาตขับขี่ และการเป็นเจ้าของรถที่แตกต่างกันมีพฤติกรรมการขับขี่ไม่แตกต่างกัน (ดังตารางที่ 6)

ตารางที่ 6 การเปรียบเทียบข้อมูลส่วนบุคคลกับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา ได้แก่ เพศ การมีใบอนุญาตขับขี่ และการเป็นเจ้าของรถ

ข้อมูลส่วนบุคคล	*N*	$\bar{x}$	S.D.	t	*p*-value
1. เพศ					
ชาย	13	2.01	0.36	2.014	0.417
หญิง	45	2.22	0.35		
2. การมีใบอนุญาตขับขี่					
มี	30	1.27	0.45	4.883	0.435
ไม่มี	128	1.81	0.57		
3. การเป็นเจ้าของรถ					
ใช่	95	1.69	0.58	0.369	0.713
ไม่ใช่	63	1.73	0.60		

การเปรียบเทียบลักษณะส่วนบุคคลกับพฤติกรรมของนักศึกษา สาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่ พบว่า อายุ รายได้เฉลี่ยต่อเดือน ประสบการณ์การขับรถจักรยานยนต์ ประวัติการได้รับอุบัติเหตุ และระยะทางในการเดินทางที่แตกต่างกัน ส่งผลให้การมีพฤติกรรมขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษาที่ไม่แตกต่างกัน และพบว่า ชั้นปีที่ศึกษาที่แตกต่างกันส่งผลให้มีพฤติกรรมขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษาที่แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ 0.05 (ดังตารางที่ 7)

ตารางที่ 7 การเปรียบเทียบข้อมูลส่วนบุคคลกับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา ได้แก่ อายุ รายได้เฉลี่ยต่อเดือน ประสบการณ์การขับรถจักรยานยนต์ ประวัติการได้รับอุบัติเหตุ และระยะทางในการเดินทาง

การเปรียบเทียบ	*SS*	*df*	*MS*	*F*	*p*-value
1. อายุ					
Between Groups	2.473	7	0.353	1.017	0.422
Within Groups	52.134	150	0.348		
2. ระดับชั้นปีที่ศึกษา					
Between Groups	3.290	3	1.097	3.291	0.022*
Within Groups	51.318	154	0.333		
3. รายได้เฉลี่ยต่อเดือน					
Between Groups	0.674	2	0.337	0.968	0.382
Within Groups	53.934	155	0.348		

ตารางที่ 7 (ต่อ)

การเปรียบเทียบ	*SS*	*df*	*MS*	*F*	*p*-value
4. ประสบการณ์การขับรถจักรยานยนต์					
Between Groups	3.110	4	0.778	2.310	0.060
Within Groups	51.497	153	0.337		
5. ประวัติการได้รับอุบัติเหตุ					
Between Groups	0.571	5	0.114	0.321	0.899
Within Groups	54.036	152	0.356		
6. ระยะทางในการเดินทาง					
Between Groups	1.052	4	0.263	0.751	0.559
Within Groups	53.556	153	0.350		

* = *p*-value < 0.05

จากการเปรียบเทียบความรู้เกี่ยวกับกฎจราจรกับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา พบว่า นักศึกษาที่มีความรู้ที่แตกต่างกันมีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยไม่แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ 0.05 (ดังตารางที่ 8)

ตารางที่ 8 การเปรียบเทียบความรู้เกี่ยวกับกฎจราจรกับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา

ระดับความรู้	ระดับพฤติกรรม			รวม (N=158)	*p*-value
	สูง	ปานกลาง	ต่ำ		
1. สูง (16-20 คะแนน)	55	81	10	146	0.344
2. ปานกลาง (12-15 คะแนน)	2	9	1	12	
3. ต่ำ (0-14 คะแนน)	0	0	0	0	

สรุปและอภิปรายผล

สรุปผลการวิจัย

ความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์

ความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์ของนักศึกษา สาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่ พบว่า กลุ่มตัวอย่างส่วนใหญ่ ร้อยละ 100 ตอบถูกมากที่สุดเรื่องการออกกฎหมาย เพื่อบังคับใช้หมวกนิรภัยช่วยสร้างความปลอดภัยให้กับผู้ขับขี่รถจักรยานยนต์ และร้อยละ 77.8 ตอบผิดมากที่สุดเรื่องการสวมหมวกนิรภัยสามารถลดอุบัติเหตุได้

ระดับความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์ พบว่า กลุ่มตัวอย่างส่วนใหญ่มีระดับความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์อยู่ในระดับสูง ร้อยละ 100 ตอบถูกมากที่สุดเรื่องการออกกฎหมาย เพื่อบังคับใช้หมวกนิรภัยช่วยสร้างความปลอดภัยให้กับผู้ขับขี่รถจักรยานยนต์ และร้อยละ 77.8 ตอบผิดมากที่สุดเรื่องการสวมหมวกนิรภัยสามารถลดอุบัติเหตุได้

พฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัย

พฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัย พบว่า กลุ่มตัวอย่างส่วนใหญ่ ร้อยละ 57.0 มีพฤติกรรมอยู่ในระดับปานกลาง หากพิจารณาพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษาสาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่ ในแต่ละด้าน พบว่า ด้านเมาไม่ขับกลุ่มตัวอย่างมีค่าเฉลี่ย 1.61 มีพฤติกรรมอยู่ในระดับน้อย ด้านสวมหมวกนิรภัย กลุ่มตัวอย่างมีค่าเฉลี่ย 1.74 มีพฤติกรรมอยู่ในระดับปานกลาง ด้านจักรยานยนต์ปลอดภัย กลุ่มตัวอย่างมีค่าเฉลี่ย 1.65 มีพฤติกรรมอยู่ในระดับน้อย ด้านใบอนุญาตขับขี่ กลุ่มตัวอย่างมีค่าเฉลี่ย 2.24 มีพฤติกรรมอยู่ในระดับปานกลาง ด้านการใช้ความเร็วที่กำหนด กลุ่มตัวอย่างมีค่าเฉลี่ย 1.59 มีพฤติกรรมอยู่ในระดับน้อย

การเปรียบเทียบข้อมูลส่วนบุคคลกับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัย

การเปรียบเทียบลักษณะส่วนบุคคลและความรู้เกี่ยวกับกฎจราจรในการขับขี่รถจักรยานยนต์กับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา สาขาวิชาสาธารณสุขชุมชน มหาวิทยาลัยหาดใหญ่ พบว่า เพศ อายุ รายได้เฉลี่ยต่อเดือน การมีใบอนุญาตขับขี่ ประสบการณ์การขับขี่ ประวัติการได้รับอุบัติเหตุ และระยะทางในการเดินทางที่แตกต่างกันส่งผลให้มีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยที่ไม่แตกต่างกัน และชั้นปีที่ศึกษาที่แตกต่างกันส่งผลให้มีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยที่แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ 0.05

อภิปรายผลการศึกษา

ความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์

ความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์ของนักศึกษา สาขาวิชาสาธารณสุขชุมชน พบว่า กลุ่มตัวอย่างส่วนใหญ่ ร้อยละ 92.4 มีความรู้อยู่ในระดับสูง อาจเนื่องจากนักศึกษากำลังศึกษาอยู่ในสาขาวิชาทางด้านสุขภาพ การติดตามข่าวสารกฎหมายจราจร หรือการได้รับการปลูกฝังให้มีความตระหนักในเรื่องความปลอดภัยในการขับขี่จักรยานยนต์จากครอบครัว จึงทำให้มีความรู้ความเข้าใจในด้านการป้องกันการเกิดอุบัติเหตุ สอดคล้องกับงานวิจัยของ ธวัชชัย เอกสันติ และคณะ (2564) ศึกษาเรื่องพฤติกรรมการป้องกันอุบัติเหตุจากการขับขี่รถจักรยานยนต์ของนักศึกษา คณะสาธารณสุขศาสตร์ มหาวิทยาลัยราชภัฏนครราชสีมา พบว่า กลุ่มตัวอย่างส่วนใหญ่มีความรู้อยู่ในระดับสูง และสอดคล้องกับงานวิจัยของ กนกอร หลงกลาง และนูรายนา มะสารี (2563) ศึกษาเรื่องการศึกษาความรู้และพฤติกรรมในการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนิสิตมหาวิทยาลัยทักษิณ วิทยาเขตพัทลุง พบว่า นิสิตเกือบทั้งหมดมีความรู้เรื่องการขับขี่รถจักรยานยนต์ในระดับสูง และสอดคล้องกับงานวิจัยของ ตันติมา สุนิวัชรานุพงษ์ (2560) ศึกษาเรื่องปัจจัยที่มีความสัมพันธ์กับพฤติกรรมการป้องกันอุบัติเหตุจากการขับขี่รถจักรยานยนต์

ของผู้ขับขี่รถจักรยานยนต์รับจ้างบริเวณโรงพยาบาลรามาธิบดี กรุงเทพมหานคร พบว่า ความรู้เกี่ยวกับกฎจราจรและการป้องกันอุบัติเหตุอยู่ในระดับมาก

พฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัย

พฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนักศึกษา สาขาวิชาสาธารณสุขชุมชน พบว่า กลุ่มตัวอย่างส่วนใหญ่ ร้อยละ 57.0 มีพฤติกรรมอยู่ในระดับปานกลาง อาจเนื่องจากมหาวิทยาลัยยังไม่มีมาตรการรณรงค์การสวมหมวกนิรภัยที่เข้มงวด และกำลังอยู่ในช่วงวัยรุ่น มีความมั่นใจในตนเองสูง ชอบความท้าทาย ความคึกคะนอง เป็นต้น จึงเป็นวัยที่ยังไม่ค่อยมีความรับผิดชอบต่อสังคมและไม่คำนึงถึงความปลอดภัยต่อตนเองหรือไม่รู้ถึงอันตรายจากอุบัติเหตุ อาจทำให้นักศึกษาไม่เกิดความตระหนักที่จะปฏิบัติตามกฎจราจร ส่งผลให้มีพฤติกรรมอยู่ในระดับปานกลาง สอดคล้องกับงานวิจัยของนิธิพงศ์ ศรีเบญจมาศ และคณะ (2564) ศึกษาเรื่องปัจจัยทำนายพฤติกรรมการป้องกันอุบัติเหตุจากรถจักรยานยนต์ของนักเรียนชั้นมัธยมศึกษาตอนปลาย พบว่า พฤติกรรมการป้องกันอุบัติเหตุจากการขับขี่รถจักรยานยนต์อยู่ในระดับปานกลาง และสอดคล้องกับงานวิจัยของ เนตรนภา สร้อยแก้ว (2563) ศึกษาเรื่องปัจจัยที่ก่อให้เกิดอุบัติเหตุจากการใช้รถจักรยานยนต์ กรณีศึกษา นักเรียนอาชีวศึกษาสถานศึกษาตัวอย่าง จังหวัดสระบุรี พบว่า พฤติกรรมความปลอดภัยในการขับขี่รถจักรยานยนต์ของนักศึกษามหาวิทยาลัยราชภัฏเพชรบุรี จำแนกเป็นรายข้ออยู่ในระดับปานกลาง และสอดคล้องกับงานวิจัยของ อาทร ใจแก้ว, พิมพกานต์ พุฒพันธ์ และวิชญาพร ใจการ (2555) ศึกษาเรื่องศึกษาพฤติกรรมการนำรถจักรยานยนต์มาโรงเรียนพะเยาพิทยาคมของนักเรียนชั้นมัธยมศึกษาปีที่ 4 พบว่า พฤติกรรมการป้องกันในการขับขี่รถจักรยานยนต์อยู่ในระดับปานกลาง

การเปรียบเทียบข้อมูลส่วนบุคคลกับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัย

ข้อมูลส่วนบุคคล ได้แก่ เพศ อายุ รายได้เฉลี่ยต่อเดือน การมีใบอนุญาตขับขี่ ประสบการณ์การขับรถจักรยานยนต์ ประวัติการได้รับอุบัติเหตุ และระยะทางในการเดินทางที่แตกต่างกันส่งผลให้มีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยที่ไม่แตกต่างกัน อาจเนื่องจากนักศึกษา สาขาวิชาสาธารณสุขชุมชน ส่วนใหญ่เป็นเพศหญิง อยู่ในช่วงวัยเดียวกัน ยังไม่มีใบอนุญาตขับขี่ และมีประสบการณ์ขับขี่รถจักรยานยนต์ที่ใกล้เคียงกัน ส่งผลต่อการมีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยที่ไม่แตกต่างกันได้ สอดคล้องกับงานวิจัยของ นิภา เสียงสืบชาติ (2549) ศึกษาเรื่องปัจจัยที่มีผลต่อพฤติกรรมการขับขี่ของผู้ขับขี่รถจักรยานยนต์ แผนกอุบัติเหตุฉุกเฉิน โรงพยาบาลเลิศสิน พบว่า กลุ่มตัวอย่างที่มีเพศ อายุ สถานภาพสมรส ระดับการศึกษา รายได้ ประสบการณ์การขับขี่รถจักรยานยนต์ และประวัติการได้รับอุบัติเหตุจากการขับขี่รถจักรยานยนต์ที่ต่างกัน ส่งผลให้มีความรู้เกี่ยวกับกฎจราจรไม่แตกต่างกัน และสอดคล้องกับงานวิจัยของ นัพวุฒิ ชื่นบาล, ตรีอมร วิสุทธิศิริ และพรเลขา บรรหารศุภวาท (2556) ศึกษาเรื่องการศึกษาปัจจัยที่มีความสัมพันธ์กับพฤติกรรมสุขภาพของผู้ขับขี่รถจักรยานยนต์รับจ้างในพื้นที่เขตบางเขน กรุงเทพมหานคร พบว่า เพศ อายุ สถานภาพการสมรส ระดับการศึกษา รายได้เฉลี่ยต่อเดือน ประสบการณ์การขับขี่ ภาวะสุขภาพเกี่ยวกับโรคประจำตัว สมรรถภาพการทำงานของปอด สมรรถภาพ

การมองเห็น และสมรรถภาพการได้ยิน ของผู้ขับขี่รถจักรยานยนต์รับจ้างมีระดับพฤติกรรมการป้องกันโรคไม่แตกต่างกัน นอกจากนี้ ยังพบว่านักศึกษาที่มีระดับชั้นปีศึกษาที่แตกต่างกันมีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยที่แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ 0.05 อาจเป็นเพราะนักศึกษาระดับชั้นปีที่สูงกว่ามีระดับวุฒิภาวะมากกว่า ชอบความท้าทายและรักสนุกลดลง มีการตระหนักถึงความปลอดภัยเพิ่มมากขึ้น จึงทำให้มีพฤติกรรมการขับขี่รถจักรยานยนต์ที่แตกต่างกันไปด้วย สอดคล้องกับงานวิจัยของ นิธินาถ สุวรรณกลาง (2553) ศึกษาเรื่องพฤติกรรมการขับขี่รถจักรยานยนต์เพื่อป้องกันอุบัติเหตุของนักศึกษา มหาวิทยาลัยราชภัฏสวนสุนันทา พบว่า นักศึกษาที่มีระดับชั้นปีที่กำลังศึกษาต่างกันมีพฤติกรรมการขับขี่รถจักรยานยนต์เพื่อป้องกันอุบัติเหตุแตกต่างกัน

การเปรียบเทียบความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์กับพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัย

ความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์ พบว่า นักศึกษามีความรู้เกี่ยวกับกฎหมายจราจรในการขับขี่รถจักรยานยนต์ที่แตกต่างกัน ทำให้มีพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยไม่แตกต่างกัน อาจเนื่องจากเป็นนักศึกษาที่กำลังศึกษาอยู่ในสาขาวิชาวิทยาศาสตร์ด้านสุขภาพ ซึ่งเป็นส่วนหนึ่งของการส่งเสริมสุขภาพและป้องกันอุบัติเหตุทางถนน จึงมีความรู้ความเข้าใจเกี่ยวกับกฎหมายจราจรอยู่ในระดับดี มีทัศนคติเชิงบวก และส่งผลให้มีความตระหนักในการปฏิบัติตามกฎหมายจราจร ประกอบด้วยการอยู่ภายใต้บริบททางกฎจราจรเดียวกัน จึงส่งผลต่อการเกิดพฤติกรรมการขับขี่รถจักรยานยนต์ที่ปลอดภัยที่ไม่แตกต่างกัน สอดคล้องกับงานวิจัยของธวัชชัย เอกสันติ และคณะ (2564) ศึกษาเรื่องพฤติกรรมการป้องกันอุบัติเหตุจากการขับขี่รถจักรยานยนต์ของนักศึกษา คณะสาธารณสุขศาสตร์ มหาวิทยาลัยราชภัฏนครราชสีมา พบว่า ความรู้และพฤติกรรมการขับขี่ป้องกันอุบัติเหตุจากการขับขี่รถจักรยานยนต์มีความสัมพันธ์กันอย่างมีนัยสำคัญทางสถิติ และสอดคล้องกับงานวิจัย นัฏฐิณี นามวงศ์, สาธิยา สาลีผล, ธนาธิป แก้วคำฟู, ปรัชญา ปลูกเงิน และ ศุภกิตติ์ เกตุจันทร์ (2553) ศึกษาเรื่องการศึกษาความรู้ ทัศนคติ และพฤติกรรมการปฏิบัติตนในการขับขี่รถจักรยานยนต์ของนิสิตคณะสาธารณสุขศาสตร์ มหาวิทยลัยนเรศวร พบว่า ระดับความรู้มีความสัมพันธ์กับการปฏิบัติตนในการขับขี่รถจักรยานยนต์ อย่างมีนัยสำคัญทางสถิติระดับที่ 0.05

ข้อเสนอแนะ

ข้อเสนอแนะจากงานวิจัย

1. จากผลการวิจัยที่พบว่า ผู้ตอบแบบสอบถามสวมหมวกนิรภัยเป็นประจำเพียงร้อยละ 25.3 และไม่มีใบอนุญาตขับขี่ ร้อยละ 81.0 จึงเสนอแนะให้มีการจัดกิจกรรมอบรมเพื่อเพิ่มความตระหนักถึงความสำคัญของการขับขี่ปลอดภัย รวมถึงประชาสัมพันธ์เกี่ยวกับประโยชน์และโทษการสวมหมวกนิรภัย

2. จากผลการศึกษาที่พบว่า นักศึกษาจำนวนมากไม่มีใบอนุญาตขับขี่ จึงเสนอแนะให้มีโครงการ “นักศึกษามีใบอนุญาตขับขี่” โดยกรมการขนส่งทางบก เพื่อให้นักศึกษาที่สนใจสามารถลงทะเบียนและดำเนินการทำใบอนุญาตขับขี่ได้สะดวกขึ้น

3. ควรมีการจัดอบรมร่วมกับหน่วยงานที่เกี่ยวข้อง เช่น กรมการขนส่งทางบก หรือ สำนักงานตำรวจแห่งชาติ เพื่อให้ข้อมูลที่ถูกต้องและสร้างแรงจูงใจให้นักศึกษาปฏิบัติตามกฎหมายจราจร

ข้อเสนอแนะสำหรับการวิจัยครั้งต่อไป

จากข้อจำกัดของการศึกษาที่เน้นเฉพาะนักศึกษาสาขาวิชาสาธารณสุขชุมชน จึงเสนอแนะให้มีการออกแบบการศึกษาที่ครอบคลุมกลุ่มตัวอย่างที่หลากหลาย เพื่อให้ได้ข้อมูลที่ครอบคลุมมากขึ้น รวมถึงการส่งต่อข้อมูลให้กับสำนักพัฒนานักศึกษาและส่งเสริมศิลปวัฒนธรรม มหาวิทยาลัยหาดใหญ่ สามารถนำข้อมูลที่ได้ไปใช้ในการวางแผนนโยบายภายในมหาวิทยาลัยต่อไป

เอกสารอ้างอิง

กนกอร หลงกลาง และนูรายนา มะสารี. (2563). การศึกษาความรู้และพฤติกรรมในการขับขี่รถจักรยานยนต์ที่ปลอดภัยของนิสิตมหาวิทยาลัยทักษิณ วิทยาเขตพัทลุง (วิทยานิพนธ์วิทยาศาสตรบัณฑิต อาชีวอนามัยและความปลอดภัย). มหาวิทยาลัยทักษิณ, พัทลุง.

กาญจน์กรอง สุอังคะ. (2559). การศึกษาพฤติกรรมการขับขี่ของวัยรุ่นที่มีผลต่อความเสี่ยงในการเกิดอุบัติเหตุจากการใช้รถจักรยานยนต์ (วิทยานิพนธ์วิศวกรรมศาสตรมหาบัณฑิต). มหาวิทยาลัยเทคโนโลยีสุรนารี, นครราชสีมา.

ชนิษฎา ชูสุข, พนาลี ชีวกิดาการ, อารมณ์ มีรุ่งเรือง และจิตราวดี ฐิตินันทกร. (2557). กลไกการขับเคลื่อนนโยบายเมืองน่าอยู่ของเทศบาลนครหาดใหญ่ อำเภอหาดใหญ่ จังหวัดสงขลา (รายงานผลการวิจัย). สงขลา : มหาวิทยาลัยสงขลานครินทร์.

ตันติมา สุนิวัชรานุพงษ์. (2560). ปัจจัยที่มีความสัมพันธ์กับพฤติกรรมการป้องกันอุบัติเหตุจากการขับขี่รถจักรยานยนต์ของผู้ขับขี่รถจักรยานยนต์รับจ้างบริเวณโรงพยาบาลรามาธิบดีกรุงเทพมหานคร (วิทยานิพนธ์สาธารณสุขศาสตรมหาบัณฑิต). มหาวิทยาลัยเกริก, กรุงเทพฯ.

ธวัชชัย เอกสันติ, กมลทิพย์ ลมไธสง, นิศารัตน์ มูลกระโทก, อนุสา ชินราช และ ศิริกัญญา ฤทธิ์แปลก. (2564). พฤติกรรมป้องกันอุบัติเหตุจากการขับขี่รถจักรยานยนต์ของนักศึกษา คณะสาธารณสุขศาสตร์ มหาวิทยาลัยราชภัฏนครราชสีมา. วารสารมหาวิทยาลัยวงษ์ชวลิตกุล, 34(2), 16-29.

นัฏฐิณี นามวงศ์, สาธิยา สาลีผล, ธนาธิป แก้วคำฟู, ปรัชญา ปลูกเงิน และศุภกิตติ์ เกตุจันทร์. (2553). การศึกษาความรู้ ทัศนคติ และพฤติกรรมการปฏิบัติตนในการขับขี่รถจักรยานยนต์ของนิสิตคณะสาธารณสุขศาสตร์ มหาวิทยาลัยนเรศวร (วิทยานิพนธ์ปริญญานิพนธ์บัณฑิต). มหาวิทยาลัยนเรศวร, พิษณุโลก.

นัพวุฒิ ชื่นบาล, ตรีอมร วิสุทธิศิริ และพรเลขา บรรหารศุภวาท. (2556). การศึกษาปัจจัยที่มีความสัมพันธ์กับพฤติกรรมสุขภาพของผู้ขับขี่รถจักรยานยนต์รับจ้างในพื้นที่เขตบางเขน กรุงเทพมหานคร (รายงานผลการวิจัย). กรุงเทพฯ : กระทรวงสาธารณสุข.

นิธินาถ สุวรรณกลาง. (2553). พฤติกรรมการขับขี่รถจักรยานยนต์เพื่อป้องกันอุบัติเหตุของนักศึกษามหาวิทยาลัยราชภัฏสวนสุนันทา. วารสารรัฐประศาสนศาสตร์และการจัดการสังคม, 2(1), 49-57.

นิธิพงศ์ ศรีเบญจมาศ ปาริฉัตร เทือกคำซาว และศิรินพร จันทะคุณ. (2564). ปัจจัยทำนายพฤติกรรมการป้องกันอุบัติเหตุจากรถจักรยานยนต์ของนักเรียนชั้นมัธยมศึกษาตอนปลาย. วารสารไทยเภสัชศาสตร์และวิทยาการสุขภาพ, 16(1), 16-22.

นิภา เสียงสืบชาติ. (2549). ปัจจัยที่มีผลต่อพฤติกรรมการขับขี่ของผู้ขับขี่รถจักรยานยนต์แผนกอุบัติเหตุฉุกเฉิน โรงพยาบาลเลิดสิน (วิทยานิพนธ์ปริญญาวิทยาศาสตรมหาบัณฑิต). มหาวิทยาลัยศรีนครินทรวิโรฒ, กรุงเทพฯ.

เนตรนภา สร้อยแก้ว. (2563). ปัจจัยที่ก่อให้เกิดอุบัติเหตุจากการใช้รถจักรยานยนต์ กรณีศึกษา นักเรียนอาชีวศึกษาสถานศึกษาตัวอย่าง จังหวัดสระบุรี (วิทยานิพนธ์ปริญญาวิศวกรรมศาสตรมหาบัณฑิต). มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี, ปทุมธานี.

พวงเพ็ญ อ่อนสีบุตร. (2551). อุบัติการณ์และปัจจัยที่มีผลต่อการเกิดอุบัติเหตุจราจรของประชากรในอำเภอเมือง จังหวัดลำพูน (วิทยานิพนธ์ปริญญาสาธารณสุขศาสตรมหาบัณฑิต). มหาวิทยาลัยเชียงใหม่, เชียงใหม่.

วัฒนวงศ์ รัตนวราห. (2557). การศึกษาปัจจัยที่มีผลต่อการสวมใส่หมวกนิรภัยโดยใช้สมการโครงสร้างพื้นฐานทฤษฎีแบบแผนความเชื่อด้านสุขภาพในสังคมเมืองและชนบท (วิทยานิพนธ์ปริญญาวิศวกรรมศาสตร์มหาบัณฑิต). มหาวิทยาลัยเทคโนโลยีสุรนารี, นครราชสีมา.

ศูนย์ข้อมูลอุบัติเหตุเพื่อเสริมสร้างวัฒนธรรมความปลอดภัยทางถนน. (2566). สืบค้นเมื่อ 30 ตุลาคม 2566 จาก https://www.thairsc.com/

อาทร ใจแก้ว, พิมพกานต์ พุฒพันธ์ และ วิชญาพร ใจการ. (2555). ศึกษาพฤติกรรมการนำรถจักรยานยนต์มาโรงเรียนพะเยาพิทยาคมของนักเรียนชั้นมัธยมศึกษาปีที่ 4. พะเยา : โรงเรียนพะเยาพิทยาคม.

ความสัมพันธ์ระหว่างปัจจัยเสี่ยงที่มีผลต่อพฤติกรรมการใช้บุหรี่ไฟฟ้าของนักศึกษาชั้นปีที่ 3 คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยหาดใหญ่

The Correlation of Risk Factors Affecting E-Cigarette Use Behavior Among Third-Year Students Faculty of Science and Technology, Hatyai University

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บทคัดย่อ

งานวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาความสัมพันธ์ระหว่างปัจจัยเสี่ยงที่ส่งผลต่อสุขภาพของพฤติกรรมการสูบบุหรี่ไฟฟ้าของ นักศึกษาชั้นปีที่ 3 คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยหาดใหญ่ ประชากรที่ใช้ในการวิจัย ได้แก่ นักศึกษาชั้นปีที่ 3 คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยหาดใหญ่จำนวน 89 คน เก็บรวบรวมข้อมูลด้วยแบบสอบถามและการสัมภาษณ์ วิเคราะห์ข้อมูลสถิติเชิงพรรณา ได้แก่ ร้อยละ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน และสถิติเชิงอนุมาน เพื่อวิเคราะห์ความสัมพันธ์ โดยใช้สถิติ Chi-square test

ผลการวิจัยพบว่า นักศึกษามีทัศนคติและความเชื่อต่อการสูบบุหรี่ไฟฟ้าที่ถูกต้องและมีการรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้าที่ถูกต้อง โดยตัวแปรที่เป็นปัจจัยส่วนบุคคล (เพศ อายุ ที่พักอาศัย และโรคประจำตัว) ไม่มีความสัมพันธ์ต่อพฤติกรรมการสูบบุหรี่ไฟฟ้าของกลุ่มตัวอย่าง ความสัมพันธ์ของพฤติกรรม

การสูบบุหรี่ไฟฟ้า พบว่า ตัวแปรรายได้มีความสัมพันธ์ต่อพฤติกรรมการสูบบุหรี่ไฟฟ้า โดยมีเลขนัยสำคัญทางสถิติ P = 0.024 เห็นได้ว่า รายได้ของกลุ่มตัวอย่างมีผลต่อพฤติกรรมการสูบบุหรี่ไฟฟ้า

คำสำคัญ: บุหรี่ไฟฟ้า, ทัศนคติและความเชื่อต่อการสูบบุหรี่ไฟฟ้า, พฤติกรรมการสูบบุหรี่ไฟฟ้า และการรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้า

Abstract

This research aims to study the relationship between risk factors affecting the health of vaping behavior among third-year students in the Faculty of Science and Technology at Hatyai University. The population used in the research consists of 89 third-year students from the Faculty of Science and Technology at Hatyai University. Data were collected through questionnaires and interviews. Descriptive statistical analysis included percentages, means, and standard deviations, while inferential statistics were used to analyze relationships using the Chi-square test.

The research findings indicate that students have correct attitudes and beliefs about vaping and proper awareness of vaping laws. Personal factors (gender, age, residence, and pre-existing conditions) do not correlate with the vaping behavior of the sample group. However, the relationship between vaping behavior and income shows a significant correlation, with a statistical significance of P = 0.024. This suggests that the income of the sample group affects their vaping behavior..

Keywords: E-cigarettes, Attitudes and beliefs towards e-cigarette use, E-cigarette smoking behavior and Awareness of e-cigarette laws

บทนำ

อัตราการเกิดโรคและการเสียชีวิตเกิดจากการสูบบุหรี่ไฟฟ้าเป็นคิดเป็นร้อยละ 15.6 ของจำนวนผู้เสียชีวิตทั้งหมด จากข้อมูลดังกล่าวพบว่าบุหรี่ไฟฟ้าเป็นสาเหตุหลักของการเสียชีวิตซึ่งพบมากในประชากรที่มีอายุ 15 - 19 ปี และมีแนวโน้มการเพิ่มขึ้นของกลุ่มเสี่ยง (กรมควบคุมโรค, 2566) ซึ่งสารประกอบหลักที่เป็นสาเหตุของการก่อให้เกิดโรคมะเร็งของบุหรี่ไฟฟ้า คือ นิโคติน (Nicotine) เป็นสารเสพติดที่ได้มาจากยาสูบเป็นหลักและเป็นส่วนประกอบสำคัญของน้ำยาบุหรี่ไฟฟ้า และส่งผลเสียต่อสุขภาพ รวมถึงการทำงานของปอด ซึ่งบุหรี่ไฟฟ้าเป็นอุปกรณ์ชนิดที่ใช้กลไกไฟฟ้าทำให้เกิดละอองไอน้ำและไอความร้อนสูงมากที่สามารถทำลายเยื่อบุทางเดินหายใจ เซลล์เยื่อบุหลอดลมและเซลล์เยื่อบุผนังหลอดลม โดยมีสารโพรไพลีนไกลคอล (Propylene Glycol) และกลีเซอรีน (Glycerol) เป็นส่วนประกอบหลักที่ก่อให้เกิดโรคมะเร็ง เนื่องจากมีอนุภาคเล็กสามารถเข้าไปยังร่างกาย จากการสูดดมควันบุหรี่ไฟฟ้า

เมื่อสัมผัสหรือสูดดมเข้าไปอาจทำให้เกิดการระคายเคืองที่ผิวหนัง ดวงตา และปอด โดยเฉพาะในผู้ที่เป็นโรคปอดเรื้อรัง โรคหอบหืด และโรคถุงลมโป่งพอง (สุวรรณา เรืองกาญจนเศรษฐ์, ภัศรา จงขจรพงษ์, วิชช์ เกษมทรัพย์, Stephen Hermann, เนาวรัตน์ เจริญค้า, วิทัศน์ ศิริโชติรัตน์ และ วศิน พิพัฒนฉัตร, 2566) นอกจากบุหรี่ไฟฟ้าจะส่งผลกระทบต่อผู้สูบบุหรี่ไฟฟ้าโดยตรงและยังส่งผลกระทบต่อคนรอบข้างหรือเรียกว่าควันบุหรี่มือสอง เนื่องจากควันบุหรี่ไฟฟ้ามีสารพิษและสารก่อมะเร็งเช่นเดียวกันกับบุหรี่ทั่วไป ที่สามารถทำลายการเติบโตของทารกในครรภ์และส่งผลกระทบต่อสมองวัยรุ่น (ชัชวรรณ ต๊ะผัด, ขจร ตรีโสภณากร และสุชัญญา สุขสะอาด, 2566)

จากการสำรวจพฤติกรรมบริโภคบุหรี่ไฟฟ้าของเยาวชนในระดับมัธยมศึกษาตอนปลายในกรุงเทพมหานครในปี 2562 และจากการศึกษาในนักเรียนอาชีวศึกษาในปี 2564 พบว่า แนวโน้มการใช้บุหรี่ไฟฟ้าเกิดจากหลายปัจจัย ได้แก่ ปัจจัยพฤติกรรม ปัจจัยภายนอกและสิ่งแวดล้อม และปัจจัยทางด้านทัศนคติ ซึ่งประกอบด้วย การอยากรู้อยากลอง เพื่อนชักชวนให้สูบ การเข้าถึงได้ง่ายมีทัศนคติที่ดีต่อบุหรี่ไฟฟ้า และเชื่อว่าบุหรี่ไฟฟ้าไม่มีอันตราย (กิติพงษ์ เรือนเพ็ชร, ปัณณทัต บนขุนทด, ถาวรีย์ แสงงาม, ปิยะอร รุ่งธณเกียรติ และ ศิริลักษณ์ สุวรรณวงษ์, 2564) นอกจากนี้ปัจจัยทางด้านครอบครัว การวิเคราะห์ระดับการควบคุมของบิดามารดา การเป็นตัวแบบด้านการสูบบุหรี่ของบิดามารดาและเพื่อน การเผชิญความเครียด ความภาคภูมิใจในตนเอง ความเชื่ออำนาจภายในตน ความคิดเห็นเกี่ยวกับพิษภัย โทษของบุหรี่ไฟฟ้าทัศนคติต่อการสูบบุหรี่ไฟฟ้า พฤติกรรมการสูบบุหรี่ไฟฟ้าและพฤติกรรมการเลิกสูบบุหรี่ของวัยรุ่น (พระมงคลธรรมวิธาน, ประสิทธิ์ สระทอง และ จักรี บางประเสริฐ, 2561) ยังสามารถทำนายถึงพฤติกรรมของผู้สูบบุหรี่ไฟฟ้าได้ ดังนั้นจากข้อมูลข้างต้นการศึกษาปัจจัยและพฤติกรรมการสูบบุหรี่ จึงมีความสนใจศึกษาปัจจัยภายในบุคคล ปัจจัยภายนอก และปัจจัยด้านพฤติกรรมของนักศึกษา

ด้วยเหตุนี้ การศึกษาครั้งนี้จึงมุ่งความสนใจเพื่อศึกษาปัจจัยเสี่ยงของพฤติกรรมการใช้บุหรี่ไฟฟ้าที่มีวัตถุประสงค์การทำวิจัยครั้งนี้ เพื่อให้ทราบปัจจัยเสี่ยงที่มีผลต่อพฤติกรรมการใช้บุหรี่ไฟฟ้าของนักศึกษาชั้นปีที่ 3 คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยหาดใหญ่

วัตถุประสงค์ของการวิจัย

เพื่อศึกษาความสัมพันธ์ระหว่างปัจจัยเสี่ยงที่ส่งผลต่อพฤติกรรมการสูบบุหรี่ไฟฟ้าของนักศึกษาชั้นปีที่ 3 คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยหาดใหญ่

แนวคิด ทฤษฎี กรอบแนวคิด

1. บุหรี่ไฟฟ้า

ความหมายของบุหรี่ไฟฟ้า

บุหรี่ไฟฟ้า เป็นนวัตกรรมที่ส่งมอบนิโคตินโดยใช้ไฟฟ้า (Electronic Nicotine Delivery Systems, ENDS) มีองค์ประกอบ 4 ส่วน คือ (1) ส่วนที่เป็นแบตเตอรี่จุดให้ความร้อนสูง (2) ส่วนของ

Vaporizing ซึ่งเมื่อผู้สูบสูดดมจะเข้าไปกระตุ้น Sensor ให้จุดความร้อนแก่ของเหลวจาก Cartridge ให้กลายเป็นไอ (3) ส่วน Cartridge จะบรรจุ Propylene Glycol เป็นตัวสร้างไอระเหยที่มีสารปรุงแต่งกลิ่น สี และนิโคตินในระดับต่าง ๆ และ (4) ส่วน Tip คือ ส่วนที่ผู้สูบสูดดม นอกจากนี้สารนิโคตินยังเป็นสารที่มีฤทธิ์เสพติดสูงสุดทำให้หลอดเลือดหดตัว กระตุ้นระบบประสาทอัตโนมัติทำให้หัวใจเต้นเร็ว เสี่ยงเกิดภาวะหัวใจวายได้ (สุวรรณา เรืองกาญจนเศรษฐ์ และคณะ, 2566) ซึ่งบุหรี่ไฟฟ้าในปัจจุบันได้ผลิตออกมาหลายประเภทและเป็นที่นิยมในกลุ่มวัยรุ่นอย่างกว้างขวาง

2. ประเภทของบุหรี่ไฟฟ้า

บุหรี่ไฟฟ้าสามารถแบ่งออกเป็น 3 ประเภท ตามรูปร่างลักษณะของอุปกรณ์ (กิติพงษ์ เรือนเพ็ชร และคณะ, 2564) ดังนี้

1) บุหรี่ไฟฟ้าขนาดเล็ก (Mini) คือ แบบใกล้เคียงบุหรี่ทั่วไปที่สุด มีลักษณะเล็ก น้ำหนักเบา ราคาไม่แพง ไม่ต้องควบคุมเอง

2) บุหรี่ไฟฟ้าขนาดกลาง (Mid-size e-cigarettes) เป็นแบบที่ได้รับความนิยมมากที่สุด มีลักษณะไม่ใหญ่จนเกิน ราคาอยู่ในระดับปานกลาง และมีการผลิตไอน้ำที่ดีกว่าแบบ Mini

3) บุหรี่ไฟฟ้าที่ปรับขนาดเองได้ (Advanced personal vaporizers) เป็นบุหรี่ไฟฟ้าที่มีลักษณะเหมือนกับแท่งขนาดใหญ่ คล้ายกับไฟฉายเป็นส่วนใหญ่ ประเภทนี้ส่วนใหญ่ใช้ถ่านแบบถอดเปลี่ยนได้ คงทน และมีความสามารถมากกว่าบุหรี่ไฟฟ้าแบบอื่น ๆ แต่บุหรี่ไฟฟ้าประเภทนี้มีราคาแพงและไม่สะดวกในการพกพา

3. สารพิษในบุหรี่ไฟฟ้าและผลกระทบต่อสุขภาพจากการสูบบุหรี่ไฟฟ้า

สารพิษในบุหรี่ไฟฟ้ามีมากมายหลายชนิด ได้แก่ Nicotine (นิโคติน), Benzene (เบนซีน), Propylene glycol (โพรพิลีนไกลคอล), Glycerin (กลีเซอรีน), และสารแต่งกลิ่น รส และอื่น ๆ (โรงพยาบาลจุฬาลงกรณ์ สภากาชาดไทย, 2567) จากข้อมูลข้างต้น พบว่า สารนิโคตินเป็นสารพิษที่พบมากที่สุดในน้ำยาบุหรี่ไฟฟ้า ยังมีสารพิษอื่น ๆ ที่ทำลายระบบการทำงานของร่างกาย และก่อให้เกิดอันตรายต่อสุขภาพ (ยชญ์วรินทร์ จรบุรมย์ และคณะ, 2564) การสูบบุหรี่ไฟฟ้าส่งผลกระทบต่อระบบการทำงานของร่างกาย พบว่า บุหรี่ไฟฟ้ามีสารนิโคตินเป็นสารเสพติดที่มีสภาวะเสพติดสูงสุด และพบในใบยาสูบตามธรรมชาติที่มีฤทธิ์เป็นด่างค่อนข้างสูง ทำให้เกิดการติดเชื้อในระบบทางเดินหายใจอาจส่งผลทำให้มีอาการระคายคอและง่ายต่อการเกิดโรคหอบหืดมากขึ้น ระบบหัวใจและหลอดเลือดเสี่ยงต่อการเป็นโรคหลอดเลือดหัวใจตีบและทำให้เกิดการลดลงของการไหลเวียนเลือดในกล้ามเนื้อหัวใจและสารนิโคตินอาจส่งผลกระทบต่อระบบประสาทของภาวะซึมเศร้าอีกด้วย (สุวรรณา เรืองกาญจนเศรษฐ์, 2566)

4. ปัจจัยเสี่ยง

ปัจจัยภายในบุคคล ประกอบด้วย อายุ เพศ ทัศนคติที่มีต่อบุหรี่ไฟฟ้า และรวมถึงความเครียด

ปัจจัยภายนอก ประกอบด้วย การมีบุคคลรอบข้างสูบบุหรี่ไฟฟ้า การถูกเพื่อนชักชวน การรับรู้ถึงราคาที่ถูก และราคาแพงของบุหรี่ไฟฟ้า การเข้าถึงโฆษณาบุหรี่ไฟฟ้า

5. วัยรุ่น

ความหมายของวัยรุ่น

เป็นวัยที่อายุประมาณ 13 - 19 ปีที่มีการเปลี่ยนแปลงเข้าสู่วุฒิภาวะทั้งร่างกาย จิตใจ อารมณ์ และสังคมเป็นวิกฤตช่วงหนึ่งของชีวิต เนื่องจากเป็นช่วงต่อของวัยเด็กและผู้ใหญ่ ซึ่งจะมีผลต่อความสัมพันธ์ระหว่างวัยรุ่นด้วยกันเอง และบุคคลรอบข้าง (สำนักงานราชบัณฑิตยสถาน, 2554) พัฒนาการของวัยรุ่นประกอบไปด้วย พัฒนาด้านร่างกาย ด้านสติปัญญาการเรียนรู้ ด้านสังคม และอารมณ์ ซึ่งแบ่งตามช่วงอายุ

1) วัยรุ่นตอนต้น (Early Adolescence) มีอายุระหว่าง 13 - 17 ปี

2) วัยรุ่นตอนกลาง (Middle Adolescence) มีอายุระหว่าง 15 - 19 ปี

3) วัยรุ่นตอนปลาย (Late Adolescence) มีอายุระหว่าง 18 - 21 ปี

6. งานวิจัยที่เกี่ยวข้อง

พงษ์ศักดิ์ อ้นมอย, อาทิตยา บัวเรือง, ชนุตา พาโพนงาม, ธิรดา จันทร์รุ่งเรือง, นฤมล ลาวน้อย และ อัมพวัน บุญรอด (2565) ศึกษาเกี่ยวปัจจัยที่มีความสัมพันธ์กับพฤติกรรมการสูบบุหรี่ไฟฟ้าของเยาวชนจังหวัดอุตรดิตถ์ กลุ่มตัวอย่าง คือ เยาวชนที่กำลังศึกษาในระดับอาชีวศึกษาและอุดมศึกษา ผลการศึกษาพบว่า เยาวชนสูบบุหรี่ไฟฟ้า คิดเป็นร้อยละ 72.21 ส่วนใหญ่เริ่มสูบบุหรี่ไฟฟ้าครั้งแรกเมื่ออายุ 17 - 19 ปี คิดเป็นร้อยละ 66.23 ปัจจัยที่มีความสัมพันธ์ต่อพฤติกรรมการสูบบุหรี่ไฟฟ้าของเยาวชน ประกอบด้วย เพศ สถานที่พักอาศัยขณะศึกษา การสูบบุหรี่ไฟฟ้าของคนในครอบครัว และทัศนคติที่ดีกับการสูบบุหรี่ไฟฟ้า

กิติพงษ์ เรือนเพ็ชร (2564) ศึกษาเกี่ยวกับปัจจัยที่มีความสัมพันธ์กับการสูบบุหรี่ไฟฟ้าของนักเรียนชายอาชีวศึกษา จังหวัดบุรีรัมย์ พบว่า มีอัตราการสูบบุหรี่ไฟฟ้าเท่ากับ ร้อยละ 28.0 มีความเชื่อว่าการสูบบุหรี่ไฟฟ้ามีความปลอดภัยกว่าการสูบบุหรี่แบบธรรมดา และเชื่อว่าการใช้บุหรี่ไฟฟ้ายังสามารถช่วยในการเลิกสูบบุหรี่แบบธรรมดาได้ รวมถึงสาเหตุที่มาจากปัจจัยหลัก ๆ โดยมีปัจจัยภายในบุคคลและปัจจัยภายนอกหรือสิ่งแวดล้อม โดยปัจจัยภายใน ได้แก่ อายุ ทัศนคติต่อการสูบบุหรี่ไฟฟ้า ความเครียด ปัจจัยภายนอกหรือสิ่งแวดล้อม ได้แก่ รายได้ การมีความสัมพันธ์กับโรงเรียน การถูกชักชวนให้สูบ การสูบบุหรี่มวน และบุหรี่ไฟฟ้าของเพื่อน การสูบบุหรี่ของผู้ปกครอง และการรับรู้กฎหมายของบุหรี่ไฟฟ้า ปัจจัยดังกล่าวส่งผลต่อกระบวนการคิดการตัดสินใจอันนำไปสู่การสูบบุหรี่ไฟฟ้าของนักเรียนชาย ผลการศึกษาพบว่า ปัจจัยที่มีความสัมพันธ์กับการสูบบุหรี่ไฟฟ้า การถูกเพื่อนชักชวนให้สูบ การสูบบุหรี่ไฟฟ้าของเพื่อน การเข้าถึงบุหรี่ไฟฟ้า

ปิยวรรณ บุญเพ็ญ, ภาวนา เมนทะระ และ ปิยชาติ บุญเพ็ญ (2562) ศึกษาวิจัยเกี่ยวกับพฤติกรรมการสูบบุหรี่ไฟฟ้าและพฤติกรรมต้องการเลิกบุหรี่ของนักศึกษาระดับอุดมศึกษาในเขตกรุงเทพมหานคร มีวัตถุประสงค์เพื่อศึกษาพฤติกรรมการสูบบุหรี่ไฟฟ้า พฤติกรรมต้องการเลิกบุหรี่ ศึกษาปัจจัยต่าง ๆ

ผลการวิจัยพบว่า การรับข่าวสารและความเชื่อที่ไม่ถูกต้อง มีทัศนคติว่าสูบแล้วหอม สูบบุหรี่ไฟฟ้าสามารถทดแทนการสูบบุหรี่ได้ บุหรี่ไฟฟ้าอันตรายน้อยกว่าบุหรี่ทั่วไป เป็นต้น

สมเด็จ ภิมายกุล และ กนกวรรณ คชสีห์ (2566) ศึกษาวิจัยเกี่ยวกับทัศนคติและพฤติกรรมการบริโภคบุหรี่ไฟฟ้ากับแนวทางการป้องกันการบริโภคบุหรี่ไฟฟ้าของนักศึกษามหาวิทยาลัยราชภัฏเชียงใหม่ ผลการวิจัยพบว่า นักศึกษามีแนวทางการป้องกันการบริโภคบุหรี่ไฟฟ้าด้วยการรณรงค์ผ่านสื่อ การสร้างกฎระเบียบ การพัฒนาสิ่งแวดล้อม การจัดการเรียนรู้ และการจัดกิจกรรมต่าง ๆ แก่นักศึกษา ซึ่งงานวิจัยของ ชนิกา เจริญจิตต์กุล และ ชฎาภา ประเสริฐทรง (2557) รายงานว่า ปัจจัยหนึ่งที่สัมพันธ์กับการเพิ่มขึ้นของนักสูบวัยรุ่น คือ การตลาดที่เย้ายวนให้วัยรุ่นกลุ่มนี้เกิดความสนใจที่ต้องการในผลิตภัณฑ์ โดยศึกษาข้อมูลเกี่ยวกับผลกระทบต่อสุขภาพของ ผู้สูบบุหรี่ไฟฟ้า แนวทางการป้องกัน และบทบาทพยาบาล อีกทั้งยังพบว่า การรับรู้ข่าวสารน้อยและความเชื่อที่ไม่ถูกต้อง การมีทัศนคติต่อบุหรี่ไฟฟ้า ทำให้มีแนวโน้มทางพฤติกรรมการสูบบุหรี่ไฟฟ้า โดยคิดว่าการสูบบุหรี่ไฟฟ้าสามารถทดแทนการสูบบุหรี่ได้ บุหรี่ไฟฟ้ามีความอัตรายน้อยกว่าบุหรี่ทั่วไป

จากงานวิจัยที่เกี่ยวข้องบุหรี่ไฟฟ้าเป็นสินค้าปกติ ซึ่งบุหรี่ไฟฟ้าเป็นผลิตภัณฑ์ที่กลุ่มเยาวชนใช้อยู่ในปัจจุบันเป็นที่กำลังได้รับมีความนิยมเป็นอย่างมาก นอกจากนี้ผู้สูบบางส่วนยังหลงเชื่อว่าบุหรี่ไฟฟ้ายังสามารถเป็นทางเลือกให้แก่ผู้สูบหรือเป็นทางเลือกที่ปลอดภัยกว่าบุหรี่ทั่วไป และหากบุหรี่ไฟฟ้าเป็นสินค้าทดแทนได้จึงมีแนวโน้มว่าการใช้บุหรี่ไฟฟ้าย่อมมากขึ้น บุหรี่ไฟฟ้าเป็นผลิตภัณฑ์ที่มีผลกระทบต่อระบบทางเดินหายใจและการทำงานของหัวใจ และยังสามารถทำให้เกิดการอักเสบได้ แม้ว่าผู้สูบบางคนจะตระหนักถึงผลกระทบต่อสุขภาพของตนเองและบุคคลรอบข้าง จากการใช้บุหรี่ไฟฟ้าเป็นสาเหตุที่สามารถป้องกันได้ในปัจจุบันและยังพบว่าในกลุ่มวัยรุ่นมีอัตราการสูบที่เพิ่มสูงขึ้นอย่างต่อเนื่อง

วิธีดำเนินการวิจัย

กลุ่มเป้าหมายในการวิจัย

ประชากรที่ใช้ในการวิจัย ได้แก่ นักศึกษาชั้นปีที่ 3 คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยหาดใหญ่ จำนวนนักศึกษาทั้ง 3 สาขาวิชา ได้แก่ สาธารณสุขชุมชน เทคโนโลยีสารสนเทศ และอาชีวอนามัยและความปลอดภัย รวมจำนวนทั้งหมด 89 คน

เครื่องมือที่ใช้ในการวิจัย

เครื่องมือในการจัดเก็บรวบรวมข้อมูล คือ แบบสอบถามเกี่ยวกับปัจจัยที่เกี่ยวข้องกับการใช้บุหรี่ไฟฟ้าของนักศึกษาชั้นปีที่ 3 คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยหาดใหญ่ ประยุกต์มาจากงานวิจัยของ จุฑามาศ มณีกุล (2566) ที่ประกอบไปด้วย ปัจจัยภายในบุคคล ปัจจัยภายนอก ปัจจัยพฤติกรรม และปัจจัยด้านครอบครัว สำหรับการวิจัยครั้งนี้ใช้แบบสอบถาม จำนวน 89 ชุด แบ่งออกเป็น 4 ตอน ดังนี้

ตอนที่ 1 แบบสอบถามเกี่ยวกับข้อมูลด้านปัจจัยบุคคล ได้แก่ เพศ อายุ สาขาวิชา ที่พักอาศัย โรคประจำตัว และรายได้ ลักษณะคำถามเป็นแบบกำหนดตัวเลือก จำนวน 6 ข้อ

ตอนที่ 2 แบบสอบถามเกี่ยวกับปัจจัยภายนอกแบ่งออกเป็น 2 หัวข้อย่อย ได้แก่ (1) ทัศนคติและความเชื่อที่เกี่ยวกับการใช้บุหรี่ไฟฟ้า ประกอบด้วย ความคิดเห็นถึงพิษภัยและโทษของบุหรี่ไฟฟ้าที่ส่งผลกระทบต่อร่างกาย และความคิดส่วนบุคคล จำนวน 6 ข้อ และ (2) การรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้า ประกอบด้วย ข้อห้ามการซื้อขายบุหรี่ไฟฟ้าการครอบครองบุหรี่ไฟฟ้า การโฆษณาผ่านสื่ออินเตอร์เน็ต และโทษทางกฎหมายของผู้สูบบุหรี่ไฟฟ้าจำนวน 4 ข้อ พัฒนาจากการทบทวนวรรณกรรม ซึ่งเป็นคำถามที่วัดทัศนคติ ความเชื่อที่เกี่ยวกับการใช้บุหรี่ไฟฟ้า และการรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้า ในลักษณะมาตราส่วนประมาณค่า (Likert Scale) ด้วยการใช้มาตราส่วนกำหนดระดับ (Rating Scales) ซึ่งข้อคำถามแต่ละหัวข้อย่อยได้ถูกกำหนดเกณฑ์การให้คะแนนไว้แบ่งออกเป็น 2 รูปแบบ ดังนี้

ทัศนคติและความเชื่อต่อการสูบบุหรี่ไฟฟ้า ใช้เกณฑ์การให้คะแนนรูปแบบที่ 1

ระดับ 1 หมายถึง ไม่เห็นด้วยอย่างยิ่ง
ระดับ 2 หมายถึง ไม่เห็นด้วย
ระดับ 3 หมายถึง เห็นด้วย
ระดับ 4 หมายถึง เห็นด้วยอย่างยิ่ง

และแปลผลช่วงของค่าเฉลี่ย 4 ระดับข้างต้น ดังนี้

เห็นด้วยอย่างยิ่ง หมายถึง ข้อความนั้นตรงกับความคิดเห็นของท่านเป็นส่วนใหญ่
เห็นด้วย หมายถึง ข้อความนั้นตรงกับความคิดเห็นของท่าน
ไม่เห็นด้วย หมายถึง ข้อความนั้นไม่ค่อยตรงกับความคิดเห็นของท่าน
ไม่เห็นด้วยอย่างยิ่ง หมายถึง ข้อความนั้นไม่ตรงกับความคิดเห็นของท่านเลย

การรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้า ใช้เกณฑ์การให้คะแนนรูปแบบที่ 2

ระดับ +1 หมายถึง ใช่
ระดับ 0 หมายถึง ไม่แน่ใจ
ระดับ -1 หมายถึง ไม่ใช่

และแปลผลโดยใช้ตัวเลือก ดังนี้

ใช่ หมายถึง ข้อความนั้นบัญญัติไว้ในกฎหมายเกี่ยวกับบุหรี่ไฟฟ้า
ไม่ใช่ หมายถึง ข้อความนั้นไม่มีบัญญัติไว้ในกฎหมายเกี่ยวกับบุหรี่ไฟฟ้า
ไม่แน่ใจ หมายถึง มีความรู้สึกลังเลในข้อความนั้น

ตอนที่ 3 แบบสอบถามเกี่ยวกับปัจจัยพฤติกรรมต่อการสูบบุหรี่ไฟฟ้า แรงจูงใจของการสูบบุหรี่ไฟฟ้า การถูกโน้มน้าวหรือชักชวนจากคนรอบข้าง ความเครียด และการเข้าถึงบุหรี่ไฟฟ้าลักษณะคำถามเป็นแบบกำหนดตัวเลือก จำนวน 18 ข้อ

ตอนที่ 4 แบบสอบถามเกี่ยวกับปัจจัยด้านครอบครัว ได้แก่ สถานภาพครอบครัว ระดับการศึกษาของครอบครัว และการสูบบุหรี่ไฟฟ้าของคนในครอบครัว ลักษณะคำถามเป็นแบบกำหนดตัวเลือก จำนวน 3 ข้อ

การตรวจสอบคุณภาพของเครื่องมือ

ผู้วิจัยนำแบบสอบถามที่สร้างเสร็จแล้วให้ผู้เชี่ยวชาญ จำนวน 3 ท่าน พิจารณาในด้านเนื้อหาสาระและโครงสร้างของคำถามตลอดจนภาษาที่ใช้ โดยผู้เชี่ยวชาญพิจารณาตรวจสอบว่าแบบประเมินความเที่ยงตรงตามวัตถุประสงค์หรือไม่ โดยค่าดัชนีความสอดคล้องระหว่างข้อคำถามกับเนื้อหา (Item Objective Congruence index : IOC) ซึ่งค่าความเที่ยงตรงเชิงเนื้อหาที่เหมาะอยู่ระหว่าง 0.50 - 1.00 หลังจากนั้นผู้วิจัยปรับปรุงเนื้อหาตามคำแนะนำของผู้ทรงคุณวุฒิ เพื่อให้แบบสอบถามถูกต้องสมบูรณ์ก่อนนำไปใช้กับกลุ่มตัวอย่าง

ผลการตรวจค่า IOC โดยผู้เชี่ยวชาญ จำนวน 3 ท่าน พบว่า ตอนที่ 1 มีจำนวน 7 ข้อ ผ่านค่าความเที่ยงตรงจำนวน 5 ข้อ และไม่ผ่าน 2 ข้อ โดบข้อที่ไม่ผ่าน คือข้อที่ 4 ผู้วิจัยได้ดำเนินการปรับปรุงและแก้ไขเรียบร้อย และข้อที่ 7 ผู้วิจัยได้ทำการตัดออกเนื่องจากค่าความเที่ยงตรงเท่ากับ 0 ตอนที่ 2 แบ่งออกเป็น 2 หัวข้อย่อย ในส่วนหัวข้อย่อยที่ 1 มีจำนวน 6 ข้อ ผ่านค่าความเที่ยงตรงมากกว่า 0.50 หัวข้อย่อยที่ 2 มีจำนวน 4 ข้อ ผ่านค่าความเที่ยงตรงมากกว่า 0.50 ตอนที่ 3 มีจำนวน 16 ข้อ ผ่านค่าความเที่ยงตรงมากกว่า 0.50 และตอนที่ 4 มีจำนวน 3 ข้อ ผ่านค่าความเที่ยงตรงจำนวน 2 ข้อ และไม่ผ่าน 1 ข้อ โดยข้อที่ไม่ผ่าน คือ ข้อที่ 2 ผู้วิจัยได้ดำเนินการปรับปรุงและแก้ไขเรียบร้อย ซึ่งผลการพิจารณาการตรวจความเที่ยงตรง

การเก็บรวบรวมข้อมูล

การเก็บรวรวมข้อมูลการวิจัยครั้งนี้คณะผู้วิจัยได้ดำเนินการผ่านการพัฒนาและปรับปรุงจนมีคุณภาพในระดับที่ยอมรับได้ดำเนินการเก็บข้อมูลด้วยตนเองกับกลุ่มตัวอย่าง จำนวน 89 คน โดยได้รับการตอบแบบสอบถามกลับคืนมาสมบูรณ์ทุกฉบับ คิดเป็นร้อยละ 100

การวิเคราะห์ข้อมูล

การวิจัยครั้งนี้ได้ดำเนินการวิเคราะห์ข้อมูลโดยใช้โปรแกรมสำเร็จรูปทางสังคมศาสตร์ มีลำดับขั้นตอน ดังนี้

1. การวิเคราะห์ข้อมูลส่วนบุคคลของผู้ตอบแบบสอบถาม ได้แก่ เพศ อายุ สาขาวิชา ที่พักอาศัย โรคประจำตัว รายได้ พฤติกรรมการใช้บุหรี่ไฟฟ้า และปัจจัยด้านครอบครัว โดยการหาค่าเฉลี่ย (Mean) ร้อยละ (Percentage)

2. การวิเคราะห์หาความสัมพันธ์ระหว่างตัวแปรต้นของงานวิจัย ได้แก่ เพศ อายุ สาขาวิชา ที่พักอาศัย โรคประจำตัว และรายได้ กับปัจจัยด้านทัศนคติและความเชื่อต่อการสูบบุหรี่ไฟฟ้า ปัจจัยด้านการรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้า ปัจจัยด้านพฤติกรรม และปัจจัยด้านครอบครัว เป็นการทดสอบเพื่อดูตัวแปรกับปัจจัยมีความสัมพันธ์กันหรือไม่ ทดสอบโดยไคสแควร์ (Chi-Square Test : χ^2) ที่ระดับนัยสำคัญทางสถิติ .05

สถิติที่ใช้ในการวิจัย

สถิติเชิงพรรณนา (Descriptive Analysis) ได้แก่ หาค่าเฉลี่ย (Mean) ร้อยละ (Percentage) สถิติเชิงอนุมาน หรืออ้างอิง ได้แก่ การทดสอบความสัมพันธ์ Chi-square

ผลการวิจัย

1. ข้อมูลทั่วไปกลุ่มตัวอย่าง

ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม ทั้งหมด 89 คน พบว่า โดยส่วนใหญ่เป็นเพศหญิง คิดเป็นร้อยละ 82.10 และเพศชาย คิดเป็นร้อยละ 17.90 อยู่ในช่วงอายุ 21 - 22 ปี คิดเป็นร้อยละ 66.30 กลุ่มประชากรตัวอย่างส่วนใหญ่อาศัยหอพักนอกมหาวิทยาลัย คิดเป็นร้อยยละ 75.3 รองลงมา คือ อาศัยหอพักภายในมหาวิทยาลัย คิดเป็นร้อยละ 6.70 พบว่า ไม่มีโรคประจำตัว ร้อยละ 91 และประชากรส่วนใหญ่มีรายได้ที่เพียงพอไม่เหลือเก็บ คิดเป็นร้อยละ 51.70 รองลงมา คือ เพียงพอเหลือเก็บ คิดเป็นร้อยละ 36 และส่วนน้อยมีรายได้อยู่ที่ระดับไม่เพียงพอ คิดเป็นร้อยละ 12.40

2. ทัศนคติและความเชื่อเกี่ยวกับบุหรี่ไฟฟ้า

ประชากรส่วนใหญ่ ไม่เห็นด้วยอย่างยิ่งต่อความเชื่อว่าการสูบบุหรี่ไฟฟ้าช่วยลดความเสี่ยงที่จะเป็นโรคมะเร็ง คิดเป็นร้อยละ 61.80 โดยมีค่า μ=1.60 และค่า σ= 0.95 มีความเชื่อว่าการสูบบุหรี่ไฟฟ้านั้นมีอันตรายน้อยกว่าบุหรี่มวน คิดเป็นร้อยละ 58.40 โดยมีค่า μ=1.60 และค่า σ= 0.84 ความเชื่อว่าเมื่อได้สูบบุหรี่ไฟฟ้าแล้วรู้สึกผ่อนคลาย คิดเป็นร้อยละ 44.90 มีค่า μ =1.82 และค่า σ=0.87 เชื่อว่าการสูบบุหรี่ไฟฟ้าช่วยทำให้เลิกบุหรี่มวนได้ คิดเป็นร้อยละเท่ากับ 40.40 มีค่า μ =1.92 ค่า σ=0.89 บุหรี่ไฟฟ้ามีสารที่เป็นพิษต่อร่างกายน้อยกว่าบุหรี่มวน คิดเป็นร้อยละเท่ากับ 29.2 มีค่า μ =2.34 และค่า σ = 1.12 และการไม่เห็นด้วยกับบุหรี่ไฟฟ้าทำให้การใช้บุหรี่มวนน้อยลง คิดเป็นร้อยละเท่ากับ 22.5 มีค่า μ = 2.38 และค่า σ = 1.01

3. การรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้า

ประชากรส่วนใหญ่รับรู้ว่า บุหรี่ไฟฟ้าเป็นสินค้าที่ห้ามขายหรือให้บริการสินค้า คิดเป็นร้อยละ 74.2 มีค่า μ = 1.14 และค่า σ = 0.75 ผู้ที่ซื้อรับไว้หรือบุหรี่ไฟฟ้าไว้ในครอบครองถือว่าเป็นการกระทำผิดกฎหมาย คิดเป็นร้อยละ 69.7 มีค่า μ = 1.48 และค่า σ = 0.78 การโฆษณาบุหรี่ไฟฟ้าผ่านทางเว็บไซต์ถือเป็นความผิดกฎหมายพระราชบัญญัติว่าด้วยการกระทำผิดเกี่ยวกับคอมพิวเตอร์ คิดเป็นร้อยละเท่ากับ 67.4 มีค่า μ = 1.57 และค่า σ = 0.86 และการสูบบุหรี่ไฟฟ้ามีโทษปรับไม่เกิน 5,000 บาท คิดเป็นร้อยละเท่ากับ 56.20 มีค่า μ = 1.83 และค่า σ = 0.83

จากผลการศึกษาเห็นได้ว่า ประชากรตัวอย่างส่วนใหญ่มีการรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้า ได้แก่ บุหรี่ไฟฟ้าเป็นสินค้าที่ห้ามขายหรือให้บริการสินค้า ผู้ที่ซื้อรับไว้หรือบุหรี่ไฟฟ้าไว้ในครอบครองถือว่าเป็นการกระทำผิดกฎหมาย การโฆษณาบุหรี่ไฟฟ้าผ่านทางเว็บไซต์ถือเป็นความผิดกฎหมายพระราชบัญญัติว่าด้วยการกระทำผิดเกี่ยวกับคอมพิวเตอร์ และการสูบบุหรี่ไฟฟ้ามีโทษปรับไม่เกิน 5,000 บาท มีค่า $\bar{x}$ = 1.50 และค่า SD = 0.80

4. พฤติกรรมการสูบบุหรี่ไฟฟ้า

พฤติกรรมการสูบบุหรี่ไฟฟ้า แสดงให้เห็นว่ากลุ่มเป้าหมายมีพฤติกรรมการใช้บุหรี่ไฟฟ้า ทั้งหมด คิดเป็นร้อยละ 24.70 ของประชากรทั้งหมด ซึ่งปัจจัยเรื่องเพื่อนรอบตัวมีผลต่อการเลิกใช้บุหรี่ โดยผลการศึกษาพบว่า มีเพื่อนสนิทที่สูบบุหรี่ไฟฟ้า คิดร้อยละ 51.70 ส่วนใหญ่ถูกเพื่อนโน้มน้าวหรือชักชวนให้สูบบุหรี่ไฟฟ้า คิดเป็นร้อยละ 61.80 ประชากรส่วนใหญ่ตอบไม่ใช่เกี่ยวกับสาเหตุการเลือกสูบบุหรี่ไฟฟ้าประกอบด้วย เพราะอยากลอง กลิ่นหอม อยากเป็นที่ยอมรับของกลุ่มเพื่อน ผู้สูบพกพาบุหรี่ไฟฟ้าบ่อย คิดเป็นร้อยละ 4.50 กลุ่มประชากรส่วนใหญ่รู้จักบุหรี่ไฟฟ้าจจากสื่ออินเตอร์เน็ต คิดเป็นร้อยละเท่ากับ 55.10 การเข้าหาบุหรี่ไฟฟ้าอยู่ในระดับปานกลาง คิดเป็นร้อยละ 33.70 และกลุ่มประชากรตัวอย่างมีความตั้งใจจะเลิกสูบบุหรี่ไฟฟ้า คิดเป็นร้อยละ 83.10

5. สถานภาพครอบครัว

สถานภาพครอบครัว การศึกษาของครอบครัว และพฤติกรรมการใช้บุหรี่ไฟฟ้าของครอบครัว แสดงให้เห็นว่า สถานภาพครอบครัวของกลุ่มประชากรตัวอย่างส่วนใหญ่บิดามารดาอาศัยอยู่ด้วยกัน คิดเป็นร้อยละ 80.90 และพ่อแม่หย่าร้าง คิดเป็นร้อยละ 19.10 ในส่วนของระดับการศึกษาของบิดา และมารดา ส่วนใหญ่มีระดับการศึกษามัธยมศึกษาตอนปลาย คิดเป็นร้อยละ 24.70 ระดับการศึกษาปริญญาตรี คิดเป็นร้อยละ 20.20 ระดับนักศึกษาประถมศึกษาชั้นปีที่ 6 คิดเป็นร้อยละ 18 ระดับการศึกษา ปวส./ปวช. คิดเป็นร้อยละ 14.60 และระดับการศึกษามัธยมตอนต้น คิดเป็นร้อยละ 9 และพบว่า กลุ่มประชากรไม่มีบุคคลในครอบครัวที่สูบบุหรี่เป็นประจำ คิดเป็นร้อยละ 84.30

6. ความสัมพันธ์ระหว่างปัจจัยเสี่ยงที่มีผลต่อพฤติกรรมการใช้บุหรี่ไฟฟ้า

การวิเคราะห์ความสัมพันธ์ทางสถิติของตัวแปรแต่ละตัวแปร โดยจะมีตัวแปรต้นทั้งหมด 6 ตัวแปร คือ เพศ อายุ สาขาวิชา ที่พักอาศัย โรคประจำตัว และรายได้ ซึ่งจะวิเคราะห์วิเคราะห์ความสัมพันธ์ทางสถิติ Chi-square ซึ่งจะมาวิเคราะห์ความสัมพันธ์ระหว่างตัวแปรต้นกับปัจจัยเสี่ยงของการใช้บุหรี่ไฟฟ้า ซึ่งประกอบไปด้วย 1) ปัจจัยด้านทัศนคติ 2) ปัจจัยด้านการรับรู้กฎหมาย 3) ปัจจัยด้านพฤติกรรม และ 4) ปัจจัยด้านครอบครัว เพื่อให้เห็นถึงความสัมพันธ์ระหว่างตัวแปรกับปัจจัยในแต่ละด้านโดยจะมีทั้งหมด 6 ตัวแปร คือ เพศ อายุ สาขาวิชา ที่พักอาศัย โรคประจำตัว และรายได้

จากผลการศึกษาพบว่า ตัวแปรทางด้านเพศ อายุ สาขาวิชา ที่พักอาศัย และโรคประจำตัว ไม่มีความสัมพันธ์กับปัจจัยด้านทัศนคติและความเชื่อต่อการสูบบุหรี่ไฟฟ้า การรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้า ปัจจัยพฤติกรรม และปัจจัยด้านครอบครัว ไม่มีความสัมพันธ์ อย่างมีนัยสำคัญทางสถิติ $P < 0.05$

ในส่วนของการศึกษาความสัมพันธ์ระหว่างตัวแปรต้น เพศ อายุ สาขาวิชา ที่พักอาศัย โรคประจำตัว และรายได้ กับปัจจัยด้านทัศนคติและความเชื่อต่อการสูบบุหรี่ไฟฟ้า การรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้า ปัจจัยพฤติกรรม และปัจจัยด้านครอบครัว พบว่า รายได้มีความสัมพันธ์กับปัจจัยด้านพฤติกรรมอย่างมีนัยสำคัญทางสถิติ ที่ $P = 0.024$ แต่ไม่มีความสัมพันธ์กันกับปัจจัยด้านทัศนคติและความเชื่อต่อการสูบบุหรี่ไฟฟ้า การรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้า และปัจจัยด้านครอบครัว อย่างมีนัยสำคัญทางสถิติ $P < 0.05$ สำหรับการวิเคราะห์ข้อมูลโดยสถิติดังข้อมูลแสดงในตารางที่ 1

ตารางที่ 1 ผลการวิเคราะห์ข้อมูลโดยสถิติ

ตัวแปร	ปัจจัยที่เกี่ยวข้อง							
	ทัศนคติและความเชื่อต่อการสูบบุหรี่ไฟฟ้า		การรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้า		พฤติกรรม		ด้านครอบครัว	
	p-value	Chi square	p-value	Chi square	p-value	Chi square	p-value	Chi square
เพศ	0.963	0.286	0.184	3.390	0.118	16.671	0.291	8.501
อายุ	0.202	8.521	0.136	6.995	0.653	18.883	0.382	14.949
สาขาวิชา	0.416	6.068	0.897	1.084	0.491	21.481	0.125	20.159
ที่พักอาศัย	0.634	9.799	0.887	3.648	0.142	54.090	0.883	19.480
โรคประจำตัว	0.950	5.221	0.278	9.821	0.783	36.455	0.925	18.032
รายได้	0.292	7.328	0.947	0.734	0.024*	37.007	0.183	18.548

หมายเหตุ * คือค่านัยสำคัญอย่างมีสถิติต่ำกว่า P≤0.05

สรุปและอภิปรายผลการศึกษา

ความสัมพันธ์ระหว่างปัจจัยเสี่ยงที่มีผลต่อพฤติกรรมการใช้บุหรี่ไฟฟ้า พบว่า จำนวนนักศึกษาเพศชาย คิดเป็นร้อยละ 17.90 และเพศหญิง คิดเป็นร้อยละ 82.10 จากผลการศึกษาพบว่า ผู้สูบบุหรี่ไฟฟ้ามีจำนวนทั้งหมด 22 คน คิดเป็นร้อยละ 24.70 ของจำนวนทั้งหมด กลุ่มประชากรตัวอย่างส่วนใหญ่เริ่มสูบบุหรี่ในช่วงอายุ 18 - 20 ปี คิดเป็นร้อยละ 14.61 มีความสอดคล้องกับการศึกษาของ พงษ์ศักดิ์ อ้นมอย (2565) พบว่า เยาวชนที่กำลังศึกษาในระดับอาชีวศึกษาและอุดมศึกษา ส่วนมากเริ่มสูบบุหรี่ไฟฟ้าครั้งแรกอายุ 17 - 19 ปี คิดเป็นร้อยละ 66.23 ในส่วนของผลการศึกษาด้านทัศนคติและความเชื่อต่อการสูบบุหรี่ไฟฟ้า พบว่า กลุ่มประชากรตัวอย่างส่วนใหญ่ไม่เห็นด้วยกับทัศนคติและความเชื่อต่อการสูบบุหรี่ไฟฟ้าของความเชื่อที่ว่า การสูบบุหรี่ไฟฟ้าสามารถทดแทนการสูบบุหรี่มวนได้ บุหรี่ไฟฟ้าช่วยลดความเสี่ยงของโรคมะเร็งได้ การสูบบุหรี่ไฟฟ้าช่วยทำให้รู้สึกผ่อนคลายคลายเครียด บุหรี่ไฟฟ้ามีอันตรายน้อยกว่าบุหรี่มวน และกลุ่มประชากรตัวอย่างไม่เห็นด้วยกับทัศนคติและความเชื่อที่ว่าการสูบบุหรี่ไฟฟ้านั้น สามารถช่วยทำให้พฤติกรรมการสูบบุหรี่ไฟฟ้าได้น้อยลงหรือลดลงจากเดิมได้ ซึ่งมีความแตกต่างกับการศึกษาของ ศิริพร พูลรักษ์ (2565) พบว่า นักศึกษาระดับปริญญาตรี แม้ว่าผู้สูบบุหรี่ไฟฟ้าตระหนักถึงผลกระทบต่อสุขภาพ และมีความตั้งใจเลิกสูบบุหรี่ไฟฟ้าของนักศึกษาแต่บางคนไม่สามารถเลิกสูบบุหรี่ไฟฟ้าได้เนื่องจากมีความเชื่อเกี่ยวกับบุหรี่ไฟฟ้าแบบผิด แต่มีความสอดคล้องกับการศึกษาของ ปิยวรรณ บุญเพ็ญ และคณะ (2562) พบว่า นักศึกษาระดับอุดมศึกษาในเขตกรุงเทพมหานครมีการรับข่าวสาร ทัศนคติ และความเชื่อที่ไม่ถูกต้องที่ว่าบุหรี่ไฟฟ้าสูบแล้วหอม สูบบุหรี่ไฟฟ้าสามารถทดแทนการสูบบุหรี่ได้ และบุหรี่ไฟฟ้าอันตรายน้อยกว่าบุหรี่ทั่วไป ในประเด็นการรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้า พบว่า กลุ่มประชากรตัวอย่างส่วนใหญ่มีความรู้หรือการรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้าเป็นอย่างมากแต่ไม่มีผลหรือความสัมพันธ์ต่อพฤติกรรมการสูบบุหรี่ไฟฟ้า ซึ่งไม่สอดคล้องกับการศึกษาของ กิติพงษ์ เรือนเพ็ชร (2564) พบว่า นักศึกษาอาชีวศึกษา จังหวัดบุรีรัมย์ ผู้สูบบุหรี่ไฟฟ้าและไม่สูบบุหรี่ไฟฟ้า มีการรับรู้กฎหมายเกี่ยวกับบุหรี่ไฟฟ้าน้อย คิดเป็นร้อยละ 54 และ 66.90 ตามลำดับ ในประเด็นปัจจัยด้านครอบครัว พบว่า สถานภาพครอบครัวของกลุ่มประชากรตัวอย่างส่วนใหญ่ อาศัยอยู่ด้วยกัน คิดเป็นร้อยละ 80.90 และพ่อแม่หย่าร้าง คิดเป็นร้อยละ 19.10 กลุ่มประชากรตัวอย่างส่วนใหญ่ พบว่า บุคคลในครอบครัวไม่มีพฤติกรรมการสูบบุหรี่ไฟฟ้า คิดเป็นร้อยละ 84.30

พฤติกรรมการสูบบุหรี่ไฟฟ้าของกลุ่มประชากรส่วนใหญ่เป็นผลมาจากปัจจัยจากบุคคลรอบข้าง โดยซึ่งปัจจัยเรื่องเพื่อนรอบตัวมีผลต่อการเลิกใช้บุหรี่ โดยผลการศึกษาพบว่า มีเพื่อนสนิทที่สูบบุหรี่ไฟฟ้าคิดร้อยละ 51.70 อีกทั้งปัจจัยแวดล้อมรอบเพื่อนสนิทสูบบุหรี่ไฟฟ้ามีความสัมพันธ์กับการสูบบุหรี่ไฟฟ้าเนื่องจาก เพื่อนเป็นบุคคลที่มีความสำคัญต่อพฤติกรรมหรือการแสดงออกของวัยรุ่น การสูบบุหรี่ไฟฟ้าของเพื่อนจึงอาจส่งผลต่อการสูบบุหรี่ไฟฟ้าของวัยรุ่นเป็นอย่างยิ่ง เป็นไปในทิศทางเดียวกันกับงานวิจัยของ ภัควรินทร์ ภัทรศิริสมบูรณ์, โยธกานต์ แก้วกลม, ปวีณา เทพรักษ์, รุสซ์ดา สะมะแอ, หทัยรัตน์ ทับทิม และ วัชราภรณ์ แน่นอน (2566) และ จุฑามาศ มณีกุล, พรนภา หอมสินธุ์ และ รุงรัตน์ ศรีสุริยเวศน์

(2566) ที่กล่าวว่า กลุ่มตัวอย่างที่มีเพื่อนสูบบุหรี่มวนมีโอกาสเสี่ยงต่อการสูบบุหรี่ไฟฟ้าระยะแรกเป็น 2.64 เท่า (OR = 2.64, 95% CI = 1.430 - 4.861) ของกลุ่มที่ไม่มีเพื่อนสูบบุหรี่

ตัวแปรรายได้ของกลุ่มประชากรตัวอย่าง มีความสัมพันธ์ต่อพฤติกรรมการใช้บุหรี่ไฟฟ้าของกลุ่มประชากรตัวอย่าง รายได้ส่วนใหญ่ของกลุ่มประชากรตัวอย่างให้คำตอบว่าเพียงพอไม่เหลือเก็บ คิดเป็นร้อยละ 51.70 มีรายได้เพียงพอในการจัดหาซื้อสิ่งของบริโภคที่ต้องการซื้อในราคาที่เข้าถึงได้ง่าย การหาซื้อบุหรี่ไฟฟ้าง่าย คิดเป็นร้อยละ 37.10 ซึ่งสอดคล้องกับการศึกษาของ กิติพงษ์ เรือนเพ็ชร (2564) พบว่า นักศึกษาอาชีวศึกษา จังหวัดบุรีรัมย์ มีรายได้ที่ไม่เพียงพอและไม่เหลือเก็บ สูบบุหรี่ไฟฟ้าโดยอาศัยขอยืมของเพื่อนมาสูบ คิดเป็นร้อยละ 54 รายได้ของครอบครัวมีผลโดยตรงต่อปริมาณรายได้ของนักเรียนซึ่งอาจนำไปสู่การเข้าถึงการใช้บุหรี่ไฟฟ้าง่ายขึ้น (อัจฉราพร สี่หิรัญวงศ์, วิภานันท์ ม่วงสกุล, สุลีมาศ อังศุเกียรติถาวร, มธุรส ทิพยมงคลกุล และ ภาศิษฎา อ่อนดี, 2566) เป็นไปในทิศทางเดียวกับงานวิจัยของ พัชรินทร์ ยุพา, ธวัชชัย เอกสันติ, ศิริลักษณ์ เพียรธัญญะ, ศุภรัตน์ คงรอด, สิริยากร พันจันทึก และสุกัญญา ผลพิมาย (2567) ที่กล่าวว่า เงินที่ได้รับต่อเดือนมีความสัมพันธ์กับพฤติกรรมการสูบบุหรี่ไฟฟ้าอย่างมีนัยสำคัญทางสถิติ และการศึกษาของ อันกุง แซ่ลิ้ม และ สมสกาว เพชรรานันทน์ (2565) พบว่า ความยืดหยุ่นของราคาบุหรี่ไฟฟ้าและบุหรี่มวน บุหรี่ไฟฟ้าราคาถูกกว่าบุหรี่มวนเมื่อเปรียบเทียบระยะเวลาในการใช้งาน และความสะดวกของการใช้งาน พบว่า บุหรี่ไฟฟ้าแบบใช้แล้วทิ้งมีแนวโน้มในการใช้มากขึ้น เห็นได้ว่ารายได้ของกลุ่มประชากรตัวอย่างมีผลต่อพฤติกรรมการใช้บุหรี่ไฟฟ้า เนื่องจากกลุ่มประชากรตัวอย่างที่มีรายได้เพียงพอ ทำให้มีแนวโน้มในการสูบบุหรี่ไฟฟ้าที่มากขึ้น ส่วนกลุ่มประชากรตัวอย่างที่มีรายได้ไม่เพียงพอก็สามารถส่งผลให้เกิดพฤติกรรมการสูบบุหรี่ไฟฟ้าได้

ข้อเสนอแนะ

1. ควรมีการส่งเสริมการจัดกิจกรรมให้ความรู้ ปรับทัศนคติเกี่ยวกับบุหรี่ไฟฟ้า เพื่อเพิ่มความตระหนักในการรักษาสุขภาพของตนเองและคนรอบข้าง จะเห็นได้จากผลการศึกษาที่พบว่า ส่วนใหญ่กลุ่มประชากรตัวอย่างมีทัศนคติ และความเชื่อต่อการสูบบุหรี่ไฟฟ้าที่ถูกต้อง

2. ควรมีการสนับสนุนให้ทางมหาวิทยาลัยหาดใหญ่เพิ่มมาตรการเขตปลอดบุหรี่ไฟฟ้าในพื้นที่การศึกษามหาวิทยาลัยหาดใหญ่

เอกสารอ้างอิง

กรมควบคุมโรค. (2566). รายงานประจำปี 2566. นนทบุรี : กองงานคณะกรรมการควบคุมผลิตภัณฑ์ยาสูบ, กระทรวงสาธารณสุข.

กิติพงษ์ เรือนเพ็ชร, ปัณณทัต บนขุนทด, ถาวรีย์ แสงงาม, ปิยะอร รุ่งธณเกียรติ และ ศิริลักษณ์ สุวรรณวงษ์. (2564). บทบาทพยาบาลในการป้องกัน ลด ละ เลิกบุหรี่ไฟฟ้าในวัยรุ่น. วารสารศูนย์อนามัยที่ 9, 15(38), 4-5.

กิติพงษ์ เรือนเพ็ชร. (2564). ปัจจัยที่มีความสัมพันธ์กับการสูบบุหรี่ไฟฟ้าของนักศึกษาชายอาชีวศึกษา จังหวัด บุรีรัมย์ (วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต). มหาวิทยาลัยบูรพา, ชลบุรี.

จุฑามาศ มณีกุล, พรนภา หอมสินธุ์ และ รุงรัตน์ ศรีสุริยเวศน์. (2566). ปัจจัยที่มีความสัมพันธ์กับการสูบบุหรี่ไฟฟ้าในระยะแรกของนักเรียนมัธยมศึกษาตอนปลายจังหวัดฉะเชิงเทรา. พยาบาลสาร มหาวิทยาลัยเชียงใหม่, 50(4). 158-169.

จุฑามาศ มณีกุล. (2566). ปัจจัยที่มีความสัมพันธ์กับการสูบบุหรี่ไฟฟ้าในระยะแรกของนักเรียนมัธยมศึกษาตอนปลาย จังหวัดฉะเชิงเทรา (วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต). มหาวิทยาลัยบูรพา, ชลบุรี.

ชนิกา เจริญจิตต์กุล และ ชฎาภา ประเสริฐทรง. (2557). บุหรี่ไฟฟ้า: ภัยเงียบของวัยรุ่น. วารสารพยาบาลทหารบก, 15(3), 149-154

ชัชวรรณ ต๊ะผัด, ขจร ตรีโสภณากร และ สุชัญญา สุขสะอาด. (2566). ระดับความรู้ ทัศนคติและความตระหนักของครูระดับชั้นมัธยมศึกษาที่มีต่อปัญหาบุหรี่ไฟฟ้าของเยาวชนในเขตพื้นที่กรุงเทพมหานครและเขตพื้นที่ภาคกลางของประเทศไทย. วารสารวิชาการ มหาวิทยาลัยราชภัฏอุตรดิตถ์, 19(1), 3.

ปิยวรรณ บุญเพ็ญ, ภาวนา เมนทะระ และปิยชาติ บุญเพ็ญ. (2562). พฤติกรรมการสูบบุหรี่ไฟฟ้าและพฤติกรรมการเลิกสูบบุหรี่ของนักศึกษาระดับอุดมศึกษาในเขตกรุงเทพมหานคร. วารสารศรีนครินทรวิโรฒวิจัยและพัฒนา สาขามนุษยศาสตร์และสังคมศาสตร์, 11(22), 1-17.

พงษ์ศักดิ์ อ้นมอย, อาทิตยา บัวเรือง, ชนุตา พาโพนงาม, ธิรดา จันทร์รุ่งเรือง, นฤมล ลาวน้อย และ อัมพวัน บุญรอด. (2565). ปัจจัยที่มีความสัมพันธ์กับพฤติกรรมการสูบบุหรี่ไฟฟ้าของเยาวชนจังหวัดอุตรดิตถ์. วารสารวิชาการสาธารณสุข, 31(2), S197-S205.

พระมงคลธรรมวิธาน, ประสิทธิ์ สระทอง และ จักรี บางประเสริฐ. (2561). ปัจจัยที่เกี่ยวข้องกับพฤติกรรมการสูบบุหรี่ไฟฟ้าและพฤติกรรมการเลิกสูบบุหรี่ของวัยรุ่นในเขตการปกครองฝั่งธนบุรี กรุงเทพมหานคร. วารสารสาขามนุษยศาสตร์ สังคมศาสตร์ และศิลปะ, 11(2), 1-10.

พัชรินทร์ ยุพา, ธวัชชัย เอกสันติ, ศิริลักษณ์ เพียรธัญญะ, ศุภรัตน์ คงรอด, สิริยากร พันจันทึก และ สุกัญญา ผลพิมาย. (2567). ปัจจัยที่มีความสัมพันธ์กับการสูบบุหรี่ไฟฟ้าของนักศึกษา ระดับมหาวิทยาลัย จังหวัดนครราชสีมา. วารสารสหเวชศาสตร์ มหาวิทยาลัยราชภัฏสวนสุนันทา, 9(2). 51-69.

ภัควรินทร์ ภัทรศิริสมบูรณ์, โยธกานต์ แก้วกลม, ปวีณา เทพรักษ์, รุสช์ดา สะมะแอ, หทัยรัตน์ ทับทิม และ วัชราภรณ์ แน่นอน. (2567). ปัจจัยที่มีความสัมพันธ์กับการสูบบุหรี่ไฟฟ้าของนักศึกษาสถาบันแห่งหนึ่ง จังหวัดจันทบุรี. วารสารวิชาการนอร์ทเทิร์น, 11(3). 45-59.

ศิริพร พูลรักษ์. (2565). ผลของโปรแกรมการเลิกสูบบุหรี่ไฟฟ้าผ่านระบบออนไลน์ที่มีต่อความรู้ ทัศนคติ และความตั้งใจเลิกสูบบุหรี่ของนักศึกษามหาวิทยาลัยเอกชนแห่งหนึ่ง. วารสารพยาบาลมหาวิทยาลัยคริสเตียน, 9(1), 1-4.

สมเด็จ ภิมายกุล และ กนกวรรณ คชสีห์. (2566) ทัศนคติและพฤติกรรมการบริโภคบุหรี่ไฟฟ้ากับแนวทางการป้องกันการบริโภค บุหรี่ไฟฟ้าของนักศึกษามหาวิทยาลัยราชภัฏเชียงใหม่. วารสารวิจัยและพัฒนาระบบสุขภาพ, 16(3), 30-43.

สำนักงานราชบัณฑิตยสถาน. (2554). ระบบค้นหาคำศัพท์ “วัยรุ่น”. สืบค้นเมื่อวันที่ 10 เมษายน 2568 จาก https://dictionary.orst.go.th

สุวรรณา เรืองกาญจนเศรษฐ์, ภัศรา จงขจรพงษ์, วิชช์ เกษมทรัพย์, Stephen Hermann, เนาวรัตน์ เจริญค้า, วิทัศน์ ศิริโชติรัตน์ และวศิน พิพัฒนฉัตร. (2566). บุหรี่ไฟฟ้า มหันตภัยทำลายเยาวชน. วารสารวิชาการสาธารณสุข, 32(5), 2-4.

อัจฉราพร สี่หิรัญวงศ์, วิภานันท์ ม่วงสกุล, สุลีมาศ อังศุเกียรติถาวร, มธุรส ทิพยมงคลกุล และ ภาศิษฏา อ่อนดี. (2566). ความสัมพันธ์ระหว่างปัจจัยส่วนบุคคล ความเชื่อ และเจตคติ เกี่ยวกับบุหรี่ไฟฟ้ากับพฤติกรรมการใช้บุหรี่ไฟฟ้าและบุหรี่มวน ของเยาวชนไทย ในภาคกลาง กรุงเทพมหานครและปริมณฑล. วารสารแพทย์นาวี, 50(3). 579-594.

อันกุง แซ่ลิ้ม และ สมสกาว เพชรรานันทน์. (2565). การประมาณการค่าความยืดหยุ่นของบุหรี่ไฟฟ้าด้วยวิธีการจำลองขั้นตอนอุปสงค์: กรณีประเทศไทย. วารสารเศรษฐศาสตร์และกลยุทธ์การจัดการ, 9(2), 1-3.

การนำแนวทางการบริหารคุณภาพเชิงความเสี่ยงมาใช้ผ่านการบูรณาการ Sigma Metrics และการวางแผนการควบคุมคุณภาพในห้องปฏิบัติการเคมีคลินิก: การศึกษาย้อนหลัง

Implementation of Risk-based Quality Management Through Integration of Sigma Metrics and Quality Control Planning in Clinical Chemistry Laboratory: A Retrospective Study

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บทคัดย่อ

การตรวจวิเคราะห์ทางเคมีคลินิกมีบทบาทสำคัญในการตัดสินใจทางการแพทย์ และระบบบริหารคุณภาพห้องปฏิบัติการต้องอาศัยการประเมินความเสี่ยงและกลยุทธ์การปรับปรุงอย่างต่อเนื่อง การศึกษานี้ประยุกต์ใช้ Sigma Metrics (**σ**) ควบคู่กับการวิเคราะห์ความเสี่ยงและการวางแผนการควบคุมคุณภาพในห้องปฏิบัติการเคมีคลินิก โรงพยาบาลศูนย์การแพทย์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ องครักษ์ จังหวัดนครนายก ในการพัฒนาคุณภาพด้านการวิเคราะห์และลดระดับผลกระทบความเสี่ยง โดยเป็นการศึกษาย้อนหลังในการทดสอบจำนวน 21 รายการ โดยศึกษาข้อมูล Internal Quality Control (IQC) และ External Quality Assurance (EQA) ช่วงปี พ.ศ. 2565-2567 เพื่อประเมิน Sigma Metrics โดยนำการทดสอบที่มีค่า **σ** < 4 ไปประเมิน Quality Goal Index (QGI) ร่วมกับการประเมินความเสี่ยง การทดสอบที่มีระดับผลกระทบความเสี่ยงปานกลางขึ้นไป จะถูกนำไปวิเคราะห์สาเหตุรากเพื่อบูรณาการเข้าสู่แผนการควบคุมคุณภาพ จากการศึกษาพบว่า ในรอบการประเมินที่ 1/2567 พบรายการทดสอบที่มีค่า **σ** < 4 จำนวน 8 รายการ คิดเป็น 38.10% (8/21) ซึ่งสอดคล้องกับบันทึกสิ่งที่ไม่สอดคล้องต่อข้อกำหนดในระบบคุณภาพ เมื่อนำรายการทดสอบเหล่านี้ มาวิเคราะห์สาเหตุรากของปัญหาและประเมินความเสี่ยง พบว่า Sodium (Na) และ Chloride (Cl) มีความเสี่ยงระดับสูงและปานกลาง และจากการวิเคราะห์ QGI พบปัญหาด้านความ

แม่นยำและความถูกต้อง สาเหตุหลักมาจากการบำรุงรักษาที่ไม่เพียงพอและการรบกวนจากตัวอย่างที่มีโปรตีนสูง ภายหลังการปรับปรุงกระบวนการตามแผนควบคุมคุณภาพเฉพาะทั้ง 8 รายการทดสอบ และทำการประเมิน ในรอบที่ 2/2567 พบว่ามีรายการทดสอบที่มีค่า **σ** < 4 ลดลงเหลือ 2 รายการ (การทดสอบ Na และ Cl) คิดเป็น 9.52% (2/21) และมีความเสี่ยงระดับต่ำ ซึ่งเป็นระดับความเสี่ยงที่ลดลงอย่างมีนัยสำคัญการบูรณาการ Sigma Metrics กับการบริหารความเสี่ยงและการควบคุมคุณภาพอย่างเป็นระบบสามารถช่วยยกระดับประสิทธิภาพของห้องปฏิบัติการและความน่าเชื่อถือของผลวิเคราะห์เพื่อการตัดสินใจทางคลินิก

คำสำคัญ: Sigma Metrics, การบริหารความเสี่ยง, การวางแผนการควบคุมคุณภาพ

Abstract

Clinical chemistry testing plays a crucial role in medical decision-making, and laboratory quality management systems require continuous risk assessment and improvement strategies. This study applied Sigma metrics (**σ**) in conjunction with risk analysis and quality control planning in the clinical chemistry laboratory at Somdej Phra Thep Rattanaraj Suthap Hospital, Srinakharinwirot University Ongkharak, Nakhon Nayok, to enhance analytical quality and reduce risk impact levels. This retrospective study examined 21 tests using Internal Quality Control (IQC) and External Quality Assurance (EQA) data from 2022-2024 to evaluate Sigma metrics. Tests with **σ** < 4 were further assessed using Quality Goal Index (QGI) combined with risk assessment. Tests with moderate or higher risk impact levels were subjected to root cause analysis for integration into quality control plans. The results showed that in the assessment period of 1/2024, 8 tests (38.10%, 8/21) had **σ** < 4, which corresponded with nonconformity records in the quality system. When these tests were analyzed root cause analysis and risk assessment, Sodium (Na) and Chloride (Cl) were identified as having high and moderate risk levels. QGI analysis revealed issues with precision and accuracy primarily caused by insufficient maintenance and interference from high-protein samples. Following implementation of specific quality control improvement measures and reassessment for 8 tests in period of 2/2024, the number of tests with **σ** < 4 decreased to only two tests (Na and Cl), representing 9.52% (2/21), with low risk levels as significantly reduced risk levels. In conclusion, the integration of sigma metrics with risk management and systematic quality control can effectively enhance laboratory performance and the reliability of analytical results for clinical decision-making.

Keywords: Sigma Metrics, Risk Management, Quality Control Planning

บทนำ

ปัจจุบันการใช้ผลการตรวจวิเคราะห์ทางห้องปฏิบัติการมีความสำคัญต่อการวินิจฉัย ติดตามอาการพยากรณ์โรค และการตัดสินใจรักษาผู้ป่วย ผลการตรวจที่แม่นยำและถูกต้องจะช่วยเสริมสร้างความมั่นใจให้กับแพทย์และทำให้การรักษาผู้ป่วยเป็นไปอย่างมีประสิทธิภาพ (ราชวิทยาลัยพยาธิแพทย์แห่งประเทศไทย, 2567) อย่างไรก็ตาม ความผิดพลาดในกระบวนการตรวจวิเคราะห์สามารถเกิดขึ้นได้ในหลายขั้นตอน เช่น ก่อนการวิเคราะห์ การวิเคราะห์ และหลังการวิเคราะห์ โดยจากการศึกษาพบว่า ความผิดพลาดในขั้นตอนการวิเคราะห์มีอัตราอยู่ที่ร้อยละ 2.1 และเกิดจากการควบคุมคุณภาพภายใน (Internal Quality Control; IQC) ถึงร้อยละ 41.9 (Teshome et al., 2021) ซึ่งเป็นปัจจัยสำคัญที่ส่งผลต่อความแม่นยำของผลการตรวจมาตรฐาน ISO 15189:2022 Medical laboratories-Requirements for quality and competence ข้อ 7.3.7 Ensuring the validity of examination results (International Organization for Standardization [ISO], 2022) กำหนดให้ห้องปฏิบัติการต้องมีการควบคุมคุณภาพภายใน และการควบคุมคุณภาพโดยองค์กรภายนอก (External Quality Assurance; EQA) อย่างไรก็ตาม การใช้ IQC และ EQA เพียงอย่างเดียวอาจไม่เพียงพอในการรับประกันความถูกต้องของผลการตรวจวิเคราะห์ จึงมีการนำเครื่องมือเพิ่มเติม เช่น Sigma Metrics และ Quality Goal Index (QGI) มาใช้ในการควบคุมคุณภาพผลการตรวจ

Sigma Metrics เป็นเครื่องมือวัดคุณภาพที่ใช้ในห้องปฏิบัติการทางการแพทย์ ซึ่งอ้างอิงจากแนวคิด Six Sigma ในภาคอุตสาหกรรม โดยนำค่า Sigma Metrics มาประยุกต์ในการใช้วัดประสิทธิภาพของกระบวนการวิเคราะห์ทางห้องปฏิบัติการ ซึ่งบ่งชี้จำนวนข้อผิดพลาดหรือความเบี่ยงเบนที่อาจเกิดขึ้นในกระบวนการนั้น ๆ ค่า sigma metrics ยิ่งสูง แสดงว่ากระบวนการมีคุณภาพดี (กุลนารี สิริสาลี, ปานทิพย์ วัฒนวิบูลย์, วิจิตร วงค์ล่ำซำ และ โสภณ สิริสาลี, 2554) การประเมินระดับคุณภาพตามแนวคิด sigma metrics (Westgard & Westgard, 2017) สามารถจำแนกประสิทธิภาพของกระบวนการวิเคราะห์ออกเป็น 6 ระดับ และช่วยให้ห้องปฏิบัติการสามารถเลือกกลยุทธ์ในการควบคุมคุณภาพได้อย่างเหมาะสมตามแนวทาง Westgard's sigma rules ดังนี้ โดยระดับ ≥6σ แสดงถึงคุณภาพชั้นนำระดับโลก สามารถใช้กลยุทธ์การควบคุมคุณภาพแบบผ่อนปรน เช่น ใช้กฎ 13s และ QC 2 ระดับ วันละ 1 รอบ ส่วนระดับ 5–6σ แสดงถึงคุณภาพดีเยี่ยม ใช้กฎ 13s, 22s และ R4s พร้อม QC 2 ระดับ วันละ 1 รอบ ระดับ 4–5σ แสดงถึงคุณภาพดี ใช้กฎ 13s, 22s, R4s และ 41s ควบคู่ QC 2 ระดับ วันละ 2 รอบ หรือ QC ซ้ำระดับละ 2 ครั้ง วันละ 1 รอบ ขณะที่ระดับ 3–4σ จัดเป็นระดับต้องเฝ้าระวัง ใช้กฎควบคุมคุณภาพแบบเข้มงวด ได้แก่ 13s, 22s, R4s, 41s และ 8x พร้อม QC 2 ระดับ วันละ 4 รอบ หรือซ้ำระดับละ 2 ครั้ง วันละ 2 รอบสำหรับระดับ 2–3σ และ <2σ ซึ่งจัดเป็นคุณภาพต่ำและไม่ยอมรับได้ตามลำดับ จำเป็นต้องมีการควบคุมคุณภาพเข้มงวด พร้อมทั้งทบทวนและปรับปรุงกระบวนการ เช่น การบำรุงรักษาเครื่องมือ การฝึกอบรมบุคลากร และการทวนสอบผลวิเคราะห์ เพื่อยกระดับประสิทธิภาพของกระบวนการวิเคราะห์ให้สอดคล้องกับมาตรฐานคุณภาพที่กำหนด

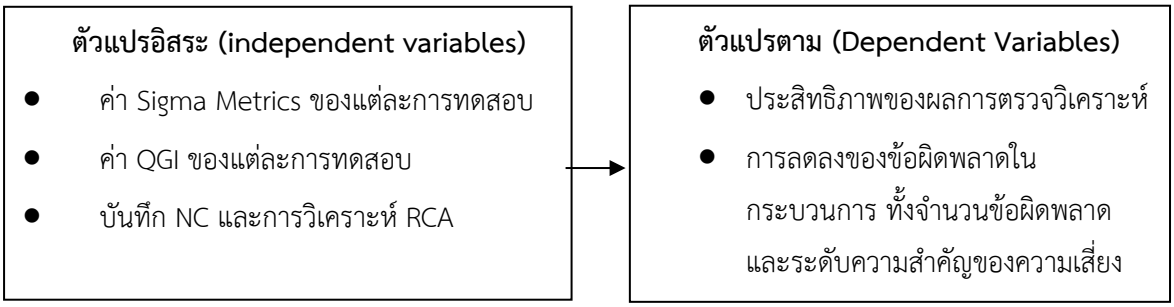
นอกจากนี้ งานวิจัยหลายชิ้น (Kumar & Mohan, 2018, Pradhan et al., 2022) ยังใช้ Quality Goal Index (QGI) ร่วมกับ Sigma Metrics เนื่องจาก QGI เป็นตัวชี้วัดคุณภาพที่ใช้เพื่อจำแนกประเภทของความคลาดเคลื่อนของผลการวิเคราะห์ว่าเกิดจากปัญหาด้านความแม่นยำ (Imprecision) ปัญหาด้านความถูกต้อง (Inaccuracy) หรือปัญหาทั้งสองด้าน การบูรณาการ Sigma Metrics ไม่เพียงแต่ใช้ในการบริหารด้านประสิทธิภาพของผลการตรวจวิเคราะห์ แต่ยังสามารถใช้ร่วมกับ QGI เพื่อระบุสาเหตุรากของความผิดพลาดเพื่อให้เกิดการพัฒนาและปรับปรุงคุณภาพอย่างต่อเนื่อง ซึ่งนำไปสู่การวิเคราะห์ข้อมูลอย่างมีประสิทธิภาพและการปรับปรุงกระบวนการอย่างตรงจุดเมื่อพบการทดสอบที่มีค่า Sigma Metrics น้อยกว่า 4 (Vyakaranam et al., 2024) ตามมาตรฐาน ISO 15189:2022 ยังคงมีข้อกำหนดเกี่ยวกับการติดตามและบันทึกสิ่งที่ไม่สอดคล้องกับข้อกำหนด (Nonconformity; NC) ช่วยในการแก้ไขปัญหาและพัฒนาคุณภาพผลการตรวจวิเคราะห์ และนำไปสู่การประเมินความเสี่ยง (Risk Assessment) ซึ่งการบริหารคุณภาพเชิงความเสี่ยงเป็นแนวทางที่มุ่งเน้นการระบุ ประเมิน ควบคุม และติดตามความเสี่ยงที่อาจส่งผลกระทบต่อคุณภาพของการบริการทางห้องปฏิบัติการ โดยเป็นเครื่องมือที่ช่วยจัดการกับความเสี่ยงและผลกระทบที่อาจเกิดขึ้น โดยสามารถวางแผนการควบคุมคุณภาพได้อย่างมีประสิทธิภาพ

ด้วยเหตุผลดังกล่าว ผู้วิจัยจึงทำการศึกษาการบูรณาการเครื่องมือหลายประเภท เช่น Sigma Metrics, QGI, Root Cause Analysis (RCA) และ Risk Assessment ในการวัดประสิทธิภาพ การจำแนกประเภทความคลาดเคลื่อน การหาสาเหตุราก และการประเมินความเสี่ยง มาเป็นแนวทางในการยกระดับประสิทธิภาพการตรวจวิเคราะห์ทางห้องปฏิบัติการ โดยมุ่งเน้นการทดสอบทางเคมีคลินิกจำนวน 21 รายการทดสอบ การศึกษานี้มีวัตถุประสงค์เพื่อวางแผนการควบคุมคุณภาพที่เหมาะสม ปรับปรุงกระบวนการวิเคราะห์ และลดความเสี่ยงในการทดสอบเคมีทางคลินิกอย่างเป็นระบบ

วัตถุประสงค์ของการวิจัย

1. เพื่อค้นหาปัญหาและปัจจัยเสี่ยงที่ส่งผลต่อการทดสอบที่มีค่า Sigma Metrics น้อยกว่า 4 ซึ่งเป็นการทดสอบที่จัดอยู่ในระดับคุณภาพต้องได้รับการปรับปรุง โดยใช้ Quality Goal Index และ Root Cause Analysis (RCA) เพื่อปรับปรุงคุณภาพของกระบวนการวิเคราะห์
2. เพื่อศึกษาแนวทางการควบคุมคุณภาพภายในที่นอกเหนือจากวิธีดั้งเดิม โดยอาศัยการบันทึกสิ่งที่ไม่สอดคล้องต่อข้อกำหนด (Nonconformities; NC) ของ IQC อย่างเป็นระบบ ร่วมกับ RCA และการประเมินความเสี่ยง เพื่อช่วยระบุรากของปัญหาและลดระดับความเสี่ยงในกระบวนการตรวจวิเคราะห์

กรอบแนวคิดงานวิจัย



ภาพที่ 1 กรอบแนวคิดงานวิจัย

วิธีดำเนินการวิจัย

1. ขอบเขตการศึกษา

การศึกษาเป็นแบบ Retrospective Study วิเคราะห์ข้อมูลย้อนหลังของห้องปฏิบัติการเคมีคลินิก โรงพยาบาลศูนย์การแพทย์สมเด็จพระเทพรัตนราชสุดาฯ สยามบรมราชกุมารี คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ องครักษ์ จังหวัดนครนายก

1.1 ศึกษาข้อมูลการควบคุมคุณภาพภายใน (Internal Quality Control; IQC) ปี พ.ศ. 2565-2567

1.2 ศึกษาข้อมูลการควบคุมคุณภาพโดยองค์กรภายนอก (External Quality Assurance; EQA) ปี พ.ศ. 2565-2567

1.3 ศึกษาบันทึกสิ่งที่ไม่สอดคล้องกับข้อกำหนดด้านการควบคุมคุณภาพภายใน ปี พ.ศ. 2567

2. กลุ่มตัวอย่าง (Sample Selection)

2.1 ศึกษาการทดสอบทางเคมีคลินิกที่เปิดให้บริการในห้องปฏิบัติการเคมีคลินิก จำนวน 21 รายการ

2.2 ศึกษาการทดสอบที่ให้ผลลัพธ์ Sigma Metrics น้อยกว่า 4

3. การเก็บรวบรวมข้อมูล (Data Collection)

เก็บรวบรวมข้อมูลการควบคุมคุณภาพ IQC จากงานประจำวัน และข้อมูลการควบคุณภาพ EQA ที่เข้าร่วมกับองค์กรภายนอกประจำเดือน โดยรวบรวมข้อมูลสถิติดังนี้

3.1 ค่าสัมประสิทธิ์ความแปรผัน (coefficient of Variation; CV) จากผล IQC

3.2 ค่าความคลาดเคลื่อนเชิงระบบ (bias) โดยเปรียบเทียบกับค่าเป้าหมาย EQA

3.3 ค่า total error allowable (TEa) จากแหล่งอ้างอิง CLIA ที่ปรากฏในเอกสาร Final rule: Clinical Laboratory Improvement Amendments (CLIA) proficiency testing—Analytes and acceptable performance

4. การวิเคราะห์ข้อมูล (Data Analysis)

4.1 การคำนวณ Sigma Metrics

ประเมินประสิทธิภาพของผลการตรวจวิเคราะห์ 21 รายการทดสอบ ได้แก่ Glucose (GLU), Blood Urea Nitrogen (BUN), Creatinine (CREA), Sodium (Na), Potassium (K), Chloride (Cl), Total protein (TP), Albumin (ALB), Direct bilirubin (DBIL), Total bilirubin (TBIL), Aspartate transaminase (AST), Alanine transaminase (ALT), Alkaline phosphatase (ALP), Calcium (Ca), Magnesium (Mg), Phosphorus (Phos), Cholesterol (CHOL), Triglyceride (TG), High Density Lipoprotein (HDL), Direct Low-Density Lipoprotein Cholesterol (Direct LDL) และ Uric acid (UA) โดยใช้สูตรคำนวณตามสมการนี้

$$\text{sigma metrics} = \frac{\%TEa - \%Bias}{\%\ CV}$$

จัดระดับประสิทธิภาพ/คุณภาพของผลการตรวจวิเคราะห์ตามเกณฑ์ดังนี้

sigma metrics ≥ 6: ระดับคุณภาพชั้นนำระดับโลก (World-class quality)

5 ≥ sigma metrics < 6: ระดับคุณภาพดีเยี่ยม (Excellent)

4 ≥ sigma metrics < 5: ระดับคุณภาพดี (Good)

3 ≥ sigma metrics < 4: ระดับคุณภาพพอใช้หรือระดับที่ต้องเฝ้าระวัง (Marginal)

2 ≥ sigma metrics < 3: ระดับคุณภาพต่ำ (Poor)

sigma metrics < 2: ระดับคุณภาพไม่ยอมรับได้ (Unacceptable)

4.2 คำนวณค่า quality goal index (QGI)

จำแนกปัจจัยปัญหาในการทดสอบที่ได้ sigma metrics น้อยกว่า 4 ใช้สูตรคำนวณตามสมการดังนี้

$$QGI = \frac{\%Bias}{1.5x\%CV}$$

การแปลผลค่า QGI

QGI < 0.8: ความไม่แม่นยำ (imprecision) เป็นสาเหตุหลัก

QGI ระหว่าง 0.8 - 1.2: ทั้งความไม่แม่นยำและความไม่ถูกต้อง

QGI > 1.2: ความไม่ถูกต้อง (inaccuracy) เป็นสาเหตุหลักของ

4.3 การวิเคราะห์ความเสี่ยงโดยใช้เครื่องมือ Risk matrix

ประเมินความเสี่ยง (Risk Assessment) ในการทดสอบที่คำนวณได้ค่า Sigma Metrics น้อยกว่า 4 ตามแนวทางสถาบันรับรองคุณภาพสถานพยาบาล (องค์การมหาชน) โดยจะพิจารณาจากระดับความเสี่ยงจากระดับโอกาสเกิด ระดับผลกระทบ เพื่อนำไปประเมินผลกระทบความเสี่ยง โดยการประเมินความเสี่ยงสามารถประเมินได้จาก Risk Matrix (สถาบันรับรองคุณภาพสถานพยาบาล, ม.ป.ป.) ดังภาพที่ 2

ความรุนแรงของเหตุการณ์/ผลที่เกิดขึ้นตามมา (Consequence)		โอกาสเกิดเหตุการณ์/ความถี่ (Likelihood)				
		อาจเกิด 1 ครั้งใน 2-5 ปี	อาจเกิด 1 ครั้งต่อปี	เกิดเกือบทุกเดือน	เกิดเกือบทุกสัปดาห์	เกิดเกือบทุกวัน
		Remote (1)	Uncommon (2)	Occasional (3)	Probable (4)	Frequent (5)
I, 5	Catastrophic (5)	5	10	15	20	25
H, 4	Major (4)	4	8	12	16	20
G, 3	Moderate (3)	3	6	9	12	15
E-F, 2	Minor (2)	2	4	6	8	10
A-D, 1	Negligible (1)	1	2	3	4	5

*สีเขียว= เสี่ยงต่ำ, สีเหลือง=เสี่ยงปานกลาง, สีส้ม=เสี่ยงสูง, สีแดง=เสี่ยงสูงมาก

ภาพที่ 2 การวิเคราะห์ความเสี่ยง Risk Matrix แบบ 5x5

นำความรุนแรงของเหตุการณ์/ผลที่เกิดขึ้นตามมา (Consequence) คูณด้วย โอกาสเกิดเหตุการณ์/ความถี่ (Likelihood) ตามตาราง Risk Matrix จะได้เป็น Risk Level คือระดับความสำคัญของความเสี่ยง จัดได้ 4 ระดับ ได้แก่

สีเขียว = ความเสี่ยงระดับต่ำ (Low Risk)

สีเหลือง = ความเสี่ยงระดับปานกลาง (Moderate Risk)

สีส้ม = ความเสี่ยงระดับสูง (High Risk)

สีแดง = ความเสี่ยงระดับสูงมาก (Extreme Risk)

เมื่อประเมินระดับความสำคัญของความเสี่ยงแล้วนั้น จะต้องมีการติดตามและทบทวนความเสี่ยงที่เกิดขึ้น โดยจะต้องวิเคราะห์หาสาเหตุราก (Root Case Analysis) เพื่อป้องกันการเกิดซ้ำการทดสอบที่ประเมินได้ระดับความสำคัญของความเสี่ยงที่ระดับผลกระทบความเสี่ยงตั้งแต่ “ปานกลาง” ขึ้นไปค้นหาแนวทางป้องกันต่อไป

4.4 การวิเคราะห์สาเหตุราก (Root Cause Analysis)

หารากของปัญหาในการทดสอบระดับความสำคัญของความเสี่ยงที่ระดับตั้งแต่ “ปาน-กลาง” ขึ้นไป โดยใช้เครื่องมือ Fish’s Bone Diagram

4.5 นำผลวิเคราะห์ไปใช้ปรับปรุงคุณภาพ (Implementation of Quality Improvement) จัดทำแผนควบคุมคุณภาพ (Quality Control Plan; QCP) เพื่อป้องกันปัญหา และลดความเสี่ยงที่เกิดขึ้น

4.6 วิเคราะห์ผลลัพธ์หลังการปรับปรุงกระบวนการเพื่อประเมินผลลัพธ์ โดยประเมินตาม 2 หัวข้อดังนี้

4.6.1 ประเมินประสิทธิภาพของการทดสอบโดยใช้ Sigma Metrics เป็นตัวชี้วัด

4.6.2 ประเมิน Quality Control Plan (QCP) ที่เหมาะสมกับห้องปฏิบัติการจากระดับผลกระทบความเสี่ยง

ผลการวิจัย

1. ผลการคำนวณ Sigma Metrics

จากการศึกษารายการทดสอบจำนวน 21 รายการทดสอบ ประเมินประสิทธิภาพแต่ละการทดสอบ โดยใช้ค่า Sigma Metrics สามารถแสดงระดับประสิทธิภาพแต่ละการทดสอบ เพื่อเฝ้าระวังการทดสอบที่ Sigma Metrics น้อยกว่า 4 ผลดังแสดงตามตารางที่ 1

ตารางที่ 1 ค่า Sigma Metrics 21 รายการทดสอบ ตั้งแต่ปี 2565-2567

Test	QC Level	%TEa	2565			2566		2567	
			1st	2nd	3rd	1st	2nd	1st	2nd
ALB	I	10	4.41	4.13	3.49	5.56	3.67	2.82	5.43
	II	10	5.63	2.99	3.11	9.05	6.29	3.53	6.01
ALP	I	30	5.04	5.44	5.19	9.30	8.25	9.43	6.74
	II	30	7.56	8.88	10.08	7.73	10.34	10.81	8.42
ALT	I	20	6.62	6.01	6.22	6.82	6.72	6.32	6.06
	II	20	9.28	7.36	9.36	10.35	10.20	6.20	6.00
AST	I	20	6.35	6.44	5.54	9.48	6.54	8.87	7.27
	II	20	9.95	8.84	10.06	8.05	8.42	9.72	7.76
DBIL	I	20	8.61	5.98	7.56	13.65	7.69	5.43	5.20
	II	20	7.99	6.37	8.41	8.13	9.20	5.90	6.12
TBIL	I	20	6.59	5.71	7.84	5.48	5.67	6.70	6.13
	II	20	7.36	4.60	5.85	10.87	11.24	8.27	6.93
Ca	I	8.3	3.68	2.79	1.57	8.15	6.04	3.85	5.03
	II	8.3	2.53	4.33	1.47	6.00	5.56	3.29	5.36
Cl	I	5	1.05	1.75	1.30	3.13	3.16	2.33	1.93
	II	5	1.74	1.42	1.68	2.81	2.84	2.58	2.14
HDL	I	30	13.36	9.61	14.80	29.48	6.60	14.59	11.77
	II	30	15.59	13.63	20.38	13.24	13.78	15.98	12.94
Direct LDL	I	15	6.11	5.16	7.15	8.60	9.68	5.93	5.19
	II	15	7.65	5.98	10.00	5.76	8.25	6.32	5.05
CHOL	I	10	4.81	3.19	4.25	6.29	5.83	3.99	4.19
	II	10	4.64	2.84	3.54	4.97	4.61	5.52	5.41
CREA	I	15	6.75	5.10	12.78	14.15	5.86	9.12	6.70
	II	15	10.65	4.42	10.08	10.39	6.19	10.95	7.36
GLU	I	10	7.21	4.79	6.94	4.82	7.65	3.46	6.42
	II	10	7.02	4.26	6.76	4.34	6.90	5.67	6.26

ตารางที่ 1 (ต่อ)

Test	QC Level	%TEa	2565			2566		2567	
			1st	2nd	3rd	1st	2nd	1st	2nd
Mg	I	25	10.64	8.22	14.41	13.03	7.51	11.34	11.07
	II	25	6.50	9.94	24.22	13.38	15.36	14.64	12.57
Phos	I	12.3	6.46	4.52	7.10	11.36	6.05	3.88	6.61
	II	12.3	4.71	5.41	9.20	7.02	6.47	3.88	5.49
K	I	12.3	8.94	5.83	3.03	13.76	6.83	9.23	8.21
	II	12.3	7.73	5.36	5.12	8.42	8.40	9.63	8.73
TP	I	10	5.34	4.54	5.00	12.35	4.97	5.95	5.81
	II	10	4.23	7.06	7.41	8.33	6.75	6.37	6.15
Na	I	3.1	0.88	0.82	0.57	3.11	2.87	1.11	1.54
	II	3.1	1.04	0.68	0.89	1.82	1.68	1.17	1.53
TG	I	25	9.55	7.31	14.63	15.16	10.68	16.98	11.59
	II	25	9.05	7.55	9.57	18.65	18.06	13.88	17.81
BUN	I	9	4.26	4.28	2.65	3.97	4.12	2.89	5.15
	II	9	2.84	4.06	2.86	3.88	3.99	1.14	4.63
UA	I	17	8.83	6.39	8.88	23.28	7.08	15.65	9.51
	II	17	13.88	7.89	13.95	12.11	12.38	12.33	9.40

ผลประเมินประสิทธิภาพแต่ละระดับ Sigma Metrics โดยคำนวณเป็นร้อยละแต่ละระดับ เพื่อศึกษาพัฒนาการของประสิทธิภาพของวิธีวิเคราะห์ ดังแสดงในตารางที่ 2

ตารางที่ 2 ร้อยละค่า Sigma Metrics

Sigma metrics	รอบ	Sigma ≥ 6		5≥Sigma<6		4≥Sigma<5		sigma<4	
		I	II	I	II	I	II	I	II
ปี 2565	1st	61.90	61.90	9.52	4.76	14.29	14.29	14.29	19.05
	2nd	28.57	42.86	28.57	14.29	23.81	23.81	19.05	19.05
	3rd	52.38	61.90	9.52	9.52	9.52	0.00	28.57	28.57
ปี 2566	1st	71.43	66.67	9.52	9.52	4.76	9.52	14.29	14.29
	2nd	61.90	76.19	14.29	4.76	9.52	4.76	14.29	14.29
ปี 2567	1st	47.62	57.14	14.29	14.29	0.00	0.00	38.10	28.57
	2nd	66.67	61.90	19.05	23.81	4.76	4.76	9.52	9.52

จากตารางที่ 2 การประเมินประสิทธิภาพของ 21 รายการทดสอบระหว่างปี พ.ศ. 2565–2567 ดำเนินการปีละ 2 รอบ ยกเว้นปี พ.ศ. 2565 ที่มี 3 รอบ เนื่องจากมีการเปลี่ยน Lot ของสารควบคุมคุณภาพ โดยวิเคราะห์จากรายการทดสอบที่มีค่า Sigma Metrics < 4 (พิจารณาจาก Control Level ที่ต่ำที่สุด)

ซึ่งเป็นระดับที่ต้องการการปรับปรุงคุณภาพผลการวิเคราะห์พบว่า ในรอบที่ 3/2565 มีสัดส่วนรายการที่มี Sigma Metrics < 4 เพิ่มขึ้นจากร้อยละ 19.05 เป็น ร้อยละ 28.57 ขณะที่ในปี 2566 ลดลงเหลือร้อยละ 14.29 สะท้อนถึงการปรับปรุงคุณภาพอย่างต่อเนื่อง อย่างไรก็ตาม ในรอบที่ 1/2567 อัตราดังกล่าวเพิ่มขึ้นเป็นร้อยละ 38.10 โดยพบ 8 รายการที่มีค่า Sigma ต่ำ ได้แก่ GLU, BUN, Phos, Ca, CHOL, ALB, Na และ Cl แต่ในรอบที่ 2/2567 จำนวนลดลงเหลือเพียง 2 รายการ (Na และ Cl) คิดเป็นร้อยละ 9.52 ของทั้งหมด การวิเคราะห์ทางสถิติด้วย Fisher's Exact Test ระหว่างรอบที่ 1 และ 2/2567 พบค่า $p < 0.05$ แสดงถึงความแตกต่างอย่างมีนัยสำคัญทางสถิติ สะท้อนประสิทธิผลของการปรับปรุงกระบวนการควบคุมคุณภาพในปี 2567.

2. ผลการคำนวณ Quality Goal Index การทดสอบที่มี Sigma น้อยกว่า 4

ผลการวิเคราะห์จำแนกปัญหา ด้วยการคำนวณ QGI ปี 2567 ซึ่งเป็นปีที่สะท้อนให้เห็นถึงการปรับปรุงกระบวนการที่มีประสิทธิภาพ แสดงดังในตารางที่ 3

ตารางที่ 3 ปัญหาจากการคำนวณ Quality Goal Index

ปี	รอบ	Test	Sigma metrics	QGI	Problem
2567	1st	ALB	2.82	1.56	Inaccuracy
		Ca	3.29	1.47	Inaccuracy
		Cl	2.33	1.29	Inaccuracy
		CHOL	3.99	0.53	Imprecision
		GLU	3.46	0.64	Imprecision
		Phos	3.88	2.02	Inaccuracy
		Na	1.11	0.82	Imprecision & Inaccuracy
		BUN	1.14	0.63	Imprecision
	2nd	Cl	1.93	1.47	Inaccuracy
		Na	1.53	0.58	Imprecision

ในรอบการประเมิน 1/2567 พบว่าปัญหาด้านความแม่นยำ (Imprecision) ในการทดสอบ CHOL, GLU และ BUN ส่วนปัญหาด้านความถูกต้อง (Inaccuracy) พบในการทดสอบ ALB, Ca, Cl, และPhos นอกจากนี้ ยังพบทั้งปัญหาด้านความแม่นยำและความถูกต้องในการทดสอบ Na หลังจากได้ดำเนินการปรับปรุงกระบวนการวิเคราะห์และติดตามประสิทธิภาพอย่างต่อเนื่อง ผลการประเมินในรอบ 2/2567 พบว่า จำนวนรายการทดสอบที่มีปัญหาลดลงอย่างมีนัยสำคัญ โดยยังคงพบปัญหาด้านความแม่นยำเฉพาะในการทดสอบ Na และปัญหาด้านความถูกต้องในการทดสอบ Cl

ทั้งนี้ จากการทบทวนบันทึกสิ่งที่ไม่สอดคล้องต่อข้อกำหนด (Nonconformities) ย้อนหลังในปี พ.ศ. 2567 พบว่ามีการบันทึกกรณีผลการควบคุมคุณภาพภายใน (Internal Quality Control, IQC) ออก

นอกเกณฑ์ที่กำหนดไว้ตามแนวทาง Westgard's Sigma Rules ของแต่ละการทดสอบ ซึ่งบ่งชี้ที่มีความเสี่ยงต่อความผิดพลาดและความคลาดเคลื่อนในการรายงานผลการวิเคราะห์ทั้งสิ้น 8 รายการทดสอบ ได้แก่ Na, Cl, GLU, BUN, Phos, Ca, CHOL และ ALB ซึ่งข้อมูลดังกล่าวมีความสอดคล้องกับผลการประเมินประสิทธิภาพด้วย Sigma Metrics ที่กล่าวไปในข้างต้นว่ารายการทดสอบทั้ง 8 รายการ มีค่า Sigma Metrics น้อยกว่า 4 ผลการศึกษานี้แสดงให้เห็นว่าการทดสอบที่มีค่า Sigma Metrics น้อยกว่า 4 จำเป็นต้องได้รับการดำเนินการประเมินความเสี่ยง (Risk Assessment) และจัดการความเสี่ยงอย่างเหมาะสมต่อไป

3. ผลการวิเคราะห์ความเสี่ยงโดย Risk Matrix และวิเคราะห์สาเหตุราก

นำรายการทดสอบทั้ง 8 รายการที่มีค่า Sigma Metrics น้อยกว่า 4 และมีบันทึกการเกิดสิ่งที่ไม่สอดคล้องต่อข้อกำหนด (Nonconformities) มาวิเคราะห์หาสาเหตุราก (Root Cause Analysis) โดยใช้แผนภูมิก้างปลา (Fishbone's Diagram) และดำเนินการวิเคราะห์ความเสี่ยง (Risk Analysis) เพื่อประเมินระดับความสำคัญของความเสี่ยง (Risk Priority) โดยใช้ตารางประเมินความเสี่ยงแบบเมทริกซ์ 5×5 (5×5 Risk matrix) ดังแสดงในตารางที่ 4

ตารางที่ 4 ประเมินความเสี่ยง

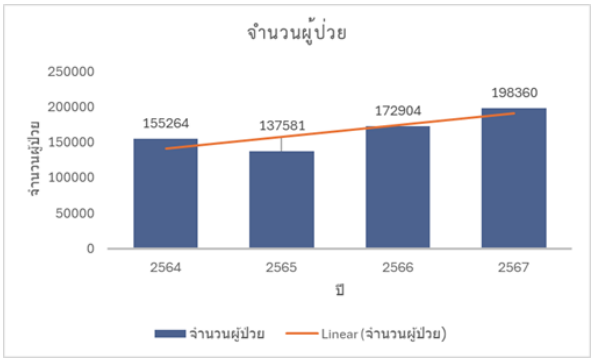
การทดสอบ	Sigma Metrics	รากปัญหา	โอกาสเกิด	ผลกระทบ	ระดับความเสี่ยง	ผลกระทบความเสี่ยง
Na,Cl	σ<4	โปรตีนปนเปื้อนจากสิ่งส่งตรวจที่มีค่าโปรตีนในเลือดสูง เช่น ในผู้ป่วย Multiple myeloma	3	3	9	สูง
		การเพิ่มขึ้นของปริมาณผู้ป่วย	2	3	6	ปานกลาง
BUN	σ<4	เปลี่ยน Pack น้ำยา แต่ไม่มีการ Calibration	1	2	2	ต่ำ
Phos	σ<4	ความเสถียรของน้ำยาต่ำลงเนื่องจากน้ำยาแพคใหญ่	1	2	2	ต่ำ
Ca	σ<4	ความเสถียรของน้ำยาต่ำลงเนื่องจากน้ำยาแพคใหญ่	1	2	2	ต่ำ
CHOL	σ<4	ความเสถียรของน้ำยาต่ำลงเนื่องจากน้ำยาแพคใหญ่	1	2	2	ต่ำ
ALB	σ<4	ความเสถียรของน้ำยาต่ำลง	1	2	2	ต่ำ
GLU	σ<4	ความเสถียรของน้ำยาต่ำลงเนื่องจากน้ำยาแพคใหญ่	1	2	2	ต่ำ

จากการประเมินความเสี่ยงพบว่า มี 2 รายการทดสอบจากทั้งหมด 8 รายการทดสอบ ได้แก่ Na และ Cl ซึ่งถูกจัดอยู่ในความเสี่ยงระดับสูงและความเสี่ยงระดับปานกลาง โดยสาเหตุรากปัญหาของ Na และ Cl ที่ถูกจัดอยู่ในความเสี่ยงระดับสูงและระดับปานกลาง สามารถแยกเป็น 2 สาเหตุหลัก คือ 1) ภาวะโปรตีนในเลือดสูง (Hyperproteinemia) ซึ่งพบในผู้ป่วย Multiple Myeloma ทำให้เกิดการรบกวนการวิเคราะห์ (Analytical Interference) ผลกระทบความเสี่ยงระดับ "สูง" และ 2) การเพิ่มขึ้นของปริมาณตัวอย่างส่งตรวจจากจำนวนผู้ป่วยที่เพิ่มขึ้น ผลกระทบความเสี่ยงระดับ "ปานกลาง"

4. ผลการวิเคราะห์สาเหตุรากโดยใช้แผนภูมิก้างปลา (Fishbone's Diagram) พบรายละเอียดดังนี้

4.1 ความเสี่ยงระดับสูง: เกิดจากภาวะโปรตีนในเลือดสูงในตัวอย่างส่งตรวจจากผู้ป่วย Multiple myeloma ซึ่งพบบันทึกอุบัติการณ์ความเสี่ยง (Risk Incident) จำนวน 1 ครั้งต่อเดือน

4.2 ความเสี่ยงระดับปานกลาง: เกิดจากการเพิ่มขึ้นของจำนวนผู้ป่วย โดยพบว่าจำนวนผู้ป่วยเพิ่มขึ้นจาก 137,581 ราย ในปี พ.ศ. 2565 เป็น 172,904 ราย ในปี พ.ศ. 2566 คิดเป็นร้อยละ 25.67 และในปี พ.ศ. 2567 จำนวนผู้ป่วยเพิ่มขึ้นเป็น 198,360 ราย คิดเป็นการเพิ่มขึ้นร้อยละ 44.18 เมื่อเทียบกับปี พ.ศ. 2565 ซึ่งเป็นช่วงที่มีสถานการณ์การระบาดของโรคโควิด-19 ดังแสดงในภาพที่ 3



ภาพที่ 3 แสดงการเพิ่มขึ้นของจำนวนผู้ป่วยหลังปี 2565 ที่มีสถานการณ์โควิดระบาด

5. จัดทำแผนควบคุมคุณภาพ (Quality Control Plan; QCP)

5.1 การปนเปื้อนโปรตีนจากผู้ป่วย Multiple Myeloma

พบปัญหาการรบกวนการทำงานของเครื่องวิเคราะห์อิเล็กโทรไลต์ที่ใช้หลักการ Indirect ion-selective Electrode (ISE) จากการปนเปื้อนโปรตีนในตัวอย่างผู้ป่วย Multiple Myeloma ส่งผลให้ค่าการทดสอบ Na และ Cl คลาดเคลื่อน เนื่องจากการสะสมของโปรตีนในระบบล้างรบกวนหัววัดอิเล็กโทรด จึงดำเนินมาตรการแก้ไข ได้แก่ 1) ประสานงานกับหน่วยแพทย์ให้ระบุคำเตือนเมื่อตรวจผู้ป่วยกลุ่มนี้ 2) พัฒนากระบวนการคัดกรองคุณภาพตัวอย่างโดยตรวจสอบลักษณะพลาสมาหลังปั่นแยก (3,000 RPM, 10 นาที) หลีกเลี่ยงการใช้ตัวอย่างที่มีลักษณะก้อนวุ้นซึ่งอาจก่อให้เกิดการอุดตันระบบวิเคราะห์

5.2 การจัดการภาระงานจากจำนวนผู้ป่วยที่เพิ่มขึ้น

เพื่อลดผลกระทบจากภาระงานที่เพิ่มขึ้น ได้มีการเพิ่มความถี่ของการบำรุงรักษาเชิงป้องกันสำหรับเครื่องวิเคราะห์อิเล็กโทรไลต์ (ISE) โดยปรับจากทุก 3 เดือน เป็นรายเดือนภายใต้คำแนะนำของผู้เชี่ยวชาญจากบริษัทผู้ผลิต เพื่อรักษาความแม่นยำและความคงที่ของเครื่องมือภายใต้ภาระงานที่เพิ่มขึ้น

6. ผลการปรับปรุงคุณภาพหลังปรับปรุงกระบวนการ การประเมินประสิทธิผลของมาตรการแก้ไขและป้องกัน โดยประเมินทั้งประสิทธิภาพของผลการตรวจวิเคราะห์ด้วยการประเมิน Sigma Metrics ร่วมกับการวิเคราะห์สาเหตุราก และประเมินระดับผลกระทบความเสี่ยง พบว่า Sigma Metrics มีค่าสูงขึ้น และระดับผลกระทบความเสี่ยงลดลง หลังการปรับปรุงกระบวนการ ดังแสดงในตารางที่ 5 และ ตารางที่ 6

ตารางที่ 5 Sigma Metrics หลังจากทำ RCA

การทดสอบ		Na	Cl	BUN	Phos	Ca	CHOL	ALB	GLU	TBIL
Sigma metrics	ก่อนปรับปรุง	1.11	2.33	1.14	3.88	3.29	3.99	2.82	3.46	6.7
	หลังปรับปรุง	1.53	1.93	4.63	5.49	5.03	4.19	5.43	6.26	6.03

ตารางที่ 6 ประเมินประสิทธิภาพหลังปรับปรุงกระบวนการ

การทดสอบ	ปัญหา	ระดับความเสี่ยงก่อนการจัดการความเสี่ยง				ระดับความเสี่ยงหลังการจัดการความเสี่ยง			
		โอกาสเกิด	ระดับผลกระทบ	ระดับความเสี่ยง	ผลกระทบความเสี่ยง	โอกาสเกิด	ระดับผลกระทบ	ระดับความเสี่ยง	ผลกระทบความเสี่ยง
Na,Cl	โปรตีนปนเปื้อน	3	3	9	สูง	1	3	3	ปานกลาง
Na,Cl	จำนวนผู้ป่วยเพิ่มขึ้น	2	3	6	ปานกลาง	1	2	2	ต่ำ

อภิปรายผล

ผลการศึกษานี้แสดงให้เห็นถึงประสิทธิภาพของการบูรณาการ Sigma Metrics ร่วมกับการบริหารความเสี่ยงในการพัฒนาคุณภาพห้องปฏิบัติการเคมีคลินิก โดยใช้ Sigma Metrics เป็นตัวชี้วัดในการประเมินประสิทธิภาพของกระบวนการทดสอบ และเป็นแนวทางในการระบุสาเหตุรากของปัญหาที่ส่งผลต่อความเสี่ยงในผลการตรวจวิเคราะห์ในรอบการประเมินที่ 1/2567 พบรายการทดสอบที่มีค่า Sigma Metrics < 4 จำนวน 8 รายการ ซึ่งสอดคล้องกับรายการ Nonconformities ที่ไม่ผ่านเกณฑ์ IQC ตามแผนควบคุมคุณภาพ สะท้อนว่าค่าดังกล่าวมีความสัมพันธ์กับความเสี่ยงต่อความผิดพลาดในผลทดสอบ ทั้งนี้ สอดคล้องกับข้อเสนอของ Westgard และคณะ (2014) ที่ที่ระบุว่า การทดสอบที่มีค่า Sigma Metrics ต่ำกว่า 4 จำเป็นต้องมีกลยุทธ์ควบคุมคุณภาพที่เข้มงวด เช่น การใช้ Multi-Rules, เพิ่มความถี่ในการตรวจ QC และจำนวน Control Materials เพื่อเพิ่มความไวในการตรวจจับข้อผิดพลาดในทางกลับกัน หากค่า Sigma Metrics อยู่ในช่วง 4–5 สามารถลดระดับความเข้มงวดของกฎ QC ได้บางส่วน ขณะที่ระดับ ≥6 อาจใช้เพียงกฎเดี่ยวและลดความถี่ในการควบคุมคุณภาพโดยยังคงความเชื่อมั่นในผลตรวจได้ การบูรณาการดังกล่าวแสดงให้เห็นถึงแนวทางที่มีประสิทธิภาพในการยกระดับคุณภาพของกระบวนการวิเคราะห์ในห้องปฏิบัติการอย่างเป็นระบบ

ทั้งนี้ จำนวน 8 รายการทดสอบดังกล่าว ได้ถูกนำมาวิเคราะห์ลักษณะปัญหาที่เกิดขึ้นผ่านเครื่องมือ QGI และถูกนำมาประเมินความเสี่ยง เพื่อดูระดับความเสี่ยงเพื่อวิเคราะห์สาเหตุรากของปัญหาและทำการควบคุมระดับความเสี่ยงต่อไป ซึ่งพบว่ามีการทดสอบจำนวน 2 รายการได้แก่ Na และ Cl ถูกประเมินและจัดเป็นความเสี่ยงระดับสูงและความเสี่ยงระดับปานกลาง รวมทั้งดำเนินการปรับปรุงกระบวนการตามแผนการควบคุมคุณภาพที่ออกแบบมาเฉพาะสำหรับแต่รายการทดสอบ ส่งผลทำให้การประเมินประสิทธิภาพในรอบที่ 2/2567 พบว่าสามารถยกระดับประสิทธิภาพการทดสอบได้ถึง 6 รายการทดสอบจากทั้งหมด

8 รายการ แสดงให้เห็นถึงประสิทธิผลของมาตรการที่ได้นำมาใช้ โดยเฉพาะการนำการบริหารจัดการความเสี่ยงมาใช้ในส่วนการควบคุมและติดตามความเสี่ยงของการทดสอบ Na และ Cl โดยทำการปรับปรุงกระบวนการตรวจสอบคุณภาพตัวอย่าง การประสานงานกับองค์กรแพทย์ในการระบุแจ้งเตือนกรณีผู้ป่วยที่มีลักษณะพิเศษสำหรับการจัดการปัญหาการปนเปื้อนโปรตีนจากตัวอย่างผู้ป่วย Multiple Myeloma ซึ่งเป็นสาเหตุสำคัญที่ส่งผลกระทบต่อการทำงานของอิเล็กโทรด ในเครื่องวัดอิเล็กโทรไลต์ที่ใช้หลักการ Indirection-Selective Electrode (ISE) การแก้ปัญหาด้วยวิธีการเชิงระบบ แสดงให้เห็นถึงความสำคัญของการสื่อสารและความร่วมมือระหว่างหน่วยงานในการจัดการความเสี่ยงในห้องปฏิบัติการ ซึ่งสอดคล้องกับงานวิจัยของ Li และคณะ (2020) นอกจากนี้ การเพิ่มความถี่ในการบำรุงรักษาเครื่องมือวิเคราะห์แสดงให้เห็นถึงความสำคัญของการบำรุงรักษาเชิงป้องกัน (Preventive Maintenance) ในการรักษาประสิทธิภาพของเครื่องมือภายใต้ภาระงานที่เพิ่มขึ้น อย่างไรก็ตาม การเพิ่มขึ้นของจำนวนผู้ป่วยอย่างต่อเนื่อง (จาก 137,581 ราย ในปี 2565 เป็น 198,360 ราย ในปี 2567 คิดเป็นการเพิ่มขึ้นร้อยละ 44.18) ชี้ให้เห็นถึงความจำเป็นในการติดตามแนวโน้มนี้อย่างต่อเนื่อง เพื่อรองรับปริมาณงานที่เพิ่มขึ้น และลดความเสี่ยงจากการใช้งานเครื่องมือเกินกำลังการผลิต (Overload)

แม้กระบวนการได้รับการปรับปรุงอย่างต่อเนื่อง ค่าประสิทธิภาพตาม Sigma Metrics ของรายการทดสอบส่วนใหญ่มีแนวโน้มเพิ่มขึ้น ยกเว้นการทดสอบ Cl ที่ลดลงสู่ระดับ One Sigma ซึ่งสะท้อนข้อจำกัดของการใช้ Sigma Metrics กับการทดสอบที่มีค่า Total Allowable Error (TEa) ต่ำ เช่น การทดสอบอิเล็กโทรไลต์ โดย TEa เป็นองค์ประกอบสำคัญในสมการการคำนวณ Sigma ([TEa – Bias] / CV) หากค่า TEa ต่ำ แม้ค่า Bias และ CV จะอยู่ในเกณฑ์ที่ดี ก็อาจให้ค่า Sigma ต่ำกว่าความเป็นจริง ค่า TEa มีหลายแหล่งอ้างอิง เช่น CLIA, RCPA และ Biological Variation (BV) ซึ่งอาจให้ค่าที่แตกต่างกัน โดยเฉพาะรายการทดสอบที่มีความสำคัญทางคลินิกสูง เช่น HbA1c และ Electrolytes มักมีการกำหนด TEa ที่เข้มงวด ส่งผลให้แม้ใช้เทคโนโลยีการวิเคราะห์ที่ทันสมัยก็ยังอาจได้ค่า Sigma metrics ต่ำ ทั้งนี้ ค่า TEa อาจมีการเปลี่ยนแปลงตามพัฒนาการของวิธีวิเคราะห์หรือข้อมูลใหม่ ดังนั้น ห้องปฏิบัติการ ควรพิจารณาเลือกแหล่งอ้างอิง TEa ที่เหมาะสมและสอดคล้องกับความต้องการทางคลินิกของตนเอง ข้อค้นพบนี้สอดคล้องกับงานวิจัยของ Ozdemir และ Ucar (2022) ที่ระบุว่าการเลือกแหล่งอ้างอิง TEa มีผลต่อการแปลผลและการนำ Sigma Metrics ไปใช้ในการควบคุมคุณภาพอย่างมีนัยสำคัญ

นอกจากนี้ ยังมีข้อจำกัดสำคัญเกี่ยวกับข้อมูลที่ใช้ในการคำนวณ โดยเฉพาะวิธีการประมาณค่า bias ซึ่งวิธีการประเมิน bias มีหลายวิธี เช่น การเปรียบเทียบกับวิธีอ้างอิง การใช้วัสดุอ้างอิงรับรอง การเข้าร่วมโปรแกรมทดสอบความชำนาญ โดยแต่ละวิธีอาจให้ผลลัพธ์ที่แตกต่างกัน และ การประมาณค่า CV (Coefficient of Variation) ซึ่งอาจเปลี่ยนแปลงเมื่อมีการเปลี่ยนล็อตน้ำยา เป็นต้น ดังนั้นห้องปฏิบัติการจะต้องมีกระบวนการควบคุมในการเก็บข้อมูลดังกล่าวที่เหมาะสมเพื่อนำมาใช้เป็นข้อมูลในการประมาณค่า Sigma Metrics เพื่อให้สามารถเปรียบเทียบผลการประเมินระหว่างรอบการประเมินได้อย่างน่าเชื่อถือ ซึ่งสอดคล้องกับข้อเสนอแนะของ Westgard และ Westgard (2016) ที่เน้นย้ำถึงความสำคัญของการสร้างมาตรฐานในการเก็บข้อมูลสำหรับการคำนวณ

แม้ว่าค่า Sigma Metrics ของ Cl จะลดลง (ข้อจำกัดค่า TEa) แต่สิ่งที่น่าสนใจคือ เมื่อทำการประเมินความเสี่ยงอีกครั้งหลังการปรับปรุงกระบวนการ พบว่าระดับความเสี่ยงที่ประเมินโดย Risk Matrix มีระดับที่ลดลง ทั้งในการทดสอบ Na และ Cl ซึ่งเดิมอยู่ในระดับ “สูง” และ “ปานกลาง” ได้ลดลงอยู่ในระดับ “ต่ำ” ข้อมูลนี้ชี้ให้เห็นว่าการประเมินความเสี่ยงเชิงคุณภาพทำให้ได้มุมมองที่แตกต่างและเติมเต็มข้อมูลเชิงปริมาณจาก Sigma Metrics ซึ่งสอดคล้องกับแนวคิดของ Bayot และคณะ (2020) ที่เสนอว่าการใช้เครื่องมือประเมินความเสี่ยงหลายรูปแบบร่วมกันจะช่วยให้เกิดความเข้าใจที่ครอบคลุมและลึกซึ้งมากขึ้นเกี่ยวกับความเสี่ยงในห้องปฏิบัติการ

กล่าวโดยสรุป ความเชื่อมโยงระหว่าง Sigma Metrics และการบริหารคุณภาพเชิงความเสี่ยงสามารถนำมาใช้ในการประเมินความเสี่ยงเชิงปริมาณเพื่อประเมินความเสี่ยงของกระบวนการวิเคราะห์ช่วยให้สามารถจัดลำดับความสำคัญของความเสี่ยงได้อย่างเป็นระบบ การทดสอบที่มีค่า Sigma Metrics น้อยกว่า 4 และถูกจัดอยู่ในความเสี่ยงระดับสูงหรือระดับปานกลางต้องได้รับการควบคุมและติดตามการจัดการความเสี่ยงอย่างใกล้ชิด โดยหลังการปรับปรุงกระบวนการ การติดตามค่า Sigma Metrics ที่มากกว่า 4 หรือการประเมินความเสี่ยงที่แสดงระดับความเสี่ยงที่ลดลง (ความเสี่ยงอยู่ในระดับต่ำ) สะท้อนถึงประสิทธิภาพการบริหารจัดการของห้องปฏิบัติการที่มีการดำเนินมาตรการแก้ไขและป้องกันที่ตรงจุด ช่วยลดความเสี่ยงต่าง ๆ ที่อาจเกิดขึ้นในอนาคตและมีการพัฒนาคุณภาพอย่างต่อเนื่อง

สรุปผลการศึกษา

จากผลการศึกษาแสดงให้เห็นว่า การบูรณาการ Sigma Metrics เข้ากับการบริหารความเสี่ยงและการวางแผนการควบคุมคุณภาพภายในระบบบริหารคุณภาพของห้องปฏิบัติการ นำไปสู่การพัฒนากระบวนการวิเคราะห์ที่มีประสิทธิภาพสูงขึ้นอย่างเป็นระบบ กลยุทธ์ในการบริหารความเสี่ยงที่ได้รับการออกแบบอย่างเหมาะสมส่งผลให้เกิดการปรับปรุงแผนการบำรุงรักษาเชิงป้องกัน และการเฝ้าระวังปัจจัยรบกวนอย่างมีประสิทธิภาพ การดำเนินการดังกล่าวนำไปสู่การยกระดับประสิทธิภาพการทำงานของห้องปฏิบัติการโดยรวม โดยสามารถลดระดับความเสี่ยงและเพิ่มความน่าเชื่อถือของผลการตรวจวิเคราะห์ซึ่งมีความสำคัญต่อการตัดสินใจทางคลินิกและการดูแลผู้ป่วย

ข้อเสนอแนะ

1. เพื่อให้การดำเนินการบริหารคุณภาพในห้องปฏิบัติการมีประสิทธิภาพมากยิ่งขึ้น ควรมีการติดตามและประเมินผลของมาตรการที่นำมาใช้เป็นระยะ รวมถึงการขยายการประเมินไปยังการทดสอบอื่น ๆ เช่นในงานภูมิคุ้มกันที่มีการรายงานผลเชิงปริมาณ นอกจากนี้ ควรมีแผนการฝึกอบรมเกี่ยวกับการใช้ Sigma Metrics และการบริหารความเสี่ยงให้กับบุคลากรในห้องปฏิบัติการ เพื่อให้แน่ใจว่ามีการนำแนวทางเหล่านี้ไปใช้อย่างมีประสิทธิภาพในระยะยาว

2. การประเมินความเสี่ยงโดยใช้เกณฑ์ Risk Matrix จากสถาบันรับรองคุณภาพสถานพยาบาล (สรพ.) แม้จะครอบคลุมการประเมินในระดับองค์กร แต่เมื่อนำมาใช้ในบริบทของห้องปฏิบัติการทาง

การแพทย์ พบว่าอาจขาดความไวในการระบุความเสี่ยงเชิงเทคนิคที่มีผลกระทบเฉพาะต่อคุณภาพการตรวจวิเคราะห์ ทำให้ความเสี่ยงสำคัญบางประการอาจถูกประเมินต่ำกว่าความเป็นจริง และไม่ได้รับการจัดการอย่างเหมาะสม ในการศึกษาระยะต่อไป ควรพิจารณาประยุกต์ใช้แนวทางการประเมินความเสี่ยงตามมาตรฐาน CLSI EP23: Laboratory Quality Control Based on Risk Management, 2nd Edition (Clinical and Laboratory Standards Institute, 2023) ซึ่งออกแบบมาเฉพาะสำหรับห้องปฏิบัติการทางการแพทย์ ช่วยให้การประเมินความเสี่ยงมีความแม่นยำ เจาะจง และครอบคลุมมากยิ่งขึ้น นำไปสู่การจัดการความเสี่ยงที่มีประสิทธิภาพและยกระดับคุณภาพของผลการตรวจวิเคราะห์

เอกสารอ้างอิง

กุลนารี สิริสาลี, ปานทิพย์ วัฒนวิบูลย์, วิจิตร วงค์ล่ำซำ และ โสภณ สิริสาลี. (2554). The vital prerequisite of clinical laboratory quality control: Know why, know how. กรุงเทพฯ : เอช.ที.พี. เพรส.จำกัด.

