Relationship of Mobile Device Usage on Productivity and Loyalty of Free Independent Traveler in Tour and Travel Package Purchasing in Triangle Andaman Cluster Provinces

by

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Abstract

The purposes of this research were to study the level of mobile device usage, productivity and loyalty of free independent traveler (FIT) in tour package purchasing and to investigate the relationship of mobile device usage on productivity and loyalty of free independent traveler (FIT) in tour package purchasing in triangle Andaman cluster provinces. This study is quantitative research. Questionnaires were used to collect data from 500 Free Independent Travelers, purchased tour package in triangle Andaman cluster provinces by using purposive sampling method. Quantitative data analysis was performed by using descriptive statistics and Structural Equation Model (SEM). The research showed that most of the samples have the mobile device usage, and loyalty in high level and have the productivity in the range of 0.5 - 0.59. It was discovered that the variable of mobile communication device adoption has a significant direct and indirect impact on the customer satisfaction of independent travelers in a positive manner, as statistically significant. The variable of visual production also has a direct influence on customer satisfaction among independent travelers, but to a lesser degree, with statistical significance. The variables of mobile communication device adoption and visual production can collectively explain 80.2% of the variance in customer satisfaction among independent travelers. Moreover, the variable of mobile communication device adoption has a statistically significant direct impact on the variance of visual production, accounting for 1.3% of the variance.

Keywords: Mobile Device Usage, Productivity, Loyalty, Free Independent Traveler, Tour Package Purchasing

1. Introduction

1.1 Background and Importance of the Problem

Currently, tourist behavior has shifted towards independent travel, commonly known as "Free and Independent Traveler" (FIT). This trend aligns with the preferences of the new generation of travelers who value freedom and flexibility in their journeys, eschewing predefined tour itineraries. Instead, they seek out alternative and interesting local destinations, exploring deeper into the local attractions (Mokarakul, 2018). FIT travelers take charge of every aspect of their trips, from booking flights and accommodations to organizing their own itineraries. Alternatively, they might choose to purchase flight tickets and book accommodations through tour companies but embark on the journey independently (Matchariyakul, 2016). One of the critical factors that can attract the attention of the younger generation is the sense of safety, especially when traveling to countries where people speak different languages. For this generation, language barriers are often not a concern, as they may have had opportunities to study or work abroad and are familiar with foreign languages. Furthermore, they benefit from the availability of information and internet access, which facilitates easy flight and hotel bookings, as well as provides various travel-related websites and forums to exchange experiences with fellow independent travelers, making trip planning more manageable (Nualjan, 2022). The advancement of information technology and communication has rapidly transformed various sectors, including the tourism industry. Computers have become smaller, more capable, and integrated with mobile devices such as smartphones, which possess communication and processing capabilities similar to computers. These mobile communication devices allow users to communicate wirelessly and carry them wherever they go, enabling easy access to information and enhancing various activities, particularly in the realm of tourism (Sombultawee et.al., 2016). Productivity and customer satisfaction are essential factors in the tourism business. They enable businesses to reduce promotional costs, attract new customers, and prevent market share loss by generating positive word-of-mouth among satisfied customers. When a business has a group of satisfied customers, they become a vital source of word-of-mouth referrals to others (Word of Mouth) and continuously attract new customers, leading to increased sales and profitability (Yothinnorratham, 2015). The Andaman Triangle, composed of Phuket, Phang Nga, and Krabi provinces, serves as a crucial tourism destination globally renowned for its attractions (Pilawasan, 2013). Phuket Province is a world-renowned tourist destination, known as the "Andaman Paradise," offering a diverse range of tourism products. The province targets high-spending groups such as wedding groups, honeymooners, sports enthusiasts, health-conscious travelers, and those seeking local experiences to provide direct local experiences to tourists. Phang Nga Province is a popular destination for tourists from Europe and Asia, particularly in the main mountainous areas where natural attractions and cultural communities are prevalent. Tourists flock to places like Surin Islands, Similan Islands, Ao Phang Nga, and the scenic town of Takua Pa. Krabi Province, often referred to as the "Emerald of the South," is a sought-after tourist destination due to its pristine beaches, sea cliffs, islands, and ecotourism activities such as diving and rock climbing. The province is also known for its unique cultural traditions that reflect the distinctiveness of the Andaman region, as well as the warm hospitality of its people. These provinces heavily rely on tourism revenue, with a steady influx of tourists over time (Supot Gulati et al., 2018).

1.2 Research Question

However, to achieve success as a quality tourism destination, effective management is crucial to meet set goals. Nevertheless, research on this subject remains relatively limited, especially concerning FIT tourists, a new and high-spending group in the Andaman Triangle area. Therefore, conducting research on this topic is necessary not only to fill the academic knowledge gaps but also

to provide valuable insights for tourism businesses in the Andaman Triangle region to enhance their competitiveness and operational efficiency, aligning with their objectives.

1.3 Research Objectives

1) To study the level of mobile device usage, productivity and loyalty of free independent traveler (FIT) in tour package purchasing in triangle Andaman cluster provinces.

2) To investigate the relationship of mobile device usage on productivity and loyalty of free independent traveler (FIT) in tour package purchasing in triangle Andaman cluster provinces.

2. Literature Review

2.1 Related Concepts and Theories

Mobile devices refer to devices that can be carried and function similar to computers. Due to their portability, they have distinct features, such as small size, lightweight and low power consumption. Mobile devices serve various purposes, including communication, exchanging information with computers, and importantly, their functionality can be expanded through mobile software applications (Gulati et al, 2018). In this research, the use of mobile devices refers to the utilization of various forms of communication tools, including smartphones, tablets, and related applications used on mobile devices, as mentioned earlier. This is for the purpose of purchasing tours and travel packages in the triangular Andaman provinces. The measurement of mobile device usage in purchasing tours and travel packages involves four aspects: information search for tourist destinations and travel arrangements, travel planning and utilization of geographic information, expense search and payment transactions and communication of information with friends or relatives.

Productivity is another crucial objective in production management because it involves comparing the quantity of input resources used to the quantity of output produced, also known as productivity (Antong and Kaosad, 2009). It can be defined as the ratio of the output to the input resources, such as raw materials, labor, and investment. Productivity is a combination of efficiency and effectiveness, meaning doing things right and doing the right things. In short, productivity can be expressed as: Productivity = Output / Input (Wongchang and Khemthong, 2012). In this research, productivity refers to the ratio of customer outputs to the input factors they use when purchasing tours and travel packages in the triangular Andaman provinces. The calculation of productivity involves the customer outputs, which are the results experienced by the customers when using tour and travel services, divided by the input factors, which represent the resources customers have to spend. Data Envelopment Analysis (DEA) will be utilized in this study. The customer outputs include the satisfaction they experience when using tour and travel services, while the input factors consist of the expenses incurred for using tour and travel services and the time spent on tours.

Customer loyalty refers to the intentions and behaviours of customers that are consistently tied to their satisfaction with a product or service (Thongtao, 2019). It encompasses both purchasing behavior and attitudes that customers hold towards the products, services, as well as the providers and organizations. When customers have positive attitudes and long-term relationships with organizations, it results in regular repeat purchases, word-of-mouth recommendations to others, and active involvement in protecting the products, services, and organizations they are satisfied with (Yothinnorratham, 2015). In this research, customer loyalty refers to both behavioral and attitudinal

loyalty towards tours and travel packages in the triangular Andaman provinces. Customer loyalty will be measured by the level of perception and positive feelings towards using tour and travel services in two aspects, namely: Intentions to revisit for future trips and recommendations to others.