สถาบันรับรองคุณภาพสถานพยาบาล. (ม.ป.ป.). การบริหารความเสี่ยง E-learning Step 1 “ความรู้พื้นฐานสำหรับการพัฒนาคุณภาพ”. สืบค้นเมื่อ 16 กุมภาพันธ์ 2568 จาก https://halearningonline.ha.or.th/pdf/20200721080710.pdf

ราชวิทยาลัยพยาธิแพทย์แห่งประเทศไทย. (2567). วันพยาธิแพทย์ไทย. สืบค้นเมื่อ 11 กรกฎาคม 2567 จาก https://www.rcthaipathologist.org/article/detail.php?id_article=12

Bayot ML, Tadi P, Varacallo M. (2020). Six Sigma Approach to Quality and Patient Safety. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK553055/

Centers for Medicare & Medicaid Services. (2022, July 11). Final rule: Clinical Laboratory Improvement Amendments of 1988 (CLIA) proficiency testing—Analytes and acceptable performance (CMS-3355-F). Washington : U.S. Department of Health and Human Services.

Clinical and Laboratory Standards Institute. (2023). EP23: Laboratory quality control based on risk management (2nd ed.). Wayne, PA: CLSI.

International Organization for Standardization. (2022). Medical laboratories — Requirements for quality and competence (ISO 15189:2022). Geneva, Switzerland: ISO.

Kumar, B. V., & Mohan, T. (2018). Sigma metrics as a tool for evaluating the performance of internal quality control in a clinical chemistry laboratory. J Lab Physicians, 10(2), 194-199. https://doi.org/10.4103/JLP.JLP_102_17

Li Y, Xiang D, Long Y, Liu Y, Wu X, Zhu H, Shen J, Chen M, Sun Y, Meng Q. (2020). Sigma metrics for assessing the analytical quality of clinical chemistry assays: a comparison of two approaches. Biochemia Medica, 30(2), 020705. https://doi.org/10.11613/BM.2020 .020705

Ozdemir, S., & Ucar, F. (2022). Determination of Sigma metric based on various TEa sources for CBC parameters: the need for Sigma metrics harmonization. Journal of Laboratory Medicine, 46(2), 133-141. https://doi.org/10.1515/labmed-2021-0116

Vyakaranam, D., Nori, S. N. S., Rehan A. R., Pothula, Y., Yasam, L., & Agiwal, V. (2024) Six sigma matrix and Quality Goal Index ratio in improving the quality of analytical phase in a clinical laboratory. J Lab Physicians, 16(4), 515-522. https://doi.org/10.25259/JLP_56_2024

Pradhan, D. P., Pandit, D., Sahoo, S., Rattan, R., & Mohanty, S. (2022). Six Sigma Metrics: An Evolving Indicator of Quality Assurance for Clinical Biochemistry. Journal of Clinical & Diagnostic Research, 16(8), 14-18. https://doi.org/10.7860/JCDR/2022/56691.16718

Teshome, M., Worede, A., & Asmelash, D. (2021). Total Clinical Chemistry Laboratory Errors and Evaluation of the Analytical Quality Control Using Sigma Metric for Routine Clinical Chemistry Tests. J Multidiscip Healthc, 14, 125-136. https://doi. org/10.2147/jmdh. S286679

Westgard JO, Westgard SA, Forsman RW. (2014). Six Sigma quality management system and design of risk-based statistical quality control. Clinics in Laboratory Medicine, 34(1), 11- 27. https://doi.org/10.1016/j.cll.2013.12.001

Westgard SA, Westgard JO. (2016). Measuring Analytical Quality: Total Analytical Error Versus Measurement Uncertainty. Clinics in Laboratory Medicine, 36(2), 267-283. https://doi.org/10.1016/j.cll.2016.01.003

Westgard, J. O., & Westgard, S. A. (2017). Six Sigma Quality Management System and Design of Risk-based Statistical Quality Control. Clinics in Laboratory Medicine, 37(1), 85-96. https://doi.org/https://doi.org/10.1016/j.cll.2016.09.008

ความรู้และปัจจัยที่เกี่ยวข้องกับประสบการณ์การตรวจคัดกรองรอยโรคมะเร็งช่องปากของทันตแพทย์ไทยที่จบมาแล้วไม่เกิน 5 ปี

Knowledge and Factors Related to Oral Cancer Screening Experience Among Thai Dentists Who Graduated Within 5 years

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บทคัดย่อ

โรคมะเร็งช่องปากเป็นปัญหาทางสาธารณสุขที่สำคัญในหลายประเทศทั่วโลก ประเทศไทยเองได้ดำเนินนโยบายด้านการตรวจคัดกรองมะเร็งช่องปากมาหลายปี แต่ยังพบว่ามะเร็งช่องปากมีอัตราการเกิดโรคที่สูงเป็นอันดับที่ 9 เทียบกับผู้ป่วยมะเร็งตำแหน่งอื่น ๆ และมีอัตราการรอดชีวิตในระดับต่ำ การศึกษาในต่างประเทศพบว่าความรู้และประสบการณ์การทำงาน ส่งผลต่อความมั่นใจในการตรวจคัดกรองรอยโรคมะเร็งช่องปาก ซึ่งประเทศไทยยังขาดการศึกษาในส่วนนี้ รวมถึงข้อมูลว่าปัจจัยใดบ้างที่เกี่ยวข้องกับประสบการณ์การคัดกรองรอยโรคมะเร็งช่องปาก การศึกษานี้จึงมีวัตถุประสงค์เพื่อเปรียบเทียบความรู้และศึกษาปัจจัยที่เกี่ยวข้องต่อการตรวจคัดกรองรอยโรคมะเร็งช่องปากของทันตแพทย์ที่สำเร็จการศึกษาจากมหาวิทยาลัยสงขลานครินทร์ เป็นการวิจัยแบบตัดขวาง โดยการเก็บรวบรวมข้อมูลจากแบบสอบถามผ่าน Google Form โดยไม่ระบุตัวตน ไปยังทันตแพทย์ที่จบการศึกษาตั้งแต่ปีการศึกษา 2560 จนถึงปีการศึกษา 2564 จำนวนทั้งสิ้น 212 คน โดยเก็บรวบรวมข้อมูลทั่วไปของผู้ตอบแบบสอบถาม คำถามวัดความรู้เกี่ยวกับรอยโรคมะเร็งช่องปาก และคำถามเกี่ยวกับประสบการณ์การทำงาน วิเคราะห์ข้อมูลโดยเปรียบเทียบคะแนนระดับความรู้ระหว่างทันตแพทย์แต่ละรุ่น และเปรียบเทียบคะแนนระดับความรู้กับประสบการณ์การทำงานเพื่อหาปัจจัยที่เกี่ยวข้องกับความรู้โดยใช้สถิติ The Wilcoxon-Mann-Whitney

test สำหรับข้อมูลสองกลุ่ม และใช้สถิติ Kruskal – Wallis test และ Wald test สำหรับข้อมูลหลายกลุ่ม โดยยอมรับนัยสำคัญทางสถิติที่ p-value < 0.05 มีผู้ตอบกลับแบบสอบถามจำนวน 170 คน คิดเป็นอัตราตอบกลับ 80.19% พบว่าทันตแพทย์หลังสำเร็จการศึกษาไปแล้ว 1 ปี มีคะแนนเฉลี่ยสูงที่สุดและสูงกว่าทันตแพทย์หลังสำเร็จการศึกษาไปแล้ว 5 ปีอย่างมีนัยสำคัญ โดยมีปัจจัยที่ส่งผลต่อความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปาก ได้แก่ สถานที่ทำงาน การเลือกศึกษาต่อเฉพาะทางสาขาเวชศาสตร์ช่องปากและสาขาศัลยศาสตร์ช่องปากและแม็กซิลโลเฟเชียล ประสบการณ์ทำงานเกี่ยวกับมะเร็งช่องปาก การให้ความรู้แก่ผู้ป่วยเกี่ยวกับปัจจัยเสี่ยง การตรวจวินิจฉัย การส่งตรวจเพิ่มเติม การให้การรักษา ขอรับคำปรึกษาหรือการส่งต่อผู้ป่วย และการเข้าร่วมงานประชุมวิชาการที่มีเนื้อหาเกี่ยวกับรอยโรคมะเร็งช่องปาก ดังนั้นกระทรวงสาธารณสุขและหน่วยงานที่เกี่ยวข้อง จึงควรส่งเสริมให้มีการประชุมวิชาการที่มีหัวข้อบรรยายเกี่ยวกับมะเร็งช่องปาก หรือจัดให้มีการศึกษาดูงานในโรงพยาบาลมะเร็งต่าง ๆ เพื่อฝึกฝนและทบทวนการวินิจฉัยโรค การให้ความรู้เรื่องปัจจัยเสี่ยงแก่ผู้ป่วยและการส่งต่อผู้ป่วยไปยังแพทย์เฉพาะทางต่อไป

คำสำคัญ: การตรวจคัดกรองมะเร็งช่องปาก, ความรู้, ปัจจัยที่เกี่ยวข้อง, ทันตแพทย์

Abstract

Oral cancer represents a global health challenge. The Thai government has implemented an oral cancer screening initiative for several years; yet, the issue remains, with oral cancer prevalence ranked ninth among all cancers and demonstrating a poor survival rate. International research indicates that knowledge and professional experiences affect dentists' confidence. However, there is a scarcity of studies regarding oral cancer screening experience among dentists in Thailand. This study sought to evaluate the knowledge and factors related to oral cancer screening among dentists who graduated from the Faculty of Dentistry at Prince of Songkla University. A cross-sectional study gathered data using an anonymous questionnaire distributed through Google Forms to 212 dentists who graduated during the academic years 2017 and 2021. The questionnaire comprises three sections: general information, knowledge, and professional experiences about oral cancer screening. A comparative examination of data knowledge among many generations of dentists and related factors was performed using the Wilcoxon-Mann-Whitney test, Kruskal-Wallis test, and Wald test, with a significance threshold of $p < 0.05$. A total of 170 questionnaires were submitted, resulting in an 80.19% response rate. First-year graduated dentists achieved the highest knowledge score, which was statistically distinct from that of fifth-year graduated dentists. Factors related to knowledge encompassed the workplace, postgraduate education in oral

medicine or oral and maxillofacial surgery, experience in oral cancer screening, educating patients about oral cancer risk factors, examination and diagnosis of oral potentially malignant disorders (OPMDs), personal experience in the treatment, consultation, or referral of OPMD cases, and participation in oral cancer conferences. Consequently, the Ministry of Public Health should collaborate to enhance dental involvement in oral cancer conferences and observational cases inside cancer treatment facilities for diagnostic training, patient education, and the consultation or referral of OPMDs cases.

Keywords: oral cancer screening, knowledge, related factors, dentist

บทนำ

โรคมะเร็งช่องปากเป็นปัญหาที่สำคัญทั้งระดับโลกและในประเทศไทย โดยปัจจุบันพบผู้ป่วยมะเร็งช่องปากและริมฝีปากรายใหม่ทั่วโลกมากเป็นอันดับที่ 16 เทียบกับมะเร็งตำแหน่งอื่น ๆ คิดเป็น 2% ของผู้ป่วยมะเร็งรายใหม่ทั้งหมด (Ferlay et al., 2024) และมีอัตราการตายสูงเป็นลำดับที่ 15 เทียบกับมะเร็งตำแหน่งอื่น ๆ โดยคิดเป็น 1.9% ของผู้ป่วยที่เสียชีวิตจากโรคมะเร็งทั้งหมด สำหรับประเทศไทยพบว่าอัตราการเกิดโรคมะเร็งช่องปากและริมฝีปากสูงเป็นอันดับที่ 9 คิดเป็น 2.5% ของผู้ป่วยมะเร็งรายใหม่ โดยมีอัตราการตายสูงเป็นลำดับที่ 14 เทียบกับมะเร็งตำแหน่งอื่น ๆ และคิดเป็น 2% ของผู้ป่วยที่เสียชีวิตจากโรคมะเร็งทั้งหมด (Ferlay et al., 2024)

การพยากรณ์โรคมะเร็งช่องปากนั้น ระยะของโรคมีความสำคัญมากที่สุด โดยภาพรวมแล้วอัตรารอดชีพ 5 ปี ของโรคมะเร็งช่องปากจะอยู่ที่ประมาณ 59 - 70% (Amit et al., 2013; Siegel, Miller, & Jemal, 2017) ในรอยโรคที่มีขนาดเล็กและยังไม่แพร่กระจายจะมีอัตรารอดชีพ 5 ปี สูงถึง 70 - 84.6% (Amit et al., 2013; Pollaers, Hinton-Bayre, Friedland, & Farah, 2018; Ragin, Modugno, & Gollin, 2007) แต่หากรอยโรคมีขนาดใหญ่ มีการลุกลามถึงต่อมน้ำเหลืองบริเวณลำคอ cervical node แล้วจะทำให้อัตรารอดชีพ 5 ปี เหลือเพียง 25 – 63.5% (Amit et al., 2013; Pollaers et al., 2018; Ragin et al., 2007) การคัดกรองรอยโรคมะเร็งช่องปากจึงเป็นวิธีที่ดีในการค้นพบรอยโรคตั้งแต่ในระยะแรก ลดการลุกลามของโรค เพิ่มโอกาสรอดชีวิตของผู้ป่วยได้

ทั่วโลกให้ความสำคัญกับการตรวจคัดกรองมะเร็งช่องปากเป็นอย่างมาก เพื่อการตรวจพบรอยโรคที่มีความเสี่ยงจะเป็นมะเร็งช่องปากหรือรอยโรคมะเร็งช่องปากในระยะแรก ๆ ช่วยค้นหาปัจจัยเสี่ยงต่าง ๆ ของผู้ป่วย เช่น การสูบบุหรี่ การดื่มแอลกอฮอล์ อีกทั้งยังเป็นการตรวจที่ง่ายเพียงใช้การตรวจด้วยสายตา (Rethman et al., 2010) ดังจะเห็นได้จากการศึกษาเพื่อเฝ้าระวังปัญหาในส่วนของการตรวจคัดกรองมะเร็งช่องปากอย่างกว้างขวาง พบว่า ปัจจัยต่าง ๆ ที่ส่งผลตั้งแต่การตรวจคัดกรอง ตลอดจนถึงการรักษาหรือการส่งต่อผู้ป่วย เช่น เวลาไม่เพียงพอในการตรวจ (Allen & Farah, 2015; Golburean et al., 2021) ขาดความรู้ในเรื่องมะเร็งช่องปากและการตรวจคัดกรองมะเร็งช่องปาก (Golburean et al., 2021;

Coppola et al., 2021; Kazmi, Alkait, Alghamdi, Alhussain, & Tabassum, 2020) ส่งผลให้ไม่มีความมั่นใจในการตรวจ (Allen & Farah, 2015; Pavão, Salgado, Gallego, & Lauria, 2018; Razavi, Zolfaghari, Foroohandeh, Doost, & Tahani, 2013) ขาดแรงจูงใจจากค่าตอบแทน (Allen & Farah, 2015; Golburean et al., 2021) ตลอดจนไม่ได้รับการฝึกฝนมามากพอขณะที่ยังเป็นนักศึกษาทันตแพทย์ (Allen & Farah, 2015; Golburean et al., 2021; Pavão et al., 2018; Razavi et al., 2013) ซึ่งพบว่านักศึกษาทันตแพทย์และทันตแพทย์ส่วนใหญ่ต้องการการฝึกฝนในการตรวจคัดกรองมะเร็งช่องปากเพิ่มเติม (Hashim, Abo-Fanas, Al-Tak , Al-Kadri, & Abu, 2018; Hassona et al., 2015) ผู้ป่วยไม่ค่อยสนใจหรือรู้สึกอึดอัดเวลาที่ทันตแพทย์แนะนำการเลิกเหล้าหรือบุหรี่ (Razavi et al., 2013) ขาดความสามารถในการวินิจฉัยและส่งต่อ (Grafton-Clarke, Chen, & Wilcock, 2018) เป็นต้น โดยที่ตัวบุคลากรผู้ปฏิบัติงานเองเป็นปัจจัยที่สำคัญที่สุดในการดำเนินงานด้านการตรวจคัดกรองมะเร็งช่องปากให้สำเร็จด้วยดี

สำหรับประเทศไทย ปัจจุบันกระทรวงสาธารณสุข (กรมอนามัย กระทรวงสาธารณสุข, 2563) ได้มีนโยบายให้ทันตแพทย์ผู้ปฏิบัติงาน มีการตรวจคัดกรองรอยโรคก่อนมะเร็งช่องปากในผู้ป่วยทุกราย เนื่องจากสามารถทำได้ง่าย เป็นการตรวจรักษาตามปกติในคลินิกทันตกรรม หรือจากการตรวจร่างกายโดยใช้เครื่องมือตรวจช่องปาก ร่วมกับการตรวจด้วยสายตา ไม่ต้องนัดตรวจเป็นพิเศษหรือมีค่าใช้จ่ายอื่น ๆ เพิ่มเติมหากไม่มีรอยโรค อีกทั้งเป็นการลดค่าใช้จ่ายและงบประมาณในการรักษาโรคมะเร็งช่องปาก โดยค่าใช้จ่ายจะสูงขึ้นเมื่อผู้ป่วยมีระยะของการเป็นโรคที่มากขึ้น โดยกำหนดให้มีการตรวจคัดกรองปีละ 1 ครั้ง ในคนอายุตั้งแต่ 40 ปีขึ้นไป (กรมอนามัย กระทรวงสาธารณสุข, 2563; กรมอนามัย สำนักทันตสาธารณสุข, 2563; กองทันตสาธารณสุข, 2553) กระบวนการนี้อาจทำโดยให้ผู้ป่วยประเมินตนเองหรือใช้แบบสอบถามโดยทันตบุคลากร บุคลากรสาธารณสุข หรืออาสาสมัครสาธารณสุข มีการพัฒนาระบบ การคัดกรอง กระบวนการป้องกัน/ปรับพฤติกรรมเสี่ยง ระบบการส่งต่อรักษา-การรับกลับอย่างต่อเนื่อง

จะเห็นได้ว่าปัจจุบันประเทศไทยมีแนวทางในการตรวจคัดกรองมะเร็งช่องปากมาระยะหนึ่ง หากแต่ยังพบปัญหาผู้ป่วยมะเร็งช่องปากอย่างต่อเนื่อง การศึกษาในต่างประเทศพบว่าการตรวจคัดกรองมะเร็งช่องปากยังมีปัญหาในหลาย ๆ ส่วน รวมทั้งปัจจัยจากทันตแพทย์ผู้ปฏิบัติงานด้วย จากการทบทวนวรรณกรรมพบว่าในประเทศไทยยังไม่มีการศึกษาถึงความรู้ และปัจจัยที่เกี่ยวข้องต่อการตรวจคัดกรองมะเร็งช่องปากของทันตแพทย์ เพื่อประโยชน์ในการวิเคราะห์ถึงปัญหาที่เกี่ยวข้องกับการตรวจคัดกรองมะเร็งช่องปาก อันจะนำมาซึ่งข้อเสนอแนะในการทบทวนและปรับปรุงนโยบายการปฏิบัติงานของทันตแพทย์ในประเทศ ดังนั้นวัตถุประสงค์ของงานวิจัยนี้เพื่อศึกษาถึงความรู้และปัจจัยที่เกี่ยวข้องต่อการตรวจคัดกรองรอยโรคมะเร็งช่องปากของทันตแพทย์ เพื่อเป็นประโยชน์ในการดำเนินงานด้านการตรวจคัดกรองโรคมะเร็งช่องปากต่อไป

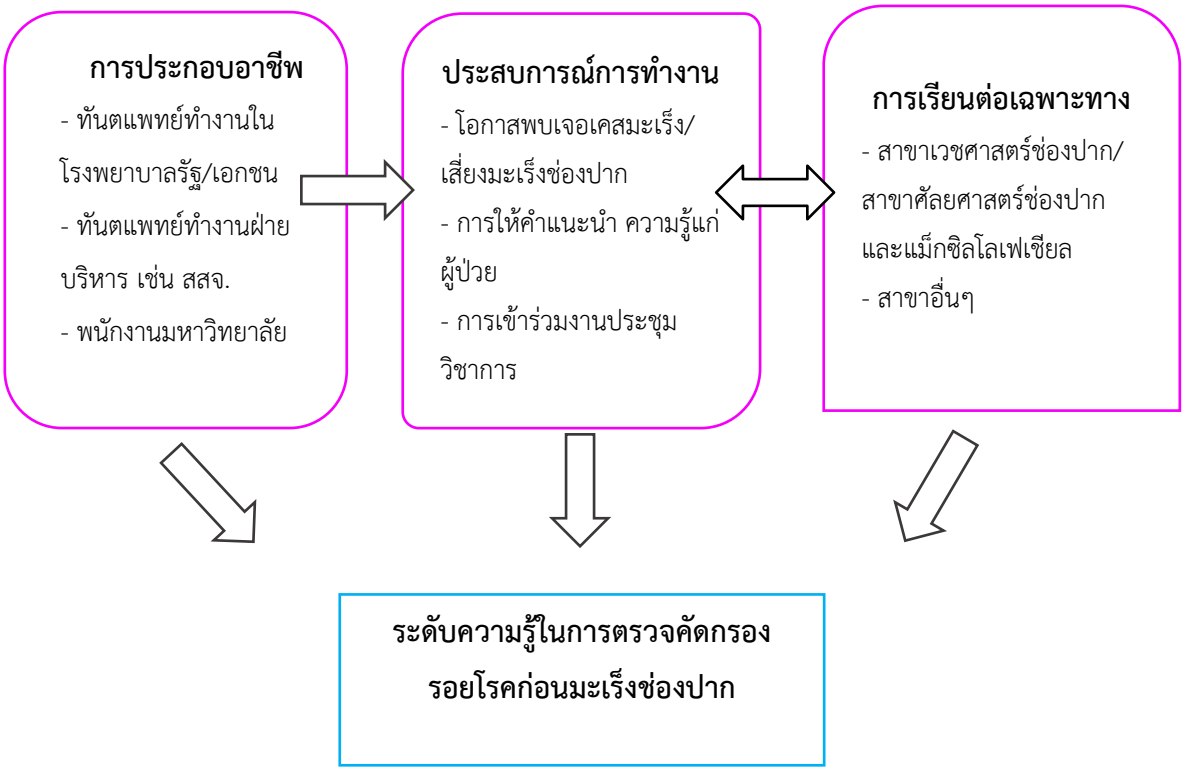
วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปากระหว่างทันตแพทย์หลังสำเร็จการศึกษาไปแล้ว 1 - 5 ปี

2. เพื่อศึกษาถึงปัจจัยที่ส่งผลต่อความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปากของทันตแพทย์หลังสำเร็จการศึกษาไปแล้ว 1 - 5 ปี

แนวคิด ทฤษฎี กรอบแนวคิด

ปัญหาในการตรวจคัดกรองมะเร็งช่องปาก จากการศึกษาของต่างประเทศพบว่ามีปัจจัยจากผู้ปฏิบัติงานเองหลายปัจจัยด้วยกัน แต่สำหรับประเทศไทยยังมีการศึกษาถึงปัญหาในการตรวจคัดกรองมะเร็งช่องปากจากผู้ปฏิบัติงานค่อนข้างจำกัด ซึ่งผู้วิจัยเห็นว่าการเริ่มแก้ปัญหาจากทันตแพทย์ผู้ปฏิบัติงานนั้นสามารถทำได้ ผู้วิจัยจึงมีความสนใจที่จะศึกษาถึงระดับความรู้และปัจจัยที่เกี่ยวข้องในการตรวจคัดกรองมะเร็งช่องปากของทันตแพทย์ที่จบการศึกษาจากมหาวิทยาลัยสงขลานครินทร์ โดยศึกษาในกลุ่มทันตแพทย์หลังสำเร็จการศึกษาแล้ว 1-5 ปีแรก ซึ่งสามารถรวบรวมข้อมูลและช่องทางการติดต่อสื่อสารได้ง่าย โดยมีกรอบแนวคิดวิจัย ดังภาพที่ 1



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

1. ประชากรและกลุ่มตัวอย่างในการวิจัย

ประชากรที่ใช้ศึกษาในงานวิจัยนี้เป็นทันตแพทย์ที่สำเร็จการศึกษา ระดับปริญญาตรี จากคณะทันตแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์ ตั้งแต่ปีการศึกษา 2560 จนถึงปีการศึกษา 2564 จำนวนทั้งสิ้น 212 คน

2. เครื่องมือ และการสร้างเครื่องมือที่ใช้ในการวิจัย

2.1 การพัฒนาแบบสอบถาม

สร้างแบบสอบถามโดยการทบทวนวรรณกรรมที่เกี่ยวข้อง และรวบรวมคำถามที่ใช้บ่อยในหลาย ๆ การศึกษา นำมาปรับเปลี่ยนรูปแบบคำถามให้เข้ากับบริบท และเอกสารเนื้อหาตามหลักสูตรของนักศึกษาทันตแพทย์ มหาวิทยาลัยสงขลานครินทร์ เปรียบเทียบกับศูนย์ประเมินความรู้ความสามารถในการประกอบวิชาชีพทันตกรรม (ศ.ป.ท.) ทันตแพทยสภาแต่ละหัวข้อ (ทันตแพทยสภา, 2563) และปรับเปลี่ยนตามบริบทลักษณะการทำงานของทันตแพทย์ในประเทศไทย

จากนั้นนำแบบสอบถามเสนออาจารย์ที่ปรึกษาและผู้ทรงคุณวุฒิจำนวน 3 ท่าน ประกอบด้วยผู้เชี่ยวชาญด้านศัลยศาสตร์ช่องปากและแม็กซิลโลเฟเชียล 1 ท่าน และผู้เชี่ยวชาญด้านเวชศาสตร์ช่องปาก 1 ท่าน ซึ่งเป็นสาขาที่เชี่ยวชาญด้านการคัดกรองมะเร็งช่องปาก และผู้เชี่ยวชาญด้านการออกแบบสอบถาม 1 ท่าน เพื่อตรวจสอบความเที่ยงตรง (Validity) ของร่างแบบสอบถาม พร้อมทั้งแก้ไขตามคำแนะนำของผู้ทรงคุณวุฒิ

ทดลองใช้แบบสอบถามกับกลุ่มทดลอง ซึ่งได้แก่ ทันตแพทย์ที่ปฏิบัติงานอยู่ทั้งในส่วนงานราชการ มหาวิทยาลัย และคลินิกเอกชน ซึ่งจบจากหลากหลายสถาบัน จำนวน 30 คน นำผลที่ได้มาหาค่าความเชื่อมั่น (Reliability) ของแบบสอบถามในส่วนที่ 2 ด้วยการหาค่าสัมประสิทธิ์แอลฟ่าของครอนบัค (Cronbach's alpha coefficient) ซึ่งพบว่าระดับความเชื่อมั่นของแบบสอบถาม มีค่าเท่ากับ 0.77

2.2 ส่วนประกอบแบบสอบถาม

ส่วนที่ 1 : ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม ได้แก่ เพศ อายุ ปีที่สำเร็จการศึกษาระดับ และสาขาที่ศึกษาต่อเฉพาะทาง (ถ้ามี) สถานที่ทำงานหลัก (รับราชการ คลินิกเอกชน ทันตแพทย์ทั่วไปในมหาวิทยาลัย อาจารย์ทันตแพทย์ ฯลฯ)

ส่วนที่ 2 : คำถามวัดความรู้ เป็นคำถามปลายปิด เลือกคำตอบ ใช่ ไม่ใช่ หรือไม่แน่ใจ เกี่ยวกับระบาดวิทยา ปัจจัยเสี่ยงต่อการเกิดมะเร็งช่องปาก ลักษณะทางคลินิกของรอยโรคมะเร็งช่องปาก การพยากรณ์โรคและแนวทางการรักษา

ส่วนที่ 3 : คำถามประสบการณ์การทำงาน สอบถามถึงประสบการณ์ของทันตแพทย์แต่ละคนที่อาจแตกต่างกัน ปัญหาที่พบเจอต่าง ๆ ในสถานที่ทำงาน ประสบการณ์การตรวจวินิจฉัยและการส่งต่อผู้ป่วยมะเร็งช่องปากหรือมีรอยโรคเสี่ยงมะเร็งช่องปาก การศึกษาหาความรู้เพิ่มเติมจากแหล่งความรู้ต่าง ๆ รวมทั้งการศึกษาต่อเฉพาะทางในแต่ละสาขา ซึ่งอาจจะเชื่อมโยงกับความรู้ที่แตกต่างกันในแต่ละบุคคล

3. การเก็บรวบรวมข้อมูล

3.1 ผู้วิจัยรวบรวมช่องทางติดต่อสื่อสารกับกลุ่มตัวอย่างผ่านทางตัวแทนในแต่ละรุ่น ชี้แจงให้ทราบถึงวัตถุประสงค์ของการศึกษา ส่วนประกอบของแบบสอบถาม ประโยชน์ที่จะได้รับจากการศึกษา ระยะเวลาในการดำเนินงานวิจัย รวมไปถึงการสื่อสารและประชาสัมพันธ์ต่อไปถึงทันตแพทย์คนอื่นในรุ่น

3.2 ส่งแบบสอบถามไปยังช่องทางติดต่อที่ได้รวบรวมไว้ โดยใช้แบบสอบถามผ่าน Google Form โดยไม่ระบุตัวตน แยกลิงค์ของแต่ละรุ่นไว้ประเมินร้อยละของการตอบกลับ และติดตามผ่านตัวแทนรุ่น

3.3 ติดตามผลการตอบกลับผ่านตัวแทนแต่ละรุ่นทุก ๆ 2 สัปดาห์เป็นระยะเวลา 2 เดือน รวม 4 ครั้ง แจ้งความคืบหน้าร้อยละของการตอบกลับเป็นภาพรวมในแต่ละรุ่นทุกครั้ง เป็นการกระตุ้นกลุ่มตัวอย่างเพื่อขอความร่วมมือ

3.4 นำข้อมูลที่ได้มาวิเคราะห์

4. การวิเคราะห์ข้อมูล

การวิเคราะห์ข้อมูลใช้โปรแกรมสำเร็จรูป R version 4.3.2 ข้อมูลที่ได้แจกแจงไม่ปกติ

4.1 เปรียบเทียบคะแนนระดับความรู้ระหว่างทันตแพทย์แต่ละรุ่นโดยใช้สถิติ Kruskal – Wallis test และ Wald test

4.2 เปรียบเทียบคะแนนระดับความรู้กับประสบการณ์การทำงานเพื่อหาปัจจัยที่เกี่ยวข้องกับความรู้โดยใช้สถิติ The Wilcoxon-Mann-Whitney test สำหรับข้อมูลสองกลุ่ม และใช้สถิติ Kruskal – Wallis test และ Wald test สำหรับข้อมูลหลายกลุ่ม

ผลการวิจัย

ทันตแพทย์ตอบกลับ 170 คน จาก 212 คน (80.19%) จำแนกแต่ละรุ่นดังแสดงใน ตารางที่ 1

ตารางที่ 1 จำนวนผู้ตอบกลับแบบสอบถามแยกตามรุ่น

ทันตแพทย์	จำนวนผู้ตอบแบบสอบถามแต่ละรุ่น	ร้อยละ
ทันตแพทย์จบ 1 ปี	23/33	69.70
ทันตแพทย์จบ 2 ปี	37/44	84.09
ทันตแพทย์จบ 3 ปี	45/50	90.00
ทันตแพทย์จบ 4 ปี	33/48	68.75
ทันตแพทย์จบ 5 ปี	32/37	86.49
รวม	**170/212**	**80.19**

เปรียบเทียบความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปากระหว่างทันตแพทย์หลังสำเร็จการศึกษาไปแล้ว 1 - 5 ปี

จากผลการตอบกลับแบบสอบถามซึ่งมีทั้งหมด 12 ข้อ ประกอบด้วยข้อคำถามด้านระบาดวิทยา 1 ข้อ ความรู้เรื่องปัจจัยเสี่ยงของมะเร็งช่องปาก 3 ข้อ ความรู้ด้านลักษณะทางคลินิก 4 ข้อ ความรู้ด้านการพยากรณ์โรค 2 ข้อ ความรู้ด้านการตรวจคัดกรองและการตรวจเพิ่มเติมรอยโรคเสี่ยงมะเร็งช่องปาก 2 ข้อ โดยให้คะแนนตอบถูกข้อละ 1 คะแนน หากตอบผิดหรือตอบไม่แน่ใจจะให้เป็น 0 คะแนน รวมคะแนนที่ได้เฉลี่ยของแต่ละรุ่นมาเปรียบเทียบความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปากระหว่างทันตแพทย์หลังสำเร็จการศึกษาไปแล้ว 1 - 5 ปี โดยวิเคราะห์แยกรายปีพบว่า ทันตแพทย์หลังสำเร็จการศึกษาไปแล้ว 1 ปีมีคะแนนเฉลี่ยสูงที่สุดคือ 9.22 และหลังสำเร็จการศึกษาไปแล้ว 5 ปีมีคะแนนเฉลี่ยต่ำที่สุดคือ 8.13 เมื่อเปรียบเทียบคะแนนระหว่างทันตแพทย์หลังสำเร็จการศึกษาไปแล้ว 1 ปี กับ 5 ปีจะพบความแตกต่างอย่างมีนัยสำคัญ ดังแสดงในตารางที่ 2

ตารางที่ 2 เปรียบเทียบคะแนนความรู้ในการตรวจคัดกรองมะเร็งช่องปากระหว่างทันตแพทย์แต่ละรุ่น

ทันตแพทย์	จำนวน	Q1	Median (Q2)	Mean	Q3	Kruskal-Wallis test (p-value)	Wald test (p-value)
D1	23	8.00	9.00	9.22	10.50	0.093	Ref.
D2	37	8.00	9.00	8.95	10.00		0.583
D3	45	7.00	8.00	8.44	10.00		0.106
D4	33	8.00	9.00	9.00	11.00		0.667
D5	32	7.00	8.00	8.13	9.00		0.033

Q1 คือ Quartile1 Q2 คือ Quartile2 หรือ Median Q3 คือ Quartile3
D1 คือทันตแพทย์หลังสำเร็จการศึกษา 1 ปี D2 คือทันตแพทย์หลังสำเร็จการศึกษา 2 ปี
D3 คือทันตแพทย์หลังสำเร็จการศึกษา 3 ปี D4 คือทันตแพทย์หลังสำเร็จการศึกษา 4 ปี
D5 คือทันตแพทย์หลังสำเร็จการศึกษา 5 ปี

ความสัมพันธ์ระหว่างปัจจัยต่าง ๆ ที่เกี่ยวข้องต่อความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปากของทันตแพทย์หลังสำเร็จการศึกษาไปแล้ว 1 - 5 ปี

เมื่อศึกษาถึงปัจจัยที่ส่งผลต่อความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปาก โดยพิจารณาจากปัจจัยต่าง ๆ ได้แก่ สถานที่ทำงาน การศึกษาต่อของทันตแพทย์ และประสบการณ์ทำงานในแง่มุมต่าง ๆ ได้ผลดังแสดงในตารางที่ 3

ตารางที่ 3 เปรียบเทียบคะแนนความรู้ในการตรวจคัดกรองมะเร็งช่องปากระหว่างทันตแพทย์แยกตามประสบการณ์ทำงาน

ประสบการณ์ทำงาน	จำนวน	Mean	SD	P-value	Wald test (p-value)
สถานที่ทำงาน					
โรงพยาบาลรัฐ	128	8.73	1.75	0.058**	0.0326
โรงพยาบาล/คลินิกเอกชน	22	7.82	1.99		ref.
มหาวิทยาลัย	14	9.57	2.21		0.0060
สำนักงานสาธารณสุขจังหวัด	6	9.33	2.42		0.0759
การศึกษาต่อเฉพาะทางสาขา OM/OS[a]					
ใช่	13	10.54	1.84	<0.001*	
ไม่ใช่	157	8.55	1.20		
ประสบการณ์การให้คำแนะนำปัจจัยเสี่ยงของการเกิด OPMDs[b] แก่ผู้ป่วย					
เคย	158	8.80	2.15	0.047*	
ไม่เคย	12	7.50	1.83		
จำนวนชนิดของรอยโรค OPMDs ที่เคยตรวจวินิจฉัย					
0	89	8.48	1.92	0.073**	0.011
1,2,3	62	8.73	1.76		0.050
4,5,6,7	19	9.68	1.80		ref.
[c] จำนวนรูปแบบการตรวจเพิ่มเติมในเคส OPMDs					
0	101	8.41	1.90	0.010**	< 0.001
1	37	8.78	1.55		0.015
2	19	9.11	1.88		0.088
3,4	13	10.23	1.83		ref.
ประสบการณ์การรักษา การขอรับคำปรึกษา และการส่งต่อเคส OPMDs					
เคย	161	8.85	1.80	<0.001*	
ไม่เคย	9	6.11	1.17		
การเข้าร่วมงานประชุมวิชาการที่มีเนื้อหาเกี่ยวกับรอยโรคมะเร็งช่องปาก					
เคย	153	8.81	1.82	0.045*	
ไม่เคย	17	7.77	2.11		

* Wilcoxon-Mann-Whitney test ** Kruskal-Wallis test

[a] Oral Medicine/Oral and Maxillofacial Surgery

[b] Oral potentially malignant disorders

[c] Additional investigations such as radiographic examination, blood test, cervical lymph node examination and biopsy

ลักษณะสถานที่ทำงานเปรียบเทียบระหว่าง โรงพยาบาลรัฐ โรงพยาบาล/คลินิกเอกชน มหาวิทยาลัย และสาธารณสุขจังหวัด พบว่า ทันตแพทย์ที่ทำงานในกลุ่มคลินิกเอกชน/โรงพยาบาลเอกชนจะมีความรู้น้อยกว่ากลุ่มโรงพยาบาลรัฐ และกลุ่มมหาวิทยาลัยอย่างมีนัยสำคัญ

ปัจจัยด้านการศึกษาต่อ พบว่า ทันตแพทย์ที่ศึกษาต่อเฉพาะทางสาขาที่สัมพันธ์โดยตรงกับงานการคัดกรองมะเร็งช่องปาก ได้แก่ สาขาเวชศาสตร์ช่องปาก (Oral Medicine) และสาขาศัลยศาสตร์ช่องปากและแม็กซิลโลเฟเชียล (Oral and Maxillofacial Surgery) มีระดับความรู้ในการตรวจคัดกรองมะเร็งช่องปากที่ดีกว่าทันตแพทย์ที่ไม่ได้ศึกษาต่อเฉพาะทางหรือศึกษาต่อเฉพาะทางด้านอื่น ๆ

ทันตแพทย์ที่เคยมีประสบการณ์ในการให้ความรู้แก่ผู้ป่วยเกี่ยวกับปัจจัยเสี่ยงของการเกิดรอยโรคเสี่ยงมะเร็งช่องปาก การให้การรักษาหรือขอรับคำปรึกษาหรือการส่งต่อผู้ป่วยที่มีรอยโรคเสี่ยงมะเร็งช่องปาก และการเข้าร่วมประชุมวิชาการที่มีหัวข้อความรู้เกี่ยวกับโรคมะเร็งช่องปาก จะมีระดับความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปากดีกว่าทันตแพทย์ที่ไม่เคยมีประสบการณ์

ในด้านประสบการณ์ของการตรวจวินิจฉัยรอยโรคมะเร็งช่องปากนั้นพบว่า ทันตแพทย์ที่เคยตรวจวินิจฉัยรอยโรคเสี่ยงมะเร็งช่องปากตั้งแต่ 4 ชนิดขึ้นไป จะมีความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปากมากกว่าทันตแพทย์ที่เคยตรวจวินิจฉัยไม่เกิน 3 ชนิด และทันตแพทย์ที่เคยตรวจเพิ่มเติมอื่น ๆ ในผู้ป่วยที่มีรอยโรคเสี่ยงมะเร็งช่องปาก ได้แก่ การคลำตรวจต่อมน้ำเหลืองที่ลำคอ การตรวจทางภาพรังสี การเจาะเลือด หรือการตัดชิ้นเนื้อส่งตรวจนั้น จะพบว่าทันตแพทย์ที่เคยตรวจเพิ่มเติม 3 หรือ 4 แบบ จะมีความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปากมากกว่าทันตแพทย์ที่ไม่เคยตรวจเพิ่มเติมเลย หรือเคยตรวจเพียงแบบเดียวอย่างมีนัยสำคัญ

สรุปและอภิปรายผล

มีการศึกษาในต่างประเทศเกี่ยวกับความรู้ และปัจจัยที่เกี่ยวข้องกับการคัดกรองมะเร็งช่องปากของทันตแพทย์อย่างกว้างขวาง ในขณะที่การศึกษาในประเทศไทยยังมีน้อยมาก การศึกษานี้จึงเป็นการศึกษาแรก ๆ ในประเทศไทย โดยมีอัตราการตอบกลับอยู่ที่ร้อยละ 80.19 ซึ่งอยู่ในเกณฑ์ดีเมื่อเปรียบเทียบกับการศึกษาความรู้และปัจจัยที่เกี่ยวกับต่อการตรวจคัดกรองมะเร็งช่องปากของทันตแพทย์ในต่างประเทศที่ได้รับการตอบกลับในช่วงร้อยละ 55 – 86.92 (Kazmi et al., 2020; Ahmed, & Naidoo, 2017; Kogi et al., 2018; Gajendra, Cruz, & Kumar, 2006)

ผลของการศึกษานี้พบว่า เมื่อเปรียบเทียบความรู้ในกลุ่มทันตแพทย์หลังสำเร็จการศึกษาไปแล้ว 1 - 5 ปี มหาวิทยาลัยสงขลานครินทร์ โดยภาพรวมมีแนวโน้มลดลงตามระยะเวลาที่เพิ่มขึ้น ซึ่งคะแนนความรู้เฉลี่ยของทันตแพทย์หลังสำเร็จการศึกษาปีแรกจะสูงกว่าทันตแพทย์หลังสำเร็จการศึกษา 5 ปี อย่างมีนัยสำคัญทางสถิติ สอดคล้องกับการศึกษาเปรียบเทียบความรู้ระหว่างทันตแพทย์หลังสำเร็จการศึกษาในปีแรก ๆ กับทันตแพทย์ที่สำเร็จการศึกษามาแล้วหลายปีในหลายประเทศ เช่น ประเทศอิหร่านมีการศึกษาเปรียบเทียบความรู้ของกลุ่มทันตแพทย์จบใหม่ไม่เกิน 5 ปี เทียบกับทันตแพทย์ที่จบ

มาแล้วเกิน 20 ปีขึ้นไป พบว่ากลุ่มทันตแพทย์จบใหม่มีความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปากมากกว่า (Akbari, Raeesi, Khazaei, Ramezanzadeh, & Ebrahimipour, 2015) อีกการศึกษาหนึ่งในประเทศบราซิลพบว่าความรู้ของกลุ่มทันตแพทย์จบใหม่ไม่เกิน 5 ปี มีความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปากมากกว่าทันตแพทย์ที่จบมาแล้วเกิน 30 ปีขึ้นไปเช่นกัน (Pavão et al., 2018)

ปัจจัยที่เกี่ยวข้องกับความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปาก ได้แก่ สถานที่ทำงาน พบว่าทันตแพทย์ที่ทำงานในคลินิกหรือโรงพยาบาลเอกชนจะมีความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปากน้อยกว่าทันตแพทย์ที่ทำงานในโรงพยาบาลรัฐและทันตแพทย์ที่ทำงานสังกัดมหาวิทยาลัยอย่างมีนัยสำคัญ อาจเนื่องมาจากโรงพยาบาลภาครัฐจะมีนโยบายและตัวชี้วัดที่ชัดเจนในการเน้นย้ำให้ทันตแพทย์ทำการตรวจคัดกรองรอยโรคมะเร็งช่องปากในผู้ป่วยทุกราย ต่างจากทันตแพทย์ในคลินิกหรือโรงพยาบาลเอกชนที่มีโอกาสในการตรวจวินิจฉัยรอยโรคมะเร็งช่องปากน้อย ซึ่งผู้ป่วยที่มีโอกาสเสี่ยงมะเร็งช่องปากมีความสัมพันธ์กับเศรษฐสถานะที่ไม่ค่อยดี จึงมีโอกาสเข้ารับบริการจากโรงพยาบาลภาครัฐมากกว่าภาคเอกชน นอกจากนี้ทันตแพทย์เอกชนอาจให้ความสำคัญในการให้บริการทางทันตกรรมเป็นหลัก สอดคล้องกับการศึกษาในประเทศจีน เกี่ยวกับการบริการของคลินิกทันตกรรมเอกชน พบว่าผู้ป่วยต้องการลดระยะเวลารอคอยให้น้อยที่สุด เพื่อรับบริการทันตกรรมได้สะดวกรวดเร็วที่สุด ก็จะส่งผลให้ทันตแพทย์ต้องเร่งบริการตอบสนองความต้องการของคนไข้เป็นหลัก (Lin & Yin, 2022) และการศึกษาในประเทศมาเลเซียพบว่าทันตแพทย์ที่ทำงานในมหาวิทยาลัยและในภาครัฐ มีร้อยละของการตรวจคัดกรองมะเร็งช่องปากอย่างสม่ำเสมอสูงกว่าทันตแพทย์ในภาคเอกชน รวมทั้งมีร้อยละของการแนะนำผู้ป่วยเกี่ยวกับการเลิกปัจจัยเสี่ยงต่าง ๆ ของการเกิดมะเร็งช่องปากสูงกว่าอย่างมีนัยสำคัญ (Saleh et al., 2014)

การศึกษาต่อเฉพาะทางในสาขาเวชศาสตร์ช่องปากและสาขาศัลยศาสตร์ช่องปากและแม็กซิลโลเฟเชียล มีความสัมพันธ์โดยตรงกับความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปาก ทั้งเนื้อหาวิชาการ การฝึกปฏิบัติในการตรวจวินิจฉัยผู้ป่วยจริง ตลอดจนการทำงานที่ต้องรับส่งต่อผู้ป่วยสงสัยรอยโรคมะเร็งช่องปากอยู่เสมอ ทำให้มีความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปากมากกว่าทันตแพทย์ที่ศึกษาต่อเฉพาะทางด้านอื่น ๆ หรือไม่ได้ศึกษาต่อเฉพาะทาง สอดคล้องกับการศึกษาในสหราชอาณาจักรพบว่าทันตแพทย์เฉพาะทางด้านเวชศาสตร์ช่องปากและด้านศัลยศาสตร์ช่องปากและแม็กซิลโลเฟเชียลมีประสบการณ์การทำงานในการคัดกรองมะเร็งช่องปาก การให้ความรู้ด้านปัจจัยเสี่ยง การใช้เทคนิคต่าง ๆ ในการคัดกรองที่มากกว่าทันตแพทย์ทั่วไป (Kujan, Duxbury, Glenny, Thakker, & Sloan, 2006) และการศึกษาความรู้เกี่ยวกับมะเร็งช่องปากของทันตแพทย์ ที่เข้าร่วมงานประชุมวิชาการทันตแพทย์โลก ณ เมืองอิสตันบูล ประเทศตุรกี พบว่าทันตแพทย์เฉพาะทางเวชศาสตร์ช่องปาก มีความรู้ดีเรื่องรอยโรคเสี่ยงมะเร็งช่องปาก ที่มีลักษณะเป็นรอยขาว และรอยแดง เมื่อเปรียบเทียบกับทันตแพทย์เฉพาะทางในสาขาอื่น ๆ (Kebabcıoğlu & Pekiner, 2017)

การให้ความรู้แก่ผู้ป่วยเกี่ยวกับปัจจัยเสี่ยงของการเกิดรอยโรคมะเร็งช่องปาก จำนวนชนิดของรอยโรคเสี่ยงมะเร็งช่องปากที่เคยวินิจฉัยด้วยตนเอง จำนวนประเภทของการส่งตรวจเพิ่มเติมในกรณีผู้ป่วย

ที่มีรอยโรคมะเร็งช่องปาก และการเข้าร่วมงานประชุมวิชาการที่มีเนื้อหาเกี่ยวกับรอยโรคมะเร็งช่องปาก มีความสัมพันธ์กับความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปาก โดยทันตแพทย์ที่มีประสบการณ์เหล่านี้มากก็จะมีความรู้ในการตรวจคัดกรองรอยโรคมะเร็งช่องปากมากกว่าทันตแพทย์ที่มีประสบการณ์น้อยหรือไม่มีประสบการณ์เลย สอดคล้องกับงานวิจัยในประเทศอียิปต์พบว่า มีความสัมพันธ์เชิงบวกระหว่างความรู้ในการตรวจคัดกรองมะเร็งช่องปากกับการฝึกฝนการปฏิบัติจริงในขั้นตอนต่าง ๆ ของการคัดกรองมะเร็งช่องปาก ตั้งแต่การซักประวัติปัจจัยเสี่ยง การให้ความรู้แก่ผู้ป่วย การตรวจคัดกรองในช่องปากเป็นประจำ การตรวจคลำต่อมน้ำเหลือง การตัดชิ้นเนื้อส่งตรวจ ตลอดจนขั้นตอนการส่งต่อผู้ป่วยเพื่อรับการรักษาต่อไป (Khattab, Elheeny, & Tony, 2019) ขณะที่การศึกษาในประเทศอิตาลีพบว่าทันตแพทย์ที่ผ่านการอบรมในรูปแบบต่าง ๆ เกี่ยวกับการคัดกรองมะเร็งช่องปากในช่วง 12 เดือนก่อนทำการศึกษามีความรู้เกี่ยวกับลักษณะทางคลินิกของรอยโรคมะเร็งช่องปากมากกว่าทันตแพทย์ที่ไม่ผ่านการอบรมใด ๆ ในช่วงเวลาเดียวกัน (Colella, Gaeta, Moscariello, & Angelillo, 2008)

เนื่องจากการศึกษานี้มีข้อจำกัดในเรื่องของการศึกษากลุ่มตัวอย่างที่สามารถทำการศึกษาได้เฉพาะกลุ่มตัวอย่างที่จบการศึกษาในระยะเวลา 1-5 ปีแรก และจำกัดเฉพาะทันตแพทย์ที่จบจากมหาวิทยาลัยสงขลานครินทร์ ผลการศึกษาจึงยังไม่อาจสะท้อนภาพรวมของทันตแพทย์ไทยทั้งหมดได้ รวมไปถึงข้อคำถามที่มีจำนวนน้อย อาจจะยังไม่ครอบคลุมประเด็นเนื้อหาได้มากเพียงพอ จึงควรมีการศึกษาเพิ่มเติมในกลุ่มตัวอย่างที่กว้างขึ้น และมีข้อคำถามความรู้เกี่ยวกับมะเร็งช่องปากในแต่ละด้านที่ครอบคลุมเนื้อหาได้มากขึ้น ก็จะสามารถนำผลการศึกษาที่ได้ไปแก้ไขปรับปรุงงานคัดกรองมะเร็งช่องปากของประเทศไทยได้ดียิ่งขึ้น

จากผลการศึกษานี้หน่วยงานภาครัฐจึงควรส่งเสริมให้มีการประชุมวิชาการที่มีหัวข้อบรรยายเกี่ยวกับมะเร็งช่องปากอาจมีการให้ CE แก่ทันตแพทย์เก็บสะสม เพื่อเพิ่มพูนความรู้และประสบการณ์ในการคัดกรองมะเร็งช่องปากอย่างต่อเนื่อง โดยเน้นลักษณะการประชุมให้ทันตแพทย์มีส่วนร่วมในการฝึกวินิจฉัยรอยโรคมะเร็งช่องปากและรอยโรคเสี่ยงมะเร็งช่องปากด้วยตนเอง อาจทำในรูปแบบ Case Scenario จำลองการพบเจอผู้ป่วยในสถานการณ์จริง หรือมีการส่งเสริมให้มีการศึกษาดูงานเคสผู้ป่วยจริงในโรงพยาบาลมะเร็งต่าง ๆ ก็จะช่วยส่งเสริมประสบการณ์การตรวจวินิจฉัย การส่งตรวจเพิ่มเติมเพื่อช่วยในการวินิจฉัย การให้คำแนะนำผู้ป่วยเกี่ยวกับปัจจัยเสี่ยงมะเร็งช่องปาก รวมไปถึงประสบการณ์การปรึกษา การส่งต่อเคสผู้ป่วยกับแพทย์และทันตแพทย์เฉพาะทาง จะมีส่วนช่วยให้ทันตแพทย์ยังมีองค์ความรู้ที่ดีในงานคัดกรองมะเร็งช่องปากต่อไป

ข้อเสนอแนะ

1. ทันตแพทย์ควรหาโอกาสในการเข้าร่วมงานประชุมวิชาการที่มีหัวข้อเกี่ยวกับมะเร็งช่องปากเพื่อเป็นการทบทวนความรู้หรือเพิ่มพูนความรู้ใหม่ในงานคัดกรองมะเร็งช่องปาก

2. ทันตแพทย์ควรให้คำแนะนำผู้ป่วยเกี่ยวกับปัจจัยเสี่ยงและการเกิดโรคมะเร็งช่องปากอยู่เสมอ โดยอาจให้คำแนะนำก่อนหรือหลังให้การรักษาทางทันตกรรม หรือประชาสัมพันธ์ให้ความรู้เชิงรุกในพื้นที่ชุมชน จะช่วยส่งเสริมให้ทันตแพทย์ยังมีความรู้ที่ดีในงานคัดกรองมะเร็งช่องปากอยู่เสมอ

3. ทันตแพทย์ทั่วไปที่ปรึกษาเคสผู้ป่วย หรือส่งต่อผู้ป่วยสงสัยมะเร็งช่องปากให้ได้รับการรักษากับแพทย์หรือทันตแพทย์เฉพาะทาง นอกจากจะเป็นการทำงานตามบทบาทหน้าที่ของทันตแพทย์แล้วยังช่วยทบทวนเพิ่มเติมความรู้ในการตรวจคัดกรองมะเร็งช่องปาก

4. หน่วยงานภาครัฐควรส่งเสริมให้มีการฝึกฝนการวินิจฉัยรอยโรคมะเร็งช่องปากและรอยโรคเสี่ยงมะเร็งช่องปากให้มีความหลากหลายแก่ทันตแพทย์ทั่วไปอยู่เสมอ โดยอาจจัดการศึกษาดูงานในโรงพยาบาลมะเร็ง หรือเชิญทันตแพทย์/แพทย์ผู้เชี่ยวชาญมาให้ความรู้เกี่ยวกับมะเร็งช่องปากทั้งในรูปแบบงานประชุมวิชาการหรือรูปแบบ Online เพื่อพัฒนาบุคลากรในงานตรวจคัดกรองรอยโรคมะเร็งช่องปาก ลดอัตราการเพิ่มผู้ป่วยรายใหม่และอัตราการตาย อีกทั้งยังช่วยลดรายจ่ายจากการรักษาผู้ป่วยโรคมะเร็งระยะลุกลามอีกด้วย

5. ควรทำการศึกษาเพิ่มเติมในกลุ่มตัวอย่างที่จบการศึกษามาจากหลากหลายสถาบัน หลากหลายอายุ และมาจากทุกภูมิภาคของประเทศ เพื่อเป็นตัวแทนทันตแพทย์ทั่วประเทศไทย และสรุปเป็นผลงานวิจัยของประเทศไทยได้

6. ควรเพิ่มจำนวนข้อคำถามของแบบสอบถามความรู้ในการตรวจคัดกรองมะเร็งช่องปาก ให้มีจำนวนข้อและสัดส่วนของคำถามที่เหมาะสม ของความรู้ในด้านต่าง ๆ เช่น ระบาดวิทยา ลักษณะทางคลินิก การตรวจวินิจฉัยแยกรอยโรค การพยากรณ์โรค

เอกสารอ้างอิง

กรมอนามัย กระทรวงสาธารณสุข. (2563). แนวทางการคัดกรอง รอยโรคเสี่ยงมะเร็งช่องปากและมะเร็งช่องปาก. นนทบุรี : กระทรวงสาธารณสุข.

กรมอนามัย. สำนักทันตสาธารณสุข. (2563). แนวทางการดำเนินงานทันตสาธารณสุข ประจำปี 2564. นนทบุรี : สำนักทันตสาธารณสุข.

กองทันตสาธารณสุข, คณะทำงานการจัดทำคู่มือแนวทางการตรวจคัดกรองรอยโรคก่อนมะเร็งสำหรับทันตแพทย์และทันตาภิบาล. (2553). คู่มือแนวทางการตรวจและจัดการมะเร็งช่องปากสำหรับทันตบุคลากร (พิมพ์ครั้งที่ 2). กรุงเทพฯ : มโนพริ้นติ้งแอนด์พับบลิชชิ่ง.

ทันตแพทยสภา. (2563). คู่มือการสอบเพื่อขึ้นทะเบียนและรับใบอนุญาตเป็นผู้ประกอบวิชาชีพทันตกรรม พ.ศ. 2563. นนทบุรี : สำนักงานเลขาธิการทันตแพทยสภา.

Ferlay, J., Ervik, M., Lam, F., Laversanne, M., Colombet, M., Mery, L., Bray, F. (2024). Global cancer observatory: cancer today. Retrieved from https://gco.iarc.who.int /media/globocan/factsheets/ populations/900-world-fact-sheet.pdf

Ferlay, J., Ervik, M., Lam, F., Laversanne, M., Colombet, M., Mery, L., Bray, F. (2024). Global cancer observatory: cancer today. Retrieved from https://gco.iarc.who.int /media/ globocan/factsheets/ populations/764-thailand-factsheet.pdf

Amit, M., Yen, T., Liao, C., Chaturvedi, P., Agarwal, J.P., Kowalski, L.P., Gil, Z., (2013). Improvement in survival of patients with oral cavity squamous cell carcinoma: An international collaborative study. Cancer, 119(24), 4242–4248.

Siegel, R.L., Miller, K.D., & Jemal, A. (2017). Cancer statistics, 2017. CA Cancer J Clin, 67(1), 7-30.

Pollaers, K., Hinton-Bayre, A., Friedland, P.L., & Farah, C.S. (2018). AJCC 8th edition oral cavity squamous cell carcinoma staging – is it an improvement on the AJCC 7th edition? Oral Oncol, 82, 23-28.

Ragin, C.C.R., Modugno, F., & Gollin, S.M. (2007). The epidemiology and risk factors of head and neck cancer: A focus on human papillomavirus. J Dent Res, 86(2), 104-114.

Rethman, M.P., Carpenter, W., Cohen, E.E., Epstein, J., Evans, C.A., Flaitz, C.M., Meyer, D.M., (2010). Evidence-based clinical recommendations regarding screening for oral squamous cell carcinomas. J Am Dent Assoc, 141(5), 509-520.

Allen, K., & Farah, C. (2015). Screening and referral of oral mucosal pathology: A check-up of Australian dentists. Aust Dent J, 60(1), 52-58.

Golburean, O., Hagen, M.H., Uncuta, D., Tighineanu, M., Manrikyan, G., Vardanian, I., Özkaya, F. (2021). Knowledge, opinions, and practices related to oral cancer prevention and oral mucosal examination among dentists in Moldova, Belarus and Armenia: A multi-country cross-sectional study. BMC Oral Health, 21(1), 652.

Coppola, N., Mignogna, M.D., Rivieccio, I., Blasi, A., Bizzoca, M.E., Sorrentino, R., ... Leuci, S, (2021). Current knowledge, attitudes, and practice among health care providers in OSCC awareness: Systematic review and meta-analysis. Int J Environ Res Public Health, 18(9), 4506.

Ahmed, N.H., & Naidoo, S. (2017). Oral cancer knowledge, attitudes, and practices among dentists in Khartoum State, Sudan. J Cancer Educ, 34(2), 291-296.

Kazmi, F., Alkait, S., Alghamdi, H., Alhussain, G., & Tabassum, A. (2020). Assessing knowledge, attitude and practices for oral squamous cell carcinoma among health care professionals in Princess Nourah University, Riyadh, KSA. Asian Pac J Cancer Prev, 21(2), 539-545.

Pavão, S.G., Salgado de Souza, R., Gallego, A.P.V., & Lauria, D.L. (2018). Oral cancer knowledge assessment: Newly graduated versus Senior Dental Clinicians. Int J Dent, 1–12.

Razavi, S.M., Zolfaghari, B., Foroohandeh, M., Doost, M.E., & Tahani, B. (2013) Dentists' knowledge, attitude, and practice regarding oral cancer in Iran. J Cancer Educ, 28(2), 335-341.

Hashim, R., Abo-Fanas, A., Al-Tak, A., Al-Kadri, A. & Abu Ebaid, Y. (2018). Early detection of oral cancer- dentists' knowledge and practices in the United Arab Emirates. Asian Pac J Cancer Prev, 19(8), 2351-2355.

Hassona, Y., Scully, C., Abu, T.N., Baqain, Z., Ismail, F., Hawamdeh, S., & Sawair, F. (2015) Oral cancer knowledge and diagnostic ability among dental students. J Cancer Educ, 32(3), 566-570.

Grafton-Clarke, C., Chen, K.W., & Wilcock, J. (2018). Diagnosis and referral delays in primary care for oral squamous cell cancer: A systematic review. Br J Gen Pract, 69(679), e112-e126.

Kogi, S., DaSilva, J., Mikasa, Y., Lee, C., Ishikawa-Nagai, S., Yang, Q., Yamada, H. (2018). Knowledge and practice of oral cancer screening in teaching faculty—comparison of specialty and year of clinical experience. J Cancer Educ, 34(3), 455-462.

Gajendra, S., Cruz, G., & Kumar, J. (2006), Oral cancer prevention and early detection: Knowledge, practices, and opinions of oral health care providers in New York State. J Cancer Educ, 21(3), 157–162.

Akbari, N., Raeesi, V., Khazaei, T., Ramezanzadeh, K., & Ebrahimipour, S. (2015). Evaluation of general Dentists' and dental specialists' knowledge about oral cancer in South Khorasan-iran 2014. Asian Pac J Cancer Prev, 16(16), 6987-6990.

Lin, W., & Yin, W. (2022). Impacts of service quality, brand image, and perceived value on outpatient's loyalty to China's private dental clinics with service satisfaction as a mediator. PLoS One, 17(6), e0269233.

Saleh, A., Kong, Y.H., Vengu, N., Badrudeen, H., Zain, R.B., & Cheong, S.C. (2014). Dentists' perception of the role they play in early detection of oral cancer. Asian Pac J Cancer Prev, 15(1), 229-237.

Kujan, O., Duxbury, A., Glenny, A., Thakker, N., & Sloan, P. (2006). Opinions and attitudes of the UK's GDPs and specialists in oral surgery, oral medicine and surgical dentistry on oral cancer screening. Oral Diseases, 12(2), 194–199.

Kebabcıoğlu, Ö., & Pekiner, F.N. (2017). Assessing oral cancer awareness among dentists. J Cancer Educ, 33(5), 1020-1026.

Khattab, N.M., Elheeny, A.A., & Tony, G.A. (2019). Oral-cancer knowledge, practice, and attitude assessment of dentists in Upper Egypt: A cross-sectional study. Clin Exp Dent Res, 5(2), 121-127.

Colella, G., Gaeta, G.M., Moscariello, A., & Angelillo, I.F. (2008). Oral cancer and dentists: Knowledge, attitudes, and practices in Italy. Oral Oncology, 44(4), 393–399.

ผลของยาพอกสมุนไพรลดอาการปวดเข่าในผู้สูงอายุ หมู่บ้านคลองนุ้ย ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา

The effect of herbal poultices on reducing knee pain in the elderly in Klong Nui village, Phatong Subdistrict, Hat Yai District, Songkhla Province

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บทคัดย่อ

การศึกษาผลของยาพอกสมุนไพรลดอาการปวดเข่าในผู้สูงอายุ หมู่บ้านคลองนุ้ย ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา มีวัตถุประสงค์เพื่อศึกษาผลของยาพอกสมุนไพรที่มีผลต่อการบรรเทาความปวดในผู้สูงอายุที่เจ็บเข่า และเพื่อเป็นทางเลือกให้สำหรับผู้สูงอายุที่มีอาการปวดเข่า ลดการใช้ยาแผนปัจจุบัน เพื่อลดอาการข้างเคียงที่เกิดจากยาในผู้สูงอายุในพื้นที่หมู่บ้านคลองนุ้ย ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา โดยกลุ่มตัวอย่าง คือ ผู้สูงอายุที่มีอาการปวดเข่าในพื้นที่หมู่บ้านคลองนุ้ย ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา จำนวน 15 คน ใช้วิธีคัดเลือกแบบเจาะจง เครื่องมือที่ใช้ในการเก็บข้อมูล ให้กลุ่มตัวอย่างตอบแบบสอบถามที่แบ่งเป็น 2 ส่วน ได้แก่ ส่วนที่ 1 เป็นการสอบถามข้อมูลพื้นฐานทั่วไปของผู้เข้าร่วมโครงการวิจัย ด้วยการให้ตอบแบบสอบถาม ได้แก่ เพศ อายุ สถานภาพ อาชีพ โรคประจำตัว ลักษณะที่อยู่อาศัย ระยะเวลาที่มีอาการปวดเข่า ส่วนที่ 2 เป็นการเก็บข้อมูลด้วยแบบสอบถามโดยแบบประเมิน ความรุนแรงของอาการปวดเข่า (Oxford Knee Score) ประเมินหาค่าระดับรุนแรงของอาการปวดเข่า วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา และสถิติ Paired t-test ผลการวิจัยพบว่า เมื่อทำ

การเปรียบเทียบผลการใช้ยาสมุนไพรพอกเข่า ในผู้ป่วยที่มีระดับความเจ็บปวดเข่าแบบรุนแรง หลังจากใช้สมุนไพรพอกเข่า สามารถลดระดับอาการปวดเข่าได้ ที่ค่าระดับความเจ็บปวด ก่อนการทดลองความเจ็บปวดเข่า อยู่ในระดับคะแนนเฉลี่ยที่ 30.27 ระดับความปวดเข่าหลังทดลอง พบว่า ระดับคะแนนเฉลี่ยที่ 33.07 อย่างมีนัยสำคัญทางสถิติที่ระดับ (P-value =0.013) แสดงให้เห็นว่ายาพอกสมุนไพรที่สรรพคุณของตัวยาเป็นรสร้อน ลดการอักเสบของกล้ามเนื้อมีผลต่อการบรรเทาอาการปวดเข่า ไม่มีอาการข้างเคียงจากการใช้ยา ร้อยละ 100 และมีอาการปวดลดลงทำให้ผู้สูงอายุสามารถทำกิจวัตรประจำวันได้ สามารถนำมาเป็นทางเลือกให้กับผู้สูงอายุที่มีอาการปวดเข่า

คำสำคัญ: ผู้สูงอายุ, อาการปวดเข่า, ยาพอกสมุนไพร

Abstract

The study on the effects of herbal poultices to reduce knee pain in the elderly in Klong Nui Village, Patong Subdistrict, Hat Yai District, Songkhla The objective of the study is to examine the effects of herbal poultices on alleviating knee pain in elderly individuals. It also seeks to provide an alternative for elderly individuals with knee pain, reducing the use of modern medicine to minimize side effects caused by drugs. The sample group consists of 15 elderly individuals with knee pain from Klong Nui Village, Patong Subdistrict, Hat Yai District, Songkhla Province, selected through purposive sampling. The data collection tool involves having the sample group answer a questionnaire divided into two parts: Part 1 inquires about the general background information of the research participants, including gender, age, marital status, occupation, chronic diseases, living conditions, and the duration of knee pain. Part 2 involves data collection using a questionnaire to assess the severity of knee pain (Oxford Knee Score). Evaluate the severity level of knee pain symptoms and analyze the data using descriptive statistics and the Paired t-test. The research results found that when comparing the effects of herbal knee poultices in patients with severe knee pain, the use of herbal poultices significantly reduced the average pain level after application (p=0.013). This indicates that the herbal poultice, which has warming properties, reduces muscle inflammation and alleviates knee pain. Additionally, 100% of the users were satisfied with the herbal poultice, reported no side effects, and experienced reduced pain levels, allowing elderly individuals to perform daily activities. This can be considered an alternative for elderly patients with knee pain.

Keywords: Elderly, knee pain, herbal poultice

บทนำ

"ผู้สูงอายุ" ตามพระราชบัญญัติผู้สูงอายุ พ.ศ.2546 ได้ให้คำนิยามว่า "ผู้สูงอายุ คือ ผู้ที่มีอายุ 60 ปีขึ้นไป" ปัจจุบันพบว่า ประชากรกลุ่มผู้สูงอายุมีจำนวนเพิ่มมากขึ้นและกลุ่มโรคที่เกี่ยวข้องกับความเสื่อมในผู้สูงอายุพบได้บ่อยมากขึ้นเช่นกัน ซึ่งรวมถึงผู้ป่วยโรคเข่าเสื่อม คิดเป็นร้อยละ 80-90 ในผู้ที่มีอายุมากกว่า 65 ปี (กรมกิจการผู้สูงอายุ, 2553)

ทุกภาคของประเทศไทยได้ก้าวเข้าสู่สังคมผู้สูงอายุครบทุกภาคส่วน ซึ่งหมายความว่าประเทศไทยมีประชากรที่มีอายุมากกว่า 60 ปีขึ้นไป คิดเป็นร้อยละ 10 ของประชากรปัญหาสุขภาพที่พบได้บ่อยในกลุ่มผู้สูงอายุที่มากขึ้นทำให้เกิดอาการปวดคอ ปวดไหล่ ปวดหลัง ปวดเข่า ปัญหาโรคข้อเข่าเสื่อม นับว่าเป็นปัญหาที่พบได้บ่อยในผู้สูงอายุจะทำให้ผู้ป่วยมีอาการปวดเมื่อมีการเคลื่อนไหวของข้อเข่า บางครั้งอาจจะมีอาการปวด และรู้สึกตึงบริเวณข้อพับด้านหลังของเข่าอาการบวมบริเวณข้อเข่า เนื่องจากมีน้ำในข้อเข่าซึ่งเกิดจากการอักเสบภายในข้อ ข้อยึดติด และไม่สามารถเหยียดงอเข่าได้เหมือนปกติมีอาการเสียวภายในข้อเวลาเดินบางครั้งมีอาการอ่อนแรง ต้นขาลีบ ขาโก่งผิดรูป โรคข้อเข่าเสื่อมจะมีลักษณะที่มีการสึกกร่อนของกระดูกเป็นกระบวนการเสื่อมของข้อตามอายุที่เพิ่มมากขึ้นพบได้บ่อยในผู้สูงอายุ ผู้ป่วยมักจะมีอาการปวดเข่าเพิ่มมากขึ้นเมื่อน้ำหนักตัวที่เพิ่มขึ้น นั่ง คุกเข่า นั่งขัดสมาธิและนั่งพับเพียบเนื่องจากว่ากระดูกที่งอออกรอบ ๆ ข้อที่มีการเสื่อมมีการกดเบียดเส้นเอ็นและเนื้อเยื่ออ่อนรอบข้อ

ในปัจจุบันพบว่า การปวดเข่าพบได้บ่อยถือเป็นปัญหาด้านสุขภาพในผู้สูงอายุ การปวดเข่าในผู้สูงอายุเกิดจากการเสื่อมสภาพ และการสึกหรอของผิวกระดูกอ่อนอาการปวดข้อเข่าที่สามารถส่งผลกระทบต่อการใช้ชีวิตประจำวัน ซึ่งเกิดจากการใช้งานของข้อเข่ามาเป็นระยะเวลานาน (Primary OA knee) ตามช่วงอายุ ทำให้เกิดอาการปวดเข่า บวมแดง เข่าฝืด ยึด มีเสียงดังในเข่ากรณีความรุนแรงของอาการจะมากหรือน้อยยังคงเป็นปัญหาในการดำเนินชีวิต จนมีผลทำให้เกิดการเปลี่ยนแปลงที่โครงสร้างของข้อเข่าเกิดน้ำสะสมในข้อเข่าเพิ่มมากจากการอักเสบขึ้นทำให้ข้อบวม พบกระดูกงอกผิดปกติที่ขอบหรือที่มุมข้อพบกล้ามเนื้อและเอ็นรอบข้อเข่าหย่อนยาน การเปลี่ยนแปลงโครงสร้างของข้อที่กล่าวมาข้างต้น จะส่งผลให้การเคลื่อนไหวของข้อได้ลดลงและทำให้เกิดอาการปวด ดังนั้น ผู้วิจัยสนใจศึกษาในผลของยาพอกสมุนไพรลดอาการปวดเข่าในผู้สูงอายุ หมู่บ้านคลองนุ้ย ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา เพื่อศึกษาผลของยาพอกเข่าสมุนไพรบรรเทาอาการปวดเข่า เพื่อเป็นทางเลือกให้กับผู้สูงอายุลดในการใช้ยาแผนปัจจุบัน และลดผลข้างเคียงที่เกิดจากการใช้ยา

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาผลของยาพอกสมุนไพรที่มีผลต่อการบรรเทาความปวดในผู้สูงอายุที่เจ็บเข่า
2. เพื่อเปรียบเทียบความปวดของเข่าก่อนและหลังพอกเข่าในผู้สูงอายุ

วิธีดำเนินการวิจัย

ในส่วนนี้ผู้วิจัยได้นำเสนอแนวทางการดำเนินการวิจัย ซึ่งประกอบด้วยเนื้อหาเกี่ยวกับ รูปแบบการวิจัย กลุ่มตัวอย่าง ขั้นตอนการดำเนินการวิจัย การเก็บรวบรวมข้อมูล และการวิเคราะห์ข้อมูล โดยมีรายละเอียดดังนี้

1. รูปแบบการวิจัย

การวิจัยในครั้งนี้ เป็นการวิจัยแบบกึ่งทดลอง (Quasi-experimental study)

2. ประชากรและกลุ่มตัวอย่าง

2.1 กลุ่มตัวอย่างที่ใช้ในการศึกษาครั้งนี้ คือ ผู้สูงอายุที่มีอายุ 60 ปีขึ้นไป ที่มีอาการปวดเข่า หมู่บ้านคลองนุ้ย ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา จำนวน 15 คน โดยใช้วิธีการคัดเลือกแบบเจาะจงตามเกณฑ์คัดเข้า เกณฑ์คัดออก

2.2 เกณฑ์คัดเลือกกลุ่มตัวอย่าง

กลุ่มตัวอย่างมีคุณสมบัติในการคัดเข้า (Inclusion Criteria)

- ผู้สูงอายุที่มีอาการปวดเข่า
- สามารถสื่อสาร โดยการพูด ฟังภาษาไทยเข้าใจ และไม่มีปัญหาด้านการได้ยิน
- ไม่มีประวัติการรักษาด้วยการผ่าตัดข้อเข่า
- ไม่มีโรคหรือข้อห้ามพอกเข่า เช่น โรคผิวหนัง มะเร็ง โรคติดต่อ
- ยินยอมเข้าร่วมกิจกรรมตามโปรแกรมด้วยความสมัครใจ จนเสร็จสิ้นการวิจัย กลุ่ม

ตัวอย่างมีคุณสมบัติในการคัดออก (Exclusion Criteria)

- ผู้ป่วยติดเตียง
- เกิดผลข้างเคียงจากการพอกสมุนไพร เช่น การแพ้สมุนไพร ผื่นแดง คัน เป็นต้น
- มีภาวการณ์เจ็บป่วยไม่สามารถเข้าร่วมกิจกรรมได้ตลอดระยะเวลาของโปรแกรม

2.3 ขั้นตอนการดำเนินการวิจัย

การศึกษาวิจัยในครั้งนี้ เป็นการศึกษาวิจัยแบบกึ่งทดลอง (Quasi-Experimental Designs) มีวัตถุประสงค์ เพื่อศึกษาผลของยาพอกสมุนไพรลดอาการปวดเข่าในผู้สูงอายุ หมู่บ้านคลองนุ้ย ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา ดังนี้

ขั้นตอนที่ 1 ศึกษาข้อมูลแนวคิด ทฤษฎี เอกสาร งานวิจัยที่เกี่ยวข้องกับผู้สูงอายุ

ขั้นตอนที่ 2 จัดทำเครื่องมือแบบสอบถาม เพื่อใช้ในการคัดเลือกกลุ่มตัวอย่างและเก็บรวบรวมข้อมูล โดยให้กลุ่มตัวอย่างตอบแบบสอบถามโดยตรง

ขั้นตอนที่ 3 วิธีการตั้งตำรับสมุนไพร

2) วิธีการตั้งตำรับสมุนไพร

ก. ผสมผงดองดึง 100 กรัม กับแป้งข้าวเจ้า 100 กรัม ในภาชนะที่เตรียมไว้

ข. นำขิงสดมาบดพอหยาบ 300 กรัม เติมน้ำเปล่า 500 มิลลิลิตร แล้วนำมาต้ม 30 นาที รอให้อุณหภูมิลดลง (ที่อุณหภูมิห้อง)

ค. ผสมน้ำขิง 250 มิลลิลิตร ให้เป็นเนื้อเดียวกัน

ขั้นตอนที่ 4 ทำการทดสอบสมุนไพรร่วมกับกลุ่มตัวอย่าง

ก. ให้ความรู้และสรรพคุณจากสมุนไพรที่ได้รับให้กับผู้สูงอายุ

ข. นำสมุนไพรที่เตรียมไว้นำมาพอก บริเวณจุดที่ปวด โดยใช้เวลา 30 นาที

ขั้นตอนที่ 5 ประเมินผลการใช้ยาพอกสมุนไพร

- ให้ผู้สูงอายุตอบแบบสอบถามหลังจากการทำหัตถการพอกเข่า
- ทำการสรุปผลการวิจัย นำผลการวิจัยมาเรียบเรียง วิเคราะห์ข้อมูล ประมวลผล และข้อเสนอแนะ

2.4 การเก็บรวบรวมข้อมูล

การเก็บรวบรวมข้อมูล ประกอบด้วย 1) ข้อมูลจากเอกสารและงานวิจัยที่เกี่ยวข้อง เป็นการศึกษาข้อมูลทุติยภูมิ (Secondary Data) เพื่อทำความเข้าใจแนวคิด ทฤษฎีและผลงานวิจัยที่เกี่ยวข้อง และ 2) ข้อมูลจากการวิจัยเชิงปฏิบัติการแบบมีสอบสวน และการวิจัยภาคสนาม ซึ่งเป็นการศึกษาข้อมูลปฐมภูมิ (Primary Data) ด้วยการสัมภาษณ์แบบเจาะลึก (In-depth Interview) การสัมภาษณ์แบบกลุ่ม (Focus Group Interview) และการสังเกตแบบมีส่วนร่วม (Participant Observation)

2.5 การวิเคราะห์ข้อมูล

ผู้วิจัยนำแบบสอบถามทั้ง 2 ส่วน มาตรวจสอบความสมบูรณ์ของแบบสอบถามและนำมาวิเคราะห์ทางสถิติ โดยใช้คอมพิวเตอร์ในการคำนวณค่าสถิติด้วยโปรแกรมสำเร็จรูปในการประมวลผลและวิเคราะห์ข้อมูล โดยใช้สถิติด้วยการวิเคราะห์ข้อมูลดังนี้

ส่วนที่ 1 สถิติเชิงพรรณนา (Descriptive Statistics) ค่าสถิติพื้นฐาน ได้แก่ ร้อยละ (Percentage) ค่าเฉลี่ย (Mean) ส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation)

ส่วนที่ 2 สถิติเชิงอนุมานที่ใช้ในการวิเคราะห์ข้อมูลเพื่อตรวจสอบสมมติฐาน สถิติที่ใช้ t-test แบบวัดซ้ำ Paired Sample t-test นำผลของยาพอกสมุนไพรลดอาการปวดเข่าในผู้สูงอายุของกลุ่มตัวอย่าง และเปรียบเทียบความแตกต่างของค่าเฉลี่ยของผลการทดลองก่อนและหลังให้การรักษา

ผลการวิจัย

การวิจัยครั้งนี้เป็นการวิจัยแบบกึ่งทดลอง (Quasi-experimental study) ชนิดกลุ่มเดียววัดผลก่อนและหลังการทดลอง ของยาพอกสมุนไพรลดอาการปวดเข่าในผู้สูงอายุ หมู่บ้านคลองนุ้ย ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา โดยเก็บรวบรวมข้อมูลของกลุ่มตัวอย่าง ดังนี้

1. วิเคราะห์ข้อมูลทั่วไปของผู้สูงอายุ

ผลการศึกษาพบว่าผู้สูงอายุเป็นเพศหญิง ร้อยละ 73.33 เพศชาย ร้อยละ 26.67 มีอายุอยู่ในช่วง 60-69 ปี คิดเป็นร้อยละ 60.00 อายุอยู่ในช่วง 70-79 ปี คิดเป็นร้อยละ 20.00 อายุ 80 ปีขึ้นไป คิดเป็นร้อยละ 20.00 สถานภาพสมรส/อยู่ด้วยกัน คิดเป็นร้อยละ 46.67 หม้าย คิดเป็นร้อยละ 33.33 สถานภาพโสด คิดเป็นร้อยละ 13.33 หย่าร้าง/แยกกันอยู่ คิดเป็นร้อยละ 6.67 อาชีพทำสวน ร้อยละ 46.67 อาชีพ

แม่บ้าน ร้อยละ 40.00 อาชีพรับจ้าง ร้อยละ 13.33 ไม่มีโรคประจำตัว คิดเป็นร้อยละ 40.00 โรคความดันโลหิตสูง คิดเป็นร้อยละ 26.67 โรคเบาหวาน คิดเป็นร้อยละ 20.00 โรคหัวใจ คิดเป็นร้อยละ 13.33 อาศัยบ้านชั้นเดียว คิดเป็นร้อยละ 60.00 อาศัยบ้านสองชั้น คิดเป็นร้อยละ 33.33 อาศัยบ้านยกพื้นใต้ถุนสูง คิดเป็นร้อยละ 6.67 อาการปวดเข่ามากกว่า 5 ปี คิดเป็นร้อยละ 66.66 มีอาการปวดเข่า 4 ปี คิดเป็นร้อยละ 26.67 และมีอาการปวดเข่า 3 ปี คิดเป็นร้อยละ 6.67 ตามลำดับ แสดงดังตารางที่ 1

ตารางที่ 1 ข้อมูลทั่วไปของผู้สูงอายุ

ข้อมูลทั่วไป	ลักษณะทั่วไป	จำนวน (คน)	ร้อยละ
เพศ			
	ชาย	4	26.67
	หญิง	11	73.33
อายุ			
	60-69 ปี	9	60.00
	70-79 ปี	3	20.00
	80 ปี ขึ้นไป	3	20.00
สถานภาพการสมรส			
	โสด	2	13.33
	สมรส/อยู่ด้วยกัน	7	46.67
	หย่าร้าง/แยกกันอยู่	1	6.67
	หม้าย	5	33.33
อาชีพ			
	แม่บ้าน	6	40.00
	ทำสวน	7	46.67
	รับจ้าง	2	13.33
โรคประจำตัว			
	เบาหวาน	3	20.00
	ความดันโลหิตสูง	4	26.67
	หัวใจ	2	13.33
	ไม่มีโรคประจำตัว	6	40.00
ลักษณะที่อยู่อาศัย			
	บ้านชั้นเดียว	9	60.00
	บ้านชั้นสอง	5	33.33
	บ้านยกพื้นใต้ถุนสูง	1	6.67

ตารางที่ 1 (ต่อ)

ข้อมูลทั่วไป	ลักษณะทั่วไป	จำนวน (คน)	ร้อยละ
ระยะเวลาที่มีอาการปวดเข่า			
	3 ปี	1	6.67
	4 ปี	4	26.67
	มากกว่า 5 ปี	10	66.66

2. การเปรียบเทียบค่าคะแนนเฉลี่ยความปวดของกลุ่มทดลองในระยะก่อน และหลังการทดลอง

การเปรียบเทียบค่าคะแนนเฉลี่ยความปวดของกลุ่มทดลองก่อน และหลังการทดลอง พบว่า ภายหลังการทดลอง กลุ่มทดลองมีคะแนนเฉลี่ยความปวดลดลง อย่างมีนัยสำคัญทางสถิติ (P-value < 0.05) ดังแสดงในตารางที่ 2

ตารางที่ 2 การเปรียบเทียบค่าคะแนนเฉลี่ยความปวดของกลุ่มทดลองในระยะก่อน และหลังการทดลอง

ลักษณะอาการ	คะแนนการเปรียบเทียบ		P-value
	ก่อนพอก	หลังพอกทันที	
1. ลักษณะอาการเจ็บปวดเข่าของท่าน (อาการปวดเข่า / ปวดรอบๆ ข้อเข่า / ปวดข้อ)	2.53	2.80	0.040*
2. มีปัญหาเรื่องเข่าในการทำกิจวัตรประจำวันด้วยตนเอง หรือไม่ เช่น การขึ้นอาบน้ำ แต่งตัว	2.47	2.73	0.346
3. ท่านมีปัญหาเรื่องเข้าเมื่อก้าวขึ้นลงรถหรือรถประจำทางหรือไม่	2.60	2.67	0.001*
4. ระยะเวลานานเท่าไรที่ท่านเดินได้มากที่สุดก่อนที่ท่านจะมีอาการการปวดเข่า	2.60	2.67	0.001*
5. หลังทานอาหารเสร็จ ในขณะที่ลุกจากเก้าอี้นั่ง เข่าของท่านมีอาการอย่างไร	2.67	2.73	0.181
6. ท่านต้องเดิน โยกตัว(เดินกระโผลกกระเผลก) เพราะอาการที่เกิดจากเข่าของท่านหรือไม่	2.67	2.73	0.183

ตารางที่ 2 (ต่อ)

ลักษณะอาการ	คะแนนการเปรียบเทียบ		P-value
	ก่อนพอก	หลังพอกทันที	
7. ท่านสามารถนั่งลงคุกเข่าและลุกขึ้นได้หรือไม่	2.40	3.13	0.067
8. ท่านมีปัญหาปวดเข่า ในขณะที่นอนกลางคืนหรือไม่	2.27	2.73	0.183
9. ในขณะที่คุณทำงาน/ทำงานบ้าน ท่านมีอาการปวดเข่าหรือไม่	2.33	2.67	0.058
10. ท่านเคยมีความรู้สึกว่าเข่าของท่านทรุดลงหรือหมดแรง	2.47	2.67	0.007*
11. ท่านสามารถเดินไปซื้อของใช้ต่าง ๆ ได้ด้วยตัวทำตนเอง (เดินได้เอง หรือมีอุปกรณ์ช่วยเดิน เช่น ไม้เท้า)	2.60	2.80	0.015*
12. ท่านสามารถเดินลงบันไดได้หรือไม่	2.60	2.80	0.015*

หมายเหตุ * คือ ค่านัยสำคัญอย่างมีสถิติต่ำกว่า P<0.05

สรุปผลการวิจัย

ข้อมูลส่วนบุคคลของผู้สูงอายุ หมู่บ้านคลองนุ้ย ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา ผู้สูงอายุเป็นเพศหญิง ร้อยละ 73.33 เพศชาย ร้อยละ 26.67 มีอายุอยู่ในช่วง 60-69 ปี คิดเป็นร้อยละ 60.00 อายุอยู่ในช่วง 70-79 ปี คิดเป็นร้อยละ 20.00 อายุ 80 ปีขึ้นไป คิดเป็นร้อยละ 20.00 สถานภาพสมรส/อยู่ด้วยกัน คิดเป็นร้อยละ 46.67 หม้าย คิดเป็นร้อยละ 33.33 สถานภาพโสด คิดเป็นร้อยละ 13.33 หย่าร้าง/แยกกันอยู่ คิดเป็นร้อยละ 6.67 อาชีพทำสวน ร้อยละ 46.67 อาชีพแม่บ้าน ร้อยละ 40.00 อาชีพรับจ้าง ร้อยละ 13.33 ไม่มีโรคประจำตัว คิดเป็นร้อยละ 40.00 โรคความดันโลหิตสูง คิดเป็นร้อยละ 26.67 โรคเบาหวาน คิดเป็นร้อยละ 20.00 โรคหัวใจ คิดเป็นร้อยละ 13.33 อาศัยบ้านชั้นเดียว คิดเป็นร้อยละ 60.00 อาศัยบ้านสองชั้น คิดเป็นร้อยละ 33.33 อาศัยบ้านยกพื้นใต้ถุนสูง คิดเป็นร้อยละ 6.67 อาการปวดเข่ามากกว่า 5 ปี คิดเป็นร้อยละ 66.66 มีอาการปวดเข่า 4 ปี คิดเป็นร้อยละ 26.67 และมีอาการปวดเข่า 3 ปี คิดเป็นร้อยละ 6.67 ตามลำดับ

ผลของยาพอกสมุนไพรลดอาการปวดเข่าในผู้สูงอายุ หมู่บ้านคลองนุ้ย ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา พบว่า ก่อนการทดลองความเจ็บปวดเข่าอยู่ในคะแนนเฉลี่ยที่ 30.27 ความปวดเข่าหลัง

ทดลอง พบว่า คะแนนเฉลี่ยที่ 33.07 อย่างมีนัยสำคัญทางสถิติ (P-value) 0.013 จากผลการทดลองนี้ พบว่าหลังการพอกยาสมุนไพรให้กลุ่มผู้สูงอายุ สามารถลดอาการอาการปวดเข่าได้

อภิปรายผล

การศึกษาผลของยาพอกสมุนไพรลดอาการปวดเข่าในผู้อายุ หมู่บ้านคลองนุ้ย ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา วัตถุประสงค์เพื่อศึกษาผลของยาสมุนไพรที่มีผลต่อการบรรเทาความปวดเข่าในผู้สูงอายุที่มีอาการปวดเข่า หมู่บ้านคลองนุ้ย ตำบลพะตง อำเภอหาดใหญ่ จังหวัดสงขลา

การวิจัยครั้งนี้ เป็นการวิจัยกึ่งทดลอง (Quasi - experimental research design) โดยการวัดก่อนการทดลอง และหลังการทดลอง เป็นการใช้ยาพอกสมุนไพรบรรเทาอาการปวดเข่าที่ได้ทำการวิเคราะห์รสยา และสรรพคุณของตัวยา จากนั้นใช้พื้นฐานทฤษฎีของการแพทย์แผนไทย ซึ่งได้เป็นตำรับยารสร้อน สรรพคุณลดปวด ดูดพิษ โดยคัดเลือกกลุ่มตัวอย่างแบบเจาะจง เครื่องมือที่ใช้ในการรวบรวมข้อมูลเครื่องมือประเมินอาการปวดจากแบบประเมิน มีทั้งสิ้น 2 ส่วน ได้แก่ แบบสอบถามข้อมูลทั่วไป แบบสอบถามเพื่อประเมินอาการปวดเข่าและระดับความสามารถในการทำงานของผู้สูงอายุ ดัดแปลงจากประเมิน ฉบับภาษาไทยวิเคราะห์ข้อมูล โดยใช้โปรแกรมสถิติสำเร็จรูปและวิเคราะห์ข้อมูล โดยข้อมูลสถิติค่าความถี่ร้อยละ วิเคราะห์การเปรียบเทียบความแตกต่างของค่าคะเนนเฉลี่ยความปวดเข่าก่อน และหลังการทดลอง โดยใช้สถิติ และการเปรียบเทียบความแตกต่างของค่าคะแนนเฉลี่ยความปวดของกลุ่มทดลองและหลังการทดลอง โดยใช้สถิติ พบข้อมูลและวิเคราะห์ที่นำเป็นข้อวิจารณ์ ได้ดังนี้

จากผลการวิจัยพบว่า ภายหลังการทดลอง สามารถลดระดับอาการปวดเข่าได้ ซึ่งค่าเฉลี่ยต่ำกว่าก่อนการทดลองอย่างมีนัยสำคัญทางสถิติ ซึ่งสอดคล้องกับศิริพร แย้มมูล, เจษฎา อุดมพิทยาสรรพ์, และอิศรา ศีรมณีรัตน์. (2561). ที่กล่าวว่าประสิทธิผลของการพอกเข่าด้วยตำรับสมุนไพรต่ออาการปวดเข่าในผู้ป่วยโรคจับโป่งแห้งเข่า โรงพยาบาลบ้านโคก อำเภอบ้านโคก จังหวัดอุตรดิตถ์ และงานวิจัยของ อุมาพร เคนศิลา และอนันต์ศักดิ์ จันทรศรี (2564) กล่าวว่า การผลของยาพอกสมุนไพรลดอาการปวดเข่าในผู้สูงอายุโรคข้อเข่าเสื่อม หลังการพอกสมุนไพรในผู้สูงอายุโรคข้อเข่าเสื่อม คะแนนเฉลี่ยระดับความปวดลดลง อย่างมีนัยสำคัญทางสถิติ ($p < 0.001$) และระดับอาการปวดเข่าของผู้ป่วยลดลงค่าเฉลี่ยระดับอาการปวดเข่าของกลุ่มตัวอย่าง ก่อนพอก และหลังพอกสมุนไพร ยาพอกสมุนไพรสามารถลดความปวดและลดอาการปวดเข่าช่วงลุกเดินได้ส่งผลให้ความสามารถในการใช้งานดีขึ้น อีกทั้งสมุนไพรพอกเข่า จึงสามารถนำมาประยุกต์ใช้ในสถานพยาบาล เพื่อรักษาอาการปวดเข่าจากโรคข้อเข่าเสื่อมได้อย่างมีประสิทธิภาพ (ธนวัฒน์ งามศรี, สุพจน์ เมืองมณี และ สงกรานต์ สักลอ, 2567) ยาพอกสมุนไพรที่ใช้ในงานวิจัยนี้อาศัยหลักการของการแพทย์แผนไทย โดยเฉพาะตัวยาสมุนไพรดองดึง ซึ่งมีรสร้อนและมีองค์ประกอบของสารแอลคาลอยด์ (Alkaloids) เช่น Colchicine และ Gloriosine (Ade and Rai, 2009) โดยมีคุณสมบัติทางเภสัชวิทยาหลากหลาย เช่น ฤทธิ์ระงับปวด ยาชาเฉพาะที่ ยาลดความดันโลหิตยาควบคุมการเต้นของหัวใจ และที่สำคัญคือ ฤทธิ์ลดการอักเสบของกล้ามเนื้อ (Bribi, 2018) ด้วยเหตุนี้ทำให้

กลุ่มตัวอย่างที่ได้รับยาพอกสมุนไพรสามารถลดอาการปวดเข่า และเพิ่มความสามารถในการเคลื่อนไหวได้ จากผลการศึกษาแสดงให้เห็นว่า ยาพอกสมุนไพรเป็นทางเลือกหนึ่งในการรักษาได้อย่างมีประสิทธิภาพ และสามารถพัฒนาเป็นผลิตภัณฑ์สุขภาพสำหรับผู้สูงอายุได้ในอนาคตต่อไป

ข้อเสนอแนะการวิจัยครั้งต่อไป

ในการศึกษาวิจัยครั้งนี้ เป็นการศึกษาผู้สูงอายุที่มีอาการปวดเข่า ซึ่งยังมีผู้สูงอายุในพื้นที่อีกจำนวนหลายคนที่มีปัญหาอาการปวดเข่า จึงควรมีแนวทางในการขยายเครือข่ายการพอกสมุนไพร และทดสอบในกลุ่มตัวอย่างผู้สูงอายุที่มีอาการปวดเข่าจำนวนที่มากขึ้น

เอกสารอ้างอิง

กรมกิจการผู้สูงอายุ. (2553). ความหมายผู้สูงอายุ.พระราชบัญญัติผู้สูงอายุ พ.ศ. 2546 (ฉบับแก้ไข พ.ศ. 2553). สืบค้นจาก https://www.dop.go.th/th/know/15/741.

ธนวัฒน์ งามศรี, สุพจน์ เมืองมณี และ สงกรานต์ สักลอ. (2567). การศึกษาการลดอาการปวดเข่าในผู้ป่วยข้อเข่าเสื่อมโดยใช้สมุนไพรพอกเข่า. วารสารสหวิชาการเพื่อสุขภาพ, 6(2), 11-19.

ศิริพร แย้มมูล, เจษฎา อุดมพิทยาสรรพ์ และ อิศรา ศีรมณีรัตน์. (2561). ประสิทธิผลของการพอกเข่าด้วยตำรับสมุนไพรต่ออาการปวดเข่าในผู้ป่วยโรคจับโปงแห้งเข่า โรงพยาบาลบ้านโคก อำเภอบ้านโคก จังหวัดอุตรดิตถ์. วารสารวิทยาลัยพยาบาลบรมราชชนนี สุพรรณบุรี, 1(1), 16-27.

อุมาพร เคนศิลา และ อนันต์ศักดิ์ จันทรศรี. (2564). ผลของยาพอกสมุนไพรลดอาการปวดเข่าในผู้สูงอายุโรคข้อเข่าเสื่อม. วารสารคณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา, 29(4), 43-49.

Ade, R., & Rai, M. K. (2009). Current advances in Gloriosa superba L. Biodiversitas Journal of Biological Diversity, 10(4).

Bribi, N. (2018). Pharmacological activity of alkaloids: a review. Asian J. Bot,1(1), 1-6.

การพัฒนารูปแบบกิจกรรมเพื่อส่งเสริมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อมโดยกระบวนการวินิจฉัยชุมชนอย่างมีส่วนร่วมของนักศึกษาอนุปริญญา สาขาวิชาสาธารณสุขชุมชน วิทยาลัยชุมชนสงขลา กรณีศึกษา หมู่ 6 ตำบลทุ่งหวัง อำเภอเมือง จังหวัดสงขลา

The effect of promoting health care for the elderly with osteoarthritis and dementia by using community diagnosis process with participation of Associate Degree students in Community Health, Songkhla Community College Case study: Village No. 6, Thung Wang Subdistrict, Mueang District, Songkhla Province.

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[1,2,3] อาจารย์หลักสูตรอนุปริญญา, สาขาวิชาสาธารณสุขชุมชน, วิทยาลัยชุมชนสงขลา, อำเภอเทพา, จังหวัดสงขลา

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บทคัดย่อ

การวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม (Participatory Action Research) ชนิดศึกษากลุ่มเดียวกลุ่มวัดก่อนและหลังการเข้าร่วม (One Group Pretest-Posttest Design) เพื่อศึกษาผลของการส่งเสริมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อม และความพึงพอใจในการมีส่วนร่วมของอาสาสมัครสาธารณสุขประจำหมู่บ้าน กลุ่มตัวอย่างคือ ผู้สูงอายุ 60 คน และอาสาสมัครสาธารณสุขประจำหมู่บ้าน 23 คน หมู่ 6 ตำบลทุ่งหวัง อำเภอเมือง จังหวัดสงขลา ดำเนินการวิจัยร่วมกับอาสาสมัครสาธารณสุขประจำหมู่บ้าน หมู่ 6 เป็นระยะเวลา 6 สัปดาห์ โดยการประชาคมและวินิจฉัยชุมชนจากข้อมูลสุขภาพผู้สูงอายุของชุมชน ร่วมวางแผนการดำเนินกิจกรรมการส่งเสริมการดูแลสุขภาพผู้สูงอายุ ดำเนินกิจกรรมการดูแลสุขภาพผู้สูงอายุ จำนวน 2 กิจกรรม และประเมินรูปแบบกิจกรรมเก็บรวบรวมข้อมูลการวิจัยหลังการเข้าร่วมกิจกรรม เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลประกอบด้วย แบบสอบถาม แบบ

ประเมิน ประสิทธิผลของการดูแลสุขภาพและแบบประเมินความพึงพอใจ ในการมีส่วนร่วมสถิติที่ใช้ในการวิเคราะห์ข้อมูลคือค่าเฉลี่ย ค่าเบี่ยงเบนมาตรฐานและการทดสอบค่าที (t-test) ผลการวิจัยพบว่า

1) นักศึกษาจัดกิจกรรมการดูแลสุขภาพผู้สูงอายุ จำนวน 2 กิจกรรม ประกอบด้วย 1) การดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อม ประกอบด้วย 1) ความรู้เกี่ยวกับโรคข้อเข่าเสื่อม สาเหตุอาการ ปัจจัยเสี่ยงพฤติกรรมที่ไม่พึงประสงค์ 2) การบริหารร่างกายเพื่อป้องกันภาวะข้อเข่าเสื่อม 3) การพอกเข่าด้วยสมุนไพรเพื่อบรรเทาอาการปวด และ 2) การดูแลสุขภาพผู้สูงอายุที่มีภาวะสมองเสื่อมประกอบด้วย 1) ความรู้เกี่ยวกับโรคสมองเสื่อมสาเหตุอาการ ปัจจัยเสี่ยงพฤติกรรมที่ไม่พึงประสงค์ 2) กิจกรรมการฝึกสมอง : การคำนวณ การใช้ภาษา การระลึกได้ 3) การฝึกควบคุมอารมณ์ด้วย SKT สมาธิบำบัด

2) ผู้สูงอายุมีระดับความปวดของข้อเข่าดีขึ้นก่อนเข้าร่วมกิจกรรม การดูแลภาวะข้อเข่าเสื่อมอย่างมีนัยสำคัญทางสถิติและผู้สูงอายุมีความรู้ และพฤติกรรมการป้องกันภาวะสมองเสื่อมสูงกว่าก่อนเข้าร่วมกิจกรรมการดูแลภาวะสมองเสื่อมอย่างมีนัยสำคัญทางสถิติ

3) อาสาสมัครสาธารณสุขประจำหมู่บ้าน มีความพึงพอใจในการมีส่วนร่วมภายหลังการเข้าร่วมกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อม และสมองเสื่อมอยู่ในระดับมาก ($\bar{X}$ =4.19, SD=0.78)

ดังนั้น รูปแบบการส่งเสริมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อมผู้สูงอายุโดยใช้ชุมชนเป็นฐานจากการวิจัยครั้งนี้ สามารถนำไปประยุกต์ใช้ในการส่งเสริมสุขภาพของผู้สูงอายุในชุมชนได้ โดยมุ่งเน้นกระบวนการการมีส่วนร่วมของชุมชนเป็นหลักสิ่งที่สำคัญ คือการประสานงานและการสนับสนุนให้ผู้แทนของชุมชนมีส่วนร่วมตลอดการดำเนินการ

คำสำคัญ: การดูแลสุขภาพผู้สูงอายุ, ข้อเข่าเสื่อม, สมองเสื่อม, การวินิจฉัยชุมชน

Abstract

This research was a participatory action research to study the effects of promoting health care for the elderly with osteoarthritis and dementia and satisfaction with the participation of village health volunteers. The sample group consisted of 60 elderly people and 23 village health volunteers in Village No. 6, Thung Wang Subdistrict, Mueang District, Songkhla Province. Conducted research with village health volunteers in Village No. 6 for a period of 6 weeks by gathering and diagnosing the community from the health data of the elderly in the community and jointly planning activities to promote health care for the elderly. Conducted 2 elderly health care activities and evaluated the activity format to collect research data after participating in the activities. The instruments used for data collection consisted of questionnaires, health care effectiveness assessment forms, and participation satisfaction assessment forms. The statistics used for data analysis were mean, standard deviation, and t-test. The research results found that:

1) Students organized 2 elderly health care activities, consisting of 1) health care for elderly people with osteoarthritis, consisting of 1) Knowledge about osteoarthritis, causes, symptoms, risk factors, undesirable behaviors 2) Exercise to prevent osteoarthritis 3) Herbal knee compresses to relieve pain and 2) Health care for the elderly with dementia, consisting of 1) knowledge about dementia, causes, symptoms, risk factors, undesirable behaviors, 2) brain training activities: calculation, language use, recall, 3) emotional control training with SKT meditation therapy.

2) The elderly had better knee pain level before participating in the knee osteoarthritis care activity model, statistically significant, and the elderly had higher knowledge and behaviors for preventing dementia than before participating in the dementia care activity, with a significant level of mindfulness.

3) Village health volunteers had a high level of satisfaction with their participation after participating in health care activities for the elderly with osteoarthritis and dementia ($\bar{\chi}$ =4.18, SD=0.78)

Therefore, the community-based health promotion model for elderly people with osteoarthritis and dementia from this research can be applied to promote the health of elderly people in the community focusing primarily on community participation processes, the most important thing is coordination and support for community representatives to participate throughout the process.

Keywords: Elderly health care, osteoarthritis, dementia, community diagnosis

บทนำ

การเปลี่ยนแปลงทางโครงสร้างประชากรอัน เนื่องจากสังคมผู้สูงอายุเป็นการเปลี่ยนแปลงที่เกิดขึ้นพร้อมกันทั่วโลกในประเทศไทย พบมีผู้สูงอายุร้อยละ15.8 และเข้าสู่สังคมผู้สูงอายุแล้ว (อณิษฐา หาญภักดีนิยม, 2563) ในกลุ่มผู้สูงอายุนั้น จะพบการเปลี่ยนแปลงตามวัยหลายรูปแบบไม่ว่าจะเป็นการเปลี่ยนแปลงของระบบหัวใจและหลอดเลือดระบบประสาทและระบบกล้ามเนื้อและข้อต่อ ซึ่งโรคต่าง ๆ ที่พบในกลุ่มผู้สูงอายุนี้ล้วนเป็นโรคเรื้อรังที่ต้องการการดูแลอย่างต่อเนื่อง รวมทั้งส่งผลต่อการดำเนินชีวิตของผู้สูงอายุอย่างมีคุณภาพ

ภาวะข้อเข่าเสื่อมในผู้สูงอายุ (Osteoarthritis) เป็นการเสื่อมแบบปฐมภูมิเกิดจากการเสื่อมของกระดูกอ่อนบริเวณผิวข้อที่หุ้มข้อเข่าจากกระบวนการเสื่อมของวัยชรา เกิดพยาธิสภาพของข้อโดยไม่มีอาการอักเสบเป็นอาการสึกหรอ ดังนั้นผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมจึงจำเป็นอย่างยิ่งที่จะต้องรับการสร้างเสริมสุขภาพ (ยุพาพักตร์ รักมณีวงศ์, พร้อมจิตร ห่อนบุญเหิม และ อัจฉรา ชัยชาญ, 2555) การ

เสริมสร้างป้องกันภาวะเข่าเสื่อมไม่ให้รุนแรงมากขึ้น การให้ความรู้เรื่องโรคและคำแนะนำในการดูแลตนเอง การปรับเปลี่ยนพฤติกรรมการควบคุมน้ำหนัก การบริหารกล้ามเนื้อขา การประคบความร้อน การพอกเข่าด้วยสมุนไพรและการหลีกเลี่ยงกิจกรรมที่ให้ข้อเข่าเสื่อม และเมื่อปฏิบัติอย่างต่อเนื่องจะทำให้เกิดความมั่นคงส่งเสริมให้ผู้สูงอายุเชื่อในประโยชน์ของพฤติกรรมมากขึ้น

และจากข้อมูลของสมาคมผู้สูงอายุในประเทศไทย พบว่า ผู้สูงอายุที่มีอายุ 60 ปีขึ้นไป มีอาการสมองเสื่อมประมาณร้อยละ 10 และมีแนวโน้มจะพบมากขึ้นเมื่ออายุเพิ่มขึ้น (ศิริมา เขมะเพชร และรจนาถ หอมดี, 2563) อาการของภาวะสมองเสื่อมจะดำเนินอย่างค่อยเป็นค่อยไป ส่งผลต่อการดำรงชีวิต (ณัฐรพี ใจงาม, ชุติมา ทองวชิระ และ สุชาดา โทผล, 2562) ได้แก่ ด้านร่างกาย ด้านพฤติกรรม ด้านจิตใจ ด้านสังคมและบทบาทหน้าที่จากผลกระทบดังกล่าว เมื่อความรุนแรงของโรคเพิ่มมากขึ้นผู้สูงอายุจะไม่สามารถช่วยเหลือตนเองได้ จำเป็นต้องได้รับการดูแลจากญาติและครอบครัวต้องพึ่งพาผู้อื่น ในการปฏิบัติกิจวัตรประจำวันเป็นภาระต่อญาติและครอบครัว ส่งผลต่อค่าใช้จ่ายในการดูแลผู้สูงอายุระยะยาว มีปัจจัยที่ส่งผลต่อการเกิดภาวะสมองเสื่อม (Dementia) คือ ด้านกายภาพที่ส่งผลต่อพฤติกรรมการดูแลตนเอง ความเครียด ปัจจัยด้านสิ่งแวดล้อม ปัจจัยด้านสังคม และการดูแลสุขภาพตนเอง ภาวะสมองเสื่อมสามารถป้องกันได้ด้วยการออกกำลังกายเป็นประจำ การรับประทานอาหารและยาบางชนิดควบคู่กับการควบคุมปัจจัยเสี่ยงที่ทำให้เกิดโรคหลอดเลือดสมอง ความเครียด ภาวะซึมเศร้า การเข้าร่วมกิจกรรม กับครอบครัว สังคมและชุมชน (อภิญญา จีรานุรักษ์, 2557)

จากปัญหาที่พบมากในกลุ่มผู้สูงอายุ รวมทั้งการบูรณาการหลักการดูแลสุขภาพผู้สูงอายุ ให้สอดคล้องกับปัญหาสุขภาพในชุมชนอย่างมีส่วนร่วม นักศึกษาอนุปริญญา สาขาวิชาสาธารณสุขชุมชน ชั้นปีที่ 3 ปีการศึกษา 2567 วิทยาลัยชุมชนสงขลา ทำการสำรวจข้อมูลสุขภาพชุมชนจากการประเมินพฤติกรรมสุขภาพที่พึงประสงค์ของผู้สูงอายุ และแบบประเมินความสามารถในการปฏิบัติกิจวัตรประจำวันดัชนีบาร์เทล (The Modified Barthel Activities of Daily Living Index) ร่วมกับการทำประชาคมร่วมกันกับอาสาสมัครสาธารณสุขประจำหมู่บ้าน พบว่า ผลการสำรวจประชากรผู้สูงอายุ หมู่ 6 ตำบลทุ่งหวัง อำเภอเมือง จังหวัดสงขลา จำนวน 245 คน พบว่าประชากรผู้สูงอายุ จำนวน 42 คน คิดเป็นร้อยละ 17 โดยส่วนใหญ่มีปัญหาเกี่ยวกับข้อข่าเสื่อม และมีความต้องการลดภาวะความเสี่ยงของโรคสมองเสื่อม ซึ่งทั้ง 2 โรคนี้ เป็นปัญหาที่ส่งผลต่อความถดถอยของสุขภาพผู้สูงได้ ด้วย เหตุนี้นักศึกษาสาขาวิชาสาธารณสุขชุมชนจึงจัดทำโครงการ “การส่งเสริมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อมอย่างมีส่วนร่วม” ภายใต้แนวคิด “คู่หู Buddy คู่ซี้ต่างวัย” โดยพิจารณาในกลุ่มผู้สูงอายุที่เป็นกลุ่มเสี่ยงต่อการเกิดภาวะข้อเข่าเสื่อมและภาวะสมองเสื่อม โดยบูรณาการหลักการดูแลสุขภาพได้ด้วยตนเองของผู้สูงอายุ และจัดทำสมุนไพรพอกเข่าสูตรร้อน สำหรับการส่งเสริมการดูแลภาวะข้อเข่าเสื่อมของผู้สูงอายุ อีกทั้งมุ่งเน้นการมีส่วนร่วมในการดูแลของครอบครัว และชุมชน อันจะนำไปสู่คุณภาพชีวิตที่ดีทั้งในผู้สูงอายุ ครอบครัวและชุมชนในพื้นที่ตำบลทุ่งหวังให้ครอบคลุมทุกหมู่บ้านต่อไป

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษารูปแบบการจัดกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อม

2. เพื่อประเมินผลรูปแบบกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อมอย่างมีส่วนร่วม

3. เพื่อประเมินความพึงพอใจในการดำเนินการวินิจฉัยชุมชนและการจัดกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อมของอาสาสมัครสาธารณสุขประจำหมู่บ้าน

แนวคิด ทฤษฎี กรอบแนวคิด

ประชากรผู้สูงอายุ ตำบลทุ่งหวัง อำเภอเมือง จังหวัดสงขลา ณ วันที่ 10 มีนาคม 2568 (ระบบสารสนเทศการจัดการฐานข้อมูลเบี้ยยังชีพผู้สูงอายุองค์กรปกครองส่วนท้องถิ่น อบต.ทุ่งหวัง และการจ่ายเงินยังชีพผู้สูงอายุ กรมบัญชีกลาง) จำนวนผู้สูงอายุ 2,347 คน ประกอบด้วย เพศชาย 928 คน เพศหญิง 1,411 คน และ พระ 8 รูป ผู้สูงอายุแบ่งตามหมู่บ้าน ดังนี้ หมู่ที่ 1 จำนวน 302 คน, หมู่ที่ 2 จำนวน 152 คน หมู่ที่ 3 จำนวน 341 คน, หมู่ที่ 4 จำนวน 171 คน, หมู่ที่ 5 จำนวน 282 คน, หมู่ที่ 6 จำนวน 245 คน, หมู่ที่ 7 จำนวน 294 คน, หมู่ที่ 8 จำนวน 175 คน, หมู่ที่ 9 จำนวน 169 คน และ หมู่ที่ 10 จำนวน 216 คน

ภาวะข้อเข่าเสื่อม เป็นปัญหาที่สำคัญ ซึ่งพบมากในวัยผู้สูงอายุและมีแนวโน้มเพิ่มสูงขึ้นอย่างต่อเนื่อง ผู้ที่มีภาวะข้อเข่าเสื่อมมากถ้าไม่ได้รับการรักษาหรือปฏิบัติตัวอย่างเหมาะสม อาจทำให้มีความเจ็บปวด ข้อเข่าผิดรูป เดินได้ไม่ปกติ ปฏิบัติกิจวัตรประจำวันต่าง ๆ ไม่สะดวกมีความทุกข์ทรมานทั้งทางด้านร่างกายและจิตใจ

โรคข้อเข่าเสื่อมเป็นโรคที่เกิดจากความเสื่อมของกระดูกอ่อนผิวข้อ ทั้งทางด้านรูปร่างโครงสร้างการทำงานของกระดูกข้อต่อและกระดูก บริเวณใกล้ข้อการเปลี่ยนแปลงที่เกิดขึ้นไม่สามารถกลับสู่สภาพเดิมและอาจมีความเสื่อมรุนแรงขึ้นตามลำดับ

ข้อเข่าเสื่อมแบ่งออกเป็น 2 ชนิด ตามลักษณะการเกิดคือ

1. ความเสื่อมแบบปฐมภูมิ หรือ ไม่ทราบสาเหตุเป็นภาวะที่เกิดจากการเสื่อมสภาพของผิวกระดูกอ่อนตามวัย ซึ่งสัมพันธ์กับอายุที่มากขึ้น น้ำหนักตัว เพศหญิง และกรรมพันธุ์

2. ความเสื่อมแบบทุติยภูมิเป็นความเสื่อมที่ทราบสาเหตุ เช่น เคยประสบอุบัติเหตุมีการบาดเจ็บที่ข้อและเส้นเอ็น การบาดเจ็บเรื้อรังที่บริเวณข้อเข่าจากการทำงานหรือเล่นกีฬา โรคข้ออักเสบรูมาตอยด์ เก๊าต์ ข้ออักเสบติดเชื้อ โรคของต่อมไร้ท่อ เป็นต้น

อาการแสดงในระยะแรกเริ่มปวดเข่าเวลามีการเคลื่อนไหว เช่น เดินขึ้นลงบันไดหรือนั่งพับเข่า อาการจะดีขึ้นเมื่อหยุดพักการใช้ข้อร่วมกับมีอาการข้อฝืดขัด โดยเฉพาะเมื่อมีการหยุดเคลื่อนไหวเป็นเวลานาน เมื่อเริ่มขยับข้อจะรู้สึกถึงการเสียดสีของกระดูกหรือมีเสียงดังในข้อ เมื่อมีภาวะข้อเสื่อมรุนแรง อาการปวดจะรุนแรงมากขึ้น เหยียดหรืองอข้อเข่าได้ไม่ค่อยสุดกล้ามเนื้อต้นขาลีบ ข้อเข่าโก่ง หลวม หรือบิดเบี้ยวผิดรูปทำให้เดินและใช้ชีวิตประจำวันลำบาก และมีอาการปวดเวลาเดินหรือขยับ (ฉัตรสุดา กานกายันต์, อภิรดี เจริญนุกูล และ วิทยา วาโย, 2563)

แนวทางการรักษาโรคข้อเข่าเสื่อม (อรพินท์ คะเชนทร์ภักดิ์, 2565)

1) การออกกำลังกายและการบริหารกล้ามเนื้อรอบเข่า เป็นที่ยอมรับอย่างกว้างขวางแล้วว่าการออกกำลังกายเป็นวิธีการรักษาที่ได้ผลดี สำหรับผู้ป่วยข้อเข่าเสื่อม การออกกำลังกายเพื่อลดอาการปวด รวมทั้งเพิ่มความสามารถในการใช้งานข้อเข่า รูปแบบอาจเป็นการออกกำลังกาย ทั้งบนบกหรือในน้ำที่โรงพยาบาลหรือบ้าน ส่วนชนิดของการออกกำลังกายที่ดีจะประกอบไปด้วย

1.1 การบริหารเพื่อเพิ่มพิสัยการเคลื่อนไหวของข้อเข่า

1.2 การบริหารเพื่อเพิ่มความแข็งแรงของกล้ามเนื้อต้นขา

1.3 การออกกำลังแบบแอโรบิคเป็นการออกกำลังเพื่อความฟิตพร้อมของระบบต่าง ๆ ในร่างกาย เช่น หัวใจแข็งแรง ปอดดี กระดูกไม่บาง กล้ามเนื้อส่วนต่าง ๆ กระชับมีความแข็งแรงและใช้งานได้ทนทาน

2) การพอกเข่าด้วยสมุนไพร คือ การนำยาสมุนไพรที่มีสรรพคุณช่วยบรรเทาอาการปวด ข้อเข่ามาพอกในผู้ป่วยที่มีอาการปวดเข่า เข่าไม่มีกำลังปวดบริเวณในข้อเข่าและคลายกล้ามเนื้อรอบเข่า โดยวิธีการผสมยาพอกเข่าใช้แป้งข้าวเจ้า 70 กรัม น้ำมันไพล 75 มิลลิลิตร และน้ำด่างหรือน้ำเปล่า 75 มิลลิลิตร มานวดให้เข้ากันจนเนื้อยานุ่มเติมน้ำสมุนไพรสกัด 75 มิลลิลิตร ใช้มือนวดยาให้เข้ากันนำยาที่ได้มาพอกเข่ารักษาอาการปวดเข่า โดยให้พอกทิ้งไว้ 20 นาที เมื่อยาแห้งให้ตบยาและลูบยาออกพอกวันเว้นวัน จำนวน 5 ครั้ง โดยสรรพคุณของยาพอกดังกล่าวจะช่วยดูดพิษร้อนลดอาการอักเสบ และลดอาการบวมของข้อเข่า โดยแป้งข้าวเจ้าช่วยดูดความร้อนได้ทำให้ยาอยู่กับเข่านานขึ้น ส่วนน้ำปูนใสช่วยเรื่องกล้ามเนื้อ

ภาวะสมองเสื่อม ในผู้สูงอายุมีผู้ให้ความหมาย ดังนี้ (สุทธิชัย จิตะพันธ์กุล, 2542; Barry, 2001) ภาวะสมองเสื่อมเป็นกลุ่มอาการที่เกิดจากความผิดปกติ ในส่วนของเปลือกสมองมีผลต่อความบกพร่องในด้านสติปัญญามีภาวะเสื่อมลง โดยเฉพาะในเรื่องความจำเป็นความจำทั้งในระยะสั้นและระยะยาว การตัดสินใจบกพร่องความสามารถในการคิดเชิงซ้อนลดลง รวมถึงการเปลี่ยนแปลงทางด้านบุคลิกภาพและการควบคุมอารมณ์ โดยที่ระดับความรู้สึกตัวนั้นปกติอาการที่เกิดขึ้นนั้นมีมาไม่น้อยกว่า 6 เดือน อาการที่เกิดขึ้นจะมีความรุนแรงจนเป็นอุปสรรคในการใช้ชีวิตในสังคมปัจจัยเสี่ยง การเกิดภาวะสมองเสื่อม (รุ่งนิรันดร์ ประดิษฐสุวรรณ, 2547) ได้แก่ ปัจจัยทางพันธุกรรมปัจจัยทางด้านโรคเรื้อรัง ได้แก่ โรคเบาหวาน โรค หลอดเลือดสมอง ปัจจัยเกี่ยวกับสิ่งแวดล้อม ความเครียด (Stress) ภาวะซึมเศร้า และฮอร์โมนเอสโตรเจน (Estrogen) เป็นต้น

แนวทางการจัดการกับภาวะข้อเข่าเสื่อมและสมองเสื่อมในผู้สูงอายุ สามารถแก้ปัญหาได้ด้วยการค้นหาวิธีการสนับสนุนให้ผู้สูงอายุกลุ่มเสี่ยงสามารถสร้างเสริมสุขภาพได้ด้วยตนเอง การสนับสนุนผู้ดูแลครอบครัวให้สามารถเผชิญกับความเครียดที่เกิดจากการดูแลได้อย่างเหมาะสม รวมถึงชุมชนเข้ามามีส่วนร่วมให้การดูแลช่วยเหลือผู้สูงอายุ ซึ่งการสร้างเสริมสุขภาพในผู้สูงอายุตามนิยามของเพนเดอร์ (Pender, 1996) มีความสอดคล้องกับเป้าหมายในการดูแลสุขภาพผู้สูงอายุที่บ้าน ที่เน้นการฟื้นฟูสภาพ

กลับมาทำหน้าที่ได้สูงสุดหรือคงไว้ ซึ่งสุขภาพที่ทำหน้าที่ได้มากที่สุดโดยผู้สูงอายุจะสามารถสร้างเสริมสุขภาพได้หรือไม่นั้น ขึ้นอยู่กับศักยภาพของบุคคล ทัศนคติผู้สูงอายุ ความเชื่อและสิ่งแวดล้อม ได้แก่ ครอบครัว ชุมชน รวมถึงพยาบาล ซึ่งเป็นบุคลากรที่มีบทบาทสำคัญ ในการสร้างเสริมสุขภาพและป้องกันโรคของผู้สูงอายุกลวิธีหนึ่ง คือการพัฒนาโครงการสร้างเสริมสุขภาพผู้สูงอายุอย่างมีระบบ จัดระบบบริการเยี่ยมบ้านให้การช่วยเหลือผู้ดูแลผู้สูงอายุ การสนับสนุนให้ครอบครัวและชุมชนมีส่วนร่วมในการดูแลผู้สูงอายุได้อย่างผาสุกมุ่งเน้นการสร้างเสริมสุขภาพกายและจิต การมีกลุ่มสนับสนุนช่วยเหลือกันเอง

การสร้างเสริมสุขภาพผู้สูงอายุโดยใช้ชุมชนเป็นฐาน เป็นกระบวนการที่สามารถสร้างกระบวนทัศน์หรือความเชื่อของชุมชนในการสร้างสุขภาพ โดยการสร้างความเข้มแข็งในการมีส่วนร่วมแก้ปัญหาร่วมแลกเปลี่ยนเรียนรู้เชิงบูรณาการระหว่างผู้สูงอายุ ครอบครัว ชุมชน ทีมสุขภาพ และภาคีหุ้นส่วนด้านสุขภาพอื่น ๆ ภายใต้ความแตกต่างที่หลากหลายและบริบทของสังคม วัฒนธรรมของชุมชน ตลอดจนการลดค่าใช้จ่าย ในการรักษาพยาบาลด้วยการค้นหาแนวทางการจัดการดูแลสุขภาพผู้สูงอายุ ในชุมชนที่มีประสิทธิภาพ ขั้นตอนการดำเนินงานสร้างเสริมสุขภาพผู้สูงอายุโดยใช้ชุมชนเป็นฐาน ประกอบด้วย 4 ขั้นตอน คือ

ขั้นตอนที่ 1 การประเมินความต้องการด้านสุขภาพ

ขั้นตอนที่ 2 การกำหนดพันธกิจ ผลลัพธ์ และเป้าหมายการดำเนินงาน

ขั้นตอนที่ 3 กำหนดกลยุทธ์การดำเนินการสร้างเสริมสุขภาพของผู้สูงอายุ

ขั้นตอนที่ 4 การประเมินเป็นขั้นตอนการประเมินประสิทธิภาพ และประสิทธิผลของการดำเนินงาน

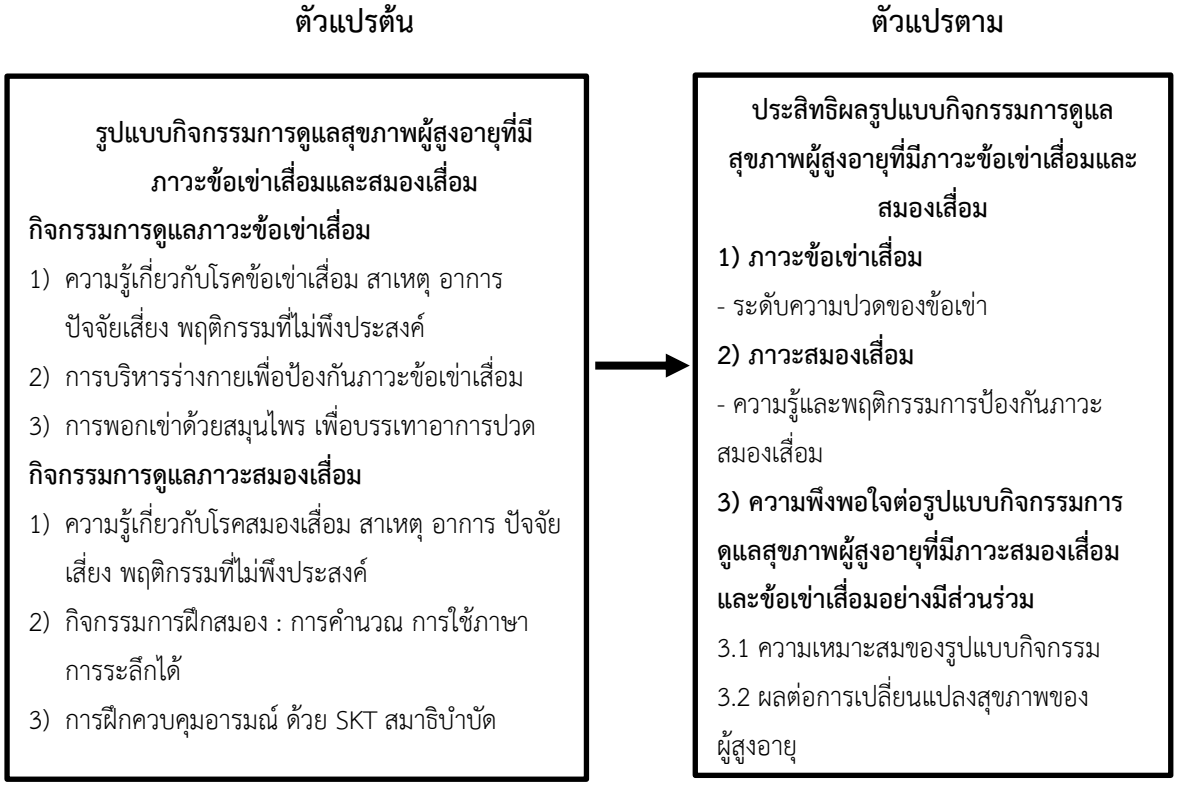
การดำเนินงานสร้างเสริมสุขภาพผู้สูงอายุ โดยใช้ชุมชนเป็นฐานที่จะประสบความสำเร็จได้นั้นขึ้นอยู่กับกลวิธีการสร้างเสริมพลังอำนาจระดับชุมชน โดยการที่สนับสนุนให้ชุมชนสามารถตัดสินใจวางแผนดูแลสุขภาพชุมชนด้วยชุมชนเอง โดยอาศัยกระบวนการความร่วมมือระหว่างภาคีหุ้นส่วน ได้แก่ สมาชิกชุมชน ทีมสุขภาพ และนักวิชาการ ร่วมกันดำเนินงานและรับผิดชอบในบทบาทของตนเองเพื่อตอบสนองความต้องการของชุมชนและปรับปรุงสุขภาพในชุมชน โดยการแลกเปลี่ยนเรียนรู้บทเรียนจากการทำงาน ซึ่งกลไกของกระบวนการมีส่วนร่วมสามารถสนับสนุนให้ผู้เข้ามามีส่วนร่วมเกิดความรู้สึกทางบวกและอุทิศแรงกายแรงใจที่จะปฏิบัติหน้าที่อย่างเต็มกำลังความสามารถ จนบรรลุวัตถุประสงค์ของกิจกรรมอันแสดงออกถึงความพึงพอใจ (ศรายุทธ ชูสุทน, พัดชา หิรัญวัฒนกุล และสุมัทนา กลางคาร, 2564)

สำหรับการวิจัยในครั้งนี้ ได้นำรูปแบบการสร้างเสริมสุขภาพผู้สูงอายุที่มีภาวะสมองเสื่อม โดยชุมชนเป็นฐาน ซึ่งผสมผสานกันระหว่างมิติการสร้างเสริมสุขภาพและการป้องกันโรค อันมีรูปแบบการมีส่วนร่วมระหว่างผู้สูงอายุ ผู้ดูแล ครอบครัว และชุมชน ประกอบด้วย บุคลากรทางด้านสาธารณสุข อาสาสมัครสาธารณสุขประจำหมู่บ้าน ผู้ดูแลครอบครัว องค์กรบริหารส่วนท้องถิ่น โดยการมีส่วนร่วมค้นหาปัญหาสุขภาพของผู้สูงอายุ กำหนดแนวทางในการช่วยเหลือสำหรับกิจกรรมที่ให้การช่วยเหลือผู้สูงอายุเกี่ยวกับภาวะสมองเสื่อม ได้แก่ กิจกรรมสร้างเสริมสุขภาพเพื่อป้องกันภาวะสมองเสื่อม โดยจัด

กิจกรรมในกลุ่มเสี่ยง ประกอบด้วยผู้สูงอายุที่เจ็บป่วยด้วยโรคเบาหวาน โรคความดันโลหิตสูง นอกจากนี้มีการจัดกิจกรรมสนับสนุนความรู้และทางด้านจิตสังคม สำหรับผู้ดูแลรวมถึงการฝึกทักษะการดูแลช่วยเหลือผู้สูงอายุในกลุ่มอาสาสมัครของชุมชน ซึ่งกิจกรรมดังกล่าวจะส่งเสริมให้ชุมชนนั้น เป็นชุมชนสร้างเสริมสุขภาพ ซึ่งสามารถดูแลชุมชนได้ด้วยตนเองและยั่งยืน สอดคล้องกับการศึกษาของคานากาวาและคณะ (Kanagana et al., 2006) พบว่า การดูแลผู้สูงอายุเพื่อป้องกันภาวะสมองเสื่อม โดยใช้ชุมชนเป็นฐานควรมีการประเมินอาการสมองเสื่อมตั้งแต่เริ่มแรก มีการสร้างอาสาสมัครมีกิจกรรมการดูแลเฉพาะสำหรับผู้สูงอายุภาวะสมองเสื่อม ซึ่งการที่ชุมชนมีส่วนร่วมในการดูแลผู้สูงอายุส่งผลให้เกิดความตระหนักถึงความสำคัญ สามารถดำเนินกิจกรรมได้อย่างต่อเนื่องแสดงถึงชุมชนมีความรู้สึกพึงพอใจในการมีส่วนร่วมดูแลผู้สูงอาย

กรอบแนวคิด

การกำหนดกรอบแนวคิดการวิจัยครั้งนี้ ผู้วิจัยสังเคราะห์จากงานวิจัย ชวิศ เมธาบุตร (2565) การพัฒนารูปแบบการจัดการโรคข้อเข่าเสื่อมในผู้สูงอายุ กมลทิพย์ จันทร์คำ, มณฑิชา รักศิลป์ และนพรัตน์ ส่งเสริม (2563) การพัฒนารูปแบบการป้องกันภาวะสมองเสื่อมในผู้สูงอายุ โดยการมีส่วนร่วมของอาสาสมัครสาธารณสุขประจำครอบครัว ร่วมกับอรวรรณ แผนคง และสุนทรีย์ คำเพ็ง (2551) ผลของการสร้างเสริมสุขภาพ โดยใช้ชุมชนเป็นฐานต่อพฤติกรรมการสร้างเสริมสุขภาพของผู้สูงอายุและความพึงพอใจในการมีส่วนร่วมของผู้ดูแลผู้สูงอายุ สามารถสร้างเป็นกรอบแนวคิดการวิจัย ดังภาพที่ 1



ภาพที่ 1 กรอบแนวคิดการวิจัย

วิธีดำเนินการวิจัย

การวิจัยครั้งนี้ เป็นการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม (Participatory Aaction Research) ชนิดศึกษากลุ่มเดียวกลุ่มวัดก่อนและหลังการเข้าร่วม (one group pretest-posttest design) เพื่อศึกษาผลของการส่งเสริมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อม โดยกระบวนการวินิจฉัยชุมชนอย่างมีส่วนร่วมการวิจัยครั้งนี้ เป็นการวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม (Participatory Action Research)

1) ประชากรและกลุ่มตัวอย่าง

ประชากร ได้แก่ ผู้สูงอายุ หมู่ที่ 6 ตำบลทุ่งหวัง อำเภอเมือง จังหวัดสงขลา จำนวน 245 คน เพศชาย 98 คน เพศหญิง 142 คน พระ 5 รูป

กลุ่มตัวอย่าง จำนวน 60 คน คัดเลือกโดยการกำหนดคุณสมบัติแบบเฉพาะเจาะจง (Purposive Sampling) ดังนี้

1) ผู้สูงอายุ 60 ปีขึ้นไป กลุ่มติดสังคมผู้สูงอายุยินดีเข้าร่วมทำการวิจัยด้วยความสมัครใจและยินยอมตลอดระยะเวลาดำเนินการวิจัย

2) ประเมินความเสี่ยงภาวะสมองเสื่อม คือ ผู้ที่มีอายุตั้งแต่ 60 ปีขึ้นไป ทั้งเพศชายและเพศหญิง ซึ่งได้รับการวินิจฉัยเป็นโรคเบาหวานและโรคความดันโลหิตสูงหรือเจ็บป่วยด้วยโรคใดโรคหนึ่ง สามารถสื่อความหมาย อ่าน เขียนภาษาไทยได้มีความสมัครใจและยินยอมให้ความร่วมมือในการวิจัย และผ่านการคัดกรองด้วยแบบทดสอบสภาพสมองของไทย (Thai Mental State Examination: TMSE) โดยผลการคัดกรองค่าคะแนนมีระดับคะแนนสูงกว่า 23 คะแนน หมายถึง ผู้สูงอายุที่ไม่มีภาวะสมองเสื่อม ค่าคะแนนแบบวัดความซึมเศร้าในผู้สูงอายุไทย (Thai Geriatric Depressive Scale: TGDS) อยู่ในช่วงคะแนน 0-12 คะแนน หมายถึง ผู้สูงอายุที่ไม่มีภาวะซึมเศร้าและแบบประเมินความสามารถในการปฏิบัติกิจวัตรประจำวัน ดัชนีบาร์เทลที่มีคะแนนมากกว่า 12 คะแนน หมายถึง ผู้ที่ต้องพึ่งพาบุคคลอื่นน้อย

3) ประเมินความเสี่ยงภาวะข้อเข่าเสื่อม ผู้ที่มีอายุตั้งแต่ 60 ปีขึ้นไป ทั้งเพศชายและเพศหญิง โดยการประเมินความรุนแรงของโรคข้อเข่าเสื่อม (Oxford Knee Score) ที่พัฒนาโดยกรมอนามัย กระทรวงสาธารณสุขในปี พ.ศ. 2557 มีข้อคำถามจำนวน 12 ข้อ โดยคะแนนรวมทั้งหมดมีตั้งแต่ 0-48 คะแนน แบ่งเป็น 4 ระดับ คือ เป็นโรคข้อเข่าเสื่อมระดับรุนแรง (0-19 คะแนน) มีอาการโรคข้อเข่าเสื่อมระดับปานกลาง (20-29 คะแนน) เริ่มมีอาการข้อเข่าเสื่อม (30-39 คะแนน) และยังไม่พบอาการผิดปกติ (40-48 คะแนน)

2) เครื่องมือที่ใช้ในการวิจัย

เครื่องมือที่ใช้ในการวิจัยครั้งนี้มี 2 ประเภท ประกอบด้วย

1) เครื่องมือที่ใช้ในการดำเนินการ คือ รูปแบบกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อม

กิจกรรมการดูแลภาวะข้อเข่าเสื่อม

1.1) ความรู้เกี่ยวกับโรคข้อเข่าเสื่อม สาเหตุอาการปัจจัยเสี่ยงพฤติกรรมที่ไม่พึงประสงค์

1.2) การบริหารร่างกายเพื่อป้องกันภาวะข้อเข่าเสื่อม จำนวน 5 ท่า

1.3) การพอกเข่าด้วยสมุนไพร เพื่อบรรเทาอาการปวดใช้แป้งข้าวเจ้า 70 กรัม และน้ำด่างหรือน้ำเปล่า 75 มิลลิลิตร มานวดให้เข้ากันจนเนื้อยานุ่มเติมน้ำสมุนไพร (ขมิ้น ไพล ขิง) สกัด 75 มิลลิลิตร ใช้มือนวดยาให้เข้ากันนำยาที่ได้มาพอกเข่ารักษาอาการปวดเข่า โดยให้พอกทิ้งไว้ 20 นาที เมื่อยาแห้งให้ตบยาและลูบยาออกพอกวันเว้นวัน จำนวน 5 ครั้ง

กิจกรรมการดูแลภาวะสมองเสื่อม

1.1) ความรู้เกี่ยวกับโรคสมองเสื่อม สาเหตุ อาการ ปัจจัยเสี่ยง พฤติกรรมที่ไม่พึงประสงค์

1.2) กิจกรรมการฝึกสมอง : การคำนวณ การใช้ภาษา การระลึกได้

1.3) การฝึกควบคุมอารมณ์ ด้วย SKT สมาธิบำบัด

2) เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล ได้แก่

2.1) แบบประเมินประสิทธิผลของรูปแบบ 1) แบบสอบถามระดับความปวดของข้อเข่าภาวะข้อเข่าเสื่อม (Modified WOMAC Score) จำนวน 14 ข้อ (Numeric rating scale) มีข้อคำถาม 14 ข้อ และระดับความเจ็บปวด 1 ข้อ แบ่งตัวเลขตั้งแต่ 0 ถึง 10 โดยตำแหน่งเริ่มต้นซ้ายมือสุดตรงกับความรู้สึกไม่ปวดเลยแทนค่าความรู้สึกด้วยเลข 0 และความรู้สึกของอาการปวดเข่าจะเพิ่มขึ้นเรื่อย ๆ ไปทางขวามือซึ่งตำแหน่งปลายสุดด้านขวามือ คือ 10 ตรงกับความรู้สึกของอาการปวดเข่ามากที่สุด การแปลความหมายของค่าเฉลี่ยอาการปวดดังนี้ 0 หมายถึงไม่ปวดเลย 1-3 หมายถึงปวดเล็กน้อย 4-6 หมายถึงปวดปานกลาง 7-9 หมายถึงปวดมาก และ 10 หมายถึงปวดมากที่สุด 2) แบบสอบถามความรู้และการป้องกันและควบคุมภาวะสมองเสื่อม จำนวน 15 ข้อ คำตอบเป็นมาตราส่วนประเมินค่า 3 ระดับ แบ่งช่วงคะแนนออกเป็น 3 ระดับ 0-5 หมายถึง ปฏิบัติพฤติกรรมสร้างเสริมสุขภาพอยู่ในระดับปรับปรุง 6-10 หมายถึง ปฏิบัติพฤติกรรมสร้างเสริมสุขภาพ อยู่ในระดับปานกลาง และ 11-15 หมายถึง ปฏิบัติ พฤติกรรมสร้างเสริมสุขภาพอยู่ในระดับดี ซึ่งการวิจัยในครั้งนี้ได้ทำการทดสอบหาค่าความตรงภายในเท่ากับ .70 และมีระดับความเที่ยง โดยใช้วิธีหาค่าสัมประสิทธิ์ แอลฟาของครอนบาค (Cronbach’ s Alpha Coefficient) ได้ค่าความเที่ยงเท่ากับ .71

2.2) แบบวัดความพึงพอใจในการมีส่วนร่วม เป็นมาตราส่วนประเมินค่า 5 ระดับ ประกอบด้วยความเหมาะสมของรูปแบบกิจกรรม ผลต่อการเปลี่ยนแปลงสุขภาพของผู้สูงอายุ การนำไปประยุกต์ใช้ในการดำเนินชีวิตประจำวัน โดยอาสาสมัครสาธารณสุขประจำหมู่บ้านเป็นผู้ประเมิน

3) วิธีเก็บรวบรวมข้อมูล

การวิจัยครั้งนี้ ดำเนินการเป็นระยะเวลา 6 สัปดาห์ จากข้อมูลสุขภาพชุมชนตามสถานการณ์จริง โดยการลงพื้นที่ของนักศึกษาในพื้นที่ที่นักศึกษาเลือก โดยประสานงานกับผู้นำหมู่บ้าน อาสาสมัครสาธารณสุข

ประจำหมู่บ้าน และดำเนินการตามกระบวนการวินิจฉัยชุมชน ดำเนินการ 5 ขั้นตอน โดยมีชุมชนมีส่วนร่วมทุกขั้นตอน (มณุเชษฐ์ มะโนธรรม, พัชรา ก้อยชูสกุล และจุฑามาศ เมืองมูล, 2563) ดังนี้

1) การประเมินสุขภาพชุมชน (Community Health Asessment) นักศึกษาจะดำเนินการลงพื้นที่สำรวจข้อมูลสุขภาพผู้สูงอายุในหมู่บ้าน โดยใช้แบบสอบถามข้อมูลสุขภาพประกอบด้วย 1) แบบประเมินความสามารถในการปฏิบัติกิจวัตรประจำวัน ดัชนีบาร์เทล 2) แบบทดสอบสภาพสมองของไทย (Thai Mental State Examination: TMSE) 3) แบบวัดความซึมเศร้าในผู้สูงอายุไทย (Thai Geriatric Depressive Scale: TGDS) 4) แบบประเมินความรุนแรงของโรคข้อเข่าเสื่อม (Oxford Knee Score) โดยมีอาสาสมัครสาธารณสุขประจำหมู่บ้านเป็นผู้ช่วย ในการประเมินสุขภาพนักศึกษาดำเนินการลงพื้นที่และวิเคราะห์ข้อมูลเบื้องต้นเป็นเป็นเวลา 2 สัปดาห์

2) การวินิจฉัยปัญหาสุขภาพชุมชน (Community Health Problem Diagnosis) แบ่งออกเป็น 3 ขั้นตอน ได้แก่ 1) ระบุปัญหาสุขภาพชุมชน 2) การจัดลำดับความสำคัญของปัญหาสุขภาพชุมชน ผ่านกระบวนการการจัดเวทีประชาคมอย่างมีส่วนร่วม ประกอบด้วย ผู้นำชุมชน อสม. เจ้าหน้าที่สาธารณสุข และ3) การศึกษาสาเหตุของปัญหาสุขภาพชุมชน โดยนักศึกษาร่วมกับ อสม. ศึกษาสาเหตุของการเกิดปัญหาข้อเข่าเสื่อมและภาวะสมองเสื่อมของผู้สูงอายุร่วมกัน ดำเนินการเป็นเวลา 1 สัปดาห์

3) การวางแผนแก้ไขปัญหาสุขภาพชุมชน (Community Health Problem Planning) หลังจากศึกษาสาเหตุของปัญหาสุขภาพชุมชน ทั้งในระดับบุคคล ครอบครัว และชุมชน ผู้สอนแนะนำแนวทางการลดปัจจัยเสี่ยงและแก้ไขปัญหาสุขภาพชุมชน จากการปัญหาที่ได้ตามความต้องการของชุมชน โดยใช้กระบวนการกลุ่ม (Appreciation-Influence-Control: AIC) และนักศึกษาร่วมกันออกแบบกิจกรรมส่งเสริมสุขภาพตามบริบทชุมชน นำเสนอต่อองค์การบริหารส่วนตำบล อสม. หมู่ 6 เพื่อเพิ่มเติมและปรับแก้การดำเนินกิจกรรมให้เข้ากับบริบทของชุมชนมากที่สุด เป็นเวลา 1 สัปดาห์ และประสานความร่วมมือจากทุกภาคส่วนก่อนดำเนินกิจกรรม

4) การดำเนินงานตามแผนที่กำหนดไว้ (Intervention) การจัดกิจกรรมส่งเสริมสุขภาพชุมชน โดยนักศึกษาจัดกิจกรรมให้กับกลุ่มเป้าหมายที่จะลดปัจจัยเสี่ยงและปัญหาสุขภาพ เป็นระยะเวลา 1 สัปดาห์ โดยประยุกต์ใช้แนวคิดของ Pender NJ (1987) ที่มุ่งเน้นให้ประชาชนมีพฤติกรรมที่คงไว้ ซึ่งการมีสุขภาพดีมาประยุกต์ใช้ตามบริบทของชุมชน

5) การประเมินผลการดำเนินงาน (Evaluation) ติดตามการดำเนินการจัดกิจกรรมส่งเสริมสุขภาพหลังการดำเนินการ 14 วัน ร่วมกับ อสม. เพื่อติดตามการปรับเปลี่ยนพฤติกรรมทางด้านสุขภาพกับกลุ่มเป้าหมายที่ได้ดำเนินการ และนำมาพิจารณากิจกรรมปรับปรุง และเสนอต่ออาสาสมัครสาธารณสุขประจำหมู่บ้านโรงพยาบาลส่งเสริมสุขภาพชุมชน ประยุกต์ใช้ตามบริบทของชุมชน

4) การวิเคราะห์ข้อมูลและสถิติที่ใช้ในการวิจัย

1) การจัดกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อม และสมองเสื่อมของนักศึกษาอนุปริญญา สาขาวิชาสาธารณสุขชุมชน วิทยาลัยชุมชนสงขลาวิเคราะห์ข้อมูล โดยใช้สถิติเชิงคุณภาพใช้การวิเคราะห์เชิงเนื้อหา (Content Analysis)

2) ประสิทธิผลของรูปแบบกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อม วิเคราะห์ข้อมูล โดยหาค่าเฉลี่ยส่วนเบี่ยงเบนมาตรฐาน และ Dependent t-test สำหรับการเปรียบเทียบความแตกต่างของคะแนนเฉลี่ยก่อนและหลังการทดลองในกลุ่มเดียวกัน

3) การสอบถามความพึงพอใจวิเคราะห์ข้อมูล โดยใช้สถติเชิงพรรณนา ได้แก่ การแจกแจง ความถี่ ร้อยละ ค่าเฉลี่ย, ส่วนเบี่ยงเบนมาตรฐาน

ผลการวิจัย

ข้อมูลทั่วไปของกลุ่มตัวอย่าง

ผู้สูงอายุส่วนใหญ่มีอายุ 60–70 ปี มีจำนวน 40 คน คิดเป็น ร้อยละ 56.96 ส่วนใหญ่เป็นเพศหญิง จำนวน 47 คนคิดเป็นร้อยละ 78.33 เพศชาย จำนวน 13 คน คิดเป็นร้อยละ 21.67 มีน้ำหนักมากกว่าเกณฑ์ (BMI มากกว่าหรือเท่ากับ 25 กิโลกรัมต่อตารางเมตร) เป็นส่วนใหญ่ 51 คน คิดเป็นร้อยละ 85.00 และส่วนใหญ่เป็นที่มีโรคประจำตัว 56 คน คิดเป็นร้อยละ 93.33

1) รูปแบบการจัดกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อมของนักศึกษาอนุปริญญา สาขาวิชาสาธารณสุขชุมชน วิทยาลัยชุมชนสงขลา

กิจกรรมหลักในการดูแลสุขภาพผู้สูงอายุ ประกอบด้วย

กิจกรรมการดูแลภาวะข้อเข่าเสื่อม

1) ความรู้เกี่ยวกับโรคข้อเข่าเสื่อม สาเหตุ อาการ ปัจจัยเสี่ยง พฤติกรรมที่ไม่พึงประสงค์

2) การบริหารร่างกายเพื่อป้องกันภาวะข้อเข่าเสื่อม จำนวน 5 ท่า ให้ปฏิบัติทุกวัน ประกอบด้วย

ท่าที่ 1 นั่งบนเก้าอี้ ค่อย ๆ ยกต้นขาขึ้นหนึ่งข้างแล้วผายขาออกไปแตะพื้นด้านข้างทำสลับกัน 10 ครั้ง

ท่าที่ 2 เหยียดขาตรงมาด้านหน้าทั้ง 2 ข้าง เตะขาสลับข้างเท้าลอยพื้น เกร็งขา เพิ่มความยากด้วยการเตะสลับไล่ความสูงขึ้นเรื่อย ๆ

ท่าที่ 3 นั่งเก้าอี้ในท่าปกติยกต้นขาขึ้นตั้งฉาก 1 ข้าง และเกร็งกล้ามเนื้อช่วงต้นขาหน้าค่อย ๆ ยืดหน้าแข้งให้ขนานพื้นค้างไว้ 1 วินาที และชักหน้าแข้งกลับที่เดิม

ท่าที่ 4 ยืดขาให้สุด วางฝ่าเท้าให้เต็มพื้น จิกฝ่าเท้าติดพื้นและค่อย ๆ ลากเข้าหาลำตัวช้า ๆ

ท่าที่ 5 นั่งเก้าอี้เหยียดขาไปด้านหน้า 1 ข้าง กดเข่าให้ตึงวางฝ่าเท้าไว้กับพื้นกระดกปลายเท้าแล้วค่อย ๆ ไล่มือลงไปตั้งแต่ต้นขา หัวเข่า หน้าแข้ง และปลายเท้า

3) การพอกเข่าด้วยสมุนไพรเพื่อบรรเทาอาการปวดใช้แป้งข้าวเจ้า 70 กรัม และน้ำด่างหรือน้ำเปล่า 75 มิลลิลิตร มานวดให้เข้ากันจนเนื้อยานุ่มเติมน้ำสมุนไพร (ขมิ้น ไพล ขิง) สกัด 75 มิลลิลิตร ใช้มือนวดยาให้เข้ากันนำยาที่ได้มาพอกเข่ารักษาอาการปวดเข่า โดยให้พอกทิ้งไว้ 20 นาที เมื่อยาแห้งให้ตบยาและลูบยาออกพอกวันเว้นวัน จำนวน 5 ครั้ง

กิจกรรมการดูแลภาวะสมองเสื่อม

1) ความรู้เกี่ยวกับโรคสมองเสื่อม สาเหตุ อาการ ปัจจัยเสี่ยง พฤติกรรมที่ไม่พึงประสงค์
2) กิจกรรมการฝึกสมอง : การคำนวณ การใช้ภาษา การระลึกได้
3) การฝึกควบคุมอารมณ์ ด้วย SKT สมาธิบำบัด ประกอบด้วย

ท่าที่ 1 (SKT 1) “นั่งผ่อนคลาย ประสานกายประสานจิต”

ท่าที่ 2 (SKT 2) “ยืนผ่อนคลาย ประสานกาย ประสานจิต”

ท่าที่ 3 (SKT 3) “นั่งยืด -เหยียดผ่อนคลาย ประสานกาย ประสานจิต”

ท่าที่ 4 (SKT 4) “ก้าวย่างอย่างไทย เยียวยากาย ประสานจิต”

ท่าที่ 5 (SKT 5) “ยืดเหยียดอย่างไทย เยียวยากาย ประสานจิต”

ท่าที่ 6 (SKT 6) “เทคนิคการฝึกสมาธิการเยียวยาไทยจินตภาพ”

ท่าที่ 7 (SKT 7) “เทคนิคสมาธิเคลื่อนไหวไทยชี่กง”

2) ประสิทธิผลรูปแบบกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อมอย่างมีส่วนร่วมของนักศึกษาอนุปริญญา สาขาวิชาสาธารณสุขชุมชน วิทยาลัยชุมชนสงขลา (n = 60)

ประเมินความรู้และระดับความปวดของข้อเข่าภาวะข้อเข่าเสื่อม ความรู้และพฤติกรรมการป้องกันภาวะสมองเสื่อมของผู้สูงอายุ รวมทั้งความรู้และการป้องกันและควบคุมภาวะสมองเสื่อม ก่อนและหลังเข้าร่วมกิจกรรมการดูแลสุขภาพผู้สูงอายุ 14 วัน โดยมีการติดตามการนำรูปแบบกิจกรรมไปปฏิบัติในชีวิตประจำวัน

ตารางที่ 1 ค่าเฉลี่ยของความรู้และความรุนแรงของโรคข้อเข่าเสื่อม (Modifield Womac score) และระดับความเจ็บปวดของเข่าเสื่อมก่อนและหลังการใช้รูปแบบกิจกรรมการดูแลสุขภาพภาวะข้อเข่าเสื่อม

รายการประเมิน	ระยะ	Mean	SD	t	p-value
ความรู้	ก่อนร่วมกิจกรรม	13.44	1.933	-4.118	<.001*
	หลังร่วมกิจกรรม	21.67	2.036		
Modifield Womac score					
คะแนนรวม	ก่อนร่วมกิจกรรม	63.52	49.044	2.201	0.031*
	หลังร่วมกิจกรรม	56.25	43.439		
ระดับความปวด	ก่อนร่วมกิจกรรม	4.06	3.375	5.049	<.001*
	หลังร่วมกิจกรรม	2.30	2.446		

*p-value<0.05

จากตารางที่ 1 เปรียบเทียบความแตกต่างของค่าเฉลี่ยของความรู้เกี่ยวกับโรคข้อเข่าเสื่อมความรุนแรงของโรคข้อเข่าเสื่อม (Modifield Womac score) โดยประเมินความปวด ความฝืด การใช้งานข้อ

และระดับความเจ็บปวดของข้อเข่าเสื่อม พบว่าหลังการใช้รูปแบบกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อม ประกอบด้วยการให้ความรู้การบริหารร่างกาย เพื่อป้องกันภาวะข้อเข่าเสื่อม จำนวน 5 ท่า และการพอกเข่าด้วยสมุนไพรผู้สูงอายุมีความรู้เกี่ยวกับโรคข้อเข่าเสื่อม ความรุนแรงของโรคข้อเข่าเสื่อมและระดับความเจ็บปวดของเข่าเสื่อมดีขึ้นกว่าก่อนการร่วมกิจกรรมการดูแลสุขภาพผู้สูงอายุ อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

ตารางที่ 2 ค่าเฉลี่ยของความรู้และการป้องกันและควบคุมภาวะสมองเสื่อม ก่อนและหลังการใช้รูปแบบกิจกรรมการดูแลสุขภาพภาวะสมองเสื่อม

รายการประเมิน	ระยะ	Mean	SD	t	p-value
ความรู้	ก่อนร่วมกิจกรรม	6.44	1.337	-4.118	<.001*
	หลังร่วมกิจกรรม	14.67	1.422		
การป้องกันและควบคุมภาวะสมองเสื่อม	ก่อนร่วมกิจกรรม	7.17	3.132	-10.362	<.001*
	หลังร่วมกิจกรรม	13.73	1.412		

*p-value<0.05

จากตารางที่ 2 เปรียบเทียบความแตกต่างของค่าเฉลี่ยของความรู้เกี่ยวกับโรคสมองเสื่อมและการป้องกันภาวะสมองเสื่อม พบว่าหลังการใช้รูปแบบกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะสมองเสื่อม ประกอบด้วยความรู้เกี่ยวกับโรคสมองเสื่อมสาเหตุอาการปัจจัยเสี่ยง พฤติกรรมที่ไม่พึงประสงค์กิจกรรมการฝึกสมอง การฝึกควบคุมอารมณ์ด้วย SKT สมาธิบำบัดผู้สูงอายุมีความรู้และการป้องกันมากขึ้นกว่าก่อนการร่วมกิจกรรมการดูแลสุขภาพผู้สูงอายุ อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

3) ความพึงพอใจในการดำเนินการวินิจฉัยชุมชนและการจัดกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อมของนักศึกษาอนุปริญญา สาขาวิชาสาธารณสุขชุมชน วิทยาลัยชุมชนสงขลา อย่างมีส่วนร่วมของอาสาสมัครสาธารณสุขประจำหมู่บ้าน หมู่ 6 ตำบลทุ่งหวัง อำเภอเมือง จังหวัดสงขลา (n = 30)

ตารางที่ 3 ความพึงพอใจในการดำเนินการวินิจฉัยชุมชนและการจัดกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อมของนักศึกษาอนุปริญญา สาขาวิชาสาธารณสุขชุมชน วิทยาลัยชุมชนสงขลา อย่างมีส่วนร่วมของอาสาสมัครสาธารณสุขประจำหมู่บ้าน หมู่ 6 ตำบลทุ่งหวัง อำเภอเมือง จังหวัดสงขลา

รายการประเมิน	$\bar{\chi}$	S.D.	การแปลผล
ความเหมาะสมของรูปแบบกิจกรรม	4.16	0.67	มาก
ผลต่อการเปลี่ยนแปลงสุขภาพของผู้สูงอายุ	4.18	0.68	มาก

ตารางที่ 3 (ต่อ)

รายการประเมิน	$\bar{\chi}$	S.D.	การแปลผล
การนำไปประยุกต์ใช้ในการดำเนินชีวิตประจำวัน	4.33	0.83	มากที่สุด
อสม. สามารถนำไปดำเนินการให้กับผู้สูงอายุได้อย่างต่อเนื่อง	4.09	0.73	มาก
เฉลี่ย	**4.19**	**0.78**	**มาก**

จากตารางที่ 3 จากการประเมินความพึงพอใจในการดำเนินการวินิจฉัยชุมชน และการจัดกิจกรรมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อมของนักศึกษาอนุปริญญา สาขาวิชาสาธารณสุขชุมชน พบว่า อาสาสมัครสาธารณสุขประจำหมู่บ้าน หมู่ 6 ตำบลทุ่งหวัง อำเภอเมือง จังหวัดสงขลา มีความพึงพอใจต่อกิจกรรมในภาพรวม อยู่ในระดับมาก ($\bar{\chi}$ =4.19, SD=0.78) แยกเป็นประเด็น พบว่า ความเหมาะสมของรูปแบบกิจกรรม อยู่ในระดับมาก ($\bar{\chi}$ =4.16, SD=0.67) ผลต่อการเปลี่ยนแปลงสุขภาพของผู้สูงอายุ อยู่ในระดับมาก ($\bar{\chi}$ =4.18, SD=0.68) การนำไปประยุกต์ใช้ในการดำเนินชีวิตประจำวัน อยู่ในระดับมากที่สุด ($\bar{\chi}$ =4.33, SD=0.83) และอสม. สามารถนำไปดำเนินการให้กับผู้สูงอายุได้อย่างต่อเนื่อง อยู่ในระดับมาก ($\bar{\chi}$ =4.09, SD=0.73)

สรุปและอภิปรายผล

การดำเนินการวิจัยและติดตามผลซึ่งผลที่ได้รับ พบว่า รูปแบบการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและภาวะสมองเสื่อม ผลจากการเข้าร่วมกิจกรรมส่งผลให้ผู้สูงอายุมีความรู้ความเข้าใจ และนำความรู้ที่ได้ไปปฏิบัติเกิดเครือข่ายมีการแลกเปลี่ยนเรียนรู้ภายในและภายนอก กลุ่มรับรู้ถึงประโยชน์ของการปฏิบัติ ประกอบกับภายหลังเสร็จสิ้นกิจกรรมครบ 14 วัน อาสาสมัครสาธารณสุข คอยติดตามและกระตุ้นเตือนการปฏิบัติตัวเกี่ยวกับการสร้างเสริมสุขภาพของผู้สูงอายุ ส่งผลให้ผู้สูงอายุเกิดความตระหนักและคงไว้ ซึ่งพฤติกรรมการสร้างเสริมสุขภาพอย่างต่อเนื่อง นำกิจกรรมการดูแลภาวะข้อเข่าเสื่อม การพอกเข่าด้วยสมุนไพรการฝึกควบคุมอารมณ์ ด้วย SKT สมาธิบำบัดปฏิบัติอย่างสม่ำเสมอ บรรเทาอาการปวดจากภาวะข้อเข่าเสื่อมและเสริมสร้างสมาธิ อารมณ์ ป้องกันภาวะสมองเสื่อมสอดคล้องกับการศึกษาของลัดดาวัลย์ พุทธรักษา (2563) เรื่องรูปแบบการพัฒนาผู้สูงอายุ โดยวิธีการเรียนรู้ด้วยการนำตนเองและการจัดการความรู้ พบว่าผลการทดสอบความรู้ผู้ดูแลผู้สูงอายุมีระดับคะแนนความรู้ภายหลังการเข้าร่วมโครงการเฉลี่ยสูงกว่าคะแนนความรู้ก่อนเข้าร่วมโครงการ

ผลจากการที่อาสาสมัครสาธารณสุขประจำหมู่บ้านมีความพึงพอใจในการมีส่วนร่วม สืบเนื่องจากผลลัพธ์ส่งผลดีต่อผู้สูงอายุโดยตรงนั่นคือ ผู้สูงอายุมีพฤติกรรมการสร้างเสริมสุขภาพที่ถูกต้องและเหมาะสม มีสุขภาพดี ดำรงชีวิตอยู่ ในชีวิตประจำวันได้อย่างมีความสุข อีกทั้งส่งเสริมคุณภาพชีวิตที่ดี ทั้งในผู้สูงอายุ ครอบครัวและชุมชน เนื่องจากเกิดระบบการดูแลสุขภาพผู้สูงอายุร่วมกันของทุกฝ่ายและ

หลากหลายสาขาวิชาชีพ ทั้งนี้ ได้รับการสนับสนุนจากหน่วยงานหลายภาคส่วนทั้งในระดับท้องถิ่น และสถาบันการศึกษาที่สนับสนุนองค์ความรู้ผ่านกระบวนการจัดการเรียนการสอน และให้นักศึกษาได้นำองค์ความรู้มาปรับใช้จริงในชุมชนสร้างระบบการดูแลร่วมกัน สอดคล้องกับการศึกษาของศรายุทธ ชูสุทน, พัดชา หิรัญวัฒนกุล และ สุมัทนา กลางคาร (2564) เกี่ยวกับผลการมีส่วนร่วมของชุมชนต่อการเปลี่ยนแปลงพฤติกรรมการสร้างเสริมสุขภาพของผู้สูงอายุ ซึ่งพบว่า รูปแบบการมีส่วนร่วมของชุมชนมีผลต่อความภาคภูมิใจในการมีส่วนร่วมสร้างเสริมสุขภาพของผู้สูงอายุ โดยพฤติกรรมการสร้างเสริมสุขภาพผู้สูงอายุเกือบทุกด้านสูงกว่าก่อนการวิจัย อย่างมีนัยสำคัญทางสถิติ

สรุปได้ว่า รูปแบบการส่งเสริมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อมโดยกระบวนการวินิจฉัยชุมชนอย่างมีส่วนร่วม หมู่ 6 ตำบลทุ่งหวัง อำเภอเมือง จังหวัดสงขลา เป็นรูปแบบที่จะสามารถควบคุมโรคและส่งเสริมสุขภาพผู้สูงอายุที่มีปัญหาข้อเข่าเสื่อมและป้องกันควบคุมความเสี่ยงต่อการเกิดภาวะสมองเสื่อมได้ สามารถดำเนินการในชุมชนด้วยศักยภาพของชุมชนเองร่วมกับการสนับสนุน โดยบุคลากรสาธารณสุขในพื้นที่และองค์การปกครองส่วนท้องถิ่น ซึ่งเป็นรูปแบบการจัดการสุขภาพที่จะก่อให้เกิดความยั่งยืนในด้านส่งเสริมสุขภาพผู้สูงอายุต่อไป และสามารถนำไปประยุกต์ใช้ให้เหมาะสมกับความต้องการของชุมชนอื่น ๆ ที่มีบริบทคล้ายคลึงกันได้หรือใช้เป็นแนวทางในการพัฒนารูปแบบการจัดการโรคไม่ติดต่อเรื้อรังอื่น ๆ ได้

ข้อเสนอแนะในการนำรูปแบบไปใช้

รูปแบบการส่งเสริมการดูแลสุขภาพผู้สูงอายุที่มีภาวะข้อเข่าเสื่อมและสมองเสื่อม โดยกระบวนการวินิจฉัยชุมชนอย่างมีส่วนร่วม หมู่ 6 ตำบลทุ่งหวัง อำเภอเมือง จังหวัดสงขลา โดยใช้แนวคิดการจัดการโรคเพื่อให้เกิดการจัดการโรคอย่างมีประสิทธิภาพ องค์กรปกครองส่วนท้องถิ่นสามารถนำไปจัดทำแผนงานของหน่วยงาน โดยบูรณาการทำงานกับทุกภาคส่วน เช่น โรงพยาบาลส่งเสริมสุขภาพตำบล เพื่อพัฒนาโครงการแก้ปัญหาสุขภาพของประชาชนให้ครอบคลุมในทุกมิติ แบบองค์รวมที่คำนึงถึงความสัมพันธ์ของปัญหาในระดับบุคคล ครอบครัว และชุมชน ทั้งนี้เพื่อให้ประชาชนมีสุขภาพดีลดการเจ็บป่วยจากโรคหรือปัญหาสุขภาพที่มีวิธีป้องกันได้ รวมทั้งมุ่งเน้นให้ชุมชนเข้ามามีส่วนร่วมขับเคลื่อนในการแก้ไขปัญหาสุขภาพของประชาชนด้วยตนเอง ซึ่งจะนำไปสู่การพัฒนาสุขภาพที่ยั่งยืนต่อไปนำสู่ Spiritual well being ได้

ข้อเสนอแนะในการวิจัยครั้งต่อไป

1. การวิจัยในครั้งเป็นการพัฒนารูปแบบการดูแลสุขภาพผู้สูงอายุภายใต้ การเรียนการสอนรายวิชา การดูแลสุขภาพผู้สูงอายุ มีจำนวนเวลาที่จำกัด เพื่อให้เกิดการจัดการโรคอย่างมีประสิทธิภาพควรนำไปทำเป็นโปรแกรมการดูแลสุขภาพผู้สูงอายุ และเพิ่มระยะเวลา การดำเนินโปรแกรมให้นานมากกว่า 6 สัปดาห์

2. ควรมีการศึกษาวิจัยเพิ่มเติมโดยการนำรูปแบบการพัฒนาไปใช้กับชุมชนอื่น ๆ เพื่อนำผลลัพธ์ที่ได้มาแลกเปลี่ยนเรียนรู้เพื่อการปรับปรุงพัฒนา ให้กิจกรรมการพัฒนาสามารถขับเคลื่อนจากปัญหาของ

ชุมชนดำเนินการโดยชุมชนและได้รับการสนับสนุนโดยชุมชน เพื่อความยั่งยืนในการป้องกันและควบคุมข้อเข่าเสื่อมในผู้สูงอายุต่อไป

เอกสารอ้างอิง

กมลทิพย์ จันทร์คำ, มณฑิชา รักศิลป์ และนพรัตน์ ส่งเสริม. (2563). การพัฒนารูปแบบการป้องกันภาวะสมองเสื่อมในผู้สูงอายุ โดยการมีส่วนร่วมของอาสาสมัครสาธารณสุขประจำครอบครัว ในเขตอำเภอน้ำยืน จังหวัดอุบลราชธานี. วารสาร มจร อุบลปริทรรศน์, 5(3), 255-266.