2.2 Conceptual Framework
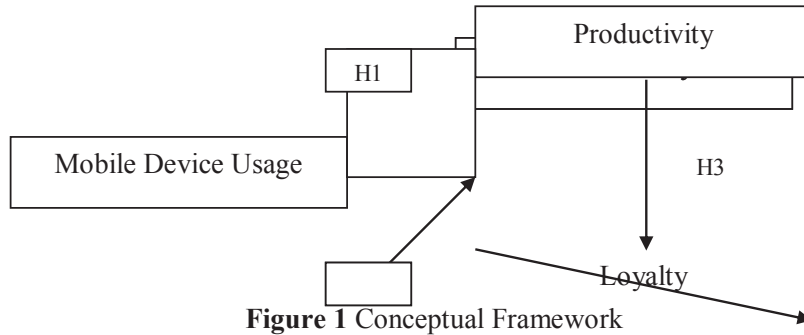
Research conceptual framework was shown in Figure 1.

Figure 1 Conceptual Framework

2.3 Research Hypothesis

From the research conceptual framework, the hypothesis of the research can be established as follows:

Hypothesis 1: There is a positive direct relationship between the use of mobile communication devices and customer satisfaction with the purchase of tours and travel packages among independent travelers.

Hypothesis 2: There is a positive direct relationship between the use of mobile communication devices and customer loyalty in the purchase of tours and travel packages among independent travelers.

Hypothesis 3: Customer satisfaction is positively related to customer loyalty in the purchase of tours and travel packages among independent travelers.

Hypothesis 4: There is a positive indirect relationship between the use of mobile communication devices and customer loyalty through customer satisfaction in the purchase of tours and travel packages among independent travelers.

3. Research Methodology

3. Research Methodology

3.1 Research Design

This research uses a quantitative research methodology.

3.2 Population and Sample

The population used in this research consists of independent travelers in the provinces of Phuket, Phang Nga, and Krabi. The exact number of the population is unknown due to its large size, and thus, the sample size is calculated using Cochran's formula (Cochran, 1953) with a confidence level of 95% and a margin of error of 5%). The determined sample size is 384 samples to ensure accuracy in data collection and research analysis. To prevent potential errors in survey collection and research evaluation, the researcher has set the total sample size to 500 samples, which exceeds the minimum requirement of 384 samples. The number of sample groups in each province is shown in Table 1.

Table 1 Number of Sample Groups Categorized by the Number of Tourists in Each Province

Province	Number of Tourists (persons)	Number of Sample Groups (persons)
Phuket	13,651,301	360
Phang Nga	1,093,424	30
Krabi	4,284,619	110
Total	19,029,344	500

Source: National Statistical Office, Summary of Domestic Tourism Situation by Province (2018)

3.3 Research Instruments

The data collection tools used in this research are questionnaires. The study began by reviewing relevant research documents to gather data, which was then compiled to form the structure and scope of the questionnaire. The questionnaire was designed to cover the research objectives and specific definitions of variables. Subsequently, a quality test was conducted by administering the questionnaire to three experts to enhance content validity. The Index of Item Objective Congruence (IOC) was used to examine the test results. The IOC values for all questionnaire items ranged from 0.51 to 1.0, indicating that all questions met the specified criteria. To assess the tool's reliability, the questionnaire was administered to a test group of 30 individuals, not part of the main research sample. From the test results, it was found that the messages in all groups of questionnaires had a confidence coefficient between 0.709 - 0.995, greater than 0.7. That meant all questions passed the specified criteria (Nunnally and Burnstein, 1994). The questionnaire was then revised to achieve the highest level of completeness.

3.4 Data Collection

The researcher will use purposive sampling, which involves selecting samples based on judgment that they possess characteristics that align with or represent the population to be studied. This selection is in accordance with the survey's objectives. For this research, the criteria for purposive sampling are defined as follows:

1. Individuals must be independent travelers who have stayed overnight in the province for at least 24 hours.
2. Individuals must be independent travelers who have made purchases of tours and travel packages within the province, with a minimum of 1 transaction.