ชวิศ เมธาบุตร. (2565). การพัฒนารูปแบบการจัดการโรคข้อเข่าเสื่อมในผู้สูงอายุ อำเภอชุมพวง จังหวัดนครราชสีมา. วารสารศูนย์อนามัยที่ 9, 16(3), 969-985.

ฉัตรสุดา กานกายันต์, อภิรดี เจริญนุกูล และวิทยา วาโย. (2563) การชะลอการเกิดข้อเข่าเสื่อมก่อนเข้าสู่วัยสูงอายุ. วารสารวิจัยและนวัตกรรมทางการพยาบาล, 26(1), 5-17.

ณัฐรพี ใจงาม, ชุติมา ทองวชิระ และสุชาดา โทผล. (2562). รูปแบบการป้องกันภาวะสมองเสื่อมของผู้สูงอายุในชุมชนเขตตลิ่งชัน กรุงเทพมหานคร. วารสารวิจัยมหาวิทยาลัยของแก่น, 19(3), 96-109.

ยุพาพักตร์ รักมณีวงศ์, พร้อมจิตร ห่อนบุญเหิม และอัจฉรา ชัยชาญ. (2555). ภาวะสุขภาพและความต้องการสร้าง เสริมสุขภาพของผู้สูงอายุข้อเข่าเสื่อมในหมู่บ้านมะกอก ตำบลขามเรียง อำเภอกันทรวิชัย จังหวัด มหาสารคาม. วารสารการพยาบาลและสุขภาพ, 6(1), 84-98.

มณุเชษฐ์ มะโนธรรม. (2565). การวินิจฉัยปัญหาสุขภาพชุมชนเพื่อการสร้างเสริมสุขภาพ.วารสารวิจัยการพยาบาลและวิทยาศาสตร์สุขภาพ. 14(2). กรกฎาคม – ธันวาคม.

ลัดดาวัลย์ พุทธรักษา. (2563). รูปแบบการพัฒนาผู้สูงอายุโดยวิธีการเรียนรู้ด้วยการนาตนเองและ การจัดการความรู้ (วิทยานิพนธ์ปริญญานิพนธ์การศึกษาดุษฎีบัณฑิต). มหาวิทยาลัยศรีนครินทรวิโรฒ, กรุงเทพฯ.

ศรายุทธ ชูสุทน, พัดชา หิรัญวัฒนกุล และสุมัทนา กลางคาร. (2564). การพัฒนารูปแบบการส่งเสริมสุขภาพของผู้สูงอายุโดยการมีส่วนร่วมของชุมชนเทศบาลตำบลบางนกแขวก อำเภอบางคนที จังหวัดสมุทรสงคราม. วารสารสหเวชศาสตร์มหาวิทยาลัยราชภัฏสวนสุนันทา, 7(1), 40-56.

ศิริมา เขมะเพชร และรจนาถ หอมดี. (2563). การส่งเสริมสุขภาพเพื่อป้องกันภาวะสมองเสื่อม. วารสารพยาบาลตำรวจ, 12(2), 457-463.

ศรีสุดา วงค์วิเศษกุล,รุ่งนภา ป้องเกียรติชัย ,วิวินท์ ปุระณะ และคณะ. (2562). ภาวะสมองเสื่อมในผู้สูงอายุ : การป้องกันในวัยผู้ใหญ่ การฟื้นฟูสุขภาพจิตและการสนับสนุนในครอบครัว สำหรับผู้ดูแลหลัก. กรุงเทพฯ : มหาวิทยาลัยสวนดุสิต.

อณิษฐา หาญภักดีนิยม. (2563). นโยบายเกี่ยวกับผู้สูงอายุต่อการพัฒนาประเทศในอาเซียน. วารสารพุทธอาเซียนศึกษา, 5(1), 55-70.

อรพินท์ คะเชนทร์ภักดิ์. (2565). ผลของโปรแกรมการบริหารข้อเข่าและการพอกเข่าด้วยสมุนไพร ตามทฤษฎีการรับรู้ ความสามารถของตนเอง ในการบรรเทาความปวดของโรคข้อเข่าเสื่อมของผู้สูงอายุ โรงพยาบาลทรายทองวัฒนา จังหวัดกำแพงเพชร (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยนเรศวร, พิษณุโลก.

อรวรรณ แผนคง และสุนทรีย์ คำเพ็ง. (2551). ผลของการสร้างเสริมสุขภาพโดยใช้ชุมชนเป็นฐานต่อพฤติกรรมการสร้างเสริม สุขภาพของผู้สูงอายุและความพึงพอใจในการมีส่วนร่วมของผู้ดูแลผู้สูงอายุ. วารสารวิจัยและนวัตกรรมทางการพยาบาล, 16(1), 1-13.

Kanagawa, K., Amatsu, E., Sato, H., Hosokawa, J., Ito, M.,& Matsudaira, Y. (2006). Community-based nursing care practice for the prevention of dementia in elderly residents in Japan. Primary Health Care Research & Development, 7, 314-317.

Nicholus Bellamy. (2007). WOMAC Osteoarthritis Index. User guide VIII, 71-3.

Pender NJ. (1987). Health Promotion in nursing practice. 2nd ed. Connecticus: Appleton & Lange.

การประเมินความเสี่ยงจากการทำงานโรงพักขยะอันตราย: กรณีศึกษาโรงพยาบาลเทพา ตำบลเทพา จังหวัดสงขลา

Risk Assessment of Working in Hazardous Waste Storage Facilities: A case Study of Thepha Hospital, Thepha District, Songkhla

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บทคัดย่อ

ปัญหาขยะอันตรายในสถานพยาบาลเป็นปัจจัยสำคัญที่ส่งผลต่อสุขภาพของบุคลากร และสิ่งแวดล้อมการศึกษานี้มีวัตถุประสงค์เพื่อประเมินความปลอดภัย ในการจัดเก็บและจัดการขยะอันตรายในโรงพยาบาลเทพา รวมถึงเสนอแนวทางในการพัฒนาระบบการจัดการที่มีประสิทธิภาพ การศึกษานี้ใช้การวิจัยเชิงคุณภาพ โดยเก็บข้อมูลผ่านการสัมภาษณ์เชิงลึกแบบประเมินความเสี่ยงจากพนักงานจัดเก็บขยะและหัวหน้าส่วนงานที่เกี่ยวข้อง ผลการศึกษาพบว่า ปัจจัยเสี่ยงที่สำคัญ คือ การสัมผัสสารเคมีและจุลินทรีย์อันตราย ซึ่งอาจก่อให้เกิดปัญหาสุขภาพระยะยาว แม้ว่าจะมีมาตรการป้องกันที่เพียงพอแต่ยังพบข้อจำกัด ด้านโครงสร้างพื้นฐานและกระบวนการคัดแยกขยะ การศึกษาวิจัยนี้มุ่งเน้นการพัฒนาโครงสร้างพื้นฐานของโรงพักขยะให้มีความปลอดภัยมากขึ้น การฝึกอบรมบุคลากรให้มีความรู้เกี่ยวกับมาตรการป้องกันและการใช้เทคโนโลยีที่ทันสมัยในการกำจัดขยะอันตราย ผลการศึกษานี้สามารถเป็นแนวทางในการปรับปรุงมาตรฐานความปลอดภัยในการจัดการขยะอันตรายของสถานพยาบาลในอนาคต

คำสำคัญ: ขยะอันตราย, โรงพยาบาล, ความปลอดภัย, การจัดการขยะ

Abstract

Hazardous waste management in healthcare facilities is a critical factor influencing both human health and environmental safety. This study aims to assess the safety of hazardous waste storage and management practices at Thepha Hospital and to propose recommendations for system improvement. A qualitative research approach was employed, involving in-depth interviews and risk assessment surveys conducted with waste management personnel and relevant department heads. The findings indicate that key risk factors include exposure to hazardous chemicals and microorganisms, which may lead to long-term health issues. Although preventive measures are in place, challenges such as structural limitations and inefficient waste segregation persist. Based on these findings, the study recommends enhancing waste storage facility infrastructure, providing comprehensive training for personnel on safety protocols, and adopting advanced waste disposal technologies. These insights offer practical guidance for improving hazardouswaste management standards in healthcare settings.

Keywords: Hazardous waste, Hospital, Safety, Waste management

บทนำ

ปัญหาขยะในประเทศไทยมีแนวโน้มที่ส่งผลกระทบที่รุนแรงต่อสิ่งแวดล้อมเพิ่มมากขึ้น เนื่องจากจำนวนประชากรที่เพิ่มขึ้นและเทคโนโลยีต่าง ๆ ที่พัฒนาทำให้มีปริมาณขยะที่หลากหลายประเภท เช่น พลาสติก สารเคมี และโฟม ซึ่งเป็นขยะที่กำจัดได้ยากขึ้นและมีจำนวนเพิ่มขึ้นทุกปี จึงส่งผลทำให้เกิดปัญหาต่อสุขภาพและสิ่งแวดล้อมของประชาชนในประเทศไทย จากรายงานสถานการณ์มลพิษของประเทศไทย ระบุว่าสถิติประเทศไทยในรอบ 10 ปี ที่ผ่านมามีปริมาณขยะเพิ่มขึ้นอย่างต่อเนื่อง โดยเฉลี่ยเพิ่มขึ้นปีละ 560 ตัน/วัน หรือเพิ่มขึ้นร้อยละ 1.53 ในแต่ละปี แต่พบว่าปริมาณขยะที่เกิดขึ้นได้รับการกำจัดอย่างถูกต้องเพียงร้อยละ 38 หรือ 5.8 ล้านตันจาก 15 ล้านตันทั่วประเทศ (กรมควบคุมมลพิษ, 2564)

จากความรุนแรงของปัญหาขยะที่เพิ่มมากขึ้นนั้น มีของเสียที่เกิดจากเทคโนโลยีที่พัฒนาขึ้น ซึ่งส่วนใหญ่เป็นผลิตภัณฑ์ที่มีพิษและกำจัดได้ยาก นั่นคือของเสียอันตรายที่เกิดขึ้นจากโรงงานอุตสาหกรรม โรงพยาบาล เกษตรกรรม และพาณิชยกรรม นอกจากนี้ยังมีชุมชนแหล่งที่อยู่อาศัยซึ่งเป็นแหล่งกำเนิดของเสียอันตรายอีกแหล่งที่มีความสำคัญอย่างมาก จากข้อมูลเบื้องต้นพบว่าของเสียอันตรายนั้น มีแนวโน้มเพิ่มปริมาณขึ้นทุกปี ซึ่งแนวโน้มที่เพิ่มสูงขึ้นย่อมส่งผลกระทบต่อผู้ปฏิบัติงานที่มีหน้าที่เกี่ยวข้องกับการจัดการขยะมูลฝอย ทั้งในส่วนของบุคลากรสาธารณสุข บุคลากรภาครัฐ เช่น องค์กรปกครองส่วนท้องถิ่นต่าง ๆ รวมถึงบุคลากรของบริษัทที่ทำหน้าที่เก็บ ขน และกำจัดมูลฝอยเหล่านี้ โดยเฉพาะผลกระทบที่อาจเกิดขึ้น จากการปฏิบัติงานที่ต้องสัมผัสสิ่งคุกคามสุขภาพที่มีสาเหตุจากขยะอันตราย ผู้ปฏิบัติงานด้านการ

จัดการขยะ ไม่ว่าจะเป็นแรงงานที่อยู่ในระบบ เช่น พนักงานเก็บ ขนมูลฝอยของโรงพยาบาล องค์การบริหารส่วนท้องถิ่น เทศบาล หรือแรงงานที่อยู่นอกระบบ เช่น คนงานร้านรับซื้อของเก่า คนเก็บ คัดแยกของเก่า ฯลฯ เป็นกลุ่มอาชีพที่ต้องทำงานเสี่ยงต่อสิ่งคุกคามทางสุขภาพหลายด้าน ได้แก่ ฝุ่นละออง เสียงดัง ความร้อน สารเคมี หรือปัญหาคุณภาพอากาศของสถานที่พักขยะหรือโรงพักขยะ ที่พบชนิดและปริมาณจุลินทรีย์ (เชื้อรา และแบคทีเรีย) ในอากาศที่อาจก่อผลกระทบต่อระบบทางเดินหายใจของคนงานได้

โรงพยาบาลเป็นแหล่งกำเนิดของเสียอันตรายที่สำคัญ โดยมีมาตรการบริหารจัดการขยะอันตราย ได้แก่ การดำเนินการที่เกี่ยวกับการคัดแยก การเก็บรวบรวมการเคลื่อนย้าย และการกำจัดมูลฝอยแต่ประเภทอย่างถูกวิธีและปลอดภัยแก่ผู้ปฏิบัติงาน เนื่องจากโรงพยาบาลมีแหล่งกำเนิดมูลฝอยที่เป็นพิษหรืออันตรายหลายจุด จึงต้องมีการเคลื่อนย้ายขยะอันตรายมารวบรวมไว้ยังจุดที่พักรวมหรือเรียกว่าโรงพักขยะอันตรายเพื่อรอการขนส่งไปกำจัดต่อไป จุดที่พักรวมมูลฝอยที่เป็นพิษหรืออันตรายโดยทั่วไปตามข้อกำหนดทั่วไปด้านความปลอดภัยควรมีลักษณะเป็นห้องหรือเป็นอาคารเฉพาะที่แยกจากอาคารอื่น ๆ มีความมั่นคงแข็งแรง สะดวกต่อการนำมูลฝอยมารวบรวม พื้นและผนังเรียบทำความสะอาดง่าย มีการป้องกันแดดและฝน สามารถรองรับปริมาณมูลฝอยที่เกิดขึ้น มีการระบายอากาศที่เหมาะสม มีระบบป้องกันอัคคีภัย และอุปกรณ์ดับเพลิงเพื่อระงับเหตุฉุกเฉิน มีการบำรุงรักษาให้ใช้งานได้เสมอ รวมทั้งจัดให้มีตู้ยาพร้อมเวชภัณฑ์ในการปฐมพยาบาลเบื้องต้นที่พร้อมใช้งานตลอดเวลา ตลอดจนมีข้อความที่มีขนาดสามารถมองเห็นได้ชัดเจนว่า “ที่พักรวมมูลฝอยที่เป็นพิษหรืออันตราย” ไว้ที่หน้าห้องหรืออาคารโรงพักขยะ

โรงพยาบาลเทพาเป็นโรงพยาบาลชุมชนขนาดกลางที่มีนโยบายที่มุ่งมั่นในการจัดการขยะ โดยเฉพาะขยะอันตรายมีการจัดตั้งโรงพักขยะอันตราย ซึ่งมีพนักงานรับขยะจากจุดที่รวบรวมขยะ ทำการตรวจสอบและนำขยะมาพักไว้ที่โรงพักขยะ สำหรับพื้นที่โรงพักขยะอันตรายจะแบ่งออกเป็น 2 ประเภท ได้แก่ (1) ขยะอันตรายชุมชน เช่น หลอดไฟ ถ่านไฟฉาย กระป๋องยาฆ่าแมลง ภาชนะบรรจุสารเคมี (2) ขยะอันตรายทางการแพทย์ เช่น ขวดยาหมดอายุ ยาหมดอายุ จากการดำเนินการที่ผ่านมาในการจัดตั้งโรงพักขยะอันตรายของโรงพยาบาลเทพา พบว่า ยังไม่มีระบบจัดเก็บและจัดการให้เกิดความปลอดภัยตามข้อกำหนดทั่วไปด้านความปลอดภัยที่เพียงพอ

งานวิจัยนี้ สนใจที่จะศึกษาเกี่ยวกับการประเมินความเสี่ยงจากการทำงานของพนักงานที่เกี่ยวข้องกับโรงพักขยะ ตลอดจนการจัดเก็บขยะอันตรายและการจัดการโรงพักขยะอันตรายในโรงพยาบาลเทพา เพื่อและเสนอแนวทางเพื่อพัฒนายกระดับความปลอดภัยให้ดียิ่งขึ้นและเกิดความยั่งยืน

วัตถุประสงค์ของการวิจัย

1. เพื่อชี้บ่งความเป็นอันตรายตามปัจจัยเสี่ยงในการจัดเก็บขยะอันตรายของพนักงานเก็บขยะ
2. เพื่อประเมินระดับความเสี่ยงของพนักงานจัดเก็บขยะอันตรายของโรงพักขยะอันตรายโรงพยาบาลเทพา

แนวคิด ทฤษฎี กรอบแนวคิด

แนวคิดเกี่ยวกับขยะอันตราย

ปัจจุบันปัญหาขยะหรือของเสียเป็นปัญหาที่มีความสำคัญในระดับต้น ๆ ของประเทศไทยเนื่องจากก่อให้เกิดผลกระทบในด้านต่าง ๆ ทั้งผลกระทบต่อสุขภาพอนามัยของคน ระบบนิเวศวิทยา การปนเปื้อนทางน้ำ การเกิดมลพิษทางอากาศ การปนเปื้อนในดิน ผลกระทบต่อพืชและสัตว์โดยขยะที่ก่อให้เกิดผลกระทบดังกล่าวมากที่สุด คือ ขยะอันตราย โดยขยะอันตรายคิดเป็น ร้อยละ 35 ของขยะทั้งประเทศ หากไม่มีการจัดการที่ถูกต้องตามหลักวิชาการจะทำให้เกิดผลกระทบต่าง ๆ ดังที่ได้กล่าวในข้างต้น ขยะอันตราย หมายรวมถึงขยะที่เป็นพิษหรืออันตรายที่เกิดจากกิจกรรมต่าง ๆ ที่เป็นวัตถุหรือปนเปื้อนสารที่มีคุณสมบัติเป็นสารพิษ สารระคายเคือง สารกัดกร่อน สารที่เกิดปฏิกิริยาได้ง่าย สารที่เกิดระเบิด สารที่ทำให้เกิดการเปลี่ยนแปลงทางพันธุกรรม สารหรือสิ่งอื่นใดที่อาจก่อหรือมีแนวโน้มที่จะทำให้เกิดอันตรายแก่บุคคล สัตว์ พืช ทรัพย์สิน หรือสิ่งแวดล้อม (กรมควบคุมมลพิษ, 2565) ตามพระราชบัญญัติวัตถุอันตราย พ.ศ. 2535 ได้กำหนดนิยามของวัตถุอันตราย หมายความว่า วัตถุดังต่อไปนี้ (1) วัตถุระเบิดได้ (2) วัตถุไวไฟ (3) วัตถุออกซิไดซ์และวัตถุเปอร์ออกไซด์ (4) วัตถุมีพิษ (5) วัตถุที่ทำให้เกิดโรค (6) วัตถุกัมมันตรังสี (7) วัตถุที่ก่อให้เกิดเกิดการเปลี่ยนแปลงทางพันธุกรรม (8) วัตถุกัดกร่อน (9) วัตถุที่ก่อให้เกิดการระคายเคือง (10) วัตถุอย่างอื่น ไม่ว่าจะเป็นเคมีภัณฑ์หรือสิ่งอื่นใด ที่อาจทำให้เกิดอันตรายแก่บุคคล สัตว์ พืช ทรัพย์หรือสิ่งแวดล้อม (กรมควบคุมมลพิษ, 2563)

ขยะอันตรายโรงพยาบาลแบ่งออกเป็น 2 ประเภท ได้แก่ 1) ขยะอันตรายทางการแพทย์ คือ ขยะที่ปนเปื้อน หรือมีส่วนประกอบของวัตถุอันตรายตามกฎหมายว่าด้วยวัตถุอันตราย เช่น ขวดยาหมดอายุ ยาหมดอายุ และ 2) ขยะอันตรายชุมชน คือ ของเสียอันตรายซึ่งมีแหล่งกำเนิดจากที่อยู่อาศัย สถานที่ราชการสถานศึกษา สถานประกอบการ รวมทั้งสถานที่อื่นในชุมชน เช่น ถ่านไฟฉาย แบตเตอรี่ หลอดไฟ ภาชนะบรรจุสารเคมี กระป๋องสเปรย์ และขวดน้ำยาทำความสะอาด (กรมควบคุมมลพิษ, 2563)

ผลกระทบของขยะอันตรายต่อมนุษย์ ซึ่งสามารถรับสัมผัสขยะอันตรายเข้าสู่ร่างกายได้ 2 ทาง ได้แก่ 1) ทางการหายใจ ทางการสัมผัส ทางการหายใจ คือ สารอันตรายเข้าสู่ร่างกายได้โดยการหายใจและทำให้เกิดอันตรายกับระบบทางเดินหายใจ เมื่อมีการดูดซึมผ่านเข้าสู่กระแสเลือด ก็จะสามารถแพร่กระจายไปยังส่วนต่าง ๆ ของร่างกายที่มีเลือดไปเลี้ยง ซึ่งสารอันตรายที่เข้าสู่ร่างกายทางการหายใจได้นั้นต้องเป็นสารที่อยู่ในสถานะก๊าซ ไอ อนุภาค และควัน 2) ทางการสัมผัส คือ สารอันตรายเข้าสู่ร่างกายผ่านทางการสัมผัสหรือจับต้องสารอันตราย จากนั้นสารอันตรายจะซึมเข้าสู่ผิวหนัง และถ้าหากผิวหนังของผู้รับสัมผัสเป็นโรคทางผิวหนังหรือมีบาดแผลที่จะทำให้สารอันตรายเข้าสู่ผิวหนังได้ ในปริมาณที่เพิ่มขึ้น และเนื่องจากชั้นผิวหนังของคนมีไขมันเป็นองค์ประกอบในปริมาณที่สูง ดังนั้นสารอันตรายที่สามารถเข้าสู่ร่างกายทางผิวหนังนั้น ต้องมีสมบัติที่สามารถละลายได้ในไขมัน (ศูนย์ความเป็นเลิศด้านการจัดการสารและของเสียอันตราย, 2562)

การประเมินความเสี่ยง

กระบวนการประเมินเป็นสิ่งที่สำคัญซึ่งได้มีการให้ความหมายไว้หลากหลายอาทิเช่น การประเมินความเสี่ยง คือ การศึกษาวิเคราะห์โอกาสที่จะเกิดอันตรายและความรุนแรงหรือผลกระทบจากอันตรายที่เกิดจากการทำงานในแต่ละขั้นตอน เพื่อนำมาจัดลำดับความเสี่ยงและจัดทำมาตรการเพื่อควบคุมความเสี่ยงตามระดับความเสี่ยงที่ประเมินได้ เพื่อให้ความเสี่ยงจากการทำงานลดลงให้มากที่สุดและส่งผลดีต่อสุขภาพ (จารุวรรณ ทองสนิด โอคุมุระ, 2559) หากงานนั้นเกี่ยวข้องกับการใช้สารเคมี การประเมินความเสี่ยงจากการทำงาน หมายถึง กระบวนการประมาณระดับความเสี่ยงที่เกิดจากการใช้สารเคมีในการทำงานและการตัดสินว่าความเสี่ยงนั้น อยู่ในระดับที่ยอมรับได้หรือยอมรับไม่ได้ โดยคำนึงถึงผลกระทบที่เป็นอันตรายต่อสุขภาพของลูกจ้างที่ใช้สารเคมี (คณะทำงานจัดทำคู่มือการประเมินความเสี่ยงสุขภาพลูกจ้าง ในกรณีใช้สารเคมีอันตราย, 2564)

ขั้นตอนการประเมินความเสี่ยง

1) วิเคราะห์องค์ประกอบของความเสี่ยงประกอบด้วยขั้นตอนสำคัญ ได้แก่ การชี้บ่งอันตราย การจัดระดับอันตราย และการจัดระดับการสัมผัส

2) การประเมินระดับความเสี่ยง ประกอบด้วยขั้นตอนสำคัญ คือ การจัดระดับความเสี่ยง ดังแสดงในตารางที่ 1

ตารางที่ 1 การจัดระดับความเสี่ยง

ความรุนแรง / โอกาส	มาก (3)	ปานกลาง (2)	น้อย (1)
มาก (3)	9 ระดับสูงมาก	6 ระดับสูง	3 ระดับปานกลาง
ปานกลาง (2)	6 ระดับสูง	4 ระกับปานกลาง	2 ระดับต่ำ
น้อย (1)	3 ระดับปานกลาง	2 ระดับต่ำ	1 ระดับต่ำมาก

ขั้นตอนการบริหารจัดการความเสี่ยง

ใช้หลักการควบคุมความเสี่ยง ภายใต้แนวคิดตามหลักการลำดับชั้นของแผนการกำจัดหรือลดความเสี่ยงให้อยู่ในระดับที่ยอมรับได้

การวิเคราะห์งานเพื่อความปลอดภัย

ขั้นตอนการวิเคราะห์งานเพื่อความปลอดภัย (คณะทำงานจัดทำแนวปฏิบัติการชี้บ่งอันตรายด้วยวิธี Job Safety Analysis, 2563) มีขั้นตอนหลัก ๆ ดังนี้

1. ก่อนดำเนินการวิเคราะห์งานเพื่อความปลอดภัย

1) รวบรวมงานทั้งหมดที่รับผิดชอบโดยรวมประเภทของงาน กิจกรรมหรือตำแหน่งงานที่มีในหน่วยงานว่ามีงานใดบ้าง จำนวนผู้ปฏิบัติงาน จำนวนครั้งที่ปฏิบัติในแต่ละวัน และงานใดเป็นงานวิกฤต

2) เลือกงานที่จะวิเคราะห์เพื่อความปลอดภัย โดยปกติแล้วงานทุกงานควรได้รับการวิเคราะห์งานเพื่อความปลอดภัย ไม่ว่าจะเป็นงานไม่ประจำหรืองานประจำ แต่การที่จะเลือกงานเพื่อดำเนินการวิเคราะห์ก่อนนั้น ควรพิจารณาจากข้อมูลต่อไปนี้

- ความถี่ของการเกิดอุบัติเหตุของงานต่าง ๆ
- ความร้ายแรงของอุบัติเหตุ เช่น เสียชีวิต พิการ ฯลฯ ที่เกิดขึ้นจากการทำงานในแต่ละงาน
- ลักษณะความรุนแรงที่แฝงอยู่ในงานต่าง ๆ แต่ยังไม่เคยเกิดความสูญเสียมาก่อน
- งานใหม่ที่เกิดจากการเปลี่ยนแปลงกระบวนการผลิต หรือเปลี่ยนเครื่องมือเครื่องจักรใหม่

3) เลือกผู้ปฏิบัติงานที่เกี่ยวข้องกับงานที่จะวิเคราะห์ ควรชี้แจงให้ผู้ปฏิบัติงานทราบถึงวัตถุประสงค์ของการวิเคราะห์งานเพื่อความปลอดภัยว่าเป็นการศึกษา เพื่อให้ทราบถึงอันตรายเป็นการขจัดและควบคุมอันตรายนั้น ไม่ใช่เป็นการเฝ้าสังเกตเพื่อการจับผิดผู้ปฏิบัติงาน

2. การดำเนินการวิเคราะห์งานเพื่อความปลอดภัย

1) เลือกขั้นตอนการทำงานที่จะวิเคราะห์ งานทุกงานสามารถแบ่งขั้นตอนได้เป็นลำดับ ซึ่งอาจทำได้โดยการเฝ้าสังเกตจากการทำงานของผู้ปฏิบัติงาน แล้วเขียนขั้นตอนการทำงานที่สำคัญ ๆ เรียงตามลำดับก่อนหลัง ข้อควรระวังในการแบ่งแยกขั้นตอน ของงานคือไม่ควรแบ่งขั้นตอนการทำงานให้ละเอียดหรือหยาบจนเกินไป ทั้งนี้ หากมีภาพประกอบในแต่ละขั้นตอน จะทำให้มีความเข้าใจง่ายขึ้น

2) ค้นหาอันตรายแต่ละขั้นตอนการทำงานพร้อมสาเหตุที่เกิดขึ้น หลังจากที่ได้แบ่งขั้นตอนการทำงานแล้ว โดยผู้วิเคราะห์อาจจะใช้ประเด็นในการวิเคราะห์ดังต่อไปนี้

(1) ผู้ปฏิบัติงาน

- มีโอกาสสัมผัสกับสิ่งที่อาจก่อให้เกิดการบาดเจ็บ เจ็บป่วย หรือเมื่อยล้า
- อยู่ในบริเวณที่อาจเกิดอันตรายขึ้นได้
- มีลักษณะการทำงานที่อาจได้รับบาดเจ็บที่มือหรือเท้า
- อาจได้รับบาดเจ็บจากการยกหรือลากดึงวัตถุหรือผลักดันวัตถุที่หนัก
- ไม่สวมใส่อุปกรณ์คุ้มครองความปลอดภัยส่วนบุคคลที่ถูกต้องและเหมาะสมกับงาน

(2) เครื่องมือ อุปกรณ์และวัสดุ

- มีการป้องอันตรายที่บริเวณงานอย่างไม่เพียงพอ
- มีอันตรายที่เกิดจากสัมผัสเคมี วัตถุดิบ หรือผลิตภัณฑ์
- มีวัตถุหรือขอบเครื่องจักรที่แหลมคม ซึ่งอาจทำให้เกิดการบาดเจ็บ
- มีการจัดกระบวนงานที่ไม่เหมาะสม เช่น การทำงานที่เร่งรีบเพื่อให้ได้ชิ้นงานตามเป้าหมาย

(3) สภาพและสิ่งแวดล้อมการทำงาน

- มีอันตรายจากสิ่งแวดล้อมที่เกิดจากการทำงาน เช่น ฝุ่นละออง สารเคมี การระบายอากาศ
- มีอันตรายจากการจัดวางสิ่งของในสถานที่ทำงานไม่เป็นระเบียบเรียบร้อย กีดขวางเส้นทางการสังเกตอย่างใกล้ชิด บางครั้งการเฝ้าสังเกตอาจต้องทำหลายครั้งเพื่อที่จะสามารถค้นหาและทราบถึงอันตรายทั้งหมดได้

2.3 กำหนดวิธีการป้องกันอันตรายและการปรับปรุง ในแต่ละขั้นตอนการทำงานหลังจากได้ทราบอันตรายต่าง ๆ พร้อมสาเหตุแล้วก็ต้องพยายามกำหนดวิธีการป้องกัน เพื่อขจัดอันตรายต่าง ๆ ให้หมดไป มาตรการป้องกันอันตรายสามารถดำเนินการ โดยกำหนดวิธีการป้องกันและควบคุมที่แหล่งของอันตรายและผู้ปฏิบัติงาน เช่น

- มีการกำหนดวิธีการทำงานใหม่ หรือเปลี่ยนลำดับของขั้นตอนการทำงาน
- มีการฝึกอบรมความปลอดภัยและอาชีวอนามัย ในหัวข้อที่เหมาะสมให้แก่ผู้ปฏิบัติงานที่เกี่ยวข้อง
- มีมาตรการจูงใจที่มีประสิทธิภาพ
- มีการปรับปรุงประสิทธิภาพของเครื่องมือและอุปกรณ์
- มีการปรับปรุงสถานที่ทำงานให้เป็นระเบียบเรียบร้อยปราศจากสิ่งกีดขวาง
- มีการตรวจสอบอุปกรณ์ที่ใช้ปฏิบัติงานเป็นประจำ มีตารางการตรวจสอบ
- มีการเปลี่ยนแปลงวิธีการขนย้ายสิ่งของจากการใช้แรงกาย เป็นการใช้อุปกรณ์เครื่องกล
- มีการเพิ่มทักษะและความชำนาญให้ผู้ปฏิบัติงาน
- มีการจัดให้มีและใช้อุปกรณ์คุ้มครองความปลอดภัยส่วนบุคคลที่ถูกต้องและเหมาะสม

การศึกษาครั้งนี้ ได้ใช้แนวคิดและวิธีการประเมินความเสี่ยงจากการทำงาน ตามแนวทางการดูแลสุขภาพผู้ปฏิบัติงานของกรมควบคุมโรค

วิธีดำเนินการวิจัย

ขอบเขตด้านเนื้อหา

งานวิจัยเรื่องนี้ เป็นการประเมินความเสี่ยงจากการทำงานของผู้ปฏิบัติงานเกี่ยวกับการจัดเก็บของอันตรายในโรงพักขยะของโรงพยาบาลเทพา เพื่อชี้บ่งความเป็นอันตราย ประเมินความเสี่ยงและเสนอแนะแนวทางในการจัดเก็บขยะอันตรายของโรงพยาบาลเทพาให้มีความปลอดภัย

ขอบเขตด้านพื้นที่

ศึกษาเฉพาะในพื้นที่โรงพักขยะอันตรายของโรงพยาบาลเทพาตั้งอยู่ที่เลขที่ 207 หมู่ 5 ถนนลำไพล-เทพา ตำบลเทพา อำเภอเทพา จังหวัดสงขลา 90150

ประชากร/กลุ่มตัวอย่าง

การศึกษาวิจัยในครั้งนี้เลือกใช้ประชากรทั้งหมดในการวิจัย โดยมีเกณฑ์คัดเข้า-ออก คือ พนักงานเก็บขยะที่มีการขึ้นทะเบียนเป็นตำแหน่งพนักงานเก็บขยะทุกคน ในโรงพยาบาลเทพา ตำบลเทพา อำเภอเพทา จังหวัดสงขลา จำนวน 5 คน และหัวหน้าส่วนงานที่เกี่ยวข้อง

เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล

เป็นแบบสัมภาษณ์ แบบประเมินความเสี่ยงสภาพแวดล้อมในการทำงาน แบบประเมินสุขภาพของผู้ปฏิบัติงานที่ต้องสัมผัสขยะอันตราย และแบบประเมินการได้รับความเสี่ยงและผลกระทบต่อสุขภาพจากการทำงาน โดยผ่านการตรวจสอบจากผู้ทรงคุณวุฒิ 3 ท่าน

การเก็บข้อมูลและวิเคราะห์ข้อมูล

การศึกษานี้ใช้ระเบียบวิธีวิจัยเชิงคุณภาพ โดยดำเนินการสัมภาษณ์หัวหน้าส่วนงานที่เกี่ยวข้องและพนักงานเก็บขยะจำนวน 5 คน และเก็บข้อมูลผ่านแบบประเมินความเสี่ยงที่เกี่ยวข้องกับการจัดการขยะอันตรายในโรงพยาบาลนอกจากนี้ ยังใช้การสังเกตการณ์ภาคสนาม เพื่อเก็บรวบรวมข้อมูลเกี่ยวกับมาตรการป้องกันและสภาพแวดล้อมของโรงพักขยะ

ผลการวิจัย

ในการวิจัยเรื่องนี้ผู้วิจัยเก็บรวบรวมข้อมูลด้วยการวิจัยเชิงคุณภาพ ได้แก่ การสัมภาษณ์แบบมีโครงสร้างและแบบประเมิน จำนวน 5 คน ทั้งนี้ ผลการวิจัยสามารถแบ่งตามประเด็นได้เป็น 5 ส่วน ดังต่อไปนี้

ส่วนที่ 1 ข้อมูลทั่วไป

ข้อมูลทั่วไปพนักงานเก็บขยะและหัวหน้าส่วนงานที่เกี่ยวข้องโรงพยาบาลเทพา ตำบลเทพา อำเภอเทพา จังหวัดสงขลา ทั้งหมดมีทั้งเพศชายและเพศหญิง โดยแยกเป็นเพศชายจำนวน 2 คน และเพศหญิงจำนวน 3 คน ซึ่งส่วนใหญ่อยู่ในช่วงอายุ 25 - 40 ปี ส่วนสูง พบว่า 151 - 170 เซนติเมตร น้ำหนัก พบว่า 50 - 75 กิโลกรัม และพนักงานส่วนใหญ่ไม่มีโรคประจำตัว ข้อมูลด้านการทำงานของพนักงานเก็บขยะและหัวหน้าส่วนงาน พบว่าประสบการณ์ในการทำงานส่วนใหญ่อยู่ในช่วง 1 - 5 ปี ระยะเวลาในการทำงานพบว่าพนักงานส่วนใหญ่ทำงาน 7 - 8 ชั่วโมง/วัน และจำนวนวันที่พนักงานทำงาน พบว่า พนักงานทำงาน 5 วัน/สัปดาห์

ส่วนที่ 2 ประเมินความเสี่ยงสภาพแวดล้อมในการทำงานของผู้ปฏิบัติงาน

จากแบบประเมินความเสี่ยงสภาพแวดล้อมในการทำงานของผู้ปฏิบัติงาน ซึ่งผู้ตอบแบบประเมินเป็นพนักงานเก็บขยะอันตรายโรงพยาบาลเทพา ตำบลเทพา อำเภอเทพา จังหวัดสงขลา จำนวน 5 คน

พบว่า ระดับความเสี่ยงปานกลาง ได้แก่ ปัจจัยด้านชีวภาพ เพราะเกิดจากแบคทีเรีย ไวรัส สารที่เกิดการแพ้หรือเป็นพิษ ซึ่งทำให้เกิดอันตรายต่อสุขภาพ และเป็นสาเหตุของการเกิดโรค เนื่องจากจุลินทรีย์มีอยู่ทั่วไปในสิ่งแวดล้อม ส่วนปัจจัยด้านเคมี เพราะ เกิดจากการรับสัมผัส ความชื้น ไอระเหย ควันละออง ซึ่งการได้รับสารอันตรายบางชนิดเข้าไปในร่างกาย อาจทำให้เจ็บป่วยเกิดโรคต่าง ๆ รองลงมา ระดับความเสี่ยงที่ยอมรับได้ ได้แก่ ปัจจัยด้านกายภาพ ด้านจิตสังคม ด้านการยศาสตร์ ด้านอุบัติเหตุ

ตารางที่ 2 แสดงค่าเฉลี่ยประเมินความเสี่ยงสภาพแวดล้อมในการทำงานของผู้ปฏิบัติงาน

ปัจจัย	ค่าเฉลี่ยการประเมินความเสี่ยง	ระดับความเสี่ยง
ด้านกายภาพ	2	ความเสี่ยงที่ยอมรับได้
ด้านชีวภาพ	3	ความเสี่ยงปานกลาง
ด้านเคมี	3	ความเสี่ยงปานกลาง
ด้านจิตสังคม	2	ความเสี่ยงที่ยอมรับได้
ด้านการยศาสตร์	2	ความเสี่ยงที่ยอมรับได้
ด้านอุบัติเหตุ	2	ความเสี่ยงที่ยอมรับได้

จากตาราง 2 พบว่า ปัจจัยด้านชีวภาพและปัจจัยด้านเคมี มีระดับความเสี่ยงที่จำเป็นต้องมีการแก้ไขและปรับปรุงให้ลดความเสี่ยงลง ต้องมีมาตรการควบคุมพร้อมจัดทำแผนดำเนินงานด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน (แผนลดและควบคุม) ส่วนความเสี่ยงที่ยอมรับได้ ได้แก่ ปัจจัยด้านกายภาพ สังคม ด้านการยศาสตร์ ด้านอุบัติเหตุ ซึ่งมีความเสี่ยงระดับต่ำนั้นก็ต้องมีการเฝ้าระวังและติดตามตรวจสอบมาตรการควบคุมต่อไปด้วย

ส่วนที่ 3 ประเมินสุขภาพของผู้ปฏิบัติงานที่ต้องสัมผัสขยะอันตราย

จากแบบประเมินสุขภาพของผู้ปฏิบัติงานที่ต้องสัมผัสขยะอันตราย พบว่า ที่ไม่มีอาการ ได้แก่ อาการคลื่นไส้ /อาเจียน ผื่นคันตามร่างกาย บวมตามร่างกาย แขน ขา อุบัติเหตุสะดุดหกล้ม (มีบาดแผล) อุบัติเหตุสะดุดหกล้ม (ไม่มีบาดแผล) คิดเป็นร้อยละ 100 ไม่มีอาการคัดจมูก/มีน้ำมูก (ไม่มีไข้) หายใจลำบาก/หายใจขัด ไอ/จาม (ไม่มีไข้) ปวดศีรษะ/มึนงง ท้องเสีย/ท้องร่วง เหนื่อย/อ่อนเพลีย/ไม่มีแรง อุบัติเหตุของแหลมทิ่มตำ/บาด (เลือดไม่ออก) คิดเป็นร้อยละ75 มีอาการ ได้แก่ แสบตา/คันตา เหน็บชา/เป็นตะคริว อุบัติเหตุของแหลมทิ่มตำ/บาด (เลือดออก) คิดเป็นร้อยละ50 และมีอาการ ได้แก่ อาการอาการคัดจมูก/มีน้ำมูก (ไม่มีไข้) หายใจลำบาก/หายใจขัด ไอ/จาม (ไม่มีไข้) ปวดศีรษะ/มึนงง ท้องเสีย/ท้องร่วง เหนื่อย/อ่อนเพลีย/ไม่มีแรง อุบัติเหตุของแหลมทิ่มตำ/บาด (เลือดไม่ออก) คิดเป็นร้อยละ25

ส่วนที่ 4 ประเมินความเสี่ยงและผลกระทบต่อสุขภาพจากการทำงาน

จากแบบประเมินความเสี่ยงและผลกระทบต่อสุขภาพจากการทำงาน พบว่า จากคำถามข้อที่ 1 ทำงานกลางแจ้งหรือรับสัมผัสความร้อนจากแสงแดดระหว่างการทำงาน ผลสรุปจากแบบประเมิน

พนักงานเก็บขยะอันตราย ตอบว่า อยู่ในระดับปานกลาง (ร้อยละ75) รองลงมาอยู่ในระดับต่ำ (ร้อยละ25) จากคำถามข้อที่ 2 ทำงานในบริเวณที่มีเสียงดังมาก (ยืนห่าง 1 เมตรแล้วพูดคุยปกติไม่ค่อยได้ยินต้องตะโกน) ผลสรุปจากแบบประเมินพนักงานเก็บขยะอันตราย ตอบว่า อยู่ในระดับต่ำ (ร้อยละ 100) จากคำถามข้อที่ 3 ได้รับผลกระทบจากความสั่นสะเทือน จากการทำงาน ผลสรุปจากแบบประเมินพนักงานเก็บขยะอันตราย ตอบว่า อยู่ในระดับต่ำ (ร้อยละ100) จากคำถามข้อที่ 4 ได้รับสัมผัสสารเคมีจากการหายใจ/การกิน/ทางผิวหนัง ในขณะทำงาน ผลสรุปจากแบบประเมินพนักงานเก็บขยะอันตราย ตอบว่า อยู่ในระดับต่ำ (ร้อยละ100) จากคำถามข้อที่ 5 บริเวณที่ทำงานมีฝุ่นละออง หรือควัน ผลสรุปจากแบบประเมินพนักงานเก็บขยะอันตราย ตอบว่า อยู่ในระดับปานกลางกับต่ำ (ร้อยละ50) จากคำถามข้อที่ 6 ได้รับเชื้อโรค/หรือสัมผัสกับขยะอันตรายจากการทำงาน ผลสรุปจากแบบประเมินพนักงานเก็บขยะอันตราย ตอบว่า อยู่ในระดับต่ำ (ร้อยละ100) จากคำถามข้อที่ 7 เคยเป็นโรค/ไม่สบายจากการทำงานทำงาน ผลสรุปจากแบบประเมินพนักงานเก็บขยะอันตราย ตอบว่า อยู่ในระดับต่ำ (ร้อยละ100) จากคำถามข้อที่ 8 เคยถูกสัตว์ทำร้ายหรือแมลงกัดต่อยในขณะทำงาน ผลสรุปจากแบบประเมินพนักงานเก็บขยะอันตราย ตอบว่า อยู่ในระดับต่ำ (ร้อยละ100) จากคำถามข้อที่ 9 ในการทำงานท่านต้องยกของหนัก ผลสรุปจากแบบประเมินพนักงานเก็บขยะอันตราย ตอบว่า อยู่ในระดับสูง (ร้อยละ75) รองลงมาอยู่ในระดับปานกลาง (ร้อยละ25) จากคำถามข้อที่ 10 เคยได้รับอุบัติเหตุ/บาดเจ็บจากการ ทำงาน เช่น ตกรถโดนรถชน โดนกระแทกโดนของมีคม ทิ่มแทงผลสรุปจากแบบประเมินพนักงานเก็บขยะอันตราย ตอบว่า อยู่ในระดับปานกลางกับต่ำ (ร้อยละ50) จากคำถามข้อที่ 11 มีความเครียดจากการทำงาน ผลสรุปจากแบบประเมินพนักงานเก็บขยะอันตราย ตอบว่า อยู่ในระดับต่ำ (ร้อยละ100)

ส่วนที่ 5 ข้อมูลจากการสัมภาษณ์หัวหน้าส่วนงาน

จากการสัมภาษณ์หัวหน้าส่วนงานที่เกี่ยวข้อง พบว่า โรงพยาบาลเทพาจะจำแนกขยะอันตรายเป็น 2 ประเภท คือ ขยะอันตรายชุมชน ขยะอันตรายทางการแพทย์ โดยทางโรงพยาบาลเทพาจะมีการรวบรวมขยะอันตรายแต่ละหน่วยงาน มีการใส่ถุงดำและติดฉลากให้เรียบร้อย เพื่อผู้เก็บขนจะเคลื่อนย้ายมาพักไว้ยังโรงพักขยะอันตราย โดยทางโรงพยาบาลให้บริษัทเอกชนเข้ามารับไปกำจัด จุดเด่นของการดำเนินการ คือ มีการแยกประเภทขยะอันตรายอย่างชัดเจน จุดด้อย คือ โรงพักขยะอันตรายแห่งนี้ง่ายต่อการเข้าถึงบุคคลอื่น ๆ ที่ไม่เกี่ยวข้อง เนื่องจากไม่ได้มีผนังกั้นคลุมทั้งหมด ที่ผ่านมาพบว่าเคยมีอุบัติการณ์นำขยะติดเชื้อมาวางไว้ที่โรงพักขยะอันตราย ซึ่งนำมาวางผิดประเภทโดยที่เจ้าหน้าที่ไม่ทราบ

ประเด็นเกี่ยวกับอุปกรณ์และการป้องกันส่วนบุคคล

จากการสัมภาษณ์การใช้อุปกรณ์และการแต่งกายส่วนบุคคลในการเก็บขนขยะอันตราย พบว่า มีการสวมใส่อุปกรณ์ป้องกันสมบูรณ์แบบ แสดงในภาพที่ 1 และ 2

อุปกรณ์



ภาพที่ 1 รถขนขยะอันตราย

การป้องกันส่วนบุคคล



ภาพที่ 2 การแต่งการป้องกันส่วนบุคคลของพนักงานเก็บขยะอันตรายโรงพยาบาลเทพา

การแต่งการป้องกันส่วนบุคคลของพนักงานเก็บขยะอันตรายโรงพยาบาลเทพา ใส่เพื่อคุ้มครองความปลอดภัยส่วนบุคคลทุกครั้งก่อนเริ่มทำงาน ประกอบไปด้วย หมวกป้องกันเชื้อโรค หน้ากากอนามัย เสื้อคลุม ถุงมือยางหนา ผ้ากันเปื้อน ร้องเท้ายางหุ้มเข่า

สรุปและอภิปรายผล

การศึกษาวิจัยครั้งนี้มีวัตถุประสงค์ เพื่อชี้บ่งความเป็นอันตรายการจัดเก็บขยะอันตรายของพนักงานเก็บขยะโรงพยาบาลเทพา โดยใช้แบบสอบถามและประเมินระดับความเสี่ยงและเสนอแนะแนวทางในการจัดเก็บของโรงพักขยะอันตรายโรงพยาบาลเทพา จากกลุ่มตัวอย่างหัวหน้าส่วนงานที่เกี่ยวและพนักงานเก็บขยะอันตราย จำนวน 5 คน การวิจัยครั้งนี้เป็นการวิจัยเชิงคุณภาพสามารถสรุปได้ดังนี้

ปัญหาจาการสัมภาษณ์โรงพักขยะอันตราย

1) มีอุบัติการณ์นำขยะติดเชื้อมาวางไว้ที่โรงพักขยะอันตราย ซึ่งนำมาวางผิดประเภทโดยที่เจ้าหน้าที่ไม่ทราบ แนวทางการแก้ไขมีการอบรมพนักงานเก็บขยะอันตราย

2) โรงพักขยะอันตรายง่ายต่อการเข้าถึงของบุคคลอื่น ๆ ที่ไม่เกี่ยวข้อง เพราะไม่มีผนังกั้นคลุมทั้งหมด แนวทางการแก้ไขจะมีการปรับปรุงให้มีความครอบคลุมมีผนังกั้น เพื่อป้องกันการเข้าถึงของบุคคลภายนอก

จากการประเมินความเสี่ยงสภาพแวดล้อมในการทำงาน พบว่า ความเสี่ยงสูง ได้แก่ ปัจจัยด้านชีวภาพและปัจจัยด้านเคมี จำเป็นต้องมีการแก้ไขและปรับปรุงให้ลดความเสี่ยง รองลงมาด้านชีวภาพ เช่น ลดการปนเปื้อน การใช้สารฆ่าเชื้อโรค เช่นแอลกอฮอล์หรือทำความสะอาดพื้น โรงพยาบาล ด้านเคมี เช่น ให้การศึกษาและการฝึกอบรมให้ทราบถึงอันตรายและการป้องกันหรือการลดชั่วโมงการทำงาน ที่เกี่ยวกับสารเคมีอันตรายน้อยลง ส่วนความเสี่ยงที่ยอมรับได้ ปัจจัยด้านกายภาพ ด้านจิตสังคม ด้านการยศาสตร์ ด้านอุบัติเหตุ อาจมีการจัดทำแผนงานควบคุมความเสี่ยงก่อนทำงานและหลังทำงาน เพื่อไม่ให้เกิดความเสี่ยง

จากข้อมูลแบบประเมินสุขภาพของผู้ปฏิบัติงานที่ต้องสัมผัสขยะอันตราย อาการที่มีมากที่สุด (ร้อยละ50) ได้แก่แสบตา/คันตา เหน็บชา/เป็นตะคริว อุบัติเหตุของแหลมทิ่มตำ/บาด (เลือดออก) เพราะเกิดจากการ การระคายเคือง การทำงานท่าเดิม ๆ อาการที่มีมากที่สุดรองลงมา (ร้อยละ 25) ได้แก่ อาการ อาการคัดจมูก/มีน้ำมูก (ไม่มีไข้) หายใจลำบาก/หายใจขัด ไอ/จาม (ไม่มีไข้) ปวดศีรษะ/มึนงง ท้องเสีย/ท้องร่วง เหนื่อย/อ่อนเพลีย/ไม่มีแรง อุบัติเหตุของแหลมทิ่มตำ/บาด (เลือดไม่ออก) เพราะ เกิดจากการสัมผัสหรือได้รับสารเข้าสู่ร่างกาย อาจจะมีอาการป่วยเล็กน้อยในแต่ละเดือน หรือเกิดจาการอ่อนเพลียในการทำงาน แนวทางการแก้ไข ควรได้รับการตรวจร่างกายทั่วไป รักษาอาการให้สุขศึกษาและคำแนะนำ

จากข้อมูลแบบประเมินความเสี่ยงและผลกระทบต่อสุขภาพจากการทำงาน

ระดับความเสี่ยงสูง (ร้อยละ75) ได้แก่ ในการทำงานต้องยกของหนักแนวทางการแก้ไข

- กรณีถุงขยะมีน้ำหนักมาก ควรมีคนช่วย
- ใส่ขยะในปริมาณที่น้ำหนักไม่เกิน 20 กิโลกรัม/ถุง
- ควรหมั่นออกกำลังกายเพื่อให้กล้ามเนื้อเกิดความแข็งแรง

ระดับความเสี่ยงปางกลาง (ร้อยละ75) ได้แก่ ทำงานกลางแจ้งหรือสัมผัสความร้อนจากแสงแดดระหว่างการทำงาน

แนวทางการแก้ไข

- นำร่มที่สามารถเคลื่อนย้ายได้สะดวก มีกางไว้บริเวณที่ยืนทำงาน
- นอนหลับผักผ่อนให้เพียงพอ เพราะความเหนื่อยล้าทำให้เพลียแดด
- พักเป็นระยะ ให้พักในสถานที่ ที่มีอากาศเย็น มีการระบายอากาศที่ดีระดับความเสี่ยงปานกลาง (ร้อยละ50) ได้แก่ บริเวณที่ทำงานมีฝุ่นละออง หรือควัน เคยได้รับอุบัติเหตุ /บาดเจ็บจากการทำงาน

แนวทางการแก้ไข

- สวมหน้ากากอนามัย
- วางสิ่งของให้เป็นระเบียบ เพื่อไม่ให้เกิดอุบัติเหตุ

ข้อเสนอแนะ

ควรมีการศึกษาวิจัยการทำงานของพนักงานหน่วยอื่น ๆ เช่น พนักงานเก็บขยะติดเชื้อพนักงานขยะทั่วไป พนักงานช่าง พนักงานสวน เป็นต้น เพื่อประเมินว่ามีความเสี่ยงต่อการเกิดการบาดเจ็บและปัจจัยสิ่งแวดล้อมในการทำงานด้วย ทั้งนี้ ผลจากการศึกษาในครั้งนี้สามาถนำไปใช้ประโยชน์ในการพัฒนางาน และหรือพัฒนางานวิจัยได้ต่อไป

เอกสารอ้างอิง

กรมควบคุมมลพิษ. (2563). คู่มือการวางแผนบริหารจัดการของเสียอันตรายจากชุมชน สำหรับผู้บริหารองค์กรปกครองส่วนท้องถิ่น. สืบค้นเมื่อ 10 มีนาคม 2568 จาก https://www.pcd.go.th/hazards

กรมควบคุมมลพิษ. (2564). รายงานสถานการณ์มลพิษของประเทศไทย ปี 2564. สืบค้นเมื่อ 10 มีนาคม 2568 จาก https://www.pcd.go.th/publication/26626/

กรมควบคุมมลพิษ. (2565). แนวทางการบริหารจัดการมูลฝอยที่เป็นพิษหรืออันตรายจากชุมชน พ.ศ. 2565. สืบค้นเมื่อ 10 มีนาคม 2568 จาก https://www.pcd.go.th/hazards

คณะทำงานจัดทำคู่มือการประเมินความเสี่ยงสุขภาพลูกจ้าง ในกรณีใช้สารเคมีอันตราย. (2564). คู่มือการประเมินความเสี่ยงสุขภาพลูกจ้าง ในกรณีใช้สารเคมีอันตราย. สถาบันส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน (องค์กรมหาชน).

คณะทำงานจัดทำแนวปฏิบัติการชี้บ่งอันตรายด้วยวิธี Job Safety Analysis. (2563). แนวปฏิบัติการชี้บ่งอันตรายด้วยวิธี Job Safety Analysis. สถาบันส่งเสริมความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน (องค์กรมหาชน).

จารุวรรณ ทองสนิท โอคุมุระ. (2559). การประเมินความเสี่ยงทางจุลชีววิทยาและการทำนายปริมาณจุลินทรีย์ก่อโรคในเครื่องดื่มรสหวาน (รายงานการวิจัย). พิษณุโลก : มหาวิทยาลัยนเรศวร.

ศูนย์ความเป็นเลิศด้านการจัดการสารและของเสียอันตราย. (2562). คู่มือการจัดการของเสียอันตรายจากชุมชน. กรุงเทพฯ : จุฬาลงกรณ์มหาวิทยาลัย.

การดื้อต่อเทมีฟอสของลูกน้ำยุงลายบ้าน (Aedes aegypti) จากพื้นที่จังหวัดสระบุรี ระหว่างการรายงานผู้ป่วยไข้เลือดออก

Temephos Resistance in Aedes aegypti Larvae from Saraburi Province During Dengue Fever Outbreaks

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บทคัดย่อ

ปัจจุบันการควบคุมพาหะนำโรคไข้เลือดออกทำได้โดยการควบคุมลูกน้ำยุงลาย โดยการใช้ทรายอะเบทเคลือบเทมีฟอส อย่างไรก็ตาม การใช้สารเคมีเป็นเวลานานทำให้เกิดความต้านทานต่อสารเคมีในพาหะนำโรค การศึกษาเชิงทดลองนี้จึงมีวัตถุประสงค์เพื่อประเมินการดื้อต่อเทมีฟอสของลูกน้ำยุงลายบ้าน (*Aedes aegypti*) ที่เก็บมาจากจังหวัดสระบุรี ในช่วงที่มีการรายงานผู้ป่วยไข้เลือดออก เปรียบเทียบกับลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการ ลูกน้ำยุงลายบ้าน ระยะที่ 3 ถึงระยะที่ 4 จำนวน

พื้นที่ละ 600 ตัว และทดสอบกับสารเทมีฟอส ณ ความเข้มข้นที่ 0.001, 0.01, 0.10, และ 1 มิลลิกรัมต่อลิตร ในปริมาตร 300 มิลลิลิตร บันทึกผลการตาย ณ ชั่วโมงที่ 6, 12, 24, 48, 72, 96 และ 120 สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ สถิติเชิงพรรณนา เช่น ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation; S.D.) และ ค่าความต้านทาน (Resistance ratio; RR) และสถิติ Probit Analysis ในการวิเคราะห์ค่า (lethal Concentration; LC) ผลการศึกษาพบว่าค่า LC_{50} และ LC_{90} ณ ชั่วโมงที่ 120 ของยุงลายบ้านสายพันธุ์ห้องปฏิบัติการ คือ 0.023 มิลลิกรัมต่อลิตร และ 0.069 มิลลิกรัมต่อลิตร ตามลำดับ ในส่วนของยุงลายบ้านจากจังหวัดสระบุรี มีค่า LC_{50} และ LC_{90} ณ ชั่วโมงที่ 120 คือ 0.032 มิลลิกรัมต่อลิตร และ 0.059 มิลลิกรัมต่อลิตร ตามลำดับ ผลการทดลองพบว่าลูกน้ำยุงลายบ้านที่เก็บมาจากพื้นที่ในจังหวัดสระบุรีที่มีรายงานผู้ป่วยไข้เลือดออกดื้อต่อในระดับต่ำสารเทมีฟอสเมื่อเทียบกับสายพันธุ์ห้องปฏิบัติการ อย่างไรก็ตาม เจ้าหน้าที่ควรเฝ้าระวังการดื้อต่อสารเทมีฟอสในลูกน้ำยุงลายอย่างต่อเนื่องเพื่อการควบคุมลูกน้ำยุงลายอย่างมีประสิทธิภาพ

คำสำคัญ: การดื้อเทมีฟอส, LC_{50}, ไข้เลือดออก, ยุงลายบ้าน, การสอบวิเคราะห์โดยชีววิธี

Abstract

At present, dengue fever is primarily controlled by managing vector-borne transmission especially eliminating larvae using abate. However, repeated use of these chemicals may lead to resistance in mosquito populations. This experimental study aimed to evaluate the efficacy of temephos on mortality of *Aedes aegypti* larvae which were collected from Saraburi province during the period of dengue case report compared with laboratory strain. The 600 of 3rd to 4th instars from each strain were exposed to 0.001, 0.01, 0.10, and 1 mg/L of temephos in the total volume of 300 mL. The mortality was observed at 6, 12, 24, 48, 72, 96 and, 120 hours. Descriptive analysis was used to calculate percentage, mean, standard deviation (S.D.), and resistance ratio (RR). The Probit Analysis was used to determine lethal concentration (LC). The study result found that LC50 and LC90 in laboratory strain of *Aedes aegypti* were 0.023 mg/L and 0.069 mg/L respectively, while that of Saraburi strain were 0.032 mg/L and 0.059 mg/L, respectively. The study found that larvae collected from Saraburi province showed low resistance to temephos. Relevant authority should regularly monitor the resistance status of Aedes spp. larvae to ensure the efficiency of control program.

Keywords: Temephos Resistance, LC_{50}, Dengue fever, *Aedes aegypti*, Bioassay

บทนำ

โรคไข้เลือดออกเป็นปัญหาด้านสาธารณสุขที่สำคัญของประเทศไทย ซึ่งส่งผลกระทบต่อสุขภาพของประชาชนและระบบเศรษฐกิจ (Jung-Seok Lee, et al., 2017) ในปี พ.ศ. 2566 มีผู้ป่วยไข้เลือดออกสะสม จำนวน 126,731 ราย (กองโรคติดต่อนำโดยแมลง, 2566) และเมื่อเปรียบเทียบกับปี พ.ศ. 2565 มีผู้ป่วยไข้เลือดออกสะสม จำนวน 32,460 ราย (กองโรคติดต่อนำโดยแมลง, 2565) จำนวนผู้ป่วยจากไข้เลือดออก ในปี 2566 เพิ่มขึ้นมากกว่าหนึ่งแสนราย จากปี 2565 จะเห็นได้ว่าและในปีเดียวกัน จังหวัดสระบุรีมีผู้ป่วยโรคไข้เลือดออก จำนวน 198 ราย และ 1,345 ราย ตามลำดับ (กองโรคติดต่อนำโดยแมลง, 2566)

พาหะนำโรคไข้เลือดออกที่สำคัญในประเทศไทย มีสองชนิด ได้แก่ ยุงลายบ้าน (*Aedes aegypti*) และยุงลายสวน (*Aedes albopictus*) โดยยุงลายบ้านเป็นพาหะหลัก (primary vector) (ธีรภาพ เจริญวิริยภาพ, ชำนาญ อภิวัฒนศร และ คณัจฉรีย์ ธานิสพงศ์, 2558) การแพร่กระจายของโรคไข้เลือดออกเกิดจากยุงลายบ้านตัวเมียที่เป็นพาหะนำโรค เมื่อยุงดูดเลือดผู้ที่มีเชื้อไวรัสเดงกี เชื้อไวรัสจะเข้าสู่กระเพาะยุงและเพิ่มจำนวน และเคลื่อนตัวไปยังต่อมน้ำลาย เมื่อยุงตัวเดิมไปกัดผู้อื่น ไวรัสจะถูกถ่ายทอดสู่คนต่อไป ความเสี่ยงของโรคนี้เพิ่มขึ้นเนื่องจากยุงลายบ้านมีแหล่งเพาะพันธุ์ที่ใกล้ชิดกับมนุษย์ เช่น โอ่งน้ำใช้ แจกัน ยางรถยนต์เก่า หรือแม้แต่เศษขยะที่มีน้ำขังเล็กน้อย ปัจจุบันยังไม่มียารักษาเฉพาะสำหรับโรคไข้เลือดออก ทำได้เพียงการรักษาแบบประคับประคองตามอาการเท่านั้น ดังนั้น (กองโรคติดต่อนำโดยแมลง, 2558) การลดจำนวนผู้ป่วยไข้เลือดออกที่ได้ผลดีที่สุดคือการควบคุมพาหะนำโรค (ไสว โพธิมล และปรีชา เศษสมบูรณ์, 2559)

การควบคุมพาหะนำโรคไข้เลือดออก แบ่งได้เป็นการควบคุมทางกายภาพ การควบคุมทางชีวภาพ และการควบคุมทางเคมี (กองโรคติดต่อนำโดยแมลง, 2564) วิธีการควบคุมทางเคมีเป็นวิธีการที่สามารถควบคุมลูกน้ำยุงลายและยุงตัวเต็มวัยได้อย่างรวดเร็ว ปัจจุบันสารเคมีที่นิยมใช้ในการควบคุมลูกน้ำยุงลายคือเทมีฟอส ในรูปแบบทรายอะเบท เทมีฟอสเป็นสารเคมีกำจัดแมลงกลุ่มออร์กาโนฟอสฟอรัส มีความเป็นพิษต่อคนและสัตว์เลี้ยงลูกด้วยนมต่ำ (กองโรคติดต่อนำโดยแมลง, 2564) เทมีฟอสเป็นสารพิษต่อระบบประสาท ทำหน้าที่โดยยับยั้งการทำงานของเอนไซม์ Acetylcholinesterase ที่รอยต่อประสาท (Synaptic Cleft) ทำให้เอมไซม์ไม่สามารถย่อยสารสารสื่อประสาทอะเซทิลโคลีน ดังนั้น จึงเกิดการสะสมของอะเซทิลโคลีนที่รอยต่อประสาท เกิดการกระตุ้นประสาท จนทำให้ชัก อัมพาต และตายในที่สุด (Adrianto, Subekti & Arwati, 2023)

ประเทศไทยได้นำสารเทมีฟอสมาใช้ในการควบคุมลูกน้ำยุงลายตั้งแต่ปี พ.ศ. 2515 (ไสว โพธิมล และ ปรีชา เศษสมบูรณ์, 2559) ทั้งนี้ การใช้สารเคมีชนิดเดียวกันอย่างต่อเนื่องเป็นระยะเวลานานทำให้ยุงพัฒนาความต้านทานต่อสารเคมี (Dusfour & Chaney, 2022; Moyes CL, 2017) และส่งผลให้ประสิทธิภาพในการควบคุมพาหะนำโรคลดลง ผลการศึกษาในประเทศไทยสอดคล้องกับข้อสังเกตนี้ โดยพบว่าการใช้เทมีฟอสไม่สามารถลดจำนวนลูกน้ำยุงลายได้อย่างมีประสิทธิภาพ สะท้อนจากอัตราการตายของลูกน้ำยุงลายระหว่าง 0% ถึง 90% ซึ่งต่ำกว่าเกณฑ์มาตรฐานที่คาดหวังที่ร้อยละ 98 ขึ้นไป

(พรรณเกษม แผ่พร, สุนัยนา สท้านไตรภพ, วิสาข์ชนม์ ศรีโพธิ์, ภูเบศร์ ยะอัมพันธ์, เมนะกา วิวน และ ละเวง นิลมณี, 2564; สุพรรณ สายหลักคำ, เจริญศักดิ์ แก้วหานาม, พรพิมล ขันภักดี และ ศิริรัตน์ รักน้ำเที่ยง, 2559)

การศึกษาความต้านทานต่อเทมีฟอสในพื้นที่ระบาดของลูกน้ำยุงลายในประเทศมาเลเซียแสดงผลที่แตกต่างออกไป โดยพบว่าเทมีฟอสยังคงสามารถควบคุมลูกน้ำยุงลายได้ในระดับที่คาดหวัง (Mohiddin, Lasim, & Zuharah, 2015) (Leong, Vythilingam, Wong, Sulaiman, & Lau, 2018) แม้ว่าประเทศมาเลเซียจะยังใช้เทมีฟอสได้ผล แต่ด้วยบริบทที่แตกต่างกันกับประเทศไทย การศึกษาครั้งนี้จึงมุ่งเน้นเพื่อศึกษาการดื้อของลูกน้ำยุงลายบ้านในพื้นที่จังหวัดสระบุรี เปรียบเทียบกับลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการ เพื่อนำผลที่ได้ไปประยุกต์ใช้ในการพัฒนาแนวทางการควบคุมพาหะนำโรคที่มีประสิทธิภาพต่อไป

วัตถุประสงค์ของการวิจัย

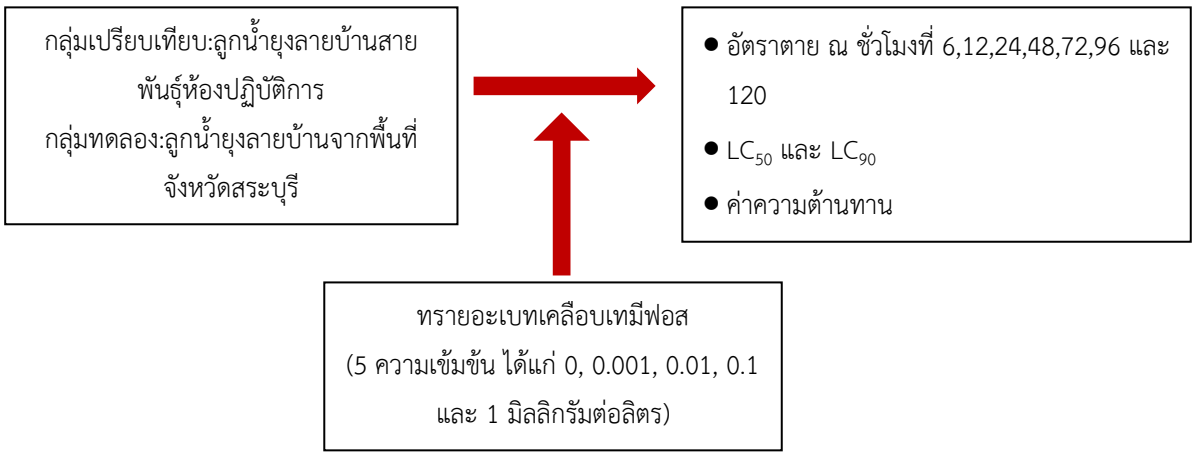
วัตถุประสงค์ทั่วไป

เพื่อศึกษาการดื้อต่อเทมีฟอสของลูกน้ำยุงลายบ้านจากพื้นที่ที่มีการรายงานของผู้ป่วยไข้เลือดออกในพื้นที่จังหวัดสระบุรีเปรียบเทียบกับยุงลายบ้านสายพันธุ์ห้องปฏิบัติการ

วัตถุประสงค์เฉพาะ

1. เพื่อศึกษาอัตราตายของลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการและจากพื้นที่
2. เพื่อศึกษาความเข้มข้นของสารเคมีที่ทำให้ลูกน้ำยุงลาย ร้อยละ 50 (LC_{50}) และร้อยละ 90 (LC_{90}) ของลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการและจากพื้นที่ ตายลง
3. เพื่อศึกษาค่าความต้านทานของลูกน้ำยุงลายบ้านพันธุ์ห้องปฏิบัติการและจากพื้นที่

กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิด

ผู้วิจัยอาศัยกรอบแนวคิดนี้ ในการศึกษาอัตราตาย ณ ชั่วโมงต่าง ๆ ค่า lethal Concentration 50 และ ค่า lethal Concentration 90 ของลูกน้ำยุงลายบ้าน โดยการใช้ทรายอะเบทเคลือบเทมีฟอส ทั้ง 5 ความเข้มข้น มีกลุ่มทดลอง คือ ลูกน้ำยุงลายบ้านจากพื้นที่จังหวัดสระบุรี กลุ่มเปรียบเทียบ คือ ลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการ Thongwat & Bunchu (2015)

วิธีดำเนินการวิจัย

รูปแบบการวิจัยและประชากรและตัวอย่าง

การวิจัยครั้งนี้เป็นการวิจัยเชิงทดลองในห้องปฏิบัติการ (Experimental Study) โดยกลุ่มประชากรที่ศึกษา คือ ลูกน้ำยุงลายบ้าน ระยะที่ 3 ตอนปลาย หรือ ระยะที่ 4 ตอนต้น ที่ได้จากสถาบันวิจัยวิทยาศาสตร์สาธารณสุข กรมวิทยาศาสตร์การแพทย์ (กลุ่มไม่เคยสัมผัสสารพิษ) ซึ่งเป็นสายพันธุ์ที่มีความไวต่อสารเคมี เป็นกลุ่มเปรียบเทียบ และลูกน้ำยุงลายบ้านที่เก็บจากพื้นที่จังหวัดสระบุรีระหว่างช่วงที่มีรายงานผู้ป่วยโรคไข้เลือดออก เป็นกลุ่มทดลอง จำนวน กลุ่มละ 600 ตัว ทุกขั้นตอนของการวิจัยได้ผ่านการรับรองมาตรฐานความปลอดภัยทางชีวภาพ จากคณะกรรมการควบคุมความปลอดภัยทางชีวภาพ คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล (หนังสือรับรองเลขที่ FPH-BS 011-2024) และได้รับการรับรองจริยธรรมการวิจัยในสัตว์ทดลองจากคณะกรรมการกำกับดูแลการดำเนินงานต่อสัตว์เพื่องานทางวิทยาศาสตร์ มหาวิทยาลัยมหิดล (หนังสือรับรองเลขที่ MU-IACUC 2025/002)

การเพาะเลี้ยงยุง

การเลี้ยงยุงดำเนินการในห้องปฏิบัติการกีฏวิทยา ภาควิชาปรสิตวิทยาและกีฏวิทยา คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล ภายใต้อุณหภูมิ 25 ± 3 องศาเซลเซียส แสงสว่าง 12 : 12 ชั่วโมง (สว่าง : มืด) และความชื้นสัมพัทธ์ที่ 70 ± 20% โดยทำการฟักไข่ของยุงลายบ้าน (*Aedes aegypti*) ในถาดพลาสติกที่เติมน้ำปราศจากคลอรีนจนถึงปริมาตรสามในสี่ส่วนของถาด ปิดถาดเลี้ยงด้านบนด้วยตาข่ายละเอียด เลี้ยงลูกน้ำยุงลายด้วยอาหารปลา ทำการแบ่งลูกน้ำยุงลายออกไปเลี้ยงในถาดอื่นเพิ่มเติมเพื่อป้องกันความแออัด เมื่อลูกน้ำยุงลายพัฒนาเป็นระยะตัวโม่ง (pupa) ทำการดูดด้วย Dropper ใส่ถ้วยพลาสติกและย้ายเข้ากรงเพาะเลี้ยงขนาด 30×30×30 (กว้าง x ยาว x สูง) เซนติเมตร เมื่อมีการพัฒนาเป็นยุงลายตัวเต็มวัย ทำการเลี้ยงด้วยสารละลายซูโครส 10% เป็นเวลา 5–7 วัน จากนั้นทำการให้เลือดผ่านอุปกรณ์ให้เลือด ระบบให้อาหารด้วยเมมเบรน (Membrane Feeding Apparatus) หลังจากการดูดเลือด ทำการเลี้ยงยุงลายด้วยสารละลายซูโครส 10% ที่ชุบในก้านสำลี (สำลีพันหลอดดูดน้ำ) ใส่กระดาษกรองหล่อน้ำในถ้วยวางไข่ใส่ไว้ในกรง ทำการเก็บไข่ทุกวันโดยเก็บกระดาษกรองที่ยุงลายวางไข่ ผึ่งอากาศให้แห้งเป็นเวลา 2 วัน เก็บในถุงซิปล็อค 2 ชั้น เขียนฉลากกำกับ เก็บในตู้เย็น ก่อนนำออกมาใช้ในขั้นตอนการทดลอง

การเตรียมตัวอย่างลูกน้ำยุงลายเพื่อการทดลอง

ทำการเก็บลูกน้ำยุงลายบ้านจากพื้นที่ หมู่ที่ 5 ตำบลทับกวาง อำเภอแก่งคอย จังหวัดสระบุรี โดยผู้วิจัยและอาสาสมัครชุมชน โดยการใช้กระชอนตักปลา ตักลูกน้ำจากแหล่งเพาะพันธุ์ เช่น อ่างน้ำใช้

หรือเทลูกน้ำจากภาชนะลงในขวดพลาสติกโดยใช้กรวย ทำการเก็บลูกน้ำยุงลายบ้านในตอนกลางวัน ลูกน้ำยุงลายบ้านที่เก็บ (F0) ได้ถูกนำมาเพาะเลี้ยงในห้องปฏิบัติการกีฏวิทยา ภาควิชาปรสิตวิทยาและกีฏวิทยา คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล ตามวิธีการข้างต้นที่กล่าวมาแล้ว จนได้ลูกน้ำยุงลายบ้านรุ่นที่ 3 จึงใช้ในการทดลอง

ทำการฟักไข่ยุงลายบ้านทั้งสายพันธุ์ห้องปฏิบัติการและจากพื้นที่จังหวัดสระบุรี เลี้ยงจนเจริญเป็นลูกน้ำยุงลายระยะที่ 3 ตอนปลาย - 4 ตอนต้น เตรียมลูกน้ำยุงลายโดยดูดด้วย Dropper ใส่ในถ้วยพลาสติกจำนวน 30 ตัวต่อถ้วย จึงนำไปใช้ในการทดสอบต่อไป

การสอบวิเคราะห์โดยชีววิธี (Bioassay)

สารเคมีที่ใช้ คือ ทรายอะเบทเคลือบเทมีฟอส (เทมีการ์ด 1% เอสจี, บริษัท ลัดดา จำกัด) ความเข้มข้น 1% W/W เตรียมสารละลายเทมีฟอสความเข้มข้นที่ 0.001, 0.01, 0.10, และ 1 มิลลิกรัมต่อลิตร ปริมาตรที่ใช้เพื่อทดสอบคือ 300 มิลลิลิตร

ลูกน้ำยุงลายบ้านระยะที่ 3 ตอนปลาย - ระยะที่ 4 ตอนต้น ที่ได้เตรียมไว้แล้วดังขั้นตอนข้างต้น ทั้งสายพันธุ์ห้องปฏิบัติการและจากพื้นที่จังหวัดสระบุรีถูกแบ่งออกเป็น 5 กลุ่ม กลุ่มละ 30 ตัว ได้แก่ กลุ่มที่ 1 กลุ่มควบคุม-ไม่มีเทมีฟอส, กลุ่มที่ 2-5 มีสารละลายเทมีฟอสความเข้มข้น 0.001, 0.01, 0.10 และ 1 มิลลิกรัมต่อลิตร ตามลำดับ ใส่ลูกน้ำยุงลาย จำนวน 30 ตัวต่อกลุ่ม ลงในสารละลาย 5 กลุ่มที่เตรียมไว้ ทำการทดลองซ้ำทั้งหมด 4 ครั้ง บันทึกจำนวนลูกน้ำยุงลายบ้านที่ตาย ณ ชั่วโมง ที่ 6, 12, 24, 48, 72, 96 และ 120 ภายหลังการทดลอง โดยสูตรคำนวณอัตราตายเป็น ดังนี้

อัตราตาย = (จำนวนลูกน้ำยุงลายที่ตาย/จำนวนลูกน้ำยุงลายทั้งหมดที่ทดสอบ) x 100

กรณีอัตราตายของลูกน้ำยุงลายกลุ่มควบคุมอยู่ระหว่างร้อยละ 5 - 20 ใช้สูตร Abbott เพื่อใช้ผลของการศึกษานี้ (World Health Organization, 2016) หากอัตราตายของลูกน้ำยุงลายกลุ่มควบคุมมากกว่าร้อยละ 20 ให้ทำการทดลองใหม่ (พรรณเกษม แผ่พร, สุนัยนา สท้านไตรภพ, วิสาข์ชนม์ ศรีโพธิ์, ภูเบศร์ ยะอัมพันธ์, เมนะกา วิวน และ ละเวง นิลมณี, 2564)

ค่าความต้านทานต่อสาร (Resistance Ratio) ในการศึกษานี้ คือ

$$\text{ค่าความต้านทานต่อสาร} = \frac{\text{Lethal Concentration ของลูกน้ำยุงลายจากพื้นที่}}{\text{Lethal Concentration ของลูกน้ำยุงลายสายพันธุ์ห้องปฏิบัติการ}}$$

การวิเคราะห์ผล

การวิเคราะห์ด้วยสถิติเชิงพรรณนา (Descriptive Statistics) โดยใช้ ค่าร้อยละ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน เพื่อใช้ประมาณค่าอัตราตายของลูกน้ำยุงลายบ้าน และความต้านทานต่อสาร (Resistance Ratio) การวิเคราะห์ข้อมูลสถิติ Probit Analysis เพื่ออธิบายค่า lethal Concentration 50 (LC_{50}) และ lethal Concentration 90 (LC_{90})

ระดับความต้านทาน ตามองค์การอนามัยโลก ค.ศ. 2016 สามารถแบ่งเป็น 3 ระดับ ได้แก่

- ระดับความต้านทาน น้อยกว่า 5 เท่า หมายถึง มีความต้านทานต่อสารเคมีในระดับต่ำ
- ระดับความต้านทาน เท่ากับ 5-10 เท่า หมายถึง มีความต้านทานต่อสารเคมีในระดับปานกลาง
- ระดับความต้านทาน มากกว่า 10 เท่า หมายถึง มีความต้านทานต่อสารเคมีในระดับสูง

ผลการวิจัย

อัตราตายของลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการ

ลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการในกลุ่มควบคุม ไม่พบการตาย ความเข้มข้นที่ 0.001 มิลลิกรัมต่อลิตร พบลูกน้ำยุงลายเริ่มตายที่ชั่วโมงที่ 96 ความเข้มข้นที่ 0.01 มิลลิกรัมต่อลิตร พบลูกน้ำยุงลายบ้านเริ่มตายชั่วโมงที่ 48 ความเข้มข้นที่ 0.1 มิลลิกรัมต่อลิตร เริ่มตายชั่วโมงที่ 6 และตายทั้งหมดชั่วโมงที่ 12 เป็นต้นไป และความเข้มข้นที่ 1 มิลลิกรัมต่อลิตร พบตายทั้งหมดตั้งแต่ชั่วโมงที่ 6 ดังตารางที่ 1

ตารางที่ 1 อัตราตาย (ร้อยละ) ของลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการ ณ ช่วงเวลาต่าง ๆ (จำนวน 600 ตัว)

ชั่วโมงที่	อัตราตาย (ร้อยละ)				
	กลุ่มควบคุม (30 ตัว/ซ้ำ) (mean±S.D.)	0.001 mg/L (30 ตัว/ซ้ำ) (mean±S.D.)	0.01 mg/L (30 ตัว/ซ้ำ) (mean±S.D.)	0.1 mg/L (30 ตัว/ซ้ำ) (mean±S.D.)	1 mg/L (30 ตัว/ซ้ำ) (mean±S.D.)
6	0.00±0.00	0.00±0.00	0.00±0.00	96.67±6.67	100.00±0.00
12	0.00±0.00	0.00±0.00	0.00±0.00	100.00±0.00	100.00±0.00
24	0.00±0.00	0.00±0.00	0.00±0.00	100.00±0.00	100.00±0.00
48	0.00±0.00	0.00±0.00	2.50±2.98	100.00±0.00	100.00±0.00
72	0.00±0.00	0.00±0.00	3.33±3.65	100.00±0.00	100.00±0.00
96	0.00±0.00	1.67±3.33	3.33±3.65	100.00±0.00	100.00±0.00
120	0.00±0.00	2.50±3.19	5.83±3.80	100.00±0.00	100.00±0.00

อัตราตายของลูกน้ำยุงลายบ้านจากจังหวัดสระบุรี

ลูกน้ำยุงลายบ้านจากพื้นที่ กลุ่มควบคุม กลุ่มความเข้มข้นที่ 0.001 และ 0.01 มิลลิกรัมต่อลิตร ไม่พบการตาย ความเข้มข้นที่ 0.1 มิลลิกรัมต่อลิตร เริ่มพบการตายชั่วโมงที่ 6 และตายทั้งหมดชั่วโมงที่ 96 ความเข้มข้นที่ 1 มิลลิกรัมต่อลิตร เริ่มตายชั่วโมงที่ 6 และชั่วโมงที่ 12 เป็นต้นไป ตายหมด ดังตารางที่ 2

ตารางที่ 2 อัตราตาย ($\bar{x}$±S.D.) ของลูกน้ำยุงลายบ้านจากจังหวัดสระบุรี ณ ช่วงเวลาต่าง ๆ (จำนวน 600 ตัว)

ชั่วโมงที่	ความเข้มข้น				
	กลุ่มควบคุม (30 ตัว/ซ้ำ) (mean±S.D.)	0.001 mg/L (30 ตัว/ซ้ำ) (mean±S.D.)	0.02 mg/L (30 ตัว/ซ้ำ) (mean±S.D.)	0.1 mg/L (30 ตัว/ซ้ำ) (mean±S.D.)	1 mg/L (30 ตัว/ซ้ำ) (mean±S.D.)
6	0.00±0.00	0.00±0.00	0.00±0.00	80.00±5.44	95.00±4.30
12	0.00±0.00	0.00±0.00	0.00±0.00	86.67±3.85	100.00±0.00
24	0.00±0.00	0.00±0.00	0.00±0.00	95.00±4.30	100.00±0.00
48	0.00±0.00	0.00±0.00	0.00±0.00	95.83±5.00	100.00±0.00
72	0.00±0.00	0.00±0.00	0.00±0.00	97.50±3.19	100.00±0.00
96	0.00±0.00	0.00±0.00	0.00±0.00	100.00±0.00	100.00±0.00
120	0.00±0.00	0.00±0.00	0.00±0.00	100.00±0.00	100.00±0.00

ค่าความเข้มข้นของสารเทมีฟอสที่เป็นเหตุทำให้ลูกน้ำยุงลายบ้านร้อยละ 50, 90 ตายลง (LC_{50}, LC_{90})

ลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการ ค่า LC_{50} ที่ 6 ชั่วโมง เท่ากับ 0.037 มิลลิกรัมต่อลิตร และลดลงมีค่าเท่ากับ 0.023 มิลลิกรัมต่อลิตร ที่ 120 ชั่วโมง ค่า LC_{90} ชั่วโมงที่ 6 เท่ากับ 0.071 มิลลิกรัมต่อลิตร และลดลงจนเท่ากับ 0.054 มิลลิกรัมต่อลิตร ชั่วโมงที่ 72 และเพิ่มขึ้นจนเท่ากับ 0.069 มิลลิกรัมต่อลิตร ชั่วโมงที่ 120 ค่า R^2 อยู่ระหว่าง 0.46 ถึง 0.49 ($p<0.001$)

ลูกน้ำยุงลายบ้านจากพื้นที่ ค่า LC_{50} ชั่วโมงที่ 6 เท่ากับ 0.063 มิลลิกรัมต่อลิตร จากนั้นลดลงเท่ากับ 0.032 มิลลิกรัมต่อลิตร ณ ชั่วโมงที่ 120 ค่า LC_{90} ชั่วโมงที่ 6 เท่ากับ 0.273 มิลลิกรัมต่อลิตร และลดลงจนเหลือ 0.059 ณ ชั่วโมงที่ 96 และ 120 R^2 อยู่ระหว่าง 0.46 ถึง 0.57 ($p<0.001$) ดังตารางที่ 3

ตารางที่ 3 Lethal concentration 50 (LC_{50}) และ Lethal concentration 90 (LC_{90}) ของลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการและสระบุรี ณ ช่วงเวลาต่าง ๆ

ชั่วโมงที่	ลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการ					ลูกน้ำยุงลายบ้านจากสระบุรี				
	LC_{50}	LC_{90}	Slope±SE	R^2	Sig.	LC_{50}	LC_{90}	Slope±SE	R^2	Sig.
6	0.037	0.071	4.496±0.508	0.49	<0.001*	0.063	0.273	2.013±0.170	0.57	<0.001*
12	0.032	0.059	4.703±0.526	0.46	<0.001*	0.054	0.107	4.289±0.963	0.56	<0.001*
24	0.032	0.059	4.703±0.526	0.46	<0.001*	0.039	0.077	4.368±0.521	0.50	<0.001*

ตารางที่ 3 (ต่อ)

ชั่วโมงที่	ลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการ					ลูกน้ำยุงลายบ้านจากสระบุรี				
	LC_{50}	LC_{90}	Slope±SE	R^2	Sig.	LC_{50}	LC_{90}	Slope±SE	R^2	Sig.
48	0.028	0.055	4.516±0.491	0.46	<0.001*	0.038	0.074	4.419±0.510	0.49	<0.001*
72	0.028	0.054	4.416±0.482	0.46	<0.001*	0.035	0.067	4.587±0.513	0.48	<0.001*
96	0.025	0.065	3.074±0.257	0.46	<0.001*	0.032	0.059	4.703±0.526	0.46	<0.001*
120	0.023	0.069	2.681±0.226	0.46	<0.001*	0.032	0.059	4.703±0.526	0.46	<0.001*

SE = Standard Error, การวิเคราะห์แบบโพรบิต โดยระดับนัยสำคัญ ที่ = 0.05*

ความต้านทานต่อสาร

เมื่อนำค่า LC_{50} ของพื้นที่เทียบกับห้องปฏิบัติการพบอัตราส่วนความต้านทานทุกชั่วโมงมากกว่า 1.00 โดยชั่วโมงที่ 6 เท่ากับ 1.70 และลดลงไปจนเท่ากับ 1.24 ณ ชั่วโมงที่ 24 จากนั้น ค่าเพิ่มขึ้นสลับกับลดลงจนชั่วโมงที่ 120 ค่าเท่ากับ 1.39

ค่า LC_{90} ชั่วโมงที่ 6 อัตราส่วนเท่ากับ 3.84 จากนั้นค่าลดลงจนน้อยกว่า 1 ณ ชั่วโมงที่ 96 และ 120 เท่ากับ 0.90 และ 0.85 ตามลำดับ ดังตารางที่ 4

ตารางที่ 4 ค่าความต้านทานต่อสาร (resistance ratio) ของลูกน้ำยุงลายบ้านจากจังหวัดสระบุรีและลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการ

ชั่วโมงที่	6	12	24	48	72	96	120
RR_{50}	1.70	1.68	1.21	1.35	1.25	1.28	1.39
RR_{90}	3.84	1.81	1.30	1.34	1.24	0.90	0.85

สรุปและอภิปรายผล

ลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการและจากพื้นที่มีอัตราตายที่ใกล้เคียงกัน โดยที่ความเข้มข้น ต่ำ (0.001 – 0.01 มิลลิกรัมต่อลิตร) ไม่พบตายในกลุ่มจากพื้นที่ แต่พบการตาย (2.50±3.19 และ 5.83±3.80) ในสายพันธุ์ห้องปฏิบัติการ ความเข้มข้น 0.1 มิลลิกรัมต่อลิตร สามารถทำให้ลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการตายทั้งหมดได้เร็วกว่าเมื่อเทียบกับลูกน้ำยุงลายจากพื้นที่ ความเข้มข้น 1 มิลลิกรัมต่อลิตร ทั้งสองกลุ่มตายทั้งหมด ในเวลาใกล้เคียงกัน

อัตราตายของลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการและจากพื้นที่จังหวัดสระบุรี ชั่วโมงที่ 24 ในความเข้มข้น 0.01 มิลลิกรัมต่อลิตร คือ 0 ซึ่งต่ำกว่าอัตราตายของลูกน้ำยุงลายบ้านในจังหวัดอุดรธานี (ร้อยละ 31.95 - 96.96) (ไสว โพธิมล และ ปรีชา เศษสมบูรณ์, 2559) และอัตราตายของลูกน้ำยุงลาย

บ้านในจังหวัดเลยและหนองบัวลำภู (ร้อยละ 69 – 93) (สุพรรณ สายหลักคำ, เจริญศักดิ์ แก้วหานาม, พรพิมล ขันภักดี และ ศิริรัตน์ รักน้ำเที่ยง, 2559) ทั้งนี้ การศึกษาก่อนหน้าได้ทดสอบด้วยความเข้มข้นที่ 0.02 มิลลิกรัมต่อลิตร อัตราตายในการศึกษานี้ที่ต่ำกว่าอาจเกิดจากระดับความเข้มข้นของสารเคมีที่ใช้มีความแตกต่างถึง 2 เท่า และการใช้สารเคมีที่แตกต่างกัน โดยงานวิจัยก่อนหน้านี้ที่ใช้สารเคมีเกรดอุตสาหกรรม (Technical Grade) ซึ่งแตกต่างจากงานวิจัยนี้ที่ใช้ทรายอะเบทเคลือบเทมีฟอสเป็นสารในการทำสารละลายและทำเจือจางสิบเท่า (Ten Fold Dilution) อัตราตายของลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการและจากพื้นที่จังหวัดสระบุรี ชั่วโมงที่ 24 ในความเข้มข้น 0.1 มิลลิกรัมต่อลิตร คือ ร้อยละ 100 และ ร้อยละ 95 ตามลำดับ ซึ่งสอดคล้องกับการศึกษาของ Thongwat & Bunchu (2015) ที่พบอัตราตายในความเข้มข้นที่ใกล้เคียงกัน คือ 0.125 ไมโครกรัมต่อมิลลิลิตร ทั้งนี้ อาจเป็นเพราะการใช้ความเข้มข้นที่สูงขึ้นในการควบคุมลูกน้ำยุงลายบ้าน

LC_{50} และ LC_{90} ในลูกน้ำยุงลายสายพันธุ์ห้องปฏิบัติการ ต่ำกว่าลูกน้ำยุงลายจากพื้นที่ ในทุกช่วงเวลา แปลว่าลูกน้ำจากห้องปฏิบัติการไวต่อสารเคมีมากกว่า ค่า LC_{50} และ LC_{90} ของทั้งสองกลุ่มลดลงเมื่อเวลาผ่านไป และมีค่า LC ที่ลดลงขึ้นเมื่อระยะเวลาสัมผัสสารเคมีนานขึ้น ทั้งนี้ ค่า LC_{50} ของลูกน้ำยุงลายบ้านสายพันธุ์ห้องปฏิบัติการและจากพื้นที่จังหวัดสระบุรี ณ ชั่วโมงที่ 24 เท่ากับ 0.032 และ 0.039 มิลลิกรัมต่อลิตร ตามลำดับ ซึ่งสูงกว่าค่า LC_{50} ในการศึกษาของ บุญเทียน อาสารินทร์, ประสิทธิ์ รามะโคตร, วราภรณ์ อุ่นนาวิน, ปิยานุช พามา และ ไสว โพธิมล (2562) ที่ 0.003 และ 0.011 – 0.037 มิลลิกรัมต่อลิตร ในลูกน้ำยุงลายบ้านในห้องปฏิบัติการและจากพื้นที่จังหวัดสระบุรี ตามลำดับ อย่างไรก็ตาม ค่า LC_{50} ในลูกน้ำยุงลายบ้านจากพื้นที่ในการศึกษานี้ ต่ำกว่าเมื่อเทียบกับค่า LC_{50} ในการศึกษาของ Thongwat & Bunchu (2015) ที่ 0.061 และ 0.113 ไมโครกรัมต่อมิลลิลิตร ซึ่งอาจเป็นเพราะลูกน้ำยุงลายบ้านจากพื้นที่จังหวัดสระบุรียังสามารถควบคุมได้ในระดับสารเคมีที่ต่ำกว่า

ค่าความต้านทานของลูกน้ำยุงลายบ้านจากพื้นที่ RR_{50} และ RR_{90} อยู่ระหว่าง 1.21 – 1.70 เท่า และ 0.85 – 3.84 เท่า ตามลำดับ มีค่าความต้านทานน้อยกว่า 5 เท่า หมายถึงความต้านทานอยู่ในระดับต่ำ ซึ่งสอดคล้องกับค่าความต้านทานในลูกน้ำยุงลายบ้านในจังหวัดอ่างทอง (สัญญา พระพิชิต, ประชุมพร เลาห์ประเสริฐ และ พรรณเกษม แผ่พร, 2562) และในจังหวัดพิษณุโลก (Thongwat & Bunchu, 2015) ที่พบค่าความต้านทานน้อยกว่า 5 อย่างไรก็ตาม หนึ่งในพื้นที่การศึกษาในจังหวัดพิษณุโลก เป็นพื้นที่เกษตรกรรมพบค่าความต้านทานมากกว่า 5 จึงมีความเป็นไปได้ว่าในพื้นที่เกษตรกรรมที่มีการใช้สารฆ่าแมลงอยู่เป็นประจำจึงทำให้ลูกน้ำยุงลายในพื้นที่เกษตรกรรมมีความต้านทานต่อสารเคมีมากกว่าในชุมชน เช่นเดียวกับลูกน้ำยุงลายจากงานวิจัยนี้ที่เก็บได้จากพื้นที่ในชุมชน นอกจากนี้ ผลการศึกษานี้ยังสอดคล้องกับการศึกษาของ Leong et al. (2018) และ Mohiddin, Lasim & Zuharah (2016) ซึ่งพบความต้านทานของลูกน้ำยุงลายในพื้นที่มีการระบาดของไข้เลือดออกอยู่ในระดับต่ำ ดังนั้น การศึกษานี้แสดงให้เห็นว่าเทมีฟอสยังสามารถใช้ควบคุมลูกน้ำยุงลายในพื้นที่ที่มีการรายงานไข้เลือดออกได้

การศึกษานี้สามารถสะท้อนสถานการณ์ปัจจุบันการดื้อเทมีฟอสของลูกน้ำยุงลายในพื้นที่ อย่างไรก็ตาม ด้วยข้อจำกัดของการเก็บตัวอย่างที่มาจากพื้นที่เดียว จึงไม่สามารถนำผลการศึกษานี้ไปอ้างอิงหรือสะท้อนสถานการณ์ในภาพรวมได้อย่างสมบูรณ์

ข้อเสนอแนะ

การศึกษานี้ช่วยให้ผู้ที่เกี่ยวข้องนำผลการประเมินไปใช้ควบคุมลูกน้ำยุงลายในพื้นที่ได้อย่างเหมาะสม อย่างไรก็ตาม เนื่องจากการศึกษาเก็บข้อมูลจากพื้นที่เดียวในจังหวัดสระบุรี จึงควรเฝ้าระวังความต้านทานของลูกน้ำยุงลายในพื้นที่อื่น ๆ และพิจารณาใช้การควบคุมโรคแบบผสมผสาน เพื่อเพิ่มประสิทธิภาพในการควบคุมลูกน้ำยุงลาย และป้องกันโรคไข้เลือดออกต่อไป

กิตติกรรมประกาศ

ผู้วิจัยขอขอบคุณ กลุ่มงานกีฏวิทยา สถาบันวิจัยวิทยาศาสตร์สาธารณสุข กระทรวงสาธารณสุข ที่เอื้อเฟื้อยุงลายบ้านสายพันธุ์ห้องปฏิบัติการเพื่อดำเนินการทดลอง ขอบคุณนางสาววุฑิทา นุชคุ้ม ในการประสานงานพื้นที่เพื่อเก็บตัวอย่าง อาสาสมัครสาธารณสุขประจำหมู่บ้าน ตำบลทับกวาง อำเภอแก่งคอย จังหวัดสระบุรีในการเก็บตัวอย่างลูกน้ำ

เอกสารอ้างอิง

กองโรคติดต่อนำโดยแมลง. (2558). ยุงลายพาหะนำโรคไข้เลือดออก. ใน สุภาวดี พวงสมบัติ, ธีราวดี พยัคฆินทร์, วราภรณ์ เอมะรุจิ, ศรัณรัชต์ ชาญประโคน (บ.ก.), คู่มือวิชาการโรคติดเชื้อเดงกีและโรคไข้เลือดออกเดงกีด้านการแพทย์และสาธารณสุข ปี พ.ศ. 2558 (พิมพ์ครั้งที่ 1) (น. 51-56). นนทบุรี : สำนักพิมพ์อักษรกราฟฟิคแอนด์ดีไซน์.

กองโรคติดต่อนำโดยแมลง. (2564). แนวทางการดำเนินงานเฝ้าระวัง ป้องกัน ควบคุมโรคติดต่อนำโดยยุงลาย สำหรับเจ้าหน้าที่สาธารณสุข พ.ศ. 2564. นนทบุรี : สำนักพิมพ์อักษรกราฟฟิคแอนด์ดีไซน์.

_____. (2565). รายงานประจำปี 2565 กองโรคติดต่อนำโดยแมลง. นนทบุรี : กองโรคติดต่อนำโดยแมลง กรมควบคุมโรค กระทรวงสาธารณสุข.

_____. (2566). รายงานประจำปี 2566 กองโรคติดต่อนำโดยแมลง. นนทบุรี : กองโรคติดต่อนำโดยแมลง กรมควบคุมโรค กระทรวงสาธารณสุข.

_____. (2566). รายงานสถานการณ์โรคไข้เลือดออก พ.ศ. 2566. สืบค้นเมื่อ 20 พฤศจิกายน 2567 จาก https://lookerstudio.google.com/u/0/reporting/dfa7d4e2-b7f5-48ed-b40a-54f1cd4cbdfb/page/p_cx1rkzxrpc

ธีรภาพ เจริญวิริยภาพ, ชำนาญ อภิวัฒนศร และ คณัจฉรีย์ ธานิสพงศ์. (2558). ยุงลายพาหะนำโรค. ใน สุภาวดี พวงสมบัติ, ธีราวดี กอพยัคฆินทร์, วราภรณ์ เอมะรุจิ และศรัณรัชต์ ชาญประโคน (บ.ก.), คู่มือวิชาการโรคติดเชื้อเดงกีและโรคไข้เลือดออกเดงกีด้านการแพทย์และสาธารณสุข ปี พ.ศ. 2558 (น. 51 – 56). นนทบุรี: สำนักพิมพ์อักษรกราฟฟิคแอนด์ดีไซน์

บุญเทียน อาสารินทร์, ประสิทธิ์ รามะโคตร, วราภรณ์ อุ่นนาวิน, ปิยานุช พามา และ ไสว โพธิมล. (2562). การดื้อต่อสารทีมีฟอสของลูกน้ำยุงลายบ้านในพื้นที่สำนักงานป้องกันควบคุมโรคที่ 8 จังหวัดอุดรธานี. วารสารควบคุมโรค, 45(4), 431-438.

พรรณเกษม แผ่พร, สุนัยนา สท้านไตรภพ, วิสาข์ชนม์ ศรีโพธิ์, ภูเบศร์ ยะอัมพันธ์, เมนะกา วิวน และ ละเวง นิลมณี. (2564). การประเมินประสิทธิภาพในห้องปฏิบัติการและภาคสนามของทรายเคลือบสารทีมีฟอสในการควบคุมลูกน้ำยุงลายบ้านพาหะนำโรคไข้เลือดออกสายพันธุ์ต้านทานต่อสารเคมี. วารสารควบคุมโรค, 47(1), 734 – 745.

สัญญา พระพิชิต, ประชุมพร เลาห์ประเสริฐ และ พรรณเกษม แผ่พร. (2562) ประสิทธิภาพความเป็นพิษและความคงทนของทรายเคลือบสารทีมีฟอส จุลินทรีย์ และสารโนวาลูรอนต่อลูกน้ำยุงลายบ้าน อำเภอแสวงหา จังหวัดอ่างทอง. วารสารวิชาการสาธารณสุขชุมชน, 5(1), 111 – 122.

สุพรรณ สายหลักคำ, เจริญศักดิ์ แก้วหานาม, พรพิมล ขันภักดี และ ศิริรัตน์ รักน้ำเที่ยง. (2559). การทดสอบความไวของลูกน้ำยุงลายต่อสารเคมีทีมีฟอสที่ระดับความเข้มข้น 0.02 มิลลิกรัมต่อลิตร จังหวัดเลยและหนองบัวลำภู ปี 2557. วารสารสำนักงานป้องกันควบคุมโรคที่ 7 จังหวัดขอนแก่น, 23(2), 38 - 45.

ไสว โพธิมล และปรีชา เศษสมบูรณ์. (2559). ความไวของลูกน้ำยุงลายต่อสารเคมีทีมีฟอสในจังหวัดอุดรธานี. วารสารสำนักงานป้องกันควบคุมโรคที่ 7 ขอนแก่น, 23(1), 105 - 111.

Adrianto, H., Subekti, S., & Arwati, H. (2023). Another mode of action of temephos against Aedes aegypti Larvae: a stomach poison investigation. Pharmacognosy Journal, 15(2), 298-303

Damrongpan Thongwat and Nophawan Bunchu. (2015) Susceptibility to temephos, permethrin and deltamethrin of Aedes aegypti (Diptera: Culicidae) from Muang district, Phitsanulok Province, Thailand. Asian Pacific Journal of Tropical Medicine, 8(1), 14 – 18.

Dusfour, I. & Chaney, S. C. (2022). Chapter 14 Mosquito control Success, failure and expectations in the context of arbovirus expansion and emergence. In Hall M., & Tam D. (Eds.), Mosquitopia: The Place of Pests in a Healthy World (pp. 213 – 233). New York : Routledge.

Lee, J. S., Mogasale, V., Lim, J. K., Carabali, M., Lee, K. S., Sirivichayakul, C., Dang, D. A.,Palencia-Florez, D. C., Nguyen, T. H. A., Riewpaiboon, A., Chanthavanich, P., Villar, L., Maskery, B. A., & Farlow, A. (2017). A multi-country study of the economic burden of dengue fever: Vietnam, Thailand, and Colombia. PLoS neglected tropical diseases, 11(10), e0006037.

Leong, C. S., Vythilingam, I., Wong, M. L., Sulaiman, W. Y. W., & Lau, Y. L. (2018). Aedes aegypti (Linnaeus) larvae from dengue outbreak areas in Selangor showing resistance to pyrethroids but susceptible to organophosphates. Acta Tropica, 185, 115-126.

Mohiddin, A., Lasim, A. M., & Zuharah, W. F. (2016). Susceptibility of Aedes albopictus from dengue outbreak areas to temephos and Bacillus thuringiensis subsp. israelensis. Asian Pacific Journal of Tropical Biomedicine, 6(4), 295-300.

Moyes, C. L., Vontas, J., Martins, A. J., Ng, L. C., Koou, S. Y., Dusfour, I., Raghavendra, K., Pinto, J., Corbel, V., David, J.P., & Weetman, D. (2017). Contemporary status of insecticide resistance in the major Aedes vectors of arboviruses infecting humans. PLoS neglected tropical diseases, 11(7), e0005625.

World Health Organization. (2016). Monitoring and managing insecticide resistance in Aedes mosquito populations: Interim guidance for entomologists. World Health Organization.

การพยากรณ์จำนวนคดีอุบัติเหตุจราจรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต โดยใช้เทคนิคการปรับให้เรียบ

Forecasting the Number of Traffic Accident Cases in Mueang Phuket District Phuket Province Using Smoothing Techniques

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อพยากรณ์จำนวนคดีอุบัติเหตุจราจรของยานพาหนะประเภท 2 ล้อ และ 4 ล้อ ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต โดยใช้เทคนิคการปรับให้เรียบแบบเอกซ์โปเนนเชียล (Exponential Smoothing) ผลการวิจัยพบว่าการพยากรณ์จำนวนคดีอุบัติเหตุของยานพาหนะประเภท 2 ล้อ มีค่าเฉลี่ยร้อยละความคลาดเคลื่อนสัมบูรณ์ (MAPE) ต่ำสุดเท่ากับร้อยละ 8.721 ณ ค่าคงที่ปรับเรียบที่เหมาะสม ในขณะที่ยานพาหนะประเภท 4 ล้อ มีค่า MAPE ต่ำสุดเท่ากับร้อยละ 9.627 ซึ่งแสดงถึงความแม่นยำของตัวแบบในการพยากรณ์ สามารถนำไปประยุกต์ใช้ในการวางแผนจัดการจราจรและการป้องกันอุบัติเหตุในอนาคตได้อย่างมีประสิทธิภาพ

คำสำคัญ: การพยากรณ์อุบัติเหตุจราจร, การปรับให้เรียบแบบเอกซ์โปเนนเชียล, ยานพาหนะประเภท 2 ล้อ, ยานพาหนะประเภท 4 ล้อ, จังหวัดภูเก็ต

Abstract

This research aimed to forecast the number of traffic accident cases of 2-wheel and 4-wheel vehicles of the Provincial Police Station in Mueang Phuket District Phuket Province using exponential smoothing techniques. The results found that the forecast for

2-wheel vehicle accident cases had the lowest mean absolute error percentage (MAPE) of 8.721% at the appropriate smoothing constant, while 4-wheel vehicles had the minimum MAPE of 9.627%. These results indicate the accuracy in forecasting model, and it can be applied to traffic management planning and future accident prevention strategies.

Keywords: Traffic accident forecasting, Exponential Smoothing, Two-wheeled vehicles, Four-wheeled vehicles, Phuket Province

บทนำ

การเกิดอุบัติเหตุเป็นปัญหาสำคัญระดับโลกที่มีแนวโน้มความรุนแรงเพิ่มขึ้น โดยเฉพาะอุบัติเหตุทางบกที่ก่อให้เกิดความสูญเสียทั้งชีวิต ร่างกาย และทรัพย์สิน รวมถึงส่งผลกระทบต่อเศรษฐกิจของประเทศ จากรายงานการวิเคราะห์สถานการณ์อุบัติเหตุทางถนนของกระทรวงคมนาคม พ.ศ. 2565 พบว่ามีอุบัติเหตุทางถนนเกิดขึ้นถึง 62,869 ครั้ง ส่งผลให้มีผู้เสียชีวิต 5,950 ราย และมีผู้บาดเจ็บสาหัส 3,806 คน ปัจจัยหลักของความเสี่ยงต่อการเกิดอุบัติเหตุบนถนน ได้แก่ (1) ผู้ขับขี่ขับรถเร็วเกินกว่ากฎหมายกำหนด การขับรถตัดหน้ากระชั้นชิด การหลับในขณะขับรถ เมาสุรา (2) ประเภทยานพาหนะ รถจักรยานยนต์มีสัดส่วนการเกิดอุบัติเหตุสูงบนทางหลวงชนบท รถปิคอัพและรถยนต์ส่วนบุคคลมีสัดส่วนการเกิดอุบัติเหตุสูงบนทางหลวง สภาพของรถยนต์ที่อุปกรณ์ของรถบกพร่อง (3) ลักษณะกายภาพของถนนเกิดอุบัติเหตุทางตรงมากกว่าบริเวณทางโค้งหรือทางแยกเนื่องจากผู้ขับขี่ทำความเร็วได้มากกว่า และสภาพแวดล้อมทางถนน เช่น สัญญาณไฟจราจร ป้ายบอกทางไม่ชัดเจน ชำรุดหรือใช้การไม่ได้ (สำนักงานนโยบายและแผนการขนส่งและจราจร สำนักแผนความปลอดภัย, 2566) รายงานอุบัติเหตุจราจรบนทางหลวงแผ่นดิน พ.ศ. 2566 แสดงข้อมูลจังหวัดภูเก็ตมีการเกิดอุบัติเหตุสูงสุดในภาคใต้ จำนวน 3,010 คดี จากข้อมูลอุบัติเหตุของสำนักงานตำรวจแห่งชาติ และจังหวัดภูเก็ตมีการเกิดอุบัติเหตุ จำนวน 102 คดี จากข้อมูลอุบัติเหตุของกรมทางหลวง โดยผู้ใช้ทางหลวงที่เกิดอุบัติเหตุ ในปี พ.ศ. 2566 มากที่สุด ได้แก่ รถปิคอัพบรรทุก 4 ล้อ รถยนต์นั่ง และรถจักรยานยนต์ ตามลำดับ จากสถานการณ์นี้มีแนวโน้มทวีความรุนแรงขึ้นจากการใช้ยานพาหนะส่วนบุคคลมากขึ้น เพื่ออำนวยความสะดวกแก่ผู้ขับขี่เองหรือผู้โดยสารรับจ้าง ทั้งประเภทยานพาหนะ 2 ล้อ ได้แก่ รถจักรยานยนต์ และยานพาหนะ 4 ล้อ ได้แก่ รถเก๋ง รถกระบะ รถตู้โดยสาร รถบรรทุกขนาด 4 ล้อ รวมถึงรถพ่วง (สำนักอำนวยความปลอดภัย กรมทางหลวง กระทรวงคมนาคม, 2567) จังหวัดภูเก็ตในฐานะเมืองท่องเที่ยวชั้นนำของประเทศไทยประสบปัญหาอุบัติเหตุจราจรทางถนนอย่างต่อเนื่อง จากข้อมูลคดีอุบัติเหตุจราจรในเขตอำเภอเมืองภูเก็ต ปี พ.ศ. 2565 ถึง 2566 พบว่าประเภทยานพาหนะ 2 ล้อ มีจำนวน 2,508 และ 2,817 คดี ตามลำดับ ส่วนยานพาหนะ 4 ล้อ มีจำนวน 2,066 และ 2,329 คดี ตามลำดับ สาเหตุหลักเกิดจากความประมาทของผู้ขับขี่ ตามข้อมูลจากฝ่ายงานการจราจร สถานีตำรวจภูธรอำเภอเมืองภูเก็ต จังหวัดภูเก็ต

ปัญหาการลดจำนวนการเกิดอุบัติเหตุที่เกิดขึ้นในแต่ละปียังเป็นประเด็นสำคัญต่อการลดการสูญเสียทั้งชีวิตและทรัพย์สินของผู้ใช้รถใช้ถนน เมื่อศึกษาถึงสาเหตุของอุบัติเหตุและการขับรถตามกฎจราจร พบว่าสาเหตุหลักของอุบัติเหตุมาจากพฤติกรรมของผู้ใช้รถใช้ถนน เช่น การขับรถประมาท ขับรถเร็ว ขับรถขณะมึนเมา การใช้โทรศัพท์ขณะขับขี่ และการข้ามถนนอย่างไม่ปลอดภัย (สรารัตน์ ฉายพงษ์ และภาวิณี เอี่ยมตระกูล, 2564) นอกจากนี้ การนำรถที่อุปกรณ์บกพร่องมาใช้ เช่น เบรก ไฟสัญญาณ กระจกส่องหลัง ที่ปัดน้ำฝน และปัญหาจากทางและเครื่องหมายสัญญาณ เช่น บริเวณทางแยก ทางโค้ง ทางชำรุด เครื่องหมายสัญญาณชำรุด ฝนตกหนัก หมอกลงจัด ก็เป็นปัจจัยสำคัญ (ศุภชัย วาสนานนท์, ดลฤดี วาสนานนท์ และ นนนน วาสนานนท์, 2564) แม้บางคนอาจมองว่าอุบัติเหตุเป็นเรื่องของเคราะห์กรรม แต่การศึกษาพบว่าสาเหตุหลักเกิดจากการขาดความรู้ด้านความปลอดภัยในการขับขี่ ความประมาทของผู้ใช้ยานพาหนะ และปัจจัยด้านโครงสร้างพื้นฐาน การวิเคราะห์แนวโน้มจำนวนคดีอุบัติเหตุจราจรในจังหวัดภูเก็ตเป็นแนวทางสำคัญในการวางแผนควบคุมและลดอุบัติเหตุในอนาคต งานวิจัยนี้ใช้ข้อมูลอุบัติเหตุจราจรรายเดือนที่รวบรวมอย่างต่อเนื่อง เพื่อวิเคราะห์และพยากรณ์การเกิดอุบัติเหตุจากข้อมูลในอดีต สอดคล้องกับการศึกษาของบุญรักษา ปทิตญา และ ทองคำ จารี (2561) ที่ประยุกต์ใช้เทคนิคการพยากรณ์อนุกรมเวลาในการวิเคราะห์ข้อมูลอุบัติเหตุ

งานวิจัยนี้มุ่งศึกษาการพยากรณ์จำนวนคดีอุบัติเหตุจราจรยานพาหนะในเขตอำเภอเมืองภูเก็ต โดยใช้เทคนิคการปรับให้เรียบแบบเอกซ์โปแนนเชียล (Exponential Smoothing) เพื่อให้หน่วยงานที่เกี่ยวข้องนำไปใช้วางแผนป้องกันลดการเกิดอุบัติเหตุจากการจราจร ซึ่งเป็นปัญหาสำคัญสำหรับผู้ใช้ยานพาหนะ

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาจำนวนคดีอุบัติเหตุจราจรยานพาหนะ ประเภท 2 ล้อ และ 4 ล้อ ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต พ.ศ. 2565-2567
2. เพื่อศึกษาตัวแบบการพยากรณ์จำนวนคดีอุบัติเหตุจราจรยานพาหนะ ประเภท 2 ล้อ และ 4 ล้อ ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต

แนวคิด ทฤษฎี กรอบแนวคิด

ความหมายของคำศัพท์

จำนวนคดีอุบัติเหตุจราจร หมายถึง จำนวนคดีรับแจ้งความเสียหายที่เกิดขึ้นจากบุคคลหรือผู้ต้องหาจากการใช้ยานพาหนะรถ 2 ล้อ และรถ 4 ล้อ ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต

การจราจร หมายถึง การใช้รถใช้ถนนของทุกคนไม่ว่าจะใช้เพื่อวัตถุประสงค์อะไรก็ตาม เช่น เพื่อการเดินทาง เพื่อการขนส่งและหรือเพื่อการพักผ่อนหย่อนใจ

ยานพาหนะ 2 ล้อ หมายถึง รถจักรยาน รถจักรยานยนต์ส่วนบุคคล รถจักรยานยนต์สาธารณะที่ใช้รับจ้างบรรทุกคนโดยสาร

ยานพาหนะ 4 ล้อ หมายถึง รถยนต์นั่งส่วนบุคคลไม่เกินหรือเกิน 7 คน รถยนต์บรรทุกส่วนบุคคล รถยนต์รับจ้าง รถยนต์รับจ้างบรรทุกคนโดยสารไม่เกิน 7 คน รถยนต์บริการธุรกิจ รถยนต์บริการทัศนาจร รถยนต์บริการให้เช่า

การปรับเรียบเอกซ์โปเนนเชียล หมายถึง การนำข้อมูลคดีอุบัติเหตุการจราจรในอดีตมาคำนวณด้วยค่าเฉลี่ยเคลื่อนที่ถ่วงน้ำหนัก ระหว่าง 0 ถึง 1 เป็นค่าคงที่การปรับเรียบ วิธีการนี้ให้ความสำคัญกับข้อมูลจริงในอดีตมากที่สุดด้วยการกำหนดค่าน้ำหนักที่มากที่สุดแล้วลดความสำคัญลงมา ด้วยการลดค่าน้ำหนักลงมาในลักษณะแบบเอกซ์โปเนนเชียลการปรับเรียบ ซึ่งนำค่าพยากรณ์ในอดีตมาพิจารณาด้วย

แนวคิดและทฤษฎี

การวิจัยครั้งนี้มุ่งเน้นการพยากรณ์จำนวนคดีอุบัติเหตุจราจรในจังหวัดภูเก็ต โดยใช้เทคนิคการปรับให้เรียบแบบเอกซ์โปเนนเชียล (Exponential Smoothing) เป็นเทคนิคการพยากรณ์ที่ได้รับความนิยมในการวิเคราะห์ข้อมูลอนุกรมเวลา (Time Series Analysis) เนื่องจากสามารถคาดการณ์แนวโน้มของเหตุการณ์ในอนาคตได้อย่างมีประสิทธิภาพ โดยอาศัยข้อมูลสถิติในอดีตเป็นฐานในการวิเคราะห์ (Lewis, 1982) เทคนิคนี้เหมาะสำหรับการคาดการณ์ข้อมูลที่มีแนวโน้มเปลี่ยนแปลงอย่างต่อเนื่อง เช่น การเกิดอุบัติเหตุจราจรที่มีความแปรผันตามปัจจัยต่าง ๆ ทั้งพฤติกรรมของผู้ขับขี่ สภาพแวดล้อม และปัจจัยด้านโครงสร้างพื้นฐาน เช่น การศึกษาของ Jomnonkwao, Uttra & Ratanavaraha (2020) ได้แสดงให้เห็นถึงความสามารถของเทคนิคอนุกรมเวลาในการพยากรณ์จำนวนผู้เสียชีวิตจากอุบัติเหตุทางถนนในประเทศไทยอย่างแม่นยำ ซึ่งสอดคล้องกับการประยุกต์ใช้ในงานวิจัยนี้เพื่อทำนายแนวโน้มการเกิดอุบัติเหตุในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต

ผู้วิจัยดำเนินการทบทวนเอกสารที่เกี่ยวข้องเกี่ยวกับการเกิดอุบัติเหตุทางจราจรและเทคนิคการพยากรณ์ ซึ่งการเกิดอุบัติเหตุจราจรไม่ใช่เหตุการณ์ที่เกิดขึ้นโดยบังเอิญ แต่เกิดจากการผสมผสานของปัจจัยหลายประการ ทฤษฎีสาเหตุหลายปัจจัย (Multiple Causation Theory) อธิบายว่าอุบัติเหตุเกิดจากหลายปัจจัยร่วมกัน ได้แก่ ปัจจัยด้านบุคคล เช่น พฤติกรรมเสี่ยงหรือความเหนื่อยล้า ปัจจัยด้านยานพาหนะ เช่น ยางแตกหรือเครื่องยนต์ขัดข้อง และปัจจัยด้านสิ่งแวดล้อม เช่น ถนนลื่นหรือทัศนวิสัยไม่ดี (Heinrich, 1941) นอกจากนี้ ทฤษฎีความโน้มเอียงในการเกิดอุบัติเหตุ (Accident Proneness Theory) ยังชี้ให้เห็นว่าบุคคลบางกลุ่มมีแนวโน้มที่จะเกิดอุบัติเหตุมากกว่าคนอื่นเนื่องจากปัจจัยส่วนตัว เช่น พฤติกรรมเสี่ยง ความสามารถในการตัดสินใจที่ต่ำ หรือลักษณะทางจิตวิทยาที่ทำให้มีแนวโน้มที่จะกระทำผิดพลาดบ่อยครั้ง (Greenwood & Woods, 1919) ทฤษฎีนี้ช่วยอธิบายว่าทำไมบางคนจึงประสบอุบัติเหตุบ่อยครั้งแม้อยู่ในสภาพแวดล้อมเดียวกันกับคนอื่น

จากงานวิจัยของปิยภัค มหาโพธิ์, จิรวัตน์ เพลิงศรีทอง, นันทวรรณ พิทักษ์พานิช และ เทพฤทธิ์ รัตนปัญญากร (2566) พบว่า ปัจจัยด้านเพศ อายุ และประเภทของยานพาหนะมีความสัมพันธ์อย่างมีนัยสำคัญกับการเกิดอุบัติเหตุ ซึ่งช่วยสนับสนุนความเข้าใจเกี่ยวกับสาเหตุของอุบัติเหตุที่อาจส่งผลต่อแนวโน้มในอนาคต เทคนิคการปรับให้เรียบแบบเอกซ์โปเนนเชียลจึงมีบทบาทสำคัญในการวิเคราะห์ข้อมูลเพื่อการพยากรณ์ ซึ่งเป็นการพยากรณ์ที่ต้องอาศัยสถิติข้อมูลเชิงปริมาณในอดีตใช้เป็นฐานการพยากรณ์โดยนำข้อมูลในอดีตและข้อมูลที่มีจำนวนมากเพียงพอมาวิเคราะห์แนวโน้มในอนาคต (Lewis, 1982)

การปรับให้เรียบแบบเอกซโปแนนเชียล (Exponential Smoothing) เป็นเทคนิคที่ใช้หลักการเดียวกันกับการพยากรณ์แบบค่าเฉลี่ยเคลื่อนที่ถ่วงน้ำหนัก กล่าวคือให้ความสำคัญกับข้อมูลชุดใหม่มากที่สุด ค่าถ่วงน้ำหนักสูงสุด และค่อย ๆ ลดค่าถ่วงน้ำหนักลง ซึ่งวิธีนี้จะทำการพยากรณ์โดยนำค่าพยากรณ์ของช่วงเวลาที่ผ่านมาบวกเข้ากับอัตราส่วนความแตกต่างระหว่างข้อมูลจริงกับค่าพยากรณ์ ณ ช่วงเวลานั้น ๆ โดยให้ค่า α อยู่ระหว่าง 0 ถึง 1 ถ้าค่า $\alpha = 1$ แสดงว่าให้น้ำหนักกับข้อมูลล่าสุด ค่าพยากรณ์ในช่วงเวลาถัดไปจะเท่ากับข้อมูลจริงในช่วงเวลาล่าสุด แต่ถ้า α มีค่าน้อยก็จะหมายความว่ายึดข้อมูลพยากรณ์ในอดีตเป็นหลักโดยไม่คำนึงถึงข้อมูลปัจจุบัน

การหาค่าพยากรณ์คำนวณจากสมการ ดังนี้

$$F_t = F_{t-1} + \alpha\left(A_{t-1} - F_{t-1}\right) \qquad (1.1)$$

$$F_t = F_{t-1} + \alpha\left(e_{t-1}\right) \qquad (1.2)$$

เมื่อกำหนด

F_t	=	ค่าพยากรณ์ความต้องการข้อมูล ณ ช่วงเวลา t
F_{t-1}	=	ค่าพยากรณ์ความต้องการข้อมูล ณ ช่วงเวลา $t-1$
α	=	ค่าคงที่ปรับเรียบ ระหว่าง 0.1 ถึง 1.0
A_{t-1}	=	ข้อมูลจริง ณ ช่วงเวลา $t-1$
e_{t-1}	=	ค่าผิดพลาด ณ ช่วงเวลา $t-1$

จากสมการ (1.1) คือค่าพยากรณ์ ณ ช่วงเวลา t ใด ๆ คำนวณได้จากค่าพยากรณ์ของช่วงเวลาก่อนหน้าหนึ่งช่วงเวลา $t-1$ บวกกับค่าคงที่ของข้อมูลจริง ณ ช่วงเวลา $t-1$ ลบกับค่าพยากรณ์เกิดขึ้น ณ ช่วงเวลาก่อนหน้าหนึ่งช่วงเวลา และสมการ (1.2) คือค่าพยากรณ์ ณ ช่วงเวลา t ใด ๆ คำนวณได้จากค่าพยากรณ์ของช่วงเวลาก่อนหน้าหนึ่งช่วงเวลา $t-1$ บวกกับอัตราส่วนหรือร้อยละของค่าผิดพลาด (Error: e) ที่เกิดขึ้น ณ ช่วงเวลาก่อนหน้าหนึ่งช่วงเวลา

กรอบแนวคิด

การวิจัยครั้งนี้เน้นไปที่กระบวนการพยากรณ์จำนวนคดีอุบัติเหตุจราจรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต โดยเริ่มจากการเก็บรวบรวมข้อมูลจำนวนคดีอุบัติเหตุจราจรที่บันทึกตามรายเดือน ข้อมูลเหล่านี้จะถูกนำมาวิเคราะห์เพื่อหาแนวโน้มและรูปแบบที่อาจมีอยู่ในอดีต การวิเคราะห์ข้อมูลดำเนินการโดยใช้เทคนิคการปรับให้เรียบแบบเอกซ์โปเนนเชียล (Exponential Smoothing) ซึ่งเป็นเทคนิคที่ให้

ความสำคัญกับข้อมูลล่าสุดมากกว่าข้อมูลในอดีต เทคนิคนี้ช่วยในการคาดการณ์จำนวนคดีอุบัติเหตุในอนาคตได้อย่างแม่นยำมากขึ้น เนื่องจากสามารถปรับค่าพยากรณ์ให้สอดคล้องกับการเปลี่ยนแปลงของข้อมูลในแต่ละช่วงเวลาได้อย่างมีประสิทธิภาพ (Lewis, 1982) เมื่อได้ผลลัพธ์จากการพยากรณ์แล้ว จะทำการเปรียบเทียบผลลัพธ์ดังกล่าวกับข้อมูลจริงเพื่อประเมินความแม่นยำของแบบจำลอง โดยกระบวนการนี้ไม่เพียงแต่ช่วยในการคาดการณ์จำนวนอุบัติเหตุในอนาคตเท่านั้น แต่ยังเป็นเครื่องมือสำคัญในการวางแผนเชิงกลยุทธ์เพื่อลดจำนวนอุบัติเหตุในพื้นที่จังหวัดภูเก็ตได้อย่างมีประสิทธิผล

วิธีดำเนินการวิจัย

การวิจัย เรื่อง การพยากรณ์จำนวนคดีอุบัติเหตุจราจรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต โดยใช้เทคนิคการปรับให้เรียบแบบเอกซ์โปเนนเชียล จากการรวบรวมข้อมูลจำนวนคดีอุบัติเหตุจราจรยานพาหนะ งานวิจัยที่เกี่ยวข้อง และนำมาวิเคราะห์ข้อมูลเพื่อการวิจัย

แหล่งข้อมูลและการเก็บรวบรวมข้อมูล

การดำเนินงานวิจัยครั้งนี้เป็นการศึกษาข้อมูลจำนวนคดีอุบัติเหตุทางจราจรรายเดือน ประเภทยานพาหนะ 2 ล้อ ได้แก่ รถจักรยานยนต์ และยานพาหนะ 4 ล้อ ได้แก่ รถเก๋ง รถกระบะ และรถตู้โดยสาร ข้อมูลที่นำมาวิเคราะห์เป็นข้อมูลทุติยภูมิจากฝ่ายงานการจราจร สถานีตำรวจภูธรอำเภอเมืองภูเก็ต จังหวัดภูเก็ต ตั้งแต่วันที่ 1 มกราคม พ.ศ.2565 ถึงวันที่ 31 กรกฎาคม พ.ศ.2567 จำนวน 31 เดือน ในการพยากรณ์ข้อมูลเพื่อสร้างตัวแบบอนุกรมเวลาโดยใช้เทคนิคการปรับให้เรียบแบบเอกซโปแนนเชียล

ประชากรและกลุ่มตัวอย่าง

ประชากร คือ คดีอุบัติเหตุการจราจรจากสถานีตำรวจภูธรจังหวัดภูเก็ต จำนวนทั้งสิ้น 11 สถานี ข้อมูลจากเว็บไซด์กองกำกับการตำรวจภูธรจังหวัดภูเก็ต โดยกองกำกับการตำรวจภูธรจังหวัดภูเก็ต มี 3 อำเภอ คือ อำเภอกะทู้ อำเภอเมือง อำเภอถลาง แบ่งเป็น (1) อำเภอกะทู้ มีสถานีตำรวจภูธร (สภ.) จำนวน 2 สถานี ได้แก่ สภ.ป่าตอง และ สภ.กะทู้ (2) อำเภอถลาง มีสถานีตำรวจภูธร (สภ.) จำนวน 5 สถานี ได้แก่ สภ.สาคู, สภ.เชิงทะเล, สภ.ถลาง, สภ.กมลา, และ สภ.ท่าฉัตรไชย และ (3) อำเภอเมืองภูเก็ต มีสถานีตำรวจภูธร (สภ.) จำนวน 4 สถานี ได้แก่ สภ.กะรน, สภ.ฉลอง, สภ.วิชิต และ สภ.เมืองภูเก็ต กลุ่มตัวอย่าง คือ เลือกกลุ่มตัวอย่างแบบเจาะจง (Purposive Sampling) โดยใช้คดีอุบัติเหตุการจราจรจากยานพาหนะประเภท 2 ล้อ และ 4 ล้อ จากสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต จำนวน 31 เดือน ตั้งแต่เดือนมกราคม พ.ศ. 2565 ถึงกันยายน พ.ศ. 2567 จำนวนทั้งสิ้น 12,825 คดี

การวิเคราะห์ข้อมูล

สถิติที่ใช้ในการวิจัย ได้แก่ ความถี่ ร้อยละ ค่าเฉลี่ย $(\bar{X})$ ค่าเบี่ยงเบนมาตรฐาน (S.D.) ใช้เทคนิคพยากรณ์การปรับให้เรียบแบบเอกซ์โปแนนเชียล (Exponential Smoothing) ตัวแบบการพยากรณ์คือ $F_t = F_{t-1} + \alpha\left(A_{t-1} - F_{t-1}\right)$ เมื่อ F_t แทนค่าพยากรณ์ความต้องการข้อมูล ณ ช่วงเวลา t F_{t-1} แทนค่าพยากรณ์ความต้องการข้อมูล ณ ช่วงเวลา $t-1$ α แทนค่าคงที่ปรับเรียบ ระหว่าง 0 ถึง 1 และ A_{t-1}

แทนข้อมูลจริง ณ ช่วงเวลา $t-1$ พิจารณาตัวแบบสมการที่เหมาะสมด้วยเกณฑ์การวัดความแม่นยำของพยากรณ์จากค่าเฉลี่ยร้อยละความคลาดเคลื่อนสัมบูรณ์ (Mean Absolute Percent Error: MAPE) คือ

$$\frac{\sum \frac{|A-F|}{A}}{n}$$ โดยนำผลที่ได้เทียบกับเกณฑ์การประเมิน (Lewis, 1982) ดังนี้

MAPE < ร้อยละ 10 หมายความว่า การพยากรณ์มีความแม่นยำมาก

MAPE ร้อยละ 10 - 19 หมายความว่า การพยากรณ์มีความแม่นยำดี

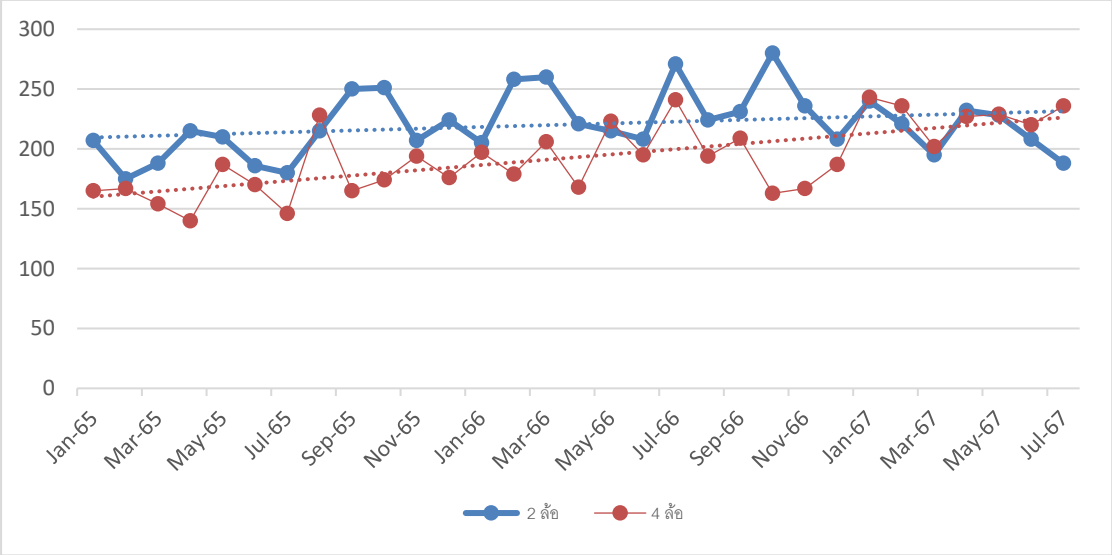
MAPE ร้อยละ 20 - 49 หมายความว่า การพยากรณ์มีความแม่นยำใช้ได้

MAPE ≥ ร้อยละ 50 หมายความว่า การพยากรณ์ไม่มีความแม่นยำ

ผลการวิจัย

1. ผลการศึกษาจำนวนคดีอุบัติเหตุจราจรยานพาหนะ ประเภท 2 ล้อ และ 4 ล้อ ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต

จากการศึกษาจำนวนคดีอุบัติเหตุจราจรยานพาหนะประเภท 2 ล้อ และ 4 ล้อ ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต ประกอบด้วย 4 สถานี ได้แก่ สภ.กะรน, สภ.ฉลอง, สภ.วิชิต และ สภ.เมืองภูเก็ต ตั้งแต่เดือนมกราคม พ.ศ. 2565 ถึงเดือนกรกฎาคม พ.ศ.2567 จำนวน 31 เดือน



ภาพที่ 1 จำนวนคดีอุบัติเหตุจราจายานพาหนะประเภท 2 ล้อ และ 4 ล้อ สภอ.เมืองภูเก็ต

จากภาพที่ 1 แสดงจำนวนคดีอุบัติเหตุจราจรยานพาหนะประเภท 2 ล้อ และ 4 ล้อ ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต พบว่า จำนวนคดีอุบัติเหตุจราจรยานพาหนะ ประเภท

2 ล้อ มากกว่าจำนวนคดีอุบัติเหตุจราจรยานพาหนะ ประเภท 4 ล้อ ผลการศึกษาวิเคราะห์ด้วยค่าสถิติจำนวนคดีอุบัติเหตุจราจรยานพาหนะของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต และรายสถานี แสดงดังตารางที่ 1

ตารางที่ 1 จำนวน ร้อยละ ค่าเฉลี่ย และค่าเบี่ยงเบนมาตรฐานจำนวนคดีอุบัติเหตุจราจรยานพาหนะประเภท 2 ล้อ และ 4 ล้อ สถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต

รายการ	จำนวนคดี	ร้อยละ	$\bar{X}$	S.D.
1. สภ.กะรน	1,941	15.13	31.31	7.80
ยานพาหนะ 2 ล้อ	1,141	16.69	36.81	6.17
ยานพาหนะ 4 ล้อ	800	13.36	25.81	4.80
2. สภ.ฉลอง	3,422	26.68	55.19	9.24
ยานพาหนะ 2 ล้อ	1,856	27.15	59.87	7.83
ยานพาหนะ 4 ล้อ	1,566	26.15	50.52	8.20
3. สภ.วิชิต	2,919	22.76	47.08	12.08
ยานพาหนะ 2 ล้อ	1,287	18.82	41.52	7.69
ยานพาหนะ 4 ล้อ	1,632	27.25	52.65	13.18
4. สภ.เมืองภูเก็ต	4,543	35.42	73.27	25.72
ยานพาหนะ 2 ล้อ	2,553	37.34	82.35	24.03
ยานพาหนะ 4 ล้อ	1,990	33.23	64.19	24.44
5. สภ.อำเภอเมืองภูเก็ต (รวม 4 สถานี)				
ยานพาหนะ 2 ล้อ	6,837	53.31	220.55	26.29
ยานพาหนะ 4 ล้อ	5,988	46.69	193.16	29.87
โดยรวม	**12,825**	**100.00**	**51.71**	**21.57**

จากตารางที่ 1 ผลการศึกษาจำนวนคดีอุบัติเหตุจราจรจากยานพาหนะประเภท 2 ล้อ และ 4 ล้อ ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต ทั้ง 4 สถานี พบว่ามีจำนวนรวมทั้งสิ้น 12,825 คดี จำนวนคดีอุบัติเหตุจราจรยานพาหนะเฉลี่ยเท่ากับ 51.71 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 21.57 คดี โดยคดีอุบัติเหตุจราจรยานพาหนะ 2 ล้อ มีจำนวน 6,837 คดี คิดเป็นร้อยละ 53.31 จำนวนคดีอุบัติเหตุจราจรยานพาหนะ 2 ล้อ เฉลี่ยเท่ากับ 220.55 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 26.29 คดี และคดีอุบัติเหตุจราจรยานพาหนะ 4 ล้อ มีจำนวน 5,988 คดี คิดเป็นร้อยละ 46.69 จำนวนคดีอุบัติเหตุจราจรยานพาหนะ 4 ล้อ เฉลี่ยเท่ากับ 193.16 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 29.87 คดี แต่ละสถานีตำรวจภูธรมีจำนวนคดีอุบัติเหตุจราจร ดังนี้

สภ.กะรน คดีอุบัติเหตุจราจรยานพาหนะยานพาหนะประเภท 2 ล้อ และ 4 ล้อ มีจำนวน 1,941 คดี คิดเป็นร้อยละ 15.13 จำนวนคดีอุบัติเหตุจราจรยานพาหนะเฉลี่ยเท่ากับ 31.31 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 7.80 คดี แบ่งเป็นจำนวนคดีอุบัติเหตุจราจรยานพาหนะ 2 ล้อ จำนวน 1,141 คดี คิดเป็นร้อยละ 16.69 จำนวนคดีอุบัติเหตุจราจรยานพาหนะ 2 ล้อ เฉลี่ยเท่ากับ 36.81 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 6.17 คดี และจำนวนคดีอุบัติเหตุจราจรจากยานพาหนะ 4 ล้อ จำนวน 800 คดี คิดเป็นร้อยละ 13.36 จำนวนคดีอุบัติเหตุจราจรยานพาหนะ 4 ล้อ เฉลี่ยเท่ากับ 25.81 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 4.80 คดี

สภ.ฉลอง คดีอุบัติเหตุจราจรยานพาหนะยานพาหนะประเภท 2 ล้อ และ 4 ล้อ มีจำนวน 3,422 คดี คิดเป็นร้อยละ 26.68 จำนวนคดีอุบัติเหตุจราจรยานพาหนะเฉลี่ยเท่ากับ 55.19 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 9.24 คดี แบ่งเป็นจำนวนคดีอุบัติเหตุจราจรยานพาหนะ 2 ล้อ จำนวน 1,856 คดี คิดเป็นร้อยละ 27.15 จำนวนคดีอุบัติเหตุจราจรยานพาหนะ 2 ล้อ เฉลี่ยเท่ากับ 59.87 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 7.83 คดี และจำนวนคดีอุบัติเหตุจราจรจากยานพาหนะ 4 ล้อ จำนวน 1,566 คดี คิดเป็นร้อยละ 26.15 จำนวนคดีอุบัติเหตุจราจรยานพาหนะ 4 ล้อ เฉลี่ยเท่ากับ 50.52 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 8.20 คดี

สภ.วิชิต คดีอุบัติเหตุจราจรยานพาหนะยานพาหนะประเภท 2 ล้อ และ 4 ล้อ มีจำนวน 2,919 คดี คิดเป็นร้อยละ 22.76 จำนวนคดีอุบัติเหตุจราจรยานพาหนะเฉลี่ยเท่ากับ 47.08 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 12.08 คดี แบ่งเป็นจำนวนคดีอุบัติเหตุจราจรยานพาหนะ 2 ล้อ จำนวน 1,287 คดี คิดเป็นร้อยละ 18.82 จำนวนคดีอุบัติเหตุจราจรยานพาหนะ 2 ล้อ เฉลี่ยเท่ากับ 41.52 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 7.69 คดี และจำนวนคดีอุบัติเหตุจราจรจากยานพาหนะ 4 ล้อ จำนวน 1,632 คดี คิดเป็นร้อยละ 27.25 จำนวนคดีอุบัติเหตุจราจรยานพาหนะ 4 ล้อ เฉลี่ยเท่ากับ 52.65 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 13.18 คดี

สภ.เมืองภูเก็ต คดีอุบัติเหตุจราจรยานพาหนะยานพาหนะประเภท 2 ล้อ และ 4 ล้อ มีจำนวน 4,543 คดี คิดเป็นร้อยละ 35.42 จำนวนคดีอุบัติเหตุจราจรยานพาหนะเฉลี่ยเท่ากับ 73.27 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 25.72 คดี แบ่งเป็นจำนวนคดีอุบัติเหตุจราจรยานพาหนะ 2 ล้อ จำนวน 2,553 คดี คิดเป็นร้อยละ 37.34 จำนวนคดีอุบัติเหตุจราจรยานพาหนะ 2 ล้อเฉลี่ยเท่ากับ 82.35 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 24.03 คดี และจำนวนคดีอุบัติเหตุจราจรจากยานพาหนะ 4 ล้อ จำนวน 1,990 คดี คิดเป็นร้อยละ 33.23 จำนวนคดีอุบัติเหตุจราจรยานพาหนะ 4 ล้อ เฉลี่ยเท่ากับ 64.19 คดี และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 24.44 คดี

2. ผลการศึกษาตัวแบบการพยากรณ์จำนวนคดีอุบัติเหตุจราจรยานพาหนะ ประเภท 2 ล้อ และ 4 ล้อ ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต

ผลการศึกษาตัวแบบการพยากรณ์โดยการตรวจสอบค่าเฉลี่ยร้อยละความคลาดเคลื่อนสัมบูรณ์คดีอุบัติเหตุจราจรยานพาหนะประเภท 2 ล้อ และ 4 ล้อ โดยใช้ค่าคงที่ปรับเรียบ α จาก 0.1 ถึง 1.0 กับข้อมูลจำนวน 31 เดือน ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต แสดงดังตารางที่ 2

ตารางที่ 2 ค่าเฉลี่ยร้อยละความคลาดเคลื่อนสัมบูรณ์ (MAPE) คดีอุบัติเหตุจราจรยานพาหนะประเภท 2 ล้อ และ 4 ล้อ สถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต

ประเภทยานพาหนะ	MAPE ณ ค่าปรับเรียบ α									
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
สภ.กะรน										
2 ล้อ	13.869	14.293	14.644	15.167	15.528	15.859	16.424	16.960	17.679	18.267
4 ล้อ	17.838	17.623	17.703	18.246	18.988	19.923	21.015	22.133	23.459	24.954
สภ.ฉลอง										
2 ล้อ	12.587	10.390	9.899	9.770	9.782	9.902	10.241	10.793	11.399	12.019
4 ล้อ	16.187	15.732	16.032	16.356	16.785	17.234	17.589	18.067	18.674	19.426
สภ.วิชิต										
2 ล้อ	24.087	18.900	16.710	15.449	14.959	14.773	14.857	15.004	15.269	15.649
4 ล้อ	20.026	17.632	16.299	15.975	15.939	15.947	15.921	15.957	15.979	16.372
สภ.เมืองภูเก็ต										
2 ล้อ	22.962	23.400	23.438	24.133	24.807	25.379	25.818	26.199	26.741	27.370
4 ล้อ	37.658	37.786	38.290	39.479	40.831	43.037	45.976	48.822	51.573	54.252
สภ.อำเภอเมืองภูเก็ต (รวม 4 สถานี)										
2 ล้อ	8.721	9.155	9.583	9.895	10.131	10.301	10.492	10.595	10.769	10.980
4 ล้อ	10.510	9.627	9.718	10.155	10.583	11.026	11.522	12.018	12.674	13.675

จากตารางที่ 2 ผลการวิเคราะห์เทียบกับเกณฑ์การประเมิน (Lewis, 1982) การวัดความแม่นยำพยากรณ์จากค่าเฉลี่ยร้อยละความคลาดเคลื่อนสัมบูรณ์ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต พบว่า จำนวนคดีอุบัติเหตุจราจรยานพาหนะ ประเภท 2 ล้อ การพยากรณ์มีความแม่นยำมาก (MAPE< ร้อยละ 10) MAPE เท่ากับร้อยละ 8.721, 9.155, 9.583 และ 9.895 เมื่อค่าปรับเรียบ α อยู่ระหว่าง 0.1 ถึง 0.4 ตามลำดับ และจำนวนคดีอุบัติเหตุจราจรยานพาหนะ ประเภท 4 ล้อ การพยากรณ์มีความแม่นยำมาก (MAPE< ร้อยละ 10) MAPE เท่ากับร้อยละ 9.627 และ 9.718 เมื่อค่าปรับเรียบ α อยู่ระหว่าง 0.2 ถึง 0.3 ตามลำดับ การวัดความแม่นยำพยากรณ์จากค่าเฉลี่ยร้อยละความคลาดเคลื่อนสัมบูรณ์ต่ำสุด 4 สถานี ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต ดังนี้

สภ.กะรน จำนวนคดีอุบัติเหตุจราจรยานพาหนะ ประเภท 2 ล้อ และ 4 ล้อ การพยากรณ์มีความแม่นยำดี MAPE เท่ากับร้อยละ 13.869 และ 17.623 เมื่อค่าปรับเรียบ α เท่ากับ 0.1 และ 0.2 ตามลำดับ

สภ.ฉลอง จำนวนคดีอุบัติเหตุจราจรยานพาหนะ ประเภท 2 ล้อ การพยากรณ์มีความแม่นยำมาก MAPE เท่ากับร้อยละ 9.770 เมื่อค่าปรับเรียบ α เท่ากับ 0.4 และจำนวนคดีอุบัติเหตุจราจรยานพาหนะ ประเภท 4 ล้อ การพยากรณ์มีความแม่นยำดี MAPE เท่ากับร้อยละ 15.732 เมื่อค่าปรับเรียบ α เท่ากับ 0.2

สภ.วิชิต จำนวนคดีอุบัติเหตุจราจรยานพาหนะ ประเภท 2 ล้อ การพยากรณ์มีความแม่นยำดี (MAPE< ร้อยละ 10) MAPE เท่ากับร้อยละ 14.773 เมื่อค่าปรับเรียบ α เท่ากับ 0.6 และจำนวนคดีอุบัติเหตุจราจรยานพาหนะประเภท 4 ล้อ การพยากรณ์มีความแม่นยำดี MAPE เท่ากับร้อยละ 15.921 เมื่อค่าปรับเรียบ α เท่ากับ 0.7

สภ.เมืองภูเก็ต จำนวนคดีอุบัติเหตุจราจรยานพาหนะ ประเภท 2 ล้อ และ 4 ล้อ การพยากรณ์มีความแม่นยำใช้ได้ MAPE เท่ากับร้อยละ 22.962 และ 37.658 เมื่อค่าปรับเรียบ α เท่ากับ 0.1

สรุปและอภิปรายผล

การพยากรณ์จำนวนคดีอุบัติเหตุการจราจรยานพาหนะประเภท 2 ล้อ ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต เมื่อพิจารณาค่าเฉลี่ยร้อยละความคลาดเคลื่อนสัมบูรณ์ต่ำสุด เท่ากับร้อยละ 8.721 ณ ค่าคงที่ปรับเรียบ $\alpha = 0.1$ ตัวแบบการพยากรณ์ คือ $F_t = F_{t-1} + 0.1(A_{t-1} - F_{t-1})$ และการพยากรณ์จำนวนคดีอุบัติเหตุการจราจรยานพาหนะประเภท 4 ล้อ ของสถานีตำรวจภูธรในเขตอำเภอเมืองภูเก็ต จังหวัดภูเก็ต เมื่อพิจารณาค่าเฉลี่ยร้อยละความคลาดเคลื่อนสัมบูรณ์ต่ำสุด เท่ากับร้อยละ 9.627 ณ ค่าคงที่ปรับเรียบ $\alpha = 0.2$ ตัวแบบการพยากรณ์ คือ $F_t = F_{t-1} + 0.2(A_{t-1} - F_{t-1})$ จากผลการวิจัยข้างต้นแสดงว่าตัวแบบที่ได้เหมาะกับการพยากรณ์ระยะสั้นและให้ความสำคัญกับข้อมูลการเกิดอุบัติเหตุในอดีตมากกว่า

ผลการวิจัยสอดคล้องกับงานวิจัยของ รัตวัลย์ ศิริเลี้ยง (2560) ที่พบว่าพฤติกรรมการขับขี่ที่ไม่ปลอดภัยมีอิทธิพลทางตรงบวกต่อการเกิดอุบัติเหตุจากการขับขี่รถจักรยานยนต์ มีค่าสัมประสิทธิ์อิทธิพลเท่ากับ 0.77 อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 และสภาพที่ไม่ปลอดภัยของผู้ขับขี่เป็นปัจจัยที่มีอิทธิพลทางอ้อมบวกต่อการเกิดอุบัติเหตุ มีค่าสัมประสิทธิ์อิทธิพลเท่ากับ 0.76 อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 นอกจากนี้ งานวิจัยของศุภชัย วาสนานนท์, ดลฤดี วาสนานนท์ และนนนน วาสนานนท์ (2564) แสดงถึงความสัมพันธ์ระหว่างจำนวนประเภทรถยนต์กับจำนวนรถยนต์ที่เกิดอุบัติเหตุตั้งแต่ปี พ.ศ. 2551 ถึง พ.ศ. 2560 พบว่ารถยนต์โดยสารมีอัตราการเกิดอุบัติเหตุผันผวนเล็กน้อยก่อนจะเพิ่มขึ้นอย่างต่อเนื่องและสูงขึ้นจนถึงปี พ.ศ. 2559-2560 รถยนต์นั่งมีอัตราการเกิดอุบัติเหตุเพิ่มขึ้นอย่างต่อเนื่องและเพิ่มสูงขึ้นไปจากปี พ.ศ.2568 จนถึงปี พ.ศ. 2560 และปัจจัยด้านพฤติกรรมของผู้ใช้รถยนต์ที่ความรู้เท่าไม่ถึงการณ์มีผลต่อการเกิดอุบัติเหตุทางรถยนต์เพิ่มขึ้นอย่างต่อเนื่องและอย่างมาก ตั้งแต่ปี พ.ศ. 2558-2560

ข้อเสนอแนะ

1. การวิจัยครั้งต่อไปควรเก็บรวบรวมข้อมูลที่หลากหลายมากขึ้น เช่น ข้อมูลสภาพอากาศ สภาพถนน และปัจจัยด้านความปลอดภัยอื่น ๆ ที่อาจส่งผลต่อการเกิดอุบัติเหตุ เพื่อเพิ่มความแม่นยำของการพยากรณ์

2. พิจารณาใช้เทคนิคการพยากรณ์ที่ซับซ้อนขึ้น เช่น การวิเคราะห์อนุกรมเวลาขั้นสูง หรือการใช้โมเดลทางสถิติอื่น ๆ เช่น Box-Jenkins ที่อาจให้ผลลัพธ์ที่แม่นยำและครอบคลุมยิ่งขึ้น

3. หน่วยงานภาครัฐที่เกี่ยวข้องสามารถนำผลการวิจัยไปใช้ร่วมกับนโยบายด้านความปลอดภัยในการจราจร โดยเพิ่มการควบคุมจราจรในพื้นที่เสี่ยงสูง และจัดทำแผนป้องกันอุบัติเหตุอย่างเป็นระบบ

เอกสารอ้างอิง

บุญรักษา ปทิตญา และ ทองคำ จารี. (2561). การเปรียบเทียบประสิทธิภาพของแบบจำลองการเกิดอุบัติเหตุทางถนน โดยใช้เทคนิคอนุกรมเวลา. วารสารวิชาการ การจัดการเทคโนโลยี มหาวิทยาลัยราชภัฏมหาสารคาม, 4(2), 39–46.

ปิยภัค มหาโพธิ์, จิรวัตน์ เพลิงศรีทอง, นันทวรรณ พิทักษ์พานิช และ เทพฤทธิ์ รัตนปัญญากร. (2566). การประยุกต์ใช้แบบจำลองสภาพจราจรระดับจุลภาคสำหรับวางแผนบริหารจัดการจราจร : กรณีศึกษาการติดตั้งโครงเหล็กคร่อมทางบนทางพิเศษ. ใน การประชุมวิศวกรรมโยธาแห่งชาติ ครั้งที่ 28. มหาวิทยาลัยสงขลานครินทร์, สงขลา.

รัตวัลย์ ศิริเลี้ยง. (2560). การพัฒนาโมเดลเชิงสาเหตุการเกิดอุบัติเหตุจราจรของผู้ขับขี่รถจักรยานยนต์ในจังหวัดเลย. วารสารสาธารณสุขมหาวิทยาลัยบูรพา, 12(2), 16-26.

ศุภชัย วาสนานนท์, ดลฤดี วาสนานนท์ และ นนนน วาสนานนท์. (2564). แนวทางการลดอุบัติเหตุทางรถยนต์จากปัจจัยที่มีผลต่อการเกิดอุบัติเหตุ. วารสารมหาวิทยาลัยศิลปากร, 41(5), 86-97.

สรารัตน์ ฉายพงษ์ และ ภาวิณี เอี่ยมตระกูล. (2564). การศึกษาปัจจัยพฤติกรรมเสี่ยงที่ส่งผลต่อการเกิดอุบัติเหตุทางถนน. วารสารชุมชนวิจัยและพัฒนาสังคม, 15(3), 30-42.

สำนักงานนโยบายและแผนการขนส่งและจราจร สำนักแผนความปลอดภัย. (2566). รายงานการวิเคราะห์สถานการณ์อุบัติเหตุทางถนนของกระทรวงคมนาคม พ.ศ. 2565. สืบค้นเมื่อ 6 พฤศจิกายน 2567 จาก https://www.otp.go.th/uploads/tiny_uploads/PDF/2566-11/RoadAccidentAna2565_final.pdf.

สำนักอำนวยความปลอดภัย กรมทางหลวง กระทรวงคมนาคม. (2567). อุบัติเหตุจราจรบนทางหลวงแผ่นดิน 2566. สืบค้นเมื่อ 1 มีนาคม 2568 จาก https://bhs.doh.go.th/files/accident/66/report_accident_2566.pdf.

Greenwood, M., & Woods, H. M. (1919). The incidence of industrial accidents upon individuals: With special reference to multiple accidents. H.M. Stationery Office.

Heinrich, H. W. (1941). Industrial Accident Prevention. A Scientific Approach.

Jomnonkwao, S., Uttra, S., & Ratanavaraha, V. (2020). Forecasting Road Traffic Deaths in Thailand: Applications of Time-Series, Curve Estimation, Multiple Linear Regression, and Path Analysis Models. Sustainability, 12(1), 395.

https://doi.org/10.3390/su12010395.

Lewis. C.D. (1982). Industrial and Business Forecasting Methods. Butterworths. 2, 194-196.

กรณีศึกษาความคลาดเคลื่อนของเครื่องมือวัดอัตราการไหลแบบกังหันของก๊าซธรรมชาติในสถานีส่งจ่ายก๊าซธรรมชาติ

A Case Study on Measurement Errors of Turbine Flow Meters in Natural Gas Transmission Station

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บทคัดย่อ

การใช้ก๊าซธรรมชาติเป็นเชื้อเพลิงสำหรับยานพาหนะ (Natural Gas for Vehicles: NGV) มีการติดตั้งมิเตอร์สำหรับวัดปริมาณก๊าซ เช่น เครื่องมือวัดอัตราการไหลเชิงมวล (Coriolis Flow Meter) และเครื่องมือวัดอัตราการไหลแบบกังหัน (Turbine Flow Meter) ในสถานีส่งจ่ายก๊าซธรรมชาติเพื่อวัดปริมาณก๊าซที่ใช้ในการบริการ อย่างไรก็ตาม พบว่า ผลการวัดจากมิเตอร์ทั้งสองชนิดมีความแตกต่างเกินเกณฑ์ยอมรับ ซึ่งส่งผลกระทบต่อความเชื่อมั่นระหว่างลูกค้าและผู้ให้บริการ งานวิจัยนี้มีวัตถุประสงค์ในการศึกษาปัจจัยที่มีผลต่อความแตกต่างของผลการวัดปริมาณก๊าซจากมิเตอร์ทั้งสองชนิด เพื่อเพิ่มความเชื่อมั่นในการใช้งาน เริ่มจากการรวบรวมข้อมูลการวัดจากสถานีก๊าซตัวอย่าง การสำรวจพื้นที่การใช้งานจริง และการศึกษาลักษณะการใช้งาน รวมถึงการวิเคราะห์หลักการวัดและการคำนวณปริมาณก๊าซจากมิเตอร์ทั้งสองชนิด ผลการศึกษาแสดงให้เห็นว่า การใช้งานที่อัตราการไหลต่ำ (ต่ำกว่าค่ายอมรับของอุปกรณ์) และการติดตั้งอุปกรณ์ควบคุมความดันอยู่ด้านหลังเครื่องมือวัด ส่งผลให้เครื่องมือวัดอัตราการไหลแบบกังหัน วัดปริมาณก๊าซสูงกว่าเครื่องมือวัดอัตราการไหลเชิงมวล (เฉลี่ย 2.85%) นอกจากนี้ ความแตกต่างในหลักการวัดและตัวแปรที่ใช้ในการคำนวณยังส่งผลให้ผลลัพธ์แตกต่างกัน และอัตราการไหลสูญเสียภายในระบบท่อที่สูงขึ้นจากการติดตั้งมิเตอร์ในตำแหน่งที่มีอุปกรณ์หลายชิ้น ผลการศึกษาชี้ให้เห็นว่าเครื่องมือวัดอัตราการไหลแบบกังหัน มักให้ค่าปริมาณก๊าซที่สูงกว่าเครื่องมือวัดอัตราการไหลเชิงมวล การใช้เครื่องมือวัดอัตราการไหลเชิงมวลจะเหมาะสมกว่าสำหรับการอ้างอิงการวัดปริมาณก๊าซของสถานีส่งจ่ายก๊าซธรรมชาติ

เพื่อแก้ปัญหาความคลาดเคลื่อนจากการวัดอัตราการไหลแบบกังหัน ควรพิจารณา เปลี่ยนขนาดของอุปกรณ์วัดให้เหมาะสมและพิจารณาปรับการติดตั้งอุปกรณ์ควบคุมความดันให้อยู่ด้านหน้าของเครื่องมือวัดอัตราการไหลแบบกังหัน เพื่อควบคุมให้ความดันในการวัดความดันขณะวัดคงที่

คำสำคัญ: การใช้ก๊าซธรรมชาติเป็นเชื้อเพลิงสำหรับยานพาหนะ, เครื่องมือวัดอัตราการไหลเชิงมวล, เครื่องมือวัดอัตราการไหลแบบกังหัน

Abstract

The use of natural gas as a fuel for vehicles (NGV) involves the installation of meters such as Coriolis flow meter and Turbine flow meter to measure gas volume at natural gas distribution stations. However, it has been found that the measurements from these two types of meter sometimes differ above acceptable limits, which affects the trust between customers and service providers. This research aims to investigate the factors influencing the discrepancies in gas volume measurements between the two types of meter, and therefore to improve confidence in their usage. The study begins by collecting measurement data from sample gas stations, surveying usage areas, and analyzing operational characteristics. It also examines the measurement principles and gas volume calculation methods of both meter types. The results reveal that using both meters at low flow rates and with sudden start-stop operations results in higher gas volumes readings from the Turbine flow meter than the Coriolis flow meter due to the inertia effect after stopping. Additionally, the differences in the measurement principles and the variables used in the calculations lead to differing results, where the higher flow losses within the pipe system due to the installation of meters with many fittings may affect the measurements. The study concludes that the Turbine flow meter tends to show higher gas volume readings than the Coriolis flow meter (average 2.85%), and therefore, the use of Coriolis flow meter is more suitable for referencing in gas volume measurements at NGV stations. To address the issue of measurement discrepancies in turbine flow meter readings, it is advisable to consider resizing the measurement device to better suit the application. Additionally, repositioning the pressure control equipment to be upstream of the Turbine flow meter should be taken into account. This adjustment helps maintain a stable pressure during the measurement process.

Keywords: NGV, Coriolis flow meter, Turbine flow meter

บทนำ

สถานีก๊าซธรรมชาติสำหรับยานยนต์เป็นสถานีบริการที่จัดจำหน่ายก๊าซธรรมชาติเกิดจากการนำก๊าซธรรมชาติ ส่วนใหญ่เป็นก๊าซมีเทน มาอัดจนมีความดันสูง ประมาณ 3,000 ปอนด์/ตารางนิ้ว แล้วนำไปเก็บในถังบรรจุที่มีความแข็งแรงทนทานสูง เพื่อนำมาเป็นเชื้อเพลิงทางเลือกใช้ทดแทนน้ำมันเบนซินหรือดีเซลในรถยนต์ เพราะมีราคาที่ถูกกว่าและมีความปลอดภัยสูง (ก๊าซธรรมชาติสำหรับยานยนต์, 2568) สถานีจะมีอุปกรณ์และเครื่องมือทันสมัยเพื่อรองรับการเติมก๊าซธรรมชาติให้กับยานยนต์อย่างมีประสิทธิภาพและปลอดภัย อุปกรณ์หลักประกอบด้วย เครื่องปั๊มก๊าซธรรมชาติสำหรับยานยนต์ที่มีความสามารถในการจ่ายก๊าซธรรมชาติให้กับรถยนต์อย่างแม่นยำ, ระบบการบีบอัดก๊าซเพื่อเพิ่มความดันของก๊าซสำหรับเก็บในถังน้ำมันรถยนต์ และระบบควบคุมและตรวจสอบการเติมก๊าซ ที่ตรวจจับปริมาณก๊าซที่เติมให้รถแต่ละคันพร้อมการควบคุมความปลอดภัยอย่างเข้มงวด เช่น การตรวจสอบการรั่วไหลของก๊าซและความดัน เพื่อป้องกันอันตรายจากอุบัติเหตุ

นอกจากนี้ยังมีระบบวัดและคำนวณปริมาณก๊าซของผู้ให้บริการ ซึ่งประกอบด้วย ส่วนควบคุมและส่วนวัดปริมาตรก๊าซธรรมชาติ ทีติดตั้งมิเตอร์ เช่น เครื่องมือวัดอัตราการไหลเชิงมวล (Coriolis Flow Meter) และเครื่องมือวัดอัตราการไหลแบบกังหัน (Turbine Flow Meter) เพื่อวัดปริมาณก๊าซที่เติมให้แก่ยานยนต์ อย่างไรก็ตาม พบว่าผลการวัดจากมิเตอร์ทั้งสองชนิดมีความแตกต่างกันเกินเกณฑ์ยอมรับ (2%) ซึ่งส่งผลกระทบต่อความเชื่อมั่นระหว่างลูกค้าและผู้ให้บริการ

งานวิจัยนี้จึงมุ่งเน้นการศึกษาปัจจัยที่มีผลต่อความแตกต่างในการวัดปริมาณก๊าซจากมิเตอร์ทั้งสองชนิด โดยรวบรวมข้อมูลการวัดจากสถานีก๊าซตัวอย่างและวิเคราะห์ปัจจัยต่าง ๆ ที่มีผลต่อความแตกต่าง รวมถึงการสำรวจพื้นที่การใช้งานจริง การวิเคราะห์ลักษณะการใช้งาน และการศึกษาเกี่ยวกับรูปแบบการวัดและการคำนวณปริมาณก๊าซของมิเตอร์ทั้งสองชนิด รวมไปถึงการคำนวณความดันสูญเสียภายในระบบท่อ

วัตถุประสงค์ของการวิจัย

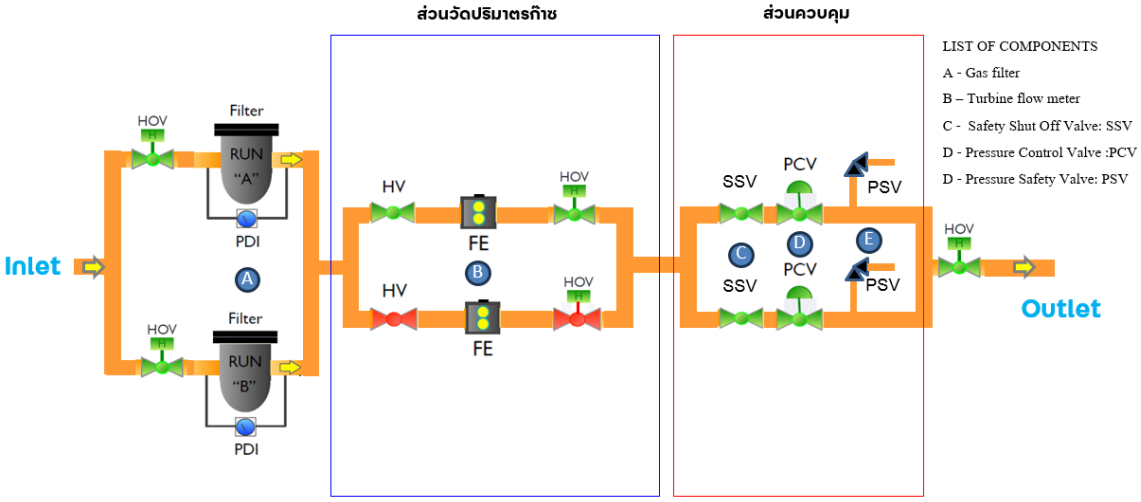
1. ศึกษาความแตกต่างของการวัดปริมาณก๊าซธรรมชาติจากเครื่องมือวัดอัตราการไหลเชิงมวลและเครื่องมือวัดอัตราการไหลแบบกังกัน
2. หาแนวทางหรือวิธีการเพื่อนำมาใช้ในการแก้ปัญหาความแตกต่างจากการวัดปริมาณที่ได้จากเครื่องมือวัดอัตราการไหลเชิงมวล และเครื่องมือวัดอัตราการไหลแบบกังกัน

แนวคิด ทฤษฎี กรอบแนวคิด

ก๊าซธรรมชาติ (Natural Gas) คือ ปิโตรเลียมชนิดหนึ่งซึ่งเกิดจากซากพืชซากสัตว์ที่ทับถมกันภายใต้ความร้อนหลายร้อยล้านปี และแรงกดดันมหาศาลจนแปรสภาพเป็นปิโตรเลียมที่อยู่ในสถานะก๊าซ ซึ่งส่วนใหญ่ประกอบด้วย ก๊าซมีเทน ประมาณร้อยละ 70 ขึ้นไป (NGR NATURAL GAS RETAIL, 2568)

สำหรับก๊าซธรรมชาติสำหรับรถยนต์ คือ รูปแบบของการใช้ก๊าซธรรมชาติเป็นเชื้อเพลิง สำหรับยานยนต์ ส่วนใหญ่เป็นก๊าซมีเทน เมื่อขนส่งก๊าซธรรมชาติมาทางท่อ จะส่งเข้าสถานีบริการ และเครื่องเพิ่มความดันก๊าซ ณ สถานีบริการจะรับก๊าซธรรมชาติที่มีความดันต่ำ จากระบบท่อมาอัดเพิ่มความดัน จากนั้นก็จะสามารถเติมใส่ถังเก็บก๊าซฯ ของรถยนต์ต่อไป

สถานีวัดและควบคุมความดัน (Metering and Regulation Station) ซึ่งสถานีก๊าซแบ่งเป็นสองส่วนหลัก คือ ส่วนควบคุม และส่วนวัดปริมาตรก๊าซ ตามภาพที่ 1



ภาพที่ 1 ตัวอย่างแผนผังสถานีควบคุมและวัดปริมาตรก๊าซธรรมชาติ (MRS.)

สถานีก๊าซธรรมชาติประกอบด้วยอุปกรณ์ที่สำคัญ ดังนี้

(1) ไส้กรองก๊าซซึ่งเป็นอุปกรณ์ที่ใช้กรองฝุ่นหรือสิ่งสกปรกที่ติดมากับก๊าซในระบบท่อ โดยสามารถกรองฝุ่นขนาดที่ใหญ่กว่า 5 ไมโครเมตร (ประสิทธิภาพสูงถึง 98%) เพื่อให้มั่นใจได้ว่าไม่เกิดการสะสมของฝุ่นในระบบ และยังสามารถรักษาความสะอาดในระบบท่อได้ดีขึ้น

(2) อุปกรณ์ควบคุมความดันซึ่งเป็นอุปกรณ์ที่ใช้ลดความดันก๊าซให้เหมาะสมกับการใช้งาน โดยสามารถควบคุมและรักษาความดันให้คงที่ตามที่ต้องการ ซึ่งจะถูกตั้งค่าให้สอดคล้องกับสัญญาการซื้อขายก๊าซ โดยการลดความดันของอุปกรณ์ควบคุมความดัน ควรปรับให้ทำงานอยู่ในช่วง 20-80% ของความดันสูงสุดที่ใช้งาน (Maximum Operating Working Pressure)

(3) วาล์วนิรภัยแบบปิด (Safety Shut Off Valve: SSV) ซึ่งเป็นอุปกรณ์ที่มีหน้าที่ในการตัดก๊าซเพื่อป้องกันไม่ให้ความดันก๊าซด้านขาออก (Outlet) เกินกว่าค่าที่สามารถรับได้ของจุดใช้งาน เพื่อปกป้องระบบท่อก๊าซธรรมชาติ และอุปกรณ์ของลูกค้าเสียหาย

(4) วาล์วระบายความดัน (Pressure Safety Valve: PSV) ซึ่งเป็นอุปกรณ์ที่ช่วยลดความดันของสถานีก๊าซธรรมชาติเมื่อความดันเกินกว่าค่าที่กำหนด โดยวิธีการปล่อยสู่บรรยากาศ โดยสถานีก๊าซยังสามารถใช้งานได้ปกติ ซึ่งต่างกับวาล์วนิรภัยแบบปิด ซึ่งสถานีก๊าซธรรมชาติจะถูกตัดไม่สามารถใช้ก๊าซได้

(5) เครื่องมือวัดอัตราการไหล (Meter) ซึ่งเป็นอุปกรณ์ที่ใช้วัดปริมาณก๊าซธรรมชาติ สำหรับการซื้อขาย ซึ่งจะใช้เพื่อการบันทึก และตรวจสอบปริมาณก๊าซที่ถูกใช้งาน โดยชนิดของมิเตอร์ที่ใช้งานจะขึ้นอยู่กับการตกลงกันในสัญญาซื้อขายก๊าซ โดยต้องมีค่าความแม่นยำ (Accuracy) เป็นไปตามมาตรฐานและได้รับการสอบเทียบก่อนนำไปใช้งานและติดตั้ง

(6) อุปกรณ์คำนวณปริมาณก๊าซ ซึ่งเป็นชุดอุปกรณ์ใช้วัด และบันทึกปริมาตรก๊าซในรูปแบบของข้อมูลอิเล็กทรอนิกส์ ซึ่งติดตั้งอยู่กับเครื่องมือวัดอัตราการไหล โดยรับสัญญาณจากตัวมิเตอร์แล้วนำมาคำนวณปริมาณก๊าซธรรมชาติร่วมกับองค์ประกอบต่าง ๆ เช่น ค่าความดันและค่าอุณหภูมิ เป็นต้น

เครื่องมือที่ใช้ในการวัดปริมาณก๊าซธรรมชาติ โดยส่วนใหญ่สถานีก๊าซจะติดตั้งเครื่องมือวัดอัตราการไหล 2 ชนิด คือเครื่องมือวัดอัตราการไหลเชิงมวล และเครื่องมือวัดอัตราการไหลแบบกังหัน สำหรับใช้ในการวัดปริมาณก๊าซธรรมชาติ

(1) เครื่องมือวัดอัตราการไหลเชิงมวล เป็นเครื่องมือที่ใช้วัดอัตราการไหลของมวลของของไหล โดยการวัดการเคลื่อนที่ของท่อที่เกิดจากผล Coriolis Effect ซึ่งเครื่องมือวัดอัตราการไหลเชิงมวลทำงานบนหลักการของแรงดัดงอที่เรียกว่า “Coriolis Force” เมื่ออนุภาคของของไหลภายในวัตถุที่กำลังหมุนจะเคลื่อนที่ไปในทิศทางไปทางหรือออกจากศูนย์กลางของการหมุน อนุภาคนั้นจะสร้างแรงเฉื่อย เรียกว่า “Coriolis Force” ที่กระทำต่อวัตถุทำให้เกิดการสั่นขึ้น ในกรณีของ เครื่องมือวัดอัตราการไหลเชิงมวล วัตถุมีการสั่นจะเป็นท่อที่ของไหลไหลผ่าน (AGA11, 2013) โดยเครื่องมือวัดอัตราการไหลเชิงมวลสามารถวัดปริมาณได้แบบสองทิศทาง ซึ่งแรงเฉื่อยที่เกิดขึ้นจะเป็นสัดส่วนกับอัตราการไหลของมวล โดยมีสมการแปลงอัตราการไหลที่วัดได้จาก เครื่องมือวัดอัตราการไหลเชิงมวล ในหน่วยกิโลกรัม เป็นอัตราการไหลที่ สภาวะมาตรฐาน (ที่ความดันสัมบูรณ์ เท่ากับ 101.56 kPa และ อุณหภูมิ 288.7 K) ดังสมการที่ (1)

$$Q_b = \frac{Q_m}{G_r \times \rho_b} \quad (1)$$

โดยที่ Q_b คือ อัตราการไหลเชิงปริมาตรของก๊าซที่สภาวะมาตรฐาน (m^3/hr), Q_m คือ อัตราการไหลเชิงมวลของก๊าซ (kg/hr), G_r คือ ความหนาแน่นสัมพัทธ์ของก๊าซที่สภาวะมาตรฐาน, ρ_b คือความหนาแน่นของก๊าซที่สภาวะมาตรฐาน (kg/m^3)

(2) เครื่องมือวัดอัตราการไหลแบบกังหัน เป็นมิเตอร์ที่วัดการไหลโดยการนับรอบการหมุนของโรเตอร์พร้อมใบพัดเมื่อมีของไหลไหลผ่าน ซึ่งจะหมุนตามสัดส่วนของความเร็วการไหลของก๊าซ (AGA7, 2006) ปริมาตรก๊าซจะวัดได้จากการนับจำนวนรอบการหมุนของโรเตอร์ โดยจำนวนรอบจะถูกถ่ายโอนไปยังการอ่านข้อมูลดิจิทัลหรือสัญญาณอิเล็กทรอนิกส์เพื่อวัดความถี่ของการหมุนของใบพัดและแปลงเป็นปริมาณต่อไป สามารถแปลงเป็นปริมาณที่สภาวะมาตรฐานหรือสภาวะตามเงื่อนไขสัญญาโดยใช้อุปกรณ์เสริมในการแปลงปริมาณ โดยค่าความแม่นยำของการวัดปริมาณจากเครื่องมือวัดอัตราการไหลแบบกังหันมีค่าเท่ากับ ± 1.0% ถึง ± 1.5 % โดยมีสมการแปลงอัตราการไหลที่วัดได้จาก เครื่องมือวัดอัตราการไหลแบบกังหัน ที่สภาวะการไหลจริง เป็นอัตราการไหลที่สภาวะมาตรฐาน ดังสมการที่ (2)

$$Q_b = Q_f \times \frac{P_f}{P_b} \times \frac{T_b}{T_f} \times \frac{Z_b}{Z_f} \quad (2)$$

โดยที่ Q_b คือ อัตราการไหลเชิงปริมาตรของก๊าซที่สภาวะมาตรฐาน (m^3/hr), Q_f คือ อัตราการไหลเชิงปริมาตรของก๊าซที่การไหลจริง (m^3/hr), P_b คือ ค่าความดันสัมบูรณ์ของก๊าซที่สภาวะมาตรฐาน (Pa), P_f คือ ค่าความดันสัมบูรณ์ของก๊าซที่การไหลจริง (Pa), T_b คือ ค่าอุณหภูมิสัมบูรณ์ของก๊าซที่สภาวะมาตรฐาน (K), T_f คือ ค่าอุณหภูมิสัมบูรณ์ของก๊าซที่การไหลจริง (K), Z_bสัมประสิทธิ์ความกดของก๊าซที่สภาวะมาตรฐาน, Z_fสัมประสิทธิ์ความกดของก๊าซที่การไหลจริง

วิธีดำเนินการวิจัย

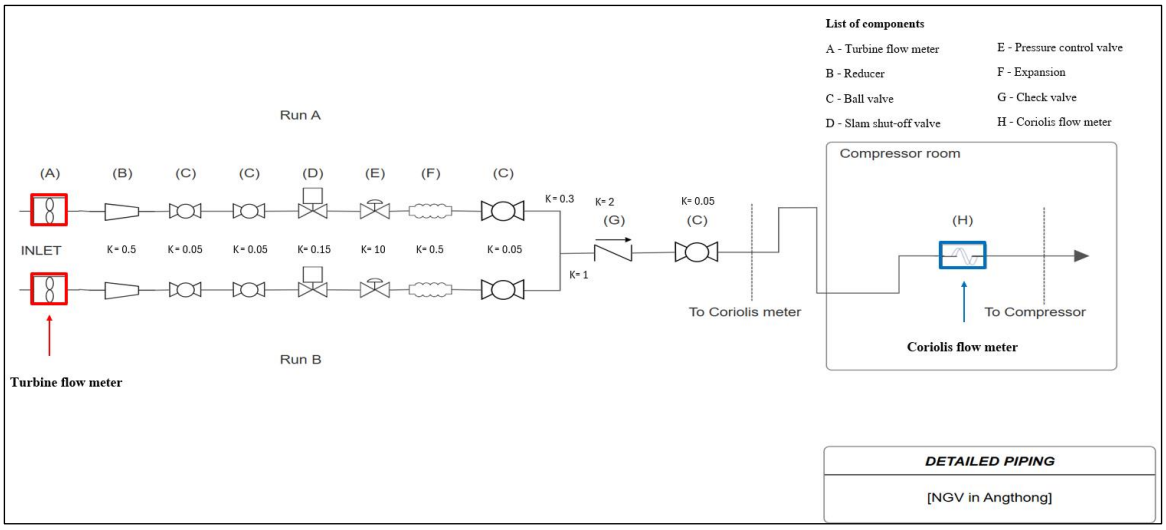
(1) รวบรวมข้อมูลการวัดปริมาณก๊าซธรรมชาติของเครื่องมือวัดอัตราการไหลเชิงมวลและแบบกังหันจากสถานีก๊าซตัวอย่าง ตั้งแต่วันที่ 1 มกราคม 2567 – 30 มิถุนายน 2567

(2) สำรวจสถานีก๊าซธรรมชาติ เข้าสำรวจพื้นที่และสังเกตลักษณะการใช้งานของสถานีก๊าซตัวอย่างดังภาพที่ 2 เพื่อนำมาใช้ในการวิเคราะห์ปัจจัยที่มีผลต่อความแตกต่างของการวัดของเครื่องมือวัดอัตราการไหลทั้งสองชนิด



ภาพที่ 2 การเข้าสำรวจสถานีก๊าซธรรมชาติ

(3) นำข้อมูลที่ได้มาวิเคราะห์ เพื่อหาสาเหตุของความแตกต่างของการวัดปริมาณก๊าซธรรมชาติจากอุปกรณ์วัดทั้งสองชนิด รวมถึงการคำนวณความดันสูญเสียภายในระบบท่อ เนื่องจากตำแหน่งการติดตั้งอุปกรณ์การวัดที่แตกต่างกันและผ่านอุปกรณ์หลายชนิด ดังภาพที่ 3 ซึ่งเครื่องมือวัดอัตราการไหลแบบกังหันติดตั้งอยู่ด้านหน้าของเครื่องมือวัดอัตราการไหลเชิงมวล และระหว่างเครื่องมือวัดทั้งสอง ยังพบว่ามีอุปกรณ์หลายชนิดถูกติดตั้งอยู่ในระบบท่อ ซึ่งประกอบด้วย ข้อลดขนาดท่อ (Reducer), บอลวาล์ว (Ball Valve), วาล์วนิรภัยแบบปิด (Salm Shut-0ff Valve), อุปกรณ์ควบคุมความดัน (Pressure Control Valve), ข้อขยายขนาดท่อ (Expansion) และวาล์วกันกลับ (Check Valve) จึงทำให้เกิดความดันสูญเสียภายในระบบท่อหลังผ่านอุปกรณ์วัดอัตราการไหลแบบกังหัน โดยมีสมการคำนวณการสูญเสียหลัก (Major Loss), การสูญเสียรอง (Minor Loss) และความดันสูญเสียภายในระบบท่อ ดังสมการที่ (3), (4) และ (5) ตามลำดับ



ภาพที่ 3 อุปกรณ์ภายในสถานีก๊าซตัวอย่าง

$$H_{L,major} = f \times \frac{L}{D} \times \frac{V}{2g} \quad (3)$$

โดยที่ $H_{L,major}$ คือ การสูญเสียหลัก (m), f คือ แฟคเตอร์ความเสียดทาน (Friction Factors) ซึ่งจะเปลี่ยนแปลงตามค่าความเร็วของไหลภายในท่อ, L คือ ความยาวท่อ (m), D คือ เส้นผ่านศูนย์กลางภายในท่อ (m), V คือ ความเร็วของไหลภายในท่อ (m/s), g คือ ค่าคงตัวความโน้มถ่วงสากล (m/s^2)

$$H_{L,minor} = K \times \frac{V^2}{2g} \quad (4)$$

โดยที่ $H_{L,minor}$ คือ การสูญเสียรอง (m), K คือ ค่าตัวประกอบการสูญเสียของอุปกรณ์ทั้งหมดในระบบท่อ, V คือ ความเร็วของไหลภายในท่อ (m/s), g คือ ค่าคงตัวความโน้มถ่วงสากล (m/s^2) โดยอ้างอิงค่าตัวประกอบการสูญเสีย (K) จาก Munson, Young, Okiishi and Huebsch (2010)

$$\Delta P = \rho g H_L \quad (5)$$

โดยที่ ΔP คือ ความดันสูญเสีย (Pa), ρ คือ ความหนาแน่นของก๊าซ (kg/m^3) , g คือ ค่าคงตัวความโน้มถ่วงสากล (m/s^2), H_L คือ การสูญเสีย (m)

(4) วิเคราะห์ผลการศึกษาและเสนอแนวทางแก้ไขปัญหาความแตกต่างของการวัดก๊าซธรรมชาติด้วยเครื่องมือวัดอัตราการไหลเชิงมวลและแบบกังหัน

ผลการวิจัย

จากการรวบรวมข้อมูลตั้งแต่วันที่ 1 มกราคม 2567 – 30 มิถุนายน 2567 พบว่าการใช้งานก๊าซธรรมชาติเฉลี่ยของสถานีตัวอย่าง ใช้งานต่ำกว่าค่าต่ำสุดของการวัดปริมาณก๊าซที่เครื่องมือวัดอัตราการไหล

เชิงมวลและแบบกังหันสามารถรับรองผลได้ (Q_{min}) ดังตารางที่ 1 เครื่องวัดอัตราการไหลเชิงมวลและแบบกังหันมีค่า Q_{min} อยู่ที่ 800 kg/hr และ 8 m^3/hr ตามลำดับ แต่การใช้งานส่วนใหญ่มีค่าอัตราการไหลเฉลี่ยอยู่ที่ 300 kg/hr สำหรับเครื่องมือวัดอัตราการไหลเชิงมวล และอยู่ที่ 7 m^3/hr สำหรับเครื่องมือวัดอัตราการแบบกังหัน

ตารางที่ 1 อัตราการไหลเฉลี่ยเปรียบเทียบกับอัตราการไหลต่ำสุดที่เครื่องมือวัดรองรับ

เครื่องมือวัด	อัตราการไหลเฉลี่ย	อัตราการไหลต่ำสุดที่เครื่องมือวัดรองรับ	ย่านความดันสัมบูรณ์ของเครื่องมือวัดอัตราการไหล
- เครื่องมือวัดอัตราการไหลเชิงมวล	300 kg/hr	800 kg/hr	0 – 11 MPa
- เครื่องมือวัดอัตราการแบบกังหัน	7 m^3/hr	8 m^3/hr	0 – 10 MPa

นอกจากนี้จากการวิเคราะห์ข้อมูลการวัดปริมาณก๊าซธรรมชาติด้วยเครื่องมือวัดอัตราการไหลเชิงมวลและแบบกังหัน พบว่า ปริมาณที่วัดได้จากเครื่องมือวัดอัตราการไหลแบบกังหันมีค่ามากกว่าปริมาณที่วัดได้จากเครื่องมือวัดอัตราการไหลเชิงมวล ดังแสดงในตารางที่ 2 ซึ่งในเดือนกุมภาพันธ์ 2567 ค่าแตกต่างที่วัดได้จากเครื่องมือวัดทั้งสองมีค่ามากที่สุดซึ่งเท่ากับ 5.91% และในเดือนพฤษภาคม 2567 ค่าแตกต่างที่วัดได้จากเครื่องมือวัดทั้งสองมีค่าน้อยที่สุดซึ่งเท่ากับ 1.09% โดยมีค่าเฉลี่ยความแตกต่างของการวัดปริมาณก๊าซจากข้อมูลตั้งแต่วันที่ 1 มกราคม 2567 – 30 มิถุนายน 2567 เท่ากับ 2.85% โดยค่าดังกล่าวเป็นปริมาณก๊าซที่วัดได้จากเครื่องมือวัดอัตราการไหลเชิงมวลและแบบกังหันที่สภาวะมาตรฐาน (ที่ความดันสัมบูรณ์ เท่ากับ 101.56 kPa และอุณหภูมิ 288.7 K)

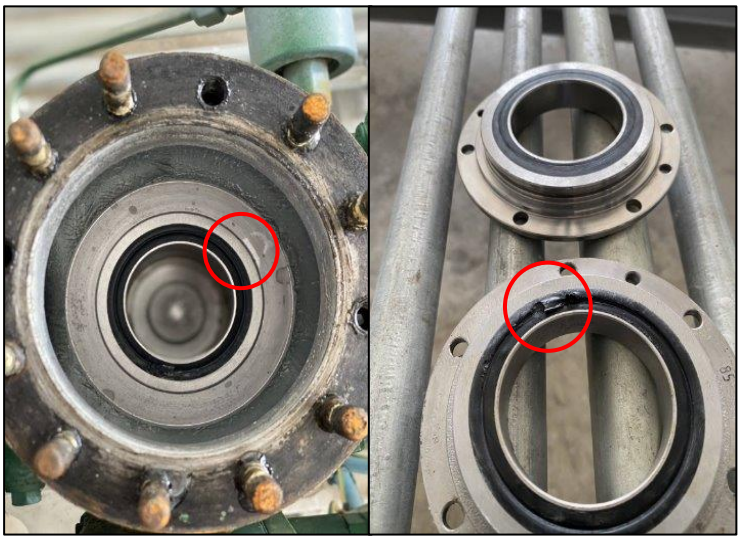
ตารางที่ 2 ผลการเปรียบเทียบปริมาณก๊าซธรรมชาติที่วัดได้จากเครื่องมือวัดอัตราการไหลเชิงมวล และเครื่องมือวัดอัตราการไหลแบบกังหัน ที่สภาวะมาตรฐาน

เดือน	ปริมาณที่วัดได้จากเครื่องมือวัดอัตราการไหลเชิงมวลที่ความดันสัมบูรณ์เฉลี่ย 1.5 MPa (m^3)	ปริมาณที่วัดได้จากเครื่องมือวัดอัตราการไหลแบบกังหันที่ความดันสัมบูรณ์เฉลี่ย 5.7 MPa (m^3)	%ความแตกต่าง
มกราคม	280845	289072	2.93
กุมภาพันธ์	253795	268784	5.91
มีนาคม	282182	286207	1.43
เมษายน	282351	289265	2.45

ตารางที่ 2 (ต่อ)

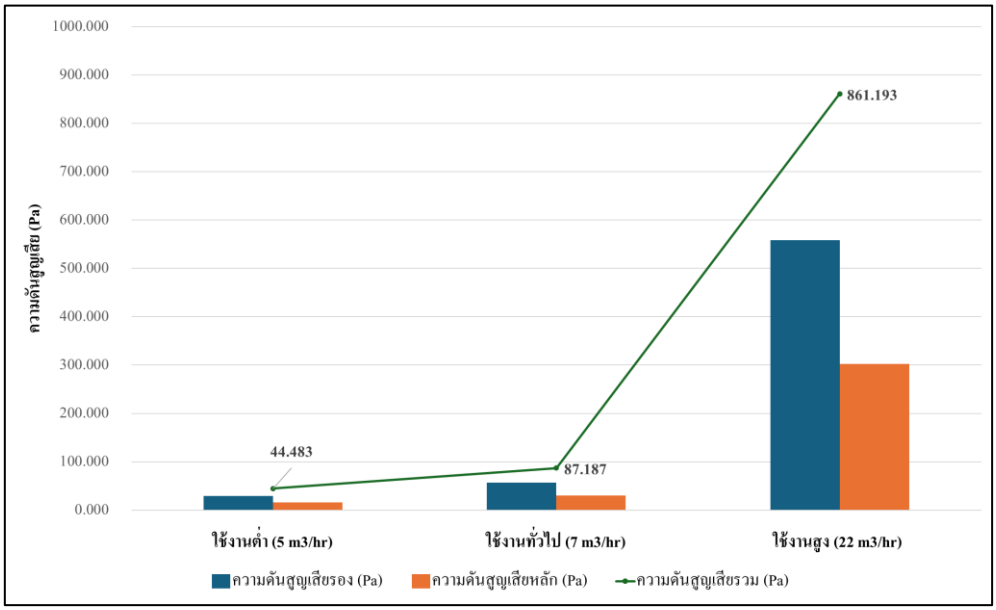
เดือน	ปริมาณที่วัดได้จากเครื่องมือวัดอัตราการไหลเชิงมวลที่ความดันสัมบูรณ์เฉลี่ย 1.5 MPa (m^3)	ปริมาณที่วัดได้จากเครื่องมือวัดอัตราการไหลแบบกังหันที่ความดันสัมบูรณ์เฉลี่ย 5.7 MPa (m^3)	%ความแตกต่าง
พฤษภาคม	306761	310111	1.09
มิถุนายน	276738	287256	3.80
ผลรวม	1682671	1730695	2.85

จากการเข้าสำรวจพื้นที่และสังเกตลักษณะการใช้งาน พบว่าการใช้งานก๊าซธรรมชาติของสถานีก๊าซตัวอย่างเป็นการใช้งานแบบเปิด-ปิดกะทันหัน ซึ่งคือมีการเดินเครื่องอัดก๊าซ (Compressor) ในช่วงที่มีลูกค้าเข้ามาใช้งานที่สถานี และปิดเครื่องเมื่อใช้งานแล้วเสร็จ นอกจากนี้ ยังมีการปล่อยก๊าซของวาล์วระบายความดันในบางครั้งที่บริเวณระหว่างเครื่องวัดอัตราการไหลแบบกังหัน และเครื่องมือวัดอัตราการไหลเชิงมวลไหล เนื่องจากค่าความดันในระบบท่อมีค่าสูงกว่าค่าที่ตั้งไว้ในวาล์วระบายความดัน (17.2 Barg) นอกจากนี้ ยังพบว่ามีการปล่อยก๊าซของวาล์วระบายความดันที่อยู่บริเวณด้านหลังเครื่องมือวัดอัตราการไหลแบบกังหัน นอกจากจะทำการปล่อยก๊าซเพื่อระบายความดันแล้ว ยังพบว่าการระบายก๊าซออกจากระบบท่อเกิดจากอุปกรณ์ Seat Valve ภายในอุปกรณ์ควบคุมความดันชำรุด ดังภาพที่ 4 ทำให้อุปกรณ์ควบคุมความดัน ไม่สามารถควบคุมความดันได้ตามที่กำหนด ก๊าซเกิดการไหลซึมผ่าน Seat Valve และสะสมภายในท่อ เมื่อมีการสะสมของก๊าซในปริมาณมากจะทำให้ค่าความดันในท่อสูงขึ้นและเมื่อเกินความดันที่วาล์วระบายความดันกำหนดส่งผลให้เกิดการปลดปล่อยก๊าซออกสู่บรรยากาศ



ภาพที่ 4 อุปกรณ์ Seat Valve ชำรุด

นอกจากนี้ จากผลการสำรวจระบบท่อส่งก๊าซภายในสถานีก๊าซพบว่า เครื่องมือวัดอัตราการไหลแบบกังหันติดตั้งอยู่ด้านหน้าของเครื่องมือวัดอัตราการไหลเชิงมวล และระหว่างเครื่องมือวัดทั้งสองมีอุปกรณ์หลายชนิดถูกติดตั้งอยู่ จากความแตกต่างของข้อมูลการวัดที่ได้จากเครื่องมือวัดภายในช่วงระยะเวลา 6 เดือน ปรากฏว่า ปริมาณการไหลที่ได้จากเครื่องมือวัดอัตราการไหลแบบกังหันมักมีค่าสูงกว่าปริมาณการวัดที่ได้จากเครื่องมือวัดอัตราการไหลเชิงมวล เนื่องจากตำแหน่งการติดตั้งอุปกรณ์วัดผ่านอุปกรณ์หลายชนิด ซึ่งทำให้เกิดความดันสูญเสียภายในระบบท่อหลังผ่านอุปกรณ์วัดอัตราการไหลแบบกังหัน ความดันสูญเสียภายในระบบท่อจึงอาจเป็นตัวแปรที่สำคัญ ดังนั้นการวิเคราะห์ความดันสูญเสียภายในระบบท่อจึงศึกษาที่อัตราการไหล 3 ช่วงคือ ช่วงใช้งานต่ำ (5 m^3/hr), ช่วงใช้งานทั่วไป (7 m^3/hr) และช่วงใช้งานสูง (22 m^3/hr) จากผลการวิเคราะห์ พบว่าความดันสูญเสียภายในระบบท่อเกิดจากระยะทางระหว่างเครื่องมือวัดอัตราการไหลเชิงมวล และแบบกังหันและอุปกรณ์ที่ถูกติดตั้งภายในระบบท่อในสถานีเกิดจากผลของความดันสูญเสียรอง (Minor loss) มากกว่าผลของความดันสูญเสียหลัก (Major loss) ดังแสดงในภาพที่ 5 โดยผลรวมความดันสูญเสียจะเพิ่มขึ้นตามอัตราการไหลที่เพิ่มขึ้น ที่การใช้งานต่ำมีค่าผลรวมสูญเสียรวมเท่ากับ 44.483 Pa การใช้งานทั่วไปมีค่าผลรวมความดันสูญเสียรวมเท่ากับ 87.187 Pa และการใช้งานสูงมีค่าผลรวมความดันสูญเสียรวมเท่ากับ 861.193 Pa



ภาพที่ 5 กราฟแสดงความดันสูญเสียภายในระบบท่อ ณ อัตราการไหลต่าง ๆ

สรุปและอภิปรายผล

จากการศึกษาจึงสรุปได้ว่าจากข้อมูลการใช้งานของเครื่องมือวัดอัตราการไหลแบบกังหัน ซึ่งเป็นการวัดค่าก๊าซธรรมชาติและเครื่องมือวัดอัตราการไหลเชิงมวล ทำให้ทราบว่าภายในระยะเวลา 6 เดือน ตั้งแต่วันที่ 1 มกราคม 2567 – 30 มิถุนายน 2567 มีความแตกต่างกันอยู่ในช่วง 1.09% - 5.91% ซึ่งเครื่องมือวัดอัตราการไหลแบบกังหันมีค่าสูงกว่าเครื่องมือวัดอัตราการไหลเชิงมวล ทั้งนี้เนื่องจากเครื่องมือ

วัดติดตั้งอยู่ก่อนเครื่องมือวัดอัตราการไหลเชิงมวล จึงเป็นการวัดที่ถูกต้อง แต่จะเห็นว่าความแตกต่างในบางเดือนสูงถึง 5.91% ซึ่งอาจเกิดจากปัจจัยต่าง ๆ ดังนี้

(1) การใช้งานก๊าซธรรมชาติเฉลี่ยของสถานีก๊าซตัวอย่าง ใช้งานต่ำกว่าค่าอัตราการไหลต่ำสุดที่เครื่องมือวัดทั้งสองชนิดรองรับ ซึ่งส่งผลต่อความแม่นยำของอุปกรณ์วัดอัตราการไหลทั้งสองชนิด

(2) การติดตั้งอุปกรณ์ภายในสถานีที่ไม่เหมาะสม ซึ่งเครื่องมือวัดอัตราการไหลแบบกังหันติดตั้งอยู่ด้านหน้าอุปกรณ์ควบคุมความดัน ทำให้ความดันไม่คงที่และส่งผลต่อการวัดอัตราการไหลก๊าซธรรมชาติ

(3) การปล่อยก๊าซของวาล์วระบายความดัน หลังเครื่องมือวัดอัตราการไหลแบบกังหัน ซึ่งนอกจากจะทำการปล่อยก๊าซเพื่อระบายความดันแล้ว ยังพบว่าการระบายก๊าซออกจากระบบท่อเกิดจากอุปกรณ์ Seat Valve ภายในอุปกรณ์ควบคุมความดันชำรุด ทำให้อุปกรณ์ควบคุมความดัน ไม่สามารถควบคุมความดันได้ตามที่กำหนด ก๊าซเกิดการไหลซึมผ่าน Seat Valve และสะสมภายในท่อ เมื่อมีการสะสมของก๊าซในปริมาณมากจะทำให้ค่าความดันในท่อสูงขึ้น และเมื่อเกินความดันที่วาล์วระบายความดันกำหนดส่งผลให้เกิดการปลดปล่อยก๊าซออกสู่บรรยากาศ ด้วยเหตุนี้จึงเป็นส่วนหนึ่งที่ทำให้ปริมาณที่วัดได้จากเครื่องมือวัดอัตราการไหลแบบกังหันวัดปริมาณก๊าซได้มากกว่าเครื่องมือวัดอัตราการไหลเชิงมวลเชิงมวล เนื่องจากปริมาณก๊าซที่ปล่อยเพื่อระบายความดันจะถูกนำมาคิดในเครื่องมือวัดอัตราการไหลแบบกังหันด้วย ซึ่งเกิดจากการวางระบบและติดตั้งอุปกรณ์ที่ไม่ถูกต้อง

(4) การสูญเสียความดันภายในระบบท่อ เนื่องจากสถานีก๊าซตัวอย่างเครื่องมือวัดอัตราการไหลแบบกังหัน ติดตั้งอยู่ด้านหน้าของเครื่องมือวัดอัตราการไหลเชิงมวล ซึ่งผ่านอุปกรณ์หลากหลายชนิด โดยอุปกรณ์ทั้งหมดส่งผลให้เกิดการสูญเสียความดันภายในระบบท่อ ทำให้ปริมาณก๊าซที่วัดได้จากเครื่องมือวัดอัตราการไหลเชิงมวลได้รับผลของการสูญเสียความดันภายในระบบท่อ ดังนั้นปริมาณก๊าซที่วัดได้จากเครื่องมือวัดอัตราการไหลเชิงมวลจึงน้อยกว่าเครื่องมือวัดอัตราการไหลแบบกังหัน

(5) การสอบเทียบเครื่องมือวัดอัตราไหลด้วยของไหลที่แตกต่างกัน ซึ่งเครื่องมือวัดอัตราการไหลแบบกังหันสอบเทียบด้วยอากาศและเครื่องมือวัดอัตราการไหลเชิงมวลสอบเทียบด้วยน้ำ ซึ่งอาจส่งผลต่อความแม่นยำของอุปกรณ์วัดอัตราการไหลทั้งสองชนิด

ข้อเสนอแนะ

เพื่อแก้ปัญหาความคลาดเคลื่อนจากการวัดอัตราการไหลแบบกังหัน สำหรับสถานีส่งจ่ายก๊าซธรรมชาติที่มีการติดตั้งอุปกรณ์ควบคุมความดันหลังอุปกรณ์วัดอัตราการไหล ทีมผู้วิจัยจึงขอเสนอแนวทางแก้ไขดังนี้

(1) เปลี่ยนขนาดของอุปกรณ์วัด ให้มีขนาดเล็กลงให้เหมาะสมกับการใช้งานในปัจจุบัน เนื่องจากปัจจุบันมียอดการใช้งานที่น้อยลงมากเมื่อเทียบกับช่วงเริ่มต้น

(2) พิจารณาการติดตั้งอุปกรณ์ภายในสถานี ซึ่งการติดอุปกรณ์ควบคุมความดันควรติดด้านหน้าของเครื่องมือวัดอัตราการไหลแบบกังหัน เพื่อควบคุมให้ความดันในการวัดความดันขณะวัดคงที่ ส่งผลให้การวัดปริมาณก๊าซธรรมชาติมีประสิทธิภาพมากขึ้น

เอกสารอ้างอิง

ก๊าซธรรมชาติสำหรับยานยนต์ PTT NGV. (2568). สืบค้นเมื่อ 5 มีนาคม 2568 จาก https://www.pttplc.com/th/Products/OurBusinessByPttPlc/Gasunit/PttNgv/Pttngv.Aspx

NGR NATURAL GAS RETAIL. Pipeline and Metering & Regulating Station. (2568). สืบค้นเมื่อ 5 มีนาคม 2568 จาก https://pttngr.pttplc.com/Knowledge/Knowledge

Transmission Measurement Committee. (2013). American Gas Association Report No. 11 (AGA 11), Measurement of Gas by Coriolis Meter**.** United States of America : American Gas Association.

AGA Transmission Measurement Committee. (2006). American Gas Association Report No. 7 (AGA 7), Measurement of Natural Gas by Turbine Meters. United States of America : American Gas Association.

Munson, Young, Okiishi and Huebsch. (2010). Fundamentals of Fluid Mechanics, 6th Edition. United States of America : John Wiley & Sons, Inc.

การจำลองกระบวนการผลิตไบโอดีเซลและไฮโดรเจนโดยใช้น้ำเสียจากการสกัดน้ำมันปาล์มในประเทศไทย

Simulation Biodiesel and Hydrogen Production Using Wastewater from Palm oil Mill Effluent in Thailand

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บทคัดย่อ

งานวิจัยนี้ศึกษาการผลิตไบโอดีเซลและไฮโดรเจนของน้ำเสียของกระบวนการสกัดน้ำมันปาล์ม (Palm Oil Mill Effluent, POME) ซึ่งเป็นของเสียจากอุตสาหกรรมการผลิตน้ำมันปาล์มที่มีปริมาณมากและก่อให้เกิดปัญหาต่อสิ่งแวดล้อม น้ำเสียจากกระบวนการสกัดน้ำมันปาล์มมีองค์ประกอบทางเคมีที่ซับซ้อน ประกอบด้วยสารอินทรีย์และอนินทรีย์ต่างๆ เช่น น้ำมัน น้ำ และสารแขวนลอย ซึ่งน้ำเสียจากกระบวนการสกัดน้ำมันปาล์ม สามารถนำมาใช้เป็นวัตถุดิบในการผลิตพลังงานทดแทน เช่น ไบโอดีเซลได้ การนำน้ำเสียจากกระบวนการสกัดน้ำมันปาล์มมาใช้ประโยชน์ นอกจากจะช่วยลดปัญหาต่อสิ่งแวดล้อมยังช่วยเพิ่มมูลค่าให้กับของเสียและส่งเสริมการใช้พลังงานทดแทนอีกด้วย โดยงานวิจัยนี้ศึกษากระบวนการทรานส์เอสเทอริฟิเคชันและกระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด (Supercritical Water Gasification) ด้วยวิธีการจำลองกระบวนการในโปรแกรม Aspen Plus เพื่อศึกษาหาสภาวะการดำเนินงานที่สามารถผลิตไบโอดีเซลและไฮโดรเจนได้มากที่สุด ผลการศึกษาพบว่า อุณหภูมิ อัตราส่วนเมทานอลต่อน้ำมัน และระยะเวลาทำปฏิกิริยาเป็นตัวแปรสำคัญที่ส่งผลต่อปริมาณผลผลิตของไบโอดีเซลที่ผลิตได้ โดยสภาวะที่เหมาะสมที่สามารถผลิตไบโอดีเซลได้มากที่สุด คือ อุณหภูมิ 60°C อัตราส่วนเมทานอลต่อน้ำมัน 6:1 และระยะเวลาทำปฏิกิริยา 1 ชั่วโมง โดยน้ำเสียจากการสกัดน้ำมันปาล์ม 1,000 กิโลกรัม/ชั่วโมง มีปริมาณไตรกลีเซอไรด์ที่สามารถนำมาใช้ประโยชน์ได้ 56.16 กิโลกรัม/ชั่วโมง และสามารถผลิตไบโอดีเซลได้ผลผลิต (Yield) 89.41% คิดเป็นปริมาณไบโอดีเซล 56.02 กิโลกรัม/ชั่วโมง และกลีเซอรอลดิบ 5.81 กิโลกรัม/ชั่วโมง นอกจากนี้เมื่อนำกลีเซอรอลดิบที่เป็นผลพลอยได้มาผลิตไฮโดรเจน

โดยกระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด ผลการศึกษาพบว่าอุณหภูมิที่ 800°C ความดัน 22.1 MPa และความเข้มข้นของสารป้อน 5% สามารถผลิตไฮโดรเจน (Yield) ได้มากที่สุด 14.79% คิดเป็นปริมาณไฮโดรเจน 0.859 กิโลกรัม/ชั่วโมง

คำสำคัญ: แก๊สซิฟิเคชันในสภาวะน้ำยิ่งยวด, ไบโอดีเซล, เชื้อเพลิงไฮโดรเจน, น้ำเสียจากการสกัดน้ำมันปาล์ม

Abstract

This research studies the production of biodiesel and hydrogen from palm oil mill effluent (POME), a waste byproduct from the palm oil extraction industry that is generated in large quantities and poses environmental challenges. POME has a complex chemical composition, consisting of various organic and inorganic compounds such as oil, water, and suspended solids. Utilizing POME as a feedstock for alternative energy production, such as biodiesel, not only mitigates environmental issues but also utilizes waste resources more effectively and promotes the use of environmentally friendly alternative energy sources. This work studies the transesterification process and the supercritical water gasification process through process simulation using Aspen Plus. The results indicate that temperature, methanol: oil ratio and reaction time are key factors influencing biodiesel yield. The optimal operating conditions for maximizing biodiesel production were found at temperature of 60°C, and methanol: oil ratio of 6:1 and a reaction time of 1 hour. In this study, 1,000 kg/h of POME there is a usable triglyceride content of 56.16 kg/h, which resulted in a biodiesel yield of 89.41%, corresponding to 56.02 kg/h of biodiesel and 5.81 kg/h of crude glycerol. Furthermore, the crude glycerol as byproduct was utilized for hydrogen production through the supercritical water gasification process. The study found that the optimal operating conditions for maximizing hydrogen yield were a temperature of 800°C, a pressure of 22.1 MPa, and a feed concentration of 5%, hydrogen yield was 14.79%, corresponding to 0.859 kg/h of hydrogen.

Keywords: Supercritical water gasification, Biodiesel, Hydrogen, Palm oil mill effluent

บทนำ

ปัจจุบันการพัฒนาพลังงานที่ยั่งยืนและสะอาดถือเป็นเรื่องสำคัญ เนื่องจากเชื้อเพลิงฟอสซิลเป็นแหล่งพลังงานหลักของโลกมานานหลายปี และเป็นสาเหตุหลักที่ทำให้ปริมาณก๊าซเรือนกระจก

(Greenhouse Gas) เพิ่มสูงขึ้นอย่างต่อเนื่อง สาเหตุหลักมาจากการเผาไหม้เชื้อเพลิงฟอสซิลไม่ว่าจะเป็นถ่านหินหรือก๊าซธรรมชาติ ซึ่งเป็นแหล่งปล่อยก๊าซคาร์บอนไดออกไซด์ที่สำคัญที่สุด ปัจจุบันความต้องการใช้เชื้อเพลิงไฮโดรเจนซึ่งเป็นพลังงานสะอาดและมีประสิทธิภาพสูง ได้เพิ่มขึ้นอย่างต่อเนื่องในช่วงหลายปีที่ผ่านมา อย่างไรก็ตามการผลิตเชื้อเพลิงไฮโดรเจนส่วนใหญ่ยังคงพึ่งพาเชื้อเพลิงฟอสซิล เช่น ถ่านหิน ซึ่งก่อให้เกิดก๊าซเรือนกระจกเป็นจำนวนมาก ส่งผลต่อการเกิดภาวะโลกร้อน จากการศึกษาพบว่ามีการปล่อยก๊าซคาร์บอนไดออกไซด์สู่ชั้นบรรยากาศสูงถึง 830 ล้านตันต่อปี จากภาคอุตสาหกรรมต่าง ๆ และกิจกรรมต่าง ๆ ของมนุษย์ ซึ่งเป็นสาเหตุหลักและส่งผลให้เกิดภาวะโลกร้อน (กรมอุตุนิยมวิทยา, 2567)

สถานการณ์การปลูกปาล์มน้ำมันของประเทศไทยในปี พ.ศ.2567 มีพื้นที่ 6.38 ล้านไร่ ผลผลิตประมาณ 18.12 ล้านตัน และมีอัตราการสกัดน้ำมันเฉลี่ยในเดือนเมษายน พ.ศ. 2567 อยู่ที่ร้อยละ 18.28 ส่งผลให้มีน้ำมันปาล์มดิบ 321,572 ตัน ในปริมาณผลผลิตดังกล่าวมีการส่งออกสินค้าน้ำมันปาล์มไปต่างประเทศ 116,170 ตัน และใช้ในประเทศทั้งเพื่อบริโภคและอุตสาหกรรมอื่น 113,760 ตัน โดยใช้ผลิตน้ำมันไบโอดีเซล 100,523 ตัน และจากการกระบวนการสกัดน้ำมันปาล์มจะทำให้เกิดน้ำเสียจากการสกัดน้ำมันปาล์ม (Palm Oil Mill Effluent) ซึ่งเป็นของเสียที่มีความเป็นกรดและมีปริมาณสารอินทรีย์สูง มีความยากต่อการกำจัดซึ่งน้ำเสียจากการสกัดน้ำมันปาล์ม ประกอบด้วย น้ำมัน น้ำ และสารแขวนลอย สารปนเปื้อนเหล่านี้ส่งผลกระทบต่อคุณภาพของน้ำและสิ่งแวดล้อม โดยการบำบัดน้ำเสียจากการสกัดน้ำมันปาล์มอย่างยั่งยืนสามารถช่วยลดการปล่อยก๊าซเรือนกระจกและป้องกันการปนเปื้อนของแหล่งน้ำ นอกจากนี้การนำน้ำเสียจากการสกัดน้ำมันปาล์มไปใช้ประโยชน์ และการนำไปผลิตไบโอดีเซลเป็นวิธีการเพิ่มมูลค่าของน้ำเสียจากการสกัดน้ำมันปาล์ม โดยปัจจุบันปริมาณรถเครื่องยนต์ดีเซลในภาคขนส่งมีแนวโน้มเพิ่มสูงขึ้น จากกิจกรรมทางด้านเศรษฐกิจในประเทศไทยที่ฟื้นตัวตามทิศทางเศรษฐกิจโลก โดยรัฐบาลจึงมีมาตรการส่งเสริมการใช้ไบโอดีเซลและสร้างสมดุลน้ำมันปาล์ม และมีการขยายเวลาจ่ายเงินชดเชยแก่น้ำมันเชื้อเพลิงที่มีส่วนผสมของเชื้อเพลิงชีวภาพถึง 24 กันยายน พ.ศ. 2569 โดยกระทรวงพลังงานระบุไว้ว่าการจ่ายเงินชดเชยให้แก่น้ำมันเชื้อเพลิงที่มีส่วนผสมของเชื้อเพลิงชีวภาพ ได้แก่ น้ำมันดีเซลหมุนเร็วธรรมดา B10 และน้ำมันดีเซลหมุนเร็ว B20 ตามนัยมาตรา 55 แห่งพระราชบัญญัติ เพื่อเป็นกลไกในการรักษาระดับค่าการตลาดของน้ำมันเชื้อเพลิงที่มีส่วนผสมของเชื้อเพลิงชีวภาพ ซึ่งการผลิตไบโอดีเซลเป็นแนวทางการลดค่าใช้จ่ายในการบำบัดน้ำเสียจากการสกัดน้ำมันปาล์มได้อีกด้วย (Alfalaval, 2024)

กระบวนการผลิตไบโอดีเซลจากน้ำเสียจากการสกัดน้ำมันปาล์มนั้น ขั้นตอนการเตรียมวัตถุดิบน้ำเสียจากโรงงานน้ำมันปาล์ม เป็นขั้นตอนที่สำคัญอย่างยิ่ง เนื่องจากน้ำเสียมีสิ่งเจือปนและอนุภาคขนาดเล็กปะปนอยู่เป็นจำนวนมาก หากไม่ทำการเตรียมให้เหมาะสมกับกระบวนการผลิต อาจส่งผลต่อประสิทธิภาพของกระบวนการผลิตและคุณภาพของไบโอดีเซลที่ได้ ขั้นตอนสำคัญในการเตรียมน้ำเสียจากการสกัดน้ำมันปาล์ม ก่อนนำไปผลิตไบโอดีเซล คือ การให้ความร้อนและการกรอง ซึ่งเป็นขั้นตอนพื้นฐานที่ช่วยกำจัดสิ่งสกปรกและเตรียมน้ำเสียให้พร้อมสำหรับกระบวนการทางเคมีต่อไป การให้ความร้อนกับ

น้ำเสียมีวัตถุประสงค์หลักเพื่อให้ของเสียต่าง ๆ ที่อยู่ในน้ำเสียอยู่ในสถานะของเหลว ไม่แข็งตัวหรือจับตัวเป็นก้อน ซึ่งจะทำให้การกรองเป็นไปได้ง่ายขึ้น หากปล่อยให้น้ำเสียเย็นตัวลง ของเสียเหล่านี้อาจเปลี่ยนสถานะเป็นของแข็งหรือเกิดเป็นลิ่ม ทำให้การกรองทำได้ยากขึ้น และอาจอุดตันได้ อุณหภูมิที่เหมาะสมสำหรับการให้ความร้อนน้ำเสียนั้นโดยอยู่ที่ประมาณ 60°C ซึ่งเป็นอุณหภูมิที่เพียงพอที่จะรักษาสภาพของของเสียให้อยู่ในสภาพที่เป็นของเหลว หลังจากการให้ความร้อน น้ำเสียจะถูกนำไปผ่านกระบวนการกรองเพื่อขจัดเศษสิ่งสกปรกหรืออนุภาคขนาดเล็กที่ไม่ต้องการออกไปให้หมด ทำให้น้ำเสียสะอาดขึ้นและพร้อมสำหรับกระบวนการผลิตไบโอดีเซล การกรองนี้จะช่วยป้องกันไม่ให้สิ่งสกปรกอุดตันในกระบวนการผลิตไบโอดีเซล ซึ่งจะส่งผลต่อประสิทธิภาพของการผลิต และยังช่วยให้ได้ไบโอดีเซลมีคุณภาพปราศจากสิ่งเจือปน (Alfawan Alfawan, Aung Kyaw, Moch Purwanto, Muhammad Uswah Pawara, Suardi Suardi, & Wira Setiawan, 2022) การผลิตไบโอดีเซลจากน้ำเสียจากการสกัดน้ำมันปาล์ม เป็นแนวทางที่มีศักยภาพในการเพิ่มมูลค่าให้กับของเสียจากอุตสาหกรรมน้ำมันปาล์ม และลดต้นทุนในการบำบัดน้ำเสีย การผลิตไบโอดีเซลซึ่งเป็นเชื้อเพลิงทดแทนที่ผลิตจากทรัพยากรหมุนเวียน ได้รับความสนใจอย่างมากในปัจจุบัน เนื่องจากเป็นทางเลือกหนึ่งในการลดการพึ่งพาเชื้อเพลิงฟอสซิลและช่วยลดปัญหาภาวะโลกร้อน งานวิจัยนี้จึงได้ศึกษาแนวทางในการพัฒนากระบวนการผลิตไบโอดีเซลให้มีประสิทธิภาพยิ่งขึ้น โดยการศึกษาการจำลองกระบวนการในโปรแกรม Aspen Plus เพื่อศึกษาและทำความเข้าใจปฏิกิริยาเคมีที่เกิดขึ้นในกระบวนการผลิต การจำลองกระบวนการทำให้สามารถทดลองและศึกษาพฤติกรรมของระบบได้โดยยังไม่ต้องลงทุนในการสร้างโรงงานจริง การจำลองกระบวนการช่วยให้สามารถทำการทดลองต่าง ๆ ได้อย่างรวดเร็ว และสามารถปรับเปลี่ยนตัวแปรต่าง ๆ ได้อย่างอิสระ เพื่อค้นหาสภาวะการทำงานที่เหมาะสมที่สุด นอกจากนี้การจำลองกระบวนการยังช่วยให้สามารถคาดการณ์ผลลัพธ์ที่อาจเกิดขึ้นได้ล่วงหน้า ซึ่งเป็นประโยชน์อย่างยิ่งในการวางแผนและออกแบบกระบวนการผลิต ในปัจจุบันการผลิตไบโอดีเซลมีแนวโน้มสูงขึ้นในทุก ๆ ปี ส่งผลให้ปริมาณกลีเซอรอลดิบซึ่งเป็นผลพลอยได้จากกระบวนการผลิตนั้นมีปริมาณมากจนส่งผลกระทบต่อตลาดกลีเซอรอลดิบ ส่งผลให้ปริมาณกลีเซอรอลดิบเกินความต้องการของตลาดในอุตสาหกรรมยา และอุตสาหกรรมผลิตภัณฑ์ด้านความงาม หากนำไปกำจัดทิ้งก็เป็นการเพิ่มค่าใช้จ่ายให้กระบวนการผลิตไบโอดีเซล ด้วยเหตุนี้การนำกลีเซอรอลดิบมาใช้เป็นวัตถุดิบในการผลิตเชื้อเพลิงไฮโดรเจนผ่านกระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด (Supercritical Water Gasification) จึงเป็นแนวทางที่ช่วยเพิ่มประสิทธิภาพของการใช้ทรัพยากรและส่งเสริมพลังงานสะอาด ดังนั้นการนำกลีเซอรอลดิบมาใช้ในกระบวนการผลิตเชื้อเพลิงไฮโดรเจนจึงเป็นแนวทางหนึ่งที่น่าสนใจ (Marumo, 2021)

เชื้อเพลิงไฮโดรเจน เป็นพลังงานทางเลือกที่น่าสนใจในปัจจุบัน เนื่องจากการเผาไหม้ไฮโดรเจนให้พลังงานที่สูง และไม่ปล่อยก๊าซเรือนกระจกซึ่งเป็นสาเหตุของภาวะโลกร้อน ส่งผลกระทบต่อสิ่งแวดล้อมน้อยกว่าเชื้อเพลิงฟอสซิล (Sarah Golden, 2024) ปัจจุบันได้มีการศึกษาการนำวัตถุดิบต่าง ๆ มาผลิตไฮโดรเจนหลากหลายวิธี ซึ่งมีวัตถุประสงค์เพื่อพัฒนาแบบจำลองการผลิตแก๊สชีวภาพ โดยกระบวนการ

ที่ได้รับความนิยมได้แก่ แก๊สซิฟิเคชั่นแบบดั้งเดิม (Conventional Gasification), แก๊สซิฟิเคชั่นด้วยพลาสมา (Plasma Gasification) และแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด (Supercritical Water Gasification) ผลการศึกษาจากงานวิจัยที่เกี่ยวข้องทำให้ทราบว่ากระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด (Supercritical Water Gasification) มีประสิทธิภาพในการผลิตไฮโดรเจนสูงสุด (António Henriques Martins, 2022)

ดังนั้นงานวิจัยนี้มุ่งเน้นการศึกษาการผลิตไบโอดีเซลจากน้ำเสียที่เกิดจากกระบวนการสกัดน้ำมันปาล์ม ซึ่งเป็นของเสียจากอุตสาหกรรมที่มีปริมาณมากและส่งผลกระทบต่อสิ่งแวดล้อม โดยงานวิจัยนี้ได้ทำการศึกษาการจำลองกระบวนการผลิตไบโอดีเซลจากน้ำเสียผ่านกระบวนการทรานส์เอสเทอริฟิเคชันและได้ศึกษาการนำกลีเซอรอลดิบ ซึ่งเป็นผลพลอยได้จากกระบวนการทรานส์เอสเทอริฟิเคชันมาใช้เป็นวัตถุดิบในการผลิตแก๊สเชื้อเพลิงผสม ซึ่งประกอบด้วย H_2, CO, CO_2 และ CH_4 ผ่านกระบวนการ Supercritical Water Gasification โดยใช้โปรแกรม Aspen Plus ในการจำลองกระบวนการ และการศึกษาครั้งนี้จะทำการศึกษาอิทธิพลของตัวแปรต่าง ๆ ที่มีผลต่อกระบวนการผลิตไบโอดีเซลและแก๊สเชื้อเพลิงผสม โดยในกระบวนการทรานส์เอสเทอริฟิเคชัน ได้ศึกษาตัวแปรต่าง ๆ ได้แก่ อุณหภูมิในช่วง 30-70 °C (ไพศาล คงคาฉุยฉาย และ อำนาจ คำหล่า, 2551 ; Imtisal Zahid, Hamza Nazir, Mariam Ameen, Mohd Hizami Mohd Yusoff, Muhammad Ayoub, Muhammad Farooq Sher and Zulqarnain, 2021) เวลาในการทำปฏิกิริยาในช่วง 0-1.5 ชั่วโมง (นภารัตน์ เกษตรสมบูรณ์, สุห์ดี นิเซ็ง, และ อาริษา โสภาจารย์, 2563 ; Imtisal Zahid & et.al, 2021) และอัตราส่วนเมทานอลต่อน้ำมันในช่วง 3:1-15:1 (นภารัตน์ เกษตรสมบูรณ์ และคณะ, 2563 ; Imtisal Zahid & et.al, 2021) สำหรับกระบวนการ Supercritical Water Gasification ได้ศึกษาตัวแปรต่าง ๆ ได้แก่ อุณหภูมิในช่วง 500-1,000 °C (António Henriques Martins, 2022 ; Athina Stegov Sagia and Panagiotis Kladisios, 2022) ความดันในช่วง 22.1-42.1 MPa (António Henriques Martins, 2022 ; Nathapol Boonpithak, 2012 ; Athina Stegov Sagia and Panagiotis Kladisios, 2022) และความเข้มข้นของสารตั้งต้นในช่วง 5%-25% (António Henriques Martins, 2022 ; Dwi Hantoko, Hongcai Su, Mi Yan, Ekkachai Kanchanatip, Guobin Wang, Herri Susanto, Sicheng Zhang and Zhang Xu.,2018)

วัตถุประสงค์ของการวิจัย

1. ศึกษาการนำน้ำเสียจากการสกัดน้ำมันปาล์มมาผลิตไบโอดีเซล โดยใช้กระบวนการทรานส์เอสเทอริฟิเคชัน และการจำลองกระบวนการด้วยโปรแกรม Aspen Plus เพื่อหาสภาวการณ์ดำเนินงานที่สามารถผลิตไบโอดีเซลได้ปริมาณมากที่สุด

2. ศึกษาการนำกลีเซอรอลดิบที่เป็นผลพลอยได้จากกระบวนการทรานส์เอสเทอริฟิเคชันมาผลิตเชื้อเพลิงไฮโดรเจนด้วยกระบวนการ Supercritical Water Gasification โดยการจำลองกระบวนการด้วยโปรแกรม Aspen Plus เพื่อหาสภาวะการดำเนินงานที่สามารถผลิตก๊าซไฮโดรเจนได้มากที่สุด

แนวคิด ทฤษฎี กรอบแนวคิด

งานวิจัยนี้ศึกษากระบวนการทรานส์เอสเทอริฟิเคชัน และกระบวนการ Supercritical Water Gasification โดยขั้นตอนการศึกษาของการวิจัยนี้ศึกษาตั้งแต่การนำน้ำเสียจากการสกัดน้ำมันปาล์มมาผลิตไบโอดีเซลและนำกลีเซอรอลดิบที่เป็นผลพลอยได้จากกระบวนการผลิตไบโอดีเซลมาผลิตเชื้อเพลิงไฮโดรเจน การศึกษานี้จะสามารถนำไปสู่การผลิตพลังงานสะอาดที่มีประสิทธิภาพและความยั่งยืนด้านพลังงาน

1. กระบวนการทรานส์เอสเทอริฟิเคชัน (Transesterification)

ไบโอดีเซล หรือ Fatty acid alkyl esters (FAMEs) ได้จากการสังเคราะห์กรดไขมันอัลคิลเอสเทอร์ผ่านกระบวนการทรานส์เอสเทอริฟิเคชัน โดยใช้ตัวทำละลายประเภทแอลกอฮอล์ และใช้ตัวเร่งปฏิกิริยาอัลคาไล ไบโอดีเซลถือเป็นพลังงานสะอาดที่มีผลกระทบต่อสิ่งแวดล้อมน้อยกว่าน้ำมันจากฟอสซิล (Jayacumar Sanjana, S. P. Jeevan Kumar, P. Naveen Kumar, K. Ramachandrudu and Samuel Jacob, 2024) และผลผลิตไบโอดีเซลสามารถคำนวณได้จากสมการที่ (4) โดยใช้ในการประเมินประสิทธิภาพของกระบวนการทรานส์เอสเทอริฟิเคชันในการผลิตไบโอดีเซล

$$\text{Triglyceride} + \text{R'OH} \leftrightarrows \text{Diglyceride} + \text{RCOOR'} \qquad (1)$$

$$\text{Diglyceride} + \text{R'OH} \leftrightarrows \text{Monoglyceride} + \text{RCOOR'} \qquad (2)$$

$$\text{Monoglyceride} + \text{R'OH} \leftrightarrows \text{Crude glycerol} + \text{RCOOR'} \qquad (3)$$

กลีเซอรอลดิบ (Crude glycerol) คือ ผลพลอยได้จากปฏิกิริยาทรานส์เอสเทอริฟิเคชันของน้ำมันพืชหรือไขมันสัตว์ ซึ่งจะเกิดการแยกออกมาเป็นกลีเซอรอลและเอสเตอร์ของกรดไขมัน (FAME) ที่ใช้เป็นไบโอดีเซล กลีเซอรอลดิบมีสารปนเปื้อนสูงและเทคโนโลยีที่สามารถแยกได้ก็มีราคาค่อนข้างสูงการนำกลีเซอรอลดิบมาเป็นสารตั้งต้นในการผลิตเชื้อเพลิงไฮโดรเจน จึงเป็นการส่งเสริมการพัฒนาเชิงพาณิชย์และพลังงานสะอาด ลดการพึ่งพาพลังงานจากฟอสซิล และลดการปล่อยก๊าซคาร์บอนไดออกไซด์ลดผลกระทบต่อสิ่งแวดล้อม (Ajay K. Dalai, Alivia Mukherjee, Burcu Gunes, Emmanuel I., Epelle, Sonil Nanda, Jude A. Okolie and Meshach E. Tabat, 2021) ซึ่งในการผลิตไบโอดีเซลจะเกิดกลีเซอรอลดิบ ซึ่งเป็นผลพลอยได้ประมาณ 10% ของปริมาณไบโอดีเซลที่ผลิตได้ (Manisara Komengam, Pesak Rungrojchaipon and Pronchita Kantong, 2022) โดยการคำนวณผลผลิต (Yield) ของไบโอดีเซล สามารถคำนวณได้ ดังนี้

$$\text{Biodiesel yield (\%)} = \frac{\text{Biodiesel - Crude glycerol}}{\text{Triglyceride}} \times 100 \qquad (4)$$

Biodiesel คือ ปริมาณไบโอดีเซลที่ได้จากการทำปฏิกิริยาจากกระบวนการ (กิโลกรัม/ชั่วโมง)
Crude glycerol คือ ปริมาณกลีเซอรอลดิบที่ได้จากการทำปฏิกิริยาจากกระบวนการ (กิโลกรัม/ชั่วโมง)
Triglyceride คือ ปริมาณน้ำมัน ที่ได้จากน้ำเสียจากการสกัดน้ำมันปาล์ม (กิโลกรัม/ชั่วโมง)

2. กระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด (Supercritical Water Gasification)

เป็นกระบวนการที่ใช้น้ำในสภาวะยิ่งยวด (อุณหภูมิสูงกว่า 374°C และความดันสูงกว่า 22.1 MPa) เพื่อเปลี่ยนกลีเซอรอลให้กลายเป็นแก๊สเชื้อเพลิงผสมที่มีไฮโดรเจนสูง วิธีการนี้ใช้คุณสมบัติของน้ำให้ทำหน้าที่เป็นทั้งตัวทำละลายและตัวเร่งปฏิกิริยา เพื่อสลายกลีเซอรอล (Ali Erdogan Karaca, Ali M. M. I. Qureshy, Ibrahim Dincer and Muhammed Iberia Aydin, 2021) กระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด เป็นเทคโนโลยีที่มีศักยภาพสำหรับการผลิตก๊าซไฮโดรเจนจากชีวมวลอย่างยิ่ง โดยสามารถช่วยลดปัญหาสิ่งแวดล้อมได้ โดยกระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด สามารถจัดการกับชีวมวลที่มีความชื้นสูงได้โดยตรง โดยไม่ต้องผ่านกระบวนการอบแห้ง ซึ่งช่วยลดพลังงานที่ใช้ในกระบวนการผลิตและช่วยลดปริมาณก๊าซคาร์บอนไดออกไซด์ และอื่น ๆ ที่อาจเกิดขึ้นจากกระบวนการเผาไหม้แบบเดิม โดยน้ำที่อยู่ในสภาวะยิ่งยวด จะทำหน้าที่เป็นตัวทำละลาย ช่วยให้สารปนเปื้อน เช่น เกลืออนินทรีย์และทาร์ ซึ่งสามารถละลายได้ดีขึ้น ส่งผลให้ก๊าซ H_2, CO, CO_2 และ CH_4 ที่ผลิตมีความสะอาดและปลอดภัย เนื่องจากไม่มีการเผาไหม้ในกระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด จึงไม่ก่อให้เกิดมลพิษทางอากาศ เช่น ฝุ่นละออง ควัน เขม่า และก๊าซ NO_x ซึ่งเป็นอันตรายต่อสุขภาพและสิ่งแวดล้อม ด้วยเหตุผลเหล่านี้กระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด จึงมีความสะอาด ปลอดภัย และเป็นมิตรต่อสิ่งแวดล้อมมากกว่ากระบวนการแก๊สซิฟิเคชั่นแบบดั้งเดิม (Martins, 2022) และค่าผลผลิตของไฮโดรเจนสามารถคำนวณได้จากสมการที่ (5)

$$\text{Individual gas yield (\%)} \quad Y_{H_2}\left[\frac{kg_{H_2}}{kg_{feed}}\right] = \frac{m_{H_2}}{m_{feed}} \times 100 \qquad (5)$$

Y_{H_2} คือ ผลผลิตของก๊าซ H_2

m_{H_2} คือ มวลของก๊าซที่ผลิตได้ (กิโลกรัม/ชั่วโมง)

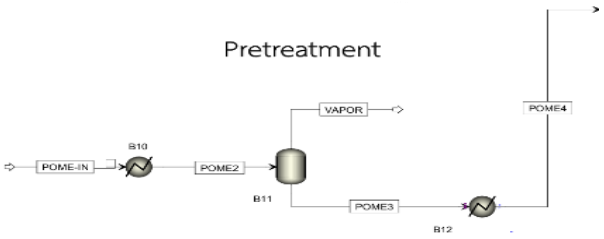
m_{feed} คือ มวลของกลีเซอรอลดิบที่ใช้ในกระบวนการ (กิโลกรัม/ชั่วโมง)

3. การจำลองกระบวนการทรานส์เอสเทอริฟิเคชัน และแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด

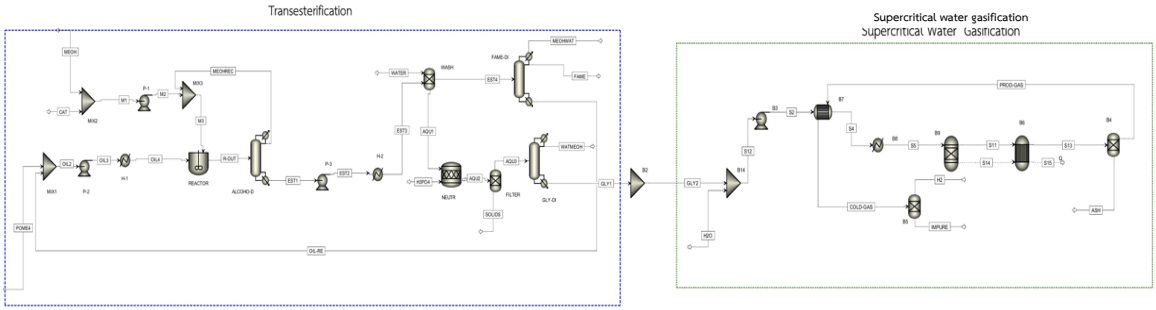
กระบวนการสกัดน้ำมันปาล์มมีการเกิดน้ำเสียปริมาณมาก โดยขั้นตอนสำคัญที่ก่อให้เกิดน้ำเสีย คือ กระบวนการนึ่งและกระบวนการสกัดน้ำมัน จึงมีความจำเป็นต้องบำบัดให้ได้มาตรฐานที่กำหนดก่อนปล่อยออกสู่สิ่งแวดล้อม เนื่องจากน้ำเสียมีค่าเกินมาตรฐานคุณภาพที่โรงงานอุตสาหกรรมและนิคมอุตสาหกรรมกรมโรงงานอุตสาหกรรมกำหนดไว้ อย่างไรก็ตามวิธีการหนึ่งที่มีประสิทธิภาพในการใช้ประโยชน์จากน้ำเสียดังกล่าวนี้ คือ การนำเอาน้ำเสียจากการสกัดน้ำมันปาล์มมาผลิตเป็นไบโอดีเซล ซึ่งมีความเหมาะสมเป็นอย่างมากในปัจจุบันและอนาคต ที่พลังงานเชื้อเพลิงมีปริมาณลดลงและอาจขาดแคลนได้ในอนาคต (Prayoon Fongsatitkul and Supawadee Sinnaraprasat, 2011) ภาพที่ 1 แสดงแบบจำลองกระบวนการทรานส์เอสเทอริฟิเคชัน และกระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวดที่ใช้ในการศึกษานี้ โดยในส่วนของกระบวนการทรานส์เอสเทอริฟิเคชัน กระบวนการเริ่มจากการเตรียมน้ำเสียจากการสกัด

น้ำมันปาล์ม คือการให้ความร้อนแก่น้ำเสียที่อุณหภูมิ 110 °C เพื่อให้น้ำเปลี่ยนสถานะกลายเป็นไอ โดยใช้ความแตกต่างด้านจุดเดือดในการแยกน้ำกับน้ำมันออกจากกัน และเพื่อป้องกันการจับตัวของน้ำเสีย ต่อมาได้นำไปกรองแยกของแข็งที่ปะปนอยู่ในน้ำเสียน้ำปาล์มออกโดยกรอง (Suardi et al, 2022) ดังแสดงในภาพที่ 1 (ก) ในการศึกษานี้ใช้น้ำเสียจากการสกัดน้ำมันปาล์มป้อนเข้าสู่กระบวนการเตรียมน้ำเสียในปริมาณ 1,000 กิโลกรัม/ชั่วโมง โดยลักษณะและองค์ประกอบทางเคมีของน้ำเสียจากการสกัดน้ำมันปาล์มของประเทศไทยมีค่าต่างๆ ดังนี้ อุณหภูมิ 78 °C (พูนสุข ประเสริฐสรรพ์ และ เสถียรพงษ์ อุดมศิลป์, 2553) OD 48,900 mg/L, BOD 19,560 mg/L, pH 4.82, ของแข็งรวม (TS) 22,666.01 mg/L, สารแขวนลอย (SS) 20,200.78 mg/L, แอมโมเนีย-ไนโตรเจน (NH_3-N) 51 mg/L, น้ำมันและไขมัน 5,569.82 mg/L, ไนโตรเจน (N) 0.49 g/L (Nisa Paichid, Saowakon Suwanno, Kanokphorn Sangkharak , Pattarawadee Kimtun, Poonsuk Prasertsan, Thanaphorn Rakkan and Tewan Yunu, 2017)

จากนั้นน้ำมันจะถูกป้อนเข้าสู่กระบวนการทรานส์เอสเทอริฟิเคชัน ซึ่งใช้เมทานอลและตัวเร่งปฏิกิริยาโซเดียมไฮดรอกไซด์ ในการทำปฏิกิริยากับไตรกลีเซอไรด์ โดยปฏิกิริยาเคมี ค่าจลศาสตร์ (k) และค่าพลังงานกระตุ้น (Ea) ของกระบวนการทรานส์เอสเทอริฟิเคชัน แสดงในตารางที่ 1 และได้ผลิตภัณฑ์เป็นไบโอดีเซลและกลีเซอรอลดิบ (Gisele Rabelo and Maria Andrade, 2020) โดยได้มีการทดสอบความถูกต้องของกระบวนการกับงานวิจัย Simulation and optimization of CSTR reactor of a biodiesel plant by various plant sources using Aspen Plus โดยผลไบโอดีเซลมีความคลาดเคลื่อน 0.013% และกลีเซอรอลดิบ ความคลาดเคลื่อน 5.473% (Gisele Rabelo and Maria Andrade, 2020) ต่อมากระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวดจะใช้กลีเซอรอลดิบที่เป็นผลพลอยได้จากกระบวนการทรานส์เอสเทอริฟิเคชันเพื่อผลิตก๊าซไฮโดรเจน ดังแสดงในภาพที่ 1 (ข) ซึ่งปฏิกิริยาเคมีของกระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด แสดงในตารางที่ 2 โดยแบบจำลองนี้พัฒนาโดยใช้โปรแกรม Aspen Plus และได้มีการทดสอบความถูกต้องของกระบวนการกับงานวิจัย Biomass gasification as a way of producing green hydrogen modelling and simulation in Aspen Plus® โดย H_2 มีความคลาดเคลื่อน 0.051%, CO_2 มีความคลาดเคลื่อน 0.331%, CO มีความคลาดเคลื่อน 3.730%, CH_4 มีความคลาดเคลื่อน 4.667% ซึ่งการศึกษานี้ช่วยให้สามารถวิเคราะห์และปรับปรุงประสิทธิภาพของทั้งสองกระบวนการได้ (Martins, 2022)



(ก)



(ข)

ภาพที่ 1 (ก) แบบจำลองกระบวนการเตรียมน้ำเสีย และ (ข) แบบจำลองกระบวนการทรานส์เอสเทอริฟิเคชันและแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด

ตารางที่ 1 ค่าจลศาสตร์และค่าพลังงานกระตุ้นของปฏิกิริยาทรานส์เอสเทอริฟิเคชัน (Gisele Rabelo and Maria Andrade, 2020)

ปฏิกิริยาเคมี	$k\ (\frac{L}{mol\ min})$	Ea (kcal/mol)
Triglyceride → Diglyceride	0.089	14.040
Diglyceride → Triglyceride	0.009	10.739
Diglyceride → Monoglyceride	0.348	16.049
Monoglyceride → Diglyceride	0.129	13.907
Monoglyceride → Methyl ester	0.488	7.173
Methyl ester → Monoglyceride	0.038	10.997

ตารางที่ 2 ปฏิกิริยาเคมีของกระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด (Dwi Hantoko & et.al ,2018)

ปฏิกิริยา	สมการเคมี	ΔH_{298K} (MJ/kmol)
Simplified overall reaction of Supercritical water gasification	$CH_xO_y+(2-y)H_2O \rightarrow CO_2+\left(2-y+\frac{x}{2}\right)H_2$	ดูดความร้อน
Water gas shift reaction	$CO+H_2O \leftrightarrow CO_2+H_2$	-42
Boudouard reaction	$C+CO_2 \leftrightarrow CO$	+172

ตารางที่ 2 (ต่อ)

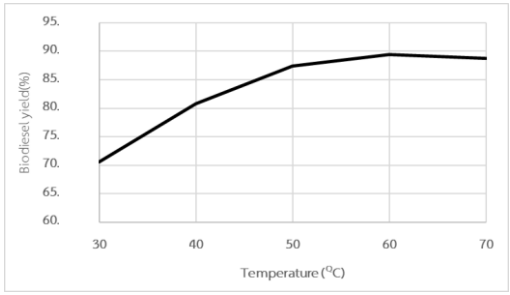
ปฏิกิริยา	สมการเคมี	ΔH_{298K} (MJ/kmol)
Steam methane reforming	$CH_4+H_2O \leftrightarrow CO+ 3H_2$	+206
Dry reforming	$CH_4+CO_2 \leftrightarrow 2CO+ 2H_2$	+247
Methane formation	$C+2H_2 \leftrightarrow CH_4$	-74
Methanation of CO_2	$CO_2+4H_2 \leftrightarrow CH_4+ 2H_2O$	-165
Methanation of CO	$CO+3H_2 \leftrightarrow CH_4+ H_2O$	-206
Hydrogenation of CO_2	$CO_2+2H_2 \leftrightarrow C+ 2H_2O$	-90
Hydrogenation of CO	$CO+H_2 \leftrightarrow C+ H_2O$	-131

ผลการศึกษา

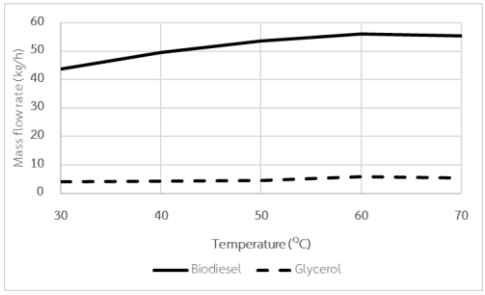
1. การผลิตไบโอดีเซลจากน้ำเสียด้วยกระบวนการทรานส์เอสเทอริฟิเคชัน

ผลการศึกษาการจำลองกระบวนการทรานส์เอสเทอริฟิเคชันเพื่อผลิตไบโอดีเซลโดยใช้น้ำเสียจากการสกัดน้ำมันปาล์มปริมาณ 1,000 กิโลกรัม/ชั่วโมง โดยจากการจำลองกระบวนการเตรียมน้ำเสีย ทำให้ทราบว่าน้ำเสียที่นำมาใช้ในการศึกษานี้มีปริมาณไตรกลีเซอไรด์ที่สามารถนำมาใช้ประโยชน์ได้ 56.16 กิโลกรัม/ชั่วโมง ซึ่งผลการศึกษาด้วยวิธีการจำลองกระบวนการโดยโปรแกรม Aspen Plus พบว่าอุณหภูมิ อัตราส่วนเมทานอลต่อน้ำมัน และระยะเวลาการเกิดปฏิกิริยามีผลต่อการผลิตไบโอดีเซล ดังนี้ จากภาพที่ 2(ก) ที่อัตราส่วนเมทานอลต่อน้ำมัน 6:1 และระยะเวลาการเกิดปฏิกิริยา 1 ชั่วโมง พบว่าผลผลิตของไบโอดีเซลเพิ่มขึ้นเมื่ออุณหภูมิสูงขึ้น โดยอุณหภูมิที่เหมาะสมที่สุดคือ 60°C ซึ่งให้ผลผลิตไบโอดีเซลสูงสุด อย่างไรก็ตามที่อุณหภูมิ 70°C ผลผลิตของไบโอดีเซลกลับมีแนวโน้มลดลง ทั้งนี้เนื่องจากอุณหภูมิที่สูงเกินไปส่งผลให้เกิดการระเหยของเมทานอลหรือส่งผลกระทบต่อตัวเร่งปฏิกิริยา (ไพศาล คงคาฉุยฉาย และอำนาจ คำหล่า, 2551 ; Imtisal Zahid & et al, 2021) ซึ่งสอดคล้องกับภาพที่ 2(ข) ที่แสดงปริมาณไบโอดีเซลและกลีเซอรอลดิบต่อการเปลี่ยนแปลงของอุณหภูมิ ซึ่งแสดงให้เห็นว่าที่อุณหภูมิ 60°C ให้ปริมาณไบโอดีเซลที่ดีที่สุด นอกจากนี้จากภาพที่ 3(ก) ที่อุณหภูมิ 60°C และระยะเวลาการเกิดปฏิกิริยา 1 ชั่วโมง พบว่าอัตราส่วนเมทานอลต่อน้ำมันมีผลต่อผลผลิตของไบโอดีเซล โดยเมื่อเพิ่มอัตราส่วนเมทานอลต่อน้ำมัน ผลผลิตที่ได้ก็จะเพิ่มขึ้นโดยที่อัตราส่วน 6:1 ให้ผลผลิตไบโอดีเซลได้มากที่สุด ในขณะที่อัตราส่วน 3:1 ให้ผลผลิตต่ำสุด ทั้งนี้เนื่องจากการเพิ่มอัตราส่วนเมทานอลช่วยให้ปฏิกิริยามีทิศทางของการเกิดไบโอดีเซลมากขึ้น แต่เมื่อเกินอัตราส่วน 6:1 ผลผลิตของไบโอดีเซลกลับมีแนวโน้มลดลง เนื่องจากการใช้อัตราส่วนเมทานอลที่มากเกินไป ส่งผลต่อปฏิกิริยาทรานส์เอสเทอริฟิเคชัน ทำให้การละลายของน้ำมันไม่ดี เกิดสารตกค้างหรือโค้ก (นภารัตน์ เกษตรสมบูรณ์ และคณะ, 2563 ; Imtisal Zahid & et al, 2021) ซึ่งสอดคล้องกับภาพที่ 3(ข) ที่แสดงปริมาณไบโอดีเซลและกลีเซอรอลดิบต่อการเปลี่ยนแปลงของอัตราส่วน

เมทานอลต่อน้ำมัน ซึ่งแสดงให้เห็นว่าที่อัตราส่วน 6:1 ให้ปริมาณไบโอดีเซลที่ดีที่สุด ยิ่งไปกว่านั้นจากภาพที่ 4(ก) ที่อุณหภูมิ 60°C และอัตราส่วนเมทานอลต่อน้ำมัน 6:1 พบว่าผลผลิตของไบโอดีเซลเพิ่มขึ้นตามระยะเวลาการเกิดปฏิกิริยา โดยที่เวลา 1 ชั่วโมงสามารถผลิตไบโอดีเซลได้มากที่สุด หลังจากนั้นผลผลิตจะมีแนวโน้มคงที่ แม้เพิ่มเวลาเป็น 1.5 ชั่วโมง ซึ่งแสดงให้เห็นว่าปฏิกิริยามีการดำเนินไปถึงสมดุลที่เวลา 1 ชั่วโมง การเพิ่มระยะเวลาหลังจากนั้นจึงไม่มีผลต่อผลผลิตไบโอ (นภารัตน์ เกษตรสมบูรณ์ และคณะ, 2563 ; Imtisal Zahid & et al, 2021) ผลการศึกษานี้สอดคล้องกับภาพที่ 4(ข) ที่แสดงปริมาณไบโอดีเซลและกลีเซอรอลดิบต่อการเปลี่ยนแปลงของเวลา ซึ่งแสดงให้เห็นว่าที่เวลา 1 ชั่วโมง ให้ปริมาณไบโอดีเซลที่ดีที่สุด การเพิ่มระยะเวลาหลังจากนั้นไม่มีผลต่อปริมาณไบโอดีเซล ดังนั้นจากการศึกษาการผลิตไบโอดีเซลจากน้ำเสียจากการสกัดน้ำมันปาล์ม สามารถสรุปได้ว่าอุณหภูมิที่เหมาะสมคือ 60°C อัตราส่วนเมทานอลต่อน้ำมันที่เหมาะสมคือ 6:1 และระยะเวลาการเกิดปฏิกิริยาที่เหมาะสมคือ 1 ชั่วโมง โดยการพิจารณาความเหมาะสมของกระบวนการจากผลผลิตไบโอดีเซลที่ได้จากกระบวนการเป็นหลัก กระบวนการผลิตนี้สามารถผลิตไบโอดีเซล (Yield) ได้อย่างมีประสิทธิภาพถึง 89.41% โดยได้ปริมาณไบโอดีเซล 56.02 กิโลกรัม/ชั่วโมง และกลีเซอรอลดิบ 5.81 กิโลกรัม/ชั่วโมง

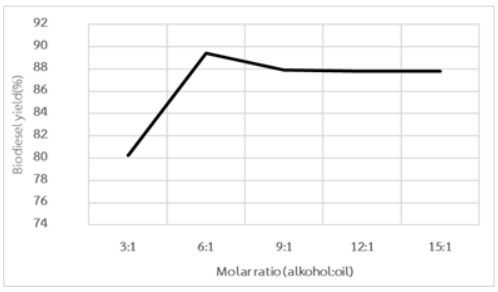


(ก)

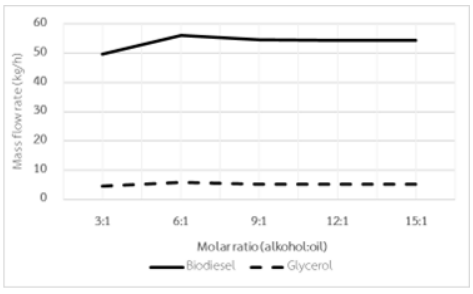


(ข)

ภาพที่ 2 (ก) อิทธิพลของอุณหภูมิที่ส่งผลต่อผลผลิตไบโอดีเซล (Yield), (ข) อิทธิพลของอุณหภูมิที่ส่งผลต่อปริมาณไบโอดีเซลและกลีเซอรอลดิบ โดยที่อัตราส่วนเมทานอลต่อน้ำมัน 6:1 และระยะเวลาการเกิดปฏิกิริยา 1 ชั่วโมง

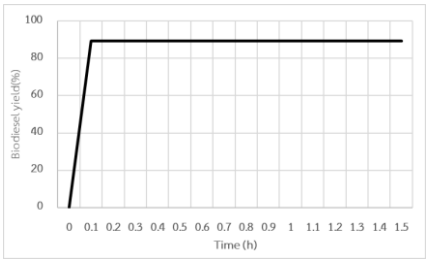


(ก)

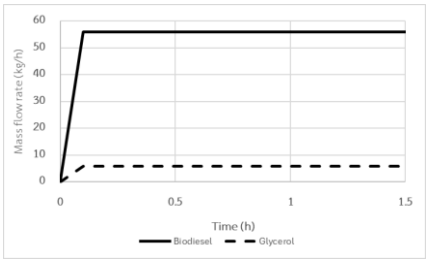


(ข)

ภาพที่ 3 (ก) อิทธิพลของอัตราส่วนเมทานอลต่อน้ำมันที่ส่งผลต่อผลผลิตไบโอดีเซล (Yield), (ข) อิทธิพลของอัตราส่วนเมทานอลต่อน้ำมันที่ส่งผลต่อปริมาณไบโอดีเซลและกลีเซอรอลดิบ โดยที่อุณหภูมิ 60°C และระยะเวลาการเกิดปฏิกิริยา 1 ชั่วโมง



(ก)



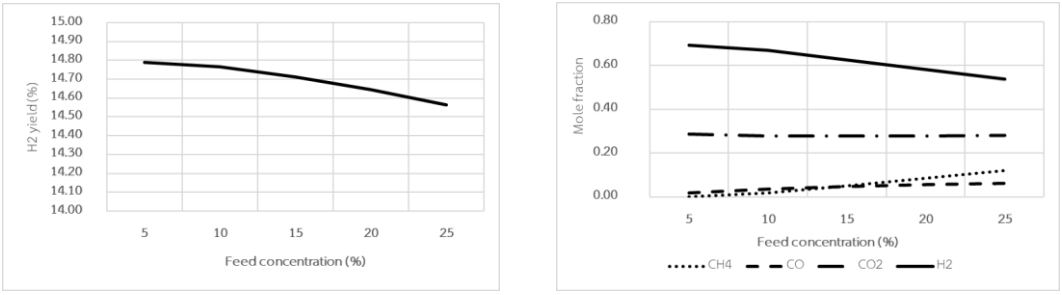
(ข)

ภาพที่ 4 (ก) อิทธิพลของเวลาที่ส่งผลต่อผลผลิตไบโอดีเซล (Yield), (ข) อิทธิพลของเวลาที่ส่งผลต่อปริมาณไบโอดีเซลและกลีเซอรอลดิบ โดยที่อัตราส่วนเมทานอลต่อน้ำมัน 6:1 และอุณหภูมิ 60°C

2. การผลิตแก๊สไฮโดรเจนจากกลีเซอรอลดิบ ด้วยกระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด (Supercritical Water Gasification)

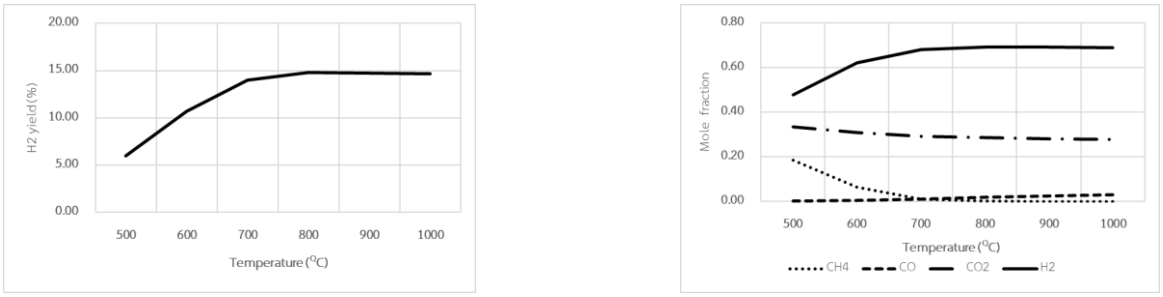
จากกระบวนการทรานส์เอสเทอริฟิเคชันของน้ำเสียจากการสกัดน้ำมันปาล์มนั้นสามารถผลิตกลีเซอรอลดิบได้ 5.81 กิโลกรัม/ชั่วโมง ซึ่งเป็นผลพลอยได้จากกระบวนการ เมื่อนำกลีเซอรอลดิบที่ได้นี้มาผลิตเชื้อเพลิงไฮโดรเจนด้วยกระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด ผลการศึกษาจากการจำลองกระบวนการแสดงดังนี้ จากภาพที่ 5(ก) ที่ความดัน 22.1 MPa และความเข้มข้นของสารตั้งต้น (Feed concentration) 5% ซึ่งหมายถึงกลีเซอรอลดิบ 5 ส่วน ผสมกับตัวทำละลาย (น้ำ) 95 ส่วน โดยผลการศึกษาพบว่าอุณหภูมิเป็นปัจจัยสำคัญที่ส่งผลต่อผลผลิตไฮโดรเจน (H_2) เช่นเดียวกับภาพที่ 5(ข) ที่แสดงให้เห็นว่าอุณหภูมิมีอิทธิพลต่อการผลิตไฮโดรเจนมากที่สุด เมื่ออุณหภูมิเพิ่มขึ้นจาก 500°C ถึง 1000°C ปริมาณ H_2 เพิ่มขึ้นอย่างชัดเจน เนื่องจากอุณหภูมิสูงช่วยสลายพันธะของ CH_4 และ CO_2 ได้อย่างมีประสิทธิภาพ ในทางกลับกัน CH_4 มีแนวโน้มลดลงเมื่ออุณหภูมิสูงขึ้น เพราะถูกเปลี่ยนเป็น H_2 และ CO ผ่านปฏิกิริยา Steam methane reforming (António Henriques Martins, 2022 ; Dwi Hantoko & et al, 2018) นอกจากนี้จากภาพที่ 6(ก) ที่อุณหภูมิ 800°C และความดัน 22.1 MPa พบว่าความเข้มข้นของสารป้อนมีผลต่อผลผลิต H_2 เช่นเดียวกับภาพที่ 6(ข) ที่แสดงให้เห็นว่าเมื่อความเข้มข้นของสารป้อนเพิ่มขึ้นจาก 5% เป็น 25% ปริมาณ H_2 ลดลง เนื่องจากความเข้มข้นที่มากขึ้นทำให้สารป้อนมีความหนืดมากขึ้นรวมถึงยังเกิดการอุดตันในถังปฏิกรณ์ได้อีกด้วย ในขณะเดียวกัน CH_4 และ CO_2 กลับเพิ่มขึ้นตามความเข้มข้นของสารป้อน ส่วน CO มีการเปลี่ยนแปลงเพียงเล็กน้อย เนื่องจากปฏิกิริยา Dry reforming (António Henriques Martins, 2022) รวมทั้งจากภาพที่ 7(ก) ที่อุณหภูมิ 800°C และความเข้มข้นของสารตั้งต้น 5% ผลการศึกษา พบว่าเมื่อเพิ่มความดันเพิ่มขึ้นจาก 22.1 MPa เป็น 42.1 MPa ผลผลิต H_2 ลดลงเล็กน้อย แต่การเปลี่ยนแปลงไม่ชัดเจนเท่ากับอุณหภูมิและความเข้มข้นของสารป้อน เช่นเดียวกับภาพที่ 7(ข) ที่แสดงให้เห็นว่า H_2 มีการเปลี่ยนแปลงน้อย ส่วน CH_4, CO_2 มีแนวโน้มคงที่ และ CO ไม่เปลี่ยนแปลง แสดงให้เห็นว่าความดันมีผลต่อการผลิต H_2 ไม่มากเมื่อเทียบกับอุณหภูมิและความเข้มข้นของสารป้อน แต่ความดันมีส่วนช่วยเพิ่มการละลายของสารป้อนในน้ำได้ (António Henriques Martins, 2022 ; Dwi Hantoko & et al, 2018) จากการศึกษากระบวนการ แก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด

สามารถกล่าวได้ว่าอุณหภูมิที่เหมาะสมคือ 800°C ความเข้มข้นของสารตั้งต้นที่เหมาะสม คือ 5% และความดันที่เหมาะสมคือ 22.1 MPa โดยพิจารณาความเหมาะสมของกระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด จากผลผลิตของ H_2 ที่ได้จากกระบวนการเป็นหลัก โดยดูจากปัจจัยที่มีผลต่อปริมาณ H_2 ได้แก่ อุณหภูมิ ความเข้มข้นของสารตั้งต้น และความดัน โดยที่สภาวะการดำเนินงานนี้สามารถผลิตผลิตภัณฑ์แก๊สเชื้อเพลิงผสมในเทอมของสัดส่วนโดยโมลได้ดังนี้ H_2 0.6924, CO 0.0188, CO_2 0.2872 และ CH_4 0.0016 และได้ผลผลิต H_2 (Yield) 14.79% ((Dwi Hantoko & et al, 2018) คิดเป็นปริมาณ H_2 ที่ผลิตได้เท่ากับ 0.859 กิโลกรัม/ชั่วโมง



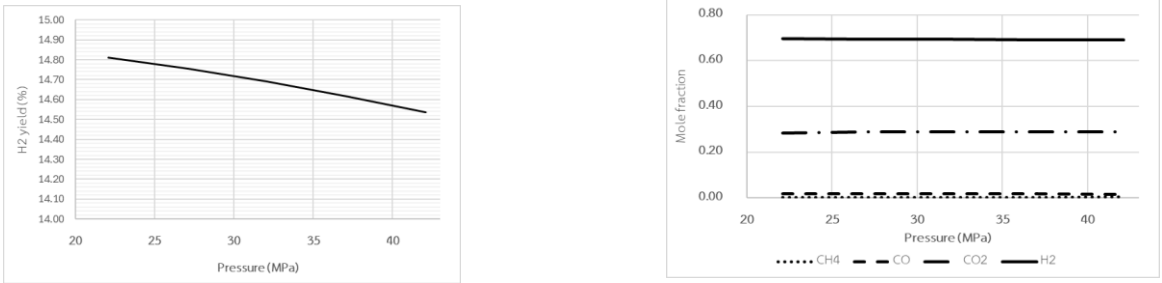
(ก) (ข)

ภาพที่ 5 (ก) อิทธิพลของอุณหภูมิต่อผลผลิต H_2 (Yield), (ข) อิทธิพลขององุณหภูมิต่อองค์ประกอบของแก๊สเชื้อเพลิงผสม โดยที่ความเข้มข้นของสารตั้งต้น 5% และความดัน 22.1 MPa



(ก) (ข)

ภาพที่ 6 (ก) อิทธิพลของความเข้มข้นของสารตั้งต้นต่อผลผลิต H_2 (Yield), (ข) อิทธิพลของความเข้มข้นของสารป้อนต่อองค์ประกอบของแก๊สเชื้อเพลิงผสม โดยที่อุณหภูมิ 800°C และความดัน 22.1 MPa



(ก) (ข)

ภาพที่ 7 (ก) อิทธิพลของความดันต่อผลผลิต H_2 (Yield), (ข) อิทธิพลของความดันต่อองค์ประกอบของแก๊สเชื้อเพลิงผสม โดยที่อุณหภูมิ 800°C และความเข้มข้นของสารตั้งต้น 5%

สรุปผลการศึกษา

น้ำเสียจากการสกัดน้ำมันปาล์มเป็นของเสียที่เกิดจากกระบวนการผลิตน้ำมันปาล์ม โดยเฉพาะในขั้นตอนการฆ่าเชื้อและการทำให้น้ำมันปาล์มบริสุทธิ์ ซึ่งปริมาณน้ำเสียที่เกิดขึ้นจากการสกัดน้ำมันปาล์มนั้นมีปริมาณมาก แต่น้ำเสียจากการสกัดน้ำมันปาล์มไม่ได้เป็นเพียงแค่น้ำเสียที่ไร้ประโยชน์ เนื่องจากในน้ำเสียจากการสกัดน้ำมันปาล์มมีปริมาณไตรกลีเซอไรด์ที่สามารถนำไปใช้ประโยชน์ได้ ซึ่งจากศึกษาด้วยวิธีการจำลองกระบวนการในโปรแกรม Aspen plus ทำให้ทราบว่าน้ำเสียจากการสกัดน้ำมันปาล์ม 1,000 กิโลกรัม/ชั่วโมง (ซึ่งมีไตรกลีเซอไรด์ 56.16 กิโลกรัม/ชั่วโมง) สามารถผลิตไบโอดีเซลได้ 56.02 กิโลกรัม/ชั่วโมง คิดเป็นผลผลิตของไบโอดีเซล (Yield) 89.41% และกลีเซอรอลดิบ 5.81 กิโลกรัม/ชั่วโมง นอกจากนี้ผลพลอยได้จากกระบวนการทรานส์เอสเทอริฟิเคชัน ซึ่งคือกลีเซอรอลดิบ สามารถนำมาผลิตแก๊สเชื้อเพลิงไฮโดรเจนได้ด้วยกระบวนการแก๊สซิฟิเคชั่นในสภาวะน้ำยิ่งยวด โดยได้ผลผลิตไฮโดรเจน (Yield) 14.79% คิดเป็นปริมาณไฮโดรเจน 0.859 กิโลกรัม/ชั่วโมง การศึกษานี้ได้นำเสนอแนวทางในการผลิตพลังงานจากน้ำเสียจากการสกัดน้ำมันปาล์มซึ่งเป็นของเสียจากอุตสาหกรรมมาผลิตไบโอดีเซลและเชื้อเพลิงไฮโดรเจน โดยผลิตภัณฑ์ที่ผลิตได้จากกระบวนการนี้สามารถนำมาใช้ทดแทนเชื้อเพลิงฟอสซิลในภาคการขนส่งและภาคอุตสาหกรรม ซึ่งช่วยลดการปล่อยก๊าซเรือนกระจกและลดผลกระทบต่อสิ่งแวดล้อม งานวิจัยนี้จึงเป็นการศึกษาการพัฒนาเทคโนโลยีการผลิตพลังงานจากของเสีย ซึ่งส่งเสริมการใช้พลังงานทดแทน เพื่อลดการพึ่งพาเชื้อเพลิงฟอสซิล และลดผลกระทบต่อสิ่งแวดล้อม

ข้อเสนอแนะ

ควรมีการศึกษาและพัฒนากระบวนการเพิ่มเติมในการจัดการ CO_2 และศึกษาทางด้านเศรษฐศาสตร์ ซึ่งเป็นปัจจัยสำคัญที่จะช่วยให้เทคโนโลยีการผลิตพลังงานจากน้ำเสียจากการสกัดน้ำมันปาล์ม พัฒนาไปสู่ความยั่งยืนในทุกๆ ด้าน ทั้งด้านสิ่งแวดล้อม เศรษฐกิจ และสังคม

เอกสารอ้างอิง

กรมอุตุนิยมวิทยา. (2567). ภาวะเรือนกระจก (Greenhouse effect). สืบค้นเมื่อ 6 พฤศจิกายน 2567 จาก http://climate.tmd.go.th/content/article/10

นภารัตน์ เกษตรสมบูรณ์, สุห์ดี นิเซ็ง และ อาริษา โสภาจารย์. (2563). การสังเคราะห์ไบโอดีเซลจากน้ำมันในน้ำเสียชุมชน เทศบาลเขารูปช้าง จังหวัดสงขลา. สงขลา : มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย วิทยาลัยรัตภูมิ.

พูนสุข ประเสริฐสรรพ์ และ เสถียรพงษ์ อุดมศิลป์. (2553). การแยกน้ำมันและของแข็งออกจากน้ำทิ้งของโรงงานสกัดน้ำมันปาล์มด้วยวิธีการทางชีวภาพโดยใช้จุลินทรีย์และเอนไซม์. วารสารมหาวิทยาลัยศรีนครินทรวิโรฒ สาขาวิทยาศาสตร์และเทคโนโลยี, 1(2), 125-134.

ไพศาล คงคาฉุยฉาย และ อำนาจ คำหล่า. (2551). ปฏิกิริยาทรานส์เอสเทอริฟิเคชันน้ำมันสบู่ดำโดยใช้ตัวเร่งปฏิกิริยาโปแตสเซียมออกไซต์/ฟอจาไซต์. วารสารวิทยาศาสตร์ มศว, 24(24), 141-152.

Ajay K. Dalai, Alivia Mukherjee, Burcu Gunes, Emmanuel I., Epelle, Sonil Nanda, Jude A. Okolie, & Meshach E. Tabat,. (2021). A techno-economic assessment of biomethane and bioethanol production from crude glycerol through integrated hydrothermal gasification, syngas fermentation and biomethanation. Energy Conversion and Management: X, 12, 100131.

Alfalaval. (2024). POME treatment. Retrieved from https://www.alfalaval.com/industries/food-dairy-beverage/food-processing/fat-and-oil-processing/palm-oil-processing/pome-treatment/

Alfawan Alfawan, Aung Kyaw, Moch Purwanto, Muhammad Uswah Pawara, Suardi Suardi, & Wira Setiawan. (2022). Biodiesel Production from POME (Palm Oil Mill Effluent) and Effects on Diesel Engine Performance. International Journal of Marine Engineering Innovation and Research, 7.

Ali Erdogan Karaca, Ali M. M. I. Qureshy, Ibrahim Dincer, & Muhammed Iberia Aydin. (2021). A comparative review on clean hydrogen production from wastewaters. Journal of Environmental Management, 279, 111793.

António Henriques Martins. (2022). Biomass gasification as a way of producing green hydrogen modelling and simulation in Aspen Plus®

Athina Stegov Sagia Panagiotis Kladisios. (2022). A Review on Supercritical Water Gasification of Biomass. Bioenergy and Bioresource, 3(4).

Dwi Hantoko, Hongcai Su, Mi Yan, Ekkachai Kanchanatip, Guobin Wang, Herri Susanto, Sicheng Zhang, & Zhang Xu. (2018). Thermodynamic study on the integrated supercritical water gasification with reforming process for hydrogen production: Effects of operating parameters. International Journal of Hydrogen Energy, 43(37), 17620-17632.

Gisele Rabelo, & Maria Andrade. (2020). Simulation and optimization of CSTR reactor of a biodiesel plant by various plant sources using Aspen Plus. International Journal of Chemical Reactor Engineering, -1.

Jayacumar Sanjana, S. P. Jeevan Kumar, P. Naveen Kumar, K. Ramachandrudu, & Samuel Jacob. (2024). Coupled Production of Fatty Acid Alkyl Esters as Biodiesel and Fermentative Xylitol from Indian Palm (Elaeis guineensis Jacq.) Kernal Oil in a Biorefinery Loom. Waste and Biomass Valorization, 15(10), 5785-5804.

Imtisal Zahid, Hamza Nazir, Mariam Ameen, Mohd Hizami Mohd Yusoff, Muhammad Ayoub, Muhammad Farooq Sher, & Zulqarnain. (2021). Solvent extraction and performance analysis of residual palm oil for biodiesel production: Experimental and simulation study. Journal of Environmental Chemical Engineering, 9(4), 105519.

Manisara Kome-ngam, Pesak Rungrojchaipon, & Pronchita Kantong. (2022). Catalytic Study of Calcium Silicate from Duck Eggshell for the Synthesis of Glycerol Carbonate from Glycerol and Urea. Journal of Science Ladkrabang, 31(1), 1-16.

Marumo. (2021). “รอบรู้เรื่อง “กลีเซอรีน (Glycerin)” คืออะไรและใช้ประโยชน์อะไรได้บ้าง?”. สืบค้นเมื่อ 27 ตุลาคม 2567 จาก marumothai.com/article

Nathapol Boonpithak. (2012). Simulation of autothermal biomass gasification using supercritical water (Master's Degree). Chulalongkorn University, Bangkok.

Nisa Paichid, Saowakon Suwanno, Kanokphorn Sangkharak , Pattarawadee Kimtun, Poonsuk Prasertsan, Thanaphorn Rakkan, & Tewan Yunu. (2017). The production of biodiesel using residual oil from palm oil mill effluent and crude lipase from oil palm fruit as an alternative substrate and catalyst. Fuel, 195, 82-87.

Prayoon Fongsatitkul, & Supawadee Sinnaraprasat. (2011). Optimal Condition of Fenton's Reagent to Enhance the Alcohol Production from Palm Oil Mill Effluent (POME). EnvironmentAsia, 4, 9-16.

Sarah Golden. (2024). Has green hydrogen’s time finally come. Trellis by GreenBiz Group Inc. Retrieved from https://trellis.net/article/has-green-hydrogens-time-finally-come/

การศึกษาการทดสอบความแม่นยำของระบบตรวจวัดมลพิษแบบอัตโนมัติด้วยมาตรฐานอเมริกาและอังกฤษ: กรณีศึกษาโรงไฟฟ้า

A Study on Accuracy Assessment of An Automated Pollution Monitoring System Based on American and British Standards: A Case Study of A Power Plant

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บทคัดย่อ

จากการที่กระทรวงอุตสาหกรรมได้ออกประกาศให้โรงงานติดตั้งเครื่องมือ เพื่อตรวจสอบคุณภาพอากาศจากปล่องระบายแบบอัตโนมัติ โดยโรงงานต้องรายงานข้อมูลการปล่อยมลพิษออนไลน์ ให้กรมโรงงานอุตสาหกรรมและเปิดเผยต่อสาธารณะ เพื่อเป็นการเฝ้าระวังการปลดปล่อยมลพิษที่เกินมาตรฐานที่กำหนด หนึ่งในโรงงานที่ต้องติดตั้งระบบตรวจวัดมลพิษคือ โรงไฟฟ้า ซึ่งมีมากกว่า 100 แห่ง ในประเทศไทย ซึ่งต้องติดตั้งระบบตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติอย่างต่อเนื่อง (Continuous Emission Monitoring System, CEMS) และต้องทดสอบความแม่นยำของระบบนี้ทุกปี ซึ่งในการประเมินความแม่นยำของระบบ CEMS ปัจจุบันประเทศไทยใช้มาตรฐานของสหรัฐอเมริกา (US.EPA) ซึ่งมีความซับซ้อนและมีค่าใช้จ่ายสูง โดยเฉพาะสำหรับโรงไฟฟ้าที่ต้องเดินเครื่องผลิตไฟฟ้าให้ได้มากกว่า 50% เพื่อทดสอบความแม่นยำ ดังนั้นการศึกษานี้จึงเสนอการใช้มาตรฐานอังกฤษ (BS EN 14181) ที่มีข้อกำหนดการทดสอบความแม่นยำของการตรวจวัดที่รวดเร็วกว่าและเทียบเท่ากับมาตรฐานสหรัฐอเมริกา ซึ่งจะช่วยลดระยะเวลาและค่าใช้จ่ายในการทดสอบได้ การศึกษานี้จึงมุ่งเน้นการเปรียบเทียบผลการทดสอบ ความแม่นยำจากทั้งสองมาตรฐาน เพื่อลดภาระของโรงไฟฟ้าและสามารถนำไปใช้กับโรงงานประเภทอื่นได้โดย ผลการดำเนินการทดสอบความแม่นยำประจำปี ระบบตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติของ

โรงไฟฟ้าในปี พ.ศ. 2566 และปี พ.ศ. 2567 ภายใต้มาตรฐานการทดสอบความแม่นยำของสหรัฐอเมริกาและอังกฤษ แสดงให้เห็นว่าการทดสอบมาตรฐานอังกฤษสามารถลดระยะเวลาในการดำเนินการได้ ซึ่งเป็นผลดีต่อโรงไฟฟ้าที่ไม่ได้เดินเครื่องผลิตไฟฟ้าเต็มที่ตลอดเวลา นอกจากนี้ยังพบว่าการวิเคราะห์ผลการทดสอบความแม่นยำของก๊าซที่มีความเข้มข้นต่ำด้วยมาตรฐานของสหรัฐอเมริกา (US.EPA) ส่วนใหญ่จะไม่ผ่านมาตรฐานการทดสอบความแม่นยำสัมพัทธ์ แต่อย่างไรก็ตามผลการศึกษาชี้ให้เห็นว่ามาตรฐานอังกฤษมีแนวทางและการดำเนินการที่เทียบเท่ากับมาตรฐานสหรัฐอเมริกา ซึ่งสามารถใช้ทดสอบความแม่นยำของระบบ CEMS ได้อย่างมีประสิทธิภาพและช่วยลดค่าใช้จ่ายให้กับโรงงานได้

คำสำคัญ: การปล่อยมลพิษ, มาตรฐานด้านสิ่งแวดล้อมสหรัฐอเมริกา, วิธีการตรวจวัดมลพิษจากปล่องแบบอัตโนมัติของอังกฤษ, ระบบตรวจวัดมลพิษจากปล่องแบบอัตโนมัติอย่างต่อเนื่อง

Abstract

The Ministry of Industry is directive requiring industrial to install automated air quality monitoring systems for emission control, industrial have to report real-time emission data online to the Department of Industrial Works and enable public availability. This initiative aims to monitor and prevent excessive pollution beyond regulatory limits. Among the industrial facilities subject to this regulation are power plants, which more than 100 power plants in Thailand. These power plants are required to install continuous emission monitoring systems (CEMS) to continuously measure air pollutants from their stacks. Additionally, an annual accuracy test of the CEMS is mandated. Currently, Thailand adopts the United States environmental protection agency (US.EPA) standards for CEMS accuracy assessment, which involve complex procedures and substantial costs. A major challenge for power plants is the requirement to operate at more than 50% of their capacity during testing, leading to increased operational burdens. This study proposes adopting the British Standard BS EN 14181, which offers more efficient and equally reliable accuracy verification process compared to the US.EPA standard. The objective of this study is to reduce testing duration and associated costs while maintaining regulatory compliance. This research focuses on a comparative analysis of the accuracy assessment results between the two standards, with the aim of alleviate the testing burden for power plants and extend applicability to other industrial facilities. The study examines the results of annual CEMS accuracy testing conducted in 2023 and 2024 under both American and British standards. The results indicate that the British standard significantly reduces the

testing time, benefiting power plants that do not consistently operate at full capacity. Most precision test results for low-concentration gases, based on the United States Environmental Protection Agency (US. EPA) standard, do not satisfy the requirements of the relative accuracy test criteria. Nevertheless, the study confirms that the British standard provides an equivalent approach to the US.EPA standard in ensuring the accuracy of CEMS while offering a cost-effective solution for industrial.