By employing this purposive sampling method, the researcher aims to gather data from travelers who meet these specific criteria and are most relevant to the research objectives.

4. Data Analysis and Findings

4.1 Introduction

In this research study, there are two types of statistics used for data analysis.

1) Descriptive statistics: Frequency, percentage, arithmetic mean, standard deviation were used. The interpretation was then performed using the Interpretation Criteria using the mean of the question points. The interpretation criteria have been set for 5 levels (Silcharu, 2020) as follows:

Score 4.21 – 5.00 is the highest level,   Score 3.41 – 4.20 is high level
Score 2.61 - 3.40 is moderate,   Score 1.81 - 2.60 is low
Score 1.00 – 1.80 is the lowest level.

2) Inferential statistics: Structural Equation Model: (SEM) was used in this research.

4.2 Data Analysis of the Quantitative Data

4.2.1 Demographic Information

From the research results, it was found that the respondents of the questionnaire were predominantly male (56.6%). Most of them fell within the age range of 21 to 30 years (46.4%), followed by 31 to 40 years (26.8%). The majority had an educational background at the bachelor's degree level (62%) and were employed in private companies as employees or staff (28.2%), while others were students (23.4%). Regarding foreign tourists, the majority were of Chinese nationality (11%), followed by Indian nationality (9.6%), Australian nationality (9.4%), and German nationality (8.2%) in descending order. Thai tourists accounted for 15.8% of the total. As for marital status, 58% of the respondents were single. Concerning monthly income, 32.8% had an average income ranging from 500 to 1,000 USD, and 20.4% had an income between 1,001 to 1,500 USD.

4.2.2 Levels of mobile device usage, productivity and loyalty of free independent traveler (FIT) in tour package purchasing in triangle Andaman cluster provinces

Levels of mobile device usage, productivity and loyalty of free independent traveler (FIT) in tour package purchasing in triangle Andaman cluster provinces were shown in Table 1-3.

Table 1 Levels of Mobile Device Usage of FIT in Tour Package Purchasing in Triangle Andaman Cluster Provinces

Mobile Device Usage	Average	S.D.	Level
1. Mobile Usage in Information Retrieval for Tourism and Travel Sources	4.15	0.99	High
2. Mobile Usage in Tourism Planning and Geographic Information Utilization	4.07	0.93	High
3. Mobile Usage in Expense Tracking and Payment Methods	3.99	0.99	High
4. Mobile Usage in Communicating Information with Friends or Relatives	3.86	0.96	High

From Table 1, all components of the mobile device usage of free independent traveler (FIT) in tour package purchasing in triangle Andaman cluster provinces are in high level. Mobile Usage in Information Retrieval for Tourism and Travel Sources has the highest average (average = 4.15), follow by Mobile Usage in Tourism Planning and Geographic Information Utilization (average = 4.07), Mobile Usage in Expense Tracking and Payment Methods (average = 3.99) and Mobile Usage in Communicating Information with Friends or Relatives (average = 3.86), respectively.

Table 2 Levels of Productivity of FIT in Tour Package Purchasing in Triangle Andaman Cluster Provinces

Levels of Productivity	Frequency (N)	Percentage (%)
Below 0.3	23	4.6
0.3 - 0.39	43	8.6
0.4 - 0.49	2	0.4
0.5 - 0.59	236	47.2
0.6 - 0.69	35	7
0.7 - 0.79	14	2.8
0.8 - 0.89	6	1.2
0.9 - 1.00	141	28.2

From Table 2, most of productivity level of free independent traveler (FIT) in tour package purchasing in triangle Andaman cluster provinces are in the range of 0.5 - 0.59 (47.2%), followed by the range of 0.9 - 1.00 (28.2%) and the range of 0.3 - 0.39 (8.6%), respectively.