Keywords: BS EN 14181, Continuous Emission Monitoring Systems (CEMS), Emission, US.EPA

บทนำ

ตั้งแต่ปี พ.ศ.2544 กระทรวงอุตสาหกรรมได้ออกประกาศให้โรงงานประเภทต่าง ๆ ต้องติดตั้งเครื่องมือหรือเครื่องอุปกรณ์พิเศษ เพื่อตรวจสอบคุณภาพอากาศจากปล่องระบายแบบอัตโนมัติ และได้ออกประกาศฉบับล่าสุดปี พ.ศ. 2565 ซึ่งมีความเข้มงวดให้โรงงานตามประกาศต้องติดตั้งเครื่องมือหรืออุปกรณ์พิเศษให้ครบทุกปล่องระบาย และรายงานข้อมูลการปล่อยมลพิษอากาศจากปล่องระบายแบบออนไลน์ให้กรมโรงงานอุตสาหกรรม เพื่อกำกับดูแลและควบคุมให้มีการปล่อยมลพิษจากปล่องให้เป็นไปตามข้อกำหนด อย่างไรก็ตามหนึ่งในประเภทโรงงานที่มีการปล่อยมลพิษค่อนข้างสูงในประเทศไทย คือ โรงไฟฟ้าซึ่งมีมากกว่า 100 แห่งทั่วประเทศ และเป็นอีกหนึ่งประเภทโรงงานที่ต้องติดตั้งระบบตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติอย่างต่อเนื่องหรือ Continuous Emission Monitoring System (CEMS) เมื่อติดตั้งระบบตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติอย่างต่อเนื่อง ของปล่องระบายโรงไฟฟ้าเสร็จสิ้น จำเป็นต้องมีการทดสอบความแม่นยำและความน่าเชื่อถือในการรายงานค่ามลพิษทางอากาศ ซึ่งต้องมีการทดสอบความแม่นยำอย่างน้อยปีละ 1 ครั้ง เพื่อให้แน่ใจว่าเครื่องมือตรวจวัดมลพิษอากาศจากปล่องระบายนั้น มีความน่าเชื่อถือและมีความแม่นยำตามตามเกณฑ์มาตรฐานที่กำหนด ในปัจจุบันประเทศไทยอ้างอิงมาตรฐานการทดสอบความแม่นยำระบบ CEMS ตามข้อกำหนดของสำนักงานคุ้มครองสิ่งแวดล้อมของสหรัฐอเมริกา United States Environmental Protection Agency (US.EPA) ซึ่งมีข้อกำหนดที่ซับซ้อน ระยะเวลาในการดำเนินการยาวนาน ส่งผลกระทบกับโรงไฟฟ้าต้องเสียค่าดำเนินการในการทดสอบความแม่นยำของระบบ CEMS นี้เพิ่มขึ้น ซึ่งบางโรงไฟฟ้าที่เดินเครื่องผลิตกระแสไฟฟ้าโหลดต่ำเพื่อรอคำสั่งผลิตกระแสไฟฟ้าจากส่วนกลาง เมื่อต้องดำเนินการทดสอบความแม่นยำของระบบ CEMS นี้จำเป็นจะต้องเดินเครื่องผลิตกระแสไฟฟ้าให้ได้มากกว่า 50% ของการทำงานปกติ (ประกาศกระทรวงอุตสาหกรรม, 2565)

การดำเนินงานการทดสอบความแม่นยำระบบ CEMS ของโรงไฟฟ้าไฟฟ้า สามารถใช้มาตรฐานอื่นที่เทียบเท่ากับมาตรฐานสหรัฐอเมริกาได้เช่นกัน ซึ่งมาตรฐานของอังกฤษ (BS EN 14181) สามารถใช้เป็นทางเลือกในการทดสอบความแม่นยำระบบ CEMS เพราะเป็นที่ยอมรับของสากลและมีความเทียบเท่า

กับมาตรฐานการทดสอบความแม่นยำระบบ CEMS ของสหรัฐอเมริกา (Srivastava et al., 2024) ซึ่งมาตรฐานอังกฤษนี้ จะสามารถลดเวลาการเดินเครื่องและช่วงเวลาการตรวจวัดมลสารจากปล่องระบาย เพราะมาตรฐานของอังกฤษในการทดสอบความแม่นยำประจำปี มีข้อกำหนดการตรวจวัดที่ระยะเวลาสั้นกว่า ทำให้โรงงานสามารถเดินระบบการผลิตไฟฟ้าสั้นลง

ดังนั้นการศึกษาวิจัยในครั้งนี้ จึงมุ่งเน้นศึกษาการทดสอบความแม่นยำประจำปีของระบบตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติของโรงไฟฟ้าตามมาตรฐานสหรัฐอเมริกาและอังกฤษ โดยตรวจวัดวิเคราะห์ค่า O_2, CO, NO_X, SO_2 เพื่อทำการวิเคราะห์เปรียบเทียบผลการทดสอบความแม่นยำประจำปีระหว่าง 2 มาตรฐาน หากผลของการวิเคราะห์พบว่ามาตรฐานของอังกฤษมีค่าการทดสอบความแม่นยำเทียบเท่าหรือใกล้เคียงกับมาตรฐานสหรัฐอเมริกาก็จะสามารถใช้เป็นทางเลือก ในการตรวจสอบความแม่นยำประจำปีของระบบตรวจวัดมลพิษทางอากาศจากปล่องแบบอัตโนมัติ (CEMS) ของโรงไฟฟ้า ซึ่งสามารถช่วยให้โรงไฟฟ้าลดระยะเวลาในการดำเนินงานด้านการทดสอบความแม่นยำประจำปี และภาระค่าใช้จ่ายของเชื้อเพลิงที่ใช้ในการเดินเครื่องผลิตกระแสไฟฟ้าที่ไม่จำเป็นออกไปได้ และยังสามารถขยายผลไปยังโรงงานประเภทอื่นได้อีกด้วย

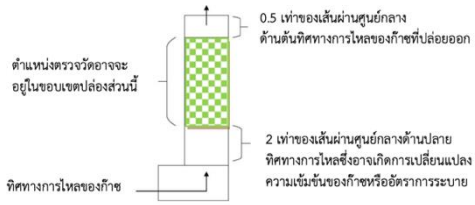
วัตถุประสงค์ของการวิจัย

ศึกษาเปรียบเทียบการทดสอบความแม่นยำของระบบตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติประจำปีของโรงไฟฟ้าด้วยมาตรฐานสหรัฐอเมริกาและอังกฤษ เพื่อเป็นแนวทางให้โรงไฟฟ้าสามารถใช้มาตรฐานอังกฤษ ในการทดสอบความแม่นยำระบบตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติประจำปี

แนวคิด ทฤษฎี กรอบแนวคิด

ในการเข้าตรวจวัดและเก็บข้อมูลค่ามลพิษทางอากาศแบบอัตโนมัติจากปล่องระบายของโรงไฟฟ้าเพื่อการรายงานผลตามมาตรฐานการทดสอบความแม่นยำประจำปี โดยการตรวจวัดแบบคู่ขนานระหว่างระบบตรวจวัดมลพิษของโรงไฟฟ้าและระบบตรวจวัดมลพิษของบริษัทที่ปรึกษา มีความจำเป็นอย่างยิ่งที่ข้อมูลจากระบบมลพิษอากาศแบบอัตโนมัติที่ติดตั้งไว้นั้น สามารถเป็นตัวแทนของการปล่อยมลพิษอากาศจากปล่อง โดยขั้นตอนที่สำคัญจะเริ่มตั้งแต่การติดตั้งระบบจนถึงการทดสอบการทำงานของระบบให้เป็นไปตามคุณลักษณะการทำงานตามวิธีการอ้างอิงตามข้อกำหนดของมาตรฐาน ซึ่งตามมาตรฐานของสหรัฐอเมริกา United States Environmental Protection Agency (US.EPA) PART 40 CFR 60 และมาตรฐานอังกฤษ BS EN 14181 มีส่วนสำคัญที่เหมือนกัน คือ การเลือกตำแหน่งการติดตั้ง (CEMS Measurement Location) จุดที่ปลายทางการไหลของอากาศ (Downstream) จากระบบกำจัดมลพิษทางอากาศ (Control Device) จุดกำเนิดมลพิษหรือจุดที่ทำให้มีการเปลี่ยนแปลงความเข้มข้นของมลพิษหรืออัตราการระบายมลพิษอย่างน้อย 2 เท่าของเส้นผ่านศูนย์กลางปล่องหรือท่อ ส่วนจุดที่อยู่ต้นทางการ

ไหล (Upstream) หรือห่างจากระบบบำบัดมลพิษทางอากาศ โดยให้จุดที่เลือกอยู่ทางด้านต้นทางการไหล นับจากจุดระบายนั้นมาอย่างน้อย 0.5 เท่า ของเส้นผ่านศูนย์กลางปล่องหรือท่อ (กรมโรงงานอุตสาหกรรม , 2556)



ภาพที่ 1 ตำแหน่งติดตั้งอุปกรณ์

การเลือกตำแหน่งจุดเก็บตัวอย่างบนพื้นที่หน้าตัด (Select Traverse Point) ปล่องกลม กำหนดจุดเก็บตัวอย่างบนพื้นที่หน้าตัด 12 จุด (ในแนวตั้งฉากกันด้านละ 6 จุด) แล้วทำการตรวจวัดค่าความเข้มข้นก๊าซมลพิษแต่ละจุด ในกรณีที่ค่าความเข้มข้นของสารมลพิษเฉลี่ยมีค่าแตกต่างจากค่าที่ตรวจวัดที่จุดใด ๆ เกินร้อยละ 10 แสดงว่าเกิดการแบ่งชั้นของก๊าซให้กำหนดจุดตรวจวัด 3 จุดที่ระยะร้อยละ 16.7, 50.0 และ 83.3 ของเส้นแนวตรวจวัด สำหรับปล่องเหลี่ยม แบ่งพื้นที่หน้าตัดของปล่องออกเป็นพื้นที่สี่เหลี่ยมที่มีขนาดเท่ากันอย่างน้อย 9 ช่อง แล้วกำหนดจุดชักตัวอย่างลงบนจุดกึ่งกลางของพื้นที่ ที่แบ่งไว้ตรวจวัดค่าความเข้มข้นของก๊าซมลพิษ จากนั้นคำนวณค่าเฉลี่ยความเข้มข้นก๊าซของทุกจุดที่เก็บตัวอย่าง ในการทดสอบสามารถเลือกตำแหน่งจุดเก็บตัวอย่างจุดอื่นได้ ภายในรัศมี 3 เซนติเมตรของแนวตรวจวัด แต่ต้องไม่น้อยกว่า 3 เซนติเมตร จากผนังปล่องหรือท่อสำหรับทดสอบความแม่นยำของข้อมูลระบบตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติประจำปี ตามมาตรฐานของสหรัฐอเมริกา (US.EPA) หรือ Relative Accuracy Test Audit (RATA) การทดสอบวิธีนี้จะต้องทำอย่างน้อยปีละ 1 ครั้ง โดยการใช้ข้อมูลการตรวจวัดก๊าซของระบบตรวจวัดมลพิษอากาศจากปล่องโรงไฟฟ้าแบบอัตโนมัติ (CEMS) และการทดสอบความแม่นยำสัมพัทธ์ด้วยการตรวจวัดอ้างอิงมาตรฐาน โดยบริษัทที่ปรึกษาด้านสิ่งแวดล้อมหรือ Reference Method (RM) จะทำการเก็บตัวอย่างในขณะที่โรงงานเดินระบบมากกว่าร้อยละ 50 ของการทำงานปกติ หรือตามที่กำหนดไว้ในกฎหมาย โดยมีขั้นตอนการดำเนินการเก็บตัวอย่างดังนี้ (1) ดำเนินการเก็บตัวอย่างแบบรวม (Integrated Sampling) โดยเก็บตัวอย่าง 12 ชุดข้อมูล ใช้เวลาในการเก็บตัวอย่าง 21 นาทีต่อ 1 ชุดข้อมูล (2) มาตรฐาน US.EPA กำหนดให้ทำการทดสอบอย่างน้อย 9 ชุดข้อมูลจาก 12 ชุดข้อมูล โดยตัดค่าผลการทดสอบที่มีค่าสูง 3 อันดับแรกออก แต่ในรายงานต้องจะต้องรายงานข้อมูลทั้งหมดรวมทั้งข้อมูลที่ตัดออก (3) การหาความสัมพันธ์ของข้อมูลการทดสอบความแม่นยำสัมพัทธ์ โดยนำข้อมูลของ CEMS และ RM มาเปรียบเทียบกัน และค่าความเข้มข้นของก๊าซต้องอยู่ในสภาวะแห้ง (Dry Basis) และต้องปรับแก้ความเข้มข้นก๊าซที่สภาวะออกซิเจนส่วนเกินร้อยละ 7 ซึ่งมีสมการคำนวณในขั้นตอนต่าง ๆ ดังต่อไปนี้

1). การปรับแก้ความเข้มข้นของก๊าซที่ตรวจวัดได้ให้อยู่ในสภาวะออกซิเจนส่วนเกิน 7% โดยคำนวณได้จากสมการ

$$C_{@7\%O2} = C\left(\frac{20.9\text{-}7}{20.9\text{-}\%O_2}\right) \qquad \text{สมการที่ (1)}$$

2). การหาค่าเฉลี่ยเลขคณิต Arithmetic Mean ($\bar{d}$) คำนวณได้จากค่าเฉลี่ยเลขคณิตของค่าผลต่าง (d) คำนวณได้จากสมการ

$$\bar{d} = \frac{1}{n}\sum_{i=1}^{n} d_i \qquad \text{สมการที่ (2)}$$

เมื่อ $\sum_{i=1}^{n} d_i$ คือ ผลรวมของค่าผลต่างของข้อมูล

n คือ จำนวนข้อมูล

3). การคำนวณหาค่าเบี่ยงเบนมาตรฐาน Standard Deviation (S_d) ของผลต่างของข้อมูลระหว่างค่าจากเครื่องตรวจวัดมลพิษอัตโนมัติของโรงไฟฟ้า (CEMS) และค่าจากวิธีการอ้างอิงมาตรฐานของบริษัทที่ปรึกษาด้านสิ่งแวดล้อม (RM) คำนวณได้จากสมการ

$$S_d = \sqrt{\frac{\sum_{i=1}^{n} d_i^2 - \frac{\left(\sum_{i=1}^{n} d_i\right)^2}{n}}{n-1}} \qquad \text{สมการที่ (3)}$$

4). การคำนวณหาค่าสัมประสิทธิ์ความเชื่อมั่น (Confidence Coefficient, CC) คำนวณได้จากสมการ

$$CC = t_{0.975}\frac{S_d}{\sqrt{n}} \qquad \text{สมการที่ (4)}$$

เมื่อ $t_{0.975}$ ใช้ค่าในตาราง t-Value ซึ่งอ้างอิงตามคู่มือการตรวจวัดมลพิษทางอากาศจากปล่องแบบอัตโนมัติอย่างต่อเนื่อง (น.3-11), กรมโรงงานอุตสาหกรรม, 2556

5). การคำนวณหาค่าความแม่นยำสัมพัทธ์ (Relative Accuracy, RA) ของข้อมูลเพื่อนำค่าที่ได้ไปเทียบมาตรฐานเกณฑ์การยอมรับ คำนวณได้จากสมการ

$$RA = \frac{[|\bar{d}| + |CC|]}{\bar{RM}} \qquad \text{สมการที่ (5)}$$

เมื่อ RA คือ ความแม่นยำสัมพัทธ์

$\bar{RM}$ คือ ค่าที่ตรวจวัดได้จากวิธีการอ้างอิงมาตรฐาน

$|\bar{d}|$ คือ ค่าสมบูรณ์ของค่าเฉลี่ยเลขคณิตของผลต่างระหว่างค่า RM และ CEMS ของโรงงาน

ICCI คือ ค่าสมบูรณ์ของสัมประสิทธิ์ความเชื่อมั่น

ในกรณีที่ค่าเฉลี่ยของสารมลพิษระหว่างการทดสอบมีค่าน้อยกว่าร้อยละ 50 ของค่ามาตรฐานมลพิษทางอากาศให้แทนที่ $\overline{RM}$ ด้วยค่ามาตรฐานมลพิษทางอากาศ เกณฑ์การยอมรับค่าความแม่นยำสัมพัทธ์ (RA) คือค่าเปอร์เซ็นต์ที่คำนวณได้จากสมการที่ 5 ต้องไม่เกินเกณฑ์การยอมรับเทียบกับตารางที่ 1 (กรมโรงงานอุตสาหกรรม, 2556) หากผลการทดสอบความแม่นยำสัมพัทธ์เกินค่ามาตรฐานต้องดำเนินการแก้ไขระบบของโรงไฟฟ้าจากนั้น ให้ดำเนินการตรวจวัดแบบคู่ขนานซ้ำ และคำนวณวิเคราะห์ผลการทดสอบความแม่นยำซ้ำอีกครั้ง

ตารางที่ 1 เกณฑ์การยอมรับค่าความแม่นยำสัมพัทธ์ (%RA)

พารามิเตอร์	เกณฑ์การยอมรับ	
	เทียบกับ RM	เทียบกับมาตรฐานมลพิษอากาศ
SO_2, NO_X	20%	10%
CO	10%	5%
O_2	1.0%	-

สำหรับการทดสอบความแม่นยำของข้อมูลระบบตรวจวัดมลพิษอากาศ จากปล่องแบบอัตโนมัติประจำปีตามมาตรฐานของมาตรฐานอังกฤษ BS EN 14181 หรือ Annual Surveillance Test (AST) ซึ่งในการทดสอบความแม่นยำสัมพัทธ์ด้วยการอ้างอิงมาตรฐานหรือ Standard Reference Method (SRM) จะทำการเก็บตัวอย่างในขณะที่โรงงานเดินระบบมากกว่าร้อยละ 50 ของการทำงานปกติ หรือตามที่กำหนดไว้ในกฎหมาย โดยมีขั้นตอนการดำเนินการเก็บตัวอย่างดังนี้ (1) ดำเนินการเก็บตัวอย่างแบบรวม (Integrated Sampling) โดยเก็บตัวอย่าง 5 ชุดข้อมูล ใช้เวลาในการเก็บตัวอย่าง 30 นาทีต่อ 1 ชุดข้อมูล (2) สมการการทดสอบความแม่นยำประจำปี (AST) มาตรฐานอังกฤษ BS EN 14181 เป็นไปตามข้อกำหนดตามมาตรฐานและฟังก์ชันทดสอบความแม่นยำ โดยทำการตรวจวัดแบบคู่ขนานระหว่างระบบตรวจวัดมลพิษจากปล่องแบบอัตโนมัติของโรงไฟฟ้า Automated Measuring System (AMS) และวิธีการอ้างอิงมาตรฐาน Standard Reference Method (SRM) ซึ่งตรวจวัดโดยบริษัทที่ปรึกษาด้านสิ่งแวดล้อม (European Standard BS EN 14181, 2014) และนำค่าการตรวจวัดมาคำนวณ เพื่อทดสอบความแปรปรวนระหว่าง AMS และ SRM แล้วนำข้อมูลค่ามลพิษระหว่าง AMS และ SRM มาคำนวณและรายงานผลตามสมการดังต่อไปนี้

1). การคำนวณหาค่าเบี่ยงเบนมาตรฐาน (SD) ของผลต่างของข้อมูลระหว่างค่าจากเครื่องตรวจวัดมลพิษอัตโนมัติของโรงไฟฟ้า (ASM) และค่าจากวิธีการอ้างอิงมาตรฐานของบริษัทที่ปรึกษาด้านสิ่งแวดล้อม (SRM) คำนวณได้จากสมการ

$$SD=\sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(D_i-\overline{D})^2} \qquad \text{สมการที่ (6)}$$

เมื่อ D_i คือ ผลต่างระหว่างค่าที่วัดได้จาก AMS และ SRM

$\overline{D}$ คือ ค่าเฉลี่ยของผลต่างระหว่างค่าที่วัดได้จาก AMS และ SRM

n คือ จำนวนตัวอย่างที่วัดแบบคู่ขนาน

2). การคำนวณหาค่าความไม่แน่นอนสูงสุดที่ยอมรับได้ σ (Maximum Permissible Uncertainty) คำนวณได้จากสมการ

$$\sigma = ELV \times CI/100/1.96 \qquad \text{สมการที่ (7)}$$

เมื่อ ELV คือ ค่าขีดจำกัดของการปลดปล่อยมลพิษ (ใช้ค่าตารางที่ 2)

CI คือ ช่วงความเชื่อมั่นสูงสุด (ใช้ค่าตารางที่ 2)

K_V คือ ค่าทดสอบความแปรปรวน (ตารางค่า K_v (N) & $T_{0.95}$) ซึ่งอ้างอิงจาก Stationary Source Emissions – Quality Assurance of Automated Measuring Systems (European Standard BS EN 14181, 2014)

โดยค่าความไม่แน่นอนสูงสุดที่ยอมรับได้ คือ ถ้า $SD \leq 1.5 \times \sigma \times Kv$ ถือว่าผ่านเกณฑ์การวิเคราะห์ค่าความความไม่แน่นอนสูงสุดที่ยอมรับได้ และนำไปสู่การวิเคราะห์ค่าทดสอบความแปรปรวนต่อไป

ตารางที่ 2 ค่ามาตรฐานมลพิษทางอากาศและช่วงความเชื่อมั่นสูงสุด

พารามิเตอร์	Emission Limit Value (ELV)	Uncertainty (CI)
O_2	21	10% of ELV
CO	690	10% of ELV
SO_2	60/700	20% of ELV
NO_X	200	20% of ELV

3). สมการรับรองผลการทดสอบความแม่นยำ (Calibration Test) ผล AST

$$|\overline{D}| \leq t_{0.95;N-1} \frac{S_D}{\sqrt{N}} + \sigma_0 \qquad \text{สมการที่ (8)}$$

เมื่อ $|\overline{D}|$ คือ ค่าเฉลี่ยของผลต่างระหว่างค่าที่วัดได้จาก SRM และ AMS

σ_0 คือ ค่าความไม่แน่นอนสูงสุดที่อนุญาต

$t_{0.95;\ N-1}$ คือ ค่าทดสอบความแปรปรวน

โดยค่าทดสอบแปรปรวนที่ยอมรับได้ คือ ถ้า $|\overline{D}| \leq t_{0.95;N-1} \frac{S_D}{\sqrt{N}} + \sigma_0$ ถือว่าผ่านเกณฑ์การทดสอบความแม่นยำประจำปี และเป็นการรับรองว่าระบบตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติมีความแม่นยำและความน่าเชื่อถือ

วิธีดำเนินการวิจัย

ดำเนินการตรวจวัดและเก็บข้อมูลค่ามลพิษอากาศ ด้วยระบบตรวจวัดมลพิษแบบอัตโนมัติของโรงฟ้าแห่งหนึ่งเก็บข้อมูลการตรวจวัดมลพิษอากาศจากปล่องระบายของโรงไฟฟ้า ด้วยวิธีการตรวจวัดอย่างต่อเนื่องแบบอัตโนมัติ (CEMS) เพื่อใช้เป็นข้อมูลในการรายงานผลการทดสอบแม่นยำระหว่างมาตรฐานสหรัฐอเมริกา(US.EPA) และมาตรฐานอังกฤษ (BS EN 14181) โดยทำการวัดค่าและวิเคราะห์ค่าก๊าซ 4 ชนิด คือ O_2, NO_x, CO, SO_2 โดยใช้ข้อมูลค่ามลพิษจากการตรวจวัดปล่องระบายจากโรงไฟฟ้า เพื่อนำข้อมูลมาใช้ในการทดสอบความแม่นยำของระบบ CEMS ตามมาตรฐานสหรัฐอเมริกาโดยการคำนวณด้วยสมการความแม่นยำสัมพัทธ์ สมการที่ (1) ถึง (5) และทดสอบความแม่นยำของระบบ CMES ตามมาตรฐานอังกฤษโดยการคำนวณด้วยสมการทดสอบความแม่นยำจากสมการที่ (6) ถึง (8) จากนั้น นำผลการคำนวณที่ได้ไปเทียบมาตรฐานเกณฑ์การยอมรับตามมาตรฐานสหรัฐอเมริกาและมาตรฐานอังกฤษ

ผลการวิจัย

จากผลการศึกษาการทดสอบความแม่นยำประจำปี ของเครื่องตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติตามมาตรฐานของสหรัฐอเมริกา (US.EPA) จากข้อมูลที่ได้เข้าไปตรวจวัดมลพิษอากาศจากปล่องระบายของโรงไฟฟ้าแห่งหนึ่งในปี พ.ศ. 2566 และปี พ.ศ. 2567 และได้ทำการตรวจวัดวิเคราะห์ค่า O_2, CO, NO_X, SO_2 ด้วยเครื่องตรวจวัดมลพิษจากปล่องแบบอัตโนมัติ โดยการตรวจวัดแบบคู่ขนานระหว่างระบบตรวจวัดมลพิษแบบอัตโนมัติจากปล่องของโรงไฟฟ้า (CEMS) และระบบตรวจวัดแบบอัตโนมัติอ้างอิงมาตรฐาน โดยบริษัทที่ปรึกษาด้านสิ่งแวดล้อม Reference Method (RM) ซึ่งในช่วงการตรวจวัดโรงไฟฟ้าได้ทำการเดินเครื่องมากกว่า 50% ของการทำงานปกติตลอดช่วงตรวจวัด เพื่อให้เป็นไปตามเงื่อนไขของข้อกำหนดของมาตรฐานการตรวจวัดมลพิษจากปล่อง จากนั้นนำค่ามลพิษที่ตรวจวัดได้มาคำนวณตามสมการการทดสอบความแม่นยำของระบบตรวจวัดมลพิษจากปล่อง ผลการทดสอบความแม่นยำระบบตรวจวัดมลพิษตามมาตรฐานของสหรัฐอเมริกา (US.EPA) ดังแสดงในตารางที่ 4 และตารางที่ 5 ผลการตรวจวัดแบบคู่ขนานระหว่างเครื่องตรวจวัดมลพิษจากปล่องแบบอัตโนมัติของโรงไฟฟ้า (CEMS) และบริษัทที่ปรึกษา (RM) โดยในการวิเคราะห์ข้อมูลของผลการตรวจวัดก๊าซ 4 ชนิด ได้แก่ O_2, CO, NO_X, SO_2 ใช้ระยะเวลาการตรวจวัดทั้งสิ้น 252 นาที ซึ่งวิเคราะห์และบันทึกผลทุก 1 นาที นำค่าก๊าซที่ตรวจวัดได้มาเฉลี่ยทุก ๆ 21 นาที จะได้ทั้งหมด 12 ค่า จากนั้นนำมาคำนวณปรับแก้ความเข้มข้นก๊าซที่ 7% ของออกซิเจนและอยู่ในสภาวะแห้ง (โดยค่า CEMS คือค่าการตรวจวัดจากระบบตรวจวัดของโรงไฟฟ้าและค่า RM คือค่าที่ตรวจวัดอ้างอิงมาตรฐานโดยบริษัทที่ปรึกษาด้านสิ่งแวดล้อม) และคำนวณหาผลต่าง (Difference) ระหว่างค่า CEMS และ RM โดยตัดค่าผลต่างสูงสุด 3 อันดับแรกออกเพื่อให้ได้ชุดข้อมูลมีความสัมพันธ์กันที่สุดและใช้ข้อมูล 9 ค่าในการคำนวณ ผลการศึกษาการทดสอบความแม่นยำระบบตรวจวัดมลพิษจากปล่องโรงไฟฟ้าแบบอัตโนมัติ (CEMS) ตามมาตรฐานสหรัฐอเมริกา (US.EPA) ของโรงไฟฟ้าใน ปี 2566 พบว่าค่าเปอร์เซ็นต์ความแม่นยำสัมพัทธ์ (%RA) ของก๊าซ O_2 อยู่ที่ 0.36% ก๊าซ

CO อยู่ที่ 18.03% ก๊าซ NO_X อยู่ที่ 8.88% และก๊าซ SO_2 อยู่ที่ 3.36% เมื่อนำค่าเปอร์เซ็นต์ความแม่นยำสัมพัทธ์ (%RA) ของก๊าซทั้ง 4 ชนิด ไปเทียบค่ามาตรฐานจากตารางที่ 1 พบว่าค่าก๊าซ CO ไม่ผ่านเกณฑ์การทดสอบความแม่นยำสัมพัทธ์ โดยเกณฑ์ยอมรับของการทดสอบความแม่นยำสัมพัทธ์ของมาตรฐานสหรัฐอเมริกา ก๊าซ O_2 เกณฑ์ยอมรับไม่เกิน 1% ก๊าซ CO เกณฑ์ยอมรับไม่เกิน 10% ก๊าซ NO_X และก๊าซ SO_2% เกณฑ์ยอมรับไม่เกิน 20% และผลการศึกษาการทดสอบความแม่นยำระบบตรวจวัดมลพิษจากปล่องโรงไฟฟ้าแบบอัตโนมัติ (CEMS) ตามมาตรฐานสหรัฐอเมริกา (US.EPA) นอกจากนี้ในปี พ.ศ. 2567 ดังแสดงในตารางที่ 5 พบว่าค่าเปอร์เซ็นต์ความแม่นยำสัมพัทธ์ (%RA) ของก๊าซ O_2 อยู่ที่ 0.17% ก๊าซ CO อยู่ที่ 35.79% ก๊าซ NO_X อยู่ที่ 8.47% และก๊าซ SO_2 อยู่ที่ 3.05% เมื่อนำค่าเปอร์เซ็นต์ความแม่นยำสัมพัทธ์ (%RA) ของก๊าซทั้ง 4 ชนิด ไปเทียบค่ามาตรฐานจากตารางที่ 1 พบว่ามีก๊าซ 3 ชนิดที่ผ่านมาตรฐานเกณฑ์การยอมรับของการทดสอบความแม่นยำสัมพัทธ์ คือ O_2, NO_X, SO_2 และมีก๊าซ 1 ชนิด คือก๊าซ CO ไม่ผ่านเกณฑ์มาตรฐานการยอมรับความแม่นยำสัมพัทธ์ จากผลการวิเคราะห์ดังกล่าวแสดงให้เห็นว่าค่าก๊าซส่วนใหญ่จะอยู่ในเกณฑ์มาตรฐาน ยกเว้นค่าของก๊าซ CO ที่มีค่าเปอร์เซ็นต์ความแม่นยำสัมพัทธ์ไม่ผ่านเกณฑ์การทดสอบความแม่นยำสัมพัทธ์ทั้ง 2 ปี คือมีค่าเปอร์เซ็นต์ความแม่นยำสัมพัทธ์เกิน 10% แต่อย่างไรก็ตามในทางปฏิบัตินั้น หากพบว่าค่าก๊าซที่ตรวจวัดที่มีความเข้มข้นต่ำการคำนวณโดยเทียบกับค่าตรวจวัดอ้างอิงมาตรฐานของที่ปรึกษาด้านสิ่งแวดล้อมส่วนใหญ่ มักจะไม่ผ่านเกณฑ์การยอมรับแต่ในข้อกำหนดในมาตรฐานของสหรัฐอเมริกา ในกรณีที่ค่ามลพิษที่ตรวจวัดได้นั้นมีค่าไม่เกิน 50 เปอร์เซ็นต์ของค่ามาตรฐานการปลดปล่อย จะสามารถใช้ค่ามาตรฐานการปลดปล่อยเป็นตัวหารแทนค่า $\overline{RM}$ ในสมการการทดสอบความแม่นยำสัมพัทธ์ (สมการที่ 5) ได้ ซึ่งเมื่อทำการคำนวณโดยใช้ค่ามาตรฐานการปลดปล่อยของก๊าซ CO (690 ppm.) เป็นตัวหาร พบว่าผลการคำนวณหาค่าความแม่นยำสัมพัทธ์ของก๊าซ CO ใน ปี พ.ศ.2566 จะมีค่าเท่ากับ 0.05% และในปี พ.ศ. 2567 มีค่าเท่ากับ 0.11% ซึ่งผลการวิเคราะห์นี้ คือผ่านเกณฑ์มาตรฐานการทดสอบความแม่นยำประจำปี จึงทำให้สามารถกล่าวได้ว่าระบบตรวจวัดมลพิษทางอากาศแบบอัตโนมัติจากปล่องโรงไฟฟ้าปี พ.ศ. 2566 และปี พ.ศ. 2567 มีความแม่นยำในการรายงานผลค่ามลพิษ และสามารถนำไปใช้รายงานผลตามกฎหมายของประเทศไทยตามประกาศกระทรวงอุตสาหกรรมได้

ตารางที่ 4 ผลการทดสอบความแม่นยำระบบตรวจวัดมลพิษจากปล่องโรงไฟฟ้าแบบอัตโนมัติ (CEMS) ตามมาตรฐานสหรัฐอเมริกา (US.EPA) ปี พ.ศ. 2566

ค่าที่	เวลา	O_2			CO			NO_X			SO_2		
		CEMS	RM	Diff.	CEMS	RM	Diff.	CEMS	RM	Diff.	CEMS	RM	Diff.
		%			ppm.			ppm.			ppm.		
1	10.00-10.20	3.81	3.46	-0.35	1.23	1.45	0.22	84.74	77.16	-7.59*	115.78	101.98	-13.81*
2	10.21-10.41	3.79	3.43	-0.36	1.28	1.78	0.50*	84.12	76.86	-7.26*	125.59	119.06	-6.53
3	10.42-11.02	3.79	3.43	-0.36	1.56	2.35	0.79*	84.78	77.97	-6.82	135.21	132.82	-2.39
4	11.03-11.23	3.79	3.44	-0.35	1.45	1.25	-0.20	84.74	77.80	-6.94	135.37	136.02	0.65
5	11.24-11.44	3.81	3.45	-0.36	1.34	1.89	0.55	84.56	77.90	-6.66	133.95	143.56	9.62

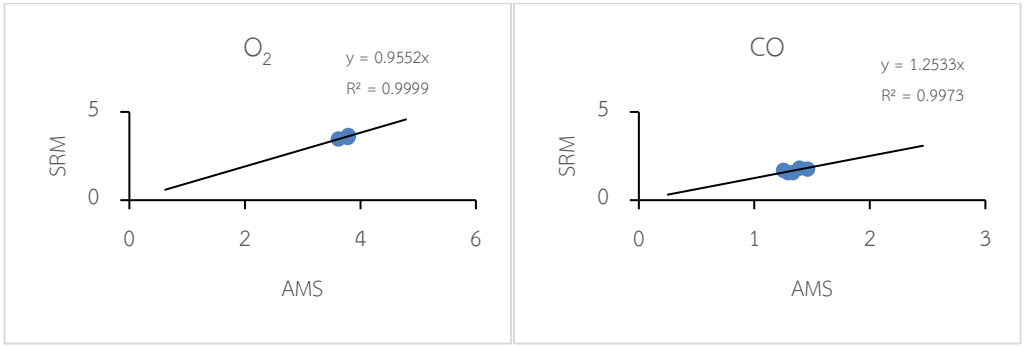
ตารางที่ 4 (ต่อ)

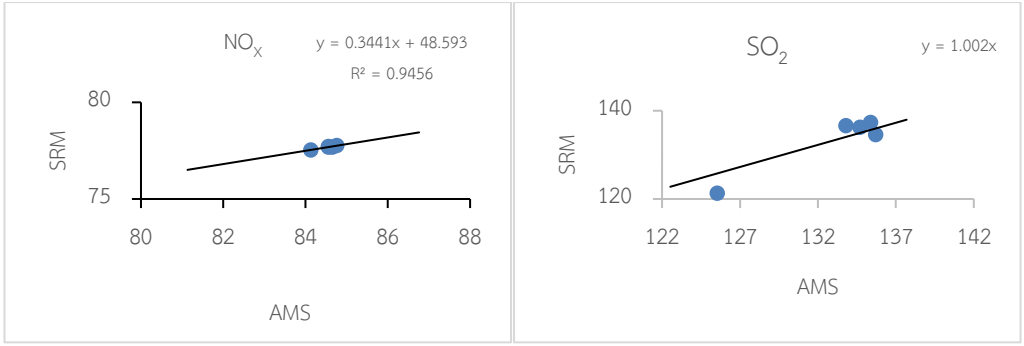
ค่าที่	เวลา	O_2			CO			NO_X			SO_2		
		CEMS	RM	Diff.	CEMS	RM	Diff.	CEMS	RM	Diff.	CEMS	RM	Diff.
		%			ppm.			ppm.			ppm.		
6	11.45-12.05	3.81	3.45	-0.36	1.32	1.12	-0.20	83.89	76.74	-7.16*	136.95	150.69	13.74*
7	12.06-12.26	3.78	3.39	-0.39*	1.24	1.19	-0.05	84.76	77.75	-7.02	138.04	154.54	16.50*
8	12.27-12.47	3.82	3.44	-0.38*	2.79	3.12	0.33	84.64	77.76	-6.88	135.66	138.74	3.09
9	12.48-13.08	3.81	3.44	-0.37	1.72	1.34	-0.38	84.62	77.81	-6.81	135.73	126.73	-8.99
10	13.09-13.29	3.82	3.44	-0.38*	2.45	2.78	0.33	84.80	78.31	-6.49	126.96	123.70	-3.25
11	13.30-13.50	3.77	3.40	-0.37	1.33	1.67	0.34	83.84	77.02	-6.82	133.89	135.86	1.97
12	13.51-14.11	3.77	3.40	-0.38	1.24	2.11	0.87*	84.52	77.97	-6.54	132.73	134.11	1.38
ค่าเฉลี่ย	3.80	3.43	-0.36	1.65	1.76	0.10	84.59	77.81	-6.78	132.79	132.29	-0.50	
ค่าที่	เวลา	O_2			CO			NO_X			SO_2		
		CEMS	RM	Diff.	CEMS	RM	Diff.	CEMS	RM	Diff.	CEMS	RM	Diff.
		%			ppm.			ppm.			ppm.		
ค่าเบี่ยงเบนมาตรฐาน (SD)		0.01			0.32			0.18			5.54		
ช่วงความเชื่อมั่น (CC)		-			0.21			0.14			4.26		
ค่าความแม่นยำพัทธ์ (%RA)		0.36			18.03			8.88			3.60		
≤ 50% of Std.		-			0.05			-			-		

ตารางที่ 5 ผลการทดสอบความแม่นยำระบบตรวจวัดมลพิษจากปล่องโรงไฟฟ้าแบบอัตโนมัติ (CEMS) ตามมาตรฐานสหรัฐอเมริกา (US.EPA) ปี พ.ศ. 2567

ค่าที่	เวลา	O_2			CO			NO_X			SO_2		
		CEMS	RM	Diff.	CEMS	RM	Diff.	CEMS	RM	Diff.	CEMS	RM	Diff.
		%			ppm.			ppm.			ppm.		
1	10.00-10.20	3.92	4.15	0.22	1.67	1.57	-0.10	82.58	76.02	-6.56*	150.79	149.97	-0.82*
2	10.21-10.41	3.94	4.14	0.19	1.58	1.67	0.09*	83.76	77.09	-6.66*	133.76	128.91	-4.85
3	10.42-11.02	3.95	4.14	0.18	1.49	1.91	0.42*	80.16	74.22	-5.94	142.38	142.01	-0.37
4	11.03-11.23	3.98	4.15	0.17	1.56	2.06	0.50	82.60	75.46	-7.14	142.71	139.73	-2.98
5	11.24-11.44	3.91	4.09	0.19	1.63	2.23	0.60	80.17	74.23	-5.94	145.05	139.47	-5.58
6	11.45-12.05	3.96	4.11	0.15	1.55	2.40	0.85	81.27	74.32	-6.96*	146.67	147.43	0.75*
7	12.06-12.26	4.06	4.22	0.16*	1.77	2.57	0.80	80.90	75.05	-5.84	140.56	134.32	-6.24*
8	12.27-12.47	4.09	4.26	0.17*	1.84	2.74	0.90	80.96	74.73	-6.23	128.21	124.22	-3.99
9	12.48-13.08	4.10	4.27	0.17	3.60	2.89	-0.71	81.25	74.12	-7.13	136.49	131.52	-4.97
10	13.09-13.29	4.10	4.26	0.17*	5.32	3.11	-2.21	80.02	74.36	-5.66	133.15	131.28	-1.87
11	13.30-13.50	4.08	4.28	0.20	1.44	1.45	0.01	79.24	73.24	-6.00	129.69	122.75	-6.95
12	13.51-14.11	4.09	4.26	0.17	2.15	3.22	1.07*	79.63	73.85	-5.78	128.03	124.26	-3.76
ค่าเฉลี่ย		3.80	3.99	4.17	0.17	1.61	2.06	0.45	80.82	74.75	-6.07	138.02	135.48
ค่าเบี่ยงเบนมาตรฐาน (SD)		0.01			0.38			0.35			2.06		
ช่วงความเชื่อมั่น (CC)		-			0.29			0.27			1.58		
ค่าความแม่นยำพัทธ์ (RA)		0.17			35.79			8.47			3.05		
≤ 50% of Std.		-			0.11			-			-		

สำหรับผลการทดสอบความแม่นยำประจำปีของเครื่องตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติตามมาตรฐานอังกฤษ (BS EN 14181) จากข้อมูลที่ได้เข้าไปตรวจวัดมลพิษอากาศจากปล่องระบายของโรงไฟฟ้าแห่งเดียวกันในปี พ.ศ. 2566 และปี พ.ศ. 2567 การวิเคราะห์ข้อมูลของผลการตรวจวัดก๊าซ 4 ชนิด ได้แก่ O_2, CO, NO_X, SO_2 โดยวิธีการตามมาตรฐานอังกฤษนี้จะใช้ระยะเวลาการตรวจวัดเพียง 150 นาที ซึ่งวิเคราะห์และบันทึกผลทุก 1 นาที นำค่าก๊าซที่ตรวจวัดได้มาเฉลี่ยทุก ๆ 30 นาที จะได้ทั้งหมด 5 ค่า จากนั้นนำมาคำนวณปรับแก้ความเข้มข้นก๊าซที่ 7% ของออกซิเจนและอยู่ในสภาวะแห้ง โดยค่า AMS คือค่าการตรวจวัดจากระบบตรวจวัดของโรงไฟฟ้าและค่า SRM คือค่าที่ตรวจวัดอ้างอิงมาตรฐาน โดยบริษัทที่ปรึกษาด้านสิ่งแวดล้อมจากผลการวิเคราะห์ผลการทดสอบความแม่นยำของปี พ.ศ. 2566 และปี พ.ศ. 2567 พบว่าเมื่อนำค่าการตรวจวัดระหว่างค่าที่วัดได้จากระบบตรวจวัดมลพิษแบบอัตโนมัติของโรงไฟฟ้า (AMS) และค่าที่ตรวจวัดอ้างอิงมาตรฐานโดยบริษัทที่ปรึกษาด้านสิ่งแวดล้อม (SRM) มาวิเคราะห์การถดถอยเชิงเส้นของข้อมูลการตรวจวัดก๊าซ O_2, CO, NO_X, SO_2 (ข้อมูล AMS และ SRM ดังแสดงในตารางที่ 6 และตารางที่ 7) จากผลการวิเคราะห์ข้อมูลพบว่าค่าการถดถอยเชิงเส้น (R^2) ของก๊าซทั้ง 4 ชนิด มีค่ามากกว่า 0.90 จึงเป็นผลให้สามารถนำข้อมูลมาใช้ในการคำนวณค่าความไม่แน่นอนสูงสุดที่ยอมรับได้และการทดสอบความแปรปรวน เพื่อรับรองผลการทดสอบความแม่นยำตามมาตรฐานอังกฤษได้ จากการคำนวณค่าตามสมการของความไม่แน่นอนสูงสุดที่ยอมรับได้และการทดสอบความแปรปรวนดังสมการที่ (6) ถึง (8) พบว่าการทดสอบความแม่นยำระบบตรวจวัดมลพิษแบบอัตโนมัติของก๊าซทั้ง 4 ชนิด ตามมาตรฐานอังกฤษนั้น ผ่านมาตรฐานการรับรองผลการทดสอบความแม่นยำทั้งหมด และแสดงให้เห็นว่าผลการทดสอบความแม่นยำประจำปี ของระบบตรวจวัดมลพิษจากปล่องโรงไฟฟ้ามีแนวโน้มการรายงานผลการวิเคราะห์ไปในทิศทางเดียวกันทั้ง 2 ปี และจากผลวิเคราะห์สามารถรับรองผลการทดสอบความแม่นยำของระบบตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติของโรงไฟฟ้า ว่าระบบมีความแม่นยำในการรายงานค่ามลพิษตามมาตรฐานของอังกฤษ

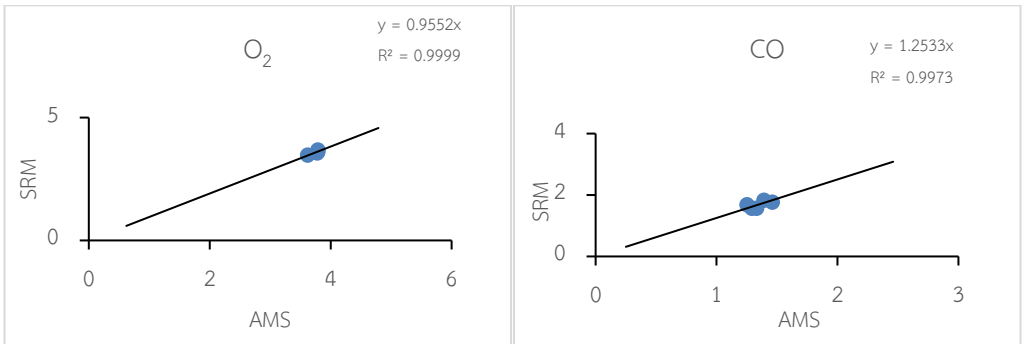


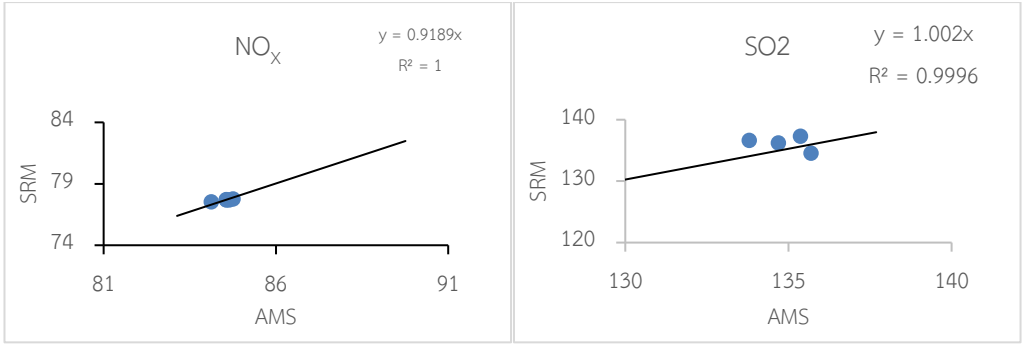


ภาพที่ 2 กราฟแสดงการถดถอยเชิงเส้นของข้อมูลการตรวจวัดก๊าซจาก AMS และ SRM ปี พ.ศ.2566

ตารางที่ 6 ผลการทดสอบความแม่นยำระบบตรวจวัดมลพิษจากปล่องโรงไฟฟ้าแบบอัตโนมัติ (CEMS) ตามมาตรฐานอังกฤษ (BS EN 14181) ปี พ.ศ. 2566

ค่าที่	เวลา	O_2			CO			NO_x			SO_2		
		AMS	SRM	Diff.	AMS	SRM	Diff.	AMS	SRM	Diff.	AMS	SRM	Diff.
		%	%		ppm	ppm		ppm	ppm		ppm	ppm	
1	10.00-10.29	3.62	3.47	-0.15	1.29	1.57	0.28	84.65	77.69	-6.96	125.53	121.34	-4.19
2	10.30-10.59	3.79	3.68	-0.11	1.46	1.77	0.31	84.56	77.68	-6.88	135.69	134.56	-1.13
3	11.00-11.29	3.78	3.58	-0.20	1.33	1.57	0.24	84.13	77.54	-6.59	134.69	136.23	1.54
4	11.30-11.59	3.79	3.62	-0.17	1.25	1.69	0.44	84.76	77.77	-6.99	133.79	136.65	2.86
5	12.00-12.29	3.78	3.57	-0.21	1.39	1.83	0.44	84.56	77.71	-6.85	135.36	137.32	1.96
Average		3.75	3.58	-0.17	1.34	1.69	0.34	84.53	77.68	-6.85	133.01	133.22	0.21
SD		0.04			0.09			0.16			2.87		
Kv (N=5)		0.9161			0.9161			0.9161			0.9161		
σ		1.07			35.20			20.41			71.43		
σ x Kv		0.98			32.25			18.70			65.44		
1.5 x σ x Kv		1.47			48.38			28.04			98.15		
SD≤1.5 x σ x Kv		Pass			Pass			Pass			Pass		
t0.95,N-1		2.132			2.132			2.132			2.132		
t 0.95,N-1 $\frac{S_D}{\sqrt{5}} + \sigma_0$		1.11			35.29			20.56			74.17		
$\lvert\bar{D}\rvert \le$ t0.95,N-1 $\frac{S_D}{\sqrt{5}} + \sigma_0$		Pass			Pass			Pass			Pass		





ภาพที่ 3 กราฟแสดงการถดถอยเชิงเส้นของข้อมูลการตรวจวัดก๊าซจาก AMS และ SRM ปี พ.ศ.2567

ตารางที่ 7 ผลการทดสอบความแม่นยำระบบตรวจวัดมลพิษจากปล่องโรงไฟฟ้าแบบอัตโนมัติ (CEMS) ตามมาตรฐานอังกฤษ (BS EN 14181) ปี พ.ศ. 2567

ค่าที่	เวลา	O_2			CO			NO_x			SO_2		
		AMS	SRM	Diff.	AMS	SRM	Diff.	AMS	SRM	Diff.	AMS	SRM	Diff.
		%	%		ppm	ppm		ppm	ppm		ppm	ppm	
1	10.00-10.30	3.97	4.21	0.24	1.59	1.61	0.02	82.36	77.64	-4.72	150.65	149.58	-1.07
2	10.31-11.01	3.89	4.20	0.31	1.61	1.79	-0.02	84.36	75.65	-8.71	134.33	129.65	-4.68
3	11.02-11.32	3.87	4.19	0.32	1.57	1.89	0.03	83.65	74.65	-9.00	142.89	143.23	0.34
4	11.33-12.03	3.89	4.15	0.26	1.49	2.11	0.97	83.45	75.68	-7.77	142.89	139.99	-2.90
5	12.04-12.34	3.87	4.23	0.36	1.58	1.98	0.94	86.21	75.98	-5.23	146.62	145.65	-0.97
Average		3.90	4.20	0.30	1.57	1.88	0.39	84.01	75.92	-7.09	143.48	141.62	-1.86
SD		0.05			0.52			1.99			1.96		
Kv (N=5)		0.9161			0.9161			0.9161			0.9161		
σ		1.07			35.20			20.41			71.43		
σ x Kv		0.98			32.25			18.70			65.44		
1.5 x σ x Kv		1.47			48.38			28.04			98.15		
SD≤1.5 x σ x Kv		Pass			Pass			Pass			Pass		
t0.95,N-1		2.132			2.132			2.132			2.132		
t 0.95,N-1 $\frac{S_D}{\sqrt{5}} + \sigma_0$		1.12			35.70			22.30			73.29		
$\lvert\bar{D}\rvert \le$ t0.95,N-1 $\frac{S_D}{\sqrt{5}} + \sigma_0$		Pass			Pass			Pass			Pass		

ตารางที่ 8 การเปรียบเทียบผลการทดสอบความแม่นยำประจำปีของระบบตรวจวัดมลพิษอากาศจากปล่องด้วยมาตรฐานสหรัฐอเมริกาและอังกฤษ

มาตรฐาน	ปี พ.ศ.	ผลการทดสอบ			
		O_2	CO	NO_x	SO_2
สหรัฐอเมริกา	2566	Pass	Faile/ Pass	Pass	Pass
อังกฤษ	2566	Pass	Pass	Pass	Pass
สหรัฐอเมริกา	2567	Pass	Faile/ Pass	Pass	Pass
อังกฤษ	2567	Pass	Pass	Pass	Pass

จากตารางที่ 8 พบว่าผลวิเคราะห์การทดสอบความแม่นยำของระบบตรวจวัดมลพิษอากาศระหว่างมาตรฐานของสหรัฐอเมริกาและอังกฤษในปี พ.ศ.2566 และ พ.ศ.2567 มีแนวโน้มไปในทิศทางเดียวกัน คือ ผลการทดสอบผ่านมาตรฐานการทดสอบความแม่นยำทั้ง 2 มาตรฐาน แต่ผลการวิเคราะห์ก๊าซ CO ด้วยมาตรฐานอเมริกาในปี พ.ศ.2566 และ พ.ศ.2567 พบว่าในการวิเคราะห์ตามสมการโดยตรงจะยังไม่ผ่านเกณฑ์การทดสอบความแม่นยำ แต่เนื่องจากค่าของก๊าซ CO มีความเข้มข้นต่ำกว่า 50% ของค่ามาตรฐานการปลดปล่อยจึงสามารถใช้ค่ามาตรฐานการปลดปล่อยมาคำนวณในสมการนั้น แทนได้ส่งผลทำให้ผลการทดสอบความแม่นยำนั้นผ่านมาตรฐาน ซึ่งในทางปฏิบัติแล้วถือว่าระบบการตรวจวัดมลพิษทางอากาศจากปล่องแบบอัตโนมัติของโรงไฟฟ้า มีความน่าเชื่อถือและรายงานผลค่ามลพิษได้อย่างแม่นยำ ภายใต้มาตรฐานการทดสอบความแม่นยำประจำปีด้วยมาตรฐานสหรัฐอเมริกาและมาตรฐานอังกฤษ

สรุปผลการศึกษา

จากการดำเนินการทดสอบความแม่นยำประจำปี ระบบตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติของโรงไฟฟ้า ระหว่างปี พ.ศ. 2566 ถึงปี พ.ศ. 2567 ภายใต้มาตรฐานการทดสอบความแม่นยำของสหรัฐอเมริกาและอังกฤษ แสดงให้เห็นว่าการทดสอบความแม่นยำตามมาตรฐานอังกฤษมีความแตกต่างจากสหรัฐอเมริกาในแง่ของระยะเวลาในการดำเนินการที่สั้นลงซึ่งเป็นผลดีกับโรงไฟฟ้า เนื่องจากมีหลายโรงไฟฟ้าที่ไม่ได้เดินเครื่องแบบปกติตลอดช่วงระยะดำเนินงาน เมื่อต้องปฏิบัติตามกฎหมายในการทดสอบความแม่นยำของระบบตรวจวัดมลพิษอากาศ จากปล่องจำเป็นจะต้องมีการเดินเครื่องให้ได้ 50% ส่งผลให้มีการใช้พลังงานเพิ่มขึ้นและเสียค่าใช้จ่ายเพิ่มขึ้น และผลการศึกษานี้แสดงให้เห็นว่าผลจากการวิเคราะห์ข้อมูลการรายงานผลการทดสอบความแม่นยำของก๊าซ 4 ชนิด มีแนวโน้มการรับรองผลการทดสอบความแม่นยำไปในทิศทางเดียวกันทั้ง 2 มาตรฐาน แต่พบข้อสังเกตว่าในการใช้มาตรฐานสหรัฐอเมริกาในการทดสอบความแม่นยำของก๊าซที่มีความเข้มข้นต่ำ มักจะไม่ผ่านมาตรฐานการทดสอบความแม่นยำสัมพัทธ์โดยตรง ในทางปฏิบัติแล้วต้องใช้ค่ามาตรฐานในการปล่อยมลพิษเป็นตัวหารแทนค่าเฉลี่ยของการตรวจวัดด้วยวิธีอ้างอิงมาตรฐานโดยบริษัทที่ปรึกษา แต่อย่างไรก็ตามจากผลการวิเคราะห์ทำให้ทราบว่ามาตรฐานอังกฤษมีแนวทาง และการดำเนินการที่เทียบเท่ากับมาตรฐานสหรัฐอเมริกาสามารถนำมาใช้ในการทดสอบความแม่นยำประจำปี ของระบบตรวจวัดมลพิษอากาศจากปล่องแบบอัตโนมัติได้ ซึ่งประเทศไทยเองก็มีความพยายามที่จะนำมาตรฐานอังกฤษมาใช้เป็นทางเลือกให้กับผู้ประกอบการ เพื่อลดผลกระทบและลดภาระค่าใช้จ่ายให้กับผู้ประกอบอื่น ๆ นอกจากโรงไฟฟ้า เพื่ออำนวยความสะดวกให้กับผู้ประกอบการในการปฏิบัติตามกฎหมายมากที่สุด

ข้อเสนอแนะ

ควรมีการศึกษาวิเคราะห์ข้อมูลจากโรงงานหลาย ๆ ประเภท ซึ่งจะมีความเข้มข้นของก๊าซแต่ละชนิดที่แตกต่างกัน เพื่อนำมาศึกษาเปรียบเทียบการทดสอบความแม่นยำของระบบตรวจวัดมลพิษอากาศจากปล่องระบายแบบอัตโนมัติ เพื่อเพิ่มความน่าเชื่อถือและสามารถเป็นแนวทางในการเลือกใช้มาตรฐานของโรงงานอื่น ๆ ได้อย่างเหมาะสม

เอกสารอ้างอิง

Srivastava, R. P., Kumar, S., & Tiwari, A. (2024). Continuous emission monitoring systems (CEMS) in India: Performance evaluation, policy gaps and financial implications for effective air pollution control. J Environ Manage, 359, 120584.

European Standard BS EN 14181 (2014). Stationary source emissions – Quality assurance of automated measuring systems. London : BSI Standards Limited.

ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดให้โรงงานต้องติดตั้งเครื่องมือหรือเครื่องอุปกรณ์พิเศษเพื่อรายงานมลพิษอากาศจากปล่องโรงงาน พ.ศ. 2565. (2565, 10 มิถุนายน). ราชกิจจานุเบกษา. เล่ม 139 ตอนพิเศษ 131 ง. หน้า 14-18.

กรมโรงงานอุตสาหกรรม. (2556). การตรวจวัดมลพิษทางอากาศจากปล่องแบบอัตโนมัติอย่างต่อเนื่อง (Continuous Emission Monitoring Systems; CEMS). สืบค้นเมื่อ 14 มกราคม 2568 จาก https://www.iemcdiw.com/iemc/public/uploads/downloads/20240614125257_CEMs-handbook.pdf

ประสิทธิภาพของการสร้างอนุมูลอิสระของออกซิเจน (ROS) ด้วยฟองโอโซน

Efficiency of Reactive Oxygen Species (ROS) Generation by Ozone Bubbles

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บทคัดย่อ

ในการศึกษานี้ ได้ทำการประเมินประสิทธิภาพของกระบวนการสร้างอนุมูลอิสระของออกซิเจน (Reactive Oxygen Species: ROS) จากการออกซิเดชันด้วยโอโซน ในกระบวนการออกซิเดชันขั้นสูง (Advanced Oxidation Processes; AOPs) ก๊าซโอโซนที่ใช้ในการออกซิเดชันถูกผลิตจากเครื่องปฏิกรณ์แบบไดอิเล็กทริกแบริเออร์ดิสชาร์จ (Dielectric barrier discharge: DBD) ที่มีอัตราการไหล 11 ลิตรต่อนาที และช่วงเวลาแตกตัวของออกซิเจนเป็นไอออน 15 นาที โดยความเข้มข้นของก๊าซโอโซนที่ผลิตได้จะถูกวิเคราะห์ด้วยวิธีไทเทรตไอโอโดเมตริก จากผลการทดลองพบว่าความเข้มข้นของก๊าซโอโซนมีค่า 15.77 มิลลิกรัมต่อลิตร

จากนั้นเมื่อปล่อยก๊าซโอโซนผ่านอุปกรณ์สร้างฟอง stone diffuser ที่มีรูพรุนขนาดนาโนและไมโครพบว่าค่าโพเทนเชียลออกซิเดชัน-รีดักชัน (Oxidation-Reduction Potential: ORP) ของรูพรุนทั้งสองขนาดมีค่าเพิ่มขึ้นจากประมาณ 120 มิลลิโวลต์ เป็นประมาณ 820 มิลลิโวลต์ อย่างรวดเร็วในช่วงเวลา 5 นาที อุปกรณ์สร้างฟองที่มีรูพรุนขนาดนาโน พบว่าเมื่อก๊าซโอโซนทำปฏิกิริยากับสารปนเปื้อนในน้ำ (แอมโมเนีย, ซัลไฟด์, คลอไรด์ ฯลฯ) ส่งผลให้ค่าการนำไฟฟ้าลดลงจาก 271 เป็น 248 ไมโครซีเมนส์ต่อเซนติเมตร และปริมาณของแข็งละลายในน้ำลดลงจาก 173 เป็น 135 มิลลิกรัมต่อลิตร ในขณะที่อุปกรณ์สร้างฟองที่มีรูพรุนขนาดไมโครมีค่าการนำไฟฟ้าลดลงจาก 273 เป็น 254 ไมโครซีเมนส์ต่อเซนติเมตร และปริมาณของแข็งละลายในน้ำลดลงจาก 172 เป็น 138 มิลลิกรัมต่อลิตร จากผลจากการทดลองแสดงให้เห็นอุปกรณ์สร้างฟองที่มีรูพรุนขนาดนาโนและไมโครสามารถสร้างอนุมูลอิสระของออกซิเจนได้ไม่มีความแตกต่างกันอย่างมีนัยสำคัญ

คำสำคัญ: โอโซน, กระบวนการออกซิเดชันขั้นสูง (AOPs), อนุมูลอิสระของออกซิเจน (ROS)

Abstract

This study evaluated the efficiency of reactive oxygen species (ROS) generation via ozone oxidation, a method within advanced oxidation processes (AOPs). The ozone gas used for the oxidation process was generated using a dielectric barrier discharge (DBD) reactor under optimal operating conditions, which included a flow rate of 11 liters per minute and an ionization time of 15 minutes. The concentration of the produced ozone gas was analyzed using iodometric titration, which revealed an ozone concentration of 15.77 mg/L.

Subsequently, ozone gas was introduced into the water through a porous stone diffuser with nano and micro sized pores. The results showed a rapid increase in oxidation-reduction potential (ORP), from approximately 120 mV to around 820 mV within 5 minutes for both pore sizes. When ozone reacted with contaminants in the water (e.g., ammonia, sulfide, chloride), the electrical conductivity decreased from 271 to 248 µS/cm, and the total dissolved solids (TDS) decreased from 173 to 135 mg/L. In contrast, the micro-porous diffuser resulted in a decrease in electrical conductivity from 273 to 254 µS/cm and a reduction in TDS from 172 to 138 mg/L. The results reveal that both nano and microporous diffusers effectively assisted ROS generation, with no significant difference in efficiency.

Keywords: Ozone, Advanced Oxidation Process (AOPs), Reactive Oxygen Species (ROS)

บทนำ

กระบวนการออกซิเดชันขั้นสูง (Advanced Oxidation Processes; AOPs) ถูกนำมาใช้กันอย่างแพร่หลายในการย่อยสลายสารประกอบทางชีวภาพและสารมลพิษอินทรีย์ ด้วยการสร้างอนุมูลตัวกลางอิสระ (free radical mediated) ที่มีศักยภาพในการออกซิเดชันสูง เช่น อนุมูลไฮดรอกซิล (hydroxyl radical : •OH) ที่มีศักยภาพออกซิเดชัน 2.80 โวลต์ (กานดา หวังชัย, 2563) สำหรับกระบวนการออกซิเดชันขั้นสูง มีด้วยกันหลากหลายกระบวนการ เช่น การออกซิเดชันด้วยโอโซน ปฏิกิริยาเฟนตันและโฟโตเฟนตัน และกระบวนการออกซิเดชันแบบเร่งปฏิกิริยา เป็นต้น (ภัชราภรณ์ สุวรรณวิทยา และภาณุมาศ พวงแก้ว, 2549) ซึ่งกระบวนการออกซิเดชันด้วยโอโซนเป็นกระบวนการหนึ่งที่มีประสิทธิภาพสูง เนื่องจากเมื่อก๊าซโอโซนถูกเติมลงในเฟสของเหลวในรูปของฟองโอโซนนอกจากจะเพิ่มอัตราส่วนพื้นที่ผิวแล้วยังเป็นการเพิ่มการแพร่กระจายของฟองโอโซนมากขึ้น ทำให้การละลายฟองโอโซนเข้าไปในเฟสของเหลวสูงขึ้นเนื่องจากปฏิกิริยาของฟองโอโซนกับของเหลวนั้นเป็นปัจจัยที่สำคัญในการสร้างอนุมูลอิสระ (free radical) เช่น ซูเปอร์ออกไซด์ ($O_2^{\bullet-}$) และออกซิเจนซิงเกลต์ ($^1O_2$*) เป็นต้น ซึ่งด้วยกลไกต่าง ๆ เช่น

การสลายตัวของโอโซน การยุบตัวของฟองโอโซนรวมถึงปฏิกิริยาที่บริเวณพื้นผิว ล้วนเป็นปัจจัยที่ทำให้เกิดอนุมูลอิสระที่มีความสามารถในการเกิดปฏิกิริยาออกซิเดชัน โดยเฉพาะอนุมูลอิสระของออกซิเจน (Reactive Oxygen Species; ROS) (อธิป สกุลเผือก, 2559 และ Luvita, Sugiarto, & Bismo, 2022) จึงมีความน่าสนใจที่จะนำมาช่วยเพิ่มคุณภาพน้ำ เพิ่มประสิทธิภาพกระบวนการฆ่าเชื้อ และทดแทนสารเคมีฆ่าเชื้อแบบเดิม สำหรับการสร้าง ROS จากกระบวนการ AOPs ด้วยการออกซิเดชันด้วยโอโซน จึงเป็นทางเลือกที่เหมาะสม เนื่องจากเมื่อฟองโอโซนสลายตัวจะกลายเป็นก๊าซออกซิเจน จึงไม่ทิ้งสารตกค้างที่เป็นพิษ จึงเป็นกระบวนการที่ปลอดภัยและเป็นมิตรต่อสิ่งแวดล้อม นอกจากนั้นกระบวนการออกซิเดชันด้วยโอโซน ยังเป็นเทคโนโลยีที่ยอมรับโดยทั่วไปว่าเป็น GRAS (Generally Recognized as Safe) ซึ่งเป็นกระบวนการฆ่าเชื้อและทำความสะอาดที่มีการใช้กันในโรงงานอุตสาหกรรมอาหาร (Silva, Alexandre, & Brandao, 2011)

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาคุณลักษณะของฟองโอโซนที่สร้างจากอุปกรณ์สร้างฟอง Stone Diffuser
2. เพื่อประเมินประสิทธิภาพของกระบวนการสร้าง ROS จากการออกซิเดชันด้วยโอโซน

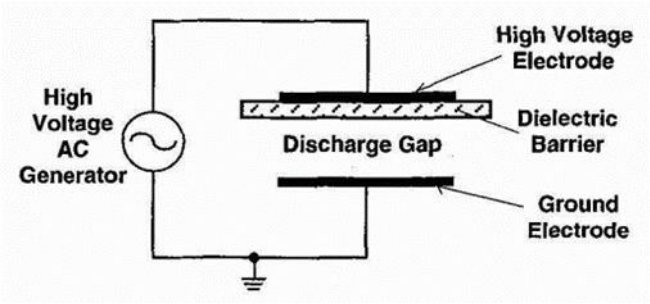
เพื่อเปรียบเทียบลักษณะทางกายภาพและเคมีของ ROS ที่สร้างจากอุปกรณ์สร้างฟองที่มีขนาดรูพรุนไมโครและนาโน

แนวคิด ทฤษฎี กรอบแนวคิด

การผลิตก๊าซโอโซนโดยเครื่องปฏิกรณ์แบบไดอิเล็กทริคแบริเออร์ดิสชาร์จ (Dielectric Barrier Discharges; DBD) เพื่อประยุกต์ใช้ในกระบวนการผลิต ROS จากกระบวนการออกซิเดชันด้วยโอโซน

1. การผลิตก๊าซโอโซนด้วยเครื่องปฏิกรณ์แบบ DBD

กระบวนการ DBD เป็นที่รู้จักมานานกว่าศตวรรษ จากการทดลองเกี่ยวกับการคายประจุ ถูกทำการทดลองเป็นครั้งแรกโดยซีเมนส์ โดยลักษณะที่สำคัญของกระบวนการ DBD คือ สามารถใช้งานที่ความดันบรรยากาศ สำหรับเครื่องกำเนิดพลาสมาแบบ DBD ถูกนำมาใช้ครั้งแรกโดย Ernst Werner Von Siemens ในปี 1857 โดยใช้หลักการสะสม (Charge) และคายประจุ (Discharge) บนไดอิเล็กทริค ด้วยไฟฟ้ากระแสสลับที่ความต่างศักย์สูง สำหรับโครงสร้างหลักของเครื่องกำเนิดพลาสมาแบบ DBD ประกอบด้วย ขั้วอิเล็กโทรด แผ่นไดอิเล็กทริคและแหล่งจ่ายไฟฟ้ากระแสสลับความต่างศักย์สูง โดยนำขั้วอิเล็กโทรดทั้งสองต่อเข้ากับแหล่งจ่ายไฟฟ้ากระแสสลับความต่างศักย์สูงและนำแผ่นไดอิเล็กทริคอย่างน้อยหนึ่งแผ่นวางคั่นระหว่างแผ่นอิเล็กโทรดทั้งสอง (ทิพวิมล ไตรกูล, 2557) ดังแสดงในภาพที่ 1



ภาพที่ 1 โครงสร้างของเครื่องปฏิกรณ์แบบไดอิเล็กทริคแบริเออร์ดิสชาร์จ (DBD)

2. การสร้าง ROS โดยกระบวนการ AOPs

กระบวนการ AOPs เป็นกระบวนการที่นำสารเคมีที่มีฤทธิ์เป็นตัวออกซิไดซ์ที่มีค่าความต่างศักย์สูงมาทำปฏิกิริยากับสิ่งสกปรกต่าง ๆ รวมทั้งจุลินทรีย์ และสารพิษต่าง ๆ โดยประสิทธิภาพของกระบวนการ AOPs ขึ้นอยู่กับการผลิตอนุมูลไฮดรอกซิล ($^{\bullet}OH$) หรือสารในกลุ่มอนุมูลอิสระต่าง ๆ กระบวนการ AOPs สามารถเกิดได้จาก 2 วิธีการหลัก ประกอบด้วย กระบวนการเคมีแสง (Photochemical) และกระบวนการเคมี (Chemical Process) ซึ่งวิธีที่นิยมมากที่สุดในปัจจุบันที่พบคือ การใช้กระบวนการเคมี โดยใช้โอโซน (O_3) ไฮโดรเจนเปอร์ออกไซด์ (H_2O_2) และ สารเคมีเฟนตัน (Fenton's Reagent) เป็นสารตั้งต้นเพื่อผลิตอนุมูลไฮดรอกซิล (ทศพล พิมพ์รัตน์, 2562)

วิธีดำเนินการวิจัย

ก๊าซโอโซนถูกผลิตขึ้นโดยใช้เครื่องปฏิกรณ์ (Reactor) แบบ DBD ซึ่งประกอบด้วยหลอดแก้วและขั้วไฟฟ้าสองขั้วเชื่อมต่อกับแหล่งจ่ายแรงดันสูง (HV Transformer) ที่ควบคุมด้วยแหล่งจ่ายไฟฟ้ากระแสสลับ (0–250 โวลต์) สำหรับเครื่องปฏิกรณ์แบบ DBD เมื่อใช้ก๊าซปฏิกิริยาคือ ก๊าซออกซิเจน จากงานวิจัยของ Chamchoi, Siriprom, Teanchai and Jitchot (2022) ได้รายงานอัตราการไหล 10 ลิตรต่อนาที เป็นอัตราที่เหมาะสมที่ทำให้เกิดแตกตัวของก๊าซออกซิเจนเป็นไอออน (Ionization) จนกลายเป็นพลาสมาภายในช่วงเวลา 10 นาที เหมาะสมที่สุดสำหรับการผลิตก๊าซโอโซน (O_3) แต่ในการทดลองนี้ได้เลือกอัตราการไหล 11 ลิตรต่อนาที และช่วงเวลา 15 นาทีเป็นสภาวะสำหรับการผลิตก๊าซโอโซน ดังสมการ

$$O_2 + e^- \longrightarrow 2O^{\bullet} + e^-$$

(O_2 ถูกอิเล็กตรอนชนแตกเป็นอะตอมออกซิเจนอิสระ O●)

$$O^{\bullet} + O_2 + M \longrightarrow O_3 + M$$

(M คือโมเลกุลอื่น ๆ เช่น N_2 หรือ O_2 ฯลฯ ซึ่งนำพาพลังงานส่วนเกินออกไป)

โดยความเข้มข้นของก๊าซโอโซนที่ผลิตขึ้นถูกวิเคราะห์ด้วยวิธีไทเทรตไอโดเมตริก (Iodometric Titration) ตามงานวิจัยของ Nur et al. (2022) โดยเริ่มต้นด้วยการเติมโพแทสเซียมไอโอไดด์ (KI) ปริมาณ 2.5 กรัม ลงในน้ำกลั่น 100 มิลลิลิตร ภายในขวดวัดปริมาตรขนาด 250 มิลลิลิตร จากนั้นเติมกรดซัลฟูริก

(H_2SO_4) ปริมาณ 1.0 มิลลิลิตร เพื่อทำให้สารละลายมีสภาวะเป็นกรด จากนั้นปล่อยก๊าซโอโซนที่เกิดจากเครื่องปฏิกรณ์แบบ DBD ให้ไหลผ่านสารละลาย KI ซึ่งก๊าซโอโซนจะทำปฏิกิริยากับไอออนไอโอไดด์ (I^-) ทำให้เกิดโมเลกุลไอโอดีน (I_2) ที่มีสีเหลืองน้ำตาล ดังสมการ

$$O_3 + 2I^- + H_2O \longrightarrow O_2 + I_2 + 2OH^-$$

จากนั้นเติมสารละลายแป้งลงไป เพื่อทำให้สารละลายเปลี่ยนเป็นสีน้ำเงินเข้ม (มีไอโอดีนอิสระเกิดขึ้น) จากนั้นจึงทำการไทเทรตด้วยโซเดียมไทโอซัลเฟต ($Na_2S_2O_3$) ความเข้มข้น 0.158 โมลาร์ (M) จนสารละลายกลับมาใสอีกครั้งดังสมการ

$$I_2 + 2S_2O_3^{2-} \longrightarrow 2I^- + S_4O_6^{2-}$$

และความเข้มข้นของโอโซนจะถูกคำนวณตามสมการ

$$O_3\left(\frac{mg}{L}\right) = O_3\left(\frac{mol}{L}\right) \times M_O\left(\frac{mg}{mol}\right) \times 1000$$

เมื่อ M_o คือ มวลโมเลกุล (molecular weight) ของโอโซน

สำหรับการสร้าง ROS จากกระบวนการ AOPs โดยใช้กระบวนการออกซิเดชันด้วยโอโซนจากการปล่อยก๊าซโอโซนผ่านอุปกรณ์สร้างฟอง Stone Diffuser ในน้ำ โดยสภาวะที่เหมาะสมในการสร้างฟองโอโซน จะศึกษาจากคุณลักษณะทางกายภาพและทางเคมี ด้วยการแปรค่าช่วงเวลาในการสร้าง ROS ด้วยการตรวจวัดค่าการนำไฟฟ้า (Conductivity) และของแข็งที่ละลายอยู่ในน้ำ (Total Dissolved Solids; TDS) ด้วยเครื่อง Conductivity/TDS Meter และค่าโพเทนเชียลออกซิเดชัน-รีดักชัน (Oxidation-Reduction Potential: ORP) ด้วยเครื่อง ORP Pen Meter ในช่วงเวลาทุก ๆ 5 นาที เป็นเวลานาน 30 นาที

ผลการวิจัย

เมื่อทำการผลิตก๊าซโอโซน โดยใช้เครื่องปฏิกรณ์แบบ DBD พบว่าอัตราการไหลของก๊าซปฏิกิริยา 11 ลิตรต่อนาที และช่วงเวลาแตกตัวของก๊าซออกซิเจนเป็นไอออน 15 นาที พบว่าค่าความเข้มข้นที่วัดด้วยวิธีไทเทรตไอโดเมตริก มีค่า 15.77 มิลลิกรัมต่อลิตร ซึ่งสอดคล้องกับสีของสารละลาย ที่มีโพแทสเซียมไอโอไดด์ลักษณะเป็นสีน้ำตาลเข้ม ดังแสดงในตารางที่ 1 จากการไทเทรตสารละลายด้วย โซเดียมไธโอซัลเฟต (Sodium Thiosulphate) พบว่าสีของสารละลายเปลี่ยนจากสีน้ำตาลเข้มกลับมาใสอีกครั้งและ และความเข้มข้นของโอโซนจะถูกคำนวณตามสมการ

$$O_3\left(\frac{mg}{L}\right) = 3.285 \times 10^{-3}\left(\frac{mol}{L}\right) \times 48\left(\frac{mg}{mol}\right) \times 1000 = 15.768\left(\frac{mg}{L}\right)$$

ตารางที่ 1 ลักษณะสีของสารละลายโพแทสเซียมไอโอไดด์ก่อนและหลังเติมก๊าซโอโซน โดยใช้ออกซิเจนเป็นก๊าซปฏิกิริยา

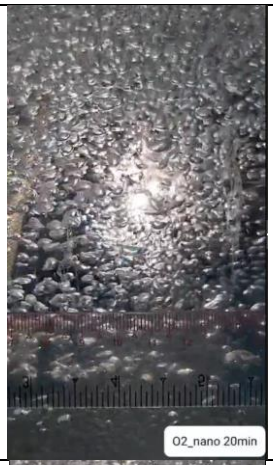
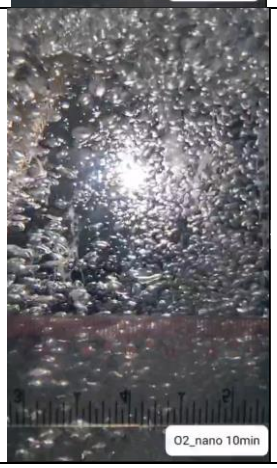
คุณสมบัติ	สีของสารละลายโพแทสเซียมไอโอไดด์	ความเข้มข้นของก๊าซโอโซน (mg/L)
ก่อนเติมก๊าซโอโซน		ND
หลังเติมก๊าซโอโซน		15.77

โดย ND (NOT Detected) หมายถึง ตรวจไม่พบ

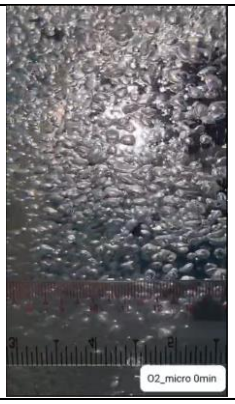
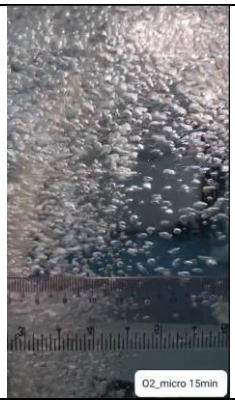
ตารางที่ 2 ลักษณะทางกายภาพของฟองโอโซน ที่สร้างจากอุปกรณ์สร้างฟอง stone diffuser ที่มีขนาดรูพรุนนาโน

เวลา (นาที)	ลักษณะทางกายภาพของฟองก๊าซโอโซน	เวลา (นาที)	ลักษณะทางกายภาพของฟองก๊าซโอโซน
0		15	

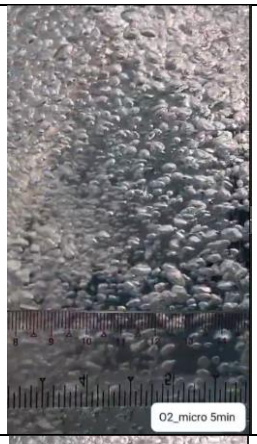
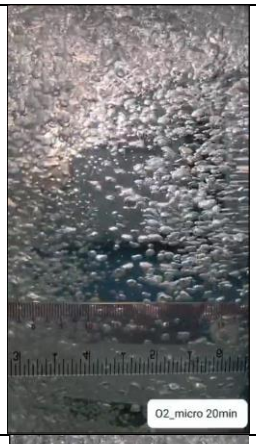
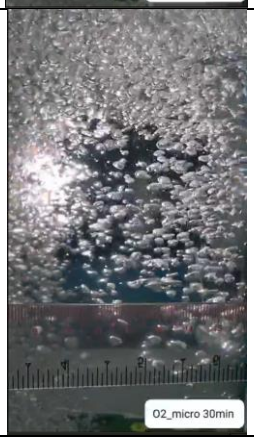
ตารางที่ 2 (ต่อ)

เวลา (นาที)	ลักษณะทางกายภาพของฟองก๊าซโอโซน	เวลา (นาที)	ลักษณะทางกายภาพของฟองก๊าซโอโซน
5		20	
10		30	

ตารางที่ 3 ลักษณะทางกายภาพของฟองโอโซน ที่สร้างจากอุปกรณ์สร้างฟอง stone diffuser ที่มีขนาดรูพรุนไมโคร

เวลา (นาที)	ลักษณะทางกายภาพของฟองก๊าซโอโซน	เวลา (นาที)	ลักษณะทางกายภาพของฟองก๊าซโอโซน
0		15	

ตารางที่ 3 (ต่อ)

เวลา (นาที)	ลักษณะทางกายภาพของฟองก๊าซโอโซน	เวลา (นาที)	ลักษณะทางกายภาพของฟองก๊าซโอโซน
5		20	
10		30	

จากตารางที่ 2 และตารางที่ 3 เป็นการสร้าง ROS จากกระบวนการ AOPs ด้วยการออกซิเดชันด้วยโอโซน โดยปล่อยก๊าซโอโซนผ่านอุปกรณ์สร้างฟอง Stone Diffuser ที่มีรูพรุนขนาดนาโนและไมโครเพื่อสร้างฟองโอโซน พบว่าขนาดของฟองโอโซนจากอุปกรณ์สร้างฟองที่มีรูพรุนขนาดนาโน จะมีขนาดเล็กกว่าฟองก๊าซออกซิเจน และมีปริมาณความหนาแน่นของฟองน้อยกว่า ทำให้สามารถลอยอยู่ในน้ำได้นานขึ้น ดังนั้นฟองโอโซนจะสามารถละลายน้ำได้มากขึ้น แต่เมื่อเวลานานมากขึ้นในช่วง 20 และ 30 นาที ฟองโอโซนจะมีขนาดที่ใหญ่ขึ้นและมีขนาดที่ใกล้เคียงกัน ซึ่งน่าจะเกิดจากสภาวะอิ่มตัวของ ROS ในขณะที่ตารางที่ 3 เป็นการปล่อยก๊าซโอโซนผ่านอุปกรณ์สร้างฟองที่มีรูพรุนขนาดไมโคร พบว่าขนาดของฟองโอโซนมีขนาดใกล้เคียงกับฟองก๊าซออกซิเจน แต่เมื่อเวลานานมากขึ้นในช่วง 20 และ 30 นาที ฟองโอโซนจะมีปริมาณความหนาแน่นของฟองน้อยกว่า ซึ่งคาดว่าน่าจะเกิดจากการอิ่มตัวของ ROS เนื่องจากฟองโอโซนไม่สามารถละลายน้ำได้แล้วเช่นกัน และเมื่อพิจารณาร่วมกับค่า ORP หรือค่าความสามารถของสารในการเกิดออกซิเดชันสุทธิและการรีดักชันของสารทั้งหมดที่มีอยู่ จากตารางที่ 4 พบว่าค่า ORP มีแนวโน้มที่จะมีค่าคงที่ ประมาณ 820 มิลลิโวลต์ โดยคุณลักษณะทางกายภาพและทางเคมี ของ ROS ซึ่งประกอบด้วยค่าการนำไฟฟ้า และ ค่า ORP สามารถแสดงได้ดังตารางที่ 4

จากข้อมูลในตารางที่ 4 จะพบว่าในสภาวะเริ่มต้นน้ำมีค่า ORP ประมาณ 120 มิลลิโวลต์ จากนั้นเมื่อเริ่มปล่อยปล่อยก๊าซโอโซนผ่านอุปกรณ์สร้างฟอง ก๊าซโอโซนจะทำปฏิกิริยากับน้ำ และเกิดกระบวนการสลายตัวของก๊าซโอโซนในน้ำ และไปกระตุ้นน้ำให้เกิดไฮดรอกไซด์ไอออน ประเภท อนุมูลไฮดรอกซิล ซึ่งเป็นสารออกซิไดซ์ (Oxidizing Agent) เนื่องจากปฏิกิริยาของฟองโอโซนกับของเหลวนั้นเป็นปัจจัยที่สำคัญในการสร้าง ROS ซึ่งสังเกตได้ว่าเมื่อเวลาผ่านไป ค่า ORP จะเพิ่มขึ้นเป็นประมาณ 800 มิลลิโวลต์ และมีแนวโน้มคงที่ นอกจากนั้นเมื่อพิจารณาค่าการนำไฟฟ้าและค่าปริมาณของแข็งละลายอยู่ในน้ำพบว่ามีค่าลดลง ซึ่งสามารถบ่งชี้ได้ว่าเกิด ROS ทำปฏิกิริยากับโมเลกุลอื่น ๆ ในน้ำจึงส่งผลทำให้ค่าการนำไฟฟ้าลดลงจาก 271 เป็น 248 โมโครซีเมนส์ต่อเซนติเมตร สำหรับอุปกรณ์สร้างฟองที่มีรูพรุนขนาดนาโน ส่วนอุปกรณ์สร้างฟองที่มีรูพรุนขนาดไมโครลดลงจาก 273 เป็น 254 โมโครซีเมนส์ต่อเซนติเมตร ส่วนค่าปริมาณของแข็งละลายอยู่ในน้ำมีแนวโน้มลดลงเช่นกัน โดยมีค่าลดลงจาก 173 เป็น 135 มิลลิกรัมต่อลิตร และจาก 172 เป็น 138 มิลลิกรัมต่อลิตรสำหรับอุปกรณ์สร้างฟองที่มีรูพรุนขนาดนาโนและไมโครตามลำดับ

ตารางที่ 4 สมบัติทางกายภาพและทางเคมีของ ROS ที่สร้างจากอุปกรณ์สร้างฟอง stone diffuser ที่รูพรุนมีขนาดนาโนและไมโคร

เวลา (min)	รูพรุนขนาดนาโน			รูพรุนขนาดไมโคร		
	ORP (mV)	Conductivity (µS/cm)	TDS (mg/L)	ORP (mV)	Conductivity (µS/cm)	TDS (mg/L)
0	123	271	173	121	273	172
5	804	232	131	800	251	138
10	810	239	132	809	254	135
15	813	245	135	810	253	136
20	815	244	135	811	257	132
25	817	240	133	817	260	137
30	820	248	135	821	254	138

สรุปและอภิปรายผล

การผลิตก๊าซโอโซนโดยใช้เครื่องปฏิกรณ์แบบ DBD โดยใช้ก๊าซออกซิเจน เป็นก๊าซปฏิกิริยาที่อัตราการไหลของก๊าซปฏิกิริยา 11 ลิตรต่อนาที และช่วงเวลาแตกตัวของก๊าซออกซิเจนเป็นไอออน 15 นาที สามารถผลิตก๊าซโอโซนได้ที่ค่าความเข้มข้น 15.77 มิลลิกรัมต่อลิตร และเมื่อนำก๊าซโอโซนมาผลิต ROS โดยปล่อยผ่านอุปกรณ์สร้างฟองที่มีรูพรุนขนาดนาโนและไมโครพบว่าการสร้างฟองโอโซนจะช่วยให้อัตราการละลายของก๊าซโอโซนในน้ำได้ดีมากขึ้น โดยขนาดรูพรุนไม่ส่งผลกระทบต่อปฏิกิริยาออกซิเดชัน

ระหว่างน้ำกับฟองโอโซนซึ่งเป็นปัจจัยที่สำคัญต่อการสร้าง ROS โดยจะเห็นได้จากค่า ORP ซึ่งในน้ำปกติมีค่า 123 มิลลิโวลต์และ 121 มิลลิโวลต์ เมื่อมีการสร้าง ROS ค่า ORP ในน้ำจะมีค่าเพิ่มขึ้นเป็น 820 มิลลิโวลต์ และ 821 มิลลิโวลต์ สำหรับอุปกรณ์สร้างฟองรูพรุนมีขนาดนาโนและไมโครตามลำดับ โดยสภาวะที่เหมาะสมในการผลิต ROS จากกระบวนการออกซิเดชันด้วยโอโซนคือการปล่อยก๊าซโอโซนผ่านอุปกรณ์สร้างฟองไม่น้อยกว่า 5 นาที

เอกสารอ้างอิง

กานดา หวังชัย. (2563). การลดการปนเปื้อนของผลิตผลทางการเกษตรด้วยโอโซน (พิมพ์ครั้งที่ 1). เชียงใหม่ : มหาวิทยาลัยเชียงใหม่.

ทศพล พิมพ์รัตน์. (2562). การเพิ่มความปลอดภัยและรักษาคุณภาพของไควาเระ (Raphanus sativus L.) โดยกระบวนการออกซิเดชันขั้นสูงด้วยรังสีอัลตราไวโอเลตร่วมกับโอโซน (UV-Ozone) (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยธรรมศาสตร์, กรุงเทพมหานคร.

ทิพวิมล ไตรกูล. (2557). การพัฒนาเครื่องกำเนิดพลาสมาแบบไดอิเล็กทริคแบริเออร์ดิสชาร์จ สำหรับเพิ่มอัตราการงอกของเมล็ดข้าวพันธุ์ปทุมธานี 80 (กข 31) (วิทยานิพนธ์ปริญญามหาบัณฑิต). มหาวิทยาลัยธรรมศาสตร์, กรุงเทพมหานคร.

ภัชราภรณ์ สุวรรณวิทยา และภาณุมาศ พวงแก้ว. (2549). กระบวนการออกซิเดชั่นของฟีนอลโดยโอโซเนชั่น. วิศวกรรมสาร มก., 20(59), 36-43.

อธิป สกุลเผือก. (2559). อนุมูลอิสระและสารต้านอนุมูลอิสระ. ศูนย์การศึกษาต่อเนื่องทางเภสัชศาสตร์, 1(1), 1-12.

Chamchoi, N., Siriprom, W., Teanchai, K., & Jitchot, N. (2022). The comparison of ozone production with oxygen concentration and feed gas flow rate at atmospheric pressure. Materials Today Proceedings, 65(7), 2336-2339.

Luvita, V., Sugiarto, A.T., & Bismo, S. (2022). Characterization of dielectric barrier discharge reactor with nanobubble application for industrial water treatment and depollution. Journal of South African. Journal of Chemical Engineering, 40, 246-257.

Nur, M., Verinda, S.B., Muniroh, M., Yulianto, E., Maharani, N., Gunawan, G., ... Usman, A. (2022). Degradation of ciprofloxacin in aqueous solution using ozone microbubbles: spectroscopic, kinetics, and antibacterial analysis. Heliyon, 8, e10137.

Silva, C.L.M., Alexandre, E.M.C., & Brandao, T.R.S. (2011). Modelling microbial load reduction in foods due to ozone impact. Procedia Food Science, 1, 836-841.

การเปรียบเทียบประสิทธิภาพของแบบจำลอง ARIMA และ Facebook Prophet ในการวิเคราะห์อนุกรมเวลา เพื่อการพยากรณ์ปริมาณการใช้ไฟฟ้าภาคครัวเรือนในประเทศไทย

Comparative Performance of ARIMA and Facebook Prophet Models in Time Series Analysis for Forecasting Household Electricity Consumption in Thailand

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บทคัดย่อ

การพยากรณ์ปริมาณการใช้ไฟฟ้าเป็นกระบวนการสำคัญ ในการบริหารจัดการพลังงานอย่างมีประสิทธิภาพงานวิจัยนี้มีวัตถุประสงค์ เพื่อเปรียบเทียบประสิทธิภาพของแบบจำลอง Facebook Prophet และ Autoregressive Integrated Moving Average (ARIMA) ในการพยากรณ์ปริมาณการใช้ไฟฟ้าภาคครัวเรือนในประเทศไทย โดยใช้ข้อมูลจากสำนักงานนโยบายและแผนพลังงาน (EPPO) ระหว่างปี พ.ศ. 2560 ถึง 2565 การประเมินประสิทธิภาพของแบบจำลองดำเนินการโดยใช้ตัวชี้วัด ได้แก่ ค่าความคลาดเคลื่อนสัมบูรณ์เฉลี่ย (Mean Absolute Error: MAE) ค่ารากที่สองของความคลาดเคลื่อนกำลังสองเฉลี่ย (Root Mean Squared Error: RMSE) และค่าร้อยละของความคลาดเคลื่อนสัมบูรณ์เฉลี่ย (Mean Absolute Percentage Error: MAPE)

ผลการศึกษาพบว่า ARIMA ให้ค่า MAE และ MAPE ต่ำกว่า Facebook Prophet โดย ARIMA มีค่า MAE เท่ากับ 344.40 และ MAPE เท่ากับ 7.77% ในขณะที่ Facebook Prophet มีค่า MAE เท่ากับ 377.34 และ MAPE เท่ากับ 8.53% สอดคล้องกับข้อสรุปที่ว่า ARIMA มีความเหมาะสมมากกว่าสำหรับการพยากรณ์ปริมาณการใช้ไฟฟ้าภาคครัวเรือนในกรณีศึกษานี้ อย่างไรก็ตาม Facebook Prophet แสดงให้เห็นถึงความยืดหยุ่นที่ดีกว่าเมื่อข้อมูลมีลักษณะเชิงฤดูกาลที่ชัดเจน

ผลการศึกษาครั้งนี้ชี้ให้เห็นว่าการเลือกใช้แบบจำลองสำหรับการพยากรณ์ ควรพิจารณาจากลักษณะเฉพาะของข้อมูลเป็นสำคัญ อีกทั้งการนำเสนอแนวทางการพัฒนาแบบจำลองแบบผสมผสาน (Hybrid Model) อาจเป็นทางเลือกที่ช่วยเพิ่มความแม่นยำของการพยากรณ์ในอนาคต

คำสำคัญ: พยากรณ์การใช้ไฟฟ้า, ARIMA, Facebook Prophet, อนุกรมเวลา

Abstract

Electricity consumption forecasting is a crucial process for effective energy management. This study aims to compare the performance of the Facebook Prophet and Autoregressive Integrated Moving Average (ARIMA) models in forecasting household electricity consumption in Thailand, utilizing data obtained from the Energy Policy and Planning Office (EPPO) between 2017 and 2022. The performance evaluation employed three metrics: Mean Absolute Error (MAE), Root Mean Squared Error (RMSE), and Mean Absolute Percentage Error (MAPE).

The results indicate that ARIMA achieved lower MAE and MAPE values compared to Facebook Prophet. Specifically, ARIMA yielded a MAE of 344.40 and a MAPE of 7.77%, while Facebook Prophet recorded a MAE of 377.34 and a MAPE of 8.53%. These findings suggest that ARIMA is more suitable for forecasting household electricity consumption in this case study. Nevertheless, Facebook Prophet demonstrated greater flexibility when the dataset exhibited strong seasonal patterns.

This study highlights that model selection for forecasting should be based primarily on the characteristics of the dataset. Additionally, the development of hybrid models is proposed as a potential approach to further enhance forecasting accuracy in future research.

Keywords: Electricity forecasting, ARIMA, Facebook Prophet, Time series

บทนำ

พลังงานไฟฟ้าเป็นทรัพยากรสำคัญที่มีบทบาทในชีวิตประจำวันของประชาชน และเป็นปัจจัยหลักที่ส่งผลต่อเศรษฐกิจและอุตสาหกรรมของประเทศ ปริมาณการใช้ไฟฟ้าภาคครัวเรือนในประเทศไทยยังคงมีแนวโน้มเพิ่มขึ้นอย่างต่อเนื่อง โดยในปี 2566 การใช้ไฟฟ้าภาคครัวเรือนเพิ่มขึ้นร้อยละ 7.4 เมื่อเทียบกับปี 2565 ซึ่งสูงกว่าค่าเฉลี่ยในช่วงก่อนหน้าสะท้อนให้เห็นถึงการฟื้นตัวของเศรษฐกิจหลังการระบาดของโรค COVID-19 รวมถึงการเติบโตของเมืองและจำนวนประชากรที่เพิ่มขึ้น (สำนักงานนโยบายและแผนพลังงาน, 2566)

นอกจากนี้ การพัฒนาเทคโนโลยีที่ใช้พลังงานสูง เช่น เครื่องใช้ไฟฟ้าอัจฉริยะ หรือระบบควบคุมบ้านอัตโนมัติก็เป็นอีกปัจจัยที่ทำให้ความต้องการพลังงานเพิ่มขึ้นอย่างมีนัยสำคัญ การบริหารจัดการพลังงานไฟฟ้าให้มีประสิทธิภาพ จึงเป็นสิ่งจำเป็นต่อเสถียรภาพของระบบไฟฟ้าและการพัฒนาอย่างยั่งยืน โดยเฉพาะอย่างยิ่ง การพยากรณ์ปริมาณการใช้ไฟฟ้าภาคครัวเรือน ถือเป็นเครื่องมือสำคัญที่ช่วยในการวางแผนผลิตไฟฟ้า การจัดการโหลดของระบบโครงข่ายและการออกนโยบายพลังงานที่ตอบสนองต่อความต้องการในอนาคตได้อย่างแม่นยำ

จากการศึกษาวรรณกรรม พบว่าการพยากรณ์การใช้ไฟฟ้ามีความสำคัญอย่างยิ่งต่อหน่วยงานที่เกี่ยวข้อง เช่น การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย (EGAT), การไฟฟ้านครหลวง (MEA) และการไฟฟ้าส่วนภูมิภาค (PEA) โดยการใช้เทคนิคการวิเคราะห์อนุกรมเวลา (Time Series Analysis) เป็นแนวทางสำคัญในการคาดการณ์ความต้องการพลังงานล่วงหน้า ซึ่งช่วยให้หน่วยงานสามารถบริหารจัดการพลังงานได้อย่างมีประสิทธิภาพ (Taylor & Letham, 2018; Kumar & Kumar, 2020) ศึกษาการใช้อนุกรมเวลาในการพยากรณ์ความต้องการไฟฟ้า โดยเปรียบเทียบแบบจำลองพยากรณ์ 3 รูปแบบ ได้แก่ 1) การถดถอยเชิงเส้น (Linear Regression) 2) โครงข่ายประสาทเทียม (Artificial Neural Networks) และ 3) ซัพพอร์ตเวกเตอร์แมชชีนสำหรับการถดถอย (Support Vector Machine Regression) โดยใช้ข้อมูลการใช้ไฟฟ้ารายวันในช่วงปี 2553 - 2562 ผลการทดลองชี้ให้เห็นว่า โครงข่ายประสาทเทียมสามารถให้ค่าเบี่ยงเบนสัมบูรณ์เฉลี่ย (Mean Absolute Error: MAE = 2.1%) เมื่อเทียบกับอีกสองวิธี นอกจากนี้ยังพบว่าปัจจัยด้านฤดูกาลมีผลอย่างมีนัยสำคัญต่อปริมาณการใช้พลังงานไฟฟ้า สำหรับเทคนิคที่ได้รับความนิยมในปัจจุบัน Facebook Prophet ได้รับการยอมรับว่าเป็นเครื่องมือที่มีความยืดหยุ่นสูงและสามารถจัดการกับข้อมูลที่ไม่สมบูรณ์ได้ดีโดย Taylor and Letham (2018) ได้พัฒนา Facebook Prophet และนำมาใช้ในการพยากรณ์ข้อมูลอนุกรมเวลาในหลายสาขา เช่น การพยากรณ์ยอดขาย การคาดการณ์สภาพอากาศ และการพยากรณ์พลังงานไฟฟ้า (Ahmad, Chen, Wang, Huang, & Yan, 2021) ได้นำ Facebook Prophet มาทดลองพยากรณ์การใช้ไฟฟ้ารายเดือนในประเทศมาเลเซีย โดยเปรียบเทียบกับแบบจำลอง ARIMA และ LSTM (Long Short-Term Memory) ผลลัพธ์แสดงให้เห็นว่า Facebook Prophet มีความผิดพลาดเฉลี่ยสัมพัทธ์สัมบูรณ์ (Mean Absolute Percentage Error: MAPE) ที่ต่ำกว่า ARIMA (MAPE = 3.5%) และใกล้เคียงกับ LSTM (MAPE = 3.2%) ในประเทศไทย พบว่าการใช้พลังงานไฟฟ้าในช่วงฤดูร้อนเพิ่มขึ้นประมาณ 20-30% เมื่อเทียบกับฤดูหนาว (สำนักงานนโยบายและแผนพลังงาน, (2566) ; วรากรณ์ และคณะ (2563)) ได้พัฒนาแบบจำลองพยากรณ์การใช้ไฟฟ้าภาคครัวเรือน ในกรุงเทพมหานคร โดยใช้ Facebook Prophet วิเคราะห์ข้อมูลย้อนหลัง 10 ปี (2553 - 2562) และเปรียบเทียบกับแบบจำลอง ARIMA ผลการศึกษาพบว่า Facebook Prophet สามารถพยากรณ์ได้แม่นยำกว่าโดยให้ค่า RMSE ที่ต่ำกว่า ARIMA ประมาณ 15% ซึ่งแสดงให้เห็นถึงประสิทธิภาพของแบบจำลองที่สามารถรองรับแนวโน้มเชิงฤดูกาลของข้อมูลได้ดีกว่า

ดังนั้นงานวิจัยครั้งนี้ จึงมีวัตถุประสงค์เพื่อสร้างและเปรียบเทียบแบบจำลองพยากรณ์การใช้ไฟฟ้าภาคครัวเรือน โดยการสร้างแบบจำลองพยากรณ์ด้วย Facebook Prophet และเปรียบเทียบประสิทธิภาพระหว่าง Facebook Prophet กับวิธีการพยากรณ์แบบอื่น ๆ ที่ใช้ในการพยากรณ์ข้อมูลอนุกรมเวลาด้วยการวัด MAE, RMSE, MAPA และเพื่อหาแบบจำลองพยากรณ์ที่เหมาะสมใช้เป็นเครื่องมือในการพยากรณ์การใช้ไฟฟ้าภาคครัวเรือน

วัตถุประสงค์ของการวิจัย

1. เพื่อสร้างแบบจำลองพยากรณ์ปริมาณการใช้ไฟฟ้าภาคครัวเรือนในประเทศไทย โดยใช้เครื่องมือ Facebook Prophet

2. เพื่อเปรียบเทียบประสิทธิภาพของแบบจำลองการพยากรณ์ ระหว่าง Facebook Prophet และแบบจำลอง ARIMA

แนวคิด ทฤษฎี กรอบแนวคิด

การพยากรณ์ปริมาณการใช้ไฟฟ้าภาคครัวเรือน ในอนาคตเป็นงานที่มีความสำคัญอย่างยิ่งในการบริหารจัดการพลังงานและการวางแผนการผลิตไฟฟ้าในประเทศไทย โดยเฉพาะในสภาวะที่มีการเปลี่ยนแปลงของปัจจัยต่าง ๆ เช่น การเติบโตของประชากร เศรษฐกิจ และการพัฒนาเทคโนโลยีที่มีผลกระทบต่อการใช้ไฟฟ้า องค์ความรู้ที่เกี่ยวข้องกับการพยากรณ์การใช้ไฟฟ้าได้แก่ การวิเคราะห์อนุกรมเวลา (Time Series Analysis) และการใช้แบบจำลองการพยากรณ์เชิงสถิติ เช่น Facebook Prophet ซึ่งเป็นเครื่องมือหนึ่งที่ถูกพัฒนา เพื่อช่วยให้การพยากรณ์ข้อมูลที่มีลักษณะเป็นอนุกรมเวลามีความแม่นยำสูงสุด

1. ความหมายของการพยากรณ์ การพยากรณ์เป็นกระบวนการที่ใช้ข้อมูลที่มีอยู่ในอดีตหรือปัจจุบันเพื่อทำนายสิ่งที่จะเกิดขึ้นในอนาคต ซึ่งสามารถนำไปใช้ในการวิเคราะห์เพื่อให้เห็นแนวโน้มของการเปลี่ยนเปลงของที่ข้อมูลต้องการพยากรณ์ โดยใช้การวิเคราะห์และการสร้างแบบจำลองทางสถิติและคณิตศาสตร์ เพื่อประมาณค่าหรือเหตุการณ์ที่อาจเกิดขึ้นในอนาคต โดยสามารถนำไปใช้ในการวางแผนสำหรับการดำเนินงาน อีกทั้งยังช่วยในการประกอบการตัดสินใจเพื่อให้บรรลุวัตถุประสงค์ของการดำเนินการ

2. ประเภทของการพยากรณ์ตามระยะเวลา การพยากรณ์ตามระยะเวลาสามารถแบ่งได้ตามระยะเวลาในการพยากรณ์ออกเป็น 3 ประเภท ดังนี้

1. การพยากรณ์ระยะสั้น (Short-term Forecasting) เป็นการพยากรณ์ในระยะเวลาไม่เกิน 1 ปีเช่น การพยากรณ์จำนวนผู้ใช้งานในช่วง 1 เดือนล่วงหน้า

2. การพยากรณ์ระยะปานกลาง (Intermediate Forecasting) เป็นการพยากรณ์ในระยะเวลาระหว่าง 3 เดือนถึง 3 ปี เช่น การพยากรณ์เศรษฐกิจของปีหน้า

3. การพยากรณ์ระยะยาว (Long-term Forecasting) เป็นการพยากรณ์ในระยะเวลามากกว่า 3 ปีขึ้นไป เช่น การพยากรณ์การเติบโตของอุตสาหกรรมในอีก 5 ปีข้างหน้า

3. การวิเคราะห์อนุกรมเวลา (Time Series Analysis) เป็นการศึกษาลักษณะของข้อมูลที่เกิดขึ้นตามลำดับเวลาอย่างต่อเนื่องกัน การจัดเรียงข้อมูลจมีลักษณะเป็นรายปี (Yearly) รายไตรมาส (Quarterly) รายเดือน (Monthly) รายอาทิตย์ (Weekly) รายวัน (Daily) หรือรายชั่วโมง (Hourly) ขึ้นอยู่กับความเหมาะสมในการนำไปใช้งาน (เฉลิมพล จตุพร, 2562) ดังนั้น การพยากรณ์อนุกรมเวลาจึงต้อง

พิจารณาองค์ประกอบทั้ง 4 ส่วน เพื่อให้ได้ผลลัพธ์ที่มีความแม่นยำสูงสุด (Box, Jenkins, & Reinsel, 2015) ซึ่งประกอบด้วย

1. แนวโน้ม (Trend) คือส่วนที่ทำให้อนุกรมเวลามีค่าเพิ่มหรือลดลงเรื่อย ๆ เมื่อเวลาผ่านไป (ภูมิฐาน รังคกูลนุวัฒน์, 2556)

2. ความผันแปรแบบวัฏจักร (Cyclic Patterns) คือส่วนที่ทำให้อนุกรมเวลาที่เก็บข้อมูลมีค่าเพิ่มขึ้นและลดลงสลับกันไป รอบ ๆ ค่าแนวโน้ม การนับระยะเวลาของส่วนวัฏจักรจะนับจุดสูงสุดหนึ่ง (peak) ไปยังอีกจุดสูงสุดหนึ่ง หรือจากจุดต่ำสุดหนึ่ง (trough) ไปยังอีกจุดต่ำสุดหนึ่ง เมื่อส่วนของวัฏจักรอยู่ในช่วงที่อนุกรมเวลามีค่าลดลงเรียกว่าช่วงถดถอย (Recession) ส่วนของวัฏจักรที่ทำให้อนุกรมเวลามีค่าเพิ่มขึ้นเรียกว่าช่วงฟื้นตัว (Recovery)

3. ความผันแปรจากฤดูกาล (Seasonal Variations) คือรูปแบบในช่วงเวลาหนึ่งของอนุกรมเวลาที่จะเป็นภายใน 1 ปีและเกิดขึ้นซ้ำกันทุกปี

4. องค์ประกอบไม่สม่ำเสมอ (Irregular Component หรือ Noise) คือ ส่วนที่ทำให้อนุกรมเวลามีค่าที่ผิดปกติไปจากรูปแบบที่เป็นมักเกิดจากเหตุการณ์ไม่คาดฝัน (Shock) คำนวณจากการนำค่าของส่วนแนวโน้มค่าของส่วนวัฏจักร และค่าของความผันแปรจากฤดูกาลไปหักล้างค่าอนุกรมเวลานั้น

แนวทางหลักในการพยากรณ์อนุกรมเวลาสามารถแบ่งได้เป็น 2 กลุ่มหลัก (Hyndman & Athanasopoulos, 2018) ดังนี้

1. วิธีการทางสถิติ (Statistical Models) เช่น ARIMA, Exponential Smoothing (ETS) และ State-Space Models ซึ่งอาศัยหลักการทางคณิตศาสตร์ในการคำนวณแนวโน้มและรูปแบบของข้อมูล

2. วิธีการที่ใช้ Machine Learning และ Deep Learning เช่น Decision Trees, XGBoost, และ Long Short-Term Memory (LSTM) ซึ่งใช้หลักการของปัญญาประดิษฐ์ในการเรียนรู้รูปแบบของข้อมูล

4. Autoregressive Integrated Moving Average (ARIMA) เป็นหนึ่งในเทคนิคที่นิยมใช้สำหรับการพยากรณ์ข้อมูลอนุกรมเวลาโดยเฉพาะ โดยมีความสามารถในการจัดการกับอิทธิพลของแนวโน้ม (Trend) และสภาวะซ้ำซ้อน (Seasonality) แบบจำลองนี้มีองค์ประกอบหลัก 3 ส่วน (Box & Jenkins, 1970) ได้แก่

- Autoregressive (AR): ใช้ค่าของข้อมูลในอดีตมาสร้างความสัมพันธ์เพื่อพยากรณ์ค่าในอนาคต
- Integrated (I): ทำให้ข้อมูลมี stationarity โดยการหาค่า differencing
- Moving Average (MA): ใช้ค่าเฉลี่ยของข้อผิดพลาดจากอดีตในการพยากรณ์

สมการพื้นฐานของ ARIMA (p, d, q) มีลักษณะดังนี้

$$y_t = c + \sum_{i=1}^{p} \emptyset_i Y_{t-1} + \sum_{j=1}^{q} \emptyset_j \varepsilon_{t-j} + \varepsilon_t \quad \text{- (1)}$$

5. Facebook Prophet คือแบบจำลองพยากรณ์อนุกรมเวลาสามารถใช้งานได้ทั้งบน R และ Python ถูกพัฒนาโดยทีมวิจัยของ Facebook เพื่อให้สามารถทำการพยากรณ์ข้อมูลที่มีฤดูกาลหรือแนวโน้มที่ซับซ้อนได้ดี โดยเฉพาะข้อมูลที่มีการเปลี่ยนแปลงตามช่วงเวลา การพยากรณ์ที่ได้จาก Prophet จะพิจารณา Trend Seasonality และ Holidays ซึ่งเป็นปัจจัยที่สำคัญในการพยากรณ์ข้อมูลที่มีลักษณะตามฤดูกาล (Taylor & Letham, 2018)

สูตรที่ใช้ในการพยากรณ์ของ Prophet มีลักษณะเป็นแบบจำลอง Additive หรือ Multiplicative ที่รวมส่วนของ Trend Seasonality, และ Holiday Effects เข้าด้วยกัน

$$y_t = g(t) + s(t) + h(t) + \in_t \quad \text{- (2)}$$

การเลือกใช้งาน Prophet ในการพยากรณ์นั้นสามารถให้ผลลัพธ์ที่มีความแม่นยำสูง โดยเฉพาะในกรณีที่ข้อมูลมีแนวโน้มการเปลี่ยนแปลงในระยะยาว (Trend) ใช้อนุกรมฟูเรียร์เป็นฐาน ในการวิเคราะห์ฤดูกาล (Seasonality) เพื่อใช้ในการสร้างแบบจำลองที่ยืดหยุ่นในการตรวจจับและวิเคราะห์ฤดูกาลของชุดข้อมูล และในส่วนของผลกระทบจากวันหยุด (Effect of holidays) ที่มีผลต่อข้อมูล นอกเหนือจากวันหยุดที่เกิดขึ้นซ้ำในช่วงเวลาเดียวกันของปียังมีเหตุการณ์จำนวนมาก และวันหยุดที่มีวันที่ไม่แน่นอนในแต่ละปีที่ส่งผลกระทบต่อพฤติกรรมของข้อมูล หรือมีลักษณะเป็น seasonal pattern ที่สามารถทำนายได้ตามเวลา สามารถจัดการกับ missing data ได้ดี รองรับการเปลี่ยนแปลงแนวโน้ม (changepoints) อัตโนมัติ สามารถรวมปัจจัยภายนอก (external regressors) เข้าไปในการพยากรณ์ได้ (Taylor & Letham, 2018)

6. การทดสอบประสิทธิภาพของแบบจำลอง (Model Evaluation)

1. การประเมินประสิทธิภาพของแบบจำลองพยากรณ์อนุกรมเวลา ช่วยให้สามารถวัดความแม่นยำและความสามารถในการทำนายค่าของแบบจำลอง โดยทั่วไปแบบจำลองที่ดีควรมีค่าความผิดพลาดต่ำและสามารถจับแนวโน้มของข้อมูลได้อย่างถูกต้อง การทดสอบประสิทธิภาพของแบบจำลองมักใช้ชุดข้อมูลทดสอบ (Test Set) ซึ่งเป็นข้อมูลที่แบบจำลองไม่เคยเห็นมาก่อน เพื่อประเมินความสามารถในการพยากรณ์ข้อมูลใหม่

2. ตัวชี้วัดความผิดพลาด (Error Metrics) เพื่อประเมินค่าความผิดพลาดของแบบจำลองโดยเปรียบเทียบค่าพยากรณ์กับค่าจริง ตัวชี้วัดที่นิยมใช้ ได้แก่

1) Mean Absolute Error (MAE) แทนค่าคลาดเคลื่อนเฉลี่ยแบบสัมบูรณ์ของค่าพยากรณ์โดยไม่มีการให้ค่าน้ำหนักกับข้อผิดพลาดที่มากหรือน้อย

$$MAE = \sum_{t=1}^{n} \frac{|y_t - \hat{y_t}|}{n} \quad \text{- (3)}$$

2) Root Mean Squared Error (RMSE) เป็นตัวชี้วัดที่ใช้ในการประเมินความแม่นยำของโมเดลการพยากรณ์ โดยคำนวณจากค่าความผิดพลาด (errors) ระหว่างค่าพยากรณ์ ($\hat{y}_t$) และค่าจริง (y_t) ที่เกิดขึ้นในชุดข้อมูล การคำนวณ RMSE จะใช้การยกกำลังสองของความผิดพลาดในแต่ละจุด เพื่อทำให้ค่าผิดพลาดที่มีค่าสูงมากขึ้นมีผลมากกว่าค่าผิดพลาดที่มีค่าน้อย ซึ่งจะช่วยให้ RMSE สามารถสะท้อนถึงการพยากรณ์ที่ผิดพลาดรุนแรงได้ชัดเจนยิ่งขึ้น

$$RMSE = \sqrt{\frac{1}{n}\sum_{t=1}^{n}(y_t - \hat{y_t})^2} \text{ - (4)}$$

3) Mean Absolute Percentage Error (MAPE) ใช้วัดข้อผิดพลาดในรูปแบบเปอร์เซ็นต์ ทำให้สามารถนำไปเปรียบเทียบกับข้อมูลชุดอื่น ๆ ได้ง่าย

$$MPAE = \frac{1}{n}\sum_{i=1}^{n}\left|\frac{y_i - \hat{y}_i}{y_j}\right| \times 100 \quad \text{- (5)}$$

วิธีดำเนินการวิจัย

การดำเนินการวิจัย ประกอบด้วยขั้นตอนดังนี้

1) ทบทวนงานวิจัยที่เกี่ยวข้องกับการพยากรณ์ปริมาณการใช้ไฟฟ้าภาคครัวเรือน และการใช้ Facebook Prophet ในการพยากรณ์อนุกรมเวลา เพื่อเข้าใจถึงหลักการและแนวทางในการใช้เครื่องมือดังกล่าวในการพยากรณ์

2) ดำเนินการเก็บรวบรวมข้อมูลปริมาณการใช้ไฟฟ้าภาคครัวเรือน จากแหล่งข้อมูลที่เกี่ยวข้อง เช่น สำนักงานนโยบายและแผนพลังงาน (EPPO) เพื่อใช้เป็นข้อมูลในการฝึกและทดสอบแบบจำลองจะถูกเก็บรวบรวมจาก ปี พ.ศ. 2560 ถึง 2565 ซึ่งเป็นช่วงเวลาที่มีความหลากหลายทางด้านการใช้พลังงานรวมถึงการเปลี่ยนแปลงในภาครัฐและเศรษฐกิจ (สำนักงานนโยบายและแผนพลังงาน, 2566)

3) ศึกษาตัวแบบจำลองและทฤษฎีที่เกี่ยวข้อง การพยากรณ์ปริมาณการใช้ไฟฟ้าภาคครัวเรือนในอนาคตเป็นงานที่มีความสำคัญอย่างยิ่ง ในการบริหารจัดการพลังงานและการวางแผนการผลิตไฟฟ้าในประเทศไทย โดยเฉพาะในสภาวะที่มีการเปลี่ยนแปลงของปัจจัยต่าง ๆ เช่น การเติบโตของประชากร เศรษฐกิจ และการพัฒนาเทคโนโลยีที่มีผลกระทบต่อการใช้ไฟฟ้า องค์ความรู้ที่เกี่ยวข้องกับการพยากรณ์การใช้ไฟฟ้าได้แก่ การวิเคราะห์อนุกรมเวลา (Time Series Analysis) และการใช้แบบจำลองการพยากรณ์เชิงสถิติ เช่น Facebook Prophet ซึ่งเป็นเครื่องมือหนึ่งที่ถูกพัฒนาเพื่อช่วยให้การพยากรณ์ข้อมูลที่มีลักษณะเป็นอนุกรมเวลามีความแม่นยำสูงสุด

4) พยากรณ์และวิเคราะห์ผลการพยากรณ์ ใช้แบบจำลองที่พัฒนาเพื่อพยากรณ์การใช้ไฟฟ้าภาคครัวเรือน โดยใช้ข้อมูลฝึกตั้งแต่ 2018-01-01 จนถึง 2022-09-01 และข้อมูลทดสอบตั้งแต่ 2022-10-01 ถึง 2023-12-01 และในช่วงเวลาที่ไม่มีข้อมูลและวิเคราะห์ผลการพยากรณ์ด้วยค่า RMSE และ MAPE เพื่อประเมินความแม่นยำ

ผลการวิจัย

การศึกษานี้ได้ทำการเปรียบเทียบประสิทธิภาพของแบบจำลอง ARIMA และ Facebook Prophet ในการพยากรณ์ปริมาณการใช้ไฟฟ้าภาคครัวเรือนในประเทศไทย โดยใช้ข้อมูลจากหน่วยงานที่เกี่ยวข้องและแบ่งข้อมูลออกเป็นชุดฝึก (80%) และชุดทดสอบ (20%) ผลจากการเปรียบเทียบดังตารางที่ 2 และตารางที่ 3

ตารางที่ 1 ผลการเปรียบเทียบประสิทธิภาพการพยากรณ์ปริมาณการใช้ไฟฟ้าภาคครัวเรือนในประเทศไทย

Error Metric	Facebook Prophet	ARIMA
MAE	377.3362	344.3985
RMSE	468.5139	441.4540
MAPE	8.5371	7.7712

จากผลการเปรียบเทียบในตารางที่ 1 พบว่า ARIMA มีค่า MAE ที่ 344.3985, RMSE ที่ 441.4540 และ MAPE ที่ 7.7712% ขณะที่ Facebook Prophet มีค่า MAE ที่ 377.3362, RMSE ที่ 468.5139 และ MAPE ที่ 8.5371% ซึ่งแสดงให้เห็นว่า ARIMA มีความแม่นยำมากกว่าในทุกตัวชี้วัดที่ใช้ในการประเมินผลประสิทธิภาพของแบบจำลอง (Hyndman & Athanasopoulos, (2018), Taylor & Letham, (2018))

ตารางที่ 2 เปรียบเทียบประสิทธิภาพแบบจำลองการทำนายปริมาณการใช้ไฟฟ้าภาคครัวเรือนในประเทศไทยด้วยข้อมูลชุดฝึก

วันที่	Actual	Time Series Data Mining Techniques	
		Prophet Forecast	ARIMA Forecast
2018-01-01	3100.76	3119.78	0.00
2018-02-01	3131.08	3133.34	3077.12
2018-03-01	3846.27	3812.82	3120.08
2018-04-01	3975.96	4119.34	3857.98
2018-05-01	4166.78	4401.51	3962.80
2018-06-01	4007.24	4154.58	4162.67
2018-07-01	3995.07	4122.10	4011.85
2018-08-01	3895.30	4004.50	3996.80
2018-09-01	3730.24	3745.51	3895.65
2018-10-01	3981.22	3846.71	3726.87
2018-11-01	3730.48	3573.36	3983.63
2018-12-01	3644.48	3282.93	3737.03
2019-01-01	3555.91	3445.97	5204.81
2019-02-01	3533.69	3399.03	3631.76

ตารางที่ 2 (ต่อ)

วันที่	Actual	Time Series Data Mining Techniques	
		Prophet Forecast	ARIMA Forecast
2019-03-01	4255.71	4167.30	4269.28
2019-04-01	4697.31	4509.64	4358.38
2019-05-01	4996.43	4760.35	4798.38
2019-06-01	4357.26	4496.87	4797.42
2019-07-01	4358.02	4507.71	4507.82
2019-08-01	4180.99	4366.52	4313.20
2019-09-01	3870.76	3987.29	3915.55
2019-10-01	4113.42	4273.10	4162.44
2019-11-01	3849.88	3900.19	3934.98
2019-12-01	3432.52	3451.84	3747.32
2020-01-01	3858.21	3779.79	3471.12
2020-02-01	3731.91	3661.47	3799.60
2020-03-01	4430.20	4469.62	4389.15
2020-04-01	4969.14	4798.26	4816.85
2020-05-01	5533.81	5240.59	5149.26
2020-06-01	4983.66	4906.89	4985.96
2020-07-01	4838.39	4735.18	5034.19
2020-08-01	4551.32	4589.40	4800.71
2020-09-01	4490.63	4472.62	4303.53
2020-10-01	3994.02	4186.49	4645.43
2020-11-01	3745.95	3996.48	3908.18
2020-12-01	3733.15	3927.50	3617.73
2021-01-01	3481.64	3773.64	3739.79
2021-02-01	3571.31	3831.57	3516.31
2021-03-01	4508.14	4598.49	4389.35
2021-04-01	4858.16	4924.84	4737.57
2021-05-01	5319.71	5291.28	5214.99
2021-06-01	5246.04	4958.13	4927.09

ตารางที่ 2 (ต่อ)

วันที่	Actual	Time Series Data Mining Techniques	
		Prophet Forecast	ARIMA Forecast
2021-07-01	5090.29	4837.16	5060.64
2021-08-01	5045.99	4679.98	4881.70
2021-09-01	4572.10	4454.38	4915.46
2021-10-01	4578.19	4355.12	4563.98
2021-11-01	4247.71	4089.50	4346.39
2021-12-01	3771.22	3874.97	4060.18
2022-01-01	4012.48	3878.04	3875.08
2022-02-01	3944.95	3869.90	4004.24
2022-03-01	4708.97	4682.02	4658.87
2022-04-01	4882.42	5026.48	5132.57
2022-05-01	5011.73	5338.27	5321.86
2022-06-01	4901.18	5007.52	4735.76
2022-07-01	4832.74	4938.78	4762.34
2022-08-01	4707.08	4768.63	4626.26
2022-09-01	4420.57	4433.24	4502.07

ตารางที่ 3 เปรียบเทียบประสิทธิภาพแบบจำลองการทำนายปริมาณการใช้ไฟฟ้าภาคครัวเรือนในประเทศไทย ด้วยข้อมูลชุดทดสอบ

วันที่	Actual	Time Series Data Mining Techniques	
		Prophet Forecast	ARIMA Forecast
2022-10-01	4175.22	4526.60	4450.18
2022-11-01	4153.11	4179.92	4157.83
2022-12-01	3987.60	3818.26	3895.67
2023-01-01	3638.38	3984.45	3999.51
2023-02-01	3710.32	3907.38	3974.94
2023-03-01	4438.40	4765.66	4735.35
2023-04-01	5696.79	5127.74	5054.49
2023-05-01	5949.33	5383.18	5367.54
2023-06-01	5348.68	5056.74	5073.97

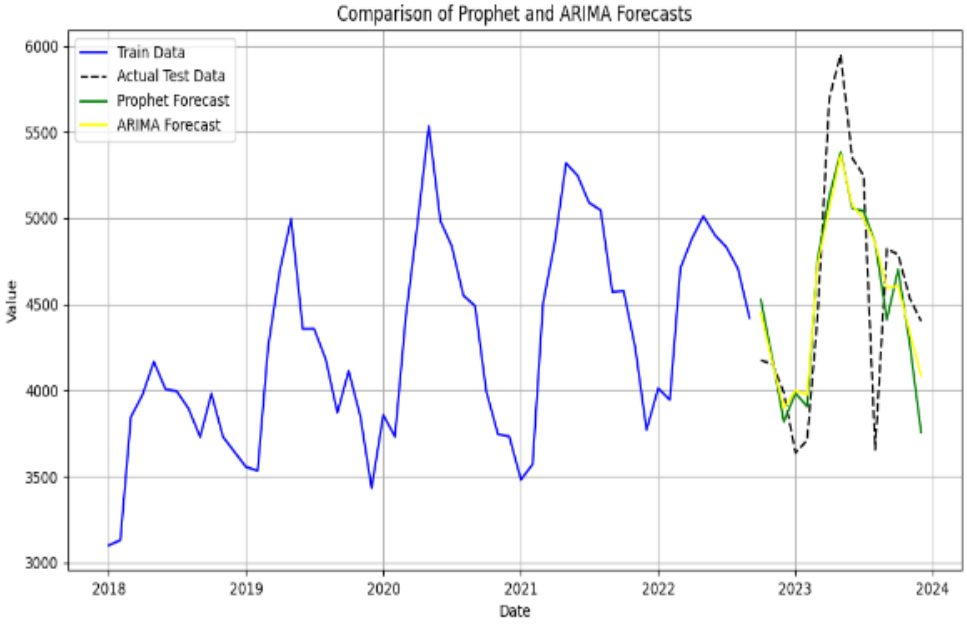
ตารางที่ 3 (ต่อ)

วันที่	Actual	Time Series Data Mining Techniques	
		Prophet Forecast	ARIMA Forecast
2023-07-01	5247.95	5041.65	5000.07
2023-08-01	3657.17	4856.79	4856.10
2023-09-01	4821.58	4410.72	4595.35
2023-10-01	4789.46	4702.04	4606.24
2023-11-01	4534.80	4268.58	4335.51
2023-12-01	4402.92	3758.34	4085.61

การวิเคราะห์ผลลัพธ์จากตารางที่ 2 และ 3 พบว่า ARIMA ให้ค่าพยากรณ์ที่ใกล้เคียงกับค่าจริงมากกว่าในช่วงหลายเดือน โดยเฉพาะในช่วงเดือนพฤศจิกายน 2565 ถึงกุมภาพันธ์ 2566 และในช่วงเดือนเมษายนถึงพฤษภาคม 2566 ซึ่งข้อมูลจริงมีการเปลี่ยนแปลงอย่างรวดเร็ว ในขณะที่ Facebook Prophet มักให้ค่าพยากรณ์ที่ต่ำกว่าค่าจริง (Taylor & Letham, 2018)

อย่างไรก็ตาม ในบางช่วงที่ข้อมูลมีลักษณะเชิงฤดูกาลและมีความซับซ้อนสูง เช่น ในช่วงเดือนตุลาคมถึงธันวาคม 2566, Facebook Prophet สามารถจับแนวโน้มและฤดูกาลของข้อมูลได้ดีกว่า ARIMA ซึ่งแสดงให้เห็นว่า Facebook Prophet อาจเหมาะสมกับข้อมูลที่มีความซับซ้อนทางฤดูกาล ในขณะที่ ARIMA เหมาะสมกับข้อมูลที่มีแนวโน้มเป็นเชิงเส้นและมีรูปแบบที่คงที่ (Taylor & Letham, 2018)

ดังนั้นผลการศึกษานี้ชี้ให้เห็นว่า แม้ว่า ARIMA จะมีประสิทธิภาพดีกว่าในการพยากรณ์ในหลายๆ ด้าน แต่ Facebook Prophet ก็ยังมีข้อได้เปรียบในบางกรณีที่ข้อมูลมีความซับซ้อนทางฤดูกาลและต้องการจับการเปลี่ยนแปลงที่ไม่สามารถอธิบายได้ด้วยแบบจำลองเชิงเส้นแบบ ARIMA โดยรวมแล้ว ทั้งสองแบบจำลองสามารถใช้ในการพยากรณ์ปริมาณการใช้ไฟฟ้าภาคครัวเรือนได้อย่างมีประสิทธิภาพขึ้นอยู่กับลักษณะของข้อมูลที่ใช้ในการพยากรณ์ (Hyndman & Athanasopoulos, 2018; Taylor & Letham, 2018)



ภาพที่ 1 แสดงการเปรียบเทียบผลพยากรณ์ข้อมูลด้วยแบบจำลอง ARIMA และ Facebook Prophet

อภิปรายผล

การศึกษานี้ได้ทำการเปรียบเทียบประสิทธิภาพของแบบจำลอง Facebook Prophet และ ARIMA ในการพยากรณ์ข้อมูลอนุกรมเวลา โดยใช้ตัวชี้วัด MAE, RMSE และ MAPE เป็นเกณฑ์วัดความแม่นยำจากผลการวิเคราะห์พบว่า ARIMA ให้ค่าความคลาดเคลื่อนต่ำกว่าทั้งใน MAE, RMSE และ MAPE เมื่อเปรียบเทียบกับ Facebook Prophet ซึ่งสอดคล้องกับการศึกษาของ Box et al. (2015) ที่ได้ชี้ให้เห็นว่า ARIMA มีประสิทธิภาพสูงในการพยากรณ์ข้อมูลที่มีแนวโน้มคงที่ (Stationary Trend) และสามารถจับลักษณะของข้อมูลที่เป็นเชิงเส้น (Linear Relationships) ได้ดี โดยเฉพาะในกรณีที่ข้อมูลไม่มีความแปรผันตามฤดูกาลหรือการเปลี่ยนแปลงที่ไม่เป็นเชิงเส้น

อย่างไรก็ตาม Facebook Prophet ถูกออกแบบมาให้รองรับแนวโน้มและฤดูกาลได้ดีกว่า โดยเฉพาะในกรณีที่ข้อมูลมีการเปลี่ยนแปลงเชิงฤดูกาลที่ชัดเจน ซึ่ง Prophet สามารถให้ผลลัพธ์ที่มีความแม่นยำสูงขึ้นในกรณีที่ข้อมูลมีความแปรผันตามฤดูกาลที่ชัดเจนแม้ว่า Prophet จะให้ค่าความคลาดเคลื่อนที่สูงกว่า ARIMA ในข้อมูลชุดนี้ (Taylor & Letham, 2018)

ข้อเสนอแนะ

การใช้ Facebook Prophet สำหรับการพยากรณ์ข้อมูลที่มีความซับซ้อนทางฤดูกาล ซึ่งจะช่วยเพิ่มความแม่นยำในการพยากรณ์ปริมาณการใช้ไฟฟ้าภาคครัวเรือน ในช่วงเวลาที่มีการเปลี่ยนแปลงฤดูกาลหรือแนวโน้มที่ไม่สามารถอธิบายได้ด้วยโมเดลเชิงเส้น เช่น ช่วงฤดูร้อนหรือฤดูหนาวที่มีการใช้

ไฟฟ้าแตกต่างกันอย่างชัดเจน โดยการใช้ Facebook Prophet สามารถจับความไม่เป็นเชิงเส้นและฤดูกาลที่ซับซ้อนเหล่านี้ได้ดี จึงเหมาะสมอย่างยิ่งในการพยากรณ์การใช้ไฟฟ้าที่ต้องการความแม่นยำในระยะยาว (Taylor & Letham, 2018)

เอกสารอ้างอิง

เฉลิมพล จตุพร. (2562). การวิเคราะห์อนุกรมเวลาเบื้องต้น (Basic of Time Series Analysis). สืบค้นเมื่อ 16 กุมภาพันธ์ 2567 จาก https://cj007blog.files.wordpress.com/2020/04/03-basic-of-time-series-analysis.pdf

ภูมิฐาน รังคกูลนุวัฒน์. (2556). การวิเคราะห์อนุกรมเวลาสำหรับเศรษฐศาสตร์และธุรกิจ (พิมพ์ครั้งที่ 1). กรุงเทพฯ: สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย.

วรากรณ์ สมบูรณ์ และคณะ. (2563). การพยากรณ์ความต้องการพลังงานไฟฟ้าภาคครัวเรือนในกรุงเทพมหานครโดยใช้แบบจำลอง Facebook Prophet. วารสารวิศวกรรมศาสตร์, 27(2), 45-58.

สำนักงานนโยบายและแผนพลังงาน. (2566). รายงานภาพรวมพลังงานของประเทศไทย ปี 2566. สืบค้นเมื่อ 16 กุมภาพันธ์ 2567 จาก https://www.greennetworkthailand.com/eppo-update-2566-2567

Ahmad, T., Chen, H., Wang, J., Huang, C., & Yan, B. (2021). A review on applications of ANN and SVM for building energy prediction. Energy and Buildings, 225, 110331.

Box, G. E. & Jenkins, G. M. (1970) Time Series Analysis: Forecasting and Control. Holden-Day, San Francisco.

Box, G. E., Jenkins, G. M., & Reinsel, G. C. (2015). Time series analysis: Forecasting and control. John Wiley & Sons.

Hyndman, R. J., & Athanasopoulos, G. (2018). *Forecasting: principles and practice* (2nd ed.). Australia: Monash University.

Kumar, A., & Kumar, P. (2020). A review on time series forecasting techniques for energy consumption. International Journal of Scientific & Technology Research, 9(1), 1876–1881.

Taylor, S. J., & Letham, B. (2018). *Forecasting at scale*. The American Statistician, 72(1), 37-45.

การเปรียบเทียบประสิทธิภาพของโมเดลพยากรณ์ปริมาณฝุ่น PM2.5 ในกรุงเทพมหานคร ระหว่าง SARIMA และ XGBoost

Comparison of PM2.5 Forecasting Model Performance in Bangkok: SARIMA vs. XGBoost

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อเปรียบเทียบประสิทธิภาพของแบบจำลอง SARIMA และ XGBoost ในการพยากรณ์ค่าฝุ่นละอองขนาดไม่เกิน 2.5 ไมครอน (PM2.5) ในเขตกรุงเทพมหานคร โดยใช้ข้อมูลจากสถานีตรวจวัดของกรมควบคุมมลพิษ จำนวน 8 สถานี ครอบคลุมช่วงปี พ.ศ. 2561 ถึง 2566 ข้อมูลได้รับการวิเคราะห์เบื้องต้นและผ่านกระบวนการเตรียมข้อมูลก่อนนำเข้าสู่การสร้างแบบจำลอง จากนั้นทำการประเมินผลการพยากรณ์ด้วยตัวชี้วัด ได้แก่ ค่าเฉลี่ยสัมบูรณ์ของความคลาดเคลื่อน (MAE) ค่ารากของความคลาดเคลื่อนกำลังสองเฉลี่ย (RMSE) และค่าสัมประสิทธิ์การตัดสินใจ (R^2) ผลการวิจัยพบว่า XGBoost ให้ผลการพยากรณ์ที่แม่นยำกว่า SARIMA ในทุกตัวชี้วัด โดยเฉพาะในช่วงฤดูหนาวที่ค่าฝุ่นมีความแปรปรวนสูง สะท้อนถึงศักยภาพของเทคนิค Machine Learning ในการวิเคราะห์ข้อมูลที่มีความซับซ้อนผลการศึกษานี้ สามารถนำไปใช้เป็นแนวทางในการเลือกแบบจำลอง เพื่อสนับสนุนการบริหารจัดการคุณภาพอากาศเชิงคาดการณ์ในระดับพื้นที่

คำสำคัญ: ค่าฝุ่น PM2.5, การพยากรณ์, แบบจำลอง SARIMA, แบบจำลอง XGBoost, การเรียนรู้ของเครื่อง, คุณภาพอากาศ

Abstract

This study aims to compare the forecasting performance of the SARIMA and XGBoost models for predicting fine particulate matter (PM2.5) levels in Bangkok, Thailand. The data used were obtained from eight air quality monitoring stations operated by the

Pollution Control Department, covering the period from 2018 to 2023. The data were preprocessed and analyzed through exploratory data analysis before being used to construct forecasting models. Model performance was evaluated using Mean Absolute Error (MAE), Root Mean Square Error (RMSE), and the coefficient of determination (R^2). The results indicate that the XGBoost model outperforms SARIMA in all evaluation metrics, particularly during the winter months when PM2.5 concentrations show greater variability. These findings highlight the potential of machine learning techniques in handling complex time series data and suggest their applicability in supporting air quality management and early warning systems.