Table 3 Levels of Loyalty of FIT in Tour Package Purchasing in Triangle Andaman Cluster Provinces

Loyalty	Average	S.D.	Level
1. Repurchase	3.46	0.99	High
2. Recommend	3.94	0.96	High

From Table 3, all components of the loyalty of free independent traveler (FIT) in tour package purchasing in triangle Andaman cluster provinces are in high level. Recommend has the highest average (average = 3.94), follow by Repurchase (average = 3.46), respectively.

4.2.3 Relationship of mobile device usage on productivity and loyalty of free independent traveler (FIT) in tour package purchasing in triangle Andaman cluster provinces

Relationship of mobile device usage on productivity and loyalty of free independent traveler (FIT) in tour package purchasing in triangle Andaman cluster provinces is shown in Figure 2 and Table 4 and Table 5.
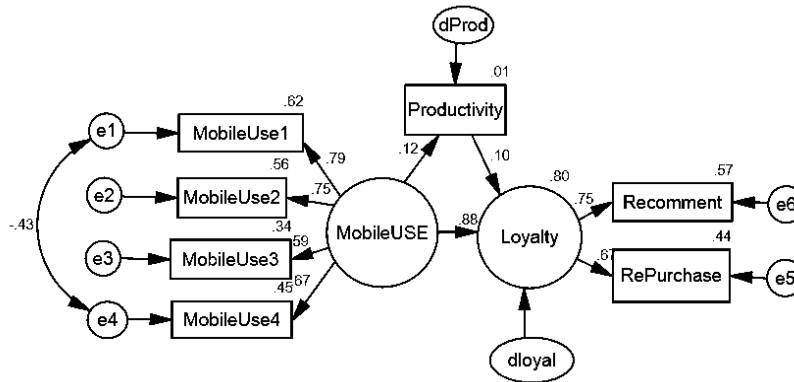

Figure 2 Structural Equation Model

Table 4 Analysis of the Goodness-of-Fit Index of the Structural Equation Modelling

Indicator	Criteria	Measured Indicator	Decision
Chi-square	$p > 0.05$	15.20 ($p = 0.55$)	Pass
Chi-square/DF	< 2.00	1.90	Pass
CFI	> 0.90	0.98	Pass
GFI	> 0.90	0.99	Pass
AGFI	> 0.90	0.97	Pass
RMSEA	< 0.05	0.042	Pass

From Table 2, it was found that the P-value is statistically significant at 0.55, which is higher than the specified value of 0.05. The result indicates that it passed the Chi-square criterion with a value of 15.20 and degrees of freedom (df) equal to 8. The ratio of Chi-square to df is 1.90, which is lower than the specified threshold. The Goodness-of-Fit Index (GFI) is 0.99, higher than the specified threshold, and the Adjusted Goodness-of-Fit Index (AGFI) is 0.97, also surpassing the required value. The Comparative Fit Index (CFI) is 0.98, exceeding the specified threshold. The Root Mean Square Error of Approximation (RMSEA) is 0.042, lower than the specified threshold. Based on the indices indicating the goodness-of-fit of the model, it can be concluded that the hypothetical research model fits the observed data well.

Table 5 Direct Influence, Indirect Influence, and Cumulative Influence of Causal Factors

Independence Variable	Mobile Use			Productivity		
Dependence Variable	DE	IE	TE	DE	IE	TE
Productivity	0.116*	-	0.116*	-	-	-
$R^2 = 0.013$						
Loyalty	0.878**	0.012**	0.89**	0.102	-	0.102*
$R^2 = 0.802$						

Remarks   * $p < 0.05$, ** $p < 0.01$

From Table 3, the variable of using mobile communication devices has an overall positive influence on the customer satisfaction of independent travelers with a total effect size of 0.89. This effect can be divided into a direct effect size of 0.878 and an indirect effect size of 0.012, both of which are statistically significant at the 0.01 level. The variable of productivity has a direct positive influence on the customer satisfaction of independent travelers with a direct effect size of 0.102, which is statistically significant at the 0.05 level. The variable of using mobile communication devices has a direct positive influence on the productivity with a direct effect size of 0.116, which is statistically significant at the 0.05 level. The coefficient of determination (R^2) for the customer satisfaction variable of independent travelers is 0.802, indicating that the variables of using mobile communication devices and productivity together can explain 80.2% of the variance in customer satisfaction. The coefficient of determination (R^2) for the productivity variable is 0.013, indicating that the variable of using mobile communication devices can only explain 1.3% of the variance in productivity.