Keywords: PM2.5, Forecasting, SARIMA model, XGBoost model, Machine Learning, Air Quality

บทนำ

ปัญหาฝุ่นละอองขนาดเล็ก PM2.5 เป็นปัญหาสิ่งแวดล้อมที่ส่งผลกระทบต่อสุขภาพของประชาชนในหลายประเทศทั่วโลกรวมถึงประเทศไทย โดยเฉพาะในเขตเมืองใหญ่ เช่น กรุงเทพมหานคร ซึ่งมีแหล่งกำเนิดฝุ่นจากการจราจร อุตสาหกรรม และกิจกรรมของมนุษย์เป็นจำนวนมาก (กรมควบคุมมลพิษ, 2566) ฝุ่น PM2.5 เป็นอนุภาคขนาดเล็กกว่า 2.5 ไมโครเมตร ซึ่งสามารถเข้าสู่ระบบทางเดินหายใจและกระแสเลือด ส่งผลกระทบต่อระบบหัวใจและหลอดเลือด รวมถึงเพิ่มความเสี่ยงต่อโรคระบบทางเดินหายใจและมะเร็งปอด (World Health Organization [WHO], 2021) การพยากรณ์ค่าฝุ่น PM2.5 มีความสำคัญอย่างยิ่งต่อการวางแผนและจัดการคุณภาพอากาศของหน่วยงานภาครัฐ ตลอดจนการเตรียมความพร้อมของประชาชนเพื่อลดความเสี่ยงด้านสุขภาพ การพยากรณ์ที่แม่นยำช่วยให้สามารถแจ้งเตือนล่วงหน้า และนำไปสู่การกำหนดมาตรการป้องกันที่มีประสิทธิภาพ เช่น การจำกัดการใช้ยานพาหนะในบางพื้นที่ หรือการแนะนำให้ประชาชนหลีกเลี่ยงกิจกรรมกลางแจ้ง

จากการทบทวนวรรณกรรม พบว่างานวิจัยเกี่ยวกับการพยากรณ์ค่าฝุ่น PM2.5 ได้มีการใช้เทคนิคหลากหลายรูปแบบ โดยสามารถแบ่งออกเป็น 2 กลุ่มหลัก ได้แก่ แบบจำลองเชิงสถิติและแบบจำลองเชิง Machine Learning (สมชาย วิริยะกุล, สุนิสา บุญประเสริฐ และศิริพร สุทธิเจริญ, 2562) ได้ศึกษาการใช้แบบจำลอง SARIMA ในการพยากรณ์ค่าฝุ่น PM2.5 ในเขตกรุงเทพมหานคร โดยใช้ข้อมูลรายวันย้อนหลัง 5 ปี (พ.ศ. 2557 - 2561) และทำการวิเคราะห์แนวโน้มและฤดูกาลของข้อมูล ผลการทดลองแสดงให้เห็นว่า SARIMA สามารถจับรูปแบบของข้อมูลตามฤดูกาลได้ดี และให้ค่าความคลาดเคลื่อนเฉลี่ยรากที่สอง (RMSE) อยู่ในระดับที่ยอมรับได้ อย่างไรก็ตาม แบบจำลองนี้มีข้อจำกัดในการรองรับปัจจัยแวดล้อมที่ซับซ้อน เช่น ความเร็วลม อุณหภูมิ และปริมาณการจราจร (อภิชัย นาคะเวช, 2563) ได้ศึกษาแบบจำลองการพยากรณ์ค่าฝุ่น PM2.5 โดยใช้ XGBoost ซึ่งเป็นเทคนิคการเรียนรู้ของเครื่องที่สามารถเรียนรู้รูปแบบ

ที่ซับซ้อนของข้อมูลได้ดี งานวิจัยนี้ใช้ข้อมูลค่าฝุ่นย้อนหลัง 3 ปี (พ.ศ. 2560 - 2562) และนำปัจจัยแวดล้อม เช่น ความชื้นสัมพัทธ์ อุณหภูมิ และปริมาณจราจร มารวมเป็นตัวแปรนำเข้า ผลการทดลองพบว่า XGBoost ให้ค่าความคลาดเคลื่อนสัมบูรณ์เฉลี่ย (MAE) ต่ำกว่า SARIMA และสามารถคาดการณ์ค่าฝุ่นได้แม่นยำกว่า โดยเฉพาะในช่วงที่ค่าฝุ่นเปลี่ยนแปลงอย่างรวดเร็ว (ปณิธาน จันทร์ศรี และ จารุวรรณ ทองก้อน, 2564) ได้พัฒนาแบบจำลองพยากรณ์ค่าฝุ่น PM2.5 โดยใช้การเปรียบเทียบเทคนิค Machine Learning 3 วิธี ได้แก่ 1) Random Forest Regression 2) Support Vector Machine for Regression (SVR) และ 3) Long Short-Term Memory (LSTM) โดยใช้ข้อมูลย้อนหลัง 7 ปี (พ.ศ. 2557 - 2563) และแบ่งข้อมูลออกเป็นชุดฝึกสอนและชุดทดสอบ ผลการทดลองพบว่า LSTM ซึ่งเป็นโครงข่ายประสาทเทียมเชิงลึก สามารถพยากรณ์ค่าฝุ่นได้แม่นยำที่สุด เมื่อพิจารณาจากค่า RMSE และ Mean Absolute Percentage Error (MAPE) แม้ว่า SARIMA และ XGBoost จะเป็นแบบจำลองที่มีประสิทธิภาพในการพยากรณ์ค่าฝุ่น PM2.5 แต่ยังไม่มีการศึกษาโดยตรงที่ทำการเปรียบเทียบโมเดลทั้งสอง โดยใช้ตัวชี้วัดทางสถิติที่หลากหลาย โดยเฉพาะ Mean Bias Error (MBE) ซึ่งใช้วัดแนวโน้มของโมเดลว่ามีการพยากรณ์ค่าต่ำกว่าหรือสูงกว่าค่าจริง และ Symmetric Mean Absolute Percentage Error (SMAPE) ซึ่งเป็นตัวชี้วัดข้อผิดพลาดเชิงเปอร์เซ็นต์ที่แก้ปัญหาการใช้ค่า MAPE ในกรณีที่ค่าจริงเป็นศูนย์ (Willmott & Matsuura, 2005) ดังนั้น งานวิจัยนี้มุ่งเน้นการเปรียบเทียบประสิทธิภาพของแบบจำลอง SARIMA และ XGBoost ในการพยากรณ์ค่าฝุ่น PM2.5 โดยพิจารณาตัวชี้วัดทางสถิติที่สำคัญพร้อมทั้งวิเคราะห์ข้อจำกัดของแต่ละโมเดล เพื่อนำไปสู่แนวทางในการปรับปรุงการพยากรณ์ในอนาคต

ในการศึกษานี้ ได้เลือกใช้แบบจำลองสองเทคนิคหลัก ได้แก่ Seasonal Autoregressive Integrated Moving Average (SARIMA) และ Extreme Gradient Boosting (XGBoost) เพื่อเปรียบเทียบประสิทธิภาพในการพยากรณ์ค่าฝุ่น PM2.5 ทั้งนี้เนื่องจาก SARIMA เป็นเทคนิคเชิงสถิติที่มีความเหมาะสมในการวิเคราะห์ข้อมูลอนุกรมเวลาที่มีลักษณะความต่อเนื่อง มีแนวโน้ม (Trend) และฤดูกาล (Seasonality) ซึ่งเป็นลักษณะเฉพาะของข้อมูล PM2.5 รายวัน ขณะที่ XGBoost เป็นเทคนิค Machine Learning ที่มีประสิทธิภาพสูงในการจัดการข้อมูลที่มีความซับซ้อน ไม่เป็นเชิงเส้น และสามารถลดความคลาดเคลื่อนจากความสัมพันธ์ที่ไม่ปกติระหว่างตัวแปรได้ การเลือกใช้ทั้งสองเทคนิคนี้ช่วยให้สามารถประเมินความสามารถของแบบจำลองที่มีพื้นฐานต่างกันในการพยากรณ์ค่าฝุ่นได้อย่างรอบด้านและเป็นกลาง การเลือกแบบจำลอง SARIMA และ XGBoost เพื่อเปรียบเทียบในการศึกษานี้มีที่มาจากลักษณะเฉพาะของข้อมูล PM2.5 และแนวโน้มของการพัฒนารูปแบบการพยากรณ์ในปัจจุบัน โดย SARIMA เป็นแบบจำลองเชิงสถิติที่ได้รับการยอมรับอย่างแพร่หลาย ในการวิเคราะห์ข้อมูลอนุกรมเวลาที่มีแนวโน้มและฤดูกาลที่ชัดเจน อีกทั้งยังมีความสามารถในการอธิบายโครงสร้างของข้อมูลตามช่วงเวลาได้ดี ส่วน XGBoost ซึ่งเป็นเทคนิค Machine Learning ประเภท Ensemble Learning ได้รับความนิยมเพิ่มขึ้นอย่างรวดเร็วในช่วงไม่กี่ปีที่ผ่านมา เนื่องจากมีความสามารถในการจัดการกับข้อมูลที่มีความซับซ้อนสูง และสามารถลดข้อผิดพลาดจากการพยากรณ์ได้อย่างมีประสิทธิภาพ การนำสองแนวทางที่มีพื้นฐานแตกต่างกันนี้มาเปรียบเทียบ จึงมีวัตถุประสงค์เพื่อศึกษาว่าแบบจำลองเชิงสถิติดั้งเดิมหรือเทคนิค Machine Learning สมัยใหม่ จะมีความเหมาะสมมากกว่ากันสำหรับการพยากรณ์ปริมาณฝุ่น PM2.5 ในบริบทของกรุงเทพมหานคร

วัตถุประสงค์ของการวิจัย

1. เพื่อสร้างแบบจำลองพยากรณ์ค่าฝุ่น PM2.5 ในเขตกรุงเทพมหานคร ด้วยโมเดล SARIMA และ XGBoost

2. เพื่อเปรียบเทียบประสิทธิภาพของโมเดล SARIMA และ XGBoost โดยใช้ตัวชี้วัด MAE, RMSE, R^2, MBE และ SMAPE

สมมติฐาน

การพยากรณ์ค่าฝุ่น PM2.5 ในพื้นที่กรุงเทพมหานครด้วยเทคนิคเหมืองข้อมูล (Time Series Data Mining Techniques) โดยใช้แบบจำลอง SARIMA, XGBoost และ LSTM บนชุดข้อมูลเดียวกัน สามารถคาดการณ์แนวโน้มค่าฝุ่น PM2.5 ได้อย่างแม่นยำและมีประสิทธิภาพในระดับที่ใกล้เคียงกัน

ขอบเขตของการวิจัย

1. ข้อมูลที่นำมาวิเคราะห์ เป็นข้อมูลค่าฝุ่น PM2.5 ในกรุงเทพมหานคร จากแหล่งข้อมูลของหน่วยงานราชการ เช่น กรมควบคุมมลพิษ (Pollution Control Department, PCD)

2. วิธีแบบจำลองพยากรณ์ค่าฝุ่น PM2.5 ในเขตกรุงเทพมหานคร ด้วยโมเดล SARIMA และ XGBoost เปรียบเทียบประสิทธิภาพของ SARIMA และ XGBoost ในการพยากรณ์ค่าฝุ่น PM2.5 ใช้ตัวชี้วัด เช่น Mean Absolute Error (MAE), Root Mean Squared Error (RMSE) และ R-squared (R^2)

ทั้งนี้ ในอนาคต ควรขยายขอบเขตของการวิจัยโดยการเปรียบเทียบและตรวจสอบความแม่นยำ (Validation) กับโมเดลอื่น ๆ เพิ่มเติม เช่น Random Forest, Support Vector Regression (SVR) หรือ Deep Learning Models อย่าง Long Short-Term Memory (LSTM) เพื่อประเมินประสิทธิภาพของเทคนิคที่หลากหลายยิ่งขึ้น นอกจากนี้ ควรพิจารณาใช้ฐานข้อมูลจากแหล่งอื่น ๆ นอกเหนือจากกรมควบคุมมลพิษ เช่น ข้อมูลจากเครือข่ายเซ็นเซอร์อากาศภาคประชาชน หรือข้อมูลสาธารณะจากหน่วยงานระหว่างประเทศ เพื่อเพิ่มความหลากหลายและความครอบคลุมของชุดข้อมูล รวมทั้งการรวบรวมข้อมูลจากพื้นที่อื่น ๆ นอกกรุงเทพมหานคร เช่น จังหวัดในภาคเหนือหรือภาคตะวันออกเฉียงเหนือที่ประสบปัญหาฝุ่น PM2.5 รุนแรง เพื่อให้ได้โมเดลที่มีความสามารถในการพยากรณ์ที่กว้างขวาง และนำไปประยุกต์ใช้ได้ในบริบทที่แตกต่างกัน

แนวคิด ทฤษฎี กรอบแนวคิด

1. ข้อมูลอนุกรมเวลา (Time Series Data) คือชุดข้อมูลหรือค่าสังเกตเชิงปริมาณ (X) ที่มีการเก็บรวบรวม โดยเรียงลำดับของเวลาอย่างต่อเนื่องกัน การจัดเรียงข้อมูลจมีลักษณะเป็นรายปี (Yearly) รายไตรมาส (Quarterly) รายเดือน (Monthly) รายอาทิตย์ (Weekly) รายวัน (Daily) หรือรายชั่วโมง (Hourly) ขึ้นอยู่กับความเหมาะสมในการนำไปใช้งาน (เฉลิมพล จตุพร, 2562) ส่วนประกอบของอนุกรมเวลาประกอบด้วย 4 ส่วน คือ

1. แนวโน้ม (Trend) คือ ส่วนที่ทำให้อนุกรมเวลามีค่าเพิ่มหรือลดลงเรื่อย ๆ เมื่อเวลาผ่านไป (ภูมิฐาน รังคกูลนุวัฒน์, 2562)

2. วัฏจักร (Cycle) คือ ส่วนที่ทำให้อนุกรมเวลาที่เก็บข้อมูลมีค่าเพิ่มขึ้น และลดลงสลับกันไปรอบ ๆ ค่าแนวโน้ม การนับระยะเวลาของส่วนวัฏจักรจะนับจุดสูงสุดหนึ่ง (Peak) ไปยังอีกจุดสูงสุดหนึ่ง หรือจากจุดต่ำสุดหนึ่ง (Trough) ไปยังอีกจุดต่ำสุดหนึ่ง เมื่อส่วนของวัฏจักรอยู่ในช่วงที่อนุกรมเวลามีค่าลดลงเรียกว่าช่วงถดถอย (Recession) ส่วนของวัฏจักรที่ทำให้อนุกรมเวลามีค่าเพิ่มขึ้นเรียกว่าช่วงฟื้นตัว (Recovery)

3. ความผันแปรจากฤดูกาล (Seasonal Variations) คือรูปแบบในช่วงเวลาหนึ่งของอนุกรมเวลาที่จะเป็นภายใน 1 ปีและเกิดขึ้นซ้ำกันทุกปี

4. ความผันผวนจากเหตุการณ์ไม่ปกติ (Irregular Fluctuations) คือ ส่วนที่ทำให้อนุกรมเวลามีค่าที่ผิดปกติไปจากรูปแบบที่เป็นมักเกิดจากเหตุการณ์ไม่คาดฝัน (Shock) คำนวณจากการนำค่าของส่วนแนวโน้ม ค่าของส่วนวัฏจักร และค่าของความผันแปรจากฤดูกาล ไปหักล้างค่าอนุกรมเวลานั้น

2. การวิเคราะห์การถดถอย (Regression analysis) เป็นเทคนิคทางสถิติที่ใช้ในการประมาณค่าความสัมพันธ์ระหว่างตัวแปรแบ่งออกเป็น 2 แบบคือ 1) การวิเคราะห์การถดถอยเชิงเส้น (Linear Regression Analysis) เป็นการวิเคราะห์การถดถอยที่ตัวแปรอิสระส่วนใหญ่เป็นตัวแปรเชิงปริมาณ ส่วนตัวแปรตามเป็นตัวแปรเชิงปริมาณเท่านั้น รูปแบบของความสัมพันธ์สามารถแทนได้ด้วยสมการทางคณิตศาสตร์ที่เป็นเชิงเส้น (Linear Model) 2) การวิเคราะห์การถดถอยแบบไม่เป็นเชิงเส้น (Non Linear Regression) เป็นการวิเคราะห์การถดถอยที่รูปแบบของความสัมพันธ์ระหว่างตัวแปรอิสระและตัวแปรตาม สามารถแทนได้ด้วยสมการทางคณิตศาสตร์ที่ไม่เป็นเชิงเส้น (Non – Linear Model) การวิเคราะห์การถดถอยแบ่งออกเป็น

1. แบบจำลองการถดถอยอย่างง่าย ประกอบด้วยตัวแปรตาม (Y) หนึ่งตัวแปร และตัวแปรอิสระ (X) เพียงหนึ่งตัวแปร ดังสมการที่ (1) (เฉลิมพล จตุพร, 2562)

$$Yi = \alpha 0 + \beta 1Xi + \varepsilon i \qquad (1)$$

2. แบบจำลองการถดถอยพหุคูณ ประกอบด้วยตัวแปรตาม (Y) หนึ่งตัวแปร และตัวแปรอิสระ (X) มากกว่าหนึ่งตัวแปร ดังสมการที่ (2)

$$Y_t = \alpha_0 + \beta_1 X_{1t} + \alpha_0 + \beta_2 X_{2t} + \ldots + \alpha_0 + \beta_n X_{nt} \varepsilon_t$$

$$Y_t = \alpha_0 + \sum_{i=1}^{n} \beta_n X_{nt} + \varepsilon_t \qquad (2)$$

3. SARIMA (Seasonal AutoRegressive Integrated Moving Average) เป็นการขยายแบบจำลอง ARIMA ให้รองรับข้อมูลที่มีองค์ประกอบฤดูกาล (Seasonality) โดย SARIMA(p,d,q)(P,D,Q)s (Box, Jenkins, & Reinsel, 2015) ดังสมการที่ (3)

$$\begin{aligned}\left(1-\varphi_1 B-\varphi_2 B^2-\ldots-\varphi_p B^p\right)\left(1-\Phi_1 B^s\right. & \\ \left.-\Phi_2 B^{2s}-\ldots-\Phi_p B^{ps}\right)(1-B)^d(1-B^s)^D Y_t & \\ =(1-\theta_1 B-\theta-\theta_2 B^2-\ldots-\theta_q B^q)(1-\Theta_1 B^s & \\ -\Theta_2 B^{2S}-\ldots-\Theta_Q B^{QS})_{\varepsilon_t} & \end{aligned} \quad (3)$$

4. XGBoost (eXtreme Gradient Boosting) เป็นอัลกอริธึมในการเรียนรู้ของเครื่องที่ใช้ Gradient Boosting โดยใช้แบบจำลอง Boosting ที่เป็น Ensemble Learning Algorithm ที่รวมแบบจำลองหลาย ๆ แบบจำลองเข้าด้วยกัน เพื่อสร้างแบบจำลองที่มีความแม่นยำสูงกว่าแบบจำลองเดียว ซึ่ง XGBoost จะทำการเรียนรู้จากข้อมูลที่มีอยู่แล้ว และทำการ Optimize Hyperparameter เพื่อให้แบบจำลองทำนายได้อย่างแม่นยำ (บัญชา ปะสีละเตสัง, 2564) โดยการเพิ่มต้นไม้ตัดสินใจ (Decision Trees) ทีละต้นเพื่อปรับปรุงผลลัพธ์ที่มีข้อผิดพลาดจากต้นไม้ก่อนหน้า XGBoost ใช้การปรับแต่งหลายขั้นตอนและสูตรที่ช่วยเพิ่มประสิทธิภาพในการเรียนรู้ ซึ่งทำให้เป็นหนึ่งในโมเดลที่มีประสิทธิภาพสูงสำหรับการพยากรณ์ข้อมูล (Chen & Guestrin, 2016)

1. การรวมผลลัพธ์จากต้นไม้หลายต้น: สมมติว่า f(x) คือฟังก์ชันของต้นไม้ตัดสินใจแต่ละต้นที่ใช้ในการพยากรณ์ ค่าพยากรณ์ของต้นไม้ที่ t-th ดังสมการที่ (4)

$$\hat{y}_t(x) = \sum_{i=1}^{t} f_i(x) \quad (4)$$

2. การคำนวณ Gradient Descent: ใน XGBoost, การคำนวณการอัปเดต (update) ของต้นไม้แต่ละต้นทำโดยใช้ Gradient Descent และ Second-order Approximation สูตรดัง ดังสมการที่ (5)

$$\mathcal{L}(t) = \sum_{i=1}^{n}\left[loss(y_i\hat{y}_i) + \frac{1}{2}\lambda\|\theta\|^2\right] \quad (5)$$

3. การคำนวณ Gradient และ Hessian: การใช้ Gradient และ Hessian ช่วยในการหาค่าปรับปรุง (update) สำหรับการสร้างต้นไม้ใหม่:

- Gradient: เป็นอัตราการเปลี่ยนแปลงของ Loss Function:

$$g_i = \frac{\partial \mathcal{L}}{\partial \hat{y}_i^{\,2}} \quad (6)$$

- Hessian: คืออนุพันธ์อันดับสองของ Loss Function:

$$h_i = \frac{\partial^2 \mathcal{L}}{\partial \hat{y}_i^{\,2}} \quad (7)$$

4. การคำนวณผลลัพธ์สุดท้าย: การอัปเดตค่าในแต่ละต้นไม้จะใช้สูตรจาก Gradient และ Hessian ดังนี้:

$$\hat{y}_t(x) = \hat{y}_{i-1}(x) + \eta \sum_{i=1}^{t} g_i/h_i \quad (8)$$

5. การประเมินผลและเปรียบเทียบประสิทธิภาพ (Model Evaluation and Comparison)

1. ใช้ตัวชี้วัด MAE, RMSE และ R^2 เพื่อเปรียบเทียบประสิทธิภาพของโมเดล

2. วิเคราะห์ Residual Plots และ Forecast Error Distribution เพื่อประเมินความสอดคล้องของโมเดล

3. ทดสอบความสามารถในการพยากรณ์ระยะสั้นและระยะยาว (Short-term vs. Long-term Forecasting)

6. วิธีการวิเคราะห์ข้อมูล (Data Analysis Methodology) เพื่อเปรียบเทียบความแม่นยำของโมเดลพยากรณ์ จะใช้ตัวชี้วัดทางสถิติที่เป็นที่ยอมรับในงานวิจัยอนุกรมเวลา ได้แก่

1. Mean Absolute Error (MAE) ใช้สำหรับวัดค่าเฉลี่ยของความคลาดเคลื่อนระหว่างค่าจริงและค่าที่พยากรณ์

$$MAE = \frac{\sum_{i=1}^{n} |x_t - \hat{x_t}|}{n} \quad (9)$$

2. Root Mean Squared Error (RMSE) ใช้สำหรับวัดความคลาดเคลื่อนที่ให้ความสำคัญกับค่าผิดพลาดขนาดใหญ่

$$RMAE = \sqrt{\frac{1}{n} \sum_{i=0}^{n} (y_i - \hat{y_i})^2} \quad (10)$$

3. Coefficient of Determination (R^2 Score) ใช้วัดว่าสัดส่วนของความแปรปรวนในข้อมูลที่สามารถอธิบายได้โดยโมเดล

$$R^2 = 1 - \frac{\sum_{i=0}^{n} (y_i - \hat{y}_i)^2}{\sum_{i=0}^{n} (y_i - \bar{y})^2} \quad (11)$$

4. Mean Bias Error (MBE) เป็นตัวชี้วัดที่ใช้ในการวัดการเอียงของโมเดล (Bias) โดยการเปรียบเทียบระหว่างค่าพยากรณ์ ($\hat{y}$) กับค่าจริง (y) โดยคำนวณค่าเฉลี่ยของความแตกต่างระหว่างค่าจริงและค่าพยากรณ์

$$MBE = \frac{1}{n} \sum_{i=1}^{n} (Y_i - \hat{Y_i}) \quad (12)$$

5. Symmetric Mean Absolute Percentage Error (SMAPE) เป็นตัวชี้วัดที่ใช้ในการวัดข้อผิดพลาดในรูปแบบเปอร์เซ็นต์ โดยคำนวณจากความแตกต่างระหว่างค่าจริงและค่าพยากรณ์ โดยใช้ค่าเฉลี่ยของค่าจริงและค่าพยากรณ์เป็นตัวหาร ซึ่งช่วยในการจัดการกับค่าศูนย์ที่อาจเป็นปัญหาในการคำนวณ Mean Absolute Percentage Error (MAPE)

$$SMAPE = \frac{1}{n}\sum_{i=1}^{n}\frac{|Y_i - \hat{Y}_i|}{\frac{(Y_i - \hat{Y}_i)}{2}} \times 100\% \quad (13)$$

6. Residual Plots เป็นเครื่องมือที่ใช้ในการตรวจสอบความสัมพันธ์ระหว่างค่าความผิดพลาด (Residuals) กับค่าที่คาดการณ์หรือพยากรณ์ (Fitted Values) ของโมเดล โดยช่วยในการประเมินว่าโมเดลสามารถจับความสัมพันธ์ในข้อมูลได้ดีหรือไม่ และสามารถบ่งชี้ถึงปัญหาหรือข้อผิดพลาดที่อาจเกิดขึ้นในกระบวนการพยากรณ์ได้ ประเภทของ Residual Plots

- Residuals vs. Fitted Values Plot: การกระจายตัวของ Residuals เมื่อเทียบกับค่าพยากรณ์จะช่วยให้เห็นรูปแบบที่อาจเกิดขึ้นในข้อผิดพลาด เช่น การกระจายตัวที่ไม่เป็นแบบสุ่มอาจบ่งชี้ว่าโมเดลมีปัญหาหรือไม่สามารถอธิบายข้อมูลได้อย่างเหมาะสม

- Residuals vs. Time Plot: การตรวจสอบความสัมพันธ์ของ Residuals กับเวลา (หรือขั้นตอน) ช่วยในการระบุว่าโมเดลมีการจับแนวโน้มหรือฤดูกาลของข้อมูลได้ดีหรือไม่

- Histogram of Residuals: การตรวจสอบการกระจายตัวของ Residuals ว่ามีลักษณะเป็นการกระจายปกติ (Normal Distribution) หรือไม่ ซึ่งสามารถบ่งชี้ถึงข้อผิดพลาดในรูปแบบของ Bias หรือ Variance ของโมเดล

- Q-Q Plot (Quantile-Quantile Plot): ใช้เพื่อเปรียบเทียบการกระจายตัวของ Residuals กับการกระจายตัวปกติ (Normal Distribution) โดยหากจุดกระจายอยู่ใกล้เส้นทแยงมุม จะเป็นการยืนยันว่า Residuals มีการกระจายตัวแบบปกติ

วิธีดำเนินการวิจัย

การเปรียบเทียบประสิทธิภาพของโมเดลพยากรณ์ปริมาณฝุ่น PM2.5 ในกรุงเทพมหานคร ระหว่าง SARIMA และ XGBoost ในกระบวนการเก็บข้อมูลค่าฝุ่น PM2.5 ตั้งแต่ปี 2561 ถึง 2566 ผู้เขียนตั้งข้อสังเกตว่าช่วงต้นของชุดข้อมูล (ปี 2561-2562) และช่วงหลัง (ปี 2565-2566) อาจมีความแตกต่างในแง่แหล่งที่มาของฝุ่น PM2.5 ในกรุงเทพมหานคร ซึ่งส่งผลต่อรูปแบบข้อมูลและความแม่นยำของการพยากรณ์ ข้อมูลจากการทบทวนวรรณกรรมพบว่า ในช่วงปี 2561-2562 แหล่งที่มาหลักของ PM2.5 ได้แก่ การจราจรในเมือง การก่อสร้าง และการเผาในที่โล่งในพื้นที่รอบนอกเมือง (กรมควบคุมมลพิษ, 2562; World Bank, 2020) ขณะที่ในช่วงปีหลัง การเผาในที่โล่งในภาคเหนือและภาคตะวันออกเฉียงเหนือ มีบทบาทเพิ่มขึ้นอย่างมีนัยสำคัญในการส่งผลกระทบต่อคุณภาพอากาศในกรุงเทพมหานคร (กรมควบคุมมลพิษ, 2566) ดังนั้น ชุดข้อมูลที่ใช้ในงานวิจัยนี้จึงอาจมีลักษณะแปรเปลี่ยนของแหล่งกำเนิดฝุ่นตามช่วงเวลา ซึ่งเป็นปัจจัยที่ควรนำมาพิจารณาในการวิเคราะห์ความแม่นยำและความคลาดเคลื่อนของแบบจำลองพยากรณ์ เพื่อเพิ่มความถูกต้องของการตีความผลการวิเคราะห์ในภาพรวมดังนี้

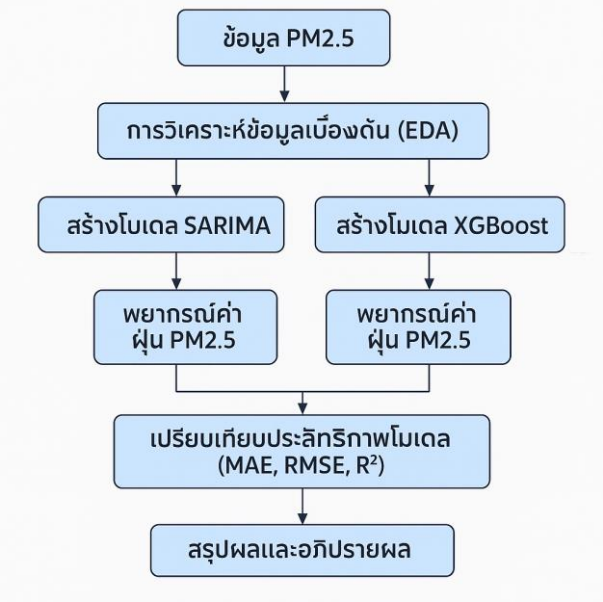
1. การเก็บข้อมูล ข้อมูลค่าฝุ่น PM2.5 ที่ใช้ในการวิเคราะห์ถูกรวบรวมจากสถานีตรวจวัดคุณภาพอากาศของกรมควบคุมมลพิษ จำนวนทั้งหมด 8 สถานี ได้แก่ สถานีดินแดง (03T) สถานีพระนคร (05T) สถานีบางเขน (13T) สถานีบางนา (50T) สถานีลาดกระบัง (39T) สถานีบางขุนเทียน (27T) สถานีสวนลุมพินี (17T) และสถานีริมถนนกาญจนาภิเษก (70T) ซึ่งครอบคลุมพื้นที่ในเขตกรุงเทพมหานครที่มีลักษณะการใช้ที่ดินที่แตกต่างกัน ได้แก่ เขตที่อยู่อาศัยหนาแน่น

2. เขตอุตสาหกรรม และเขตการค้า ข้อมูลที่นำมาใช้เป็นข้อมูลค่าเฉลี่ยรายวัน (Daily Average) ระหว่างปี 2561 ถึง 2566 และได้ผ่านกระบวนการทำความสะอาดข้อมูลเบื้องต้น เช่น การจัดการข้อมูลสูญหาย (Missing Data Handling) และการตรวจสอบค่าผิดปกติ (Outliers Detection) ก่อนนำไปใช้ในการสร้างและประเมินแบบจำลอง

3. สร้างแบบจำลอง SARIMA และ XGBoost โดยใช้ชุดข้อมูลฝึกสอน (Training Set) และชุดข้อมูลทดสอบ (Test Set)

4. คำนวณตัวชี้วัด MAE, RMSE, R^2, MBE และ SMAPE เพื่อเปรียบเทียบประสิทธิภาพของโมเดล

5. วิเคราะห์ข้อจำกัดของแต่ละโมเดล และพิจารณาความเหมาะสมของการใช้งานในบริบทของข้อมูล



ภาพที่ 1 แสดงขั้นตอนการเปรียบเทียบประสิทธิภาพของแบบจำลองการพยากรณ์ค่าฝุ่น PM2.5 ด้วย SARIMA และ XGBoost

การวิจัยนี้เริ่มต้นจากการรวบรวมข้อมูลค่าฝุ่น PM2.5 รายวันจากสถานีตรวจวัดคุณภาพอากาศของกรมควบคุมมลพิษในช่วงปี 2561–2566 จากนั้นทำการวิเคราะห์ข้อมูลเบื้องต้น (Exploratory Data Analysis: EDA) เพื่อศึกษาลักษณะของข้อมูล เช่น แนวโน้ม ฤดูกาล และความแปรปรวน ก่อนนำข้อมูลที่ผ่านการเตรียมพร้อมไปสร้างแบบจำลองการพยากรณ์ด้วยสองวิธี ได้แก่ SARIMA ซึ่งเป็นเทคนิคทางสถิติ

สำหรับข้อมูลอนุกรมเวลา และ XGBoost ซึ่งเป็นเทคนิค Machine Learning ที่สามารถรองรับข้อมูลที่มีความซับซ้อนและไม่เป็นเชิงเส้น หลังจากสร้างแบบจำลองแล้ว จะดำเนินการพยากรณ์ค่าฝุ่น PM2.5 และประเมินประสิทธิภาพของแต่ละแบบจำลองโดยใช้ตัวชี้วัด ได้แก่ MAE, RMSE และ R^2 เพื่อเปรียบเทียบประสิทธิภาพของโมเดล และสรุปผลว่าวิธีการใดเหมาะสมที่สุดในการพยากรณ์ค่าฝุ่น PM2.5 ในพื้นที่กรุงเทพมหานคร

หลักเกณฑ์ (Criteria) ที่ควรใช้ในการเลือกกรอบแนวคิด (Conceptual Framework)

1. ความสอดคล้องกับวัตถุประสงค์ของการวิจัย (Alignment with Research Objectives)
    - กรอบแนวคิดที่เลือกต้องสามารถตอบโจทย์วัตถุประสงค์ของการวิจัยได้โดยตรง
    - เช่น ในกรณีศึกษานี้: ต้องการพยากรณ์และเปรียบเทียบประสิทธิภาพของแบบจำลอง SARIMA กับ XGBoost ⟶ กรอบแนวคิดจึงต้องเชื่อมโยงโมเดลเหล่านี้กับตัวชี้วัดประสิทธิภาพ (เช่น MAE, RMSE, R^2)
2. ความมีฐานทางทฤษฎีและงานวิจัยรองรับ (Theoretical and Empirical Support)
    - กรอบแนวคิดควรมีทฤษฎีหลักที่สนับสนุน เช่น ทฤษฎีอนุกรมเวลา (Time Series Theory) รองรับ SARIMA และทฤษฎี Machine Learning รองรับ XGBoost
    - รวมถึงมีงานวิจัยที่ผ่านมาใช้โมเดลเหล่านี้กับข้อมูล PM2.5 หรือปัญหาสิ่งแวดล้อมคล้ายคลึงกัน
3. ความทันสมัยและสอดคล้องกับสถานการณ์ปัจจุบัน (Recency and Relevance)
    - กรอบแนวคิดควรเลือกจากแนวโน้มวิจัยล่าสุด เช่น งานวิจัยปี 2020–2024 ที่แสดงให้เห็นว่าเทคนิค Machine Learning มีบทบาทมากขึ้นในพยากรณ์ PM2.5
    - หากกรอบแนวคิดล้าสมัย (เช่น ใช้แต่ ARIMA โดยไม่เปรียบเทียบกับ ML) จะลดความน่าเชื่อถือของงานวิจัย
4. ความครอบคลุมและสมบูรณ์ (Comprehensiveness)
    - กรอบแนวคิดควรรวมปัจจัยสำคัญทั้งหมด เช่น ตัวแปรต้น (โมเดลที่ใช้), ตัวแปรตาม (ผลลัพธ์การพยากรณ์), ตัวชี้วัดความแม่นยำ (เช่น RMSE, MAE)
    - มีความเชื่อมโยงระหว่างตัวแปรครบถ้วน ไม่เว้นส่วนสำคัญที่มีผลต่อผลการศึกษา
5. ความเหมาะสมกับบริบทของข้อมูล (Context Appropriateness)
    - เช่น ในกรณีนี้: ข้อมูล PM2.5 ของกรุงเทพมหานคร มีลักษณะเป็นอนุกรมเวลา รายวัน และมีฤดูกาลชัดเจน ⟶ การเลือก SARIMA เหมาะสม และการเลือก XGBoost เพื่อรองรับความไม่เป็นเชิงเส้นของข้อมูลก็เหมาะสม
6. ความเป็นไปได้ในการนำไปใช้จริง (Practicality)
    - กรอบแนวคิดต้องสามารถแปลงไปเป็นขั้นตอนการดำเนินงานจริงได้ เช่น การสร้างแบบจำลอง, การแบ่งข้อมูลฝึก-ทดสอบ, การคำนวณตัวชี้วัด
    - ไม่ควรเลือกกรอบแนวคิดที่ดีทางทฤษฎี แต่ปฏิบัติจริงไม่ได้เพราะข้อจำกัดของข้อมูลหรือเครื่องมือ

7. ความสามารถในการขยายผลต่อ (Extendibility)

- กรอบแนวคิดที่ดี ควรนำไปปรับใช้ในบริบทอื่นหรือขยายขอบเขตได้ เช่น การทำนายฝุ่น PM10, NO_2 หรือพื้นที่เมืองอื่นนอกจากกรุงเทพฯ

ผลการวิจัย

การศึกษานี้ได้เปรียบเทียบประสิทธิภาพของโมเดล SARIMA และ XGBoost ในการพยากรณ์ปริมาณฝุ่น PM2.5 โดยใช้ตัวชี้วัดทางสถิติ ได้แก่ Mean Absolute Error (MAE), Root Mean Squared Error (RMSE) และ R^2

ผลการวิเคราะห์พบว่า โมเดล SARIMA มีค่าความคลาดเคลื่อนต่ำกว่า XGBoost ในทุกตัวชี้วัด โดยมีค่า MAE เท่ากับ 7.64 และ RMSE เท่ากับ 10.65 ซึ่งต่ำกว่าค่าที่ได้จาก XGBoost ที่มีค่า MAE เท่ากับ 13.08 และ RMSE เท่ากับ 15.28 แสดงให้เห็นว่า SARIMA สามารถพยากรณ์ค่าได้ใกล้เคียงกับค่าจริงมากกว่า

นอกจากนี้ ค่า R^2 ของ SARIMA อยู่ที่ -0.26 ซึ่งสูงกว่าค่าของ XGBoost ที่มีค่า -1.60 แม้ว่าค่า R^2 ที่เป็นลบจะบ่งบอกว่าโมเดลยังไม่สามารถอธิบายความแปรปรวนของข้อมูลได้ดีนัก แต่ค่า R^2 ของ XGBoost ที่มีค่าต่ำกว่าบ่งชี้ว่า โมเดล XGBoost อาจไม่เหมาะสมกับชุดข้อมูลนี้ เนื่องจากอาจไม่สามารถจับแนวโน้มของข้อมูลได้ดีพอ

ตารางที่ 1 ผลการเปรียบเทียบประสิทธิภาพของแบบจำลองการพยากรณ์ PM2.5 ด้วย SARIMA และ XGBoost

Model	MAE	RMSE	R^2	MBE	SMAPE(%)
SARIMA	7.639376	10.653977	-0.263203	5.489365	38.07703
XGBoost	12.937441	15.045905	-1.519337	-9.822828	54.506402

จากตารางที่ 1 พบว่า SARIMA มีค่าความคลาดเคลื่อนต่ำกว่า XGBoost ในทุกตัวชี้วัด ซึ่งแสดงให้เห็นว่า SARIMA สามารถพยากรณ์ค่า PM2.5 ได้ดีกว่าในบริบทของข้อมูลชุดนี้

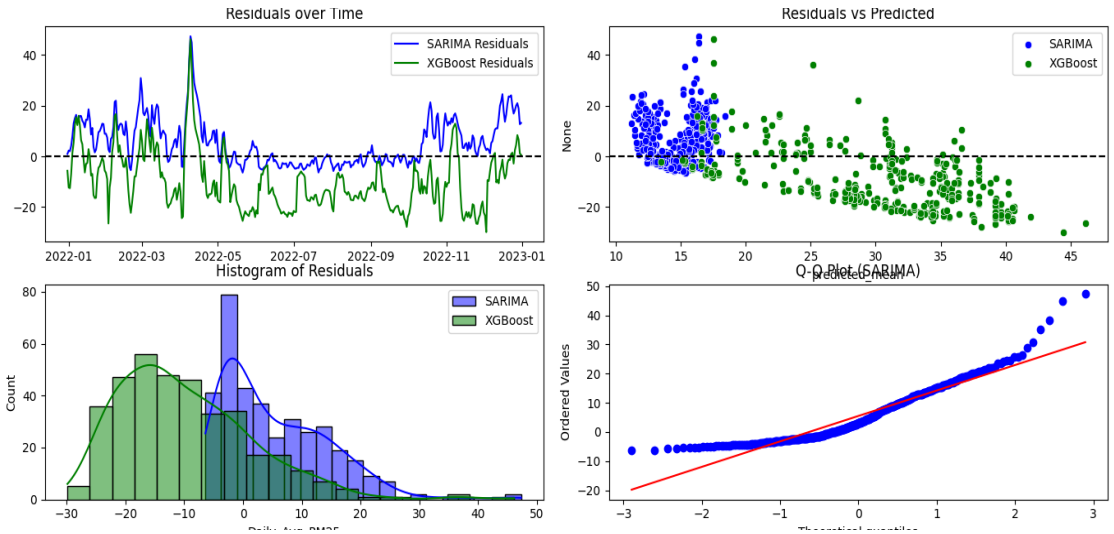
ตารางที่ 2: ค่าความคลาดเคลื่อนของการพยากรณ์ PM2.5 โดย SARIMA และ XGBoost

วันที่	Actual	SARIMA Forecast	XGBoost Forecast	SARIMA Residuals	XGBoost Residuals	SARIMA Abs Error	XGBoost Abs Error
2021-12-31	18.1	17.2	23.8	0.9	-5.7	0.9	5.7
2022-01-01	19.3	17.0	31.6	2.3	-12.3	2.3	12.3
2022-01-02	19.0	17.0	31.6	2.0	-12.5	2.0	12.5

ตารางที่ 2: (ต่อ)

วันที่	Actual	SARIMA Forecast	XGBoost Forecast	SARIMA Residuals	XGBoost Residuals	SARIMA Abs Error	XGBoost Abs Error
2022-01-03	21.4	17.3	28.4	4.1	-7.0	4.1	7.0
2022-01-04	25.3	17.4	23.9	7.9	1.3	7.9	1.3
2022-01-05	29.4	16.4	23.9	13.0	5.4	13.0	5.4
2022-01-06	32.3	17.3	20.0	15.0	12.4	15.0	12.4
2022-01-07	32.9	16.6	17.5	16.3	15.4	16.3	15.4
2022-01-08	29.9	16.6	17.5	13.3	12.3	13.3	12.3
2022-01-09	32.3	17.4	16.3	14.9	16.0	14.9	16.0

จากตารางที่ 2 พบว่า SARIMA มีแนวโน้มทำนายค่าสูงกว่าค่าจริงเล็กน้อย ขณะที่ XGBoost มีความแม่นยำมากขึ้นในบางช่วง



ภาพที่ 2 การเปรียบเทียบผลการพยากรณ์ PM2.5 ระหว่างโมเดล SARIMA และ XGBoost

สรุปและอภิปรายผล

จากการศึกษาเปรียบเทียบประสิทธิภาพของแบบจำลอง SARIMA และ XGBoost ในการพยากรณ์ค่าฝุ่น PM2.5 พบว่าโมเดล SARIMA มีประสิทธิภาพดีกว่า XGBoost ในทุกตัวชี้วัด โดยมีค่าความคลาดเคลื่อนต่ำกว่าและสามารถพยากรณ์ค่าฝุ่น PM2.5 ได้ใกล้เคียงกับค่าจริงมากกว่า อย่างไรก็ตาม ค่า R^2 ที่เป็นค่าติดลบยังสะท้อนให้เห็นว่าโมเดลทั้งสองยังมีข้อจำกัดในการพยากรณ์ ผลการวิจัยพบว่าโมเดล SARIMA มีประสิทธิภาพในการพยากรณ์ค่าฝุ่น PM2.5 ดีกว่า XGBoost เมื่อพิจารณาจากค่า MAE, RMSE และ SMAPE ซึ่งสอดคล้องกับงานวิจัยของ สมชาย วิริยะกุล และคณะ (2562) ที่พบว่า SARIMA

สามารถจับแนวโน้มและรูปแบบตามฤดูกาลได้อย่างมีประสิทธิภาพในข้อมูล PM2.5 ของกรุงเทพมหานคร อย่างไรก็ตาม เมื่อเปรียบเทียบกับงานของ อภิชัย นาคะเวช และคณะ (2563) ซึ่งใช้ XGBoost ร่วมกับตัวแปรแวดล้อม เช่น อุณหภูมิและความชื้น พบว่า XGBoost ให้ผลการพยากรณ์ที่แม่นยำกว่าการใช้ข้อมูล PM2.5 เพียงอย่างเดียว ดังนั้นข้อจำกัดของการศึกษานี้อาจเกิดจากการใช้เฉพาะข้อมูล PM2.5 โดยไม่มีตัวแปรเสริม อีกทั้ง เมื่อพิจารณางานของปณิธาน จันทร์ศรี และจารุวรรณ ทองก้อน (2564) ที่ใช้โมเดล LSTM พบว่าเทคนิค Deep Learning สามารถจับความสัมพันธ์ที่ซับซ้อนได้ดีกว่าโมเดลเชิงสถิติและ Machine Learning ทั่วไป ซึ่งชี้ให้เห็นว่าในอนาคตการนำ LSTM หรือโมเดลเชิงลึก มาใช้ อาจช่วยเพิ่มประสิทธิภาพการพยากรณ์ PM2.5 ได้ดียิ่งขึ้น

ผลการวิจัยแสดงให้เห็นว่าแบบจำลอง SARIMA มีประสิทธิภาพในการพยากรณ์ค่าฝุ่น PM2.5 สูงกว่าแบบจำลอง XGBoost โดยพิจารณาจากค่าตัวชี้วัดทางสถิติ ได้แก่ MAE, RMSE และ SMAPE ที่มีค่าต่ำกว่า ซึ่งสอดคล้องกับงานวิจัยของสมชาย วิริยะกุล และคณะ (2562) ที่พบว่า SARIMA มีความสามารถในการจับแนวโน้มและรูปแบบเชิงฤดูกาลของข้อมูล PM2.5 ได้ดีในพื้นที่กรุงเทพมหานคร อย่างไรก็ตาม ค่า R^2 ของ SARIMA ในการศึกษานี้ยังคงเป็นค่าติดลบ (-0.26) สะท้อนให้เห็นว่ามีข้อจำกัดในการอธิบายความแปรปรวนของข้อมูล ซึ่งแตกต่างจากงานของ สมชาย วิริยะกุล และคณะ ที่ได้ค่า R^2 เป็นบวก ในระดับที่น่าพอใจ สาเหตุอาจเกิดจากความแปรปรวนของข้อมูล PM2.5 ที่เพิ่มขึ้นในช่วงปีที่ใช้ศึกษา หรือปัจจัยแวดล้อมอื่น ๆ ที่ไม่ได้นำมาพิจารณา เมื่อเปรียบเทียบกับงานของอภิชัย นาคะเวช และคณะ (2563) ซึ่งใช้ XGBoost ร่วมกับตัวแปรนำเข้าหลายตัว เช่น อุณหภูมิ ความชื้น และปริมาณจราจร พบว่าการเพิ่มปัจจัยแวดล้อมสามารถช่วยเพิ่มประสิทธิภาพของโมเดล XGBoost ได้อย่างมีนัยสำคัญ ในขณะที่การศึกษานี้ใช้เฉพาะข้อมูล PM2.5 เป็นตัวแปรอิสระ ส่งผลให้ XGBoost ไม่สามารถเรียนรู้ความสัมพันธ์เชิงซับซ้อนได้อย่างเต็มที่ และมีค่าความคลาดเคลื่อนสูงกว่า SARIMA นอกจากนี้ ผลการศึกษาของ ปณิธาน จันทร์ศรี และ จารุวรรณ ทองก้อน (2564) ที่ใช้เทคนิค LSTM พบว่าแบบจำลองเชิงลึกสามารถพยากรณ์ข้อมูล PM2.5 ได้แม่นยำกว่าเทคนิค Machine Learning แบบดั้งเดิมและแบบจำลองเชิงสถิติ แสดงให้เห็นว่าข้อมูล PM2.5 ซึ่งมีความแปรปรวนและความซับซ้อนสูงนั้น อาจเหมาะกับการใช้โมเดล Deep Learning มากกว่าการใช้ SARIMA หรือ XGBoost เพียงอย่างเดียว โดยสรุปการศึกษานี้ยืนยันว่า SARIMA เหมาะสมสำหรับการพยากรณ์ข้อมูล PM2.5 ที่มีแนวโน้มและฤดูกาลชัดเจน แต่หากต้องการเพิ่มความแม่นยำในการพยากรณ์ ควรพิจารณาการนำตัวแปรแวดล้อมเพิ่มเติมมาใช้ในการสร้างแบบจำลอง รวมถึงการทดลองใช้โมเดลเชิงลึก เช่น LSTM หรือ Hybrid Models เพื่อปรับปรุงความสามารถในการจับรูปแบบข้อมูลที่ซับซ้อนในอนาคต

ข้อเสนอแนะ

1. ควรเพิ่มตัวแปรแวดล้อม เช่น อุณหภูมิ ความชื้น และความเร็วลม เพื่อช่วยเพิ่มความแม่นยำของโมเดล

2. ควรทดสอบโมเดลเชิงลึก เช่น LSTM หรือ Hybrid Models

3. ควรใช้ชุดข้อมูลที่ครอบคลุมช่วงเวลาที่ยาวขึ้นเพื่อช่วยให้โมเดลสามารถเรียนรู้แนวโน้มของข้อมูลได้ดีขึ้น

เอกสารอ้างอิง

กรมควบคุมมลพิษ. (2566). รายงานสถานการณ์คุณภาพอากาศในประเทศไทย. สืบค้นเมื่อ 10 พฤษภาคม 2568 จาก https://www.pcd.go.th/publication/22073

บัญชา ปะสีละเตสัง. (2564). บทเรียน XGBoost และการประยุกต์ใช้ในงานพยากรณ์. สืบค้นเมื่อ 10 พฤษภาคม 2568 จาก https://www.datasciencethailand.com/xgboost-tutorial

ปณิธาน จันทร์ศรี และ จารุวรรณ ทองก้อน. (2564). การเปรียบเทียบเทคนิค Machine Learning ในการพยากรณ์ค่าฝุ่น PM2.5. วารสารการคำนวณเชิงปัญญาและระบบอัจฉริยะ, 18(1), 75–89.

ภูมิฐาน รังคกูลนุวัฒน์. (2556). การวิเคราะห์อนุกรมเวลาสำหรับเศรษฐศาสตร์และธุรกิจ (พิมพ์ครั้งที่ 1). กรุงเทพฯ : จุฬาลงกรณ์มหาวิทยาลัย.

สมชาย วิริยะกุล, สุนิสา บุญประเสริฐ และ ศิริพร สุทธิเจริญ. (2562). การพยากรณ์ค่าฝุ่น PM2.5 ในเขตกรุงเทพมหานครโดยใช้แบบจำลองเชิงสถิติ SARIMA. วารสารวิทยาศาสตร์และเทคโนโลยี, 27(3), 45–60.

อภิชัย นาคะเวช, อนุสรณ์ พิมพ์ทอง และ วิศิษฏ์ บุญชม. (2563). การพยากรณ์ค่าฝุ่น PM2.5 โดยใช้ Extreme Gradient Boosting (XGBoost). ใน อนุชิต คำผา (ประธาน), การประชุมวิชาการวิศวกรรมศาสตร์แห่งชาติ ครั้งที่ 14 (หน้า 225–232). สถาบันวิจัยวิศวกรรมแห่งชาติ, มหาวิทยาลัยเทคโนโลยีสุรนารี, นครราชสีมา.

เฉลิมพล จตุพร. (2562). การวิเคราะห์อนุกรมเวลาเบื้องต้น (Basic of Time Series Analysis). สืบค้นเมื่อ 16 กุมภาพันธ์ 2567 จาก https://cj007blog.files.wordpress.com/2020/04/03-basic-of-time-series-analysis.pdf

Box, G. E. P., Jenkins, G. M., & Reinsel, G. C. (2015). Time series analysis: Forecasting and control (5th ed.). John Wiley & Sons.

Chen, T., & Guestrin, C. (2016). XGBoost: A scalable tree boosting system. In Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (pp. 785–794). https://doi.org/10.1145/2939672.2939785

Willmott, C. J., & Matsuura, K. (2005). Advantages of the mean absolute error (MAE) over the root mean square error (RMSE) in assessing average model performance. Climate Research, 30(1), 79–82. https://doi.org/10.3354/cr030079

World Bank. (2020). Thailand economic monitor: Thailand in the time of COVID-19. Retrieved from https://documents.worldbank.org/en/publication/documents-reports/documentdetail/882361593210407472

World Health Organization. (2021). WHO global air quality guidelines: Particulate matter (PM2.5 and PM10), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. https://www.who.int/publications/i/item/9789240034228

การสังเคราะห์น้ำมันชีวภาพจากกากกาแฟและกากชาร่วมกับน้ำมันเครื่องเก่าด้วยกระบวนการไพโรไลซิสที่ใช้เปลือกไข่เป็นตัวเร่งปฏิกิริยา

Bio-oil Synthesis from Spent Coffee and Tea Grounds Mixed with Waste Engine Oil Using Eggshell as a Catalyst

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บทคัดย่อ

งานวิจัยนี้มุ่งเน้นศึกษาปัจจัยที่มีผลต่อกระบวนการไพโรไลซิสของกากกาแฟ เพื่อผลิตน้ำมันชีวภาพและถ่านชีวภาพ โดยพิจารณาผลของอัตราการให้ความร้อน ตัวเร่งปฏิกิริยาแคลเซียมออกไซด์ (CaO) การเติมน้ำมันเครื่องเก่าและกากชาร่วมกับกากกาแฟ จากการศึกษาพบว่า อัตราการให้ความร้อนที่สูงขึ้นช่วยเพิ่มเปอร์เซ็นต์น้ำมันชีวภาพจาก 20.21% เป็น 38.1% ในขณะที่ปริมาณถ่านชีวภาพลดลงจาก 49.58% เป็น 31.46% การเติมน้ำมันเครื่องเก่าช่วยเพิ่มค่าความร้อนของผลิตภัณฑ์จาก 35.28 MJ/kg เป็น 46.21 MJ/kg ในขณะที่ปริมาณถ่านชีวภาพลดลงเล็กน้อย ซึ่งแสดงให้เห็นว่า การเติมสารไฮโดรคาร์บอนช่วยเพิ่มค่าพลังงานของผลิตภัณฑ์ไพโรไลซิส นอกจากนี้การใช้ตัวเร่งปฏิกิริยา CaO จากเปลือกไข่ช่วยเพิ่มเปอร์เซ็นต์น้ำมันชีวภาพจาก 21.84% เป็น 25.23% และช่วยปรับปรุงคุณภาพของน้ำมัน โดยลดองค์ประกอบออกซิเจนทำให้ค่าความร้อนของน้ำมันสูงขึ้น สำหรับการผสมกากชากับกากกาแฟพบว่าที่อัตราส่วน 50:50 ผลิตภัณฑ์มีค่าความร้อนสูงสุดอยู่ที่ 37.33 MJ/kg แม้ว่าการเพิ่มสัดส่วนกากชาจะทำให้เปอร์เซ็นต์น้ำมันชีวภาพลดลงจาก 36.5% (กากกาแฟ 100%) เป็น 9.65% (กากชา 100%) นอกจากนี้จากการศึกษาโดยใช้สัดส่วนกากกาแฟต่อกากชาที่ 50:50 ร่วมกับน้ำมันเครื่องเก่า 30 กรัมในอัตราส่วน 1:1 และมีตัวเร่งปฏิกิริยา CaO พบว่า ค่าความร้อนสูงสุดของผลิตภัณฑ์เพิ่มขึ้นเป็น 54.04 MJ/kg ซึ่งเป็นค่าที่สูงที่สุดในงานวิจัยนี้ ดังนั้นการปรับแต่งเงื่อนไขของกระบวนการไพโรไลซิสอย่างเหมาะสมสามารถเพิ่ม

ทั้งปริมาณและคุณภาพของพลังงานชีวภาพได้อย่างมีนัยสำคัญ ผลการศึกษานี้เป็นแนวทางสำคัญในการพัฒนาเทคโนโลยีการผลิตพลังงานชีวภาพจากของเสียให้มีประสิทธิภาพและยั่งยืนยิ่งขึ้น

คำสำคัญ: น้ำมันชีวภาพ, ไพโรไลซิส, น้ำมันเครื่องเก่า, กากกาแฟ, เปลือกไข่

Abstract

This research focuses on studying the factors affecting the pyrolysis process of coffee grounds to produce bio-oil and bio-char, considering the effects of heating rate, calcium oxide (CaO) catalyst, used engine oil addition, and the blending of tea grounds with coffee grounds. The study found that increasing the heating rate enhanced the bio-oil percentage from 20.21% to 38.1%, while the bio-char content decreased from 49.58% to 31.46%. The addition of used engine oil increased the energy content of the product from 35.28 MJ/kg to 46.21 MJ/kg, with a slight decrease in bio-char, indicating that adding hydrocarbons improves the energy value of the pyrolysis product. Additionally, the use of the CaO catalyst from eggshells increased the bio-oil percentage from 21.84% to 25.23% and improved the oil quality by reducing its oxygen content, leading to an increase in the oil's energy value. For the blending of tea grounds with coffee grounds, a 50:50 ratio resulted in the highest energy content of the product at 37.33 MJ/kg, although increasing the proportion of tea grounds reduced the bio-oil percentage from 36.5% (100% coffee grounds) to 9.65% (100% tea grounds). Furthermore, in the study using a 50:50 blend of coffee grounds and tea grounds with 30 grams of used engine oil at a 1:1 ratio and the CaO catalyst, the highest energy content of the product increased to 54.04 MJ/kg, which was the highest in this research. Therefore, optimizing the conditions of the pyrolysis process can significantly increase both the quantity and quality of bioenergy. The findings of this study provide important guidelines for developing more efficient and sustainable bioenergy production technologies from waste.

Keywords: Bio-oil, Pyrolysis, Waste Engine Oil, Spent Coffee Grounds, Eggshell

บทนำ

ความต้องการพลังงานที่เพิ่มขึ้นทั่วโลกและความกังวลเกี่ยวกับผลกระทบต่อสิ่งแวดล้อม จากการใช้เชื้อเพลิงฟอสซิลได้กระตุ้นให้เกิดการวิจัยเกี่ยวกับแหล่งพลังงานทางเลือก และพลังงานหมุนเวียน (International Energy Agency, 2023) หนึ่งในเทคโนโลยีที่มีศักยภาพคือ การผลิตน้ำมันชีวภาพ (Bio-oil) ผ่านกระบวนการไพโรไลซิส ซึ่งเป็นกระบวนการสลายตัวด้วยความร้อนในสภาวะไร้ออกซิเจนที่สามารถ

เปลี่ยนวัสดุเหลือทิ้งทางการเกษตรให้เป็นเชื้อเพลิงเหลวที่มีมูลค่าสูง (Bridgwater, 2012) การใช้เทคโนโลยีนี้ไม่เพียงช่วยลดปริมาณของเสีย แต่ยังเป็นการเพิ่มมูลค่าให้กับวัสดุเหลือใช้เหล่านี้ และช่วยลดการพึ่งพาเชื้อเพลิงฟอสซิลที่มีทรัพยากรจำกัด (Demirbas, 2017)

กากกาแฟ (Spent Coffee Grounds: SCGs) เป็นของเสียที่เกิดขึ้นในปริมาณมากจากอุตสาหกรรมกาแฟ โดยคาดการณ์ว่าทั่วโลกผลิตกากกาแฟเหลือทิ้งมากกว่า 8 ล้านตันต่อปี (Campos-Vega, Loarca-Piña, Vergara-Castañeda, & Oomah, 2015) หากไม่มีการนำกากกาแฟมาใช้ซ้ำ จะต้องถูกกำจัดโดยการฝังกลบหรือเผาทำลาย ซึ่งเป็นสาเหตุของการปล่อยก๊าซเรือนกระจกและสร้างปัญหาด้านสิ่งแวดล้อม (Zuorro & Lavecchia, 2013) อย่างไรก็ตาม กากกาแฟมีศักยภาพสูงในการนำ มาใช้เป็นวัตถุดิบในการผลิตน้ำมันชีวภาพ เนื่องจากมีปริมาณไขมันและสารอินทรีย์สูงที่สามารถแปรรูปเป็นพลังงานได้อย่างมีประสิทธิภาพ (Kwon, Yi, & Jeon, 2021) นอกจากกากกาแฟแล้ว น้ำมันเครื่องเก่า (Waste Engine Oil: WEO) ก็เป็นอีกหนึ่งของเสียที่สามารถนำมาใช้ประโยชน์ในกระบวนการไพโรไลซิส น้ำมันเครื่องเก่าที่ถูกทิ้ง โดยไม่มีการจัดการที่เหมาะสมอาจก่อให้เกิดมลพิษทางดินและน้ำ เนื่องจากประกอบด้วยโลหะหนักและสารพิษอื่น ๆ (Mahamuni & Adewuyi, 2010) การผสมน้ำมันเครื่องเก่ากับกากกาแฟในระหว่างกระบวนการไพโรไลซิสได้รับการศึกษา เพื่อปรับปรุงค่าความร้อนสูงสุด (Higher Heating Value: HHV) ของน้ำมันชีวภาพที่ได้ ซึ่งสามารถเพิ่มประสิทธิภาพด้านพลังงานของเชื้อเพลิงที่ผลิตออกมา (Zhang, Guo, Cheng, & Chen, 2018)

อย่างไรก็ตาม ความต้องการพลังงานที่เพิ่มขึ้นทั่วโลกและความกังวลเกี่ยวกับผลกระทบต่อสิ่งแวดล้อมจากการใช้เชื้อเพลิงฟอสซิล ได้กระตุ้นให้เกิดการวิจัยเกี่ยวกับแหล่งพลังงานทางเลือก (International Energy Agency, 2023) หนึ่งในแนวทางสำคัญคือ การผลิตน้ำมันชีวภาพผ่านกระบวนการไพโรไลซิส (Bridgwater, 2012) งานวิจัยก่อนหน้านี้ เช่น Wang, Jiang, Yu, Wang, & Luo, (2016) ศึกษาการเติมน้ำมันเครื่องเก่ากับกากกาแฟในการไพโรไลซิส เพื่อเพิ่มค่าความร้อนของน้ำมันชีวภาพ แต่ยังไม่มีการศึกษาการใช้ตัวเร่งปฏิกิริยาจากวัสดุธรรมชาติ เช่น เปลือกไข่ รวมถึงการผสมวัสดุ ชีวมวลต่างชนิด เช่น กากกาแฟกับกากชาในกระบวนการเดียวกันเปลือกไข่ ซึ่งประกอบด้วยแคลเซียมคาร์บอเนต ($CaCO_3$) เมื่อผ่านการเผาที่ 900°C จะเปลี่ยนเป็นแคลเซียมออกไซด์ (CaO) ซึ่งทำหน้าที่เป็นตัวเร่งปฏิกิริยาเบสิก ช่วยลดองค์ประกอบออกซิเจนในน้ำมันชีวภาพ และเพิ่มค่าความร้อน (Xu, Yang, Liu, & Zhang, 2014)

การผสมกากชาซึ่งมีลิกนินสูงกว่ากากกาแฟ อาจส่งผลต่อปริมาณและคุณภาพของน้ำมันชีวภาพ (Santos, Lima, Oliveira, & Rocha, 2017) การศึกษานี้จึงมีเป้าหมายเพื่อหาสภาวะที่เหมาะสมที่สุดสำหรับการผลิตน้ำมันชีวภาพจากวัสดุเหลือใช้ดังกล่าว นอกจากนี้ยังเป็นแนวทางที่ช่วยลดของเสียและเพิ่มการใช้ประโยชน์จากวัสดุเหลือใช้ในภาคอุตสาหกรรมอย่างมีประสิทธิภาพ หากไม่มีการนำวัสดุเหลือใช้เหล่านี้มาประยุกต์ใช้จะเกิดปัญหาด้านสิ่งแวดล้อมที่รุนแรงขึ้น การกำจัดกากกาแฟผ่านการฝังกลบสามารถสร้างก๊าซมีเทน ซึ่งเป็นก๊าซเรือนกระจกที่มีศักยภาพในการทำให้เกิดภาวะโลกร้อนมากกว่าก๊าซคาร์บอนไดออกไซด์ถึง 25 เท่า (Environmental Protection Agency, 2022) ในทำนองเดียวกัน การทิ้ง

น้ำมันเครื่องเก่า โดยไม่มีการบำบัดอาจก่อให้เกิดมลพิษทางน้ำและส่งผลกระทบต่อระบบนิเวศ (González-Munoz, Rodríguez, & Luque, 2013) การใช้เปลือกไข่ในอุตสาหกรรมอาหารก็ยังไม่ถูกนำมาใช้ในระดับที่กว้างขวางมากพอ ซึ่งทำให้เกิดปัญหาการกำจัดของเสียจากอุตสาหกรรมอาหารที่ไม่ยั่งยืน (López, Vargas-García, Suárez-Estrella, & Moreno, 2018)

ด้วยเหตุนี้ งานวิจัยนี้จึงมีวัตถุประสงค์เพื่อศึกษาการเพิ่มประสิทธิภาพของกระบวนการไพโรไลซิสโดยใช้ กากกาแฟ, น้ำมันเครื่องเก่า และเปลือกไข่เป็นวัตถุดิบและตัวเร่งปฏิกิริยา เพื่อลดปัญหาของเสียและเพิ่มศักยภาพในการผลิตพลังงานหมุนเวียน การศึกษานี้จะเป็นประโยชน์ทั้งในเชิงพลังงานและสิ่งแวดล้อม โดยเป็นแนวทางที่ช่วยลดปัญหามลพิษจากของเสียและเพิ่มโอกาสในการนำวัสดุเหลือทิ้งกลับมาใช้ให้เกิดประโยชน์สูงสุด

วัตถุประสงค์ของการวิจัย

1. เพื่อศึกษาผลของอัตราการให้ความร้อนและการเติมน้ำมันเครื่องเก่าต่อเปอร์เซ็นต์น้ำมันชีวภาพ ถ่านชีวภาพ และค่าความร้อนของผลิตภัณฑ์จากการไพโรไลซิสกากกาแฟ
2. เพื่อประเมินผลของการใช้ตัวเร่งปฏิกิริยา CaO จากเปลือกไข่ในการเพิ่มประสิทธิภาพการผลิตน้ำมันชีวภาพ
3. เพื่อวิเคราะห์ผลกระทบของการผสมกากกาแฟกับกากชาต่อปริมาณและคุณภาพของน้ำมันชีวภาพที่ได้

แนวคิด ทฤษฎี กรอบแนวคิด

การใช้ชีวมวลเป็นแหล่งพลังงานทดแทนได้รับความสนใจอย่างมาก เนื่องจากเป็นพลังงานสะอาดและยั่งยืน กระบวนการไพโรไลซิสเป็นหนึ่งในเทคนิคสำคัญที่ใช้แปรรูปชีวมวลให้เป็นผลิตภัณฑ์ที่มีมูลค่าเพิ่ม ได้แก่ น้ำมันชีวภาพ ถ่านชีวภาพ และก๊าซเชื้อเพลิง โดยกระบวนการนี้เกิดขึ้นภายใต้สภาวะไร้ออกซิเจนและสามารถปรับเปลี่ยนสภาวะต่าง ๆ เพื่อเพิ่มประสิทธิภาพการผลิตได้ ปัจจัยที่มีผลต่อกระบวนการไพโรไลซิส ได้แก่ อัตราการให้ความร้อน องค์ประกอบของชีวมวล และการเติมสารเสริม (Mohan, Pittman, & Steele, 2006; Bridgwater, 2012)

กากกาแฟและกากชาประกอบด้วยสารชีวโมเลกุลที่สำคัญ เช่น เซลลูโลส เฮมิเซลลูโลส และลิกนิน ซึ่งมีผลต่อพฤติกรรมการแตกตัวทางความร้อน งานวิจัยที่ผ่านมาพบว่า กากกาแฟมีปริมาณไขมันและสารประกอบอินทรีย์ที่สามารถกลายเป็นไฮโดรคาร์บอนได้สูงกว่ากากชา ในขณะที่กากชามีลิกนินสูง ซึ่งอาจส่งผลให้เกิดของแข็งตกค้างมากขึ้น อย่างไรก็ตาม อัตราส่วนที่เหมาะสมของวัตถุดิบทั้งสองชนิดอาจช่วยเพิ่มผลผลิตและค่าความร้อนของน้ำมันชีวภาพ (Li, Zhang, & Wang, 2020; Chen, Zhang, & Wang, 2021)

ตัวเร่งปฏิกิริยา CaO เป็นหนึ่งในตัวเร่งปฏิกิริยาที่มีศักยภาพในการปรับปรุงคุณภาพของน้ำมันชีวภาพโดยลดองค์ประกอบออกซิเจนและเพิ่มค่าความร้อน นอกจากนี้การเติมน้ำมันเครื่องเก่าในกระบวนการไพโรไลซิสสามารถช่วยเพิ่มปริมาณน้ำมันชีวภาพที่ได้ และปรับปรุงคุณสมบัติของผลิตภัณฑ์ (Wang et al., 2016) การเติมน้ำมันเครื่องเก่าซึ่งมีองค์ประกอบของไฮโดรคาร์บอนสายโซ่ยาว ในสัดส่วนสูงเข้าไปในกระบวนการไพโรไลซิส มีบทบาทสำคัญทั้งในด้านการเพิ่มแหล่งสารตั้งต้นสำหรับการผลิตน้ำมันชีวภาพ และการกระตุ้นกลไกการแตกตัวทางความร้อน (Thermal Cracking) ของสารอินทรีย์ในชีวมวลน้ำมันเครื่องเก่าช่วยลดความหนืดของระบบโดยรวม ทำให้การถ่ายเทความร้อนมีประสิทธิภาพมากขึ้น ส่งผลให้โครงสร้างโมเลกุลขนาดใหญ่ในกากกาแฟและกากชาสลายตัวได้สมบูรณ์ยิ่งขึ้น อีกทั้งยังลดแนวโน้มการเกิดถ่าน (Biochar) โดยเปลี่ยนเส้นทางการสลายตัวไปสู่การผลิตไอระเหยมากกว่า

นอกจากนี้องค์ประกอบของน้ำมันเครื่องเก่า ซึ่งมีคาร์บอนสูงและมีออกซิเจนต่ำ ยังมีผลโดยตรงต่อการลดปริมาณองค์ประกอบออกซิเจนในน้ำมันชีวภาพที่ได้ ส่งผลให้ค่าความร้อน (Higher Heating Value: HHV) ของผลิตภัณฑ์เพิ่มสูงขึ้น และเสถียรภาพทางเคมีของน้ำมันดีขึ้นเมื่อเทียบกับการไพโรไลซิสชีวมวลล้วน (Bridgwater, 2012) ผลลัพธ์ที่ได้จึงเป็นน้ำมันชีวภาพที่มีปริมาณสูงขึ้น มีคุณภาพดีขึ้น เหมาะสำหรับการนำไปใช้เป็นเชื้อเพลิงหรือเป็นวัตถุดิบในกระบวนการผลิตต่อยอดอื่น ๆ ได้อย่างมีประสิทธิภาพ

งานวิจัยนี้จึงมุ่งเน้นไปที่การศึกษาผลกระทบของปัจจัยเหล่านี้ โดยเฉพาะอัตราส่วนของกากกาแฟและกากชา การเติมน้ำมันเครื่องเก่า และการใช้ตัวเร่งปฏิกิริยา CaO จากเปลือกไข่เพื่อตรวจสอบว่าสภาวะใดให้ค่าความร้อนสูงสุดและมีประสิทธิภาพดีที่สุดสำหรับการผลิตพลังงานชีวภาพ

วิธีดำเนินการวิจัย

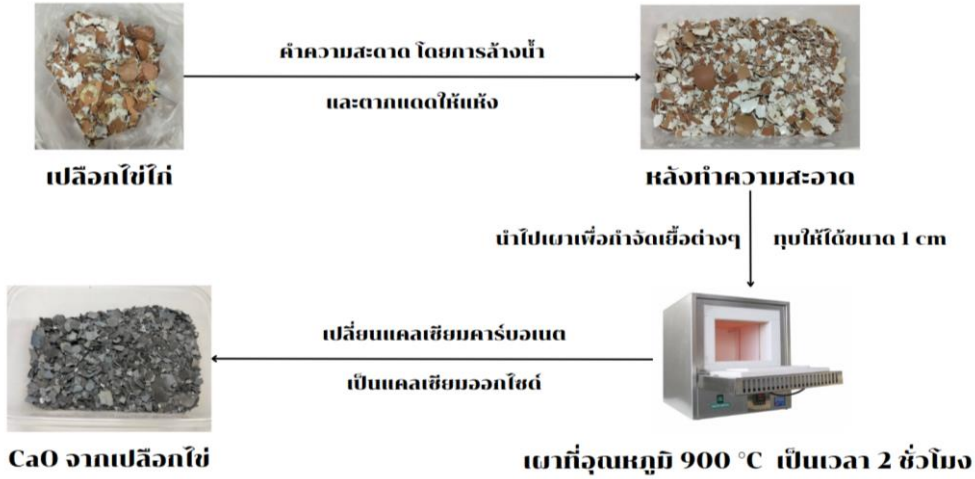
วัสดุ

1. กากกาแฟและกากชา: ได้มาจากร้านสตาร์บัคส์ ในมหาวิทยาลัยธรรมศาสตร์ ศูนย์รังสิต
2. น้ำมันเครื่องเก่า: ได้จากศูนย์ซ่อมรถยนต์ Toyota ในพื้นที่ปทุมธานี
3. เปลือกไข่ไก่: เก็บสะสมจากครัวเรือนและร้านอาหาร ในมหาวิทยาลัยธรรมศาสตร์ ศูนย์รังสิต

การเตรียมกากกาแฟและกากชา นำไปอบให้เตาอบที่อุณหภูมิ 90 °C เป็นเวลา 24 ชั่วโมง ก่อนนำมาใช้งาน โดยเก็บรักษาให้เปอร์เซ็นต์ความชื้นไม่เกิน 5 %(w/w)

การเตรียมตัวเร่งปฏิกิริยาแคลเซียมออกไซด์ (CaO) จากเปลือกไข่ออกเป็น 3 ขั้นตอนซึ่งได้แก่ การทำความสะอาดและเตรียมเปลือกไข่ การเผาเปลือกไข่ (Calcination) และการเก็บรักษาเริ่มจากล้างเปลือกไข่ด้วยน้ำประปา เพื่อลดสิ่งสกปรกและสารอินทรีย์ที่ติดอยู่จากนั้น ตากแดดเป็นเวลา 24 ชั่วโมง เพื่อให้แน่ใจว่าไม่มีความชื้นหลงเหลืออยู่ หลังจากแห้งสนิท ให้นำเปลือกไข่มาทุบให้ได้ขนาดประมาณ 1 cm. หลังจากนั้น นำเปลือกไข่ที่บดแล้วไปเผาในเตาเผาที่อุณหภูมิ 900 °C เป็นเวลา 2 ชั่วโมง เพื่อเปลี่ยนแคลเซียมคาร์บอเนต ($CaCO_3$) ในเปลือกไข่ให้เป็นแคลเซียมออกไซด์ (CaO) ผ่านกระบวนการแคลไซเนชัน (อัจฉรา อิ่มคำ พุฒคำ, 2016) และหลังจากเผาเสร็จ ให้เก็บ CaO ที่ได้ในภาชนะที่ปิดสนิทและป้องกัน

ความชื้น เพื่อป้องกันการเกิดปฏิกิริยากับความชื้นในอากาศ (สุภกร บุญยืน, มณฑา มาลัยทอง, อภิสิทธิ์ โพธิ์แก้ว, เบญญา เชิดหิรัญกร และ อิสรพงษ์ เชื้อสันเทียะ, 2558) โดยวิธีการเตรียมแสดงได้ดังภาพที่ 1



ภาพที่ 1 การเตรียมตัวเร่งปฏิกิริยาแคลเซียมออกไซด์จากเปลือกไข่



ภาพที่ 2 ระบบไพโรไลซิส

การทดลองกระบวนการไพโรไลซิสเริ่มจากการเตรียมสารตั้งต้นเป็นของแข็ง 30 กรัมและส่วนผสมอื่น ๆ ตามตารางที่ 1 - 4 โดยในที่นี้ใช้กากกาแฟผสมน้ำมันเครื่องเก่าในอัตราส่วน 1:1, 2:1 และ 3:1 สำหรับในกรณีศึกษาผลของตัวเร่งปฏิกิริยานั้น สามารถทำโดยการเติมตัวเร่งปฏิกิริยาลงไปพร้อมกับสาร

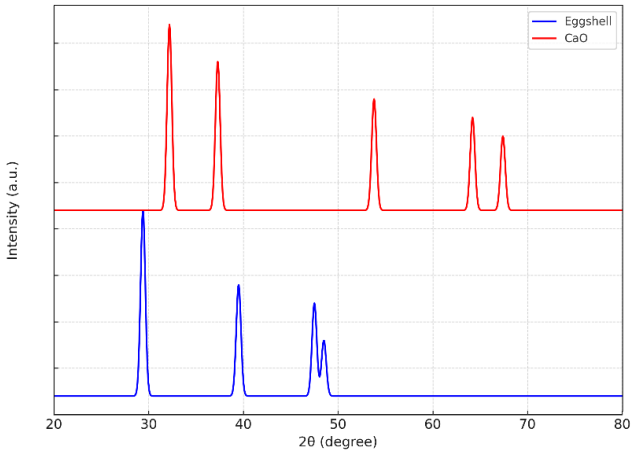
ตั้งต้นในปริมาณคงที่ที่ 30 กรัม สำหรับกระบวนการไพโรไลซิสนั้น เริ่มจากการบรรจุสารตั้งต้นเข้าเครื่องไพโรไลซิส จากนั้นให้ความร้อนกับเครื่องไพโรไลซิสในอัตราที่กำหนด (10, 80, 120, และ 160 °C /min) เมื่ออุณหภูมิเพิ่มสูงถึง 390 °C ให้รักษาอุณหภูมิและดำเนินการไพโรไลซิสจนเสร็จสิ้น ซึ่งใช้เวลาประมาณ 1 ชั่วโมง ในขณะเกิดกระบวนการไพโรไลซิสให้ทำการเก็บน้ำมันและหลังจากกระบวนการให้ทำการเก็บถ่านชีวภาพที่เกิดขึ้นด้วย เพื่อนำไปวิเคราะห์คุณสมบัติต่อไป

การวิเคราะห์น้ำมันที่เกิดขึ้นถูกนำไปวิเคราะห์หาค่าความร้อนสูง (HHV) ด้วยเครื่องบอมบ์แคลอริมิเตอร์ Parr 6100 โดยให้คำนวณปริมาณน้ำมันชีวภาพและถ่านชีวภาพที่เกิดขึ้นดังสมการที่ (1) และ (2) ตามลำดับ

$$\text{Bio} - \text{oil yield (\%w/w)} = \frac{(\text{Mass of collected bio-oil (g)})}{(\text{Mass of raw material used (g)})} \times 100 \quad (1)$$

$$\text{Biochar yield (\%w/w)} = \frac{(\text{Mass of collected biochar (g)})}{(\text{Mass of raw material used (g)})} \times 100 \quad (2)$$

ผลการวิจัย



ภาพที่ 3 ผลการวิเคราะห์โครงสร้างผลึกของตัวอย่างเปลือกไข่ (Eggshell) และตัวเร่งปฏิกิริยาแคลเซียมออกไซด์ (CaO) ที่ได้จากกระบวนการเผาที่อุณหภูมิสูงโดยใช้เทคนิค XRD

สำหรับตัวอย่างเปลือกไข่ (เส้นสีน้ำเงิน) พบว่า มีค่าสัญญาณการเลี้ยวเบนเด่นที่ตำแหน่งประมาณ 29.4°, 36°, และ 47° ซึ่งสอดคล้องกับระนาบผลึกหลักของสารประกอบแคลเซียมคาร์บอเนต ($CaCO_3$) ในรูปของแคลไซต์ (Calcite) แสดงให้เห็นว่าโครงสร้างหลักของเปลือกไข่ในสภาพดิบ มีองค์ประกอบหลักเป็นแคลเซียมคาร์บอเนต หลังจากผ่านกระบวนการแคลซิเนชัน (Calcination) ที่อุณหภูมิสูงเพื่อเปลี่ยนเปลือกไข่เป็นแคลเซียมออกไซด์พบว่า ในตัวอย่าง CaO (เส้นสีแดง) มีค่าสัญญาณการเลี้ยวเบนหลักเปลี่ยนแปลงไปอย่างชัดเจน โดยมีพีคเด่นที่ตำแหน่งประมาณ 32.2°, 37.4°, 53.9°, 64.2° และ 67.4° ซึ่งสอดคล้องกับระนาบผลึกของแคลเซียมออกไซด์ (CaO) ตามมาตรฐาน JCPDS Card No. 37-1497

การเปลี่ยนแปลง ดังกล่าวยืนยันได้ว่ากระบวนการเผาที่อุณหภูมิสูงสามารถสลายแคลเซียมคาร์บอเนต ($CaCO_3$) ในเปลือกไข่ให้กลายเป็นแคลเซียมออกไซด์ (CaO) ได้สำเร็จ ผ่านปฏิกิริยาสลายตัวของคาร์บอเนต (thermal decomposition) ซึ่งเป็นไปตามปฏิกิริยาเคมีดังนี้:

$$CaCO_3\ (s) \longrightarrow CaO\ (s) + CO_2\ (g)$$

ผลการวิเคราะห์ดังกล่าวแสดงให้เห็นว่าตัวเร่งปฏิกิริยา CaO ที่ได้มีความบริสุทธิ์สูง และมีโครงสร้างผลึกที่ดี เหมาะสมสำหรับการนำไปใช้เป็นตัวเร่งปฏิกิริยาในกระบวนการไพโรไลซิส ต่อไป

จากการศึกษาปัจจัยที่มีผลต่อการสลายตัวของชีวมวลผ่านกระบวนการไพโรไลซิส พบว่าปัจจัยที่สำคัญ ได้แก่ อัตราการให้ความร้อน การเติมน้ำมันเครื่องเก่า การใช้ตัวเร่งปฏิกิริยา และการผสมกากชากับกากกาแฟ ซึ่งมีผลโดยตรงต่อปริมาณผลิตภัณฑ์ที่เกิดขึ้น ได้แก่ น้ำมันชีวภาพ ถ่านชีวภาพ และค่าความร้อนของน้ำมันชีวภาพ

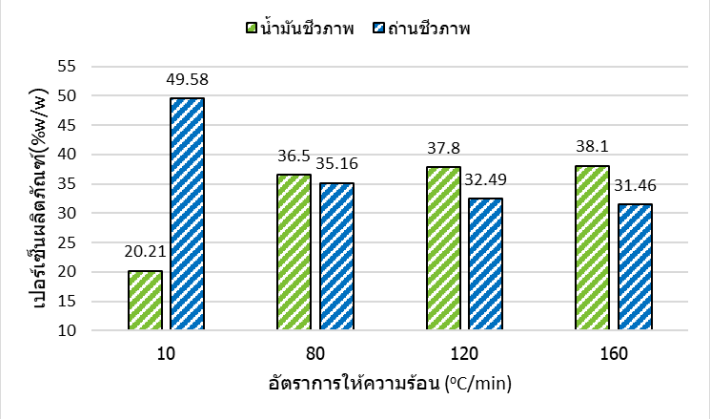
1. อัตราการให้ความร้อน

ตารางที่ 1 ผลการเปลี่ยนเปลี่ยนอัตราให้ความร้อน

Raw material	Condition			Product		
Coffee (g)	Temperature (°C)	Heat Rate (°C/min)	N2 Flow (ml/min)	%Yield	HHV (MJ/Kg)	%Char
30	390	10	50	20.21	35.28	49.58
30	390	80	50	36.5	35.38	35.16
30	390	120	50	37.8	34.49	32.49
30	390	160	50	38.1	35.02	31.46

เมื่อทำการไพโรไลซิสกากกาแฟที่อุณหภูมิ 390 °C N_2 flow 50 mL/min โดยใช้อัตราการให้ความร้อนที่ 10, 80, 120 และ 160 °C/min ทั้งนี้ การเพิ่มอัตราการให้ความร้อนจาก 10 °C/min ไปที่ 80 °C/min โดยตรง แทนที่จะเพิ่มทีละน้อย ๆ นั้น มีจุดประสงค์เพื่อเปลี่ยนลักษณะกระบวนการจาก Slow Pyrolysis เป็น Fast Pyrolysis ซึ่งเหมาะสมสำหรับการผลิตน้ำมันชีวภาพในปริมาณสูง อัตราการให้ความร้อนที่สูงช่วยลดเวลาในการทำไพโรไลซิส กระตุ้นการสลายตัวของชีวมวลได้รวดเร็วขึ้น และลดการเกิดถ่านชีวภาพที่ไม่ต้องการ ส่งผลให้เปอร์เซ็นต์น้ำมันที่ได้เพิ่มขึ้นอย่างมีนัยสำคัญตามแนวทางที่รายงานไว้ในงานวิจัยของ Demirbas (2009) และ Bridgwater (2012) พบว่า เปอร์เซ็นต์น้ำมันที่ได้มีค่าเท่ากับ 20.21%, 36.5%, 37.8% และ 38.1% ตามลำดับ แสดงให้เห็นว่าเมื่ออัตราการให้ความร้อนเพิ่มขึ้นปริมาณน้ำมันที่ผลิตได้ก็เพิ่มขึ้นตามไปด้วย ดังแสดงในภาพที่ 3 แนวโน้มของผลลัพธ์นี้สามารถอธิบายได้ว่า อัตราการให้ความร้อนที่สูงช่วยเร่งการแตกตัวของโครงสร้างลิกโนเซลลูโลสในกากกาแฟ ทำให้เกิดไอระเหยของสารอินทรีย์ในปริมาณมากขึ้นก่อนที่จะเกิดการเกิดถ่านชีวภาพ (Demirbas, 2009) อย่างไรก็ตาม ที่อัตราการให้ความร้อนสูงมาก เช่น 160 °C/min พบว่า การเพิ่มขึ้นของปริมาณน้ำมันเริ่มชะลอตัว ซึ่งอาจเกิดจากไอระเหยบางส่วนถูกแตกตัวเป็นก๊าซ (Thermal Cracking)

สำหรับเปอร์เซ็นต์ของถ่านชีวภาพ พบว่ามีค่าเท่ากับ 49.58%, 35.16%, 32.49% และ 31.46% ตามลำดับ ซึ่งแสดงให้เห็นว่าเมื่ออัตราการให้ความร้อนเพิ่มขึ้น ปริมาณของแข็งตกค้างลดลงดังแสดงในภาพที่ 4 เนื่องจากอัตราการให้ความร้อนที่สูงช่วยกระตุ้นการสลายพันธะเคมีในชีวมวลอย่างรวดเร็ว ส่งผลให้สารอินทรีย์กลายเป็นไอระเหยในปริมาณมากขึ้นและหลงเหลือถ่านชีวภาพน้อยลง (Bridgwater, 2012) เมื่อพิจารณาค่าความร้อนของน้ำมันชีวภาพที่ได้พบว่า มีค่าเท่ากับ 35.28, 35.38, 34.49 และ 35.02 MJ/kg ตามลำดับที่อัตราการให้ความร้อน 10, 80, 120 และ 160 °C/min ตามลำดับ แนวโน้มแสดงให้เห็นว่าค่าความร้อนของผลิตภัณฑ์มีการเปลี่ยนแปลงเล็กน้อย โดยมีค่าสูงสุดที่อัตราการให้ความร้อน 80 °C/min และลดลงเล็กน้อยเมื่ออัตราการให้ความร้อนสูงขึ้นถึง 120 °C/min ซึ่งอาจเกิดจากการที่อัตราการแตกตัวของโครงสร้างอินทรีย์ที่เร็วเกินไป ทำให้ไอระเหยบางส่วนเกิดการแตกร้าวเป็นก๊าซที่มีค่าพลังงานต่ำ ส่งผลกระทบต่อคุณภาพของน้ำมันชีวภาพ อย่างไรก็ตาม ค่าความร้อนที่ได้ในทุกกรณียังคงอยู่ในระดับที่สูงและเหมาะสมต่อการนำไปใช้เป็นเชื้อเพลิง



ภาพที่ 4 ความสัมพันธ์ระหว่างเปอร์เซ็นต์ผลิตภัณฑ์ต่ออัตราการให้ความร้อน

2. การเติมน้ำมันเครื่องเก่า

ตารางที่ 2 ผลการเติมน้ำมันเครื่องเก่า

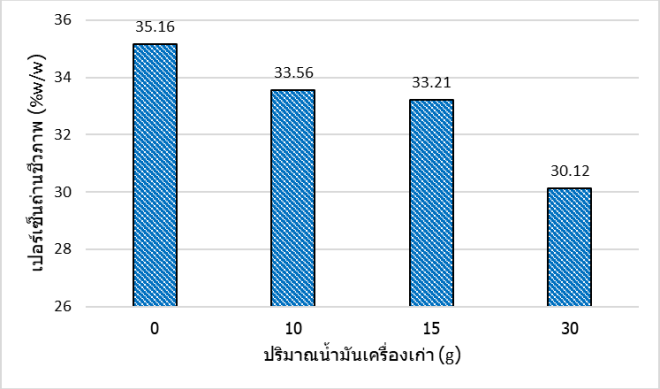
Raw material		Condition			Product		
Coffee (g)	Waste Engine Oil (g)	Temperature (°C)	Heat Rate (°C/min)	N2 Flow (ml/min)	%Yield	HHV (MJ/Kg)	%Char
30	0	390	80	50	36.5	35.38	35.16
30	10	390	80	50	22.15	40.04	33.56
30	15	390	80	50	19.65	45.96	33.21
30	30	390	80	50	21.84	46.21	30.12

เมื่อทำการเติมน้ำมันเครื่องเก่าที่ปริมาณ 0, 10, 15 และ 30 กรัม (อัตราส่วน 0, 1:3, 1:2, และ 1:1 ของน้ำมันเครื่องเก่าต่อกากกาแฟ) ลงในกากกาแฟก่อนทำไพโรไลซิสที่อุณหภูมิ 390 °C อัตราการให้ความร้อน 80 °C/min และอัตราการไหลของไนโตรเจน 50 mL/min พบว่า เปอร์เซ็นต์ของถ่านชีวภาพที่ได้มีค่าเท่ากับ 35.16%, 33.56%, 33.21% และ 30.12% ตามลำดับ ดังแสดงในภาพที่ 5 แนวโน้มแสดงให้เห็นว่าเมื่อปริมาณการเติมน้ำมันเครื่องเก่าเพิ่มขึ้น ปริมาณถ่านชีวภาพที่เหลืออยู่มีแนวโน้มลดลงสาเหตุ

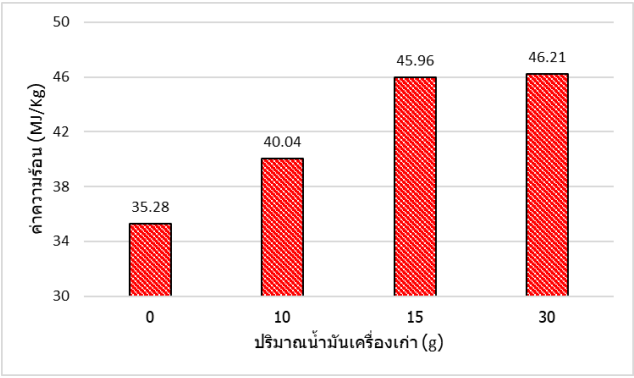
เนื่องมาจากน้ำมันเครื่องเก่าช่วยเสริมการแตกตัวขององค์ประกอบอินทรีย์ในกากกาแฟระหว่างกระบวนการไพโรไลซิส ทำให้ไอระเหยปลดปล่อยออกมาในปริมาณที่มากขึ้น ส่งผลให้ปริมาณถ่านชีวภาพที่เหลือหลังการไพโรไลซิสลดลง

ค่าความร้อนของน้ำมันชีวภาพที่ผลิตได้มีค่าเท่ากับ 35.28, 40.04, 45.96 และ 46.21 MJ/kg ตามลำดับเมื่อเติมน้ำมันเครื่องเก่าที่ 0, 10, 15 และ 30 กรัมตามลำดับ ดังแสดงในภาพที่ 6 แนวโน้มแสดงให้เห็นว่าการเติมน้ำมันเครื่องเก่าช่วยเพิ่มค่าความร้อนของผลิตภัณฑ์อย่างมีนัยสำคัญ โดยเฉพาะเมื่อเติมน้ำมันเครื่องเก่าในปริมาณสูง เช่น 15 และ 30 กรัม ซึ่งค่าความร้อนที่ได้เพิ่มขึ้นอย่างชัดเจนจากค่าตั้งต้นของกากกาแฟเพียงอย่างเดียว

สำหรับเปอร์เซ็นต์น้ำมันชีวภาพที่ได้พบว่า มีค่าเท่ากับ 35.6%, 22.15%, 19.65% และ 21.84% ตามลำดับที่เติมน้ำมันเครื่องเก่า 0, 10, 15 และ 30 กรัม แม้การเติมน้ำมันเครื่องเก่าในปริมาณมากจะช่วยเพิ่มค่าความร้อนของน้ำมันชีวภาพ แต่กลับพบว่า ค่าเปอร์เซ็นต์น้ำมันชีวภาพลดลงเมื่อคิดเทียบกับน้ำหนักสารตั้งต้นรวม (กากกาแฟ + น้ำมันเครื่องเก่า) เนื่องจากน้ำหนักตั้งต้นที่เพิ่มขึ้นจากการเติมน้ำมันเครื่อง ทำให้สัดส่วนของน้ำมันชีวภาพที่ได้ต่อสารตั้งต้นรวมลดลง อย่างไรก็ตามการเพิ่มขึ้นของค่าความร้อนยังแสดงถึงการปรับปรุงคุณภาพของน้ำมันชีวภาพได้เป็นอย่างดี



ภาพที่ 5 ความสัมพันธ์ระหว่างเปอร์เซ็นต์ถ่านชีวภาพกับปริมาณน้ำมันเครื่องเก่า



ภาพที่ 6 ความสัมพันธ์ระหว่างค่าความร้อนสูงสุดกับปริมาณน้ำมันเครื่องเก่า

3. ผลจากการเติมตัวเร่งปฏิกิริยา

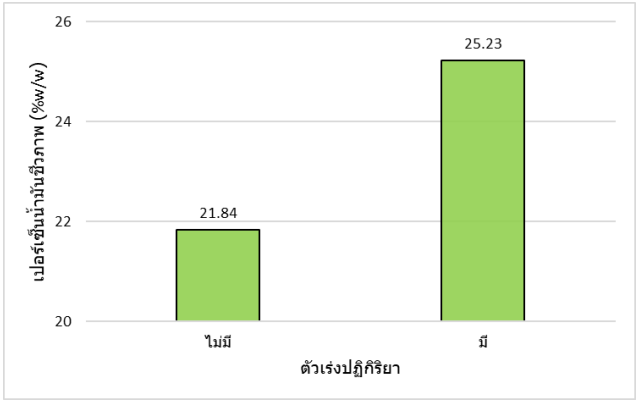
ตารางที่ 3 ผลการเติมตัวเร่งปฏิกิริยา

Raw material			Condition			Product		
Coffee (g)	Waste Engine Oil (g)	Egg shell (g)	Temperature (°C)	Heat Rate (°C/min)	N2 Flow (ml/min)	%Yield	HHV (MJ/Kg)	%Char
30	30	0	390	80	50	21.84	46.21	30.12
30	30	30	390	80	50	25.23	49.60	29.86

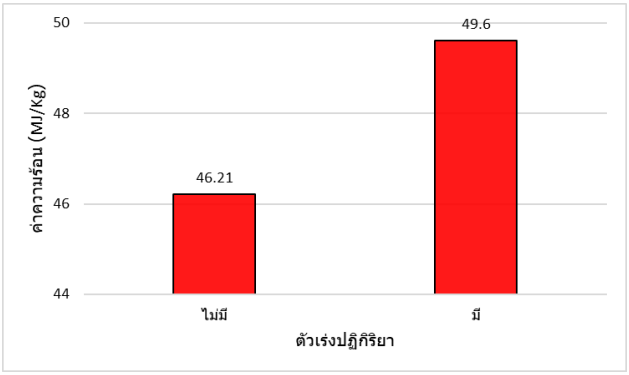
จากการทดลองเปรียบเทียบระหว่างการใช้กากกาแฟเพียงอย่างเดียว กับการเติมตัวเร่งปฏิกิริยา CaO ที่ได้จากเปลือกไข่ พบว่าเปอร์เซ็นต์น้ำมันชีวภาพที่ได้เพิ่มขึ้นจาก 21.84% เป็น 25.23% ดังแสดงในภาพที่ 7 นอกจากนี้ ค่าความร้อนของน้ำมันชีวภาพยังเพิ่มขึ้นจาก 46.21 MJ/kg เป็น 49.6 MJ/kg ซึ่งคิดเป็นการเพิ่มขึ้นประมาณ 7.3% ดังแสดงในภาพที่ 8 เมื่อเปรียบเทียบกับกรณีที่ไม่เติมตัวเร่งปฏิกิริยา ทั้งนี้สอดคล้องกับรายงานของ Xu et al. (2014) ที่ระบุว่าตัวเร่งปฏิกิริยา CaO สามารถช่วยลดปริมาณออกซิเจนในผลิตภัณฑ์น้ำมันชีวภาพได้

การสังเกตการเปลี่ยนแปลงของค่าความร้อน (Higher Heating Value: HHV) สามารถใช้เป็นตัวบ่งชี้ทางอ้อมในการประเมินปริมาณออกซิเจนในน้ำมันชีวภาพได้ เนื่องจากน้ำมันที่มีองค์ประกอบออกซิเจนสูงมักมีค่าความร้อนต่ำ การที่ค่าความร้อนเพิ่มขึ้นอย่างมีนัยสำคัญหลังการเติมตัวเร่งปฏิกิริยาแสดงให้เห็นว่าเกิดการลดปริมาณออกซิเจนในผลิตภัณฑ์ ส่งผลให้สัดส่วนของหมู่ไฮโดรคาร์บอนบริสุทธิ์เพิ่มขึ้นและทำให้พลังงานที่ได้ต่อหน่วยมวลของน้ำมันสูงขึ้นตามไปด้วย ดังนั้นการใช้ CaO เป็นตัวเร่งปฏิกิริยาในการไพโรไลซิสชีวมวลจึงมีประสิทธิภาพ ทั้งในด้านการเพิ่มผลผลิตและการยกระดับคุณภาพของน้ำมันชีวภาพที่ได้อย่างชัดเจน

จากข้อมูลที่ได้แสดงให้เห็นว่าการเติมตัวเร่งปฏิกิริยา CaO ไม่เพียงแต่ช่วยเพิ่มเปอร์เซ็นต์การผลิตน้ำมันชีวภาพและยกระดับค่าความร้อนของผลิตภัณฑ์เท่านั้น แต่ยังมีความคุ้มค่าเชิงพลังงานอย่างมีนัยสำคัญ เนื่องจากค่าความร้อนที่เพิ่มขึ้น หมายถึง ปริมาณพลังงานที่ผลิตได้จากน้ำมันชีวภาพต่อหน่วยน้ำหนักมีมากขึ้น ส่งผลให้กระบวนการผลิตมีประสิทธิภาพสูงขึ้นเมื่อนำไปใช้ในเชิงพาณิชย์ นอกจากนี้ CaO ที่ได้จากเปลือกไข่ซึ่งเป็นวัสดุเหลือใช้ ยังมีต้นทุนต่ำและมีความเป็นมิตรต่อสิ่งแวดล้อม ทำให้การเลือกใช้ตัวเร่งปฏิกิริยานี้มีความเหมาะสมทั้งในด้านเศรษฐศาสตร์และความยั่งยืนของกระบวนการ การเพิ่มขึ้นของผลผลิตน้ำมันพร้อมกับการเพิ่มคุณภาพของน้ำมัน จึงแสดงให้เห็นว่าการเติมตัวเร่งปฏิกิริยา CaO เป็นทางเลือกที่คุ้มค่าและมีศักยภาพสำหรับการพัฒนากระบวนการไพโรไลซิสชีวมวลในระดับอุตสาหกรรม



ภาพที่ 7 ความสัมพันธ์ระหว่างเปอร์เซ็นต์น้ำมันชีวภาพกับตัวเร่งปฏิกิริยา CaO



ภาพที่ 8 ความสัมพันธ์ระหว่างค่าความร้อนสูงสุดกับตัวเร่งปฏิกิริยา CaO

4. ผลกระทบจากการผสมกันระหว่างกากกาแฟและกากชา

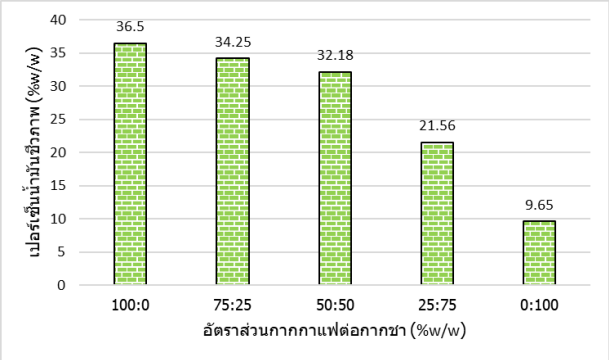
ตารางที่ 4 ผลกระทบจากการผสมกากกาแฟกับกากชา

Raw material		Condition			Product		
Coffee (g)	Tea (g)	Temperature (°C)	Heat Rate (°C/min)	N2 Flow (ml/min)	%Yield	HHV (MJ/Kg)	%Char
30	0	390	80	50	36.5	35.38	35.16
22.5	7.5	390	80	50	34.25	36.34	36.75
15	15	390	80	50	32.18	37.33	38.47
7.5	22.5	390	80	50	21.56	33.45	38.54
0	30	390	80	50	9.65	31.71	40.54

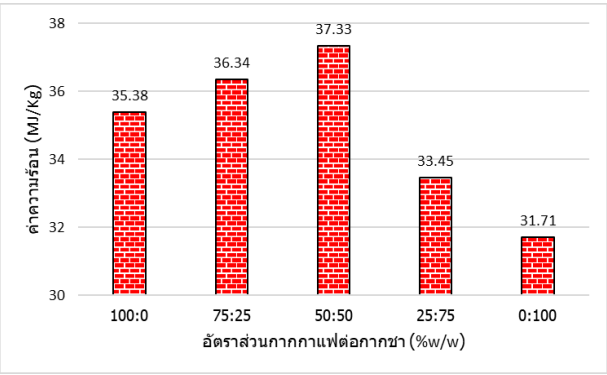
จากการทดลองที่ใช้กากกาแฟผสมกับกากชาที่อัตราส่วน 100:0, 75:25, 50:50, 25:75 และ 0:100 ที่อุณหภูมิ 390 °C อัตราการให้ความร้อน 80 °C/min N_2 flow 50 mL/min พบว่า เปอร์เซ็นต์น้ำมันที่ได้มีค่าเท่ากับ 36.5%, 34.25%, 32.18%, 21.56% และ 9.65% ตามลำดับ ดังแสดงในภาพที่ 9 ค่าความร้อนของผลิตภัณฑ์ที่ได้มีค่าเท่ากับ 35.38, 36.34, 37.33, 33.45 และ 31.71 MJ/kg ตามลำดับ โดยพบว่าเมื่อเพิ่มสัดส่วนของกากชา ปริมาณน้ำมันชีวภาพมีแนวโน้มลดลงดังแสดงในภาพที่ 10 ซึ่งอาจ

เกิดจากองค์ประกอบทางเคมีของกากชาที่แตกต่างจากกากกาแฟ โดยกากชามีปริมาณลิกนินสูงกว่า ส่งผลให้เกิดของแข็งตกค้างมากขึ้น (Santos et al., 2017)

ทั้งนี้ เมื่อตรวจสอบค่าความร้อนของผลิตภัณฑ์พบว่า ค่าความร้อนมีแนวโน้มเพิ่มขึ้นเมื่อเพิ่มสัดส่วนของกากชาจาก 0% ถึง 50% โดยค่าความร้อนสูงสุดอยู่ที่ 37.33 MJ/kg ที่อัตราส่วนกากกาแฟต่อกากชา 50:50 อย่างไรก็ตาม เมื่อเพิ่มสัดส่วนของกากชามากเกินครึ่งหนึ่ง ค่าความร้อนของผลิตภัณฑ์กลับลดลงอย่างมีนัยสำคัญ ซึ่งอาจเป็นผลจากองค์ประกอบลิกนินและเถ้าที่สูงในกากชาทำให้เกิดสารตกค้างในรูปของแข็งมากขึ้น ส่งผลให้สัดส่วนของสารที่สามารถเปลี่ยนเป็นไอระเหยและน้ำมันชีวภาพลดลง และส่งผลต่อค่าพลังงานโดยรวมของผลิตภัณฑ์ที่ได้ (Santos et al., 2017)



ภาพที่ 9 ความสัมพันธ์ระหว่างอัตราส่วนกากกาแฟต่อกากชากับเปอร์เซ็นต์น้ำมันชีวภาพ



ภาพที่ 10 ความสัมพันธ์ระหว่างอัตราส่วนกากกาแฟต่อกากชากับค่าความร้อนสูงสุด

สรุปและอภิปรายผล

จากการศึกษาพบว่าอัตราการให้ความร้อนที่เหมาะสมและการเติมสารเสริม เช่น น้ำมันเครื่องเก่าและตัวเร่งปฏิกิริยา CaO สามารถเพิ่มผลผลิตน้ำมันชีวภาพและค่าความร้อนของผลิตภัณฑ์ได้อย่างมีนัยสำคัญ โดยเฉพาะอย่างยิ่ง การใช้กากกาแฟและกากชาในอัตราส่วน 50:50 ร่วมกับการเติมน้ำมันเครื่องเก่า 30 กรัม และตัวเร่งปฏิกิริยา CaO ให้ค่าความร้อนสูงสุดถึง 54.04 MJ/kg ซึ่งเป็นผลลัพธ์ที่ดีกว่าการใช้กากกาแฟเพียงอย่างเดียว เมื่อเปรียบเทียบกับงานวิจัยอื่นพบว่า การใช้ตัวเร่งปฏิกิริยา CaO มีแนวโน้ม

ให้ผลใกล้เคียงกับการใช้ซีโอไลต์ (Zeolite) ซึ่งมีรายงานว่าช่วยเพิ่มประสิทธิภาพการผลิตน้ำมันชีวภาพและลดองค์ประกอบออกซิเจนได้ดีขึ้น อย่างไรก็ตาม การศึกษาของ Li et al. (2020) ระบุว่าการใช้ตัวเร่งปฏิกิริยา ZnO อาจให้ผลที่ดีกว่า CaO ในแง่ของการปรับปรุงคุณภาพของน้ำมันชีวภาพ โดยลดปริมาณกรดอินทรีย์และเพิ่มสัดส่วนไฮโดรคาร์บอนหนักที่มีค่าพลังงานสูงกว่า นอกจากนี้งานวิจัยของ Chen et al. (2021) ที่ศึกษาการใช้ไพโรไลซิสกับกากชาล้วน ๆ พบว่า กากชามีปริมาณลิกนินสูง ส่งผลให้เกิดของแข็งตกค้างมากขึ้นและผลิตน้ำมันได้น้อยกว่ากากกาแฟ ซึ่งสอดคล้องกับผลการทดลองในงานวิจัยนี้ ที่พบว่าการเพิ่มสัดส่วนกากชาทำให้เปอร์เซ็นต์น้ำมันชีวภาพลดลง ดังนั้น การเลือกใช้สัดส่วน 50:50 ของกากกาแฟและกากชาในงานวิจัยนี้ อาจเป็นจุดสมดุลที่เหมาะสมระหว่างปริมาณน้ำมันที่ได้และค่าความร้อนของผลิตภัณฑ์ แม้ว่าผลการทดลองจะแสดงให้เห็นถึงศักยภาพของการใช้กากกาแฟและกากชา เป็นวัตถุดิบสำหรับผลิตพลังงานชีวภาพ แต่ยังมีข้อจำกัดบางประการ เช่น การควบคุมคุณภาพของน้ำมันชีวภาพและความเสถียรของกระบวนการผลิตในระดับอุตสาหกรรม ดังนั้นควรมีการศึกษาต่อยอดเกี่ยวกับการอัปเกรดน้ำมันชีวภาพและการเพิ่มประสิทธิภาพของตัวเร่งปฏิกิริยา เพื่อให้ได้ผลิตภัณฑ์ที่มีคุณภาพสูงขึ้นและสามารถนำไปใช้งานได้จริงในภาคพลังงานต่อไป

ข้อเสนอแนะ

1. การศึกษาผลของตัวเร่งปฏิกิริยาชนิดอื่น แม้ว่า CaO จากเปลือกไข่จะช่วยเพิ่มประสิทธิภาพการผลิตน้ำมันชีวภาพ แต่ควรมีการศึกษาเปรียบเทียบตัวเร่งปฏิกิริยาชนิดอื่น เช่น ซีโอไลต์ (Zeolite) หรือแบไรต์ (BaO) ที่อาจช่วยลดออกซิเจนในน้ำมันได้ดียิ่งขึ้น รวมถึงการใช้ตัวเร่งปฏิกิริยาผสมเพื่อเพิ่มประสิทธิภาพในการปรับปรุงคุณภาพของน้ำมันชีวภาพ

2. การปรับปรุงกระบวนการไพโรไลซิสเพื่อเพิ่มผลผลิตน้ำมัน จากผลการศึกษาพบว่า อัตราการให้ความร้อนที่สูงเกินไปอาจทำให้เกิดการแตกร้าวของไอระเหย ซึ่งลดประสิทธิภาพในการผลิตน้ำมัน ควรศึกษาเพิ่มเติมเกี่ยวกับอัตราการให้ความร้อนที่เหมาะสมที่สุด และอาจพิจารณาใช้ระบบควบคุมอุณหภูมิแบบหลายขั้นตอน (Multi-stage Heating) เพื่อลดการแตกร้าวของน้ำมัน

3. การศึกษาผลกระทบของสัดส่วนกากชาและกากกาแฟที่เหมาะสม ผลการทดลองแสดงให้เห็นว่าสัดส่วน 50:50 ของกากชาและกากกาแฟให้ค่าความร้อนสูงสุด อย่างไรก็ตาม ควรมีการศึกษาสัดส่วนอื่นเพิ่มเติม เช่น 60:40 หรือ 40:60 เพื่อดูว่ามีสัดส่วนใดที่ให้ผลผลิตน้ำมันสูงขึ้นในขณะที่ยังคงค่าความร้อนที่เหมาะสม

4. การประเมินด้านเศรษฐศาสตร์และสิ่งแวดล้อม ควรมีการศึกษาต้นทุนของกระบวนการไพโรไลซิส รวมถึงผลกระทบต่อสิ่งแวดล้อม เช่น การปล่อยก๊าซเรือนกระจกและการใช้พลังงานในกระบวนการ เพื่อประเมินความคุ้มค่าและความยั่งยืนของการนำของเสียจากกากกาแฟและกากชามาผลิตพลังงานชีวภาพ

กิตติกรรมประกาศ

ขอขอบคุณมหาวิทยาลัยธรรมศาสตร์และสำนักงานคณะกรรมการส่งเสริมวิทยาศาสตร์ วิจัยและนวัตกรรม สำหรับเงินอุดหนุนการทำกิจกรรมส่งเสริมและสนับสนุนการพัฒนาวิทยาศาสตร์ วิจัยและนวัตกรรม ปีงบประมาณ 2567

เอกสารอ้างอิง

สุภกร บุญยืน, มณฑา มาลัยทอง, อภิสิทธิ์ โพธิ์แก้ว, เบญญา เชิดหิรัญกร และอิสรพงษ์ เชื้อสันเทียะ. (2558). การสลายตัวของแคลเซียมคาร์บอเนตในเปลือกหอย. Thai Journal of Science and Technology, 4(2), 115–122.

อัจฉรา อิ่มคำ พุฒคำ. (2016). การสังเคราะห์แคลเซียมออกไซด์พื้นที่ผิวสูงจากเศษเปลือกไข่อุตสาหกรรม (รายงานวิจัย). พิษณุโลก : มหาวิทยาลัยนเรศวร.

Arumugam, S., Kumar, P. S., & Murugesan, A. (2020). Application of waste eggshell as heterogeneous catalyst for the production of biodiesel. Environmental Technology & Innovation, 17, 100544.

Bridgwater, A. V. (2012). Review of fast pyrolysis of biomass and product upgrading. Biomass and Bioenergy, 38, 68–94.

Campos-Vega, R., Loarca-Piña, G., Vergara-Castañeda, H. A., & Oomah, B. D. (2015). Spent coffee grounds: A review on current research and future prospects. Trends in Food Science & Technology, 45(1), 24–36.

Chen, L., Zhang, H., & Wang, X. (2021). Pyrolysis of tea waste for bio-oil production: The impact of process parameters and additives. Journal of Environmental Management, 271, 111027.

Demirbas, A. (2009). Pyrolysis of biomass for fuels and chemicals. Energy Sources, Part A, 31(12), 1022–1033.

Demirbas, A. (2017). Waste management, waste resource facilities and waste conversion processes. Energy Conversion and Management, 136, 1–7.

Environmental Protection Agency (EPA). (2022). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2020.

González-Muñoz, M. J., Rodríguez, M. A., & Luque, S. (2013). Separation of heavy metals from oil-in-water emulsions by ultrafiltration: Heavy metal and oil rejection. Chemical Engineering Journal, 230, 175–182.

International Energy Agency (IEA). (2023). World Energy Outlook 2023. Retrieved from https://www.iea.org/reports/world-energy-outlook-2023

Kwon, E. E., Yi, H., & Jeon, Y. J. (2021). Resource recovery and waste-to-energy from spent coffee grounds: A review. Chemical Engineering Journal, 403, 126533.

Li, Y., Zhang, J., & Wang, H. (2020). Effects of catalytic pyrolysis on bio-oil production from coffee grounds using different catalysts. Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 42(24), 3075–3085

López, M. J., Vargas-García, M. C., Suárez-Estrella, F., & Moreno, J. (2018). Biotechnological valorization of egg-shell waste. In Waste and By-products in Food Industry (pp. 197–221). Springer, Cham.

Mahamuni, N. N., & Adewuyi, Y. G. (2010). Sonochemical degradation of volatile and semi-volatile organic compounds in water: A review. Ultrasonics Sonochemistry, 17(6), 990–1003.

Mohan, D., Pittman, C. U., & Steele, P. H. (2006). Pyrolysis of wood/biomass for bio-oil: A critical review. Energy & Fuels, 20(3), 848–889.

Santos, R. C., Lima, D. R., Oliveira, L. B., & Rocha, J. D. (2017). Biomass pyrolysis with lignin-rich feedstocks. Bioresource Technology, 245, 1201–1207.

Wang, S., Jiang, X., Yu, Y., Wang, Y., & Luo, Z. (2016). Effect of used engine oil addition on pyrolysis of biomass. Fuel Processing Technology, 149, 69–76.

Xu, R., Yang, S., Liu, X., & Zhang, Y. (2014). Bio-oil upgrading with CaO catalysts. Fuel, 123, 29–37.

Zhang, Q., Chang, J., Wang, T., & Xu, Y. (2007). Review of biomass pyrolysis oil properties and upgrading research. Energy Conversion and Management, 48(1), 87–92.

Zuorro, A., & Lavecchia, R. (2013). Spontaneous lipid peroxidation of spent coffee grounds: A spectrophotometric study. Journal of Environmental Management, 129, 189–193.

การพัฒนาระบบม่านพรางแสงด้วยเทคโนโลยีอินเทอร์เน็ตของสรรพสิ่ง สำหรับโรงเรือนเพาะปลูก

The Development of Shading System Using Internet of Things for Agricultural Greenhouses

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อพัฒนาระบบม่านพรางแสง สำหรับโรงเรือนเพาะปลูกที่มีความสามารถในการควบคุมความเข้มแสงและระยะเวลาการให้แสงตามเงื่อนไขการเจริญเติบโตของพืช อีกทั้งยังช่วยให้ลดความร้อนที่เกิดจากแสงด้วย โดยสามารถควบคุมได้ทั้งแบบอัตโนมัติ ตั้งเวลา และกำหนดเองจากผู้ใช้ พัฒนาโดยใช้โปรแกรม Arduino1.8.5 ในการเขียนชุดคำสั่งด้วยคอมพิวเตอร์ลงสู่บอร์ดไมโครคอนโทรลเลอร์ Arduino Node MCU ESP8266 เพื่อรับค่าต่าง ๆ จากอุปกรณ์เซ็นเซอร์และเรียกใช้งานผ่านแอปพลิเคชัน

Blynk บนสมาร์ทโฟน ลักษณะเด่นของเครื่องมือคือสามารถใช้งานได้ง่าย สามารถสั่งการทำงานของอุปกรณ์ผ่านทางระยะไกลได้เพียงมีสัญญาณอินเตอร์เน็ต มีการแสดงสถานะของอุปกรณ์ เทคโนโลยีที่ได้จากการวิจัยในครั้งนี้ จะช่วยทำให้เกษตรกรสามารถบริหารจัดการปริมาณแสง หรือความเข้มของแสงภายและระยะเวลาการให้แสงในโรงเรือนเพาะปลูกได้อย่างมีประสิทธิภาพ การประเมินคุณภาพของระบบม่านพรางแสง สำหรับโรงเรือนเพาะปลูกมีการประเมิน 2 รูปแบบ คือ การประเมินประสิทธิภาพของระบบโดยผู้เชี่ยวชาญและประเมินความพึงพอใจของผู้ใช้งานผลการประเมิน โดยผู้ใช้งานที่เกี่ยวข้องพบว่าประสิทธิภาพของระบบที่ได้พัฒนาอยู่ในระดับดีมาก ($\bar{x}$ = 4.28) ส่วนผลการประเมินความพึงพอใจต่อการใช้งานเครื่องมือ โดยผู้ใช้งานพบว่าผู้ใช้งานมีความ พึงพอใจต่อเครื่องมือที่พัฒนาขึ้นโดยรวมอยู่ในระดับดีมาก ($\bar{x}$ = 4.30)

คำสำคัญ: ระบบม่านพรางแสง, ฟาร์มอัจฉริยะ, อินเทอร์เน็ตของสรรพสิ่ง

Abstract

This research aims to develop a shade curtain system for greenhouse cultivation which can control light intensity and duration according to the growth conditions of plants while also reducing heat generated by sunlight. The system is capable of automatic control, scheduling, and user-defined settings. It was developed using the Arduino 1.8.5 software for programming commands onto the Arduino Node MCU ESP8266 microcontroller board. The system receives data from sensors and operates through the Blynk application on smartphones. Key features of this tool include user-friendly operation and remote control accessibility via internet connection. It provides real-time status updates and effectively manages light intensity and duration within the greenhouse. The quality of the shade curtain system for greenhouse cultivation were evaluated by two approaches: expert assessment of system efficiency and user satisfaction evaluation. The expert assessment yielded significantly high efficiency ratings for the developed system ($\bar{x}$ = 4.28). Similarly, user satisfaction with the tool was rated significantly high overall ($\bar{x}$ = 4.30).

Keyword: Shading System, Smart farm, Internet of Things

บทนำ

การเกษตรในยุคปัจจุบันได้เปลี่ยนแปลงไปอย่างมาก โดยมีเทคโนโลยีเข้ามามีบทบาทสำคัญ ไม่ว่าจะเป็นระบบเซ็นเซอร์ในเครื่องจักรกลต่าง ๆ หรือเทคโนโลยีสารสนเทศที่ทันสมัย ปัจจุบันเกษตรกรสามารถใช้เทคโนโลยีขั้นสูง เช่น หุ่นยนต์ เซ็นเซอร์วัดอุณหภูมิและความชื้น ภาพถ่ายทางอากาศ และ

ระบบ GPS เพื่อเพิ่มประสิทธิภาพในการผลิต การทำเกษตรแม่นยำด้วยอุปกรณ์เหล่านี้ช่วยให้เกษตรกรลดต้นทุน เพิ่มผลผลิต และทำการเกษตรได้อย่างปลอดภัย เป็นมิตรต่อสิ่งแวดล้อมมากขึ้น ด้วยเหตุนี้ จึงจำเป็นต้องมีการศึกษาและพัฒนาแนวทางที่เหมาะสม เพื่อให้เทคโนโลยีการเกษตรสามารถตอบโจทย์ความต้องการของเกษตรกรรายย่อยได้อย่างแท้จริง ส่งเสริมการผลิตที่ยั่งยืน เพิ่มความยืดหยุ่นในระบบเกษตรกรรม และลดการปล่อยมลพิษ เพื่อรับมือกับความท้าทายของสภาพภูมิอากาศที่แปรปรวนในอนาคต (สำนักงานพัฒนาการวิจัยการเกษตร (องค์การมหาชน), 2564)

Internet of Things (IoT) ทางการเกษตร เป็นการนำเทคโนโลยีต่าง ๆ เข้ามาพัฒนาและประยุกต์ใช้ในภาคการเกษตร ไม่ว่าจะเป็นการจัดการข้อมูลทางการเกษตร ซึ่งถือเป็นองค์ประกอบสำคัญที่ช่วยส่งเสริม พัฒนา และยกระดับความยั่งยืนทางเศรษฐกิจในภาคเกษตร การพัฒนาข้อมูลด้านเศรษฐกิจในอดีตมักเน้นการใช้งานผ่านคอมพิวเตอร์ โดยให้ความสำคัญกับฮาร์ดแวร์มากกว่าซอฟต์แวร์ อย่างไรก็ตาม ปัจจุบันการเกษตรยุคใหม่จำเป็นต้องอาศัยการบูรณาการระหว่างเทคโนโลยีคอมพิวเตอร์และนวัตกรรมต่าง ๆ เช่น เทคโนโลยี IoT และ RFID เพื่อสร้างระบบการเกษตรที่มีประสิทธิภาพมากยิ่งขึ้น (ธันยพร กำจร, 2564)

แสงแดดเป็นวัตถุดิบสำคัญในกระบวนการสังเคราะห์ด้วยแสงของพืช ถ้าขาดแสงแดดพืชจะมีใบสีเหลืองหรือขาวซีดและจะล้มตายในที่สุด แต่พืชมีความต้องการปริมาณแสง ความเข้มของแสง และระยะเวลาการให้แสง ที่แตกต่างกันตามชนิดของพืช การควบคุมปริมาณแสงที่พืชได้รับจึงมีความสำคัญ พืชจะทำให้ผลผลิตมากน้อย พืชจะมีความแข็งแรงเพียงไรนั้น แสงมีส่วนสำคัญอยู่ไม่น้อย เทคนิคที่ใช้ในการหาประโยชน์ของแสงนั้นรวมถึงการเลือกสถานที่ปลูกพืช การดัดแปลงความหนาแน่นและการกระจัดกระจายของการปลูกพืช การใช้วัตถุกำจัดแสงหรือใช้ร่มเงา เป็นต้น ถึงแม้แสงแดดจะมีประโยชน์กับพืช แต่แสงแดดมักจะมาพร้อมกับความร้อน ยิ่งประเทศไทยตั้งอยู่ใกล้เส้นศูนย์สูตร จัดเป็นประเทศในเขตร้อน ความร้อนที่ไม่เหมาะสมอาจส่งผลกระทบกับพืชได้ เช่น อาการใบพืชไหม้ พืชหยุดเจริญเติบโต เป็นต้น

จากปัญหาข้างต้น ผู้วิจัยจึงมีแนวคิดในการนำเอาเทคโนโลยี Internet of Things (IoT) หรืออินเทอร์เน็ตของสรรพสิ่ง มาพัฒนาระบบม่านพรางแสง ติดตั้งในโรงเรือนเพาะปลูก เพื่อควบคุมปริมาณแสง และความร้อนให้เหมาะกับความต้องการของพืชเพื่อเพิ่มผลผลิตและลดความเสียหายของพืชผักให้กับเกษตรกร โดยใช้พื้นที่แปลงผักเกษตรอินทรีย์ มหาวิทยาลัยหาดใหญ่ที่มีการปลูกผักสลัด เรดโอ๊ค กรีนโอ๊ค ซึ่งปัญหาที่พบคือ ผักสลัดได้รับแสงมากเกินไป ทำให้ใบไหม้และหยุดการเจริญเติบโต หากมีการพัฒนาและติดตั้งม่านพรางแสงและเทคโนโลยี IoT เข้ามาควบคุมจะทำให้แก้ไขปัญหาไปไหม้อันเกิดจากการได้รับแสงมากเกินไปได้

วัตถุประสงค์ของการวิจัย

1. เพื่อพัฒนาต้นแบบระบบม่านพรางแสง สำหรับโรงเรือนเพาะปลูก

2. เพื่อประเมินประสิทธิภาพของระบบและความพึงพอใจของผู้ใช้งานระบบม่านพรางแสง สำหรับโรงเรือนเพาะปลูก

แนวคิด ทฤษฎี กรอบแนวคิด

การพัฒนาระบบม่านพรางแสง สำหรับโรงเรือนเพาะปลูกมีแนวคิดและทฤษฎีต่าง ๆ ที่เกี่ยวข้องดังนี้

1. การสังเคราะห์แสงของพืช

พจนา เพชรคอ (2563) กล่าวว่าพืชเป็นสิ่งมีชีวิตที่สามารถสร้างอาหารเองได้และเป็นแหล่งอาหารที่สำคัญของสิ่งมีชีวิตชนิดอื่นที่ไม่สามารถสร้างอาหารได้ กระบวนการสร้างอาหารของพืชเรียกว่ากระบวนการสังเคราะห์ด้วยแสง ใช้น้ำ และแก๊สคาร์บอนไดออกไซด์ และพลังงานจากแสงเป็นวัตถุดิบ ทำให้ได้ผลิตภัณฑ์ คือ น้ำตาล และแก๊สออกซิเจน กระบวนการสังเคราะห์ด้วยแสงของพืชช่วยให้เกิดการหมุนเวียนของแก๊สและแร่ธาตุในดิน ทำให้เกิดความสมดุลตามธรรมชาติซึ่งเป็นประโยชน์ต่อสิ่งมีชีวิตบนโลก

2. ปัจจัยที่มีผลต่อการสังเคราะห์แสง

กองนโยบายเทคโนโลยีเพื่อการเกษตรและเกษตรกรรมยั่งยืน (2566) กล่าวว่า ความเข้มของแสงมีผลต่อสารสำคัญ พืชต้องใช้แสงในกระบวนการสังเคราะห์แสง เพื่อสร้างอาหารสำหรับการเจริญเติบโตและการสะสมสารสำคัญต่าง ๆ แสงจึงเป็นปัจจัยการผลิตที่ผู้ปลูกไม่จำเป็นต้องจัดหาหรือเตรียมให้แก่พืช เนื่องจากมีอยู่ทั่วไปในธรรมชาติ โดยเฉพาะในเขตร้อนพืชจะได้รับปริมาณแสงมากเกินความต้องการต่อการเจริญเติบโตของพืช จนบางครั้งต้องมีการจัดการไม่ให้พืชได้รับแสงที่มากเกินไปจนทำให้พืชเกิดความเสียหายต่อผลผลิต โดยมีรายงานว่าการพรางแสงให้กับพืชจะทำให้พืชมีการเจริญเติบโตดีแต่มีผลต่อปริมาณสารสำคัญบางอย่างในพืชลดลง นอกจากนี้แสงยังมีความจำเป็นต่อกระบวนการเจริญเติบโตและการพัฒนาของพืช การลดปริมาณแสงสำหรับพืชสามารถทำได้โดยใช้วัสดุพรางแสงที่มีจำหน่ายโดยทั่วไปในท้องตลาดซึ่งมีหลายสีและมีความสามารถในการพรางแสงที่แตกต่างกัน

3. ตาข่ายกรองแสง (Shading Net)

ศรายุทธ ศรีทิพย์อาสน์ (2565) กล่าวว่า ตาข่ายกรองแสง (Shading Net) หรือที่เรียกกันว่า “ซาแรน” เป็นวัสดุที่มีลักษณะกึ่งทึบกึ่งโปร่ง มีรูระบายอากาศได้ เส้นใยผลิตจากพอลิเอทิลีนความหนาแน่นสูง (High Density Polyethylene หรือ HDPE) ใช้สำหรับกรองแสงแดด ลดความร้อนให้พื้นที่เพาะปลูก ลดความแรงของลมและฝน และมีหลายสี ซึ่งประโยชน์ทางการเกษตรที่แตกต่างกัน จึงใช้สำหรับสร้างร่มเงาให้โรงเรือนเพาะพืช ตาข่ายกรองแสงมีหลายสี แต่ที่นิยมมากที่สุดคือ สีดำ เป็นสีที่เหมาะกับการสร้างร่มเงาให้พืช เพราะแสงที่ส่องผ่านลงมายังคงเป็นแสงขาวตามธรรมชาติ พืชจึงใช้สังเคราะห์แสงได้ตามปกติ และสีเขียว แสงที่ผ่านมาจะเป็นแสงสีเขียวซึ่งเป็นสีของแสงที่พืชนำไปใช้ประโยชน์ได้น้อย ทำให้พืชยืดตัวสูงขึ้นเพื่อไปหาแสง จึงเหมาะกับการใช้เพื่อวัตถุประสงค์เฉพาะ เช่น ต้องการให้พืชมีกิ่งก้านยาวขึ้น และยังเป็นสีที่ช่วยลดการเกิดตะไคร่ในบ่อน้ำได้ จึงมักนำไปสร้างร่มเงาให้บ่อปลา ส่วนปริมาณการ

กรองแสงจะขึ้นอยู่กับชนิดของพืช โดยพืชทั่วไปแนะนำให้เลือกอัตราการกรองแสง คือ 70% – 80% เหมาะสำหรับช่วงการเพาะเมล็ดจนถึงช่วงอนุบาลต้นกล้า และพืชร่มรำไรที่ไม่ชอบแดดจัด 50% – 60% เหมาะสำหรับต้นกล้าที่มีอายุมากขึ้นจนถึงช่วงย้ายลงแปลงปลูก

4. Internet of Things (IoT)

สุวิทย์ วงศ์ศิลา (2564) กล่าวว่า เทคโนโลยีอินเตอร์เน็ตที่เชื่อมอุปกรณ์และเครื่องมือต่าง ๆ เช่น คอมพิวเตอร์ โทรศัพท์มือถือ รถยนต์ ตู้เย็น โทรทัศน์ และอื่น ๆ เข้าไว้ด้วยกัน โดยเครื่องมือต่าง ๆ จะสามารถเชื่อมโยงและสื่อสารกันได้โดยผ่านระบบอินเตอร์เน็ต ซึ่งในอนาคตของผู้บริโภคทั่วไปจะเริ่มคุ้นเคยกับเทคโนโลยีที่ทำให้สามารถควบคุมสิ่งของต่าง ๆ ทั้งจากในบ้าน และสำนักงานหรือจากที่ไหนก็ได้ เช่น การควบคุมอุณหภูมิภายในบ้าน การเปิดปิดไฟ ไปจนถึงการสั่งให้เครื่องรดน้ำต้นไม้ หรือแปลงเกษตรของตนเอง แต่อย่างไรก็ตามยังมีเทคโนโลยีอื่น ๆ ยังจำเป็นต้องมีพัฒนาก่อน ถึงจะเกิดเป็น IoT ยกตัวอย่าง เช่น ระบบตรวจจับต่าง ๆ (Sensors) รูปแบบการ เชื่อมต่อระหว่างอุปกรณ์ และระบบที่ฝังตัวอยู่ในคอมพิวเตอร์

5. การนำเทคโนโลยี IoT มาประยุกต์ใช้กับภาคการเกษตร

ธันยพร กำจร (2564) กล่าวว่า การนำเทคโนโลยี IoT (Internet of Things) มาประยุกต์ใช้กับภาคการเกษตร เป็นการยกระดับการทำเกษตรแบบดั้งเดิมให้กลายเป็นเกษตรอัจฉริยะ โดยการเชื่อมโยงอุปกรณ์ต่าง ๆ เช่น เซนเซอร์ตรวจวัดอุณหภูมิ ความชื้นในดิน กล้องวงจรปิด และระบบให้น้ำอัตโนมัติ เข้ากับเครือข่ายอินเทอร์เน็ต เพื่อเก็บข้อมูล วิเคราะห์ และควบคุมกระบวนการผลิตได้แบบเรียลไทม์ ช่วยให้เกษตรกรสามารถวางแผนการเพาะปลูกได้แม่นยำ ลดการใช้ทรัพยากรอย่างสิ้นเปลือง เพิ่มผลผลิต ลดต้นทุน และตอบสนองต่อสภาพอากาศที่เปลี่ยนแปลงได้อย่างมีประสิทธิภาพ นับเป็นแนวทางที่ช่วยเพิ่มความยั่งยืนให้กับภาคการเกษตรในระยะยาว

6. แอปพลิเคชั่น Blynk

Blynk เป็นแพลตฟอร์มการพัฒนา Application สำหรับเชื่อมต่อกับอุปกรณ์ IoTs ให้สามารถใช้งานร่วมกันกับสมาร์ทโฟน โดยสามารถรองรับการใช้งานได้ทั้งระบบปฏิบัติการIOS และ Android ซึ่งช่วยให้เราสามารถทำให้ผู้ใช้สร้างอุปกรณ์ขึ้นมาเชื่อมต่อกับ Application ที่พัฒนาขึ้น และสื่อสารสั่งงานรับส่งข้อมูลกันได้ซึ่งก็จะทำให้ผู้ใช้สามารถสั่งงานอุปกรณ์ Output ต่าง ๆ เช่น รีเลย์ ผ่านทาง Application บนสมาร์ทโฟน ไปยังอุปกรณ์ที่อยู่ตำแหน่งใดๆ ก็ได้ที่สามารถเชื่อมต่อกับ Internet ได้และทำนองเดียวกันก็สามารถอ่านค่า Input ต่าง ๆ เช่น เซ็นเซอร์จากอุปกรณ์ที่เราสร้างขึ้นและติดตั้งใช้งานไว้ที่ใดๆ ก็ได้ที่เชื่อมต่อกับ Internet ได้มาแสดงผลที่ Application บนสมาร์ทโฟน ได้โดยง่ายโดยอาศัยเครือข่ายการสื่อสารของ Internet เป็นสื่อกลางหรืออาจกล่าวได้ว่าเป็นการติดต่อ สั่งงานอุปกรณ์ไฟฟ้า ผ่านอินเทอร์เน็ตหรือผ่านสมาร์ทโฟน

งานวิจัยที่เกี่ยวข้อง

จริญญา ฤทธิรัมย์ และ อารักษ์ ธีรอำพน (2562) ได้ทำการวิจัยเรื่องผลของความเข้มแสงต่อการ

เจริญเติบโตและผลผลิตของผักกาดหอมในระบบแพลนท์แฟคทอรี่ (Plant Factory) หรือโรงงานผลิตพืช มีวัตถุประสงค์เพื่อศึกษาความเข้มแสงของหลอดไฟชนิดแอลอีดี ที่มีผลต่อการเจริญเติบโตและผลผลิตของผักกาดหอมที่มีสีแตกต่างกัน 2 สายพันธุ์ คือ กรีนโอ๊ค ซึ่งเป็นผักใบเขียว และเรดโอ๊ค ซึ่งเป็นผักใบแดง ในระบบ PF โดยเปรียบเทียบกับการปลูกกลางแจ้งผลการทดลอง ผลของความเข้มแสงต่อการเจริญเติบโตและผลผลิตของผักกาดหอม 2 สายพันธุ์ พบว่า การปลูกภายใต้หลอดแอลอีดีที่ควบคุมสภาพแวดล้อมที่อุณหภูมิ 24±1 องศาเซลเซียส มีการเจริญเติบโตได้ดีกว่าการปลูกในสภาพแวดล้อมที่ไม่ได้ควบคุม แต่เมื่อพิจารณาถึงผลผลิตของผักกาดหอม พบว่า การปลูกภายใต้แสงอาทิตย์ให้ผลผลิตดีกว่าการปลูกภายใต้แอลอีดี เนื่องจากอิทธิพลของความเข้มแสง โดยแสงอาทิตย์มีความเข้มแสงสูงกว่าหลอดแอลอีดีถึง 10 เท่า แต่ผลผลิตของผักกาดหอมที่ได้ มีน้ำหนักรวมสูงกว่าแอลอีดีเพียง 16 เปอร์เซ็นต์ การทดลองในครั้งนี้ชี้ให้เห็นว่า ผักกาดหอมเมื่อปลูกภายใต้แสงอาทิตย์อาจได้รับแสงมากเกินความจำเป็น

ชญานุช ตรีพันธ์ (2558) ได้ทำการวิจัยเรื่องอิทธิพลความเข้มแสงที่มีต่อการเจริญเติบโต ผลผลิตและคุณภาพของดีปลี การปลูกดีปลีในสภาพการพรางแสงและไม่พรางแสงจะมีการเจริญเติบโตที่แตกต่างกัน พบว่า การพรางแสงทำให้การเจริญเติบโตด้านลำต้น ปริมาณและคุณภาพของดีปลีเพิ่มขึ้น มากกว่าการไม่พรางแสง โดยการพรางแสงที่ระดับความเข้มแสง 70 เปอร์เซ็นต์ ทำให้ความสูงต้นเพิ่มขึ้นอย่างมีความแตกต่างทางสถิติที่ระดับความเชื่อมั่น 95 เปอร์เซ็นต์ เท่ากับ 121.16 เซนติเมตร และขนาดเส้นผ่านศูนย์กลางลำต้นเพิ่มขึ้นมากที่สุด เท่ากับ 0.61 เซนติเมตร การพรางแสงที่ระดับความเข้มแสง 50 เปอร์เซ็นต์ ทำให้ดีปลีมีขนาดทรงพุ่ม ขนาดใบ ผลผลิตสูงที่สุดและมีปริมาณสารพิเพอรินอยู่ในปริมาณที่สูง ดังนั้น การปลูกดีปลีควรมีการพรางแสงที่ระดับความเข้มแสง 50 เปอร์เซ็นต์ เพื่อให้ดีปลีมีการเจริญเติบโตและผลผลิตที่ดี

ธิติศักดิ์ โพธิ์ทอง (2562) ได้ทำการวิจัยเรื่องการพัฒนาระบบฟาร์มอัจฉริยะ สำหรับเกษตรกรยุคใหม่ด้วยซอร์ฟแวร์รหัสเปิดและอินเทอร์เน็ตของสรรพสิ่ง โดยกล่าวว่าเกษตรกรรมในประเทศไทยยังเผชิญกับปัญหาด้านผลผลิต เนื่องจากขาดข้อมูลเชิงลึกและสภาพอากาศที่แปรปรวน การใช้เทคโนโลยีสมัยใหม่ เช่น เครือข่ายเซ็นเซอร์ไร้สายและ Internet of Things (IoT) จึงมีบทบาทสำคัญในการตรวจสอบสภาพแวดล้อมของพื้นที่เพาะปลูกอย่างมีประสิทธิภาพ แนวคิด “สมาร์ทฟาร์ม” (Smart Farm) หรือ “ระบบฟาร์มอัจฉริยะ” คือการนำเทคโนโลยีอิเล็กทรอนิกส์ คอมพิวเตอร์ และสารสนเทศ มาช่วยในการจัดการฟาร์มให้สอดคล้องกับแนวทาง Thailand 4.0 งานวิจัยนี้ มีวัตถุประสงค์เพื่อพัฒนาชุดควบคุมที่สามารถตรวจวัดอุณหภูมิ ความชื้นในอากาศ และความชื้นในดิน โดยให้ใช้งานง่ายผ่านอินเทอร์เน็ต (3G, 4G หรือ WiFi) และควบคุมผ่านสมาร์ตโฟน ข้อมูลที่ได้รับจากเซ็นเซอร์เป็นข้อมูลเรียลไทม์ ซึ่งเกษตรกรสามารถนำไปใช้ในการวางแผนเพาะปลูก ปรับปรุงกระบวนการผลิต และทำนายผลผลิตในอนาคตได้อย่างมีประสิทธิภาพ

Riska Kurnia Dewi (2022) ได้ทำการวิจัยเรื่องผลของการแรเงาต่อการเจริญเติบโตของข้าวโพด 4 สายพันธุ์ การศึกษานี้มีวัตถุประสงค์ เพื่อให้ได้พันธุ์ข้าวโพดที่สามารถเจริญเติบโตและให้ผลผลิตได้ดี ใน

ที่ร่ม การออกแบบการทดลองที่ใช้คือการออกแบบ Split Plot Design ซึ่งจัดในรูปแบบ Randomized Block Design ประกอบด้วย 2ปัจจัย ปัจจัยแรก เรื่องหลักคือแสง กล่าวคือ ไม่พรางแสง, พรางแสง 25% และพรางแสง 50% ปัจจัยที่สองในแผนย่อยคือพันธุ์ข้าวโพด ประกอบด้วย Bima 20, JH-37, Nasa 29 และ Pioneer P32 ผลการวิจัยแสดงให้เห็นว่า ข้าวโพดสองสายพันธุ์ ได้แก่ JH-37 และ Bima 20 ให้ผลผลิตสูงภายใต้สภาพที่มีการรับแสงเพียง 50% โดยมีน้ำหนักเมล็ดแห้งอยู่ที่ 6.04 และ 6.43 ตันต่อเฮกตาร์ ตามลำดับ สำหรับการเจริญเติบโตของพืช การให้ร่มเงาไม่มีผลอย่างมีนัยสำคัญต่อความสูงของต้น จำนวนใบและพื้นที่ใบ แต่มีผลต่อขนาดเส้นผ่านศูนย์กลางของลำต้นเท่านั้น

กรอบแนวคิด

การพัฒนาระบบม่านพรางแสง สำหรับโรงเรือนเพาะปลูกใช้แนวคิดอินเทอร์เน็ตของทุกสรรพสิ่งหรือการเชื่อมต่อกันของทุก ๆ สิ่งด้วยอินเทอร์เน็ต โดยประยุกต์ใช้เทคโนโลยีทั้งฮาร์ดแวร์และซอฟต์แวร์ในการพัฒนาเพื่อให้สามารถทำงานด้วยกันได้ ซึ่งประกอบด้วยบอร์ด ไมโครคอนโทรลเลอร์ Arduino ESP8266/Node MCU เซ็นเซอร์วัดความเข้มแสง มอเตอร์ไฟฟ้า โปรแกรม Arduino IDE และแอปพลิเคชัน Blynk ดังภาพที่ 1



ภาพที่ 1 แสดงกรอบแนวคิดของระบบ

วิธีดำเนินการวิจัย

1. ประชากรและกลุ่มตัวอย่าง คัดเลือกแบบเจาะจง

1.1 ผู้มีความเชี่ยวชาญในด้านเทคโนโลยีและนวัตกรรม จำนวน 5 คน โดยเป็นผู้ที่ความเชี่ยวชาญเทคโนโลยีอินเทอร์เนตของสรรพสิ่ง (IoT) ฮาร์ดแวร์และเซ็นเซอร์ รวมถึงการสื่อสารข้อมูลและเครือข่ายคอมพิวเตอร์

1.2 ผู้ใช้งานทั่วไปที่ทำหน้าที่ดูแลแปลงเกษตร จำนวน 10 คน

2. เครื่องมือที่ใช้ในการวิจัย

การพัฒนาระบบม่านพรางแสง สำหรับโรงเรือนเพาะปลูก ผู้วิจัยได้ดำเนินการพัฒนาระบบตามวงจรการพัฒนาระบบ (System Development Life Cycle: SDLC) มาปรับใช้เพื่อให้เหมาะสมกับการพัฒนาระบบงาน ในวงจรนี้จะแบ่งกระบวนการพัฒนาระบบออกเป็น 7 ขั้นตอน ดังนี้

1. กำหนดปัญหา

การปลูกพืช โดยเฉพาะช่วงที่ยังเป็นต้นกล้านั้น หากได้รับแสงมากเกินไปก็อาจส่งผลต่อการเจริญเติบโตของพืชได้ ยิ่งในพืชบางชนิด การได้รับปริมาณแสงที่มากเกินพอดี อาจทำให้พืชเหี่ยวเฉา ยิ่งประเทศไทยจัดเป็นประเทศในเขตร้อน ที่มีทั้งความร้อนและปริมาณแสงที่แรงและเข้มข้นสูง หากไม่มีระบบพรางแสงที่เหมาะสม อาจส่งผลต่อการต่อพืชผลที่เพาะปลูกได้ โดยพื้นที่ที่ได้ทำการทดลองคือแปลงผักเกษตรอินทรีย์ภายในมหาวิทยาลัยหาดใหญ่ มีการปลูกผักสลัด อาทิ พันธุ์เรดโอ๊ค กรีนโอ๊ค ซึ่งปัญหาที่พบคือ ผักสลัดได้รับแสงมากเกินไป ทำให้ใบไหม้และหยุดการเจริญเติบโต

2. ศึกษาความเป็นไปได้

ติดตั้งระบบม่านพรางแสงในพื้นที่เพาะปลูก และนำเทคโนโลยีที่สามารถนำมาประยุกต์ใช้ในการคุมคุมการเปิด-ปิด ระบบม่านพรางแสงอำนวยความสะดวกให้แก่เกษรตรผู้เพาะปลูก ลดการใช้แรงงานคนและช่วยลดการไหม้ของใบพืชได้ โดยพื้นที่ที่ทำการทดลอง มีการปลูกผักสลัด อาทิ พันธุ์เรดโอ๊ค กรีนโอ๊ค ซึ่งปัญหาที่พบคือ ผักสลัดได้รับแสงมากเกินไป ทำให้ใบไหม้และหยุดการเจริญเติบโต หากมีการพัฒนาและติดตั้งม่านพรางแสงและเทคโนโลยี IoT เข้ามาควบคุมจะทำให้แก้ไขปัญหาไปไหม้อันเกิดจากการได้รับแสงมากเกินไปได้

3. วิเคราะห์

การนำระบบเซ็นเซอร์ตรวจจับความเข้มของแสง และระบบเซ็นเซอร์ตรวจวัดอุณหภูมิใช้ในการพัฒนาต้นแบบระบบม่านพรางแสง โดยติดตั้งในโรงเรือนเพาะปลูก โดยใช้ โปรแกรม Arduino IDE ในการเขียนชุดคำสั่งด้วยคอมพิวเตอร์แลพอัพโหลดไปยังบอร์ดไมโคร คอนโทรลเลอร์ NodeMCU ESP8266 เพื่อรับค่าต่างๆ จากอุปกรณ์เซ็นเซอร์และเรียกใช้สั่งการงานผ่านแอปพลิเคชัน Blynk บนสมาร์ทโฟน เนื่องจาก NodeMCU ESP826 มี Wi-Fi ในตัวใช้ชิป ESP8266 ที่รองรับ Wi-Fi ทำให้สามารถเชื่อมต่ออินเทอร์เน็ตได้ทันที โดยไม่ต้องใช้โมดูลเสริม มีราคาถูกเมื่อเทียบกับบอร์ดอื่นที่มีความสามารถใกล้เคียงกัน ขนาดเล็กเหมาะกับโปรเจกต์ที่มีพื้นที่จำกัด สามารถเขียนโปรแกรมง่ายสะดวกสำหรับผู้เริ่มต้น ออกแบบใช้เซนเซอร์วัดความเข้มแสง BH1750FVI เนื่องจากวัดค่าความสว่างได้เป็นลักซ์ (lux) ค่าที่ได้เป็นหน่วยมาตรฐานลักซ์โดยตรง ไม่ต้องแปลงค่าให้ยุ่งยาก แม่นยำและไวต่อแสงตอบสนองต่อการเปลี่ยนแปลงของแสงได้รวดเร็ว การสื่อสารแบบ I^2C ใช้งานง่าย ใช้สายสัญญาณเพียง 2 เส้น (SCL, SDA) ในการเชื่อมต่อกับไมโครคอนโทรลเลอร์กินไฟต่ำเหมาะกับงานที่ใช้พลังงานจากแบตเตอรี่ มีช่วงวัดกว้างสามารถวัดแสงได้

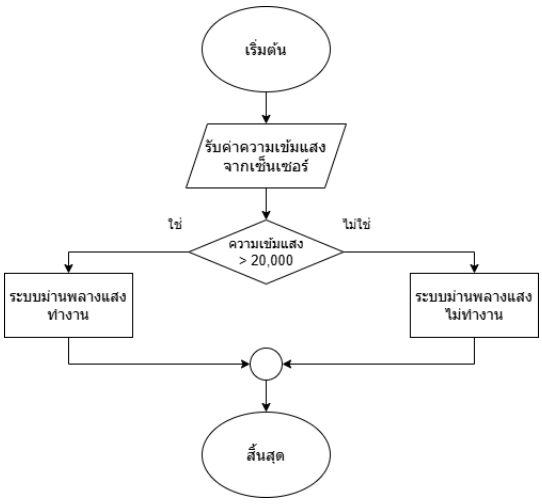
ตั้งแต่ 1 ลักซ์ ถึง 65,000 ลักซ์ ครอบคลุมทั้งในที่มืดและที่สว่างมาก มีขนาดเล็ก ติดตั้งง่าย เหมาะกับโปรเจกต์ที่มีพื้นที่จำกัด

4. ออกแบบ

การออกแบบแบบระบบม่านพรางแสง มีการออกแบบด้านฮาร์ดแวร์ โดยมีอุปกรณ์ได้แก่

1. สวิตชิ่ง เพาเวอร์ซัพพลายขนาด 5V 5A
2. เซนเซอร์วัดความเข้มแสง BH1750FVI light sensor module
3. เซ็นเซอร์วัดอุณหภูมิและความชื้น AM2302 Module
4. รีเลย์ 4 ช่อง
5. บอร์ดไมโครคอนโทรลเลอร์ NodeMCU ESP8266
6. มอเตอร์ แรงดัน 5V

ระบบม่านพรางแสงสำหรับการเพาะปลูกได้ออกแบบมาให้เซ็นเซอร์แสง ทำหน้าในการตรวจวัดความเข้มแสง โดยเป็นการทำงานระบบอัตโนมัติกล่าวคือ หากเซ็นเซอร์แสงสามารถตรวจวัดความเข้มแสงมากกว่า 20,000 ลักซ์ ระบบจะสั่งการให้มอเตอร์ควบคุมระบบม่านพรางแสงทำงาน เพื่อพรางแสงที่มาจากดวงอาทิตย์ แต่หากความเข้มแสงน้อยกว่า 20,000 ลักซ์ ระบบจะสั่งการให้มอเตอร์ควบคุมหยุดการทำงาน ส่งผลให้ระบบม่านพรางแสงไม่ทำงาน เนื่องจากระบบม่านพรางแสงสำหรับการเพาะปลูกพัฒนาขึ้นมาเพื่อรองรับการปลูกพืชชนิดต่าง ๆ โดยเกณฑ์ที่กำหนดไว้จะเหมาะสำหรับการปลูกพืชสลัด เช่น เรดโอ๊ค กรีนโอ๊ค เป็นต้น โดยค่าความเข้มแสงที่แหมะสมจะอยู่ระหว่าง 12,000 – 20,000 ลักซ์ (lux) สำหรับการปลูกในโรงเรือนหรือระบบควบคุมแสง และมากกว่า 20,000 ลักซ์ สำหรับการปลูกกลางแจ้ง



ภาพที่ 2 แสดงแผนภาพ Flow Chart การทำงานของระบบ

5. สร้างหรือพัฒนา

การพัฒนาระบบต้นแบบระบบม่านพรางแสง มีการพัฒนาส่วนต่าง ๆ ดังต่อไปนี้

5.1 ไฟเลี้ยงใช้สวิตชิ่ง เพาเวอร์ซัพพลาย ขนาด 5V 5A เป็นไฟเลี้ยงที่จ่ายให้บอร์ดไมโครคอนโทรลเลอร์ NodeMCU ESP8266 โดยต่อเข้ากับพิน Vin และไฟขั้วลบต่อเข้ากับพิน GND ของบอร์ดบอร์ดไมโครคอนโทรลเลอร์ NodeMCU ESP8266 เพื่อเป็นไฟเลี้ยงไปยังอุปกรณ์ต่าง ๆ ในระบบ ได้แก่ เซ็นเซอร์วัดความเข้มแสง เซ็นเซอร์วัดอุณหภูมิและความชื้น รีเลย์ และมอเตอร์

5.2 บอร์ดไมโครคอนโทรลเลอร์ NodeMCU ESP8266 ทำหน้าที่เปรียบเสมือนสมองของระบบที่คอยควบคุมและสั่งการการทำงานต่าง ๆ ของระบบ โดยเชื่อมต่ออยู่กับเซ็นเซอร์ 2 ชนิดคือ

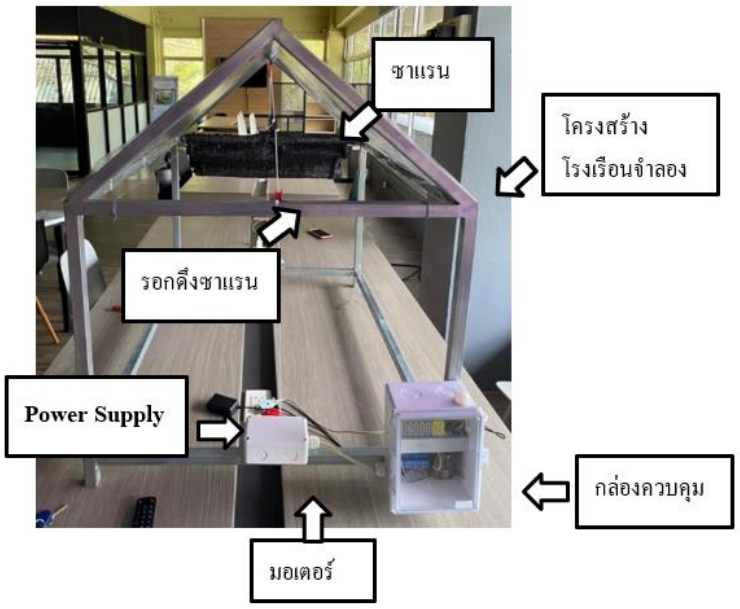
1) เซอร์เซอร์วัดความเข้มแสง BH1750FVI light sensor module โดยเชื่อมต่อ พิน D1 และ D2 เป็นการเชื่อต่อแบบ I2C เพื่อรับ-ส่งข้อมูลระหว่างบอร์ดกับเซ็นเซอร์ และบอร์ดยังมีการจ่ายไฟเลี้ยงให้กับเซ็นเซอร์ผ่านพิน 3V สำหรับจ่ายไฟเลี้ยง และพิน GND สำหรับไฟลบ

2) เซ็นเซอร์วัดอุณหภูมิและความชื้น AM2302 Module โดยเชื่อมต่อบอร์ดผ่านทาง พิน D4 เพื่อรับขส่งข้อมูล และบอร์ดยังมีการจ่ายไฟเลี้ยงให้กับเซ็นเซอร์ผ่านพิน 3V สำหรับจ่ายไฟเลี้ยง และพิน GND สำหรับไฟลบ

5.3 รีเลย์ เปรียบเสมือนสวิตซ์ไฟฟ้า จะทำการรับค่าจากบอร์ดไมโครคอนโทรลเลอร์ NodeMCU ESP8266 ที่สั่งการให้รีเลย์ทำงานด้วยค่าไฟฟ้าสูง-ต่ำ โดยลอจิก High จากบอร์ดจะสั่งการให้รีเลย์ทำงานและควบคุมการทำงานของมอเตอร์ ส่วนลอจิก Low บอร์ดจะสั่งการให้รีเลย์หยุดการทำงาน ควบคุมการทำงานของมอเตอร์ให้หยุดการทำงาน

6. การติดตั้งระบบ

เมื่อทดสอบการทำงานของต้นแบบระบบม่านพรางแสงแล้ว ระบบทำงานอย่างอย่างเสถียร ไม่มีข้อผิดพลาดใด ๆ หลังจากนั้นนำต้นแบบไปติดตั้งโมเดลจำลองโรงเรือนเพาะปลูก ดังภาพที่ 3



ภาพที่ 3 แสดงการติดตั้งต้นแบบระบบม่านพรางแสง บนโมเดลจำลองโรงเรือนเพาะปลูก



ภาพที่ 4 แสดงภาพมุมบนและมุมข้างของต้นแบบระบบม่านพรางแสง บนโมเดลจำลองโรงเรือนเพาะปลูก

7. ประเมินผลและการบำรุงรักษา

หลังจากมีการติดตั้งต้นแบบระบบม่านพรางแสงแล้ว บนโมเดลจำลองโรงเรือนเพาะปลูกแล้วจะมีการทดสอบระบบ และมีการประเมินจากผู้เชี่ยวชาญด้านต่าง ๆ ดังนี้

1) การประเมินจากผู้เชี่ยวชาญด้านเทคโนโลยีและนวัตกรรม โดยเน้นด้านเทคโนโลยี Internet of Things ที่มีประสบการณ์มามากกว่า 5 ปี ทำหน้าที่ในการทดสอบและประเมินประสิทธิภาพการทำงานของระบบและให้ผลย้อนกลับ เพื่อนำมาปรับปรุงและแก้ไขเพื่อให้ต้นแบบระบบม่านพรางแสงสำหรับโรงเรือนเพาะปลูก ให้ มีประสิทธิภาพมากยิ่งขึ้น

2) การประเมินจากเกษตรกรกลุ่มตัวอย่าง ซึ่งเป็นเจ้าหน้าที่ดูแลแปลงผักเกษตรอินทรีย์และเจ้าหน้าที่ฝ่ายวิศวกรรมภายในมหาวิทยาลัยหาดใหญ่ เพศชาย ดูแลแปลงผักเกษตรอินทรีย์มาแล้วเป็นเวลา 3 ปี เพื่อทำการทดสอบและประเมินประสิทธิภาพของระบบเพื่อให้ตรงกับความต้องการในการใช้งานจริง และให้ผลย้อนกลับเพื่อนำมาปรับปรุงและแก้ไขเพื่อให้ต้นแบบระบบม่านพรางแสงสำหรับโรงเรือนเพาะปลูก มีประสิทธิภาพมากยิ่งขึ้น

8. การประเมินผลประสิทธิภาพของระบบและความพึงพอใจของผู้ใช้งาน

การประเมินความพึงพอใจและประสิทธิภาพของแบบจำลองระบบม่านพรางแสงใช้เกณฑ์การแปลความหมายจากค่าเฉลี่ย ดังนี้

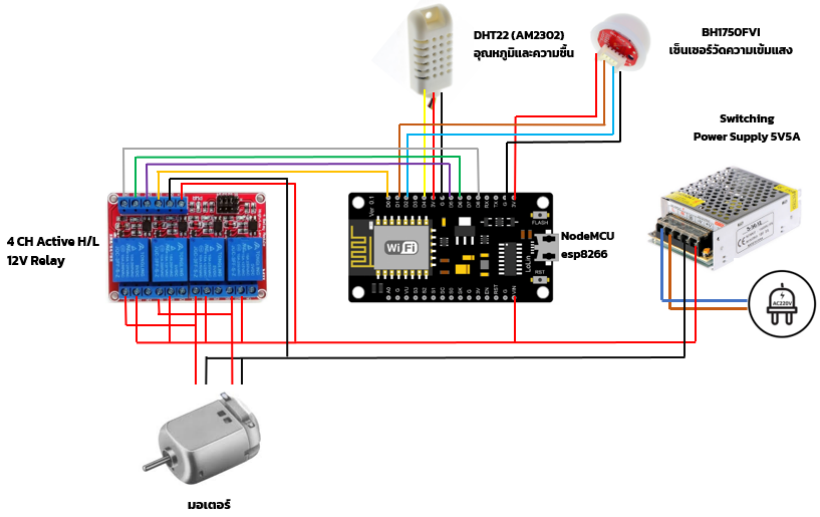
1.00 – 1.49	หมายถึง	ต้องปรับปรุง
1.50 – 2.49	หมายถึง	พอใช้
2.50 – 3.49	หมายถึง	ดี
3.50 – 4.49	หมายถึง	ดีมาก
4.50 – 5.00	หมายถึง	ดีที่สุด

ผลการวิจัย

การพัฒนาระบบม่านพรางแสง สำหรับโรงเรือนเพาะปลูกมีผลการศึกษา ดังนี้

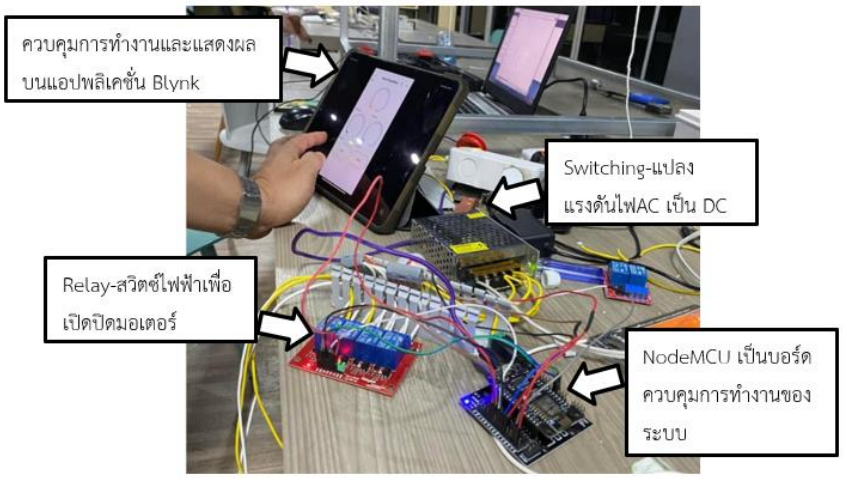
1. การพัฒนาระบบด้านฮาร์ดแวร์

1.1 ออกแบบวงจรฮาร์ดแวร์ทั้งระบบ ก่อนที่จะลงมือทำการต่ออุปกรณ์ฮาร์ดแวร์เข้าด้วยกันจริงเพื่อลดความเสียหายในการติดตั้งอุปกรณ์ ดังภาพที่ 5



ภาพที่ 5 แสดงการออกแบบด้านฮาร์ดแวร์ของระบบ

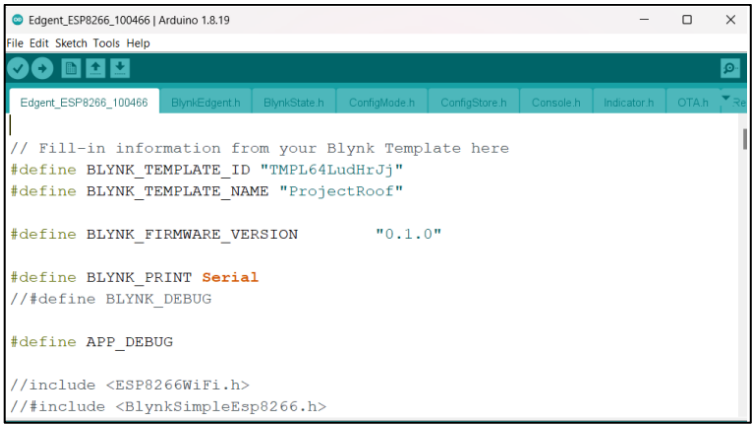
1.2 เชื่อมต่ออุปกรณ์ฮาร์ดแวร์ต่าง ๆ เข้าด้วยกัน ตามที่ได้ออกแบบวงจรฮาร์ดแวร์ ได้แก่ บอร์ดไมโครคอนโทรลเลอร์ ESP8266 เซนเซอร์วัดความเข้มแสง เซ็นเซอร์วัดอุณหภูมิและความชื้น รีเลย์ 4 ช่องมอเตอร์ และแหล่งจ่ายไฟเลี้ยง ดังภาพที่ 6



ภาพที่ 6 แสดงการเชื่อมต่ออุปกรณ์ฮาร์ดแวร์ต่าง ๆ เข้าด้วยกัน

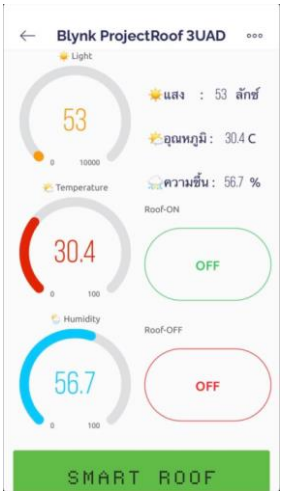
2. การพัฒนาระบบด้านซอฟต์แวร์

2.1 พัฒนาชุดคำสั่งสำหรับควบคุมการเชื่อมต่อบอร์ดไมโครคอนโทรลเลอร์ ESP8266 กับแอปพลิเคชั่น Blynk ดังภาพที่ 7



ภาพที่ 7 แสดงชุดคำสั่งควบคุมการเชื่อมต่อบอร์ดกับแอพพลิเคชั่น Blynk

2.2 ทดสอบระบบม่านพรางแสงผ่านแอปพลิเคชั่น Blynk ที่มีการออกแบบสำหรับแจ้งสถานะการเปิด-ปิด ม่านพรางแสง และค่าต่าง ๆ ที่เซนเซอร์ตรวจจับได้ผ่านสมาร์ทโฟน ดังภาพที่ 8



ภาพที่ 8 แสดงหน้าสถานะบนแอปพลิเคชั่น Blynk

ผู้วิจัยได้สร้างสถานการณ์จำลองค่าความเข้มแสงในระดับต่าง ๆ เพื่อทดสอบระบบม่านพรางแสง พบว่าระบบสามารถทำงานได้อย่างถูก ทั้งการทำงานของม่านพรางแสง และแอปพลิเคชัน Blynk

3. การประเมินผลประสิทธิภาพและความพึงพอใจ

ผลการประเมินความพึงพอใจและประสิทธิภาพการใช้งานระบบม่านพรางแสง สำหรับโรงเรือนเพาะปลูก โดยแสดงค่าเฉลี่ย $\bar{x}$ และค่าระดับความพึงพอใจของกลุ่มตัวอย่างซึ่งเป็นผู้เชี่ยวชาญระบบจำนวน 5 คน และผู้ใช้งานทั่วไป จำนวน 10 คน มีผลการประเมินดังต่อไปนี้

ตารางที่ 1 ผลการประเมินประสิทธิภาพระบบม่านพรางแสง สำหรับโรงเรือนเพาะปลูกจากผู้เชี่ยวชาญ

ประเด็นประสิทธิภาพ	ผลการประเมิน		
	ค่าเฉลี่ย	S.D.	ความหมาย
1. การตอบสนองของอุปกรณ์ต่อชุดคำสั่ง	4.40	0.49	ดีมาก
2. ความสามารถในการนำไปใช้งานจริง	4.40	0.49	ดีมาก
3. ความรวดเร็วในการเชื่อมต่อกับระบบออนไลน์	4.20	0.40	ดีมาก
4. แอปพลิเคชัน มีประสิทธิภาพในการใช้งาน	4.20	0.40	ดีมาก
5. ความสามารถของระบบในภาพรวม	4.20	0.40	ดีมาก
รวม	**4.28**	**0.44**	**ดีมาก**

จากตารางที่ 1 จะเห็นได้ว่าผลการประเมินประสิทธิภาพระบบม่านพรางแสงสำหรับโรงเรือนเพาะปลูก โดยผู้เชี่ยวชาญด้านนวัตกรรมและเทคโนโลยีอินเทอร์เน็ตของสรรพสิ่ง จากผลการประเมินพบว่า ระบบม่านพรางแสงสำหรับโรงเรือนเพาะปลูกมีประสิทธิภาพอยู่ในระดับ “ดีมาก” ในทุกประเด็นที่ประเมิน โดยประเด็นที่ได้รับคะแนนเฉลี่ยสูงสุด คือการตอบสนองของอุปกรณ์ต่อชุดคำสั่งและความสามารถในการนำไปใช้งานจริง ซึ่งมีค่าเฉลี่ยอยู่ที่ 4.40 อยู่ในระดับ “ดีมาก” ขณะที่ประเด็นที่ได้รับคะแนนเฉลี่ยน้อยที่สุด ได้แก่ ความรวดเร็วในการเชื่อมต่อกับระบบออนไลน์ แอปพลิเคชันมีประสิทธิภาพในการใช้งานและความสามารถของระบบโดยรวม ซึ่งมีค่าเฉลี่ยอยู่ที่ 4.20 แต่อย่างไรก็ตาม ยังจัดอยู่ในระดับ “ดีมาก” โดยสรุป ระบบม่านพรางแสงสำหรับโรงเรือนเพาะปลูกมี ค่าเฉลี่ยประสิทธิภาพโดยรวมเท่ากับ 4.28 ซึ่งอยู่ในเกณฑ์ “ดีมาก” เช่นกัน แสดงให้เห็นว่าระบบมีความพร้อมในการใช้งานจริงและสามารถตอบโจทย์ด้านการเกษตรอัจฉริยะได้อย่างมีประสิทธิภาพ

ตารางที่ 2 ผลการประเมินความพึงพอใจระบบม่านพรางแสง สำหรับโรงเรือนเพาะปลูกจากผู้ใช้งาน

ประเด็นความพึงพอใจ	ผลการประเมิน		
	ค่าเฉลี่ย	S.D.	ความหมาย
1. ระบบมีความเสถียรต่อการใช้งาน	4.30	0.5	ดีมาก
2. ความเร็วในการตอบสนองในการสั่งงาน	4.20	0.4	ดีมาก
3. ความสวยงาม ความง่ายต่อการใช้งาน	4.30	0.5	ดีมาก
4. ข้อมูลมีความถูกต้อง ชัดเจน และน่าเชื่อถือ	4.40	0.46	ดีมาก
5. ความสามารถในการนำไปใช้งานจริง	4.30	0.49	ดีมาก
รวม	**4.30**	**0.47**	**ดีมาก**

จากตารางที่ 2 จะเห็นได้ว่าผลการประเมินความพึงพอใจต่อระบบม่านพรางแสง สำหรับโรงเรือนเพาะปลูกจากผู้ใช้งาน โดยภาพรวมมีค่าเฉลี่ยอยู่ที่ 4.30 ซึ่งอยู่ในระดับ “ดีมาก” โดยประเด็นที่ได้รับคะแนนความพึงพอใจสูงสุด คือข้อมูลมีความถูกต้อง ชัดเจน และน่าเชื่อถือ มีค่าเฉลี่ยเท่ากับ 4.40 อยู่ในระดับ “ดีมาก” เช่นกันในขณะที่ประเด็นที่ได้รับคะแนนความพึงพอใจน้อยที่สุด คือความเร็วในการตอบสนองต่อการสั่งงาน ซึ่งมีค่าเฉลี่ยอยู่ที่ 4.20 แต่อย่างไรก็ตาม ยังถือว่าอยู่ในระดับ “ดีมาก” เช่นเดียวกัน โดยสรุปจากแบบสอบถามความพึงพอใจพบว่า ทุกประเด็นอยู่ในเกณฑ์ระดับดีมากทั้งหมด

สรุปและอภิปรายผล

จากการศึกษาวิจัยเรื่อง การพัฒนาระบบม่านพรางแสงด้วยเทคโนโลยีอินเทอร์เน็ตของสรรพสิ่งสำหรับโรงเรือนเพาะปลูก ที่คณะผู้วิจัยพัฒนาขึ้น สามารถอภิปราย ผลการวิจัย ได้ดังนี้

1. ผลการพัฒนาระบบม่านพรางแสงด้วยเทคโนโลยีอินเทอร์เน็ตของสรรพสิ่ง สำหรับโรงเรือนเพาะปลูก ผลการพัฒนาระบบพบว่า คณะผู้วิจัยสามารถพัฒนาระบบม่านพรางแสงด้วยเทคโนโลยีอินเทอร์เน็ตของสรรพสิ่ง (Internet of Things: IoT) สำหรับโรงเรือนเพาะปลูกได้อย่างเป็นระบบ โดยได้นำแนวคิดเรื่อง Internet of Things (สุวิทย์ วงศ์ศิลา, 2564) และแนวทางการประยุกต์ใช้เทคโนโลยี IoT ในภาคการเกษตร (ธันยพร กำจร, 2564) มาปรับใช้ในการพัฒนาระบบดังกล่าว แนวคิดดังกล่าวมีเป้าหมายเพื่อยกระดับการเกษตรแบบดั้งเดิมให้กลายเป็นเกษตรอัจฉริยะ ด้วยการเชื่อมโยงอุปกรณ์ต่าง ๆ เข้าด้วยกันผ่านเครือข่ายอินเทอร์เน็ต โดยสามารถควบคุมและสั่งการผ่านแอปพลิเคชันบนสมาร์ทโฟน รวมทั้งสามารถเปิด–ปิดม่านพรางแสงโดยอัตโนมัติผ่านการตรวจจับค่าความเข้มแสงจากเซ็นเซอร์ การพัฒนาระบบนี้ช่วยลดการใช้แรงงานมนุษย์ ลดการใช้ทรัพยากรอย่างสิ้นเปลือง เพิ่มผลผลิต ลดต้นทุน และสามารถปรับตัวต่อสภาพอากาศที่เปลี่ยนแปลงได้อย่างมีประสิทธิภาพ ถือเป็นแนวทางที่ส่งเสริมความยั่งยืนของภาคการเกษตรในระยะยาวอย่างเป็นรูปธรรม

2. ผลการประเมินประสิทธิภาพของระบบม่านพรางแสงด้วยเทคโนโลยีอินเทอร์เน็ตของสรรพสิ่งสำหรับโรงเรือนเพาะปลูก โดยผู้เชี่ยวชาญ พบว่า โดยภาพรวม มีระดับความคิดเห็นอยู่ในระดับ “มีประสิทธิภาพดีมาก” ซึ่งสอดคล้องกับงานวิจัยของ ธิติศักดิ์ โพธิ์ทอง (2562) ที่ศึกษาเรื่อง การพัฒนาระบบฟาร์มอัจฉริยะสำหรับเกษตรกรยุคใหม่ ด้วยซอฟต์แวร์รหัสเปิดและเทคโนโลยีอินเทอร์เน็ตของสรรพสิ่ง โดยระบุว่า เกษตรกรรมในประเทศไทยยังคงประสบปัญหาเกี่ยวกับผลผลิต เนื่องจากขาดข้อมูลเชิงลึกและความแปรปรวนของสภาพอากาศ ทั้งนี้ แสงนับเป็นปัจจัยสำคัญยิ่งต่อการเจริญเติบโตของพืช การพัฒนาระบบม่านพรางแสงโดยใช้เทคโนโลยีอินเทอร์เน็ตของสรรพสิ่งในโรงเรือนเพาะปลูก จึงเป็นแนวทางที่ตอบโจทย์ต่อการรับมือกับสภาพอากาศที่ไม่สามารถควบคุมได้ หากเกษตรกรสามารถควบคุมความเข้มของแสงได้อย่างเหมาะสม ก็จะส่งผลให้ผลผลิตที่ได้มีคุณภาพสูงขึ้นอย่างมีนัยสำคัญ

3. ผลการประเมินความพึงพอใจต่อระบบม่านพรางแสงด้วยเทคโนโลยีอินเทอร์เน็ตของสรรพสิ่งสำหรับโรงเรือนเพาะปลูก โดยผู้ใช้งาน จากการประเมินความพึงพอใจของผู้ใช้งานที่มีต่อระบบพบว่า โดยภาพรวม ผู้ใช้งานมีระดับความพึงพอใจอยู่ในระดับ “ดีมาก” ซึ่งสอดคล้องกับผลการวิจัยของ ธิติศักดิ์ โพธิ์ทอง (2562) ที่ศึกษาเรื่อง การพัฒนาระบบฟาร์มอัจฉริยะสำหรับเกษตรกรยุคใหม่ ด้วยซอฟต์แวร์รหัสเปิดและเทคโนโลยีอินเทอร์เน็ตของสรรพสิ่ง โดยงานวิจัยดังกล่าวระบุว่า แนวคิด “สมาร์ทฟาร์ม” (Smart Farm) หรือ “ระบบฟาร์มอัจฉริยะ” คือการนำเทคโนโลยีอิเล็กทรอนิกส์ คอมพิวเตอร์ และสารสนเทศมาใช้ในการบริหารจัดการฟาร์มอย่างมีประสิทธิภาพ ซึ่งสอดคล้องกับนโยบาย Thailand 4.0 โดยเทคโนโลยีที่พัฒนาขึ้นสามารถตอบโจทย์การใช้งานจริง ช่วยลดระยะเวลาในการทำงาน ลดการใช้แรงงาน และส่งเสริมการยอมรับนวัตกรรมในภาคการเกษตร

ข้อเสนอแนะ

ระบบม่านพรางแสง สำหรับโรงเรือนเพาะปลูกจำเป็นต้องใช้พลังงานไฟฟ้า เพื่อให้อุปกรณ์ต่าง ๆ ทำงาน ดังนั้นหากต้องการใช้ระบบม่านพรางแสงจำเป็นต้องวางระบบไฟฟ้าที่โรงเรือนเพาะปลูกด้วย ซึ่งอาจสร้างความลำบากให้กับผู้ใช้งาน เพราะบางโรงเรือนอยู่ไกลจากตัวบ้านไม่สามารถเชื่อมต่อระบบไฟฟ้าได้ หรืออาจใช้งบประมาณสูงในการเชื่อมต่อ และอาจจะเกิดอันตรายหากวางระบบไฟฟ้าที่ไม่ได้มาตรฐาน จึงควรเปลี่ยนไปใช้แหล่งพลังงานทางเลือกอย่างเช่น โซลาร์เซลล์ เพื่อลดปัญหาเกี่ยวกับการใช้พลังงานไฟฟ้าให้กับผู้ใช้งาน

เอกสารอ้างอิง

กองนโยบายเทคโนโลยีเพื่อการเกษตรและเกษตรกรรมยั่งยืน. (2566). การประเมินสถานการณ์ด้านการผลิตสินค้าสมุนไพรของกระทรวงเกษตรและสหกรณ์. สืบค้นเมื่อ 2 มกราคม 2568 จาก https://www.moac.go.th/herbs-dwl-preview-452791791804

จริญญา ฤทธิรัมย์ และอารักษ์ ธีรอำพน. (2562). ผลของความเข้มแสงต่อการเจริญเติบโตและผลผลิตของผักกาดหอมในระบบแพลนท์แฟคทอรี่. วารสารแก่นเกษตร, 47(6), 1243–1250.

ชญานุช ตรีพันธ์, สุมาลี ศรีแก้ว, ศุภลักษณ์ อริยภูชัย และ สุภาภรณ์ สาชาติ. (2558). อิทธิพลความเข้มแสงที่มีต่อการเจริญเติบโต ผลผลิต และคุณภาพของดีปลี. สืบค้นเมื่อ 2 มกราคม 2568 จาก https://www.doa.go.th/hort/wp-content/uploads/2020 /10/การพรางแสงดีปลี.pdf

ธันยพร กำจร. (2564). การประยุกต์ใช้ Internet of things (IOT) ในทางการเกษตร. สืบค้นเมื่อ 2 มกราคม 2568 จาก http://www.agri.ubu.ac.th/mis/seminar/upload/53.pdf

ธิติศักดิ์ โพธิ์ทอง, ประสิทธิ์ เมฆอรุณ และ สิทธิชัย ชูสำโรง. (2562). การพัฒนาระบบฟาร์มอัจฉริยะสำหรับเกษตรกรยุคใหม่ด้วยซอร์ฟแวร์รหัสเปิดและอินเทอร์เน็ตของสรรพสิ่ง. เกษตรนเรศวร, 16(2), 79–88.

พจนา เพชรคอน. (2564). การสังเคราะห์แสงของพืช. สืบค้นเมื่อ 2 มกราคม 2568 จาก https://www.scimath.org/lesson-biology/item/10517-2019-07-18-01-41-56

สุวิทย์ วงศ์ศิลา. (2564). Internet of Things สำหรับ Smart Farmer. ค้นเมื่อ 2 มกราคม 2568 จาก https://stri.cmu.ac.th/article_detail.php?id=78

สำนักงานพัฒนาการวิจัยการเกษตร (องค์การมหาชน). (2564). เทคโนโลยีการเกษตรเพื่อปรับปรุงประสิทธิภาพในภาคเกษตรกรรม. สืบค้นเมื่อ 2 มกราคม 2568 จาก https://www.arda.or.th/detail/6182.

ศรายุทธ ศรีทิพย์อาสน์. (2565). การเลือกซาแรนที่ถูกต้อง. ใน ศรายุทธ ศรีทิพย์อาสน์ (บก.), นิตยสารบ้านและสวน. สืบค้นเมื่อ 2 มกราคม 2568 จาก https://www.baanlaesuan.com/266226/maintenance /shading-net

Dewi, R. K., Putri, A. P., Wijaya, H., & Setyawan, D. (2022). Effect of shading on plant growth of 4 varieties of hybrid corn. In 1st Lekantara Annual Conference on Natural Science and Environment (LeNS 2021). IOP Conference Series: Earth and Environmental Science, 1097(1), 012011.

การศึกษาเปรียบเทียบแบบจำลองโครงข่ายปฏิปักษ์เชิงกำเนิดในการสร้างภาพความละเอียดสูงเพื่อการตรวจจับวัตถุขนาดเล็ก

A Comparative Study of Super-Resolution GAN Models for Small Object Detection

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บทคัดย่อ

การตรวจจับวัตถุขนาดเล็ก (Small Object Detection) เป็นหนึ่งในความท้าทายด้านคอมพิวเตอร์วิทัศน์ เนื่องจากภาพที่มีความละเอียดต่ำและมีข้อจำกัดด้านรายละเอียดของวัตถุ งานวิจัยนี้มุ่งเน้นการเปรียบเทียบประสิทธิภาพของแบบจำลอง Super-Resolution GAN คือ SRGAN ESRGAN Real-ESRGAN และ BSRGAN กับวิธีการสร้างภาพความละเอียดสูงแบบดั้งเดิม คือ Bilinear และ Bicubic เพื่อศึกษาว่าการสร้างภาพความละเอียดสูงสามารถช่วยให้การตรวจจับวัตถุขนาดเล็กมีความแม่นยำสูงขึ้นหรือไม่ โดยการทดลองดำเนินการกับภาพต้นฉบับขนาด 160 × 160 พิกเซล และสร้างภาพความละเอียดสูงขนาด 640 × 640 พิกเซลก่อนนำไปประเมินผลการตรวจจับวัตถุ โดยใช้ค่าเฉลี่ยความแม่นยำเป็นตัวชี้วัด ในสามชุดข้อมูล ได้แก่ ภาพสายเคเบิล เซลล์ Microglia และวัชพืช Ridderzuring ผลการทดลองพบว่า SRGAN สามารถเพิ่มค่าเฉลี่ยความแม่นยำได้สูงสุดในทุกชุดข้อมูล โดยสามารถเพิ่มค่าเฉลี่ยความแม่นยำได้ 2.2 – 6.7 เปอร์เซ็นต์ แม้ว่า SRGAN จะมีความแม่นยำสูงสุด แต่ใช้เวลาในการสร้างภาพมากกว่าวิธีแบบดั้งเดิมประมาณ 4-7 เท่า ทำให้ต้องพิจารณาความสมดุลระหว่างความเร็วและความแม่นยำ ทั้งนี้ ภาพต้นฉบับความละเอียดสูงยังคงมีค่าเฉลี่ยสูงสุดในทุกชุดข้อมูล ซึ่งสะท้อนว่าการใช้เทคนิค Super-Resolution GAN สามารถลดช่องว่างระหว่างภาพความละเอียดต่ำและภาพความละเอียดสูงได้ และสามารถนำไปประยุกต์ใช้กับงานเกี่ยวกับการตรวจจับวัตถุจากภาพความละเอียดต่ำได้จริง

คำสำคัญ: การตรวจจับวัตถุขนาดเล็ก, โครงข่ายปฏิปักษ์เชิงกำเนิด, การสร้างภาพความละเอียดสูง

Abstract

Small object detection is challenging in computer vision due to low image resolution and limited object details. This research compares Super-Resolution GAN models—SRGAN, ESRGAN, Real-ESRGAN, and BSRGAN—with traditional methods (Bilinear and Bicubic interpolation) to determine if enhancing resolution improves detection accuracy. Images were upscaled from 160 × 160 pixels to 640 × 640 pixels, and object detection accuracy was evaluated using mean Average Precision (mAP) across three datasets: cables, Microglia cells, and Ridderzuring weeds. Results showed SRGAN achieved the highest accuracy improvement, increasing mAP by 2.2–6.7% compared to traditional methods. However, SRGAN required 4–7 times longer processing, highlighting a trade-off between accuracy and computational speed. Original high-resolution images consistently yielded the highest mAP, indicating that Super-Resolution GAN techniques effectively narrow the accuracy gap between low and high resolution images, making them practical for enhancing small object detection in low-resolution imagery.

Keywords: Small Object Detection, GAN, Super-Resolution

บทนำ

การตรวจจับวัตถุขนาดเล็ก (Small Object Detection) เป็นงานที่ท้าทายในด้านคอมพิวเตอร์วิทัศน์ เนื่องจากวัตถุขนาดเล็กมักมีรายละเอียดน้อย ประกอบกับรูปภาพมีคุณภาพและความละเอียดต่ำ ซึ่งส่งผลให้การตรวจจับทำได้ยากและขาดความแม่นยำปัญหานี้ จึงมีความสำคัญมากขึ้นเมื่อระบบตรวจจับวัตถุถูกนำมาใช้ในภาคอุตสาหกรรมหรือในงานวิจัยที่ต้องการความแม่นยำสูง เช่น การจัดการขยะในสิ่งแวดล้อม การเฝ้าระวังความปลอดภัยในที่สาธารณะ และการควบคุมการจราจรทางอากาศ การพัฒนาระบบตรวจจับวัตถุที่มีความสามารถในการตรวจจับวัตถุขนาดเล็กได้อย่างแม่นยำจึงเป็นสิ่งสำคัญ

เทคนิคที่นิยมนำมาใช้เพื่อเพิ่มความสามารถในการตรวจจับวัตถุขนาดเล็ก คือ เทคนิคการสร้างภาพความละเอียดสูง (Super-Resolution) เพื่อเพิ่มความละเอียดของภาพก่อนการตรวจจับวัตถุ โดยหนึ่งในสถาปัตยกรรมที่มีความโดดเด่นเรื่องความสามารถในการเพิ่มความละเอียดของภาพที่มีความละเอียดต่ำเพื่อให้รายละเอียดของวัตถุขนาดเล็กชัดเจนขึ้น คือ Super-Resolution Generative Adversarial Networks (SRGAN) ที่ได้รับการพัฒนาและปรับปรุงอย่างต่อเนื่อง ซึ่งจะช่วยปรับปรุงผลลัพธ์ในการตรวจจับวัตถุขนาดเล็กได้อย่างมีประสิทธิภาพ

วัตถุประสงค์ของการวิจัย

1. เพื่อเปรียบเทียบประสิทธิภาพในการสร้างภาพความละเอียดสูงของแบบจำลองโครงข่ายปฏิปักษ์เชิงกำเนิด จำนวน 4 แบบ ได้แก่ SRGAN, ESRGAN, Real-ESRGAN และ BSRGAN

2. เพื่อประเมินความสามารถของแบบจำลองโครงข่ายปฏิปักษ์เชิงกำเนิด และเทคนิคดั้งเดิมในการปรับปรุงภาพสำหรับการตรวจจับวัตถุขนาดเล็ก

แนวคิด ทฤษฎี กรอบแนวคิด

1. โครงข่ายปฏิปักษ์เชิงกำเนิด (Generative Adversarial Networks: GAN)

โครงข่ายปฏิปักษ์เชิงกำเนิด (GAN) เป็นนวัตกรรมสำคัญในด้านการเรียนรู้ของเครื่องและปัญญาประดิษฐ์ ซึ่งได้รับความสนใจอย่างกว้างขวางนับตั้งแต่ Goodfellow, Pouget-Abadie, Mirza, Xu, Warde-Farley, Ozair, Courville และ Bengio (2014) ด้วยความสามารถในการสร้างข้อมูลจำลองคุณภาพสูงที่ใกล้เคียงกับข้อมูลจริง GAN มีโครงสร้างโดดเด่นจากการมีเครือข่ายย่อยสองส่วนที่ฝึกฝนร่วมกันในลักษณะของเกมทฤษฎี ได้แก่ ตัวสร้าง (Generator) และตัวแยกแยะ (Discriminator) โดยตัวสร้างรับสัญญาณสุ่ม เช่น การแจกแจงแบบ Uniform หรือ Gaussian เพื่อผลิตข้อมูลจำลอง ส่วนตัวแยกแยะมีหน้าที่เปรียบเทียบข้อมูลจำลองกับข้อมูลจริง และพยายามแยกแยะระหว่างข้อมูลทั้งสอง เป้าหมายของตัวสร้าง คือ การผลิตข้อมูลที่หลอกลวงตัวแยกแยะได้สำเร็จ ขณะที่ตัวแยกแยะพยายามพัฒนาความแม่นยำในการตรวจจับข้อมูลจำลอง การทำงานร่วมกันของทั้งสองเครือข่ายนี้ส่งผลให้เกิดการพัฒนาประสิทธิภาพอย่างต่อเนื่อง

2. การสร้างภาพความละเอียดสูง (Super-Resolution)

การสร้างภาพความละเอียดสูง หมายถึงกระบวนการปรับปรุงหรือฟื้นฟูภาพที่มีความละเอียดต่ำให้กลายเป็นภาพที่มีความละเอียดสูง โดยมีวิธีการที่ได้รับความสนใจอย่างแพร่หลาย ดังนี้

2.1) เทคนิคการสร้างภาพความละเอียดสูงแบบดั้งเดิม

การสร้างภาพความละเอียดสูงโดยวิธี Interpolation แบบ Nearest Neighbor Bilinear และ Bicubic เป็นวิธีการเริ่มต้นที่ใช้ในการเพิ่มความละเอียดภาพ โดยประมาณค่าพิกเซลจากข้อมูลรอบข้าง วิธี Bicubic เป็นที่นิยมมากเนื่องจากความเรียบง่าย แต่ไม่สามารถกู้คืนรายละเอียดความถี่สูงที่สูญหายไปได้

2.2) เทคนิคการสร้างภาพความละเอียดสูงโดยใช้โครงข่ายปฏิปักษ์เชิงกำเนิด

2.2.1) Super-Resolution Generative Adversarial Network (SRGAN) เป็นสถาปัตยกรรมที่นำเสนอโดย Ledig, Theis, Huszár, Caballero, Cunningham, Acosta, Aitken, Tejani, Totz and Wang (2017) ซึ่งนับเป็นความก้าวหน้าสำคัญในการเพิ่มความละเอียดของภาพด้วยการเรียนรู้เชิงลึก โดยสามารถสร้างภาพความละเอียดสูงจากภาพความละเอียดต่ำได้อย่างสมจริง ทั้งในด้านรายละเอียดและพื้นผิวของภาพ โครงสร้างของ SRGAN ประกอบด้วยสองส่วนหลัก คือ เครือข่ายสร้างภาพและเครือข่ายแยกแยะ ตามแนวคิดของโครงข่ายปฏิปักษ์เชิงกำเนิดที่เสนอโดย Goodfellow et.al., (2014) โดย SRGAN ได้นำแนวคิดนี้มาประยุกต์ใช้เฉพาะสำหรับการเพิ่มความละเอียดของภาพ

2.2.2) Enhanced Super-Resolution Generative Adversarial Networks (ESRGAN) ถูกเสนอโดย Wang, Yu, Wu, Gu, Liu, Dong, Qiao and Change Loy (2018) ได้แก้ไขข้อบกพร่องของ SRGAN

โดยการพัฒนาคุณภาพของการสร้างภาพ รวมทั้งเพิ่มความสามารถในการจับรายละเอียดของภาพทั้งที่มีความถี่สูงและโครงสร้างของภาพด้วย

2.2.3) Real-Enhanced Super-Resolution Generative Adversarial Networks (Real-ESRGAN) ซึ่งถูกพัฒนาโดย Wang, Xie, Dong and Shan (2021) มุ่งเน้นที่การแก้ปัญหาของการสร้างภาพในโลกความเป็นจริง โดยปรับปรุงแบบจำลอง ESRGAN ให้สามารถรับมือกับการบิดเบือนของภาพได้ดียิ่งขึ้น

2.2.4) Blind Super-Resolution Generative Adversarial Networks (BSRGAN) ได้รับการพัฒนาโดย Zhang, Liang, Van Gool และ Timofte (2021) ซึ่งจะเน้นที่การแก้ปัญหาเรื่องการเสื่อมสภาพของภาพ (Image Degradation) กระบวนการนี้ช่วยให้แบบจำลองสามารถทำงานได้ดีขึ้นในสถานการณ์ที่ภาพมีการเสื่อมสภาพหลายรูปแบบ

3. การตรวจจับวัตถุด้วย YOLO

YOLO (You Only Look Once) เป็นอัลกอริทึมสำหรับการตรวจจับวัตถุที่ถูกนำเสนอครั้งแรกโดย Redmon & Farhadi (2017) ซึ่งทำให้เกิดการเปลี่ยนแปลงวิธีการตรวจจับวัตถุ โดยมองปัญหาเป็นงานเดียวที่ใช้การถดถอย (Regression) เพื่อทำนายทั้งขอบเขตของวัตถุและความน่าจะเป็นของประเภทในครั้งเดียว การใช้วิธีนี้ช่วยให้ YOLO สามารถทำการตรวจจับวัตถุได้รวดเร็วมาก

4. mAP (Mean Average Precision)

Padilla, Netto & Silva (2020) ได้ทำการศึกษารวบรวมและเสนอแนวทางเกี่ยวกับตัวชี้วัดสำคัญที่ใช้ในงานตรวจจับวัตถุ โดยหนึ่งในตัวชี้วัดที่ได้รับความนิยมอย่างมากคือ Mean Average Precision (mAP) ซึ่งใช้ประเมินประสิทธิภาพของแบบจำลองผ่านการวัดค่าความถูกต้องของผลลัพธ์ที่ได้ โดยพิจารณาจาก Precision (P) และ Recall (R) ทั้งนี้ Mean Average Precision (mAP) เป็นตัวชี้วัดที่ได้รับการยอมรับอย่างแพร่หลายในการประเมินผลแบบจำลองตรวจการจับวัตถุ โดยคำนวณจากพื้นที่ใต้กราฟ Precision-Recall (PR Curve) และคำนวณค่าเฉลี่ยของความแม่นยำสำหรับทุกคลาสในชุดข้อมูลที่กำหนด

ที่มาและความสำคัญของปัญหา

การตรวจจับวัตถุขนาดเล็กเป็นงานที่ท้าทายในด้านคอมพิวเตอร์วิทัศน์ เนื่องจากวัตถุขนาดเล็กมักมีรายละเอียดน้อย ประกอบกับรูปภาพมีคุณภาพและความละเอียดต่ำ ซึ่งส่งผลให้การตรวจจับทำได้ยากและขาดความแม่นยำปัญหานี้ จึงมีความสำคัญมากขึ้นเมื่อระบบตรวจจับวัตถุถูกนำมาใช้ในภาคอุตสาหกรรมหรือในงานวิจัยที่ต้องการความแม่นยำสูง การพัฒนาระบบตรวจจับวัตถุที่มีความสามารถในการตรวจจับวัตถุขนาดเล็กได้อย่างแม่นยำจึงเป็นสิ่งสำคัญ

เพื่อศึกษาผลกระทบของการใช้เทคนิค Super-Resolution ต่อประสิทธิภาพการตรวจจับวัตถุ งานวิจัยนี้จึงเลือกใช้แบบจำลอง Super-Resolution ที่ได้รับความนิยมและมีประสิทธิภาพสูงจำนวน 4 แบบ ได้แก่ SRGAN, ESRGAN, Real-ESRGAN และ BSRGAN ทั้งนี้เนื่องจากแต่ละแบบจำลองมีลักษณะเฉพาะที่แตกต่างกัน และสามารถเป็นตัวแทนของวิวัฒนาการด้านสถาปัตยกรรม Super-Resolution

ได้อย่างครบถ้วน SRGAN เป็นแบบจำลองพื้นฐานที่ริเริ่มนำแนวคิดการใช้ Generative Adversarial Networks (GAN) เข้ามาสร้างภาพความละเอียดสูง ในขณะที่ ESRGAN ได้มีการปรับปรุงโครงสร้างของ Generator และการประเมินคุณภาพภาพ เพื่อให้ได้ภาพที่มีรายละเอียดคมชัดยิ่งขึ้น Real-ESRGAN พัฒนาต่อเนื่องจาก ESRGAN โดยเน้นการประมวลผลภาพที่หลากหลายในโลกความจริง ส่วน BSRGAN ออกแบบมาเพื่อรองรับการเพิ่มความละเอียดของภาพที่มีความเสื่อมสภาพจากสภาพแวดล้อมจริง โดยใช้กลยุทธ์การเสื่อมสภาพภาพแบบสุ่ม

การเลือกแบบจำลองทั้ง 4 แบบนี้ จึงมีความเหมาะสมเพื่อให้การศึกษาเปรียบเทียบครอบคลุมทั้งด้านคุณภาพของภาพ ความสามารถในการรองรับข้อมูลที่หลากหลาย และความสอดคล้องกับสภาพปัญหาที่พบในงานตรวจจับวัตถุจริงในปัจจุบัน

งานวิจัยที่เกี่ยวข้อง

Telçeken, Akgun, Kacar & Bingol (2024) ได้นำเสนอวิธีการใหม่ในการปรับปรุงการตรวจจับวัตถุในภาพถ่ายดาวเทียมและภาพถ่ายทางอากาศ โดยใช้เทคนิคการสร้างภาพความละเอียดสูงร่วมกับอัลกอริทึมการแบ่งภาพและการแบ่งส่วนขั้นสูงเป็นระบบ Super-Resolution Object Detection (SROD) ระบบตรวจจับนี้เป็นการรวมเทคนิค SRGAN เข้ากับ YOLO โดยที่ SRGAN จะช่วยเพิ่มความละเอียดของภาพเพื่อปรับปรุงความแม่นยำในการตรวจจับวัตถุ พบว่าระบบ SROD ที่ผสมผสาน SRGAN แสดงผลลัพธ์ที่ดีกว่าการใช้ YOLO รุ่นปกติ และชี้ให้เห็นถึงการปรับปรุงอย่างมีนัยสำคัญในค่า mAP (mean Average Precision) และเมตริกอื่น ๆ โดยเฉพาะการตรวจจับวัตถุขนาดเล็ก

Yigit (2023) ได้นำเสนองานวิจัยเรื่อง “การปรับปรุงการตรวจจับวัตถุจากภาพถ่ายโดรนด้วย Real-ESRGAN” โดยมุ่งเน้นการปรับปรุงการตรวจจับวัตถุจากภาพถ่ายที่ได้จากโดรนซึ่งมักมีความละเอียดต่ำ ซึ่งส่งผลให้ความแม่นยำในการตรวจจับลดลงเพื่อลดข้อจำกัดนี้ นักวิจัยได้ใช้เทคนิค Super-Resolution ผ่านแบบจำลอง Real-ESRGAN ร่วมกับ YOLOv7 ในการเพิ่มคุณภาพของภาพก่อนนำไปใช้ตรวจจับวัตถุ ผลการทดลองพบว่าสามารถตรวจจับวัตถุได้มากขึ้น และมีความแม่นยำสูงขึ้น

จากงานวิจัยที่เกี่ยวข้องแสดงให้เห็นว่า ภาพที่ผ่านกระบวนการ Super-Resolution สามารถช่วยให้ตรวจจับวัตถุได้มากขึ้นและมีความแม่นยำสูงขึ้น โดยเฉพาะกับวัตถุขนาดเล็กนอกจากนี้ ยังพบว่าค่าความแม่นยำเฉลี่ย (mAP) เพิ่มขึ้นอย่างมีนัยสำคัญเมื่อใช้ภาพที่ได้รับการปรับปรุงความละเอียด

วิธีดำเนินการวิจัย

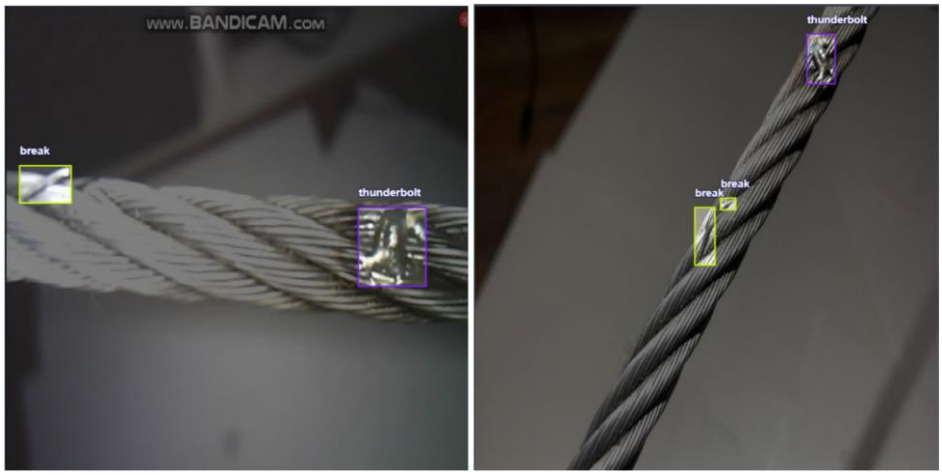
ในการวิจัยด้าน Super-Resolution และการตรวจจับวัตถุขนาดเล็ก มีความจำเป็นอย่างยิ่งที่จะต้องควบคุมตัวแปรที่อาจส่งผลกระทบต่อผลลัพธ์ของแบบจำลอง เพื่อให้สามารถประเมินประสิทธิภาพของเทคนิค Super-Resolution ได้อย่างแม่นยำ งานวิจัยนี้จึงเลือกใช้วิธีการสร้างชุดข้อมูลความละเอียดต่ำ (Low-Resolution) โดยการลดขนาด (Downsampling) จากภาพต้นฉบับที่มีความละเอียดสูง (High-

Resolution Images) แทนที่จะนำภาพความละเอียดต่ำที่มีอยู่แล้วมาใช้งานโดยตรง เพื่อควบคุมลักษณะของการเสื่อมสภาพของข้อมูลได้อย่างเป็นระบบ ทำให้มั่นใจได้ว่าภาพที่นำมาใช้ในกระบวนการฝึกสอนและทดสอบนั้นมีคุณสมบัติที่เป็นมาตรฐาน และไม่มีตัวแปรแฝงอื่น ๆ โดยมีขั้นตอนในการวิจัย ดังนี้

1. การเตรียมชุดข้อมูล

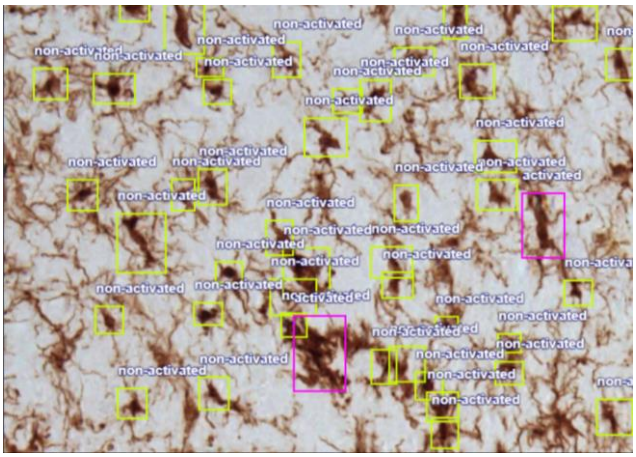
ชุดข้อมูลที่ใช้ในการวิจัยนี้มี 3 ชุดข้อมูล ซึ่งได้มาจากแหล่งข้อมูลออนไลน์ Roboflow Universe ที่ถูกรวบรวมโดย Ciaglia, Zuppichini, Guerrie, McQuade และ Solawetz (2022) ซึ่งเป็นข้อมูลที่มีภาพที่มีขนาด 640 x 640 พิกเซล และถูกแบ่งออกเป็น 3 ส่วน ได้แก่ ชุดข้อมูลสอน (train set) ชุดข้อมูลตรวจสอบ (validation set) และชุดข้อมูลทดสอบ (test set) พร้อมทั้งไฟล์ Annotation ซึ่งเป็นไฟล์ข้อความที่ระบุตำแหน่งวัตถุบนภาพ

1) ชุดข้อมูลภาพความเสียหายของสายเคเบิล มีข้อมูลภาพทั้งหมด 1,318 ภาพ พร้อมทั้งข้อมูลการระบุตำแหน่งวัตถุ ทั้งหมด 1,512 ตำแหน่ง ซึ่งแบ่งออกเป็น 2 ประเภท คือ ความเสียหายที่เกิดจากการขาด (Cable Breakage) และความเสียหายที่เกิดจากความร้อน (Heat Damage, Thunderbolt) วัตถุในชุดข้อมูลนี้มีขนาดเล็กและบางครั้งกลมกลืนกับพื้นหลังของสายเคเบิล ทำให้เป็นกรณีศึกษาที่เหมาะสมสำหรับการประเมินประสิทธิภาพของ Super-Resolution ในการเพิ่มความเด่นชัดของตำแหน่งความเสียหาย ตัวอย่างของวัตถุที่ระบุไว้แสดงในภาพที่ 1



ภาพที่ 1 ตัวอย่างของความเสียหายที่เกิดจากการขาด (Cable Breakage) และความเสียหายที่เกิดจากความร้อน (Heat Damage, Thunderbolt)

2) ชุดข้อมูล Microglia ประกอบด้วยข้อมูลภาพทั้งหมด 1,422 ภาพ พร้อมทั้งข้อมูลการระบุตำแหน่งวัตถุ ทั้งหมด 32,265 ตำแหน่ง ซึ่งแบ่งออกเป็น 2 ประเภท คือ ชุดข้อมูลที่ถูกกระตุ้น (activated) และชุดข้อมูลที่ไม่ได้ถูกกระตุ้น (non-activated) ลักษณะของ Microglia มีความละเอียดซับซ้อนสูงและมีขนาดเล็กมากในภาพ จึงเป็นชุดข้อมูลที่มีความท้าทายสูง และเหมาะสำหรับการทดสอบว่าการเพิ่มความละเอียดสามารถช่วยปรับปรุงการจำแนก และการตรวจจับวัตถุขนาดเล็กในระดับเซลล์ตัวอย่างของวัตถุที่ระบุไว้แสดงในภาพที่ 2



ภาพที่ 2 ตัวอย่างของเซลล์ไมโครเกลียที่ถูกกระตุ้น (แสดงด้วยกรอบสีชมพู) และเซลล์ไมโครเกลียที่ไม่ได้ถูกกระตุ้น (แสดงด้วยกรอบสีเหลือง)

3) ชุดข้อมูลภาพวัชพืช Ridderzuring มีข้อมูลภาพทั้งหมด 2,486 ภาพ พร้อมทั้งข้อมูลการระบุตำแหน่งของวัชพืช Ridderzuring ทั้งหมด 6,814 ตำแหน่ง วัชพืชเหล่านี้มักมีขนาดเล็กกระจายอยู่ในพื้นที่กว้าง และพื้นหลังมีความหลากหลาย เช่น ทุ่งหญ้า ดิน หรือแปลงเกษตร การตรวจจับวัชพืชในสภาพแวดล้อมจริงที่ซับซ้อนจึงต้องอาศัยคุณภาพของภาพสูง การนำเทคนิค Super-Resolution เข้ามาช่วยจึงเป็นแนวทางที่เหมาะสมในการเพิ่มความแม่นยำ ตัวอย่างของวัตถุที่ระบุไว้แสดงในภาพที่ 3



ภาพที่ 3 ตัวอย่างของวัชพืช Ridderzuring

2. การเตรียมสภาพแวดล้อมที่ใช้ในการทดลอง

การวิจัยในครั้งนี้ มีการใช้ Google Colaboratory ซึ่งเป็นโฮสต์โปรแกรม Jupyter Notebook ที่ทำงานบนระบบคลาวด์ เพื่อใช้ในการเขียนโปรแกรมสำหรับการสอนแบบจำลองตรวจการจับวัตถุรวมถึงการทดสอบผลลัพธ์ที่ได้จากการสร้างภาพความละเอียดสูง โดยเน้นการใช้งานโครงข่ายปฏิปักษ์เชิงกำเนิดทั้ง 4 แบบ ได้แก่ SRGAN ESRGAN Real-ESRGAN และ BSRGAN

ภาษาหลักที่ใช้ในการเขียนโปรแกรมคือ Python โดยทำงานร่วมกับเฟรมเวิร์ก ได้แก่ TensorFlow

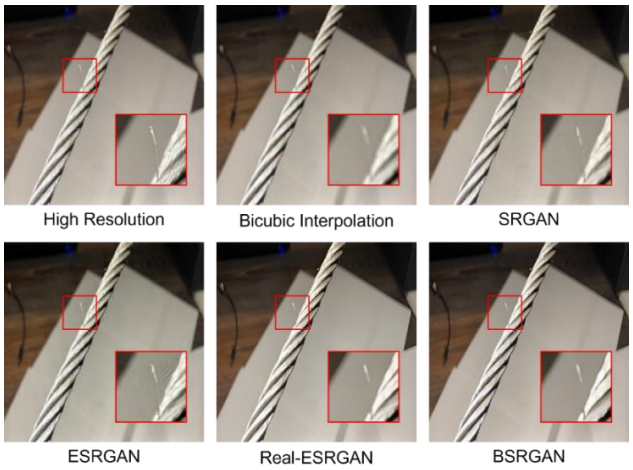
Keras และ PyTorch ซึ่งช่วยให้การสร้างและสอนแบบจำลองเป็นไปอย่างมีประสิทธิภาพและยืดหยุ่น นอกจากนี้ ยังมีการใช้ค่าน้ำหนักของแบบจำลองที่ผ่านการสอนมาแล้ว ทำให้ลดเวลาในการสอนแบบจำลองตั้งแต่เริ่มต้น และช่วยให้สามารถสร้างภาพความละเอียดสูง พร้อมทั้งประเมินประสิทธิภาพของแบบจำลองได้อย่างแม่นยำและรวดเร็ว

3. การสอนแบบจำลองการตรวจจับวัตถุ

กระบวนการสอนแบบจำลองการตรวจจับวัตถุ ผู้วิจัยเลือกใช้แบบจำลอง YOLOv10m ที่ได้รับการพัฒนาโดย Wang, Chen, Liu, Chen, Lin, Han และ Ding (2024) ซึ่งเป็นแบบจำลองที่มีประสิทธิภาพและเหมาะสมสำหรับการตรวจจับวัตถุในภาพความละเอียดสูง โดยเริ่มต้นจากการโหลดแบบจำลอง YOLOv10m ที่ยังไม่มีการสอน และใช้ชุดข้อมูลมีการจัดเตรียมการระบุตำแหน่งของวัตถุบนภาพ และคลาสของวัตถุอย่างครบถ้วน การสอนนี้ถูกตั้งค่าให้ใช้จำนวน epoch ทั้งหมด 100 รอบ พร้อมกำหนดขนาดภาพสำหรับการสอนเป็น 640x640 พิกเซล ซึ่งเป็นขนาดเดียวกันกับขนาดภาพของชุดข้อมูลต้นฉบับ

4. การสร้างแบบจำลอง Super-Resolution GAN และสร้างภาพความละเอียดสูง

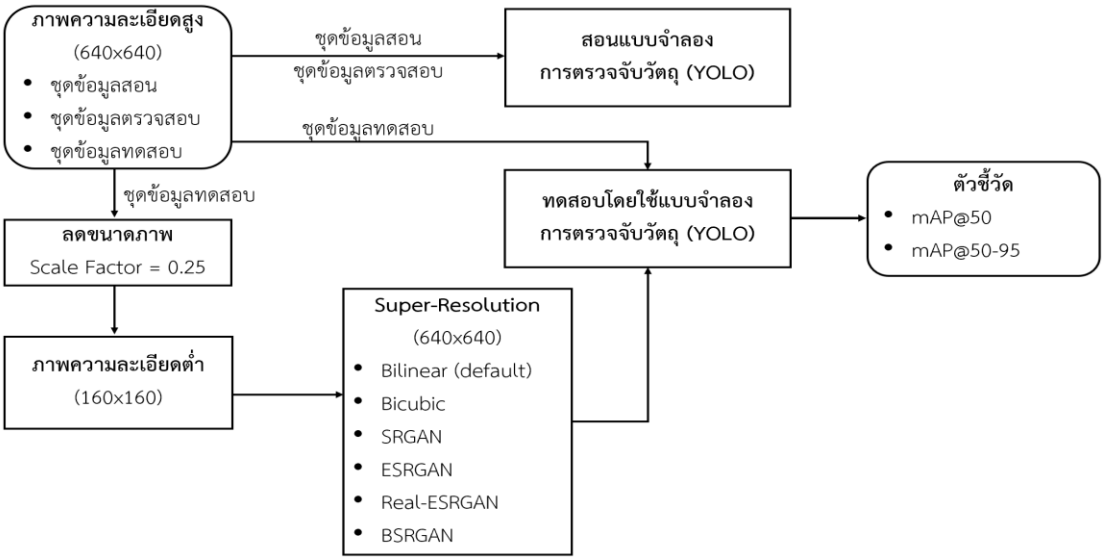
การสร้างแบบจำลอง Super-Resolution GAN ในงานวิจัยนี้เป็นการรวบรวมจากแหล่งข้อมูลที่เผยแพร่ผ่าน GitHub และ TensorFlow Hub โดยแบบจำลอง SRGAN นำมาจากโปรเจกต์ Tensor Layer แบบจำลอง ESRGAN นำมาจากโปรเจกต์ TensorFlow Hub แบบจำลอง Real-ESRGAN นำมาจากโปรเจกต์ Real-ESRGAN และแบบจำลอง BSRGAN นำมาจากโปรเจกต์ BSRGAN



ภาพที่ 4 ตัวอย่างผลลัพธ์การสร้างภาพความละเอียดสูงจากแบบจำลองต่าง ๆ

5. การวัดประสิทธิภาพของการสร้างภาพความละเอียดสูงผ่านการตรวจจับวัตถุ

การประเมินแบบจำลอง Super-Resolution GAN คือ การนำแบบจำลองแต่ละแบบมาคำนวณตัวชี้วัดเพื่อเปรียบเทียบประสิทธิภาพในการเพิ่มความละเอียดของภาพ เพื่อการตรวจจับวัตถุขนาดเล็ก โดยตัววัดประสิทธิภาพที่ใช้ในงานวิจัยนี้ ได้แก่ mAP@50 (Mean Average Precision at IoU=0.50) mAP@50-95 (Mean Average Precision at IoU=0.50-0.95) และเวลาที่ใช้ในการสร้างภาพความละเอียดสูงเฉลี่ย



ภาพที่ 5 กระบวนการดำเนินงานวิจัยสำหรับ 1 ชุดข้อมูล

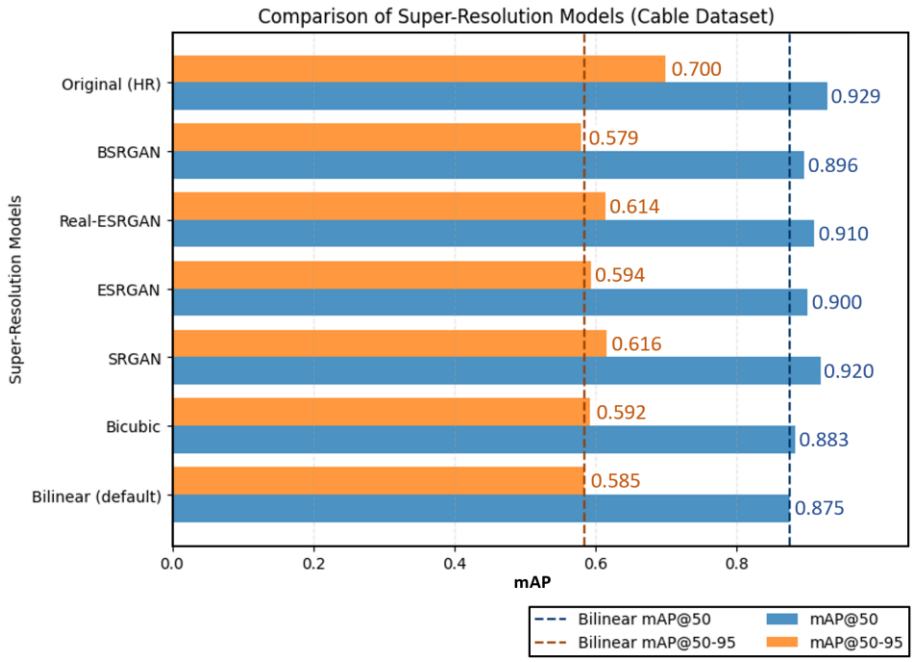
ผลการวิจัย

จากผลการทดลองที่ได้ สามารถเปรียบเทียบประสิทธิภาพในการสร้างภาพความละเอียดสูงของแบบจำลอง Super-Resolution GAN ได้แก่ SRGAN ESRGAN Real-ESRGAN และ BSRGAN กับประสิทธิภาพในการสร้างภาพความละเอียดสูงแบบดั้งเดิม ได้แก่ Bilinear และ Bicubic Interpolation ในบริบทของการตรวจจับวัตถุขนาดเล็กได้ โดยพิจารณาจาก Mean Average Precision (mAP) และเวลาในการประมวลผลต่อภาพ (Inference Time per Image) ดังตารางที่ 1 -3 และภาพที่ 6- 8

ตารางที่ 1 เวลาในการสร้างภาพ (Inference Time) บนชุดข้อมูลภาพสายเคเบิล

Model	Bilinear (default)	Bicubic	SRGAN	ESRGAN	Real-ESRGAN	BSRGAN
Inference Time (second/image)	-	0.034	0.129	0.154	0.282	0.293

ผลการวัดประสิทธิภาพแบบจำลอง Super-Resolution GAN ของชุดข้อมูลภาพสายเคเบิล โดยแยกตามตัวชี้วัด ดังแผนภูมิแท่งต่อไปนี้



ภาพที่ 6 ผลการวัดประสิทธิภาพแบบจำลอง Super-Resolution GAN ของชุดข้อมูลภาพสายเคเบิล

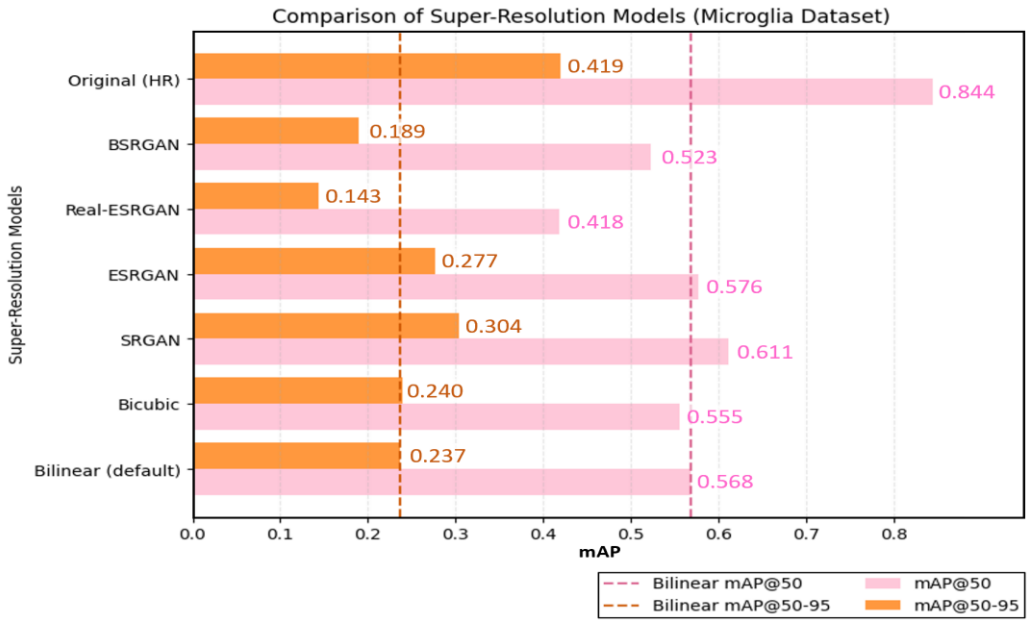
เมื่อพิจารณาถึงค่า mAP ซึ่งเป็นตัวชี้วัดสำคัญของการประเมินผลการตรวจจับวัตถุ พบว่า SRGAN ให้ค่าที่ดีที่สุดใน mAP@50 (0.920) และค่าที่ดีที่สุดใน mAP@50-95 (0.616) ซึ่งแสดงให้เห็นว่าแบบจำลองนี้ช่วยให้การตรวจจับวัตถุมีประสิทธิภาพสูงขึ้นเมื่อเทียบกับวิธีการแบบดั้งเดิม อย่างไรก็ตาม Real-ESRGAN ก็ให้ค่า mAP@50 (0.910) และ mAP@50-95 (0.614) ที่ใกล้เคียงกัน แสดงให้เห็นถึงความสามารถของแบบจำลองนี้ ในการช่วยปรับปรุงการตรวจจับวัตถุได้ดีเช่นกัน

ในแง่ของระยะเวลาการประมวลผล พบว่า Bicubic Interpolation ใช้เวลาน้อยที่สุดเพียง 0.034 วินาทีต่อภาพ ในขณะที่ Super-Resolution GAN ใช้เวลานานขึ้นอย่างเห็นได้ชัด โดย SRGAN ใช้เวลา 0.129 วินาที ESRGAN ใช้เวลา 0.154 วินาที Real-ESRGAN ใช้เวลา 0.282 วินาที และ BSRGAN ใช้เวลานานที่สุดที่ 0.293 วินาทีต่อภาพ แสดงให้เห็นว่าการใช้แบบจำลองที่ซับซ้อนขึ้นมีต้นทุนในด้านเวลา อย่างไรก็ตาม การปรับปรุงคุณภาพของการตรวจจับวัตถุอาจทำให้การประมวลผลที่นานขึ้นนั้นคุ้มค่าหากความแม่นยำเป็นสิ่งสำคัญ

ตารางที่ 2 เวลาในการสร้างภาพ (Inference Time) บนชุดข้อมูลภาพ Microglia

Model	Bilinear (default)	Bicubic	SRGAN	ESRGAN	Real-ESRGAN	BSRGAN
Inference Time (second/image)	-	0.018	0.135	0.156	0.325	0.293

ผลการวัดประสิทธิภาพแบบจำลอง Super-Resolution GAN ของชุดข้อมูลภาพ Microglia โดยแยกตามตัวชี้วัด แสดงในแผนภูมิแท่งต่อไปนี้



ภาพที่ 7 ผลการวัดประสิทธิภาพแบบจำลอง Super-Resolution GAN ของชุดข้อมูลภาพ Microglia

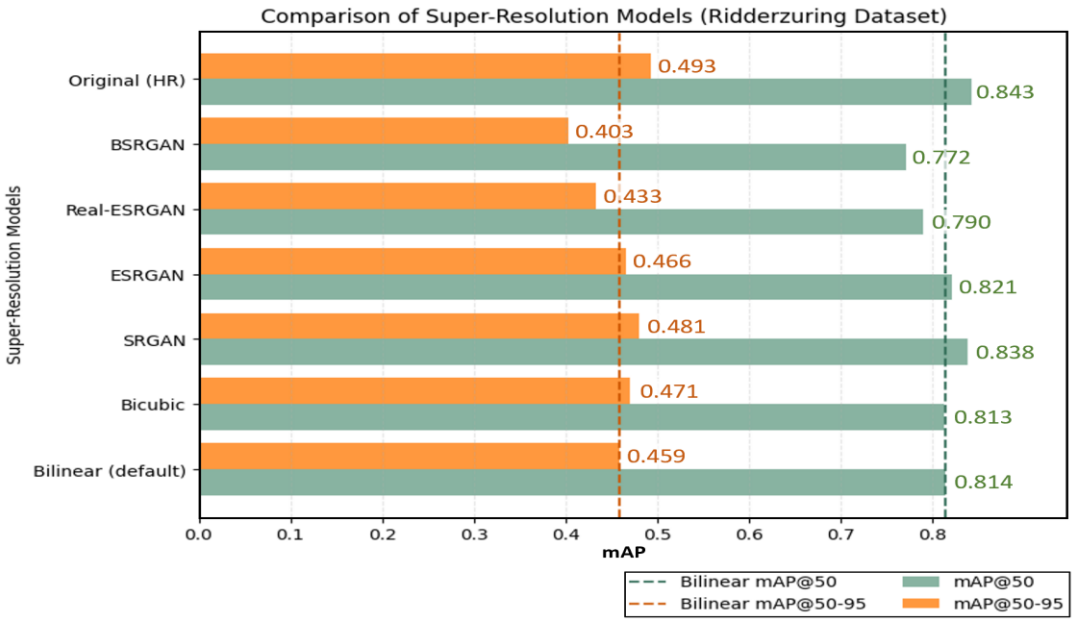
เมื่อพิจารณาถึงค่า mAP ซึ่งเป็นตัวชี้วัดสำคัญของการประเมินผลการตรวจจับวัตถุ พบว่า SRGAN ให้ค่า mAP@50 (0.611) และ mAP@50-95 (0.304) สูงที่สุด ซึ่งแสดงให้เห็นว่าแบบจำลองนี้สามารถช่วยให้การตรวจจับวัตถุมีประสิทธิภาพสูงขึ้นเมื่อเทียบกับวิธีการสร้างภาพความละเอียดสูงแบบดั้งเดิม อย่างไรก็ตาม ESRGAN ก็ให้ค่า mAP@50 (0.576) และ mAP@50-95 (0.277) ที่ใกล้เคียงกัน แสดงให้เห็นถึงความสามารถของแบบจำลองนี้ ในการช่วยปรับปรุงการตรวจจับได้บางส่วน แม้ว่าประสิทธิภาพโดยรวมจะยังเป็นรอง SRGAN

ในแง่ของระยะเวลาการประมวลผล พบว่า Bicubic ใช้เวลาน้อยที่สุดเพียง 0.018 วินาทีต่อภาพ ในขณะที่แบบจำลอง Super-Resolution GAN ใช้เวลานานขึ้นอย่างเห็นได้ชัด โดย SRGAN ใช้เวลา 0.135 วินาที ESRGAN ใช้เวลา 0.156 วินาที BSRGAN ใช้เวลา 0.305 วินาที และ Real-ESRGAN ใช้เวลานานที่สุดที่ 0.325 วินาทีต่อภาพ

ตารางที่ 3 เวลาในการสร้างภาพ (Inference Time) บนชุดข้อมูลภาพวัชพืช Ridderzuring

Model	Bilinear (default)	Bicubic	SRGAN	ESRGAN	Real-ESRGAN	BSRGAN
Inference Time (second/image)	-	0.022	0.149	0.163	0.348	0.349

ผลการวัดประสิทธิภาพแบบจำลอง Super-Resolution GAN ของชุดข้อมูลภาพวัชพืช Ridderzuring โดยแยกตามตัวชี้วัด แสดงในแผนภูมิแท่งต่อไปนี้



ภาพที่ 8 แสดงผลการวัดประสิทธิภาพแบบจำลอง Super-Resolution GAN ของชุดข้อมูลภาพวัชพืช Ridderzuring

จากผลการทดลองพบว่า SRGAN ให้ค่า mAP@50 สูงสุดที่ 0.838 และ mAP@50-95 ที่ 0.481 ซึ่งสูงกว่าการใช้วิธีการสร้างภาพความละเอียดสูงแบบ Bicubic และ Bilinear เล็กน้อย ซึ่งได้ค่า mAP@50 เท่ากับ 0.813 และ 0.814 และ mAP@50-95 เท่ากับ 0.471 และ 0.459 ตามลำดับ แสดงให้เห็นว่าแบบจำลองนี้ สามารถช่วยเพิ่มประสิทธิภาพของการตรวจจับวัตถุได้ดีที่สุดเมื่อเทียบกับวิธีอื่น ๆ ในขณะเดียวกัน ESRGAN ต่ำกว่าเล็กน้อย โดยได้ค่า mAP@50 เท่ากับ 0.821 และ mAP@50-95 เท่ากับ 0.466 อย่างไรก็ตาม แบบจำลองที่มีค่าความแม่นยำต่ำสุด คือ Real-ESRGAN และ BSRGAN โดยมีค่า mAP@50 เท่ากับ 0.790 และ 0.772 และ mAP@50-95 เท่ากับ 0.433 และ 0.403 ตามลำดับ

ในแง่ของระยะเวลาการประมวลผล พบว่า Bicubic ใช้เวลาน้อยที่สุดเพียง 0.022 วินาทีต่อภาพ ซึ่งเร็วกว่าวิธีการอื่น ๆ ในขณะที่ SRGAN และ ESRGAN ใช้เวลาประมวลผลที่ 0.149 และ 0.163 วินาทีต่อภาพ ตามลำดับ ส่วน Real-ESRGAN และ BSRGAN ใช้เวลานานที่สุดที่ 0.348 และ 0.349 วินาทีต่อภาพ

สรุปและอภิปรายผล

การศึกษานี้เปรียบเทียบประสิทธิภาพของแบบจำลอง Super-Resolution GAN คือ SRGAN, ESRGAN, Real-ESRGAN และ BSRGAN กับวิธีสร้างภาพความละเอียดสูงแบบดั้งเดิม คือ Bilinear และ Bicubic โดยวัดผลลัพธ์ผ่านตัวชี้วัด mAP@50 และ mAP@50-95 สำหรับการตรวจจับวัตถุขนาดเล็กในภาพถ่ายสามชุดข้อมูล ได้แก่ ภาพสายเคเบิล Microglia และ วัชพืช Ridderzuring ซึ่งเป็นข้อมูลที่มีรายละเอียดซับซ้อนและต้องการความคมชัดสูง เพื่อให้สามารถตรวจจับวัตถุได้อย่างแม่นยำ

จากผลการทดลอง พบว่า SRGAN มีประสิทธิภาพสูงที่สุดในทุกชุดข้อมูล โดยให้ค่า mAP@50 เท่ากับ 0.920 สำหรับชุดข้อมูลภาพสายเคเบิล 0.611 สำหรับชุดข้อมูล Microglia และ 0.722 สำหรับชุดข้อมูลวัชพืช Ridderzuring ซึ่งสูงกว่าการสร้างภาพความละเอียดสูงด้วย Bicubic และ Bilinear นอกจากนี้ยังพบว่า Real-ESRGAN และ BSRGAN มีค่า mAP@50 และ mAP@50-95 ต่ำกว่าการสร้างภาพความละเอียดสูงแบบอื่น ๆ ในบางกรณี เช่น ชุดข้อมูล Microglia ที่ Real-ESRGAN และ BSRGAN ให้ค่า mAP@50 ที่ 0.418 และ 0.523 ตามลำดับ ซึ่งต่ำกว่าวิธีอื่น ๆ อย่างชัดเจน

งานวิจัยนี้ ได้รับการออกแบบการทดลองภายใต้เงื่อนไขที่ควบคุมตัวแปรให้เหมือนกันทุกประการ เช่น ขนาดของภาพ แบบจำลองที่ใช้ในการตรวจจับ ใช้ชุดข้อมูลเดียวกัน และจำนวนรอบการทดลองที่เท่ากัน ความแตกต่างที่ปรากฏในค่า mAP@50 และ mAP@50-95 จึงสามารถสะท้อนถึงผลของเทคนิค Super-Resolution โดยตรงอย่างมีนัยยะในเชิงวิศวกรรม

ในงานวิจัยด้านการเรียนรู้เชิงลึก โดยเฉพาะในบริบทของการตรวจจับวัตถุและการประมวลผลภาพมักใช้การประเมินผลเชิงเปรียบเทียบด้วยชุดข้อมูลมาตรฐาน (benchmark datasets) ร่วมกับตัวชี้วัดเชิงประสิทธิภาพ เช่น mAP โดยตรง มากกว่าการใช้การทดสอบนัยสำคัญทางสถิติแบบดั้งเดิมความแตกต่างของค่าตัวชี้วัดที่เกิดขึ้น จึงสามารถนำมาใช้ในการวิเคราะห์ประสิทธิภาพของแบบจำลองแต่ละเทคนิคได้อย่างน่าเชื่อถือและถือว่าเพียงพอ ในการสรุปแนวโน้มของประสิทธิภาพที่เกิดขึ้นจริง

เมื่อเปรียบเทียบกับงานวิจัยที่ผ่านมา พบว่า ผลลัพธ์ในงานวิจัยนี้มีความสอดคล้องกับข้อค้นพบของ Telçeken et.al., (2024) ซึ่งได้นำเสนอระบบ Super-Resolution Object Detection (SROD) โดยผสมผสานเทคนิคการเพิ่มความละเอียดด้วย SRGAN เข้ากับการตรวจจับวัตถุด้วย YOLO งานวิจัยดังกล่าว แสดงให้เห็นว่าการเพิ่มความละเอียดก่อนการตรวจจับวัตถุในภาพถ่ายดาวเทียม และภาพโดรนช่วยเพิ่มค่า mAP ได้อย่างมีนัยสำคัญ โดยเฉพาะในกรณีของวัตถุขนาดเล็ก ซึ่งสอดคล้องกับงานวิจัยนี้ที่ SRGAN ช่วยเพิ่มความแม่นยำในการตรวจจับวัตถุขนาดเล็ก ได้ดีกว่าวิธีการสร้างภาพความละเอียดสูงแบบดั้งเดิม

นอกจากนี้ ผลการทดลองในงานวิจัยนี้ยังสอดคล้องกับงานของ Yigit (2023) ซึ่งศึกษาการใช้ Real-ESRGAN เพื่อเพิ่มคุณภาพของภาพถ่ายทางอากาศจากโดรนก่อนนำไปตรวจจับวัตถุด้วย YOLOv7 โดยพบว่าการใช้ Real-ESRGAN สามารถช่วยเพิ่มค่า mAP ได้อย่างมีนัยสำคัญ อย่างไรก็ตามเมื่อเปรียบเทียบกับผลการทดลองในงานวิจัยนี้ พบว่า Real-ESRGAN แม้จะมีศักยภาพในการปรับปรุงคุณภาพของภาพ แต่ในบางกรณี เช่น ชุดข้อมูล Microglia กลับมีค่า mAP@50 ต่ำกว่าวิธีการอื่น ซึ่งอาจสะท้อนถึงข้อจำกัดของ Real-ESRGAN ในการรักษารายละเอียดโครงสร้างเฉพาะที่สำคัญสำหรับการตรวจจับวัตถุขนาดเล็กในบริบทที่มีความละเอียดสูงมากหรือมีลักษณะวัตถุซับซ้อน

แม้ว่าแบบจำลอง SRGAN จะสามารถเพิ่มความแม่นยำของการตรวจจับวัตถุขนาดเล็กได้ แต่ก็มาพร้อมกับต้นทุนด้านเวลาในการประมวลผลที่สูงขึ้น โดยใช้เวลาในการสร้างภาพความละเอียดสูงประมาณ 0.129 - 0.149 วินาทีต่อภาพ ซึ่งมากกว่าวิธี Bicubic ที่ใช้เวลาเพียง 0.018 - 0.034 วินาทีต่อภาพทำให้ต้องพิจารณาความสมดุลระหว่างความเร็ว และความแม่นยำในการใช้งานจริง

นอกจากนี้ ยังพบว่าข้อมูลต้นฉบับความละเอียดสูงให้ค่าคะแนนสูงสุดในทุกชุดข้อมูล ซึ่งเป็นสิ่งที่คาดการณ์ได้ เนื่องจากไม่มีการสูญเสียรายละเอียดจากการขยายภาพเทคนิค Super-Resolution GAN จึงมีบทบาทสำคัญในการลดช่องว่างระหว่างภาพความละเอียดต่ำและภาพต้นฉบับ ทำให้สามารถนำไปปรับใช้กับงานตรวจจับวัตถุขนาดเล็กในสภาพแวดล้อมที่ความละเอียดของภาพเป็นข้อจำกัด

งานวิจัยนี้ มีการนำเสนอองค์ความรู้ใหม่ที่สำคัญหลายประการงานวิจัย ได้นำเสนอการประเมินเปรียบเทียบประสิทธิภาพของเทคนิค Super-Resolution ที่แตกต่างกัน ได้แก่ SRGAN, ESRGAN, Real-ESRGAN และ BSRGAN ร่วมกับการตรวจจับวัตถุขนาดเล็กบนชุดข้อมูลที่มีความหลากหลาย ทั้งในบริบทของสายเคเบิลทางวิศวกรรม เซลล์ชีวภาพ Microglia และวัชพืชในสิ่งแวดล้อมธรรมชาติ การวิเคราะห์นี้ช่วยให้เห็นภาพรวมที่ชัดเจนของประสิทธิภาพ แต่ละเทคนิคเมื่อใช้งานกับข้อมูลที่มีลักษณะต่างกัน

นอกจากนี้ งานวิจัยยังชี้ให้เห็นถึงความสำคัญของการเลือกเทคนิค Super-Resolution ที่เหมาะสมกับลักษณะข้อมูล โดยผลการทดลองพบว่า แม้แบบจำลองบางประเภท เช่น Real-ESRGAN และ BSRGAN จะสามารถสร้างภาพที่มีคุณภาพการมองเห็นสูง แต่กลับไม่สามารถเพิ่มความแม่นยำในการตรวจจับวัตถุได้ดีในบางกรณี ในทางตรงกันข้าม SRGAN ซึ่งเน้นการรักษาโครงสร้างของภาพมากกว่าความสมจริงในการมองเห็น กลับแสดงผลลัพธ์ที่ดีกว่าอย่างชัดเจนในทุกชุดข้อมูลที่ศึกษา ข้อค้นพบนี้เน้นย้ำว่าการเลือกเทคนิคการเพิ่มความละเอียดต้องพิจารณาตามลักษณะของข้อมูลและเป้าหมายการใช้งาน

สุดท้าย งานวิจัยนี้ยังช่วยตอกย้ำศักยภาพของการประยุกต์ใช้เทคนิค Super-Resolution ในการสนับสนุนการพัฒนาเทคโนโลยี ตรวจจับวัตถุขนาดเล็กจากข้อมูลภาพความละเอียดต่ำ ซึ่งมีความสำคัญในหลายอุตสาหกรรม เช่น การสำรวจและติดตามสภาพแวดล้อมด้วยโดรน การเฝ้าระวังด้านความมั่นคง และการวินิจฉัยทางการแพทย์จากภาพจุลทรรศน์ ผลลัพธ์ที่ได้สามารถนำไปต่อยอดเพื่อพัฒนาระบบตรวจจับวัตถุที่มีความแม่นยำสูง และใช้งานได้จริงในสภาวะแวดล้อมที่ซับซ้อนในอนาคต

ข้อเสนอแนะ

1. การเพิ่มชุดข้อมูลที่มีความหลากหลายทั้งในด้านขนาด ปริมาณ หรือประเภทของวัตถุที่ต้องการตรวจจับ จะช่วยให้สามารถเปรียบเทียบแบบจำลอง Super-Resolution GAN ได้ในหลายแง่มุมมากขึ้น

2. การทดสอบกับแบบจำลองการตรวจจับวัตถุอื่น ๆ เช่น Faster R-CNN หรือ DETR เพื่อเปรียบเทียบประสิทธิภาพและเพิ่มความน่าเชื่อถือของผลลัพธ์

เอกสารอ้างอิง

Ciaglia, F., Zuppichini, F. S., Guerrie, P., McQuade, M., & Solawetz, J. (2022). Roboflow 100: A rich, multi-domain object detection benchmark. arXiv preprint arXiv:2211.13523.

Goodfellow, I. J., Pouget-Abadie, J., Mirza, M., Xu, B., Warde-Farley, D., Ozair, S., Courville, A. C., & Bengio, Y. (2014). Generative Adversarial Nets. Neural Information Processing Systems.

Ledig, C., Theis, L., Huszár, F., Caballero, J., Cunningham, A., Acosta, A., Aitken, A., Tejani, A., Totz, J., & Wang, Z. (2017). Photo-realistic single image super-resolution using a generative adversarial network. Proceedings of the IEEE conference on computer vision and pattern recognition.

Padilla, R., Netto, S. L., & Silva, E. A. B. d. (2020). A Survey on Performance Metrics for Object-Detection Algorithms. 2020 International Conference on Systems, Signals and Image Processing (IWSSIP).

Redmon, J., & Farhadi, A. (2017). YOLO9000: better, faster, stronger. Proceedings of the IEEE conference on computer vision and pattern recognition.

Telçeken, M., Akgun, D., Kacar, S., & Bingol, B. (2024). A New Approach for Super Resolution Object Detection Using an Image Slicing Algorithm and the Segment Anything Model. Sensors, 24(14).

Wang, A., Chen, H., Liu, L., Chen, K., Lin, Z., Han, J., & Ding, G. (2024). Yolov10: Real-time end-to-end object detection. arXiv preprint arXiv:2405.14458.

Wang, X., Xie, L., Dong, C., & Shan, Y. (2021). Real-esrgan: Training real-world blind super-resolution with pure synthetic data. Proceedings of the IEEE/CVF international conference on computer vision.

Wang, X., Yu, K., Wu, S., Gu, J., Liu, Y., Dong, C., Qiao, Y., & Change Loy, C. (2018). Esrgan: Enhanced super-resolution generative adversarial networks. Proceedings of the European conference on computer vision (ECCV) workshops.

Yigit, S. (2023). Improving object detection of UAV images with Real-ESRGAN. Recent Advances in Science and Engineering.

Zhang, K., Liang, J., Van Gool, L., & Timofte, R. (2021). Designing a practical degradation model for deep blind image super-resolution. Proceedings of the IEEE/CVF International Conference on Computer Vision.

การโคลนยีนและศึกษาคุณลักษณะของยีน tolQ และ motA จากแบคทีเรีย Zymomonas mobilis

Cloning and Characterization of tolQ and motA Genes from Zymomonas mobilis

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บทคัดย่อ

การรักษาเสถียรภาพของผนังเซลล์เป็นกลไกสำคัญที่ช่วยให้จุลินทรีย์สามารถปรับตัวและดำรงชีวิตอยู่ได้ภายใต้สภาวะแวดล้อมที่ไม่เหมาะสม โดยกระบวนการดังกล่าวเกี่ยวข้องกับยีนหลายยีน ในจำนวนยีนเหล่านั้น พบว่า ยีน *motA* และ *tolQ* เป็นยีนที่มีบทบาทสำคัญ ในกระบวนการดังกล่าว งานวิจัยนี้จึงมีวัตถุประสงค์ เพื่อโคลนยีนและศึกษาลักษณะทางพันธุกรรมของยีน *motA* และ *tolQ* จากแบคทีเรียผลิตเอทานอล *Zymomonas mobilis* จากการเพิ่มปริมาณชิ้นยีนด้วยเทคนิคปฏิกิริยาลูกโซ่พอลิเมอเรส (PCR) ร่วมกับไพรเมอร์จำเพาะ จากนั้นนำผลิตภัณฑ์พีซีอาร์ที่ได้เชื่อมต่อเข้าสู่พลาสมิดดีเอ็นเอ โดยใช้เทคนิค TA cloning และนำพลาสมิดลูกผสมไปวิเคราะห์ลำดับนิวคลีโอไทด์ด้วยวิธี Sanger sequencing ผลการศึกษาพบว่า ยีน *motA* และ *tolQ* มีขนาด 696 และ 711 คู่เบส ซึ่งสามารถถอดรหัสเป็นกรดอะมิโนได้ทั้งสิ้น 231 และ 236 กรดอะมิโน และมีค่าคาดคะเนน้ำหนักโมเลกุลของโปรตีนที่ 25.35 และ 25.32 กิโลดาลตัน ตามลำดับ จากการศึกษาบริเวณจำเพาะของโปรตีนทั้งสองชนิด พบว่า โปรตีนเหล่านี้มีบริเวณจำเพาะหรือโดเมนที่เกี่ยวข้องกับการดัดแปลงหลังการแปลรหัส (post-translational modification; PTM) ซึ่งข้อมูลพื้นฐานที่ได้รับจากการวิจัยครั้งนี้ จะเป็นประโยชน์สำหรับการออกแบบการทดลอง เพื่อปรับปรุงสายพันธุ์ *Z. mobilis* ให้มีคุณสมบัติที่ต้องการได้ในอนาคต

คำสำคัญ: การโคลนยีน, การผลิตเอทานอล, จุลินทรีย์ทนร้อน

Abstract

Cell wall stability maintenance is a crucial mechanism that helps microorganisms adapt and survive under unfavorable environmental conditions. This process involves multiple genes. Among these genes, *motA* and *tolQ* play significant roles in this process. This research aims to clone and study the genetic characteristics of the *motA* and *tolQ* genes from the ethanol-producing bacterium *Zymomonas mobilis*. The genes were amplified using the Polymerase Chain Reaction (PCR) technique with specific primers. The PCR products were then inserted into DNA plasmids using the TA cloning technique, and the recombinant plasmids were analyzed for nucleotide sequences using Sanger sequencing. The results showed that the *motA* and *tolQ* genes are 696 and 711 base pairs in size, which can be translated into 231 and 236 amino acids, with predicted molecular weights of 25.35 and 25.32 kilodaltons, respectively. The study of specific regions of both proteins revealed that these proteins contain specific regions or domains related to post-translational modification (PTM). The basic information obtained from this research will be beneficial for designing experiments to improve *Z. mobilis* strains with desired properties in the future.

Keywords: gene cloning, ethanol production, thermotolerant microorganisms

บทนำ

Zymomonas mobilis เป็นแบคทีเรียแกรมลบ มีรูปร่างเป็นแท่งที่มีส่วนปลายกลมมน ไม่ก่อโรค ไม่สร้างสปอร์ สามารถคัดแยกได้จากน้ำผลไม้หรือเครื่องดื่มแอลกอฮอล์ เช่น ไวน์องุ่น ไวน์พลัม น้ำอ้อย หรือจากไซเดอร์และเบียร์ที่เน่าเสีย (Weir, 2016) *Z. mobilis* สามารถเจริญได้ทั้งในสภาวะที่มีออกซิเจนและไม่มีออกซิเจน (facultative anaerobes) นอกจากนี้ ยังเป็นหนึ่งในกลุ่มจุลินทรีย์ที่มีความสามารถและประสิทธิภาพในการผลิตพลังงานชีวภาพอย่างเอทานอล โดยผ่านวิถีเอ็นต์-เนอร์ ดูโดรอฟต์ (Entner–Doudoroff pathway) (Braga, Gomes, Rainha, Amorim, Cardoso, Gudiña, Sivéio, Rodrigues, & Rodrigues, 2021) ในการเปลี่ยนโมเลกุลของน้ำตาลกลูโคสเป็นเอทานอล ด้วยคุณสมบัติที่กล่าวมาข้างต้น *Z. mobilis* จึงเป็นหนึ่งในจุลินทรีย์ที่มีศักยภาพสูงสำหรับใช้ในการผลิตเอทานอลในระดับอุตสาหกรรม

ในกระบวนการผลิตหรือการหมักเอทานอลนั้น มีสภาวะเครียดที่เกิดจากปัจจัยต่าง ๆ มากมายที่อาจส่งผลต่อการเจริญของเซลล์จุลินทรีย์ โดยสภาวะเครียดต่าง ๆ ที่สามารถเกิดขึ้น ได้แก่ อุณหภูมิที่สูง ความเข้มข้นของเอทานอลที่เพิ่มขึ้น ค่าความเป็นกรด-ด่าง แรงดันออสโมติก เป็นต้น ซึ่งสภาวะเครียดเหล่านี้นอกจากจะส่งผลต่อความสามารถในการเจริญของเซลล์จุลินทรีย์แล้ว ยังส่งผลต่อความสามารถในการผลิตเอทานอลของจุลินทรีย์ด้วย (Sahana, Balasuramanian, Sebastian, Pappuswamy, Liu, Meyyazhagan, Kamyab, Chelliapan, & Joseph, 2024) ซึ่งผลกระทบจากปัจจัยดังกล่าวข้างต้นจะมากหรือน้อยเพียงใดขึ้นอยู่กับปัจจัยบางประการ เช่น ชนิดของจุลินทรีย์ รูปแบบการผลิต สภาวะในการหมัก เป็นต้น อย่างไร

ก็ตามในบรรดาสภาวะเครียดต่าง ๆ นั้น พบว่าสภาวะเครียด เนื่องจากอุณหภูมิสูงจัดได้ว่ามีความสำคัญ ทั้งนี้ เพราะนอกจากความร้อนที่เกิดจากกระบวนการเมทาบอลิซึมของเซลล์จุลินทรีย์แล้ว สภาพแวดล้อมภายนอก โดยเฉพาะอุณหภูมิของสภาพบรรยากาศที่สูงขึ้นในแต่ละปี อันเนื่องมาจากสภาวะโลกร้อน ยังส่งผลให้อุณหภูมิในถังหมักเพิ่มสูงขึ้นมากด้วยเช่นกัน ด้วยเหตุนี้ทางโรงงานอุตสาหกรรมจึงจำเป็นต้องทำการติดตั้งระบบหล่อเย็นเข้าในไปกระบวนการผลิต เพื่อควบคุมสภาวะอุณหภูมิในกระบวนการผลิตให้คงที่และเหมาะสมแก่การเจริญของจุลินทรีย์ อย่างไรก็ตามการเพิ่มกระบวนการดังกล่าวทำให้มีค่าใช้จ่ายที่ค่อนข้างสูง ส่งผลให้สูญเสียค่าใช้จ่ายในกระบวนการผลิตมากขึ้น ดังนั้นเพื่อแก้ไขปัญหาดังกล่าวและลดต้นทุนการผลิต จึงมีการศึกษาวิจัยเพื่อคัดเลือกจุลินทรีย์ที่มีความสามารถในการทนความร้อนมาใช้ในกระบวนการผลิตเพื่อลดต้นทุนการผลิตลง นอกจากการเลือกใช้จุลินทรีย์ที่มีความสามารถในการทนร้อนแล้ว การปรับปรุงหรือการดัดแปลงสายพันธุ์จุลินทรีย์ให้มีคุณสมบัติตามที่ต้องการ เช่น ทนอุณหภูมิสูงได้ดี ก็เป็นอีกแนวทางหนึ่งที่ได้รับความสนใจในปัจจุบัน ถึงแม้วิธีการปรับปรุงสายพันธุ์จุลินทรีย์จะมีหลากหลายรูปแบบ เช่น การชักนำให้เกิดการกลายพันธุ์ด้วยสารเคมีหรือรังสี การปรับปรุงสายพันธุ์โดยการเพาะเลี้ยงจุลินทรีย์ภายใต้สภาวะการเพาะเลี้ยงที่ต้องการหรือที่เรียกว่า adaptive laboratory evolution (ALE) หรือวิธีการตัดต่อยีนเป็นต้น ในบรรดาเทคนิคเหล่านี้พบว่าการตัดต่อยีนถือได้ว่าเป็นวิธีการที่มีความจำเพาะเจาะจงและมีประสิทธิภาพสูงในการได้มาซึ่งจุลินทรีย์ที่ต้องการ

จากการศึกษายีนที่เกี่ยวข้องกับการทนร้อนใน *Z. mobilis* TISTR 548 พบว่ากลุ่มยีนที่เกี่ยวข้องกับการรักษาเสถียรภาพของผนังเซลล์ (membrane stabilization) มีส่วนสำคัญที่ช่วยให้จุลินทรีย์สามารถทนสภาวะเครียดที่เกิดจากปัจจัยต่าง ๆ ได้ (Charoensuk, Sukurada, Tokiyama, Murata, Kosaka, Thanonkeo, & Yamada, 2017) หนึ่งในยีนที่มีบทบาทสำคัญและมีการศึกษากันมาก โดยเฉพาะในแบคทีเรีย *Escherichia coli* คือ *tolQ* และ *motA* ซึ่งยีนทั้งสองนี้กำหนดการสร้างโปรตีนในกลุ่ม Tol/pal system ซึ่งมีความสำคัญต่อการดำรงชีวิตและการส่งถ่ายพลังงาน รักษาสมดุลและเสถียรภาพของผนังเซลล์แบคทีเรียภายใต้สภาวะเครียดจากปัจจัยต่าง ๆ เช่น ความร้อน เป็นต้น (Cascales, Lloubès, & Sturgis, 2001) อย่างไรก็ตาม ปัจจุบันยังไม่พบว่ามีการศึกษายีน *tolQ* และ *motA* ใน *Z. mobilis* มากนัก ดังนั้นงานวิจัยนี้จึงสนใจศึกษาถึงการโคลนยีน และศึกษาคุณลักษณะบางประการของยีน โดยคาดหวังว่าข้อมูลที่ได้จากงานวิจัยนี้จะช่วยให้เข้าใจบทบาทของยีน *tolQ* และ *motA* ใน *Z. mobilis* เพิ่มมากขึ้น รวมทั้งสามารถนำไปใช้ในการออกแบบเพื่อปรับปรุงสายพันธุ์แบคทีเรีย *Z. mobilis* ให้มีลักษณะตามที่ต้องการได้ในอนาคต

วัตถุประสงค์ของการวิจัย

เพื่อโคลนยีน และศึกษาลำดับนิวคลีโอไทด์ และกรดอะมิโนของยีน *tolQ* และยีน *motA* จากแบคทีเรีย *Z. mobilis* TISTR 548

วิธีดำเนินการวิจัย

1. การสืบค้นข้อมูลลำดับนิวคลีโอไทด์ของยีนที่เกี่ยวข้องและการออกแบบไพรเมอร์

สืบค้นข้อมูลลำดับนิวคลีโอไทด์ของยีน *tolQ* และ *motA* จากฐานข้อมูล The National center for biotechnology information (NCBI) เมื่อทราบลำดับนิวคลีโอไทด์แล้วทำการออกแบบไพรเมอร์ ให้อยู่บริเวณตำแหน่งเริ่มต้นการสังเคราะห์ (Start codon) และตำแหน่งหยุดการสังเคราะห์ (Stop codon) และตรวจสอบคุณสมบัติของไพรเมอร์โดยใช้โปรแกรม Netprimer จากเว็บไซต์ www.premierbiosoft.com/netprime

2. การเตรียมกล้าเชื้อ *Z. mobilis* TISTR 548 และการแยกสกัดจีโนมิกส์ดีเอ็นเอ (genomic DNA extraction)

เพาะเลี้ยง *Z. mobilis* TISTR 548 ที่ได้จากสถาบันวิจัยวิทยาศาสตร์และเทคโนโลยีแห่งประเทศไทย ในอาหารเหลวสูตร Yeast extract-peptone glucose broth (YPG broth) บ่มที่อุณหภูมิ 30 องศาเซลเซียส แบบไม่เขย่าเป็นเวลา 24 ชั่วโมง จากนั้นถ่ายเชื้อลงในอาหารเหลว YPG อีกครั้ง และบ่มที่อุณหภูมิ 30 องศาเซลเซียส เป็นเวลา 12-16 ชั่วโมง เก็บเกี่ยวเซลล์โดยการปั่นเหวี่ยงและนำไปแยกสกัดจีโนมิกส์ดีเอ็นเอ โดยใช้ชุดสกัดดีเอ็นเอสำเร็จรูป GF-1 nucleic acid extraction kit (Vivantis, Malaysia) จากนั้นตรวจสอบคุณภาพของดีเอ็นเอ ด้วยเทคนิคอะกาโรสเจลอิเล็กโทรโฟริซิส (agarose gel electrophoresis) แล้วนำไปใช้ในการทำปฏิกิริยาลูกโซ่พอลิเมอเรส ต่อไป

3. การเพิ่มปริมาณชิ้นยีนที่สนใจด้วยเทคนิคปฏิกิริยาลูกโซ่พอริเมอเรส (polymerase chain reaction: PCR) และการทำให้ผลิตภัณฑ์ PCR บริสุทธิ์ (PCR product purification)

นำดีเอ็นเอทั้งหมดที่แยกสกัดได้จากข้อ 2 และไพรเมอร์ที่ออกแบบในข้อ 1 มาใช้ในการเพิ่มปริมาณชิ้นยีน *tolQ* และ *motA* ด้วย UltraRun LongRange (Qiagen, Germany) นำไปทำปฏิกิริยาในเครื่อง C1000 Touch™ cycler ของบริษัท Biorad, USA โดยใช้สภาวะในการทำปฏิกิริยาดังแสดงในตารางที่ 1 จากนั้นนำผลิตภัณฑ์ที่ได้มาทำให้บริสุทธิ์ โดยใช้ชุด GF-1 AmbiClean kit (PCR & Gel) (Vivantis, Malaysia) แล้วนำไปตรวจสอบด้วยเทคนิค agarose gel electrophoresis และวัดความเข้มข้นของดีเอ็นเอด้วยเครื่อง BioDrop Duo และนำดีเอ็นเอที่บริสุทธิ์ไปใช้ในการเชื่อมต่อกับดีเอ็นเอพาหะต่อไป

ตารางที่ 1 อุณหภูมิและระยะเวลาที่ใช้ในการทำปฏิกิริยา PCR

ขั้นตอน	อุณหภูมิ (°C) (สำหรับยีน *motA*)	อุณหภูมิ (°C) (สำหรับยีน *tolQ*)	เวลา	จำนวนรอบ
Initial denaturation	93	93	3 นาที	1
Denaturation	93	93	30 วินาที	34 รอบ
Annealing	53	60	30 วินาที	
Extension	72	72	1 นาที	
Final extension	72	72	1 นาที	

ตารางที่ 1 (ต่อ)

ขั้นตอน	อุณหภูมิ (°C) (สำหรับยีน *motA*)	อุณหภูมิ (°C) (สำหรับยีน *tolQ*)	เวลา	จำนวนรอบ
Final hold	12	12	จนกว่าจะนำหลอดออกจากเครื่อง	Final hold

4. การเชื่อมต่อดีเอ็นเอที่สนใจกับดีเอ็นเอพาหะ และการส่งถ่ายยีนเข้าสู่เซลล์แบคทีเรีย (bacterial transformation)

ทำการโคลนยีนโดยอาศัยหลักการ TA cloning โดยการนำผลิตภัณฑ์ PCR ที่มี A-overhang ที่ปลาย 3’ ไปเชื่อมต่อกับดีเอ็นเอพาหะ pGEM® -T easy vector (Promega Corporation, USA) ที่มี T-overhang ที่ปลาย 3’ โดยการเติมสารละลายลงในหลอดไมโครทิวป์ ผสมให้เข้ากันโดยใช้ปิเปตดูดขึ้นลง และนำไปบ่มที่อุณหภูมิ 4 องศาเซลเซียส ข้ามคืน จากนั้นนำไปส่งถ่ายเข้าสู่เซลล์เจ้าบ้าน *E. coli* DH5**α** และบ่มในอ่างน้ำแข็งเป็นเวลา 30 นาที แล้วนำไป heat-shock ที่อุณหภูมิ 42 องศาเซลเซียส เป็นเวลา 45-50 วินาที และนำไปบ่มในอ่างน้ำแข็งอีกครั้งเป็นเวลา 2 นาที จากนั้นเพาะเลี้ยงเซลล์ในอาหาร LB broth นำไปบ่มที่อุณหภูมิ 37 องศาเซลเซียส ความเร็วรอบ 150 รอบต่อนาที เป็นเวลา 1 ชั่วโมง จากนั้นนำเชื้อมาเกลี่ย (spread) บนอาหารแข็ง LB ที่มียาปฏิชีวนะแอมพิซิลลิน (ampicillin) ความเข้มข้น 100 ไมโครกรัมต่อมิลลิลิตร X-gal (5-bromo-4-chloro-3-indolyl-β-D-galactipyranoside) ความเข้มข้น 50 มิลลิกรัมต่อมิลลิลิตร และ IPTG (isopropyl β-D-1-thiogalactopyranoside) ความเข้มข้น 10 มิลลิกรัมต่อมิลลิลิตร และนำไปบ่มที่อุณหภูมิ 37 องศาเซลเซียส เป็นเวลา 16 ชั่วโมง

5. การคัดเลือกเซลล์เจ้าบ้านที่ได้รับยีนที่สนใจ (screening of recombinants) และการตรวจสอบลำดับนิวคลีโอไทด์ (nucleotide sequencing)

ทำการคัดเลือกเซลล์เจ้าบ้านที่ได้รับยีนที่สนใจโดยใช้อาหาร LB ที่มียาปฏิชีวนะแอมพิซิลลิน X-gal และ IPTG ร่วมกับเทคนิค PCR (colony screening by PCR) โดยการนำโคโลนีที่เกิดขึ้นบน master plate มาทำปฏิกิริยา PCR โดยใช้ USB® Taq PCR Master Mix (2X) (Affymetrix, USA) หลังจากคัดเลือกเซลล์ที่ได้รับยีนที่สนใจแล้ว นำเซลล์ดังกล่าวมาเพาะเลี้ยงในอาหาร LB และทำการแยกสกัดพลาสมิดดีเอ็นเอด้วยชุดสกัด GF-1 Plasmid DNA extraction kit (Vivantis, Malaysia) และนำพลาสมิดดีเอ็นเอที่สกัดได้ส่งไปตรวจสอบลำดับนิวคลีโอไทด์ด้วยเทคนิค Sanger sequencing ที่บริษัท Macrogen ประเทศเกาหลีใต้ แล้วนำผลที่ได้มาวิเคราะห์และเปรียบเทียบกับฐานข้อมูล NCBI

ผลการวิจัย

1. การออกแบบไพรเมอร์สำหรับใช้เพิ่มปริมาณดีเอ็นเอของยีนที่สนใจ

จากการสืบค้นข้อมูลลำดับนิวคลีโอไทด์ของยีน *motA* และ *tolQ* ในฐานข้อมูล NCBI พบข้อมูลลำดับนิวคลีโอไทด์ของยีนดังกล่าวในแบคทีเรีย *Z. mobilis* สายพันธุ์ต่าง ๆ เช่น *Z. mobilis* ATCC

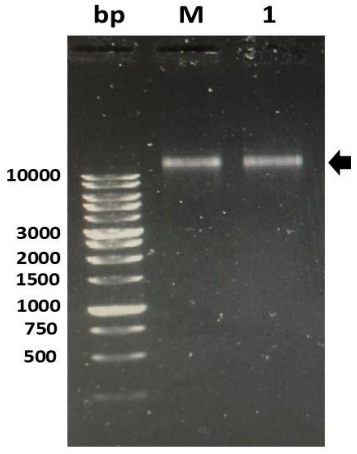
29191, ATCC 10988 และ CP4 เป็นต้น จึงนำข้อมูลลำดับนิวคลีโอไทด์ในฐานข้อมูลมาใช้ในการออกแบบไพรเมอร์ โดยกำหนดตำแหน่งของไพรเมอร์ให้อยู่บริเวณตำแหน่งเริ่มต้น และตำแหน่งหยุดการสังเคราะห์ จากนั้น ทำการตรวจสอบคุณสมบัติของไพรเมอร์โดยใช้โปรแกรม Netprimer พบว่าไพรเมอร์ที่ออกแบบได้มีคุณสมบัติดังแสดงในตารางที่ 2

ตารางที่ 2 ไพรเมอร์ที่ใช้ในการทดลอง คุณสมบัติของไพรเมอร์ และขนาดของผลิตภัณฑ์ที่ได้หลังจากการทำ Polymerase Chain Reaction (PCR)

ชื่อยีน	ชื่อไพรเมอร์	ลำดับนิวคลีโอไทด์	ความยาว (base)	อุณหภูมิ T_m (°C)	ขนาด (bp)
motA	MTE1-F	5'ATGTATCTTCTGACGTCAGTTAGTC'3	25	57.2	696
	MTE1-R	5'TTAGTCCTCTATTATACTGGTTTTG'3	25	53.0	
tolQ	MTE2-F	5'ATGCCTTCTTTGGAAATGTCCGGCA'3	25	65.6	711
	MTE2-R	5'TCAGTGGCGAGCGTCCATGGC'3	21	69.7	

2. การแยกสกัดจีโนมิกส์ดีเอ็นเอ (genomic DNA extraction) จาก *Z. mobilis* TISTR 548

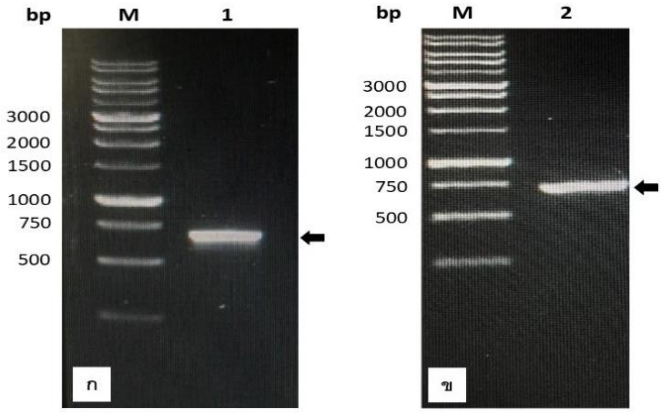
จากการแยกสกัดดีเอ็นเอของเชื้อ *Z. mobilis* TISTR 548 และตรวจสอบด้วยวิธี agarose gel electrophoresis พบว่าตัวอย่างดีเอ็นเอมีขนาดใหญ่มากกว่า 10,000 คู่เบส (ภาพที่ 1) โดยไม่ปรากฏแถบอาร์เอ็นเอนอกจากนี้แล้ว จากการวัดค่าการดูดกลืนแสงและคำนวณสัดส่วนของค่าการดูดกลืนแสงที่ความยาวคลื่น 260 และ 280 พบว่า มีค่าสัดส่วนอยู่ที่ 1.80 แสดงให้เห็นว่าดีเอ็นเอที่แยกสกัดได้ในครั้งนี้ มีความบริสุทธิ์สามารถนำไปใช้ในการทดลองต่อไปได้



ภาพที่ 1 ผลการวิเคราะห์คุณภาพเบื้องต้นของดีเอ็นเอที่แยกสกัดได้จากแบคทีเรีย *Z. mobilis* TISTR 548 ด้วยเทคนิค agarose gel electrophoresis M คือ 1 Kb DNA ladder ; 1 และ 2 คือ ดีเอ็นเอตัวอย่างที่ 1 และ 2 ตามลำดับ ตำแหน่งลูกศร คือ ตำแหน่งของดีเอ็นเอบนเจล

3. การเพิ่มปริมาณชิ้นยีนที่สนใจด้วยเทคนิค PCR และการทำให้ผลิตภัณฑ์ PCR บริสุทธิ์

จากการเพิ่มปริมาณชิ้นยีนด้วยเทคนิค PCR โดยใช้ไพรเมอร์จำเพาะและสภาวะในการทำปฏิกิริยา ดังแสดงในตารางที่ 2 และตรวจสอบผลด้วยเทคนิค agarose gel electrophoresis พบว่ายีน *motA* และ *tolQ* มีขนาดประมาณ 700 คู่เบส (ภาพที่ 2)



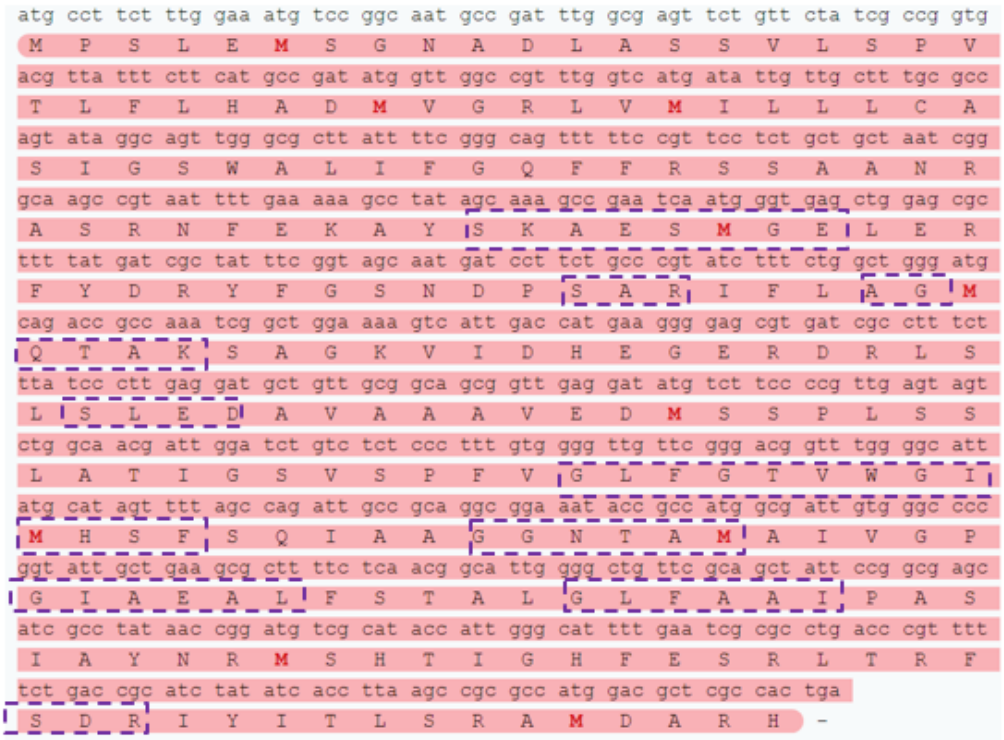
ภาพที่ 2 ผลการวิเคราะห์ผลิตภัณฑ์ PCR ของยีน *motA* (ก) และ *tolQ* (ข) ของแบคทีเรีย *Z. mobilis* TISTR 548 ด้วยเทคนิค agarose gel electrophoresis M คือ 1 Kb DNA ladder ; 1 และ 2 คือ ผลิตภัณฑ์พีซีอาร์ของยีน *motA* และ *tolQ* ตำแหน่งลูกศร แสดงตำแหน่งของชิ้นดีเอ็นเอของยีน

4. การตรวจสอบลำดับนิวคลีโอไทด์ของยีน *motA* และ *tolQ*

จากการตรวจสอบลำดับนิวคลีโอไทด์ของยีน *motA* และ *tolQ* ด้วยวิธี Sanger sequencing พบว่ายีน *motA* มีขนาด 696 คู่เบส สามารถถอดรหัสเป็นโปรตีนที่ประกอบด้วยกรดอะมิโน จำนวน 231 กรดอะมิโน (ภาพที่ 3) และมีค่าคาดคะเนน้ำหนักโมเลกุลของโปรตีนเท่ากับ 25.35 กิโลดาลตัน ในขณะที่ *tolQ* มีขนาด 711 คู่เบส ถอดรหัสเป็นโปรตีนที่ประกอบด้วยกรดอะมิโน จำนวน 236 กรดอะมิโน มีค่าคาดคะเนน้ำหนักโมเลกุลของโปรตีนเท่ากับ 25.32 กิโลดาลตัน นอกจากนี้ยังพบตำแหน่งโดเมนของโปรตีนที่เกี่ยวข้องกับการดัดแปลงหลังการแปลรหัส (post- translational modification; PTM) (ภาพที่ 4) ซึ่งช่วยในการรักษาโครงสร้างของโปรตีน โดยการปรับเปลี่ยนโครงสร้างหรือการทำงานของโปรตีน เพื่อให้สามารถทำงานได้ในสภาวะที่ไม่เหมาะสม และผลจากการเปรียบเทียบความเหมือนของลำดับนิวคลีโอไทด์ของยีน *motA* และ *tolQ* ใน *Z. mobilis* TISTR 548 กับลำดับนิวคลีโอไทด์ในฐานข้อมูล พบว่า มีเปอร์เซ็นต์ความเหมือนค่อนข้างสูงอยู่ในช่วง 98-100% กับยีน *motA* และ *tolQ* ในแบคทีเรีย *Z. mobilis* สายพันธุ์ต่าง ๆ ดังแสดงในตารางที่ 3



ภาพที่ 3 ลำดับนิวคลีโอไทด์ กรดอะมิโน และตำแหน่งโดเมนของยีน *motA* ในแบคทีเรีย *Z. mobilis* TISTR 548 โดยตำแหน่งของโดเมนอยู่ในกรอบสี่เหลี่ยม



ภาพที่ 4 ลำดับนิวคลีโอไทด์ กรดอะมิโน และตำแหน่งโดเมนของยีน *tolQ* ในแบคทีเรีย *Z. mobilis* TISTR 548 โดยตำแหน่งของโดเมนอยู่ในกรอบสี่เหลี่ยม

ตารางที่ 3 เปอร์เซ็นต์ความเหมือนของยีน *motA* และ *tolQ* ในแบคทีเรีย *Z. mobilis* TISTR 548 เมื่อเทียบกับยีนดังกล่าวในฐานข้อมูลพันธุกรรม

Organism	*motA*		*tolQ*	
	Identity (%)	Query Coverage (%)	Identity (%)	Query Coverage (%)
Z. mobilis ATCC 29191	100	100	100	100
Z. mobilis ATCC 10988	98.56	100	99.02	100
Z. mobilis ATCC 31821	97.70	100	98.87	100
Z. mobilis CP4	98.13	100	98.87	100
Z. mobilis NCIMB 11163	97.84	100	98.73	100

สรุปและอภิปรายผล

ในงานวิจัยนี้ ได้มุ่งเน้นการโคลนยีนและศึกษาลำดับนิวคลีโอไทด์ของยีน *tolQ* และ *motA* จากแบคทีเรียผลิตเอทานอล *Z. mobilis* TISTR 548 ซึ่งทั้งสองยีนเกี่ยวข้องกับกลไกการรักษาเสถียรภาพของผนังเซลล์ และการเคลื่อนไหวของเซลล์ ผ่านการใช้พลังงานจาก proton motive force (PMF) ในระบบ Tol-Pal และ MotA/TolQ/ExbB complex ที่พบในแบคทีเรียแกลมลบ เช่น *E. coli* (Ratliff, Buchanan, & Celia, 2021) โดยในงานวิจัยนี้ได้ใช้เทคนิค TA cloning และไพร์เมอร์ที่มีความจำเพาะกับยีนดังกล่าวจากฐานข้อมูล The National Center for Biotechnology Information (NCBI) หลังจากเพิ่มปริมาณชิ้นยีนและตรวจสอบลำดับนิวคลีโอไทด์ด้วยเทคนิค Sanger sequencing พบว่า ยีน *motA* และ *tolQ* มีขนาด 696 และ 711 คู่เบส ตามลำดับ สามารถถอดรหัสเป็นโปรตีนที่ประกอบด้วยกรดอะมิโนทั้งสิ้น 231 และ 236 กรดอะมิโน โดยมีค่าคาดคะเนน้ำหนักโมเลกุลของโปรตีนเท่ากับ 25.35 และ 25.32 กิโลดาลตัน ตามลำดับ ซึ่งหากเปรียบเทียบลำดับนิวคลีโอไทด์และกรดอะมิโนของยีน *motA* และ *tolQ* ในแบคทีเรีย *Z. mobilis* กับแบคทีเรียชนิดอื่น ๆ พบว่า มีขนาดที่แตกต่างกัน จากการรายงานของ Blattner (1997) พบขนาดของทั้งสองยีนใน *E. coli* K-12 มีขนาด 888 และ 693 คู่เบส ในทางเดียวกันจากรายงานของ Dennis, Lafontaine, & Sokol (1996) และ Doyle, Hawkins, & McCarter (2004) พบขนาดของทั้งสองยีนใน *P. aeruginosa* PAO1 มีขนาด 852 และ 693 คู่เบส ตามลำดับ ซึ่งสามารถถอดรหัสเป็นโปรตีนและมีค่าน้ำหนักโมเลกุลที่แตกต่างกัน โดยความแตกต่างของขนาดโปรตีนนี้อาจสะท้อนให้เห็นถึงการปรับตัวของแบคทีเรียแต่ละชนิดต่อสภาพแวดล้อมที่แตกต่างกัน รวมถึงความแตกต่างของระบบเมแทบอลิซึมและโครงสร้างของผนังเซลล์ของแบคทีเรียแต่ละชนิด

จากการวิเคราะห์โดเมนของโปรตีน พบว่า มีตำแหน่งที่เกี่ยวข้องกับการดัดแปลงหลังการแปลรหัส (post-translational modification; PTM) ซึ่งสอดคล้องกับงานวิจัยของ Nisar, Gongye, Huang, Khan,

Chen, Wu, & He (2021) ที่พบโดเมนของโปรตีนซึ่งมีบทบาทสำคัญในการดัดแปลงหลังกระบวนการแปลรหัสโดยเฉพาะกระบวนการเติมหมู่ acetyl group (acetylation) ให้กับโปรตีนในแบคทีเรีย *Z. mobilis* ZM4 ซึ่งมีผลต่อการทำงานของโปรตีนในสภาวะต่าง ๆ นอกจากนี้การมีอยู่ของยีน *motA* และ *tolQ* ใน *Z. mobilis* มีความจำเป็นต่อการรักษาความแข็งแรงของโครงสร้างของผนังเซลล์ของจุลินทรีย์ ช่วยให้จุลินทรีย์สามารถทนต่อสภาวะความเครียดต่าง ๆ ได้ เช่น ความเข้มข้นของเอทานอลที่สูงขึ้น จากการรายงานของ Asefi, Nouri, H., Pourmohammadi, & Moghimi (2024) พบว่า เมื่ออยู่ภายใต้สภาวะที่มีเอทานอลสูง *Z. mobilis* มีการแสดงออกของโปรตีนบริเวณเยื่อหุ้มเซลล์ที่เกี่ยวข้องกับการรักษาโครงสร้างเซลล์ ซึ่งสอดคล้องกับบทบาทของ *motA* และ *tolQ* ในการรักษาเสถียรภาพของผนังเซลล์ นอกจากนี้การศึกษาโครงสร้างของระบบ MotA/TolQ/ExbB complex ในแบคทีเรียชนิดอื่น ๆ พบว่า โปรตีนเหล่านี้มีลักษณะโครงสร้าง และกลไกการใช้พลังงานที่คล้ายคลึงกัน (Lai, Ridone, Peralta, Tanaka, & Baker, 2019) ดังนั้นข้อมูลการศึกษาลำดับนิวคลีโอไทด์ และกรดอะมิโนของยีน *motA* และ *tolQ* ใน*Z. mobilis* จากการวิจัยในครั้งนี้ จะเป็นประโยชน์ต่อการปรับปรุงสายพันธุ์ *Z. mobilis* ให้มีความสามารถและคุณสมบัติที่ต้องการได้ในอนาคต

ข้อเสนอแนะ

ผลการศึกษาในครั้งนี้ เป็นเพียงส่วนหนึ่งในการศึกษาการโคลนยีนและคุณลักษณะของโปรตีน อย่างไรก็ตาม ควรมีการศึกษาเพิ่มเติมในส่วนของการแสดงออกของยีนในแบคเรีย *Escherichia coli* หรือใน *Zymomonas mobilis* เพื่อให้เข้าใจกระบวนการควบคุมการแสดงออกของยีน และบทบาทของโปรตีนภายใต้สภาวะเครียดต่าง ๆ มากยิ่งขึ้น เพื่อให้ได้ข้อมูลที่ครบถ้วนสำหรับการนำไปใช้เป็นแนวทางในการปรับปรุงสายพันธุ์แบคทีเรียให้มีคุณสมบัติตามที่ต้องการ

เอกสารอ้างอิง

Blattner, F. R. (1997). The complete genome sequence of Escherichia coli K-12. Science, 277(5331), 1453–1462. https://doi.org/10.1126/science.277.5331.1453

Braga, A., Gomes, D., Rainha, J., Amorim, C., Cardoso, B. B., Gudiña, E. J., Silvério, S. C., Rodrigues, J. L., & Rodrigues, L. R. (2021). Zymomonas mobilis as an emerging biotechnological chassis for the production of industrially relevant compounds. Bioresources and Bioprocessing, 8(1), 128. https://doi.org/10.1186/s40643-021-00483-2

Cascales, E., Lloubès, R., & Sturgis, J. N. (2001). The TolQ–TolR proteins energize TolA and share homologies with the flagellar motor proteins MotA–MotB. Molecular Microbiology, 42(3), 795–807. https://doi.org/10.1046/j.1365-2958.2001.02673.x

Charoensuk, K., Sakurada, T., Tokiyama, A., Murata, M., Kosaka, T., Thanonkeo, P., & Yamada, M. (2017). Thermotolerant genes essential for survival at a critical high temperature in thermotolerant ethanologenic Zymomonas mobilis TISTR 548. Biotechnology for Biofuels, 10(1), 204. https://doi.org/10.1186/s13068-017-0891-0

Dennis, J. J., Lafontaine, E. R., & Sokol, P. A. (1996). Identification and characterization of the tolQRA genes of Pseudomonas aeruginosa. Journal of Bacteriology, 178(24), 7059–7068. https://doi.org/10.1128/jb.178.24.7059-7068.1996

Doyle, T. B., Hawkins, A. C., & McCarter, L. L. (2004). The complex flagellar torque generator of Pseudomonas aeruginosa. Journal of Bacteriology, 186(19), 6341–6350. https://doi.org/10.1128/jb.186.19.6341-6350.2004

Lai, Y.-W., Ridone, P., Peralta, G., Tanaka, M. M., & Baker, M. A. B. (2019). Evolution of the stator elements of rotary prokaryote motors. Journal of Bacteriology, 202(3), 12. https://doi.org/10.1128/jb.00557-19

Nisar, A., Gongye, X., Huang, Y., Khan, S., Chen, M., Wu, B., & He, M. (2021). Genome-wide analyses of proteome and acetylome in Zymomonas mobilis under N2-fixing condition. Frontiers in Microbiology, 12, 740555. https://doi.org/10.3389/fmicb.2021.740555

Ratliff, A. C., Buchanan, S. K., & Celia, H. (2021). Ton motor complexes. Current Opinion in Structural Biology, 67, 95–100. https://doi.org/10.1016/j.sbi.2020.09.014

Sahana, G. R., Balasubramanian, B., Sebastian, J. K., Pappuswamy, M., Liu, W.-C., Meyyazhagan, A., Kamyab, H., Chelliapan, S., & Joseph, B. V. (2024). A review on ethanol tolerance mechanisms in yeast: Current knowledge in biotechnological applications and future directions. Process Biochemistry, 138, 1-13. https://doi.org/10.1016/j.procbio.2023.12.024

Asefi, S., Nouri, H., Pourmohammadi, G., & Moghimi, H. (2024). Comprehensive network of stress-induced responses in Zymomonas mobilis during bioethanol production: from physiological and molecular responses to the effects of system metabolic engineering. Microbial Cell Factories, 23(1), 180. https://doi.org/10.1186/s12934-024-02459-1

Weir, P. M. (2016). The ecology of Zymomonas: a review. Folia Microbiologica, 61(5), 385–392. https://doi.org/10.1007/s12223-016-0447-x

การผลิตสารบีตาแซนทินจากเซลล์แขวนลอยของต้นสร้อยไก่ และการประเมินฤทธิ์ต้านอนุมูลอิสระ

Production of Betaxanthin from Cell Suspension Cultures of Celosia argentea var. plumosa and Evaluation of Antioxidant

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บทคัดย่อ

ต้นสร้อยไก่ (Celosia argentea var. plumosa) สามารถสร้างและสะสมสารกลุ่มบีตาเลน (Betalains) ซึ่งเป็นสารสีจากธรรมชาติที่มีความสามารถในการต้านอนุมูลอิสระ ต้านเซลล์มะเร็ง และต้านจุลชีพ เป็นต้น สารบีตาเลน แบ่งออกเป็น 2 กลุ่ม ได้แก่ บีตาไซยานิน (Betacyanin) เป็นสารที่ให้สีแดงถึงสีม่วง และบีตาแซนทิน (betaxanthin) ที่ให้สีในโทนเหลืองส้ม โดยงานวิจัยนี้มีวัตถุประสงค์เพื่อผลิตสารสีกลุ่มบีตาแซนทินจากเซลล์แขวนลอยของต้นสร้อยไก่ โดยคัดเลือกเซลล์แคลลัสสีเหลืองที่มีการผลิตสารบีตาแซนทิน ผลการศึกษาพบว่า สามารถคัดเลือกและเพิ่มจำนวนเซลล์แคลลัสสีเหลืองที่สามารถเจริญบนอาหารแข็งและอาหารเหลวสูตร Murashige and Skoog (MS) ที่มีการเติมฮอร์โมนพืช 6-benzylaminopurine (BAP) ที่ความเข้มข้น 0.1 มิลลิกรัมต่อลิตร และ 2,4-dichlorophenoxyacetic acid (2,4-D) ที่ความเข้มข้น 1.0 มิลลิกรัมต่อลิตร โดยแคลลัสที่คัดเลือกได้นั้นมีลักษณะเกาะกันอย่างหลวม ๆ และนิ่ม เมื่อนำเซลล์ไลน์ที่คัดเลือกได้ไปเพาะเลี้ยงเพื่อศึกษารูปแบบการเจริญบนอาหารแข็ง พบว่าเซลล์มีการเจริญ โดยมีค่าน้ำหนักสดสูงสุดเฉลี่ย 23.04±0.75 กรัม ในวันที่ 21 และมีค่าน้ำหนักแห้งสูงสุดเฉลี่ย 0.61±0.05 กรัม ในวันที่ 18 ของการเพาะเลี้ยง และศึกษารูปแบบการเจริญของเซลล์แขวนลอย (Suspension-Cultured Cells: SCCs) ในอาหารเหลวพบว่าเซลล์มีค่าน้ำหนักสดสูงสุดเฉลี่ย 343.30±2.12 กรัมต่อลิตร ในวันที่ 21

และมีค่าน้ำหนักแห้งสูงสุดเฉลี่ย 14.44±0.10 กรัมต่อลิตร ในวันที่ 18 ซึ่งมีแนวโน้มไปในทิศทางเดียวกันกับการเพาะเลี้ยงบนอาหารแข็ง เมื่อวิเคราะห์การผลิตสารบีตาแซนทิน พบว่าผลิตได้สูงสุดเมื่อเพาะเลี้ยงเซลล์ในอาหารเหลวเป็นเวลา 15 วัน โดยมีปริมาณสารบีตาแซนทินเท่ากับ 15.32±0.06 มิลลิกรัมต่อลิตร และผลการศึกษาความสามารถของสารสกัดในการต้านอนุมูลอิสระด้วยวิธี 2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid) (ABTS) พบว่า สารสกัดจากเซลล์แขวนลอยของต้นสร้อยไก่จากตัวอย่างที่เก็บเกี่ยวในวันที่ 15 มีฤทธิ์ต้านอนุมูลอิสระ เท่ากับ 96.63 เปอร์เซ็นต์ ผลจากการศึกษาในครั้งนี้คาดว่าจะสามารถนำวิธีการผลิตไปประยุกต์เพื่อเป็นแนวทางในการเพาะเลี้ยงเซลล์แขวนลอยของต้นสร้อยไก่เพื่อผลิตสารบีตาแซนทิน และสารสกัดที่ได้มีศักยภาพในการนำไปใช้ประโยชน์ในอุตสาหกรรมต่าง ๆ ต่อไป

คำสำคัญ: บีตาเลน, บีตาแซนทิน, แคลลัส, เซลล์แขวนลอย, ต้นสร้อยไก่

Abstract

Celosia argentea var. plumosa is capable of producing and accumulating betalains, natural pigments with notable antioxidant, anticancer, and antimicrobial properties. Betalains are classified into two groups: betacyanins (red to purple pigments) and betaxanthins (yellow to orange pigments). This study aimed to produce betaxanthin pigments from cell suspension cultures by selecting yellow callus cells capable of synthesizing these compounds. The selected callus cells were successfully proliferated on both solid and liquid Murashige and Skoog (MS) media supplemented with 0.1 mg/L 6-benzylaminopurine (BAP) and 1.0 mg/L 2,4-dichlorophenoxyacetic acid (2,4-D). These cells were characterized by their soft texture and loosely aggregated structure. On solid media, the cultured cells reached a maximum fresh weight of 23.04± 0.75 g and a dry weight of 0.61± 0.05 g on day 21. In liquid cultures, suspension-cultured cells (SCCs) exhibited the highest fresh weight of 343.30±2.12 g/L on day 21 and the highest dry weight of 14.44±0.10 g/L on day 18, consistent with growth trends observed on solid media. The maximum betaxanthin content (15.32± 0.06 mg/L) was recorded after 15 days of cultivation. The antioxidant activity of the extract was evaluated using the ABTS radical cation decolorization assay. The SCCs harvested on day 15 exhibited the highest antioxidant activity at 96.63%, surpassing both the natural flower extract and standard ascorbic acid. These results suggest that the proposed cultivation method is effective for producing betaxanthins via cell suspension culture of C. argentea var. plumosa, and the extract obtained holds potential for use in food, pharmaceutical, and cosmetic industries.

Keywords: Betalain, Betaxanthin, Callus, Cell Suspension, *Celosia argentea*

บทนำ

ต้นสร้อยไก่ (Celosia argentea var. plumosa) เป็นพืชในวงศ์ Amaranthaceae มีลักษณะเป็นไม้พุ่มเตี้ย มีถิ่นกำเนิดในทวีปเอเชีย อเมริกา และแอฟริกา ดอกของต้นสร้อยไก่มีลักษณะเป็นช่อกระจุกซ้อนกันแน่นหลายชั้น มีหลากหลายสี เช่น เหลือง แดง ชมพู และส้ม ต้นสร้อยไก่สามารถสร้างและสะสมสารออกฤทธิ์ทางชีวภาพที่สำคัญ คือ สารกลุ่มบีตาเลน (Betalains) ซึ่งแบ่งออกเป็น 2 กลุ่มหลัก ได้แก่ บีตาไซยานิน (Betacyanin) ซึ่งเป็นสารที่ให้สีแดงถึงสีม่วงที่มีการดูดกลืนแสงที่ความยาวคลื่น 535-540 นาโนเมตร และบีตาแซนทิน (betaxanthin) ที่ให้สีในโทนเหลืองส้ม ซึ่งมีช่วงการดูดกลืนแสงที่ 475-480 นาโนเมตร (Moreno, García-Viguera, Gil, & Gil-Izquierdo., 2008; Lystvan, Kumorkiewicz, & Szneler, 2018) บีตาเลนมีฤทธิ์ทางชีวภาพหลายอย่าง เช่น ต้านอนุมูลอิสระ (Antioxidant) ต้านเซลล์มะเร็ง (Anticancer) ต้านจุลชีพ (Antimicrobial) และต้านการอักเสบ (Anti-Inflammatory) (Smeriglio et al., 2017)

ในปัจจุบัน สารสีที่พบในท้องตลาดและใช้ในผลิตภัณฑ์อาหารและเครื่องดื่มส่วนใหญ่เป็นสีสังเคราะห์ ซึ่งหากมีการบริโภคเป็นเวลานานต่อเนื่องในปริมาณมาก อาจก่อให้เกิดผลข้างเคียงต่อสุขภาพ เช่น คลื่นไส้อาเจียน เป็นต้น การใช้สีจากธรรมชาตินั้นจึงอาจเป็นทางเลือกที่น่าสนใจ เพื่อหลีกเลี่ยงการใช้สีสังเคราะห์ สารกลุ่มบีตาเลนนั้นสามารถพบได้ในพืชธรรมชาติ เช่น หัวบีทรูท (Beta vulgaris) เมล็ดผักปลัง (Basella alba) (ชุติมา ถนอมสิทธิ์, ธิพรพงษ์ เจริญยิ่ง และ จักรพันธ์ นาน่วม, 2561) รวมถึงต้นสร้อยไก่ที่สะสมสารกลุ่มบีตาเลนทั้งบีตาแซนทินและบีตาไซยานิน บีตาเลนจากต้นพืชที่กล่าวมานั้นมีการนำมาใช้เป็นแหล่งให้สีในอาหาร (Kumorkiewicz- Jamro, Swiergosz, Sutor, Spórna- Kucab, & Wybraniec, 2021) อย่างไรก็ตามการผลิตสารสีจากต้นพืชในธรรมชาติรวมถึงบีตาเลนจากดอกสร้อยไก่โดยตรง อาจพบข้อจำกัดบางประการ อาทิเช่น ฤดูกาลในการเก็บเกี่ยว ความต้องการพื้นที่ในการเพาะปลูก รวมถึงค่าใช้จ่ายในการดูแลรักษาอื่น ๆ นอกจากนี้ การปลูกในธรรมชาติไม่สามารถควบคุมการเกิดโรคของพืชหรือศัตรูพืชที่อาจส่งผลต่อการเจริญเติบโตในพืชธรรมชาติรวมถึงต้นสร้อยไก่ เพื่อหลีกเลี่ยงข้อจำกัดที่กล่าวมาข้างต้นนั้น การเลือกใช้เทคนิคการเพาะเลี้ยงเนื้อเยื่อและเซลล์พืช โดยเฉพาะการเพาะเลี้ยงเซลล์แขวนลอย (Cell Suspension Culture) เป็นอีกหนึ่งทางเลือกที่นิยมใช้ในการผลิตสาระสำคัญจากพืชและยังช่วยลดปัญหาที่อาจเกิดจากการผลิตสารจากพืชธรรมชาติ

บีตาเลนเป็นรงควัตถุที่พบในพืชในอันดับ Caryophyllales ซึ่งรงควัตถุที่พบจะแบ่งออกเป็น 2 กลุ่ม ตามลักษณะและคุณสมบัติที่พบ คือ บีตาไซยานินและบีตาแซนทิน (Khan & Giridhar, 2015) ซึ่งเป็นสารที่สะสมในแวคิวโอล (Vacuole) ของเซลล์ (Wink, 1997) Guadarrama-Flores, Rodríguez-Monroy, Cruz-Sosa, García-Carmona, and Gandía-Herrero (2015) ได้ศึกษาการผลิตบีตาเลนจากต้นสร้อยไก่ และพบสารหลายชนิด ในกลุ่มของบีตาแซนทิน เช่น สารโดปาแซนทิน (Dopaxanthin) และ มิราแซนทินวี (Miraxanthin V) รวมทั้งสารในกลุ่มของบีตาไซยานิน เช่น สารเบตานิดิน (Betanidin) และดีคาร์บอกซิเบตานิดิน (Decarboxy-Betanidin) ซึ่งเป็นกลุ่มที่มีความสามารถในการต้านอนุมูลอิสระสูงโดยจะไปกระตุ้นกลไกต่าง ๆ ที่เกี่ยวข้องกับการป้องกันอนุมูลอิสระในเซลล์

จากงานวิจัยก่อนหน้านี้ พบว่า มีรายงานการผลิตสารกลุ่มบีตาเลน (บีตาไซยานิน) จากเซลล์แขวนลอยของต้นสร้อยไก่ รวมถึงศึกษารูปแบบการเจริญในอาหารเหลว (ฐาปกรณ์ แสงอรุณ, อธิยา เตชะปารินทร์, พรเทพ ถนนแก้ว, จิรวรรณ อภิรักษากร และ ปรีย์กมล กลั่นฤทธิ์, 2565) อย่างไรก็ตาม ยังไม่พบรายงานการศึกษาเกี่ยวกับการผลิตสารบีตาเลนในกลุ่มบีตาแซนทินในแคลลัสของต้นสร้อยไก่รวมถึงการติดตามลักษณะการเจริญทั้งในอาหารแข็งและอาหารเหลว รวมถึงความสามารถของสารสกัดในการยับยั้งอนุมูลอิสระ ดังนั้นการศึกษาวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาการผลิตสารบีตาเลนในกลุ่มของบีตาแซนทินจากเซลล์แขวนลอยของต้นสร้อยไก่ โดยวิเคราะห์รูปแบบการเจริญของเซลล์เพาะเลี้ยง ปริมาณสารบีตาแซนทินที่สะสมภายในเซลล์ และความสามารถในการต้านอนุมูลอิสระของสารสกัดจากเซลล์แขวนลอยดังกล่าว ทั้งนี้ ผลการศึกษาจะนำไปสู่องค์ความรู้ที่สำคัญสำหรับการวิเคราะห์ศักยภาพของสารสกัดเพื่อการประยุกต์ใช้ในอุตสาหกรรมต่าง ๆ ในอนาคต

วัตถุประสงค์ของการวิจัย

เพื่อคัดเลือกและเพิ่มปริมาณแคลลัสสีเหลืองส้มที่มีการสร้างและสะสมสารบีตาแซนทินจากแคลลัสต้นสร้อยไก่ และศึกษารูปแบบการเจริญของแคลลัสบนอาหารแข็งและอาหารเหลว รวมถึงคุณสมบัติในการเป็นสารต้านอนุมูลอิสระของสารสกัดที่ได้จากแคลลัสสีเหลืองส้ม

วิธีดำเนินการวิจัย

1. การคัดเลือกและการเพิ่มปริมาณแคลลัสสีเหลือง

แคลลัสต้นสร้อยไก่จากงานวิจัย ได้จากการชักนำแคลลัสจากลำต้นอ่อนสีแดงอายุ 30 วัน (ฐาปกรณ์ แสงอรุณ และคณะ, 2565) โดยแคลลัสที่ได้จากการชักนำนั้นประกอบด้วยเซลล์ที่มีทั้งสีแดง ส้ม และเหลืองอยู่รวมกัน จากนั้นทำการคัดเลือกแคลลัสที่มีสีเหลือง เนื้อสัมผัสนิ่มและเกาะกลุ่มกันอย่างหลวม ๆ (Friable Callus) และย้ายลงอาหารแข็งสูตร MS ที่มีการเติมน้ำตาลซูโครส 30 กรัมต่อลิตร สารก่อเจล (gelzan^{TM}) 0.2 % โดยน้ำหนักต่อปริมาตร และปรับค่าความเป็นกรดด่างเท่ากับ 5.8 และฮอร์โมนพืช BAP ความเข้มข้น 0.1 มิลลิกรัมต่อลิตร และ 2, 4-D ความเข้มข้น 1.0 มิลลิกรัมต่อลิตร เลี้ยงในห้องปลอดเชื้อ ที่ควบคุมอุณหภูมิ 25±2 องศาเซลเซียส ระยะเวลาให้แสง 16 ชั่วโมง ความเข้มแสง 3,000 ลักซ์ และทำการย้ายเซลล์ลงอาหารใหม่ทุก ๆ 15 วัน

2. การศึกษารูปแบบการเจริญของเซลล์บนอาหารแข็ง

นำแคลลัสสีเหลืองที่มีลักษณะเป็น Friable Callus ที่ได้จากวิธีดำเนินงานวิจัยในข้อ 1 มาศึกษารูปแบบการเจริญ โดยใช้แคลลัสเริ่มต้น 2 กรัม (น้ำหนักสด) เพาะเลี้ยงในอาหารแข็งสูตร MS ที่มีการเติมน้ำตาลซูโครส 30 กรัมต่อลิตร สารก่อเจล (gelzan^{TM}) 0.2 % โดยน้ำหนักต่อปริมาตร และปรับค่าความเป็นกรดด่างเท่ากับ 5.8 และฮอร์โมนพืช BAP ความเข้มข้น 0.1 มิลลิกรัมต่อลิตร และ 2, 4-D ความเข้มข้น 1.0 มิลลิกรัมต่อลิตร เลี้ยงในห้องปลอดเชื้อ ที่ควบคุมอุณหภูมิ 25±2 องศาเซลเซียส ระยะเวลาให้แสง 16

ชั่วโมง ความเข้มแสง 3,000 ลักซ์ เก็บตัวอย่างทุก ๆ 3 วัน เป็นระยะเวลา 30 วัน เพื่อวิเคราะห์รูปแบบการเจริญ โดยการวิเคราะห์น้ำหนักสดและน้ำหนักแห้ง (อบที่อุณหภูมิ 45 องศาเซลเซียส) โดยทำการทดลองทั้งหมด 3 ซ้ำ

3. การศึกษารูปแบบการเจริญของเซลล์แขวนลอย

สำหรับการศึกษาการเจริญของแคลลัสในอาหารเหลว จะใช้ Friable Callus สีเหลืองที่มีอายุ 15 วัน ที่เจริญบนอาหารแข็งจากวิธีดำเนินงานวิจัยข้อ 1 โดยใช้แคลลัสเริ่มต้นปริมาณ 2 กรัม (น้ำหนักสด) เลี้ยงใน Erlenmeyer Flask ขนาด 250 มิลลิลิตร ที่มีอาหารเหลวสูตร MS ปริมาตร 100 มิลลิลิตร ที่มีการเติมน้ำตาลซูโครส 30 กรัมต่อลิตร และฮอร์โมนพืช BAP ความเข้มข้น 0.1 มิลลิกรัมต่อลิตร และ 2, 4-D ความเข้มข้น 1.0 มิลลิกรัมต่อลิตร เลี้ยงบนเครื่องบ่มแบบเขย่าที่ความเร็วรอบ 110 รอบต่อนาที ที่ควบคุมอุณหภูมิ 25±2 องศาเซลเซียส ระยะเวลาให้แสง 16 ชั่วโมง ความเข้มแสง 3,000 ลักซ์ เก็บตัวอย่างทุก ๆ 3 วัน เป็นระยะเวลา 30 วัน เพื่อวัดการเจริญของเซลล์เพาะเลี้ยงโดยการวิเคราะห์น้ำหนักสดและน้ำหนักแห้ง (อบที่อุณหภูมิ 45 องศาเซลเซียส) โดยทำการทดลองทั้งหมด 3 ซ้ำ

4. การสกัดและการวิเคราะห์ปริมาณบีตาแซนทินจากเซลล์แขวนลอย

สกัดสารบีตาแซนทินจากเซลล์แขวนลอยแห้ง ที่ได้จากการดำเนินงานวิจัยข้อ 3 โดยผสมผงเซลล์แขวนลอยแห้งปริมาณ 2 กรัม ในน้ำกลั่นปริมาตร 100 มิลลิลิตร นำไปเขย่าที่เครื่องบ่มแบบเขย่า (shaking incubator, JSSSI-300CL, South Korea) ความเร็วรอบ 150 รอบต่อนาที ที่อุณหภูมิ 50 องศาเซลเซียส เป็นเวลา 1 ชั่วโมง จากนั้นกรองด้วยกระดาษกรอง เพื่อแยกเศษเซลล์ออกและนำสารสกัดไปวิเคราะห์หาปริมาณบีตาแซนทิน โดยวัดค่าการดูดกลืนแสงของบีตาแซนทินที่ความยาวคลื่น 483 นาโนเมตร ด้วยเครื่องสเปกโตรโฟโตมิเตอร์ (spectrophotometer, AS ONE ASV11D-H, Japan) จากนั้นนำไปคำนวณในสมการที่ (1) (Winson, Chew, Sathasivam, & Subramaniam, 2020)

$$\text{Betaxanthin; BX}\left(\frac{\text{mg}}{\text{g}}\right) = \left(\frac{\text{A}\times\text{DF}\times\text{MW}\times\text{V}}{\varepsilon\times\text{L}\times\text{m}}\right) \qquad (1)$$

โดย A คือ ค่าการดูดกลืนแสงของของบีตาแซนทิน (BX) ที่ความยาวคลื่น 483 นาโนเมตร
DF คือ ค่าระดับการเจือจาง MW คือ น้ำหนักโมเลกุลของบีตาแซนทิน (308 กรัมต่อโมล)
V คือ ปริมาตรของตัวอย่างมีหน่วยเป็นมิลลิลิตร (mL)
ε คือค่าสัมประสิทธิ์การดูดกลืนแสงจำเพาะของบีตาแซนทินมีค่าเท่ากับ 48,000 L $mol^{-1}cm^{-1}$
L คือ ระยะที่แสงผ่านตัวอย่างมีค่าเท่ากับ 1 เซนติเมตร
และ m คือ น้ำหนักของผงแคลลัสแห้งที่สกัดมีหน่ายเป็นกรัม (g)

5. การทดสอบการต้านอนุมูลอิสระด้วยวิธี ABTS assay

สารสกัดที่นำมาทดสอบความสามารถในการต้านอนุมูลอิสระเป็นมีลักษณะเป็นผงแห้ง ซึ่งได้จากการนำสารสกัดบีตาเลนจากเซลล์แขวนลอยที่มาจากการศึกษารูปแบบการเจริญในอาหารเหลว และสารสกัดจากดอกสร้อยไก่จากธรรมชาติ มาทำให้เป็นผงด้วยกระบวนการทำแห้งแบบแช่เยือกแข็ง (Lyophilization)

โดยใช้ผงสารสกัดที่ได้จากการทำแห้งแบบแช่เยือกแข็งที่ความเข้มข้น 10 มิลลิกรัมต่อมิลลิลิตร เพื่อทดสอบฤทธิ์ในการต้านอนุมูลอิสระ ด้วยวิธี 2,2'-azinobis-(3-ethylbenzothiazoline-6-sulfonate) (ABTS) ตามวิธีของ Smeriglio et al. (2017) โดยปกติสารละลาย $ABTS^{\bullet+}$ มีสีเขียวและจะมีสีจางลงเมื่อมีสารต้านอนุมูลอิสระ (สารสกัด) อยู่ในสารละลาย ขั้นตอนแรกเตรียมสารละลาย $ABTS^{\bullet+}$ โดยผสมสารละลาย ABTS ความเข้มข้น 1.8 มิลลิโมลาร์ และโพแทสเซียมเพอร์ซัลเฟต ($K_2S_2O_2$) ความเข้มข้น 4.3 มิลลิโมลาร์ ในอัตราส่วน 1:5 บ่มที่ 4 องศาเซลเซียส เป็นเวลา 16 ชั่วโมง ก่อนใช้ $ABTS^{\bullet+}$ ปรับการดูดกลืนแสงให้เท่ากับ 0.7 ที่ความยาวคลื่นที่ 734 นาโนเมตร จากนั้นผสมสารตัวอย่าง (สารสกัดความเข้มข้น 10 มิลลิกรัมต่อมิลลิลิตร) ปริมาตร 100 ไมโครลิตร กับสารละลาย $ABTS^{\bullet+}$ ปริมาตร 200 ไมโครลิตร ใน 96-well plate บ่มตัวอย่างในที่มืดเป็นเวลา 6 นาที และวัดค่าการดูดกลืนแสงด้วยเครื่องอ่านปฏิกิริยาบนไมโครเพลท (microplate reader) (Infinite® 200 PRO, Tecan Trading AG, Switzerland) ที่ความยาวคลื่น 734 นาโนเมตร เทียบกับชุดควบคุม ทำการทดลอง 3 ซ้ำ และคำนวณฤทธิ์การต้านอนุมูลอิสระของสารตัวอย่างตามสมการที่ (2)

$$\text{ABTS radical scavenging (\%)} = [A_0 - A_1/A_0] \times 100 \qquad (2)$$

โดย A_0 เป็นค่าการดูดกลืนแสงของสาร $ABTS^{\bullet+}$ (ชุดควบคุม)

A_1 เป็นค่าการดูดกลืนแสงของสาร $ABTS^{\bullet+}$ และตัวอย่าง

6. การออกแบบการทดลองและการวิเคราะห์ข้อมูลทางสถิติ

ในการศึกษาครั้งนี้ จะวิเคราะห์ช่วงเวลาที่เหมาะสมที่เซลล์เพาะเลี้ยงเจริญได้ดีที่สุด โดยดำเนินการสุ่มเก็บตัวอย่างและทำการทดลองทั้งสิ้น 3 ซ้ำ จากนั้นนำค่าเฉลี่ยในแต่ละช่วงเวลามาวิเคราะห์เปรียบเทียบความแตกต่างทางสถิติโดยใช้วิธี Duncan's Multiple Range Test (DMRT) โดยใช้โปรแกรมสถิติสำเร็จรูป IBM SPSS เวอร์ชั่น 29

ผลการวิจัย

1. การคัดเลือกและการเพิ่มปริมาณแคลลัสสีเหลือง

แคลลัสก่อนการคัดเลือกเซลล์นั้นมีลักษณะค่อนข้างแข็ง (Compact Callus) ประกอบด้วยเซลล์สีแดง ส้ม และเหลืองอยู่รวมกัน และมีอัตราการเจริญช้า ซึ่งเป็นลักษณะที่ไม่ต้องการ (ภาพที่ 1ก) เมื่อทำการคัดเลือกเฉพาะเซลล์ที่มีสีเหลืองมาวางบนอาหารแข็งทุก ๆ 15 วัน หลังจากทำการคัดเลือกเฉพาะเซลล์สีเหลืองและเพาะเลี้ยงไป 18 ครั้ง พบว่า แคลลัสนั้นมีสีเหลือง เซลล์มีลักษณะเกาะกลุ่มกันอย่างหลวม ๆ เนื้อสัมผัสนิ่มขึ้น เซลล์มีขนาดเล็กลง และมีอัตราการเจริญที่เร็วขึ้น ซึ่งเป็นลักษณะของ Friable Callus นอกจากนี้ไม่พบแคลลัสสีแดง (ภาพที่ 1ข) แสดงให้เห็นว่าเซลล์ที่ได้นั้นเป็นเซลล์ที่มีการผลิตสารบีตาเลนในกลุ่มบีตาแซนทิน ซึ่งเหมาะสำหรับนำไปศึกษารูปแบบการเจริญต่อไป

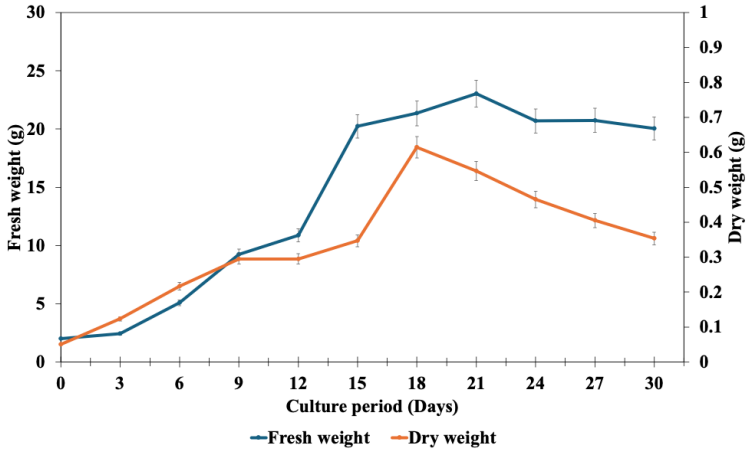


ก ข

ภาพที่ 1 ลักษณะแคลลัสของต้นสร้อยไก่ที่เพาะเลี้ยงบนอาหารแข็ง MS ที่เติม BAP ความเข้มข้น 0.1 มิลลิกรัมต่อลิตร และ 2,4-D ความเข้มข้น 1.0 มิลลิกรัมต่อลิตร ที่มีอายุ 14 วัน: (ก) ลักษณะแคลลัสก่อนการคัดเลือกเซลล์ และ (ข) ลักษณะแคลลัสหลังจากทำการคัดเลือกเซลล์

2. การศึกษารูปแบบการเจริญของเซลล์บนอาหารแข็ง

ผลการศึกษารูปแบบการเจริญของแคลลัสบนอาหารแข็ง โดยใช้แคลลัสเริ่มต้น 2 กรัม (น้ำหนักสด) พบว่าเซลล์มีการเจริญเพิ่มขึ้นจนมีค่าน้ำหนักสดสูงสุดอยู่ที่ 23.04±0.75 กรัม ในวันที่ 21 และมีค่าน้ำหนักแห้งสูงสุดอยู่ที่ 0.61±0.05 กรัม ในวันที่ 18 ของการเพาะเลี้ยง จากนั้นน้ำหนักแห้งของเซลล์มีแนวโน้มลดลง ซึ่งค่าของน้ำหนักสดและน้ำหนักแห้งของเซลล์มีรูปแบบการเจริญที่ค่อนข้างคล้ายกัน (ภาพที่ 2)

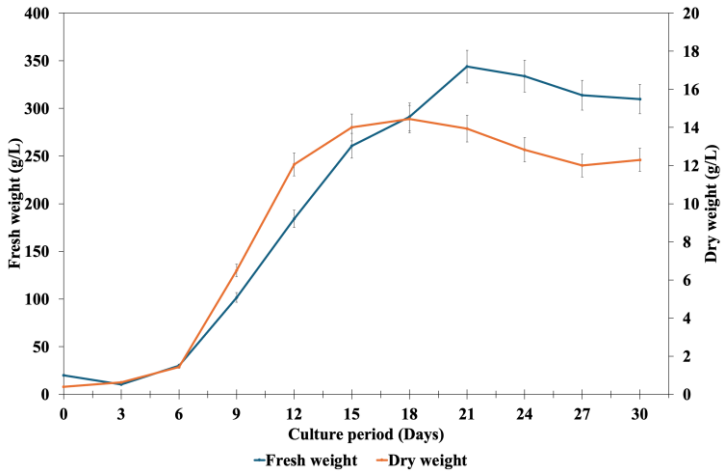


ภาพที่ 2 รูปแบบการเจริญของแคลลัสต้นสร้อยไก่ที่เพาะเลี้ยงบนอาหารแข็ง ในระยะเวลา 30 วัน (n = 3)

3. การศึกษารูปแบบการเจริญของเซลล์แขวนลอยในอาหารเหลว

จากการศึกษารูปแบบการเจริญของเซลล์แขวนลอยพบว่าเซลล์มีการเจริญและเพิ่มปริมาณขึ้นตามระยะเวลาที่เพาะเลี้ยง โดยค่าน้ำหนักสดสูงสุดอยู่ที่ 343.30±2.12 กรัมต่อลิตร ในวันที่ 21 ของการเพาะเลี้ยง และมีค่าน้ำหนักแห้งสูงสุดอยู่ที่ 14.44±0.10 กรัมต่อลิตร ในวันที่ 18 หลังจากนั้นปริมาณเซลล์มีแนวโน้มเพิ่มขึ้นจนถึงระดับสูงสุดแล้วลดลง โดยในวันที่ 30 พบค่าน้ำหนักสดเท่ากับ 309.80±2.24 กรัม

ต่อลิตร และมีค่าน้ำหนักแห้งเท่ากับ 12.30±0.10 กรัมต่อลิตร (ภาพที่ 3) ซึ่งผลการศึกษาดังกล่าวมีความสอดคล้องกับรูปแบบการเจริญบนอาหารแข็ง (ภาพที่ 2) สำหรับลักษณะของเซลล์ที่เจริญในอาหารเหลวนั้น พบว่าในวันเริ่มต้นของการเพาะเลี้ยง เซลล์ยังมีการเกาะกลุ่มเป็นกลุ่มขนาดเล็กโดยมีการกระจายตัวในอาหารเหลว (ภาพที่ 4ก) อย่างไรก็ตาม เมื่อระยะเวลาในการเพาะเลี้ยงเพิ่มขึ้นจนถึงวันที่ 14 ของการเพาะเลี้ยง เซลล์มีปริมาณมากขึ้น และมีลักษณะการกระจายตัวดีขึ้นในอาหารเหลว โดยเซลล์ยังคงมีสีเหลือง (ภาพที่ 4ข)



ภาพที่ 3 รูปแบบการเจริญของเซลล์แขวนลอยจากต้นสร้อยไก่ที่เพาะเลี้ยงในอาหารเหลว เป็นระยะเวลา 30 วัน (n = 3)



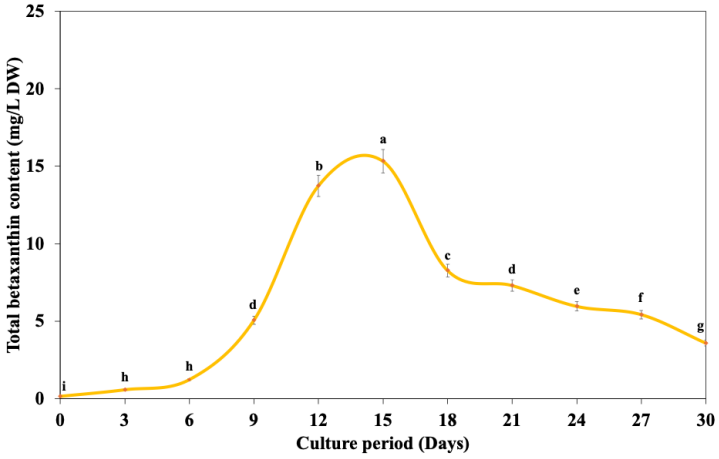
4ก 4ข

ภาพที่ 4 ลักษณะของเซลล์แขวนลอยในอาหารเหลว: (ก) ในวันเริ่มต้นของการเพาะเลี้ยง และ (ข) หลังเพาะเลี้ยงเป็นเวลา 14 วัน

4. การศึกษาปริมาณสารบีตาแซนทินที่ผลิตได้จากเซลล์แขวนลอย

จากการวิเคราะห์ปริมาณสารบีตาแซนทินของเซลล์แคลลัสที่เพาะเลี้ยงในอาหารเหลว พบว่าเซลล์แขวนลอยมีการผลิตและสะสมบีตาแซนทินเพิ่มขึ้นตามจำนวนวันที่เพิ่มขึ้น โดยปริมาณบีตาแซนทินมีค่าสูงสุดคือ 15.32±0.06 มิลลิกรัมต่อลิตร ซึ่งพบในวันที่ 15 ของการเพาะเลี้ยง และมีปริมาณลดลงโดยในวันที่ 30 มีค่าเท่ากับ 3.59±0.00 มิลลิกรัมต่อลิตร (ภาพที่ 5) ซึ่งลักษณะการผลิตสารบีตาแซนทินของ

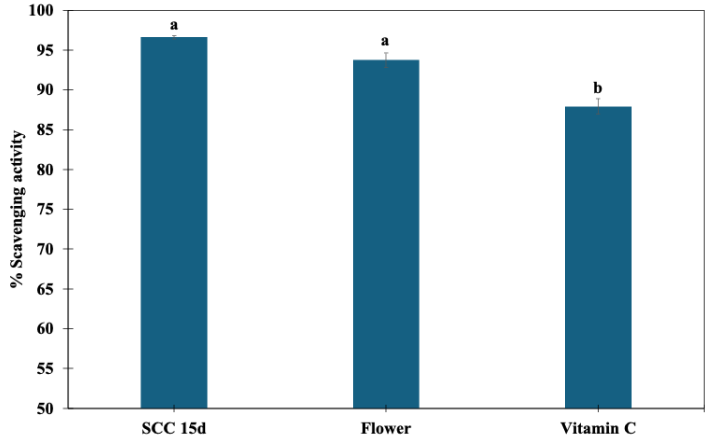
เซลล์แขวนลอยมีความสัมพันธ์กับรูปแบบการเจริญของเซลล์ (ภาพที่ 3) แสดงให้เห็นว่าการผลิตและสะสมสารบีตาแซนทินเกิดขึ้นพร้อมกันกับการเจริญของเซลล์พืช



ภาพที่ 5 รูปแบบการเจริญของเซลล์แขวนลอยและปริมาณบีตาแซนทินที่ผลิตได้ของสารสกัดจากเซลล์ของต้นสร้อยไก่ที่เพาะเลี้ยงในอาหารเหลว MS เป็นระยะเวลา 30 วัน (n = 3)

5. การทดสอบฤทธิ์การต้านอนุมูลอิสระของสารสกัด

ผลการทดสอบความสารถในการต้านอนุมูลอิสระของสารสกัดโดยวิธี ABTS (ภาพที่ 6) พบว่าสารสกัดจากเซลล์แขวนลอยของต้นสร้อยไก่ที่เพาะเลี้ยงเป็นเวลา 15 วัน (scc 15d) มีประสิทธิภาพในการต้านอนุมูลอิสระสูงที่สุดมีค่าเฉลี่ยเท่ากับ 96.63 % ซึ่งสูงกว่าค่าของวิตามินซี โดยมีความแตกต่างอย่างมีนัยสำคัญทางสถิติ ($P<0.05$)



ภาพที่ 6 ฤทธิ์การต้านอนุมูลอิสระของสารสกัดตัวอย่าง; SCC 15d เป็นสารสกัดจากเซลล์แขวนลอยต้นสร้อยไก่ที่เพาะเลี้ยง 15 วัน; Flower เป็นสารสกัดที่ได้จากดอกสร้อยไก่ในธรรมชาติ และ Vitamin C เป็นสารละลายวิตามินซีความเข้มข้น 10 มิลลิกรัมต่อมิลลิลิตร ข้อมูลนำเสนอเป็นค่าเฉลี่ย ± SD ของการทดลอง 3 ซ้ำ ตัวอักษรภาษาอังกฤษที่แตกต่างกันบ่งชี้ความแตกต่างที่มีนัยสำคัญ ($p \leq 0.05$) โดยวิธี Duncan's Multiple Range Test (DMRT)

สรุปและการอภิปรายผล

ก่อนการคัดเลือกแคลลัสของต้นสร้อยไก่ พบว่า เซลล์มีลักษณะเกาะกันแน่น และมีสีแดง ส้ม และเหลือง ทั้งนี้ความแตกต่างของสีดังกล่าวอาจเป็นผลมาจากเซลล์แต่ละสีนั้นมีการสร้างและสะสมสารกลุ่มบีตาเลนที่แตกต่างกัน ไม่ว่าจะเป็นสารในกลุ่มบีตาแซนทิน (เซลล์สีเหลือง) หรือสารในกลุ่มบีตาไซยานิน (เซลล์สีแดง-ม่วง) ภายหลังจากการคัดเลือก สามารถพัฒนาแคลลัสที่มีคุณสมบัติตามที่กำหนดไว้ โดยมีลักษณะการเกาะกันแบบหลวม ๆ มีความสามารถในการเจริญได้ทั้งในอาหารแข็งและเหลว และมีการสร้างและสะสมสารบีตาแซนทินได้ อย่างไรก็ตามกระบวนการคัดเลือกเซลล์ไลน์จนได้เซลล์ที่มีคุณลักษณะที่ต้องการตามที่ได้มีการรายงานในการศึกษาของ ฐาปกรณ์ แสงอรุณ และคณะ (2565) และความสามารถในการผลิตสารสีได้อย่างคงที่นั้น จำเป็นต้องใช้ระยะเวลาในการดำเนินการที่ค่อนข้างยาวนาน และมีปัจจัยหลายประการที่ส่งผลต่อการคัดเลือกเซลล์ เช่น องค์ประกอบของอาหารเพาะเลี้ยง ชนิดของชิ้นส่วนพืช รวมถึงสายพันธุ์ของพืชที่นำมาใช้ในการชักนำแคลลัส เป็นต้น

จากผลการศึกษารูปแบบการเจริญของแคลลัสบนอาหารแข็ง พบว่า เซลล์มีการเจริญเพิ่มขึ้นตามลำดับ ภายหลังจากการเพาะเลี้ยงเป็นระยะเวลา 15 วัน พบว่า น้ำหนักแห้งของเซลล์เริ่มมีค่าคงที่ ทั้งนี้ อาจเนื่องมาจากการที่เซลล์เจริญเต็มที่บนผิวหน้าของอาหารแข็ง ทำให้เซลล์ไม่สามารถเจริญได้อีก นอกจากนี้อาจเป็นเพราะข้อจำกัดของพื้นที่ในภาชนะที่ใช้ในการเพาะเลี้ยงรวมถึงลักษณะของอาหารที่ใช้ในการเพาะเลี้ยงในครั้งนี้ คือ อาหารแข็ง ซึ่งส่งผลให้เซลล์ไม่สามารถเจริญได้เต็มที่ โดยมีเพียงเซลล์บางส่วนเท่านั้นที่สัมผัสกับอาหารโดยตรง และในวันที่ 18 ของการเพาะเลี้ยง พบว่า มีค่าน้ำหนักสดสูงสุดเท่ากับ 23.04 กรัม ส่วนค่าน้ำหนักแห้งสูงสุดเท่ากับ 0.61 กรัม ซึ่งพบในวันที่ 21 ของการเพาะเลี้ยง หลังจากนั้นค่าน้ำหนักแห้งของเซลล์มีแนวโน้มลดลงเนื่องจากเริ่มมีการตายของเซลล์บางส่วน อาจเกิดจากการที่เซลล์บางส่วนมีอายุที่เพิ่มขึ้นเมื่อเพาะเลี้ยงเป็นระยะเวลานาน รวมถึงสารอาหารที่จำเป็นต่อการเจริญมีปริมาณลดลง นอกจากนี้อาจเกิดจากเซลล์ที่ตายแล้ว เกิดการรั่วของผนังเซลล์ทำให้ปลดปล่อยสารต่าง ๆ ซึ่งอาจรวมถึงสารกลุ่มฟีนอลิกที่อาจยับยั้งการเจริญของเซลล์พืชได้

ผลการศึกษารูปแบบการเจริญของเซลล์แขวนลอย พบว่า มีค่าน้ำหนักสดสูงสุดอยู่ที่ 343.30 กรัมต่อลิตร ในวันที่ 21 และมีค่าน้ำหนักแห้งสูงสุดอยู่ที่ 14.44 กรัมต่อลิตร ในวันที่ 18 ซึ่งผลการศึกษามีแนวโน้มไปในทิศทางเดียวกันกับการเพาะเลี้ยงบนอาหารแข็ง กล่าวคือ เมื่อระยะเวลาในการเพาะเลี้ยงเพิ่มขึ้น ปริมาณเซลล์มีแนวโน้มเพิ่มขึ้น หลังจากนั้นปริมาณเซลล์มีแนวโน้มลดลง โดยพบว่าค่าน้ำหนักสดและค่าน้ำหนักแห้งของเซลล์ที่เพาะเลี้ยงเป็นเวลา 30 วัน ลดลงจนมีค่าเท่ากับ 309.80 และ 12.30 กรัมต่อลิตร สำหรับลักษณะของเซลล์ที่เจริญในอาหารเหลวนั้น พบว่าในวันเริ่มต้นของการเพาะเลี้ยง เซลล์ยังมีการเกาะกลุ่มเล็ก ๆ กระจายตัวในอาหารเหลว แต่เมื่อระยะเวลาในการเพาะเลี้ยงเพิ่มขึ้น พบว่า ปริมาณเซลล์เพิ่มมากขึ้น มีลักษณะการกระจายตัวดีขึ้นในอาหารเหลวและเซลล์ยังคงมีสีเหลือง ซึ่งผลการศึกษาดังกล่าวสอดคล้องกับการศึกษาของ ฐาปกรณ์ แสงอรุณ และคณะ (2565) ซึ่งรายงานว่าเซลล์มีการเพิ่มปริมาณขึ้นตามระยะเวลาในการเพาะเลี้ยง โดยพบว่ามีปริมาณเซลล์และปริมาณบีตาเลนที่สะสมภายใน

เซลล์สูงสุดเมื่อเพาะเลี้ยงเซลล์เป็นระยะเวลา 15 วัน และภายหลังจากวันที่ 15 พบว่า ปริมาณเซลล์และปริมาณสารบีตาเลนนั้นมีแนวโน้มลดลง นอกจากนี้ผลการศึกษายังมีความสอดคล้องกับผลการวิจัยของ Morales et al. (2021) ซึ่งได้ศึกษาเซลล์แขวนลอยที่ได้ชักนำจากต้นกระบองเพชร (Stenocereus Queretaroensis) โดยพบว่าเซลล์ที่ได้มีลักษณะสีเหลือง ซึ่งบ่งบอกว่ามีการสร้างและสะสมสารกลุ่มบีตาแซนทิน และสามารถเจริญในอาหารเหลวได้ดี ทั้งนี้ได้มีการศึกษารูปแบบการเจริญของเซลล์แขวนลอยจาก *S. queretaroensis* ซึ่งรูปแบบการเจริญมีแนวโน้มเพิ่มขึ้น และมีค่าน้ำหนักสดสูงสุดในวันที่ 26 และลดลงตามลำดับ

ในการศึกษาการผลิตสารบีตาแซนทินของเซลล์แขวนลอย พบว่าเซลล์แขวนลอยมีการผลิตและสะสมสารบีตาแซนทินเพิ่มขึ้นตามระยะเวลาการเพาะเลี้ยงที่เพิ่มขึ้น โดยวันที่ 0 และ 12 มีปริมาณสารบีตาแซนทินเท่ากับ 0.16 และ 13.74 มิลลิกรัมต่อลิตร โดยปริมาณบีตาแซนทินมีค่าสูงสุดในวันที่ 15 ของการเพาะเลี้ยง ซึ่งมีค่าเท่ากับ 15.32 มิลลิกรัมต่อลิตร และมีปริมาณลดลงโดยในวันที่ 30 มีค่าเท่ากับ 3.59 มิลลิกรัมต่อลิตร ซึ่งลักษณะการผลิตสารบีตาแซนทินของแคลลัสมีความสัมพันธ์กับรูปแบบการเจริญแสดงให้เห็นว่าการผลิตและสะสมสารบีตาแซนทินเกิดขึ้นพร้อม ๆ กับการเจริญของเซลล์พืช และมีปริมาณบีตาเลนสูงสุด 18.38 มิลลิกรัมต่อลิตร (บีตาแซนทิน 15.32 มิลลิกรัมต่อลิตร และบีตาไซยานิน 3.06 มิลลิกรัมต่อลิตร) ซึ่งปริมาณสารบีตาเลนทั้งหมด (บีตาแซนทินและบีตาไซยานิน) มีค่าน้อยกว่าเมื่อเปรียบเทียบกับการศึกษาของ ฐาปกรณ์ แสงอรุณ และคณะ (2565) ซึ่งรายงานปริมาณบีตาเลนทั้งหมดอยู่ที่ 34.07 มิลลิกรัมต่อลิตร ซึ่งโดยส่วนใหญ่เป็นสารที่อยู่ในกลุ่มของบีตาไซยานิน โดยใช้น้ำเป็นตัวสกัดตามวิธีการของ Lystvan et al. (2018)

ผลการศึกษาดังกล่าวมีความสอดคล้องกับการศึกษาของ Ceja et al. (2022) ซึ่งพบว่าสารสกัดที่ได้จากเซลล์แขวนลอยของ S. queretaroensis สามารถผลิตสารและสามารถวัดปริมาณสารบีตาเลนทั้งหมด (บีตาแซนทิน และบีตาไซยานิน) และมีปริมาณบีตาแซนทินซึ่งมีค่าสูงสุดในวันที่ 8 ของการเพาะเลี้ยงซึ่งมีค่าประมาณ 20 ไมโครกรัมต่อกรัมน้ำหนักสด หรือคิดเป็น 0.02 มิลลิกรัมต่อกรัมน้ำหนักสด เปรียบเทียบกับปริมาณบีตาแซนทินสูงสุดที่ได้จากการศึกษาในครั้งนี้ คือ 1.15 มิลลิกรัมต่อกรัมน้ำหนักแห้งมีค่ามากกว่า ซึ่งปริมาณบีตาแซนทินนั้นจะมากหรือน้อยขึ้นอยู่กับสายพันธุ์ของพืชที่ใช้ในการทดลองและเซลล์ไลน์ (แคลลัส) ที่ได้จากการคัดเลือก รวมถึงตัวทำละลายที่ใช้ในการสกัดสาร เป็นต้น

ผลการศึกษาฤทธิ์ในการต้านอนุมูลอิสระด้วยวิธี ABTS ของสารสกัดจากเซลล์แขวนลอย โดยเปรียบเทียบฤทธิ์กับสารละลายมาตรฐาน คือสารละลายวิตามินซี พบว่าสารบีตาแซนทินที่ผลิตได้จากเซลล์แขวนลอยที่เพาะเลี้ยงในอาหารเหลวเป็นระยะเวลา 15 วัน มีค่าสูงถึง 96.63 เปอร์เซ็นต์ ดังนั้นการเพาะเลี้ยงเซลล์แขวนลอยของต้นสร้อยไก่เป็นแนวทางหนึ่งที่สำคัญสำหรับการผลิตสารบีตาแซนทินที่มีคุณสมบัติในการต้านอนุมูลอิสระสูง หากพืชผลิตและสะสมสารดังกล่าวได้สูง ฤทธิ์ในการต้านอนุมูลอิสระก็จะสูงตามไปด้วยซึ่งสอดคล้องกับการศึกษาของ Sang A Roon et al. (2024) ซึ่งศึกษาสารสกัดจากพืชชนิดเดียวกัน และเมื่อนำสารสกัดไปวิเคราะห์ฤทธิ์ในการต้านอนุมูลอิสระด้วยวิธี ABTS พบว่า มีฤทธิ์ใน

การต้านอนุมูลสระอยู่ที่ 88.81 % ดังนั้นการผลิตสารบีตาแซนทินโดยใช้เทคนิคการเพาะเลี้ยงเซลล์แขวนลอยนั้นมีข้อได้เปรียบที่สำคัญ คือ การผลิตสารดังกล่าวไม่ขึ้นอยู่กับสภาพภูมิอากาศหรือจำเป็นต้องใช้พื้นที่ในการเพาะปลูกเพื่อการผลิตพืชจนกระทั่งออกดอก ซึ่งการปลูกต้นสร้อยไก่ในสภาพธรรมชาติจนกระทั่งออกดอกนั้นต้องใช้ระยะเวลาในการเพาะปลูกยาวนานประมาณ 3 เดือน จึงจะสามารถนำดอกมาทำการสกัดสารได้ ระบบการเพาะเลี้ยงเซลล์แขวนลอยจึงเป็นทางเลือกที่มีประสิทธิภาพในการผลิตสารบีตาแซนทินที่มีฤทธิ์ต้านอนุมูลอิสระสูง โดยใช้ระยะเวลาสั้นกว่าและไม่ขึ้นกับข้อจำกัดด้านสภาพแวดล้อมและพื้นที่เพาะปลูก

การศึกษานี้ประสบความสำเร็จในการพัฒนาเซลล์แขวนลอยของต้นสร้อยไก่ (Celosia argentea var. plumosa) เพื่อใช้เป็นแหล่งผลิตสารบีตาแซนทิน ซึ่งเป็นสารสีธรรมชาติที่มีคุณสมบัติทางชีวภาพ โดยสามารถคัดเลือกเซลล์แคลลัสสีเหลืองที่มีศักยภาพในการผลิตสารบีตาแซนทินได้อย่างมีประสิทธิภาพ การเพาะเลี้ยงในระบบแขวนลอยให้ผลผลิตชีวมวลและสารเป้าหมายในระดับสูง โดยพบว่าปริมาณสารบีตาแซนทินสูงที่สุดในวันที่ 15 ของการเพาะเลี้ยง มีค่าเฉลี่ยเท่ากับ 15.32 มิลลิกรัมต่อลิตร ซึ่งเป็นช่วงเวลาที่เหมาะสมต่อการเก็บเกี่ยว นอกจากนี้สารสกัดจากเซลล์แขวนลอยที่เก็บเกี่ยวในช่วงดังกล่าวยังแสดงฤทธิ์ต้านอนุมูลอิสระได้ในระดับสูงมีค่าเฉลี่ย 96.63 เปอร์เซ็นต์เมื่อเทียบกับสารสกัดจากดอกสร้อยไก่และวิตามินซี ซึ่งผลการทดลองแสดงถึงศักยภาพของเซลล์แขวนลอยในการเป็นแหล่งผลิตสารออกฤทธิ์ที่มีคุณค่าทางชีวภาพสูง ทั้งในแง่ปริมาณและประสิทธิภาพ ผลการศึกษาครั้งนี้ชี้ให้เห็นว่าการเพาะเลี้ยงเซลล์แขวนลอยของต้นสร้อยไก่สามารถนำไปประยุกต์ใช้ในกระบวนการผลิตสารสีธรรมชาติที่ปลอดภัยและมีฤทธิ์ทางชีวภาพสูงได้ในระดับอุตสาหกรรม โดยเฉพาะในผลิตภัณฑ์กลุ่มอาหารเพื่อสุขภาพ เครื่องสำอาง และเวชภัณฑ์ ตลอดจนเป็นพื้นฐานสำหรับการวิจัยพัฒนาในด้านเทคโนโลยีชีวภาพของพืชต่อไปในอนาคต

ข้อเสนอแนะ

เนื่องจากในการศึกษาในครั้งนี้มุ่งเน้นเพื่อศึกษาการคัดเลือกเซลล์ไลน์สีเหลืองที่มีความสามารถในการผลิตสารบีตาแซนทิน และมีคุณสมบัติด้านฤทธิ์ในการต้านอนุมูลอิสระ แต่ในปัจจุบันการศึกษาเกี่ยวกับสารสกัดบีตาแซนทินที่ได้จากเซลล์แขวนลอยของต้นสร้อยไก่ยังมีอยู่ค่อนข้างจำกัด ดังนั้นจึงควรมีการศึกษาเพิ่มเติมเกี่ยวกับการเพิ่มประสิทธิภาพการผลิตเพื่อให้สารสกัดบีตาแซนทินในปริมาณที่เพิ่มมากขึ้น โดยศึกษาสภาวะที่เหมาะสมในการผลิตเมื่อมีการแปรผันปัจจัยต่าง ๆ ที่คาดว่าจะส่งผลต่อการผลิตสาร เช่น ชนิดและความเข้มข้นของฮอร์โมน และสารกระตุ้นประเภทต่าง ๆ เป็นต้น ซึ่งในการศึกษาครั้งนี้มีประโยชน์ในฐานะการศึกษานำร่องสำหรับการออกแบบการเพาะเลี้ยงเซลล์แขวนลอยของต้นสร้อยไก่ที่มีความสามารถในการผลิตสารบีตาแซนทินให้มีประสิทธิภาพสูงขึ้นในอนาคต

เอกสารอ้างอิง

ชุติมา ถนอมสิทธิ์, ธิพรพงษ์ เจริญยิ่ง และจักรพันธ์ นาน่วม. (2561). เบตาเลน: สารสกัดจากเปลือกแก้วมังกรเพื่อการพัฒนาสีผิวของสัตว์น้ำ. วารสารวิทยาศาสตร์คชสาร, 40(2), 1-10.

ฐาปกรณ์ แสงอรุณ, อธิยา เตชะปารินทร์, พรเทพ ถนนแก้ว, จิรวรรณ อภิรักษากร และ ปรีย์กมล กลั่นฤทธิ์. (2565). การผลิตสารสีในกลุ่มบีทาเลนจากเซลล์แขวนลอยของต้นสร้อยไก่. ในรายงานสืบเนื่องการประชุมวิชาการระดับชาติ มอบ. ครั้งที่ 16, 24-34.

Ceja-López, J. A., Morales-Morales, J., Araujo-Sánchez, J., Kantún, W. G., Ku, A., Miranda-Ham, M. L., Rodriguez-Zapata, L. C., & Castaño, E. (2022). Evaluation of natural pigments production in response to various stress signals in cell lines of Stenocereus queretaroensis. Plants (Basel, Switzerland), 11(21), 2948. https://doi.org/10.3390/plants11212948

Guadarrama-Flores, B., Rodríguez-Monroy, M., Cruz-Sosa, F., García-Carmona, F., & Gandía-Herrero, F. (2015). Production of dihydroxylated betalains and dopamine in cell suspension cultures of Celosia argentea var. plumosa. Journal of Agricultural and Food Chemistry, 63(10), 2741–2749.

Khan, M. I., & Giridhar, P. (2015). Plant betalains: chemistry and biochemistry. Phytochemistry, 117, 267–295.

Kumorkiewicz- Jamro, A., Swiergosz, T., Sutor, K., Spórna- Kucab, A. and Wybraniec, S. (2021). Multi-colored shades of betalains: recent advances in betacyanin chemistry. Natural Product Reports, 38, 2315–2346. https://doi.org/10.1039/d1np00018g

Lystvan, K., Kumorkiewicz, A. and Szneler, E. (2018). Study on betalains in Celosia cristata Linn. callus culture and identification of new malonylated amaranthins. Journal of Agricultural and Food Chemistry, 66, 3870–3879. https://doi.org/10.1021/acs.jafc.8b01014

Morales, J., Araujo-Sanchez, J., Castro-Concha, L., Ku, A., Pereira-Santana, A., Lourdes, & Castaño, E. (2021). Defining color change in pitaya: A close look at betacyanin synthesis genes in Stenocereus queretaroensis. Frontiers in Sustainable Food Systems, 5. https://doi.org/10.3389/fsufs.2021.698195

Moreno, D. A., García-Viguera, C., Gil, J. I. and Gil-Izquierdo, A. (2008). Betalains in the era of global agri-food science, technology and nutritional health. Phytochemistry Reviews, 7(2), 261–280. https://doi.org/10.1007/s11101-007-9084-y

Murashige, T., & Skoog, F. (1962). A revised medium for rapid growth and bioassays with tobacco tissue cultures. Physiologia Plantarum, 15, 473-497

Sang A Roon, T., Klanrit, P., Klanrit, P., Thanonkeo, P., Apiraksakorn, J., Thanonkeo, S., & Klanrit, P. (2024). Establishment of betalain-producing cell line and optimization of pigment production in cell suspension cultures of Celosia argentea var. plumosa. Plants, 13(22), 3225.

Smeriglio, A., Galati, E. M., Monforte, M. T., Lanuzza, F., D'Angelo, V., & Circosta, C. (2017). Polyphenolic compounds and antioxidant activity of cold-pressed seed oil from finola cultivar of Cannabis sativa L. Phytotherapy Research, 30(8), 1298-1307.

Wink, M. (1997). Compartmentation of secondary metabolites and xenobiotics in plant vacuoles. 25, Phytochemistry, 25, 141–169.

Winson, K. W. S., Chew, B. L., Sathasivam, K., & Subramaniam, S. (2020). The establishment of callus and cell suspension cultures of Hylocereus costaricensis for the production of betalain pigments with antioxidant potential. Industrial Crops and Products, 155, https://doi.org/10.1016/j.indcrop.2020.112750

การพัฒนาวิธีการประมาณการกักเก็บคาร์บอนของป่าเต็งรังด้วยอากาศยานไร้คนขับและการเรียนรู้ของเครื่อง

Development of Carbon Sequestration Estimation Methods for Dry Dipterocarp Forest using Unmanned Aerial Vehicles and Machine Learning

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บทคัดย่อ

การเปลี่ยนแปลงสภาพภูมิอากาศที่เกิดขึ้นในปัจจุบันมีสาเหตุมาจากการเพิ่มขึ้นของก๊าซคาร์บอนไดออกไซด์ในบรรยากาศ อย่างไรก็ตามป่าไม้มีบทบาทสำคัญในการดูดซับก๊าซคาร์บอนไดออกไซด์เหล่านี้ได้อย่างมีประสิทธิภาพ การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อการพัฒนาวิธีการประมาณการกักเก็บคาร์บอนของป่าเต็งรังด้วยอากาศยานไร้คนขับและการเรียนรู้ของเครื่อง วิธีการดำเนินการวิจัยครั้งนี้ได้แบ่งออกเป็น 3 ส่วนหลัก ได้แก่ 1) การสำรวจป่าเต็งรังด้วยการตรวจวัดกายวิภาคของต้นไม้ 2) การสำรวจป่าเต็งรังด้วยอากาศยานไร้คนขับ และ 3) การพัฒนาแบบจำลองด้วยการเรียนรู้ของเครื่อง 3 แบบจำลอง ผลการสำรวจและวิเคราะห์ข้อมูลจากภาคสนามพบพรรณไม้ทั้งสิ้น 1,241 ต้น 39 ชนิด สามารถประเมินปริมาณการกักเก็บคาร์บอนเท่ากับ 213,525.96 $kgCO_2e$ ผลจากการเรียนรู้ด้วยเครื่องด้วยเทคนิค Canopy Height Model พบว่ามีปริมาณการกักเก็บคาร์บอนอยู่ที่ 212,513.92 $kgCO_2e$ ผลจากการเรียนรู้ด้วยเครื่องด้วยเทคนิค Deepness พบว่ามีปริมาณการกักเก็บคาร์บอนอยู่ที่ 217,933.89 $kgCO_2e$ และผลจากการเรียนรู้ด้วยเครื่องด้วยเทคนิค Segment Mean Shift พบว่ามีปริมาณการกักเก็บคาร์บอนอยู่ที่ 207,006.90 $kgCO_2e$ จากการดำเนินการสมารถสรุปได้ว่าแบบจำลอง Canopy Height Model

มีความแม่นยำสูงที่สุดในการประมาณค่าความหนาแน่นของคาร์บอนเมื่อเทียบกับการตรวจวัดภาคสนาม นอกจากนี้เมื่อนำผลการวิเคราะห์จากแบบจำลอง Canopy Height Model มาวิเคราะห์ความแม่นยำ ก็พบว่ามี Accuracy เท่ากับ 0.597, Precision เท่ากับ 0.902, Recall เท่ากับ 0.638, F1-score ที่ 0.747 และมีความถูกต้องโดยรวมเท่ากับ 74.737%

คำสำคัญ: บริการทางระบบนิเวศ, ภาวะโลกร้อน, มวลชีวภาพเหนือพื้นดิน

Abstract

The current climate change is attributed to the increase of carbon dioxide in the atmosphere. However, forests play a crucial role in effectively absorbing these carbon dioxide emissions. The objective of this research was to develop a method for estimating carbon sequestration in dry dipterocarp forests using unmanned aerial vehicles (UAVs) and machine learning. The research methodology was divided into three main parts: 1) surveying the dry dipterocarp forest by measuring the anatomical characteristics of trees, 2) surveying the forest using UAVs, and 3) developing models through machine learning, comprising three models. Field survey and data analysis identified a total of 1,241 trees from 39 species, with an estimated carbon sequestration of 213,525.96 kgCO_2e. Machine learning results utilizing the Canopy Elevation Model technique showed a carbon sequestration amount of 212,513.92 kgCO_2e, while the Deepness technique indicated 217,933.89 kgCO_2e, and the Segment Mean Shift technique showed 207,006.90 kgCO2e. It can be concluded that the Canopy Elevation Model demonstrated the highest accuracy in estimating carbon density compared to field measurements. Furthermore, the analysis of the Canopy Elevation Model's accuracy yielded an accuracy rate of 0.597, a precision of 0.902, a recall of 0.638, an F1-score of 0.747, and an overall correctness of 74.737%

Keywords: Ecosystem services, global warming, aboveground biomass

บทนำ

ภาวะโลกร้อนคือการเพิ่มขึ้นของอุณหภูมิเฉลี่ยของบรรยากาศโลก ทั้งในชั้นบรรยากาศใกล้พื้นผิวโลกและในน้ำในมหาสมุทร สาเหตุหลักมาจากก๊าซเรือนกระจกที่ถูกปลดปล่อยจากกิจกรรมของมนุษย์ เช่น การอุตสาหกรรม การเกษตร และการทำลายป่าไม้ โดยเฉพาะอย่างยิ่ง การปลดปล่อยก๊าซคาร์บอนไดออกไซด์ (CO_2) ที่มีสัดส่วนมากที่สุด (Marsh and McLennan, 2022; Laosuwan et al., 2023; Uttaruk et al., 2024) จากข้อมูล Revised 1996 IPCC ได้จำแนกแหล่งปล่อยก๊าซเรือนกระจกออกเป็น 6 แหล่ง ได้แก่ การปล่อยก๊าซเรือนกระจกจาก (1) ภาคพลังงาน (2) ภาคกระบวนการอุตสาหกรรม

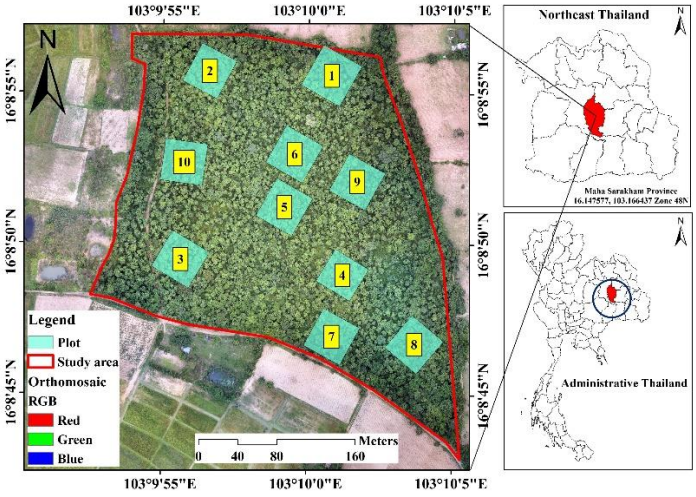
(3) สารละลายและการใช้ผลิตภัณฑ์ (4) ภาคเกษตรกรรม (5) การใช้ที่ดินจากการเปลี่ยนแปลงการใช้ที่ดินและป่าไม้ และ (6) ภาคการจัดการของเสีย (IPCC, 1996) นอกจากนี้ในการประเมินของ Intergovernmental Panel on Climate Change (IPCC) เมื่อปี 2557 พบว่าในช่วงสามทศวรรษที่ผ่านมาพื้นผิวโลกอุ่นขึ้นอย่างต่อเนื่องโดยช่วงเวลาระหว่างปี 1983 ถึง 2012 เป็นช่วงเวลา 30 ปีที่อุ่นที่สุดในช่วง 1400 ปีที่ผ่านมาในซีกโลกเหนือ โดยมีคาร์บอนไดออกไซด์เป็นก๊าซที่มีปริมาณการเพิ่มขึ้นมากที่สุดประมาณ 67% ซึ่งส่วนใหญ่เกิดจากการใช้พลังงานฟอสซิลเป็นสำคัญ (IPCC, 2014) อีกทั้งผลจากการตัดไม้และทำลายป่าทำให้การเพิ่มขึ้นของปริมาณก๊าซคาร์บอนไดออกไซด์ในบรรยากาศประมาณร้อยละ 20 เกิดจากการสูญเสียคาร์บอนที่เก็บกักในรูปเนื้อไม้ (Jundang et al., 2010) คาร์บอนถูกเก็บและหมุนเวียนอยู่ภายในองค์ประกอบต่างๆ ในสิ่งแวดล้อม ผ่านกระบวนการที่เรียกว่า “วัฏจักรของคาร์บอน” (Carbon Cycle) วัฏจักรนี้ประกอบด้วยหลายขั้นตอน เช่น การดูดซึมคาร์บอนไดออกไซด์จากบรรยากาศโดยพืชผ่านกระบวนการสังเคราะห์แสง และการปลดปล่อยคาร์บอนกลับสู่บรรยากาศผ่านการหายใจของสิ่งมีชีวิตและการสลายตัวของสารอินทรีย์ (Wang et al., 2013) อนึ่ง ต้นไม้มีบทบาทสำคัญในการกักเก็บและดูดซับคาร์บอนจากบรรยากาศด้วยกระบวนการสังเคราะห์แสงให้อยู่ในรูปของมวลชีวภาพ (Biomass) ของต้นไม้ การลดจำนวนป่าไม้จึงเป็นการลดแหล่งกักเก็บคาร์บอนและทำให้เกิดการปลดปล่อยคาร์บอนจากแหล่งกักเก็บสู่ระบบบรรยากาศ (UNECE, 2025) ซึ่งนำไปสู่การเกิดปรากฏการณ์เรือนกระจก (Greenhouse Effect) และภาวะโลกร้อน (Global warming) ดังนั้นข้อมูลปริมาณคาร์บอนกักเก็บในป่าไม้จึงมีความสำคัญในการวางแผนการลดปริมาณของก๊าซเรือนกระจกในชั้นบรรยากาศโลก (Penn State Extension, 2025) ในปัจจุบันมีงานวิจัยจำนวนมากศึกษาปริมาณการกักเก็บคาร์บอนในพื้นที่ป่าไม้ โดยปกติแล้วปริมาณคาร์บอนที่กักเก็บในต้นไม้จะมีความสัมพันธ์โดยตรงกับค่ามวลชีวภาพ (Biomass) ซึ่งเป็นค่ามวลรวมขององค์ประกอบทุกส่วนของต้นไม้ได้แก่ ลำต้น (Stem) กิ่ง (Branch) ใบ (Leaf) และ ราก (Root) (Uttaruk & Laosuwan, 2020; Repo et al., 2021; He et al., 2022; Alongi, 2022) ดังนั้นข้อมูลลักษณะทางกายวิภาคของต้นไม้ เช่น ความสูง ขนาดของลำต้น ความกว้างของทรงพุ่ม จึงสามารถนำไปใช้ในการประเมินค่าปริมาณคาร์บอนที่กักเก็บในต้นไม้ได้โดยการใช้สมการแอลโลเมตริก (Alometry Equation) ซึ่งเป็นสมการความสัมพันธ์ระหว่างมวลชีวภาพและลักษณะโครงสร้างของต้นไม้ (Mason et al., 2014; Romero et al., 2020; Fradette et al., 2021; Livingston & Lincoln, 2023; Oumasst et al., 2024) ทั้งนี้ ข้อมูลลักษณะโครงสร้างต้นไม้นั้นสามารถวัดได้จากการสำรวจข้อมูลในภาคสนาม และถึงแม้ว่าวิธีการสำรวจในภาคสนามจะได้ข้อมูลโครงสร้างและรูปทรงของต้นไม้ที่มีความถูกต้องสูง แต่ทว่าวิธีการนี้จำเป็นต้องต้องอาศัยบุคลากรที่มีความเชี่ยวชาญในงานสนามและยังเป็นวิธีการที่สิ้นเปลืองเวลาและค่าใช้จ่ายค่อนข้างมาก (Larjavaara et al., 2013; Lu, et al., 2014; Jurjević et al., 2020) โดยเฉพาะหากพื้นที่ศึกษาปกคลุมด้วยพืชพรรณธรรมชาติหนาแน่นและอยู่ห่างไกลจากชุมชนวิธีการสำรวจในภาคสนามอาจกระทำได้ไม่สะดวกและข้อมูลที่ได้อาจมีความผิดพลาดสูง (Durfee et al., 2019; Huang et al., 2023; KC, et al., 2024)

ความก้าวหน้าของเทคโนโลยีการรับรู้จากระยะไกลในปัจจุบัน ทำให้มีการประยุกต์ใช้ข้อมูลจากอากาศยานไร้คนขับและข้อมูลจากดาวเทียมที่มีรายละเอียดสูง ในการศึกษาลักษณะโครงสร้างและความหนาแน่นของพืชพรรณธรรมชาติของพื้นที่ป่า (Ahlswede et al., 2021; Magnússon et al., 2021; Papp et al., 2021) ซึ่งข้อมูลเหล่านี้สามารถนำไปใช้ในการประมาณค่ามวลชีวภาพจากสมการแอลโลเมตริก และคำนวณหาปริมาณคาร์บอนที่กักเก็บอยู่ในพื้นพื้นที่ป่าต่อไปได้ (Daba & Soromessa, 2019; Vorster et al., 2020; Pothong et al., 2022) การวิจัยครั้งนี้ผู้วิจัยมีแนวคิดที่จะพัฒนาวิธีการประมาณการกักเก็บคาร์บอนของป่าเต็งรังด้วยอากาศยานไร้คนขับและการเรียนรู้ของเครื่อง โดยสาเหตุที่เลือกพื้นที่ศึกษาเป็นป่าเต็งรัง เนื่องจากมีลักษณะทางชีวภาค (Biosphere) และโครงสร้างของสังคมพืชพรรณในป่าไม่ซับซ้อนมากนัก จึงสามารถใช้ในการศึกษาเพื่อสร้างแบบจำลองการประเมินคาร์บอนจากอากาศยานไร้คนขับเพื่อเป็นต้นแบบ (Prototype) และแนวทางประยุกต์สำหรับพื้นพื้นที่อื่นๆ ที่มีความซับซ้อนของพืชพรรณมากขึ้นต่อไป เช่น พื้นที่ป่าธรรมชาติ เป็นต้น โดยผลจากการศึกษาจะสามารถเป็นต้นแบบในการประเมินปริมาณคาร์บอนกักเก็บของป่าไม้ในบริเวณอื่น ๆ สำหรับประเทศไทยต่อไปได้

วิธีดำเนินการวิจัย

พื้นที่ศึกษา

พื้นที่ศึกษาได้แก่ป่าเต็งรัง (ภาพที่ 1) ตั้งอยู่ที่ตำบลท่าสองคอน อำเภอเมืองมหาสารคาม จังหวัดมหาสารคาม มีพื้นที่แบ่งตามเขตการดูแลของบ้านหินลาด โดยประมาณ 32 ไร่ หรือ 5.12 เฮกตาร์ และบ้านหินลาดพัฒนา 34 ไร่ หรือ 5.44 เฮกตาร์ ชุมชนทั้ง 2 ชุมชน มีพื้นที่ป่ารวมอยู่ที่ 66 ไร่ หรือ 10.66 เฮกตาร์ อุณหภูมิเฉลี่ยตลอดทั้งปี 27.4°C อุณหภูมิต่ำสุดเฉลี่ย 22.4°C และอุณหภูมิสูงสุดเฉลี่ย 33.7°C โดยป่าเต็งรังแห่งนี้มีพรรณไม้ประกอบไปด้วย ไม้แดง ไม้เต็ง ไม้รัง ไม้พรวง และไม้ชนิดอื่น ๆ ซึ่งมีค่าจำนวนมากและมีของป่ามากมายกับทรัพยากรธรรมชาติอื่นด้วย



ภาพที่ 1 ป่าเต็งรัง ตำบลท่าสองคอน อำเภอเมืองมหาสารคาม

การสำรวจภาคสนาม

เป็นการเก็บข้อมูลของต้นไม้แต่ละต้นโดยตรง ซึ่งรวมถึง ชื่อพันธุ์ไม้ เส้นรอบวงของต้นไม้ ความสูงของต้นไม้ ทิศทางการวัด (North-South, East-West) พิกัดตำแหน่งของต้นไม้ของต้นไม้ทุกต้นในแปลงตัวอย่าง รวมถึงการใช้กล้องวัดระยะในการเก็บข้อมูลความสูงของต้นไม้ และไม้วางแปลงตัวอย่างในพื้นที่การแปลงตัวอย่าง มีขนาด 40x40 เมตร จำนวน 10 แปลง โดยเลือกตำแหน่งของแปลงตัวอย่างด้วยวิธีสุ่ม (random sampling) สำหรับเส้นผ่านศูนย์กลางของต้นไม้ที่ระดับอกอยู่นอกแปลงตัวอย่างนั้น ผู้วิจัยได้ทำการสร้างพารามิเตอร์การวิเคราะห์ด้วยวิธี regression analysis และใช้สมการความสัมพันธ์แบบ linear regression ดังสมการที่ 1 (Angkahad et al., 2024)

$$y = (-16.292) + (6.633 * x_1) + (5.915 * x_2) + (2.038 * x_3) \quad (1)$$

เมื่อ y คือ การประมาณการ DBH (เส้นผ่านศูนย์กลางที่ระดับอก) (ซม.)

x_1 คือ ค่าขนาดทรงพุ่มของต้นไม้ตามแกนทิศเหนือ-ใต้ (NS) (ซม.)

x_2 คือ ค่าขนาดทรงพุ่มของต้นไม้ตามแกนทิศตะวันออก-ทิศตะวันตก (EW) (ซม.)

x_3 คือ ค่า High tree ขนาดความสูงทรงพุ่มต้นไม้ (Canopy) (ม.)

การสำรวจป่าเต็งรังด้วยการตรวจวัดกายวิภาคของต้นไม้

งานวิจัยนี้ได้ใช้ข้อมูลจากการสำรวจในพื้นที่ 10 แปลงที่เลือกมาเป็นตัวอย่าง สำหรับการคำนวณมวลชีวภาพของต้นไม้โดยใช้ allometry equation ซึ่งเป็นสมการที่ช่วยให้เราสามารถประมาณค่ามวลชีวภาพจากขนาดและลักษณะทางกายภาพของต้นไม้ได้ สำหรับป่าเต็งรังในการศึกษานี้ได้เลือกใช้สมการที่พัฒนาโดย Ogawa et al., (Ogawa et al., 1965) (สมการที่ 2) โดยสมการนี้แสดงถึงความสัมพันธ์ระหว่างมวลชีวภาพกับขนาดเส้นผ่านศูนย์กลางของต้นไม้ที่ระดับอก (1.30 เมตร) และความสูงของต้นไม้ ซึ่งเป็นข้อมูลหลักในการประเมินความสามารถในการกักเก็บคาร์บอนดังสมการที่ 3 ต่อไป

$$W_s = 0.0396 DBH^2 H_t^{0.9326}$$

$$W_b = 0.0348 DBH^2 H_t^{1.0270} \quad (2)$$

$$W_l = \left(\frac{28.0}{W_s + W_b} \right) 0.025^{-1}$$

มวลชีวภาพเหนือพื้นดินของต้นไม้ประกอบด้วยมวลชีวภาพของลำต้น กิ่ง และใบของต้นไม้ ดังนี้

$$W_{ct} = W_s + W_b + W_l \quad (3)$$

เมื่อ w_s คือ มวลชีวภาพส่วนของลำต้น (กิโลกรัม)

w_b คือ มวลชีวภาพส่วนของกิ่ง (กิโลกรัม)

w_l คือ มวลชีวภาพส่วนของใบ (กิโลกรัม)

ปริมาณคาร์บอนที่กักเก็บในต้นไม้เป็นสัดส่วนโดยตรงกับปริมาณมวลชีวภาพ (biomass) ซึ่งเป็นค่ามวลรวมขององค์ประกอบทางโครงสร้างของพืชทั้งส่วนที่อยู่เหนือพื้นดินดังสมการที่ 4

$$C_j = W_{ct} * FC \quad (4)$$

เมื่อ C_j คือ ปริมาณการกักเก็บคาร์บอนของต้นไม้ (กิโลกรัม)

W_{ct} คือ ปริมาณมวลชีวภาพเหนือพื้นดินของต้นไม้ (กิโลกรัม)

FC คือ สัดส่วนปริมาณคาร์บอนต่อมวลชีวภาพของต้นไม้ (กำหนดให้เท่ากับ 0.47)

การสำรวจป่าเต็งรังด้วยอากาศยานไร้คนขับ

การวิจัยนี้ใช้โดรน DJI Phantom 4 PRO ซึ่งมีกล้องความละเอียด 20 MP ในการสำรวจพื้นที่ครั้งนี้ใช้กล้องแบบ RGB และได้วางแผนแนวบินที่ความสูง 100 เมตร จากพื้นดิน การบินสำรวจนี้มีการตั้งค่าให้มีการซ้อนทับของภาพ ร้อยละ 85 และการซ้อนทับด้านข้างร้อยละ 70 โดยความแม่นยำของกล้องอยู่ที่ 10 เมตร มุมเอียงของกล้องมีค่าความแม่นยำ 2 องศา ใช้เส้นทางการบินแบบตาราง สำหรับสร้างแผนที่สองมิติ นอกจากนี้ข้อมูลที่ได้จะมีนามสกุลไฟล์ .JPG ขนาด 5,472 x 3,648 pixel รวมทั้งหมดของพื้นที่ที่ ทำการบันทึกทั้งสิ้น 321 ภาพ การประมวลผลภาพจากโดรนดำเนินการด้วยโปรแกรม Agisoft Photo Scan ซึ่งผลลัพธ์ที่ได้จะเป็นข้อมูลกลุ่มจุดสามมิติ (Point Cloud) ที่แสดงตำแหน่งของพื้นที่ในพิกัด X, Y, Z ข้อมูลเหล่านี้จะถูกนำไปวิเคราะห์เพื่อสร้าง Digital Surface Model (DSM), Digital Elevation Model (DEM) และ Orthophoto ต่อไป

การสร้างแบบจำลองด้วยการเรียนรู้ของเครื่อง

1. Canopy Height Model: ได้สร้างแบบจำลองทรงพุ่มของเรือนยอดของต้นไม้ และการหาความสูงในพื้นที่ศึกษา จากข้อมูลอากาศยานไร้คนขับ (UAV) การตรวจจับยอดไม้ (Tree top Detection) ซึ่งสามารถหาได้โดย ค่าความแตกต่างของความสูงระหว่างข้อมูลจาก DSM และ DEM ผลการวิเคราะห์ทราบถึงความสูงของวัตถุที่อยู่บนพื้นผิวโลกจากสมการที่ 5 จากโมเดลเพื่อจำแนกข้อมูลเรือนยอด และการวิเคราะห์ค่าความยาวและความกว้างของเรือนยอด

$$CHM = DSM - DEM \quad (5)$$

เมื่อ CHM = แบบจำลองความสูงเรือนยอด

DSM = แบบจำลองความสูงปกคลุมพื้นผิว

DEM = แบบจำลองความสูงภูมิประเทศ

2. Deepness Model: งานวิจัยนี้ได้สร้างแบบจำลองค่าความยาวและความสูงของ polygons ทรงพุ่มของต้นไม้จาก Deepness Model (Guo et al., 2023) โดยใช้เครื่องมือ Minimum Bounding Geometry ซึ่งเป็นการสร้างคุณลักษณะที่มีรูปหลายเหลี่ยมซึ่งแสดงถึงรูปทรงของเรขาคณิตขอบเขต (Mendes et al., 2023) ผลจากการวิเคราะห์สามารถนำไปเทียบแบบจำลองรูปของทิศทรงพุ่มได้ (NE,EW) มีหน่วยเป็นเมตร (m) ทั้งนี้ผลลัพธ์ข้อมูลที่ได้จากการวิเคราะห์โมเดล Deepness คือ ค่าทรงพุ่ม (NE, EW) และค่าความสูงทรงพุ่ม Canopy Height Model (CHM) ของแต่ละ polygons ในพื้นที่ป่า

3. Segment Mean Shift: แบบจำลอง Segment Mean Shift เป็นกระบวนการที่เริ่มต้นจากการวิเคราะห์ภาพ RGB ที่ได้มาจากอากาศยานไร้คนขับ โดยเลือกใช้ชุดข้อมูลแบบ Raster ที่ถูกแบ่งส่วน

เพื่อตรวจสอบรายละเอียดสเปกตรัมที่ระดับ 20 และรายละเอียดเชิงพื้นที่ ซึ่งหน่วยวัดเป็น Pixel ทั้งนี้เพื่อให้สอดคล้องกับคุณลักษณะของภาพ RGB ในการสร้างตัวอย่างการเรียนรู้และการแบ่งประเภทข้อมูลนั้นได้จัดเตรียมตัวอย่างการเรียนรู้ (Training Sample) โดยใช้วิธีการจำแนก (Classify) ประเภททรงพุ่มของเรือนยอดต้นไม้ โดยผลการจำแนกประเภทเหล่านี้ถูกนำมาวิเคราะห์เพิ่มเติมด้วยเทคนิค train Support Vector Machine Classifier หลังจากการจำแนกประเภทแล้วก็ได้นำข้อมูลมาใช้ในการวิเคราะห์ Classify Raster และคำนวณค่าความกว้างและความยาวของจุดกึ่งกลางของ Polygons โดยใช้เครื่องมือ Minimum Bounding Geometry นำผลลัพธ์ที่ได้สามารถนำไปเปรียบเทียบกับแบบจำลองรูปทรงพุ่มในทิศทางต่าง ๆ (เช่น NE, EW) ขั้นตอนสุดท้ายได้ทำการวิเคราะห์หาค่าความสูงของข้อมูลในแต่ละ Polygons ภายในพื้นที่ศึกษาจากโมเดล Canopy Elevation Model โดยใช้วิธีการสกัดค่าความสูงเฉลี่ยผ่านเทคนิค Spatial Analysis Tool และใช้รูปแบบของ Zonal Statistics as Tool เพื่อให้ได้ข้อมูลความสูงที่ถูกต้องและแม่นยำมากขึ้น

การวิเคราะห์ความแม่นยำ

ผลลัพธ์สำหรับข้อมูลการประเมินผลในแต่ละช่วงของค่า Histogram เกณฑ์ความน่าจะเป็นของโมเดล อธิบายถึงความแม่นยำโดยรวมโดยพิจารณาจากทั้งความแม่นยำและคะแนนการเรียกคืน เมตริกทั้งสามนี้คำนวณจากผลบวกที่แท้จริง (TP เรือนยอดต้นไม้ตรวจพบได้อย่างถูกต้อง) ผลบวกเท็จ (FP เรือนยอดต้นไม้ตรวจพบโดยผิดพลาด) และผลลบเท็จ (FN เรือนยอดต้นไม้ถูกละเว้น) สมการของความแม่นยำ คะแนนการเรียกคืน และคะแนน F1 ผู้วิจัยวิเคราะห์การถดถอย (Regression Analysis) ผลทรงพุ่มข้อมูลภาคสนามและการเรียนรู้ด้วยเครื่อง (สมการที่ 6-9)

$$\text{Precision}=\frac{TP}{TP+FP} \quad (6)$$

$$\text{Recall}=\frac{TP}{TP+FN} \quad (7)$$

$$\text{Accuracy}=\frac{TP}{TP+FN+FP} \quad (8)$$

$$\text{F1_Score}=\frac{2PR}{P+R} \quad (9)$$

เมื่อ TP (True Positive) คือ เรือนยอดต้นไม้ตรวจพบได้อย่างถูกต้อง
FP (False Positive) คือ เรือนยอดต้นไม้ตรวจพบโดยผิดพลาด
FN (False Negative) คือ เรือนยอดต้นไม้ถูกละเว้น

ผลการวิจัยและอภิปรายผล

ผลการการสำรวจป่าเต็งรังด้วยการตรวจวัดกายวิภาคของต้นไม้

จากการสำรวจภาคสนามจากแปลงตัวอย่างภายในพื้นที่ศึกษาทั้งหมด 10 แปลง พบต้นไม้ทั้งหมด 1241 ต้น และพบชนิดพรรณไม้ 39 ชนิด ดังแสดงในตารางที่ 1 ซึ่งพรรณไม้ที่พบในแปลงสำรวจ

เรียงลำดับตามจำนวนที่พบมากที่สุดจำนวน 10 ชนิด ทั้งนี้จากการสำรวจภาคสนามได้พบว่า ภายในพื้นที่ศึกษาพบความสูงและเส้นรอบวงของต้นไม้มีค่าเฉลี่ยเท่ากับ 7 เมตร และ 38 เซนติเมตร ตามลำดับ ความยาวของทรงพุ่มตามแนวเหนือ-ใต้ (NS) และตามแนวตะวันออก-ตะวันตก (EW) มีค่าเฉลี่ยเท่ากับ 3.06 และ 3.14 เมตรตามลำดับ ซึ่งข้อมูลภาคสนามเหล่านี้จะถูกใช้ในการสร้างสมการความสัมพันธ์แบบ regression analysis ดังสมการ 1 เพื่อใช้ในการคำนวณและประมาณค่าเส้นรอบวงของต้นไม้อากาศยานไร้คนขับ โดยเส้นรอบวงของต้นไม้จะขึ้นอยู่กับปัจจัย 3 ปัจจัย คือ ความสูงต้นไม้ (m) ความยาวทรงพุ่มตามแนวเหนือ-ใต้ (NS) และตามแนวตะวันออก-ตะวันตก (EW)

ตารางที่ 1 ข้อมูลพรรณไม้ในแปลงสำรวจ

ลำดับ	ชื่อสามัญ	ชื่อวิทยาศาสตร์	จำนวน
1	ต้นแดง	*Xylia xylocarpa var.* kerrii.	457
2	ต้นเต็ง	*Shorea obtusa Wall.* ex Blume.	224
3	ต้นพลองเหมือด	*Memecylon edule* Roxb.	56
4	ต้นอ้อยช้าง	*Lannea coromandelica* (Houtt.) Merr.	56
5	ต้นขาเปีย	*Hymenopyramis parvifolia* Moldenke	54
6	ต้นรัง	*Shorea siamensis* Miq.	40
7	มะม่วงหัวแมงวัน	*Buchanania lanzan* Spreng	40
8	ต้นยอป่า	*Morinda coreia* Ham.	34
9	ต้นหนามเค็ด	*Catunaregam tomentosa* (Blume ex DC.) Triveng.	26
10	ต้นกระมอบ	*Gardenia obtusifolia* Roxb.exKurz	23

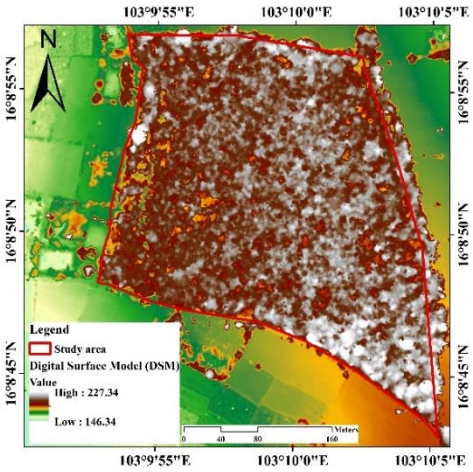
จากตารางที่ 1 ข้อมูลพรรณไม้ในแปลงสำรวจที่ได้ระบุไว้ จะเห็นได้ว่ามีการบันทึกชนิดของพืชทั้งสิ้น 10 ชนิด โดยชนิดที่มีจำนวนมากที่สุดคือ ต้นแดง ซึ่งมีจำนวนถึง 457 ต้น แสดงให้เห็นถึงความอุดมสมบูรณ์และความพิเศษของต้นไม้ชนิดนี้ในพื้นที่สำรวจ ในขณะที่ ต้นเต็ง มาเป็นอันดับสองด้วยจำนวน 224 ต้น ชนิดไม้ที่มีจำนวนเท่ากันคือ ต้นพลองเหมือด และ ต้นอ้อยช้าง ซึ่งแต่ละชนิดมีจำนวน 56 ต้น เป็นไปได้ว่าไม้ทั้งสองชนิดนี้มีความสามารถในการปรับตัวกับสภาพแวดล้อมที่คล้ายคลึงกัน ส่วน ต้นขาเปีย มีจำนวน 54 ต้น และ ต้นรัง และ มะม่วงหัวแมงวัน มีจำนวนเท่ากันที่ 40 ต้น แสดงถึงความหลากหลายทางชีวภาพในพื้นที่ นอกจากนี้ ต้นยอป่า และ ต้นหนาม มีจำนวน 34 และ 26 ต้นตามลำดับ ขณะที่ ต้นกระมอบ มีจำนวนน้อยที่สุดคือ 23 ต้น ซึ่งอาจต้องการการดูแลพิเศษในการอนุรักษ์ ข้อมูลนี้สะท้อนถึงความหลากหลายทางชีวภาพของพืชในพื้นที่สำรวจและความสำคัญของการอนุรักษ์พันธุ์ไม้ที่มีจำนวนไม่มากในพื้นที่นี้เพื่อรักษาความสมดุลของระบบนิเวศในระยะยาว สำหรับผลการคำนวณมวลชีวภาพของต้นไม้โดยใช้ allometry equation และการคำนวณการกักเก็บคาร์บอนในพื้นที่ศึกษา สามารถแสดงได้ดังตารางที่ 2

ตารางที่ 2 ผลการวิเคราะห์ข้อมูลมวลชีวภาพและการกักเก็บคาร์บอน

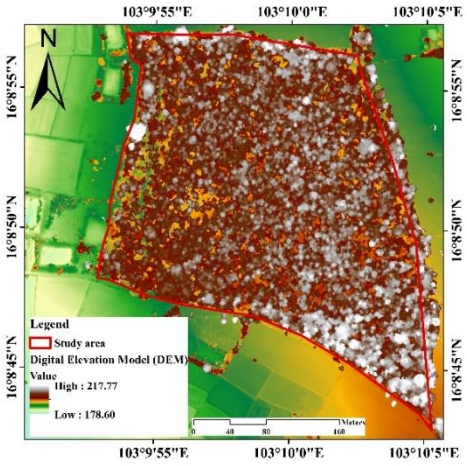
มวลชีวภาพและการกักเก็บคาร์บอน	ปริมาณคาร์บอน
มวลชีวภาพส่วนของลำต้น (kg)	328,010.49
มวลชีวภาพส่วนของใบ (kg)	110,627.12
มวลชีวภาพส่วนของกิ่ง (kg)	15,672.94
ปริมาณมวลชีวภาพเหนือพื้นดินของต้นไม้ (kg)	454,310.55
สัดส่วนปริมาณคาร์บอนต่อมวลชีวภาพของต้นไม้ ($kgCO_2e$)	213,525.96
ปริมาณการกักเก็บคาร์บอนรวม (tCO_2)	213.53
เฉลี่ยตันคาร์บอนต่อไร่ (tCO_2e/rai)	3.24

ผลการวิเคราะห์ข้อมูลมวลชีวภาพและการกักเก็บคาร์บอนจากตารางที่ 2 แสดงให้เห็นถึงความสามารถในการกักเก็บคาร์บอนของมวลชีวภาพในส่วนต่าง ๆ ของต้นไม้ ซึ่งมีความสำคัญในการลดปริมาณก๊าซเรือนกระจกในบรรยากาศ ในการศึกษานี้พบว่า มวลชีวภาพส่วนของลำต้นมีค่าสูงที่สุดที่ 328,010.49 kg รองลงมาคือมวลชีวภาพส่วนของใบที่ 110,627.12 kg และสุดท้ายคือมวลชีวภาพส่วนของกิ่งที่ 15,672.94 kg เมื่อรวมมวลชีวภาพทั้งหมดเหนือพื้นดินของต้นไม้ พบว่ามีปริมาณรวมทั้งสิ้น 454,310.55 kg ซึ่งเป็นตัวบ่งชี้ถึงปริมาณคาร์บอนที่สามารถกักเก็บได้ในต้นไม้เหล่านี้ นอกจากนี้ สัดส่วนปริมาณคาร์บอนต่อมวลชีวภาพของต้นไม้คือ 213,525.96 $kgCO_2e$ ซึ่งแสดงให้เห็นถึงความสำคัญของต้นไม้ในการกักเก็บคาร์บอนในรูปแบบของก๊าซคาร์บอนไดออกไซด์ เทียบเป็นปริมาณการกักเก็บคาร์บอนรวมที่ 213.53 tCO_2 การที่มีการกักเก็บคาร์บอนเฉลี่ยต่อตันต่อไร่ที่ 3.24 ton ยังเป็นการชี้ให้เห็นว่า การปลูกและรักษาต้นไม้มีบทบาทสำคัญในการสนับสนุนเป้าหมายในการลดการปล่อยก๊าซเรือนกระจกในระดับภูมิภาคและระดับโลก

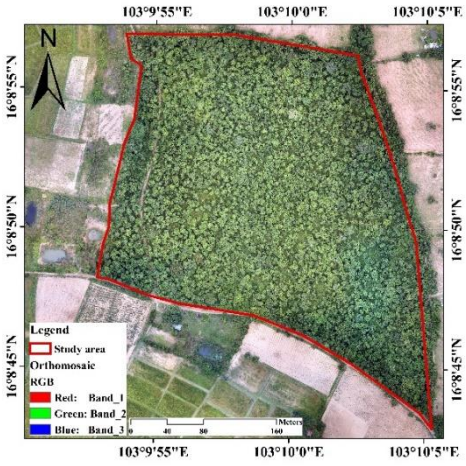
ผลการวิเคราะห์ข้อมูลด้วยอากาศยานไร้คนขับผลการศึกษาการปริมาณการกักเก็บคาร์บอนพื้นที่ป่าเต็งรัง ด้วยอากาศยานไร้คนขับเพื่อหาเพื่อประมาณปริมาณการกักเก็บคาร์บอน ทั้งนี้จากการประมวลผลภาพด้วยโปรแกรม Agisoft PhotoScan สามารถแสดงได้ดังภาพที่ 2-4



ภาพที่ 2 DSM



ภาพที่ 3 DEM



ภาพที่ 4 ผลภาพ Orthophoto

ภาพที่ 2 ผลแบบจำลอง Digital Surface Model เป็นการแสดงผลการจับภาพทั้งคุณลักษณะทางธรรมชาติและสิ่งก่อสร้าง หรือเทียบเท่าเรือนยอดของต้นไม้ของสภาพแลดล้อมทั้งหมดที่อยู่เหนือพื้นดิน โดยในพื้นที่ศึกษาพบความสูงอยู่ที่ช่วง 181.19 ถึง 227.34 ค่าที่มีความสูงที่สุดคือ พื้นที่ที่มีสีแดง มีความสูงเท่ากับ 227.34 เมตรจากระดับทะเลปานกลาง เป็นบริเวณที่ปกคลุมไปด้วยความหนาแน่น ของพรรณไม้ที่มีความสูงจากระดับพื้นดิน และพื้นที่ที่เป็นสีเขียว มีความสูงอยู่ที่ 181.19 เมตรจากระดับทะเลปานกลาง ผู้วิจัยจัดให้เป็นพื้นที่ต่ำเป็นระดับพื้นดิน สำหรับภาพที่ 3 ผลแบบจำลอง (Digital Elevation Model ซึ่งเป็นการแสดงพื้นผิวโลก โดยลักษณะทางธรรมาชาติและสิ่งก่อสร้างทั้งหมดออกไป โดยในพื้นที่ศึกษาพบความสูงอยู่ที่ช่วง 183.47 ถึง 217.77 ค่าที่มีความสูงที่สุดคือ พื้นที่ที่มีสีแดง มีความสูงเท่ากับ 217.77 เมตรจากระดับทะเลปานกลางเป็นบริเวณที่ความสูง และพื้นที่ที่เป็นสีเขียว มีความสูงอยู่ที่ 183.47 เมตรจากระดับทะเลปานกลาง ผู้วิจัยจัดให้เป็นพื้นที่ที่มีความสูงต่ำ เช่น เส้นทางน้ำในพื้นที่ศึกษา และในภาพที่ 4 ผลภาพ Orthophoto หรือ ภาพ RGB ซึ่งเป็นภาพชุดข้อมูลที่ประกอบไปด้วยช่วงค่าของสี ซึ่งมีทั้ง 3 สี ด้วยกันคือ สีแดง (Red) สีเขียว (Green) และสีน้ำเงิน (Blue) ทำให้เราสามารถมองเห็นภาพที่มีความชัดเจนเพิ่มมากขึ้นจากภาพถ่ายทางอากาศที่ได้จากอากาศยานไร้คนขับ ที่ผ่านกระบวนการ

ปรับแก้ (Orthorectification) ซึ่งเป็นการปรับแก้ความผิดเพี้ยนทางตำแหน่งอันเนื่องมาจากความสูงต่ำของภูมิประเทศ และการเอียงของกล้องบันทึกข้อมูล โดยใช้ข้อมูลความสูงต่ำของภูมิประเทศในการปรับแก้เปลี่ยนตำแหน่ง รวมถึงอ้างอิงระบบพิกัดกริดของแผนที่โลก (UTM)

ผลการวิเคราะห์การกักเก็บคาร์บอนด้วยแบบจำลองจากการเรียนรู้ด้วยเครื่อง

สำหรับผลการวิเคราะห์การกักเก็บคาร์บอนด้วยแบบจำลองจากการเรียนรู้ด้วยเครื่องทั้ง 3 แบบจำลอง สามารถแสดงได้ดังตารางที่ 3 ทั้งนี้ จากข้อมูลในตารางที่ 3 ผลการวิเคราะห์การกักเก็บคาร์บอนด้วยแบบจำลองจากการเรียนรู้ด้วยเครื่อง สามารถสรุปได้ว่าในแง่ของการกักเก็บคาร์บอนรวมและเฉลี่ยตันคาร์บอนต่อไร่ โดยผลการดำเนินการพบว่าการเรียนรู้ด้วยเครื่องด้วยเทคนิค Canopy Height Model ถือว่ามีประสิทธิภาพสูงสุดในการกักเก็บคาร์บอนเมื่อเปรียบเทียบกับข้อมูลจากการตรวจวัดในภาคสนาม รองลงมาได้แก่ Deepness Model และ Segment Model เมื่อพิจารณาปริมาณมวลชีวภาพเหนือพื้นดินก็พบว่า Canopy Height Model, Deepness Model และ Segment Model มีปริมาณมวลชีวภาพเหนือพื้นดินเท่ากับ 452,157.27, 463,689.13, และ 440,440.21 กิโลกรัม (kg) ตามลำดับ สำหรับปริมาณการกักเก็บคาร์บอนรวมก็พบว่า Canopy Height Model, Deepness Model และ Segment Model มีปริมาณการกักเก็บคาร์บอนเท่ากับ 212.51, 217.93 และ207.01 ตันคาร์บอน (tCO_2e) ตามลำดับ นอกจากนี้ เมื่อนำผล Deepness Model มาวิเคราะห์การตรวจสอบความแม่นยำก็พบว่ามีค่า Accuracy เท่ากับ 0.597, Precision เท่ากับ 0.902, Recall เท่ากับ 0.638, F1-score ที่ 0.747 และมีความถูกต้องโดยรวมเท่ากับ 74.737% ดังแสดงในตารางที่ 4

ตารางที่ 3 ผลการวิเคราะห์การกักเก็บคาร์บอนด้วยแบบจำลองจากการเรียนรู้ด้วยเครื่อง

มวลชีวภาพและการกักเก็บคาร์บอน	ปริมาณคาร์บอน (ภาคสนาม)	ปริมาณการกักเก็บคาร์บอนด้วยเทคนิคการเรียนรู้ด้วยเครื่อง		
		Canopy Height Model	Deepness Model	Segment Model
มวลชีวภาพส่วนของลำต้น (kg)	328,010.49	344,078.86	328,489.62	311,264.74
มวลชีวภาพส่วนของใบ (kg)	110,627.12	92,419.54	119,207.44	113,983.42
มวลชีวภาพส่วนของกิ่ง (kg)	15,672.94	15,658.88	15,992.08	15,192.05
ปริมาณมวลชีวภาพเหนือพื้นดินของต้นไม้ (kg)	454,310.55	452,157.27	463,689.13	440,440.21
สัดส่วนปริมาณคาร์บอนต่อมวลชีวภาพของต้นไม้ ($kgCO_2e$)	213,525.96	212,513.92	217,933.89	207,006.90
ปริมาณการกักเก็บคาร์บอนรวม (ตันคาร์บอน) (tCO_2e)	213.53	212.51	217.93	207.01
เฉลี่ยตันคาร์บอนต่อไร่ (tCO_2e/rai)	3.24	3.22	3.30	3.15

จากข้อมูลในตารางที่ 3 ผลการวิเคราะห์การกักเก็บคาร์บอนด้วยแบบจำลองจากการเรียนรู้ด้วยเครื่อง สามารถสรุปได้ว่าในแง่ของการกักเก็บคาร์บอนรวมและเฉลี่ยต้นคาร์บอนต่อไร่ โดยผลการดำเนินการพบว่าการเรียนรู้ด้วยเครื่องด้วยเทคนิค Canopy Height Model ถือว่ามีประสิทธิภาพสูงสุดในการกักเก็บคาร์บอนเมื่อเปรียบเทียบกับข้อมูลจากการตรวจวัดในภาคสนาม รองลงมาได้แก่ Deepness Model และ Segment Model เมื่อพิจารณาปริมาณมวลชีวภาพเหนือพื้นดินก็พบว่า Canopy Height Model, Deepness Model และ Segment Model มีปริมาณมวลชีวภาพเหนือพื้นดินเท่ากับ 452,157.27, 463,689.13, และ 440,440.21 กิโลกรัม (kg) ตามลำดับ สำหรับปริมาณการกักเก็บคาร์บอนรวมก็พบว่า Canopy Height Model, Deepness Model และ Segment Model มีปริมาณการกักเก็บคาร์บอนเท่ากับ 212.51, 217.93 และ207.01 ตันคาร์บอน (tCO_2e) ตามลำดับ นอกจากนี้เมื่อนำผล Deepness Model มาวิเคราะห์การตรวจสอบความแม่นยำก็พบว่ามีค่า Accuracy เท่ากับ 0.597, Precision เท่ากับ 0.902, Recall เท่ากับ 0.638, F1-score ที่ 0.747 และมีความถูกต้องโดยรวมเท่ากับ 74.737% ดังแสดงในตารางที่ 4

ตารางที่ 4 ผลการตรวจสอบความแม่นยำ

ID	Canopy Height Model
Precision	0.902
Recall	0.638
Accuracy	0.597
F1- Score	0.747
Percent	74.737%

สรุป

การวิจัยนี้มีวัตถุประสงค์เพื่อพัฒนาวิธีการประมาณการกักเก็บคาร์บอนของป่าเต็งรังด้วยการใช้เทคโนโลยีอากาศยานไร้คนขับและการเรียนรู้ของเครื่อง การดำเนินการออกเป็น 3 ส่วนหลัก ได้แก่ การสำรวจป่าเต็งรังด้วยการวัดกายวิภาคของต้นไม้ การสำรวจด้วยอากาศยานไร้คนขับ และการพัฒนาแบบจำลองผ่านการเรียนรู้ของเครื่องใน 3 แบบจำลอง ได้แก่ Canopy Height Model, Deepness Model และ Segment Model ผลการดำเนินการจากการสำรวจป่าเต็งรังด้วยการวัดกายวิภาคของต้นไม้พบพรรณไม้ 1,241 ต้นจาก 39 ชนิด และสามารถประเมินการกักเก็บคาร์บอนได้ 213,525.96 $kgCO_2e$ ในขณะการวิเคราะห์ความแม่นยำของแบบจำลองการกักเก็บคาร์บอนด้วยการเรียนรู้ด้วยเครื่อง 3 แบบจำลองนั้น พบว่าแบบจำลอง Canopy Height Model มีประสิทธิภาพสูงสุดในการวิเคราะห์กักเก็บคาร์บอนโดยมีระดับความแม่นยำ 74.737% วิธีการที่พัฒนาขึ้นมานี้จะช่วยลดเวลาและต้นทุนได้ เนื่องจากไม่จำเป็นต้องสำรวจทุกต้นไม้ในพื้นที่จริง ข้อมูลที่ได้รับสามารถนำไปใช้ในการบริหารจัดการป่าอย่างยั่งยืนได้

แม้ว่าความแม่นยำของโมเดลจะยังไม่ถึง 100% และอาจมีความผิดพลาดในการตรวจจับต้นไม้บางส่วน จึงจำเป็นต้องใช้ข้อมูลจากภาคสนามมาประกอบเพื่อเพิ่มความถูกต้อง ทั้งนี้ ยังขึ้นอยู่กับคุณภาพของภาพถ่ายจากอากาศยานไร้คนขับ เช่น แสง เงา หรือความละเอียดของภาพ การศึกษานี้สามารถนำไปใช้ประโยชน์ในการสนับสนุนการบริหารป่า และช่วยติดตามการเปลี่ยนแปลงของป่า รวมถึงวิเคราะห์การเติบโตของต้นไม้ นอกจากนี้ยังสามารถใช้เป็นต้นแบบในการวิเคราะห์การกักเก็บคาร์บอนในพื้นที่อื่นได้ โดยใช้อากาศยานไร้คนขับและการเรียนรู้ของเครื่อง ซึ่งสามารถช่วยวิเคราะห์และบริหารจัดการป่าได้แม่นยำขึ้น

เอกสารอ้างอิง

Ahlswede, S., Asam, S., & Röder, A. (2021). Hedgerow object detection in very high-resolution satellite images using convolutional neural networks. Journal of Applied Remote Sensing, 15(018501).

Alongi, D.M. (2022). Impacts of climate change on blue carbon stocks and fluxes in mangrove forests. Forests, 13(149).

Angkahad, T., Laosuwan, T., Sangpradid, S., Prasertsri, N., Uttaruk, Y., Phoophathong, T., & Nuchthapho, J. (2024). An empirical analysis of above-ground biomass and carbon sequestration utilizing UAV photogrammetry and machine learning techniques. IEEE Access, 1–1.

Daba, D.E., & Soromessa, T. (2019). The accuracy of species-specific allometric equations for estimating aboveground biomass in tropical moist montane forests: Case study of Albizia grandibracteata and Trichilia dregeana. Carbon Balance and Management, 14, 1–13.

Durfee, N., Ochoa, C.G., & Mata-Gonzalez, R. (2019). The use of low-altitude UAV imagery to assess western juniper density and canopy cover in treated and untreated stands. Forests, 10(296).

Fradette, O., Marty, C., Tremblay, P., Lord, D., & Boucher, J.-F. (2021). Allometric equations for estimating biomass and carbon stocks in afforested open woodlands with black spruce and jack pine, in the eastern Canadian boreal forest. Forests, 12(59).

Guo, Y., Xiao, Y., Hao, F., Zhang, X., Chen, J., de Beurs, K., & Fu, Y.H. (2023). Comparison of different machine learning algorithms for predicting maize grain yield using UAV-based hyperspectral images. International Journal of Applied Earth Observation and Geoinformation, 124, 103528.

He, G., Zhang, Z., Zhu, Q., Wang, W., Peng, W., & Cai, Y. (2022). Estimating carbon sequestration potential of forest and its influencing factors at fine spatial-scales: A case study of Lushan City in Southern China. International Journal of Environmental Research and Public Health, 19(9184).

Huang, T., Ou, G., Wu, Y., Zhang, X., Liu, Z., Xu, H., Xu, X., Wang, Z., & Xu, C. (2023). Estimating the aboveground biomass of various forest types with high heterogeneity at the provincial scale based on multi-source data. Remote Sensing, 15(3550).

IPCC. (1996). Revised 1996 IPCC guidelines for national greenhouse gas inventories. Retrieved from https://www.ipcc-nggip.iges.or.jp/public/gl/invs1.html

IPCC. (2014). Climate Change 2014. Retrieved from https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf

Jundang, W., Puangchit, L., & Diloksumpun, S. (2010). Carbon storage of dry dipterocarp forest and eucalypt plantation at Mancha Khiri Plantation, Khon Kaen Province. Thai Journal of Forestry, 29, 36–44.

Jurjević, L., Liang, X., Gašparović, M., & Balenović, I. (2020). Is field-measured tree height as reliable as believed – Part II, A comparison study of tree height estimates from conventional field measurement and low-cost close-range remote sensing in a deciduous forest. ISPRS Journal of Photogrammetry and Remote Sensing, 169, 277–241.

KC, Y.B., Liu, Q., Saud, P., Gaire, D., & Adhikari, H. (2024). Estimation of above-ground forest biomass in Nepal by the use of airborne LiDAR, and forest inventory data. Land, 13(213).

Larjavaara, M., & Muller-Landau, H.C. (2013). Measuring tree height: A quantitative comparison of two common field methods in a moist tropical forest. Methods in Ecology and Evolution, 13, 320–328.

Laosuwan, T., Uttaruk, Y., Sangpradid, S., Butthep, C., & Leammanee, S. (2023). The carbon sequestration potential of silky oak (Grevillea robusta A.Cunn. ex R.Br.), a high-value economic wood in Thailand. Forests, 14(1824).

Livingston, C., & Lincoln, N.K. (2023). Determining allometry and carbon sequestration potential of breadfruit (Artocarpus altilis) as a climate-smart staple in Hawai‘i. Sustainability, 15(15682).

Lu, D., Chen, Q., Wang, G., Liu, L., Li, G., & Moran, E. (2014). A survey of remote sensing-based aboveground biomass estimation methods in forest ecosystems. International Journal of Digital Earth, 9, 63–105.

Magnússon, R.Í., Limpens, J., Kleijn, D., van Huissteden, K., Maximov, T.C., Lobry, S., & Heijmans, M.M. (2021). Shrub decline and expansion of wetland vegetation revealed by very high resolution land cover change detection in the Siberian lowland tundra. Science of the Total Environment, 782, 146877.

Mason, N.W.H., Beets, P.N., Payton, I., Burrows, L., Holdaway, R.J., & Carswell, F.E. (2014). Individual-based allometric equations accurately measure carbon storage and sequestration in shrublands. Forests, 5, 309–324.

Marsh and McLennan. (2022). The Climate Action Navigator. Retrieved from https://www.marshmclennan.com/insights/publications/2022/april/the-climate-action-navigator.html

Mendes, P.A., Coimbra, A.P., & de Almeida, A.T. (2023). Forest vegetation detection using deep learning object detection models. Forests, 14(1787).

Ogawa, H., Yoda, K., Ogino, K., & Kira, T. (1965). Comparative ecological studies on three main types of forest vegetation in Thailand. II. Plant biomass. Plant Biomass, 4, 49-80.

Oumasst, A., Tiouidji, F.E., Tabi, S., Zahidi, A., El Mousadik, A., El Finti, A., Aitlhaj, A., & Hallam, J. (2024). Development of allometric equations to determine the biomass of plant components and the total storage of carbon dioxide in young Mediterranean Argan trees. Sustainability, 16(4592).

Papp, L., Van Leeuwen, B., Szilassi, P., Tobak, Z., Szatmári, J., Árvai, M., Mészáros, J., & Pásztor, L. (2021). Monitoring invasive plant species using hyperspectral remote sensing data. Land, 10(29).

Penn State Extension. (2025). How Forests Store Carbon. Retrieved from https://extension. psu.edu/ how-forests-store-carbon

Pothong, T., Elliott, S., Chairuangsri, S., et al. (2022). New allometric equations for quantifying tree biomass and carbon sequestration in seasonally dry secondary forest in northern Thailand. New Forests, 53, 17–36.

Repo, A., Rajala, T., Henttonen, H.M., Lehtonen, A., Peltoniemi, M., & Heikkinen, J. (2021). Age-dependence of stand biomass in managed boreal forests based on the Finnish National Forest Inventory data. Forest Ecology and Management, 498, 119507.

Romero, F.M.B., Jacovine, L.A.G., Ribeiro, S.C., Torres, C.M.M.E., Silva, L.F.d., Gaspar, R.d.O., Rocha, S.J.S.S.d., Staudhammer, C.L., & Fearnside, P.M. (2020). Allometric equations for volume, biomass, and carbon in commercial stems harvested in a managed forest in the southwestern Amazon: A case study. Forests, 11(874).

UNECE. (2025). Carbon Sinks and Sequestration. Retrieved from https://unece.org/forests/carbon-sinks-and-sequestration

Uttaruk, Y., & Laosuwan, T. (2020). Methods of estimation for above-ground carbon stock in Nongbua-nonmee Community Forest, Maha Sarakham Province, Thailand. Agriculture and Forestry, 66, 183–195.

Uttaruk, Y., Laosuwan, T., Sangpradid, S., Butthep, C., Rotjanakusol, T., Sittiwong, W., & Nilrit, S. (2024). Thailand's urban forestry programs are assisted by calculations of their ecological properties and economic values. Land, 13(1440).

Vorster, A.G., Evangelista, P.H., Stovall, A.E.L., et al. (2020). Variability and uncertainty in forest biomass estimates from the tree to landscape scale: The role of allometric equations. Carbon Balance and Management, 15, 1–20.

Wang, M., Xie, J., & Lyu, M. (2023). Forest soil carbon cycle in response to global change. Forests, 14(2242).

การพัฒนาระบบต้นแบบการตรวจจับ และแจ้งเตือนการสูบบุหรี่ กรณีศึกษา ม. หาดใหญ่

Development of a Prototype Smoking Detection and Alert System: A Case Study of Hatyai University

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อพัฒนาระบบต้นแบบสำหรับการตรวจจับและแจ้งเตือนการสูบบุหรี่ โดยใช้หลักการ Internet of Things (IoT) ระบบประกอบด้วยเซ็นเซอร์ MQ-135 สำหรับตรวจจับควันและสารระเหยอินทรีย์ (VOCs) บอร์ดควบคุม ESP8266 สำหรับประมวลผลและเชื่อมต่ออินเทอร์เน็ต Buzzer สำหรับแจ้งเตือนด้วยเสียง และ LINE Messaging API สำหรับส่งข้อความแจ้งเตือนแบบเรียลไทม์ผ่านแอปพลิเคชัน Line วิธีดำเนินการวิจัยนี้ประกอบด้วยขั้นตอนหลัก ๆ 3 ขั้นตอน ได้แก่ การออกแบบและพัฒนาระบบ การพัฒนาซอฟต์แวร์ และการทดสอบระบบในสภาพแวดล้อม 3 แบบ ได้แก่ สภาพปกติ, การสูบบุหรี่ธรรมดา และการสูบบุหรี่ไฟฟ้า

ผลการทดสอบแสดงว่าระบบสามารถตรวจจับควันจากบุหรี่ธรรมดาได้ที่ค่าเฉลี่ย 230.38 ppm ด้วยเวลาตอบสนอง 10-12 วินาที และจากบุหรี่ไฟฟ้าที่ 165.34 ppm ด้วยเวลาตอบสนอง 15-17 วินาที อัตราความสำเร็จของการแจ้งเตือนอยู่ที่ 100% สำหรับบุหรี่ธรรมดาและ 90% สำหรับบุหรี่ไฟฟ้า ระบบมีจุดเด่นในด้านความง่ายต่อการใช้งาน การแจ้งเตือนแบบเรียลไทม์และการบันทึกข้อมูลสำหรับวิเคราะห์ อย่างไรก็ตาม มีข้อจำกัดในการแยกแยะประเภทของบุหรี่และความหน่วงของการแจ้งเตือน แนวทางการพัฒนาในอนาคต ได้แก่ การเพิ่มเซ็นเซอร์ การประยุกต์ใช้ Machine Learning และการปรับปรุงการเชื่อมต่อเครือข่าย

คำสำคัญ: อินเทอร์เน็ตของสรรพสิ่ง, การตรวจจับการสูบบุหรี่, เซ็นเซอร์ตรวจจับก๊าซ

Abstract

This research aims to develop a prototype system for detecting and alerting cigarette smoking using the principles of the Internet of Things (IoT). The system consists

of an MQ-135 sensor for detecting smoke and volatile organic compounds (VOCs), an ESP8266 control board for processing and internet connectivity, a buzzer for audible alerts, and the LINE Messaging API for sending real-time alert messages through the Line application. The research methodology includes sensor calibration, hardware and software development, and system testing in three different environments: normal conditions, conventional cigarette smoking, and electronic cigarette smoking.

Test results show that the system can detect smoke from conventional cigarettes at an average of 230.38 ppm with a response time of 10-12 seconds, and from electronic cigarettes at 165.34 ppm with a response time of 15-17 seconds. The success rate of alerts is 100% for conventional cigarettes and 90% for electronic cigarettes. The system excels in ease of use, real-time alerts, and data logging for analysis. However, there are limitations in distinguishing between types of cigarettes and in the latency of alerts. Future development directions include adding sensors, applying machine learning and improving network connectivity.

Keywords: Internet of Things (IoT), Smoke Detection, Gas Detection Sensor

บทนำ

ปัญหาการสูบบุหรี่ในพื้นที่ห้ามสูบ เช่น โรงเรียน สถานศึกษา โรงพยาบาล และอาคารสาธารณะ เป็นปัญหาที่ส่งผลกระทบทั้งต่อสุขภาพและสังคม แม้ว่าจะมีมาตรการทางกฎหมายกำหนดห้ามสูบบุหรี่ในพื้นที่ดังกล่าว แต่ในทางปฏิบัติ การบังคับใช้กฎหมายยังคงมีข้อจำกัด โดยเฉพาะในพื้นที่ที่ไม่มีการควบคุมอย่างเข้มงวด เช่น ห้องน้ำ อาคารเรียน หรือมุมอับที่เจ้าหน้าที่ตรวจตราไม่สามารถเข้าถึงได้ง่าย ควันบุหรี่ประกอบด้วย สารพิษและสารก่อมะเร็งหลายชนิด ซึ่งเป็นอันตรายต่อทั้งผู้สูบบุหรี่เองและบุคคลรอบข้างที่ได้รับควันบุหรี่มือสอง งานวิจัยทางการแพทย์ระบุว่า การได้รับควันบุหรี่แบบไม่ได้สูบ (Passive Smoking) สามารถเพิ่มความเสี่ยงของโรคระบบทางเดินหายใจ โรคหัวใจ และโรคมะเร็งปอด โดยเฉพาะในกลุ่มเด็กและเยาวชนที่ระบบภูมิคุ้มกันยังไม่สมบูรณ์

ในปัจจุบัน เทคโนโลยี Internet of Things (IoT) มีบทบาทสำคัญในการพัฒนาระบบตรวจจับสิ่งแวดล้อมแบบอัจฉริยะ เซ็นเซอร์ตรวจจับควันและก๊าซสามารถนำมาใช้ร่วมกับแพลตฟอร์มการแจ้งเตือนแบบเรียลไทม์ เพื่อเสริมประสิทธิภาพในการควบคุมพฤติกรรมการสูบบุหรี่ในพื้นที่ห้ามสูบ ช่วยลดภาระการตรวจตราแบบดั้งเดิม และเพิ่มความรวดเร็วในการดำเนินมาตรการป้องกัน

มหาวิทยาลัยหาดใหญ่ ซึ่งเป็นกรณีศึกษาหลักในงานวิจัยนี้ มีโครงสร้างพื้นฐานด้านเครือข่ายไร้สาย (Wi-Fi) ครอบคลุมพื้นที่ส่วนใหญ่ของอาคารเรียน อาคารสำนักงาน และพื้นที่สาธารณะต่าง ๆ ความพร้อมของเครือข่ายดังกล่าวเอื้อต่อการนำระบบ IoT ไปใช้งานจริง เนื่องจากสามารถรองรับการเชื่อมต่อข้อมูลจากอุปกรณ์เซ็นเซอร์สู่ระบบแจ้งเตือนได้อย่างมีเสถียรภาพและต่อเนื่อง ทำให้มีความเป็นไปได้สูงในการติดตั้งและประยุกต์ใช้งานระบบต้นแบบในสภาพแวดล้อมจริง

ดังนั้น การพัฒนาระบบต้นแบบ “การตรวจจับและแจ้งเตือนการสูบบุหรี่โดยใช้ IoT” จะเป็นแนวทางที่มีศักยภาพในการช่วยลดปัญหาดังกล่าว โดยระบบจะสามารถตรวจจับควันบุหรี่ผ่านเซ็นเซอร์ วิเคราะห์ข้อมูลแบบเรียลไทม์ และแจ้งเตือนไปยังเจ้าหน้าที่ที่เกี่ยวข้องเพื่อให้สามารถดำเนินการป้องกันและแก้ไขปัญหาได้อย่างทันท่วงที

วัตถุประสงค์ของการวิจัย

1. เพื่อพัฒนาและออกแบบระบบต้นแบบ สำหรับตรวจจับการสูบบุหรี่โดยใช้เทคโนโลยี Internet of Things (IoT) และเซ็นเซอร์ตรวจจับควันหรือก๊าซที่เกิดจากการเผาไหม้ของบุหรี่
2. เพื่อพัฒนาระบบแจ้งเตือนแบบเรียลไทม์ ผ่านแอปพลิเคชันหรือแพลตฟอร์มออนไลน์ เพื่อให้เจ้าหน้าที่สามารถรับข้อมูลและดำเนินการได้อย่างรวดเร็ว
3. ทดสอบและประเมินผลการทำงานของระบบ ในด้านความแม่นยำ ความไวในการตรวจจับและประสิทธิภาพของระบบแจ้งเตือน เพื่อให้สามารถนำไปใช้งานได้จริง

แนวคิด ทฤษฎี กรอบแนวคิด

ปัจจุบัน IoT และเซ็นเซอร์อัจฉริยะ มีบทบาทสำคัญในการยกระดับความปลอดภัยและคุณภาพชีวิต โดยสามารถตรวจจับ วิเคราะห์ และแจ้งเตือนได้แบบเรียลไทม์ เทคโนโลยีเหล่านี้ถูกนำมาใช้ในหลายด้าน รวมถึง การควบคุมการสูบบุหรี่ในพื้นที่ต้องห้าม การพัฒนา ระบบตรวจจับและแจ้งเตือนการสูบบุหรี่ ด้วยเซ็นเซอร์ควันและก๊าซร่วมกับ IoT ช่วยเฝ้าระวังพฤติกรรมการสูบบุหรี่ แจ้งเตือนผู้เกี่ยวข้อง และลดมลพิษทางอากาศ ผู้วิจัยจึงศึกษาข้อมูลและทฤษฎีที่เกี่ยวข้อง ดังต่อไปนี้

1. แนวคิด และทฤษฎีที่เกี่ยวข้อง

การพัฒนาระบบต้นแบบการตรวจจับ และแจ้งเตือนการสูบบุหรี่ กรณีศึกษา ม. หาดใหญ่ มีแนวคิดและทฤษฎีต่าง ๆ ที่เกี่ยวข้องดังนี้

1.1 ผลกระทบของบุหรี่

อดิศักดิ์ ผลิตผลการพิมพ์ (2567) ควันบุหรี่ส่งผลกระทบต่อสุขภาพของทั้งผู้สูบและบุคคลรอบข้าง โดยแบ่งออกเป็น ควันบุหรี่มือหนึ่ง ผู้สูบได้รับสารพิษโดยตรง ควันบุหรี่มือสอง ผู้ที่อยู่ใกล้ชิดสูดดมควันเข้าไป และควันบุหรี่มือสาม สารพิษตกค้างบนพื้นผิวและเข้าสู่ร่างกายผ่านการสัมผัสหรือหายใจ ควันบุหรี่ประกอบด้วยสารพิษอันตราย เช่น นิโคติน คาร์บอนมอนอกไซด์ และฟอร์มาลีน ซึ่งเพิ่มความเสี่ยงต่อโรคร้ายแรง เช่น มะเร็งปอด โรคหัวใจ และโรคระบบทางเดินหายใจ การป้องกันที่ดีที่สุด คือ การหลีกเลี่ยงการสูบบุหรี่และลดการได้รับควันบุหรี่ เพื่อปกป้องสุขภาพของตนเองและคนรอบข้าง

โรงพยาบาลบำรุงราษฎร์ (2562) อันตรายของควันบุหรี่มือสอง (Secondhand Smoke) ต่อสุขภาพของผู้ที่ไม่สูบบุหรี่ ควันบุหรี่มือสอง ประกอบด้วย สารเคมีที่เป็นอันตรายมากกว่า 7,000 ชนิด ซึ่งสามารถก่อให้เกิดโรคร้ายแรง เช่น โรคหัวใจ โรคหลอดเลือดสมอง และมะเร็งปอด นอกจากนี้ เด็กที่

สัมผัสควันบุหรี่มือสอง มีความเสี่ยงสูงต่อการเกิดโรคทางเดินหายใจเฉียบพลัน หอบหืด และการติดเชื้อในหู บทความยังชี้ให้เห็นว่าการไม่มีระดับความปลอดภัยในการสัมผัสควันบุหรี่มือสอง การป้องกันที่ดีที่สุดคือการหลีกเลี่ยงสถานที่ที่มีการสูบบุหรี่และสนับสนุนสภาพแวดล้อมที่ปลอดบุหรี่

ธนากร ธนวัฒน์ (2567) บุหรี่ไฟฟ้าได้รับความนิยมมากขึ้นในหมู่วัยรุ่น เนื่องจากความเข้าใจผิดว่า ปลอดภัยกว่าบุหรี่ทั่วไป และสามารถช่วยเลิกบุหรี่ได้ อย่างไรก็ตาม งานวิจัยพบว่าบุหรี่ไฟฟ้ายังคงมีสารพิษและสารก่อมะเร็ง ที่ส่งผลเสียต่อระบบทางเดินหายใจ หัวใจ และสมอง นอกจากนี้ การสูบบุหรี่ไฟฟ้าอาจนำไปสู่การติดสารนิโคติน ซึ่งส่งผลกระทบต่อพัฒนาการของสมองในวัยรุ่น เพื่อป้องกันการใช้บุหรี่ไฟฟ้าในวัยรุ่น ควรมีมาตรการที่ครอบคลุม เช่น การให้ความรู้ในโรงเรียน การออกกฎหมายควบคุมการขาย และการสนับสนุนจากครอบครัว การใช้แนวทางเหล่านี้ร่วมกันจะช่วยลดการใช้บุหรี่ไฟฟ้าและส่งเสริมสุขภาพของเยาวชนในระยะยาว

1.2 อินเตอร์เน็ตในทุกสิ่ง (Internet of Things: IoTs)

Kevin Ashton (2009) Internet of Things คือ การเชื่อมต่ออุปกรณ์ต่าง ๆ ที่สามารถรับรู้สิ่งแวดล้อมและสามารถเชื่อมต่อกับอินเทอร์เน็ตได้ โดยใช้อุปกรณ์เซ็นเซอร์และเทคโนโลยี RFID (Radio Frequency Identification) เพื่อให้สิ่งของต่าง ๆ สามารถแลกเปลี่ยนข้อมูลผ่านอินเทอร์เน็ตได้อย่างอิสระและเปิดกว้าง เซ็นเซอร์เหล่านี้ช่วยให้คอมพิวเตอร์สามารถเข้าใจข้อมูลจากโลกภายนอกได้มากขึ้น ทำให้สามารถใช้งานและทำงานต่าง ๆ โดยอัตโนมัติ คอมพิวเตอร์จะสามารถเชื่อมโยงข้อมูลจากหลายแหล่งเข้าด้วยกันและนำไปใช้ในแอปพลิเคชันต่าง ๆ ซึ่งในท้ายที่สุดจะช่วยให้มนุษย์สามารถควบคุมและเข้าใจสิ่งแวดล้อมรอบตัวได้อย่างละเอียดมากขึ้นและเป็นระบบที่มีประสิทธิภาพคล้ายกับระบบประสาทของมนุษย์

สุพล พรหมมาพันธ์ (2560) อินเทอร์เน็ตของสรรพสิ่ง หรือ ไอโอที (IoT) หมายถึง เครือข่ายของวัตถุ อุปกรณ์ พาหนะ สิ่งปลูกสร้าง และสิ่งของอื่น ๆ ที่มีวงจรอิเล็กทรอนิกส์ ซอฟต์แวร์ เซ็นเซอร์ และการเชื่อมต่อกับเครือข่าย ฝังตัวอยู่ และทำให้วัตถุเหล่านั้นสามารถเก็บบันทึกและแลกเปลี่ยนข้อมูลได้ อินเทอร์เน็ตของสรรพสิ่งทำให้วัตถุสามารถรับรู้สภาพแวดล้อมและถูกควบคุมได้จากระยะไกลผ่านโครงสร้างพื้นฐานเครือข่ายที่มีอยู่แล้ว ทำให้เราสามารถผสานโลกกายภาพกับระบบคอมพิวเตอร์ได้แนบแน่นมากขึ้น ผลที่ตามมาคือ ประสิทธิภาพ ความแม่นยำ และประโยชน์ทางเศรษฐกิจที่เพิ่มมากขึ้น ก่อนที่จะมาถึงอินเทอร์เน็ตในทุกสรรพสิ่ง หรืออินเทอร์ของสรรพสิ่ง (IoT) จะมีอีกระบบหนึ่งที่เรียกว่า ระบบสมองกลฝังตัว (Embedded Systems)

2. งานวิจัยที่เกี่ยวข้อง

Hatip and Zayood (2024) ได้พัฒนาวิธีการใช้เซ็นเซอร์หลายชนิดร่วมกันเพื่อตรวจจับควันได้ดีขึ้นในสภาพแวดล้อมอัจฉริยะ เช่น ในบ้านหรืออาคารต่าง ๆ ปัญหาของเซ็นเซอร์ตรวจจับควันแบบเดิมคือมันอาจจะทำงานไม่แม่นยำเมื่อมีปัจจัยรบกวน เช่น ความชื้นหรือฝุ่น ทำให้เกิดการแจ้งเตือนผิดพลาด

หรือไม่สามารถตรวจจับควันได้ทันเวลา เพื่อแก้ปัญหานี้ ผู้วิจัยได้ทดลองใช้เซ็นเซอร์หลายชนิดร่วมกัน เช่น เซ็นเซอร์ตรวจจับควันแบบแสงและแบบไอออน โดยเก็บข้อมูลจากสถานการณ์ต่าง ๆ ทั้งในบ้านและนอกบ้าน รวมถึงพื้นที่ฝึกนักดับเพลิง ซึ่งมีข้อมูลทั้งหมดประมาณ 60,000 ครั้ง วิธีการที่ใช้คือการนำข้อมูลจากเซ็นเซอร์ทุกตัวมาวิเคราะห์ร่วมกันด้วยเทคนิค Machine Learning ที่เรียกว่า Adaboost ซึ่งช่วยให้ระบบเรียนรู้และปรับปรุงตัวเองได้เรื่อย ๆ เพื่อตรวจจับควันได้แม่นยำขึ้น ผลการทดลองพบว่า การใช้เซ็นเซอร์หลายตัวร่วมกันช่วยให้ระบบตรวจจับควันทำงานได้ดีขึ้นอย่างชัดเจน สรุปแล้ว การใช้เซ็นเซอร์หลายตัวร่วมกันเป็นวิธีที่มีประสิทธิภาพในการตรวจจับควัน และอาจนำไปพัฒนาระบบเตือนภัยในอนาคตได้ งานวิจัยนี้เสนอให้มีการทดลองเพิ่มเติมในสภาพแวดล้อมจริงเพื่อให้ระบบทำงานได้ดีที่สุด

Styles, J. (2019) พัฒนาเทคโนโลยี Multi-Sensor Fusion เพื่อเพิ่มความแม่นยำและลดการแจ้งเตือนผิดพลาดในระบบตรวจจับควันและไฟไหม้ โดยการรวมข้อมูลจากเซ็นเซอร์หลายประเภท เช่น เซ็นเซอร์ตรวจจับควัน อุณหภูมิ และก๊าซจากการเผาไหม้ ระบบนี้ใช้ Bayesian Inference Algorithm ในการวิเคราะห์ข้อมูล พบว่ามีความแม่นยำสูงถึง 98% และลดอัตราการแจ้งเตือนผิดพลาดได้มากกว่า 70% เมื่อเทียบกับระบบแบบดั้งเดิมที่มีความแม่นยำ 85-88% เทคโนโลยีนี้มีประสิทธิภาพสูงในสภาพแวดล้อมซับซ้อน เช่น โรงงานอุตสาหกรรมหรือห้องครัว และสามารถประยุกต์ใช้ในระบบตรวจจับการสูบบุหรี่ในสถานที่ห้ามสูบได้ แม้จะมีข้อจำกัดด้านต้นทุนและความซับซ้อนในการติดตั้ง แต่ความก้าวหน้าทางเทคโนโลยีเซ็นเซอร์และ AI คาดว่าจะช่วยลดค่าใช้จ่ายและทำให้ระบบนี้เข้าถึงได้ง่ายขึ้นในอนาคต

เบ็ญจภรณ์ ญาณกรกุล และ สัญฌา พันธุ์แพง (2564) การเปรียบเทียบประสิทธิภาพของเซ็นเซอร์สำหรับตรวจจับควันไฟป่า โดยใช้เซ็นเซอร์ MQ2, MQ5, MQ7, MQ9 และ MQ135 ทดสอบการตรวจจับควันจากวัสดุเผาไหม้ ได้แก่ ใบไม้ กิ่งไม้ และพลาสติก ผ่านระบบที่เชื่อมต่อกับ Node MCU ESP8266 และแพลตฟอร์ม Blynk ผลการศึกษาพบว่า เซ็นเซอร์ MQ2 มีประสิทธิภาพสูงสุดในการตรวจจับควันจากใบไม้และกิ่งไม้ โดยให้ค่าความเข้มข้นของควันสูงสุด ขณะที่ MQ5 เหมาะสำหรับการตรวจจับควันจากพลาสติก ระบบสามารถส่งข้อมูลแบบเรียลไทม์เพื่อใช้ในการเฝ้าระวังและแจ้งเตือนไฟป่า ข้อเสนอแนะในการพัฒนาต่อไป ได้แก่ การปรับปรุงความแม่นยำของเซ็นเซอร์ การเพิ่มขีดความสามารถในการจำแนกประเภทของก๊าซ และการทดสอบในสภาพแวดล้อมจริง

3. การเลือกใช้อุปกรณ์และเทคโนโลยี

ในการพัฒนาระบบต้นแบบสำหรับการตรวจจับและแจ้งเตือนการสูบบุหรี่ในงานวิจัยนี้ ผู้วิจัยได้พิจารณาเลือกใช้อุปกรณ์และเทคโนโลยีตามคุณสมบัติที่ตอบสนองต่อวัตถุประสงค์ของการวิจัย ดังนี้

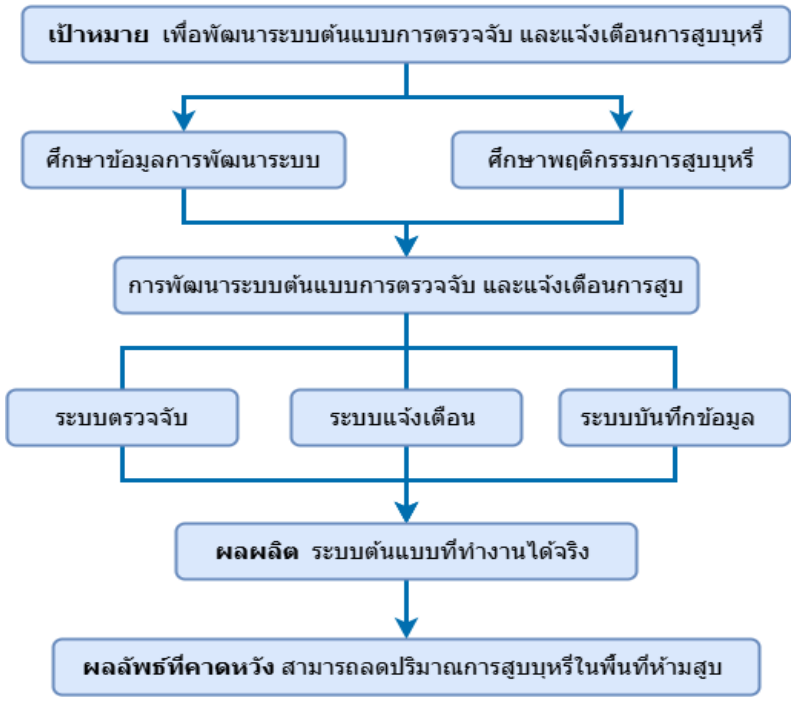
3.1 เซ็นเซอร์ MQ-135 เลือกใช้เนื่องจากมีความสามารถในการตรวจจับก๊าซหลายชนิดที่เกี่ยวข้องกับควันบุหรี่ เช่น แอมโมเนีย (NH_3), คาร์บอนมอนอกไซด์ (CO), ไนโตรเจนออกไซด์ (NO_2) และสารระเหยอินทรีย์ (VOCs) โดยเฉพาะควันจากการเผาไหม้ ซึ่งตรงกับลักษณะของสารปนเปื้อนในควันบุหรี่ ทั้งยังมีราคาย่อมเยา ขนาดเล็ก และเหมาะสำหรับงานวิจัยต้นแบบที่ต้องการตรวจจับในระดับ ppm (Parts Per Million)

3.2 บอร์ดควบคุม NodeMCU ESP8266 เลือกใช้เพราะเป็นไมโครคอนโทรลเลอร์ที่มี Wi-Fi ในตัว ทำให้สามารถเชื่อมต่ออินเทอร์เน็ตได้โดยไม่ต้องใช้โมดูลเสริม เหมาะสำหรับระบบ IoT ที่ต้องการการส่งข้อมูลแบบเรียลไทม์ นอกจากนี้ ESP8266 ยังมีขนาดกะทัดรัด ใช้งานง่าย และมีต้นทุนต่ำ ซึ่งเอื้อต่อการนำไปขยายผลในระดับใช้งานจริง

3.3 ระบบแจ้งเตือนผ่านแอปพลิเคชัน ได้มีการเลือกใช้ LINE Messaging API เนื่องจากสามารถเชื่อมต่อกับอุปกรณ์ IoT ได้สะดวกและเป็นช่องทางที่ผู้ใช้งานทั่วไปคุ้นเคย อย่างไรก็ตาม LINE Messaging API รองรับการส่งข้อความได้สูงสุด 300 ข้อความต่อเดือนโดยไม่มีค่าใช้จ่าย หากมีการส่งข้อความเกินจากจำนวนดังกล่าว จะมีค่าใช้จ่ายเพิ่มเติมตามแผนบริการที่กำหนดไว้ จึงเป็นข้อจำกัดสำคัญที่ควรพิจารณาในการใช้งานในระดับที่ต้องแจ้งเตือนบ่อยครั้งหรือในพื้นที่ที่มีผู้ใช้งานจำนวนมาก

การเลือกใช้อุปกรณ์และเทคโนโลยีดังกล่าว มีเป้าหมายเพื่อให้ระบบต้นแบบสามารถทำงานได้อย่างแม่นยำ รวดเร็ว ประหยัดต้นทุน และสามารถนำไปประยุกต์ใช้ในสภาพแวดล้อมจริงได้อย่างมีประสิทธิภาพ

3. กรอบแนวคิด



ภาพที่ 1 กรอบแนวคิดแสดงลำดับขั้นตอนตั้งแต่การกำหนดเป้าหมาย การเก็บข้อมูล การพัฒนาระบบ และผลลัพธ์ที่คาดหวัง แต่ละส่วนเชื่อมโยงกันเป็นระบบ เพื่อให้เห็นภาพรวมของการพัฒนาระบบต้นแบบ

วิธีดำเนินการวิจัย

การสูบบุหรี่ในพื้นที่ห้ามสูบเป็นปัญหาที่ส่งผลกระทบต่อสุขภาพและสิ่งแวดล้อม ระบบตรวจจับและแจ้งเตือนการสูบบุหรี่ที่มีประสิทธิภาพสามารถช่วยลดปัญหานี้ได้ งานวิจัยนี้จึงมีเป้าหมายในการพัฒนา ระบบต้นแบบสำหรับตรวจจับและแจ้งเตือนการสูบบุหรี่ โดยอาศัย Internet of Things (IoT) เพื่อให้สามารถเฝ้าระวังและแจ้งเตือนแบบเรียลไทม์

1. กำหนดตัวแปรในการทดลอง

1.1 ตัวแปรต้นในการวิจัยนี้ คือ ประเภทของแหล่งกำเนิดควัน ซึ่งเป็นปัจจัยที่ผู้วิจัยควบคุมและปรับเปลี่ยนเพื่อศึกษาผลกระทบที่เกิดขึ้นกับระบบการตรวจจับและแจ้งเตือน โดยจำแนกเป็น 3 กลุ่ม ได้แก่

1) สภาพแวดล้อมปกติ เป็นค่าความเข้มข้นก๊าซในสภาวะอากาศปกติ

2) ควันจากบุหรี่ธรรมดา ควันจากการเผาไหม้โดยตรง ซึ่งมีปริมาณก๊าซพิษและอนุภาคค่อนข้างสูง

3) ควันจากบุหรี่ไฟฟ้า ควันที่เกิดจากการระเหยสารเคมี ซึ่งมีองค์ประกอบและความเข้มข้นของสารระเหยอินทรีย์ (VOCs) แตกต่างจากบุหรี่ธรรมดา

1.2 ตัวแปรตาม คือ ผลลัพธ์ที่เกิดขึ้นจากการเปลี่ยนแปลงของตัวแปรต้น โดยพิจารณาใน 3 มิติ ได้แก่

1) ค่าความเข้มข้นของก๊าซที่ตรวจจับได้ วัดจากสัญญาณที่เซ็นเซอร์ MQ-135 ตรวจจับและแปลงเป็นค่า ppm แสดงระดับความเข้มข้นของควันในแต่ละสภาวะ

2) เวลาตอบสนองของระบบในการแจ้งเตือน วัดระยะเวลาตั้งแต่เซ็นเซอร์เริ่มตรวจจับจนถึงการส่งสัญญาณเตือนผ่าน Buzzer หรือ LINE Messaging API มีหน่วยเป็นวินาที (วินาที)

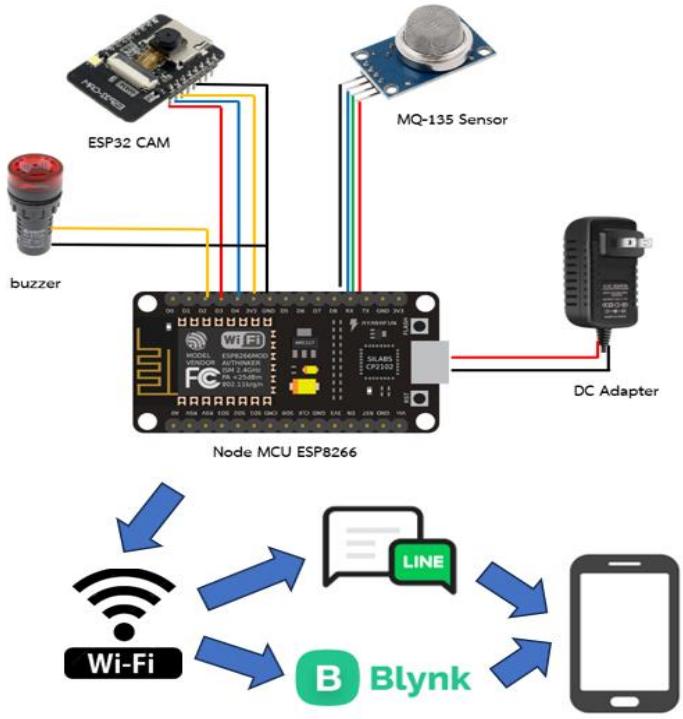
3) อัตราความสำเร็จในการแจ้งเตือน คำนวณจากจำนวนครั้งที่ระบบสามารถตรวจจับและแจ้งเตือนได้สำเร็จ เทียบกับจำนวนการทดสอบทั้งหมด แสดงในรูปแบบร้อยละ (%)

2. สภาพแวดล้อมและเงื่อนไขการทดลอง

ในการทดสอบระบบต้นแบบ ได้ดำเนินการภายในห้องสุขาชายที่มีขนาด 3 × 6 เมตร (พื้นที่รวม 18 ตารางเมตร) ความสูงจากพื้นถึงเพดาน 2.5 เมตร คิดเป็นปริมาตรของห้องเท่ากับ 45 ลูกบาศก์เมตร (m^3) เพื่อควบคุมสภาพแวดล้อมให้มีความเสถียร พื้นที่ดังกล่าวเป็นพื้นที่ปิด และไม่มีการเปิดประตูหรือหน้าต่างระหว่างการทดลอง เพื่อป้องกันการรบกวนจากการถ่ายเทอากาศภายนอก เซ็นเซอร์ตรวจจับควัน (MQ-135) ถูกติดตั้งที่ความสูง 1.2 เมตรจากพื้น ซึ่งใกล้เคียงกับระดับการหายใจของมนุษย์ เพื่อจำลองสภาพจริงในสถานที่สาธารณะ ส่วนแหล่งกำเนิดควัน (ทั้งบุหรี่ธรรมดาและบุหรี่ไฟฟ้า) ถูกวางในระยะห่าง 1 เมตรจากเซ็นเซอร์ ตรงตามแนวสายตาแนวนอน การควบคุมระยะห่างและระดับความสูงดังกล่าวมีวัตถุประสงค์เพื่อให้การกระจายตัวของควันมีความสม่ำเสมอ และลดผลกระทบจากความแตกต่างของทิศทางลม

การทดสอบในแต่ละสภาวะ (สภาพปกติ, การสูบบุหรี่ธรรมดา และบุหรี่ไฟฟ้า) ทำซ้ำจำนวน 10 ครั้งต่อสภาวะ รวมเป็น 30 ตัวอย่างทั้งหมด เพื่อเพิ่มความน่าเชื่อถือของข้อมูล และรองรับการวิเคราะห์ผลทางสถิติอย่างมีประสิทธิภาพ

การออกแบบและพัฒนาระบบ



ภาพที่ 2 ออกแบบและพัฒนาระบบ

ระบบต้นแบบที่พัฒนาขึ้นมีวัตถุประสงค์เพื่อตรวจจับการสูบบุหรี่ผ่านเซ็นเซอร์ตรวจจับควันบุหรี่และก๊าซอันตราย พร้อมทั้งแจ้งเตือนแบบเรียลไทม์ผ่านเสียงเตือนและการแจ้งเตือนบนอุปกรณ์เคลื่อนที่ ระบบนี้อาศัยหลักการทำงานของ Internet of Things (IoT) โดยมีองค์ประกอบหลักดังนี้

1.1 เซ็นเซอร์ตรวจจับควันบุหรี่ (MQ-135)

เซ็นเซอร์ MQ-135 เป็นเซ็นเซอร์ตรวจจับก๊าซที่มีความไวสูงต่อสารเคมี เช่น แอมโมเนีย (NH_3) คาร์บอนมอนอกไซด์ (CO) ไนโตรเจนออกไซด์ (NO_2) และควันบุหรี่ มีหลักการทำงานโดยใช้วัสดุออกไซด์กึ่งตัวนำที่เปลี่ยนค่าความต้านทานตามความเข้มข้นของก๊าซ เมื่อมีควันบุหรี่หรือก๊าซพิษในบริเวณใกล้เคียง ค่าความต้านทานจะเปลี่ยนไปและถูกส่งเป็นสัญญาณไฟฟ้าไปยังบอร์ดควบคุมเพื่อประมวลผล

1.2 Node MCU ESP8266

Node MCU ESP8266 เป็นไมโครคอนโทรลเลอร์ที่รองรับการเชื่อมต่อ Wi-Fi ในตัว ทำให้สามารถส่งข้อมูลจากเซ็นเซอร์ไปยังระบบคลาวด์หรืออุปกรณ์เคลื่อนที่ได้ Node MCU ESP8266 จะรับค่าจากเซ็นเซอร์ MQ-135 แล้ววิเคราะห์ว่าค่าที่ได้เกินเกณฑ์ที่กำหนดหรือไม่ หากตรวจพบว่ามีควันบุหรี่ในพื้นที่ ระบบจะทำการแจ้งเตือนทันที

1.3 โมดูลแจ้งเตือน Buzzer

Buzzer เป็นอุปกรณ์แปลงสัญญาณไฟฟ้าให้เป็นสัญญาณเสียง (Audio Signaling Device) ในระบบนี้ Buzzer ทำหน้าที่เป็นระบบแจ้งเตือนด้วยเสียงเมื่อเซ็นเซอร์ตรวจพบค่าควันหรือสารระเหยอินทรีย์ (Volatile Organic Compounds: VOCs) ที่สูงกว่าค่ามาตรฐานที่กำหนดไว้ เพื่อให้ผู้ปฏิบัติงานหรือบุคคลที่อยู่ในบริเวณใกล้เคียงสามารถรับรู้ถึงความผิดปกติได้ทันที การทำงานของ Buzzer นั้นเชื่อมต่อกับบอร์ดควบคุม ESP8266 โดยตรง เมื่อเซ็นเซอร์ MQ-135 ตรวจจับค่าควันหรือสารระเหยอินทรีย์เกินระดับที่กำหนดไว้ ระบบจะส่งสัญญาณไฟฟ้าไปยัง Buzzer เพื่อให้เกิดการแจ้งเตือนด้วยเสียงในทันที (Real-Time Alert) กลไกนี้ถือเป็นมาตรการป้องกันเบื้องต้นที่มีประสิทธิภาพ ช่วยให้เจ้าหน้าที่หรือผู้ดูแลระบบสามารถรับรู้และตอบสนองต่อเหตุการณ์ได้อย่างรวดเร็ว

1.4 LINE Messaging API

เป็นเครื่องมือสำหรับพัฒนาและเชื่อมต่อระบบกับแอปพลิเคชัน LINE ซึ่งช่วยให้โปรแกรมสามารถส่งข้อความ แจ้งเตือน และโต้ตอบกับผู้ใช้ ได้แบบอัตโนมัติผ่าน LINE Official Account (LINE OA) ทำให้สามารถแจ้งเตือนผู้ดูแลหรือเจ้าหน้าที่ที่เกี่ยวข้องได้อย่างรวดเร็วและมีประสิทธิภาพ ในงานวิจัยนี้ LINE Messaging API ถูกนำมาใช้เพื่อเพิ่มประสิทธิภาพของระบบแจ้งเตือนแบบเรียลไทม์ โดยเมื่อระบบตรวจพบควันหรือสารระเหยอินทรีย์ (Volatile Organic Compounds: VOCs) ที่เกิดจากการสูบบุหรี่ ข้อมูลดังกล่าวจะถูกส่งผ่าน API ไปยังแอปพลิเคชัน LINE เพื่อแจ้งเตือนไปยังผู้ดูแลระบบหรือเจ้าหน้าที่ที่รับผิดชอบโดยอัตโนมัติ

2. การพัฒนาซอฟต์แวร์

ระบบซอฟต์แวร์จะถูกพัฒนาเพื่อรองรับการประมวลผลข้อมูลจากเซ็นเซอร์ และการส่งแจ้งเตือนไปยังผู้ใช้งาน โดยมีองค์ประกอบหลักดังนี้

2.1 การเขียนโปรแกรมไมโครคอนโทรลเลอร์

การพัฒนาโปรแกรมสำหรับควบคุมบอร์ด ESP8266 ทำผ่าน Arduino IDE ซึ่งเป็นซอฟต์แวร์ที่ใช้เขียนและอัปโหลดโค้ดไปยังไมโครคอนโทรลเลอร์ ESP8266 ทำหน้าที่รับค่าจากเซ็นเซอร์ MQ-135 ซึ่งเป็นเซ็นเซอร์สำหรับตรวจจับก๊าซและควันบุหรี่ ในกระบวนการนี้ จะมีการกำหนดเงื่อนไขและเกณฑ์การตรวจจับ เมื่อค่าที่ได้จากเซ็นเซอร์สูงกว่าค่าที่กำหนด ระบบจะทำการแจ้งเตือนไปยังผู้ที่เกี่ยวข้องแบบอัตโนมัติ โดยข้อมูลค่าก๊าซที่อ่านได้จะถูกนำไปวิเคราะห์เพื่อประเมินสถานการณ์

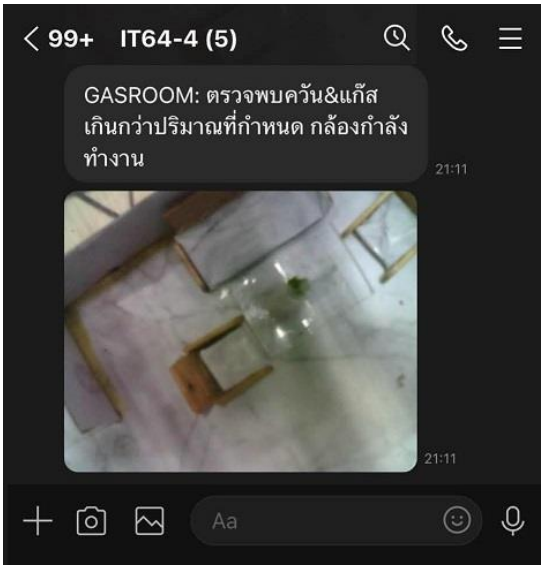
2.2 การเชื่อมต่อ ESP8266 กับอินเทอร์เน็ต

ESP8266 จะถูกตั้งค่าให้เชื่อมต่อกับเครือข่าย Wi-Fi เพื่อส่งข้อมูลค่าก๊าซและควันที่ตรวจจับได้ไปยัง แพลตฟอร์มคลาวด์ ซึ่งช่วยให้สามารถบันทึกข้อมูลไว้ใช้สำหรับการตรวจสอบย้อนหลัง ข้อมูลเหล่านี้สามารถนำไปใช้วิเคราะห์แนวโน้มการเกิดเหตุการณ์การสูบบุหรี่ในพื้นที่ต่าง ๆ ได้

2.3 การตั้งค่าเกณฑ์แจ้งเตือน

ระบบได้กำหนดเกณฑ์การแจ้งเตือนที่ระดับความเข้มข้นของก๊าซ 200 ppm โดยอ้างอิงจากมาตรฐานของกรมควบคุมมลพิษ พ.ศ. 2566 ซึ่งเป็นค่าที่เหมาะสมสำหรับการตรวจจับควันบุหรี่และ

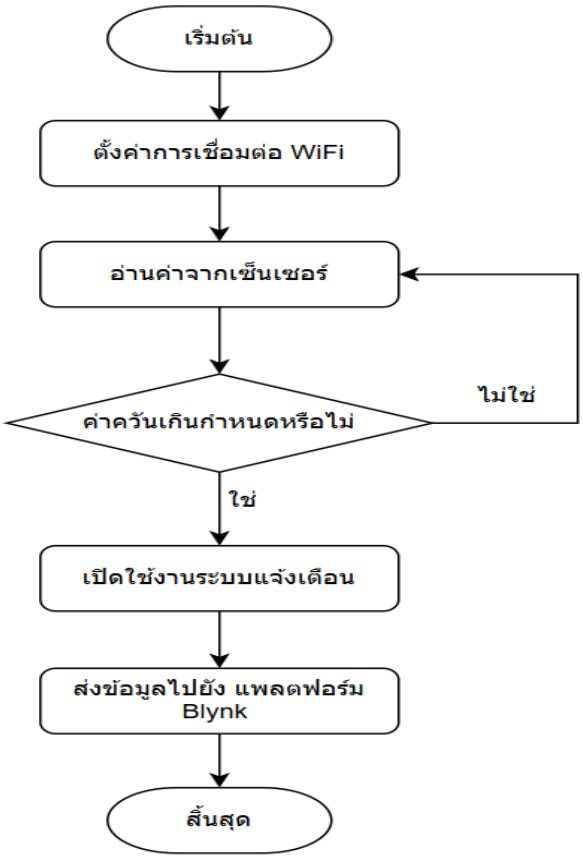
สารระเหยอินทรีย์ (VOCs) เมื่อค่าที่ตรวจจับได้เกินเกณฑ์ที่กำหนด ระบบจะทำการแจ้งเตือนทันทีผ่านอุปกรณ์ Buzzer ที่ติดตั้งในบริเวณดังกล่าว เพื่อให้ผู้ที่อยู่ในพื้นที่รับรู้ถึงการตรวจพบควันบุหรี่ได้อย่างรวดเร็ว นอกจากนี้ ระบบยังมีการเชื่อมต่อกับ LINE Messaging API ซึ่งเป็นช่องทางสื่อสารแบบเรียลไทม์ เพื่อส่งการแจ้งเตือนไปยังเจ้าหน้าที่หรือผู้ดูแลพื้นที่ผ่านแอปพลิเคชัน LINE การแจ้งเตือนผ่านช่องทางนี้ช่วยเพิ่มประสิทธิภาพในการบริหารจัดการพื้นที่ โดยเฉพาะในบริเวณที่กำหนดให้เป็นพื้นที่ห้ามสูบบุหรี่ ทำให้เจ้าหน้าที่สามารถดำเนินมาตรการควบคุมหรือแก้ไขสถานการณ์ได้ทันทีและมีประสิทธิภาพสูง



ภาพที่ 3 การแจ้งเตือนผ่านแอปพลิเคชัน LINE

2.4 การบันทึกข้อมูล

ระบบต้นแบบนี้ใช้ เซ็นเซอร์ MQ-135 ตรวจวัดค่าความเข้มข้นของก๊าซ (ppm) และส่งข้อมูลไปยังแพลตฟอร์ม Blynk เพื่อจัดเก็บและแสดงผลแบบเรียลไทม์ ผู้ใช้งานสามารถเข้าถึงข้อมูลผ่านสมาร์ทโฟนหรือคอมพิวเตอร์ เพื่อตรวจสอบแนวโน้มและความถี่ของเหตุการณ์ที่เกิดขึ้น การเชื่อมต่อกับ Blynk ช่วยให้สามารถวิเคราะห์ข้อมูลย้อนหลัง ปรับปรุงเกณฑ์การแจ้งเตือน และเพิ่มประสิทธิภาพของระบบ ซึ่งเป็นแนวทางสำคัญในการพัฒนาระบบตรวจจับและแจ้งเตือนที่แม่นยำและใช้งานได้จริงในอนาคต



ภาพที่ 4 แผนผังการทำงานแสดงขั้นตอนการพัฒนาซอฟต์แวร์

3. การทดสอบและปรับปรุงระบบ

ระบบต้นแบบได้ผ่านการทดสอบและประเมินผลในสภาพแวดล้อมที่แตกต่างกัน 3 รูปแบบ เพื่อตรวจสอบประสิทธิภาพและความแม่นยำในการทำงาน ดังนี้

1) สภาพแวดล้อมปกติ การทดสอบในสภาพแวดล้อมปกติดำเนินการโดยการวัดค่าความเข้มข้นของก๊าซในหน่วย ppm ในอากาศสะอาด ซึ่งใช้เป็นค่าเบื้องต้น (Baseline) เพื่อตรวจสอบความถูกต้องและเสถียรภาพของเซ็นเซอร์ MQ-135 ในการตรวจจับค่าปกติของอากาศ

2) การเก็บข้อมูล ในการทดสอบระบบต้นแบบ ได้ทำการทดลองในแต่ละสภาพแวดล้อม จำนวน 10 ครั้งต่อประเภทของแหล่งกำเนิดควัน รวมทั้งสิ้น 30 ตัวอย่างการทดสอบ เพื่อเพิ่มความน่าเชื่อถือของผลลัพธ์ โดยบันทึกค่าความเข้มข้นของก๊าซ (ppm) เวลาตอบสนองของการแจ้งเตือน และผลการแจ้งเตือนในแต่ละครั้ง

3) การทดสอบการสูบบุหรี่ธรรมดา การทดสอบนี้ดำเนินการโดยจุดบุหรี่ธรรมดาในระยะ 1 เมตรจากเซ็นเซอร์ เพื่อจำลองสถานการณ์การสูบบุหรี่ในสภาพแวดล้อมจริง ระบบจะบันทึกเวลาตอบสนอง (Response Time) ของอุปกรณ์แจ้งเตือน (Buzzer) และการส่งสัญญาณแจ้งเตือนผ่าน LINE Messaging API เพื่อประเมินความรวดเร็วและประสิทธิภาพของการแจ้งเตือนเมื่อตรวจพบควันบุหรี่

4) การทดสอบการสูบบุหรี่ไฟฟ้า การทดสอบนี้ใช้บุหรี่ไฟฟ้าในระยะเดียวกัน (1 เมตรจากเซ็นเซอร์) เพื่อเปรียบเทียบความไวของเซ็นเซอร์ในการตรวจจับสารระเหยอินทรีย์ (VOCs) ที่เกิดจากบุหรี่ไฟฟ้า ซึ่งมีลักษณะแตกต่างจากควันบุหรี่ธรรมดา ผลการทดสอบนี้ช่วยประเมินความสามารถของระบบในการตรวจจับและแยกแยะประเภทของสารระเหยได้อย่างมีประสิทธิภาพ

การทดสอบในสภาพแวดล้อมทั้ง 3 รูปแบบนี้ช่วยให้สามารถวิเคราะห์และประเมินผลการทำงานของระบบได้อย่างครอบคลุม ทั้งในด้านความแม่นยำของเซ็นเซอร์ ความรวดเร็วในการตอบสนอง และประสิทธิภาพของการแจ้งเตือน

ผลการวิจัย

จากการทดสอบระบบต้นแบบสำหรับตรวจจับและแจ้งเตือนการสูบบุหรี่ ซึ่งกำหนดเกณฑ์การแจ้งเตือนที่ระดับความเข้มข้นของก๊าซ 200 ppm ผลการทดสอบในสภาพแวดล้อมต่าง ๆ มีดังนี้

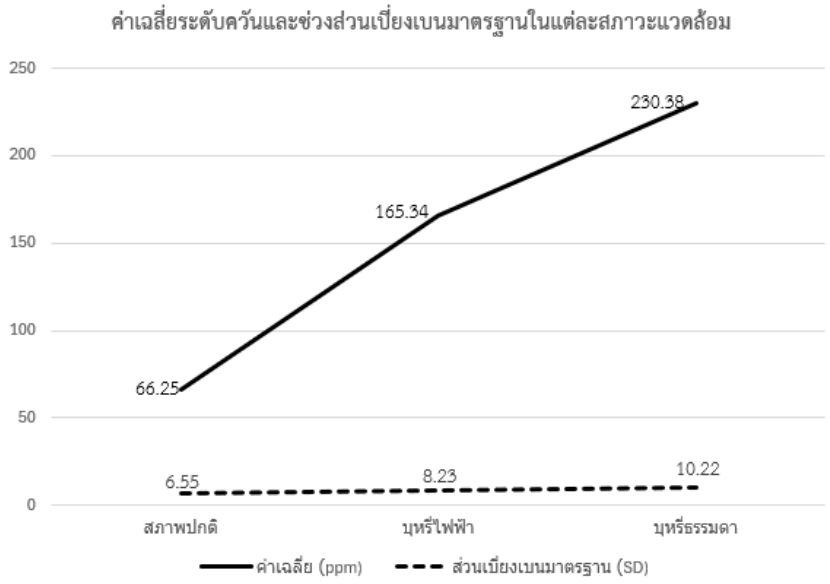
ตารางที่ 1 แสดงผลการทดสอบระบบ

สภาพแวดล้อม	ค่า ppm เฉลี่ย	เวลาตอบสนอง		สรุปผล
		Buzzer	LINE API	
ปกติ	50–80 ppm (ต่ำกว่าเกณฑ์)	ไม่มีการแจ้งเตือน	ไม่มีการแจ้งเตือน	ระบบทำงานปกติ ไม่เกิดการแจ้งเตือนผิดพลาด
บุหรี่ธรรมดา	เกิน 200 ppm ใน 10–15 วินาที	2–3 วินาที	5–7 วินาที	ตรวจจับได้มีประสิทธิภาพ แจ้งเตือนรวดเร็วทั้ง Buzzer และ LINE
บุหรี่ไฟฟ้า	150–180 ppm (ต่ำกว่าเกณฑ์)	ไม่มีการแจ้งเตือน	ไม่มีการแจ้งเตือน	ตรวจจับการเปลี่ยนแปลงได้ แต่ไม่ถึงระดับแจ้งเตือน เนื่องจากค่า ppm ต่ำกว่าเกณฑ์

ประสิทธิภาพในการตรวจจับก๊าซ เซ็นเซอร์ MQ-135 มีความแม่นยำ โดยในสภาพแวดล้อมปกติ ค่าเฉลี่ยความเข้มข้นก๊าซ (ppm) อยู่ที่ 50–80 ซึ่งต่ำกว่าเกณฑ์การแจ้งเตือน (200 ppm) และไม่เกิดการแจ้งเตือนผิดพลาด (False Alarm) ในการทดสอบการสูบบุหรี่ธรรมดา ระบบสามารถตรวจจับค่า ppm ที่เกินเกณฑ์ได้ภายใน 10–15 วินาที พร้อมแจ้งเตือนผ่าน Buzzer ใน 2–3 วินาที และ LINE Messaging API ใน 5–7 วินาที ส่วนการทดสอบบุหรี่ไฟฟ้า ค่า ppm เฉลี่ยอยู่ที่ 150 –180 ซึ่งต่ำกว่าเกณฑ์ แสดงให้เห็นว่าเซ็นเซอร์มีความไวต่อสารระเหยอินทรีย์ (VOCs) จากบุหรี่ไฟฟ้าน้อยกว่าควันบุหรี่ธรรมดา อย่างไรก็ตาม ระบบยังสามารถตรวจจับการเปลี่ยนแปลงของก๊าซได้ แม้ไม่ถึงระดับแจ้งเตือน

สรุปและอภิปรายผล

จากการทดสอบและประเมินผลระบบต้นแบบที่พัฒนาขึ้น เพื่อใช้ในการตรวจจับควันจากบุหรี่ในสภาวะแวดล้อมที่แตกต่างกัน ผู้วิจัยได้ดำเนินการเก็บข้อมูลระดับควันในสามสถานการณ์ ได้แก่ สภาพปกติ (ไม่มีการสูบบุหรี่), การสูบบุหรี่ไฟฟ้า และการสูบบุหรี่ธรรมดา โดยทำการทดลองซ้ำในแต่ละสถานการณ์จำนวน 10 ครั้ง รวมเป็นข้อมูลทั้งหมด 30 ชุด จากนั้นได้คำนวณค่าเฉลี่ย (Mean) และส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation: SD) เพื่อวิเคราะห์แนวโน้มและความแปรปรวนของค่าที่ตรวจวัดได้ในแต่ละสถานการณ์ อันเป็นพื้นฐานในการประเมินประสิทธิภาพของระบบในการตรวจจับและแจ้งเตือนอย่างแม่นยำ



ภาพที่ 5 แสดงค่าเฉลี่ยระดับควันและช่วงส่วนเบี่ยงเบนมาตรฐานในแต่ละสภาวะแวดล้อม

จากภาพที่ 5 พบว่า ค่าระดับควันเฉลี่ยในสภาพปกติอยู่ที่ 66.25 ppm โดยมีส่วนเบี่ยงเบนมาตรฐาน 6.55 ppm ซึ่งแสดงถึงสภาวะแวดล้อมที่เสถียรและมีความแปรปรวนต่ำ ขณะที่การสูบบุหรี่ไฟฟ้าให้ค่าควันเฉลี่ยที่ 165.34 ppm และส่วนเบี่ยงเบนมาตรฐาน 8.23 ppm ซึ่งเพิ่มขึ้นอย่างมีนัยสำคัญเมื่อเทียบกับสภาพปกติ ส่วนการสูบบุหรี่ธรรมดาให้ค่าควันเฉลี่ยสูงสุดที่ 230.38 ppm และส่วนเบี่ยงเบนมาตรฐาน 10.22 ppm ซึ่งบ่งชี้ถึงการเกิดควันในปริมาณมากและต่อเนื่อง ค่าเบี่ยงเบนมาตรฐาน ที่ปรากฏในกราฟสะท้อนถึงระดับความผันผวนของข้อมูล ซึ่งอยู่ในเกณฑ์ที่ยอมรับได้ และสนับสนุนว่าระบบสามารถแยกแยะสถานการณ์ต่าง ๆ ได้อย่างมีประสิทธิภาพ โดยเฉพาะอย่างยิ่งในกรณีของบุหรี่ธรรมดาที่มีค่าควันสูงอย่างชัดเจน

การวิจัยนี้ประสบความสำเร็จในการพัฒนาระบบต้นแบบที่ใช้เทคโนโลยี IoT เพื่อตรวจจับและแจ้งเตือนการสูบบุหรี่ได้อย่างมีประสิทธิภาพ ระบบนี้เหมาะสำหรับการใช้งานในสถานที่ที่ต้องการควบคุมการสูบบุหรี่ เช่น โรงเรียน โรงพยาบาล หรือพื้นที่สาธารณะ อย่างไรก็ตาม ข้อจำกัดในด้านความแม่นยำ

และความหน่วงเวลายังคงเป็นประเด็นที่ต้องพัฒนา การเพิ่มเซ็นเซอร์ การใช้ Machine Learning และการปรับปรุงการเชื่อมต่อเครือข่ายจะช่วยยกระดับประสิทธิภาพของระบบให้ดียิ่งขึ้น เพื่อตอบสนองความต้องการในอนาคตได้อย่างสมบูรณ์

ข้อเสนอแนะ

จากผลการวิจัยที่พบว่าความแม่นยำในการตรวจจับ และแจ้งเตือนการสูบบุหรี่ดีในระดับหนึ่ง ดังนั้น ควรเลือกเซ็นเซอร์ที่มีความไวสูงต่อสารระเหยอินทรีย์ (VOCs) และก๊าซจากบุหรี่ไฟฟ้า ซึ่งมีระดับความเข้มข้นของก๊าซ (ppm) ต่ำกว่าควันบุหรี่ธรรมดา เพื่อเพิ่มประสิทธิภาพในการตรวจจับทุกสถานการณ์ นอกจากนี้ ควรกำหนดค่า ppm ที่เหมาะสมสำหรับการแจ้งเตือนในกรณีต่าง ๆ เพื่อลดข้อผิดพลาดจากการตรวจจับผิดพลาด (False Negative) และเพิ่มความแม่นยำของระบบ ควรมีการทดสอบระบบในสภาพแวดล้อมที่มีปัจจัยรบกวน เช่น ความชื้นสูง อุณหภูมิที่เปลี่ยนแปลงอย่างรวดเร็ว และฝุ่นละออง เพื่อประเมินความทนทานของเซ็นเซอร์ รวมถึงการพัฒนาอินเทอร์เฟซผู้ใช้ (User Interface) ที่เข้าใจง่ายและสามารถปรับแต่งได้ เช่น การตั้งค่าเกณฑ์การแจ้งเตือนและช่องทางการแจ้งเตือน เพื่อเพิ่มความสะดวกและรองรับการใช้งานที่หลากหลาย

เอกสารอ้างอิง

กรมควบคุมมลพิษ. (2566). ประกาศกรมควบคุมมลพิษ เรื่อง ดัชนีคุณภาพอากาศของประเทศไทย พ.ศ. 2566. สืบค้นจาก https://www.pcd.go.th/laws/29909/

ธนากร ธนวัฒน์. (2567). ผลกระทบในทุกมิติจากการใช้บุหรี่ไฟฟ้า การทบทวนแนวทางการจัดโปรแกรมสำหรับการสร้างการรับรู้ถึงอันตรายต่อสุขภาพและการป้องกันการสูบบุหรี่ไฟฟ้าในวัยรุ่น. วารสารสาธารณสุขและวิทยาศาสตร์สุขภาพ, 7(2), 93–106. https://he02.tci-thaijo.org/index.php/tjph/issue/view/18479

เบ็ญจภรณ์ ญาณกรกุล และสัญญา พันธ์แพง. (2564). การเปรียบเทียบประสิทธิภาพการตรวจจับควันไฟป่าของอุปกรณ์เซนเซอร์. ใน การประชุมวิชาการระดับปริญญาตรีด้านคอมพิวเตอร์ภูมิภาคเอเชีย ครั้งที่ 9 (The 9th Asia Undergraduate Conference on Computing: AUCC) (น. 925–932). มหาวิทยาลัยราชภัฏเชียงใหม่.

โรงพยาบาลบำรุงราษฎร์. (2562, 28 พฤษภาคม). ควันบุหรี่มือสอง อันตรายกว่าที่คิด. สืบค้นจาก https://www.bumrungrad.com/th/health-blog/may-2019/smoking-danger

สุพล พรหมมาพันธ์. (2560). Internet of Things: เทคโนโลยีเปลี่ยนโลก. มหาวิทยาลัยศรีปทุม. https://www2.spu.ac.th/award/14043/academic

อดิศักดิ์ ผลิตผลการพิมพ์. (2567). สารพิษจากควันบุหรี่ ที่ครอบครัวต้องรับมือ ! รามาแชนแนล. สืบค้นจาก https://www.rama.mahidol.ac.th/ramachannel/

Ashton, K. (2009). That 'Internet of Things' Thing. RFID Journal. Retrieved from https://www.rfidjournal.com/that-internet-of-things-thing

Hatip, A., & Zayood, K. (2024). Multisensory fusion approaches for accurate smoke detection in smart environments. International Journal of Wireless and Ad Hoc Communication (IJWAC), 8(2), 23–31.

Styles, J. (2019). Multi-sensor fusion in smoke alarm systems: Enhancing accuracy and reliability. Retrieved from https://www.researchgate.net/publication/388195741