Based on the study results, the research hypotheses can be summarized as follows:

Hypothesis 1: The use of mobile communication devices has a significant positive relationship with the customer satisfaction of independent travelers in terms of purchasing tours and travel packages. The results of the hypothesis testing showed that it supports the hypothesis, indicating that the use of mobile communication devices has a direct positive influence on the customer satisfaction of independent travelers in terms of purchasing tours and travel packages, with a direct effect size of 0.116, which is statistically significant at the 0.01 level.

Hypothesis 2: The use of mobile communication devices has a significant positive relationship with the perceived image of the destination among independent travelers in terms of purchasing tours and travel packages. The results of the hypothesis testing supported the hypothesis, suggesting that the use of mobile communication devices has a direct positive influence on the perceived image of the destination among independent travelers in terms of purchasing tours and travel packages, with a direct effect size of 0.878, which is statistically significant at the 0.01 level.

Hypothesis 3: The perceived image of the destination has a significant positive relationship with the customer satisfaction of independent travelers in terms of purchasing tours and travel packages. The results of the hypothesis testing supported the hypothesis, indicating that the perceived image of the destination has a direct positive influence on the customer satisfaction of independent travelers in terms of purchasing tours and travel packages, with a direct effect size of 0.102, which is statistically significant at the 0.05 level.

Hypothesis 4: The use of mobile communication devices has a significant positive relationship with customer satisfaction through the perceived image of the destination among independent travelers in terms of purchasing tours and travel packages. The results of the hypothesis testing supported the hypothesis, showing that the use of mobile communication devices indirectly influences customer satisfaction through the perceived image of the destination among independent travelers in terms of purchasing tours and travel packages, with an indirect effect size of 0.012, which is statistically significant at the 0.01 level.

5. Conclusion, Discussion, and Recommendation

5.1 Conclusion

The purposes of this research were to study the level of mobile device usage, productivity and loyalty of free independent traveler (FIT) in tour package purchasing and to investigate the relationship of mobile device usage on productivity and loyalty of free independent traveler (FIT) in tour package purchasing in triangle Andaman cluster provinces. This study is quantitative research using a questionnaire as a tool with a sample group of independent travelers in the provinces of Phuket, Phang Nga, and Krabi, totalling 500 individuals, a purposive sampling method was employed. This means that data was collected only from independent travelers who stayed in the mentioned provinces for at least 24 hours and had made purchases of tours and travel packages within the province, at least once. Quantitative data analysis was performed by using descriptive statistics and Structural Equation Model (SEM).

The research showed the majority of respondents were male. Their age ranged mostly between 21 to 30 years, followed by 31 to 40 years. The majority of respondents had attained an undergraduate degree. The main occupation of respondents was employed in private companies or as company employees, followed by students. Most of the foreign tourists were of Chinese nationality, followed by Indian, Australian, and German nationals, respectively. In terms of average monthly income, the majority fell in the range of 500-1,000 USD, followed by 1,001-1,500 USD. Most of the samples have the mobile device usage, and loyalty in high level and have the productivity in the range of 0.5 - 0.59. It was discovered that the variable of mobile communication device adoption has a significant direct and indirect impact on the customer satisfaction of independent travelers in a positive manner, as statistically significant. The variable of visual production also has a direct influence on customer satisfaction among independent travelers, but to a lesser degree, with statistical significance. The variables of mobile communication device adoption and visual production can collectively explain 80.2% of the variance in customer satisfaction among independent travelers. Moreover, the variable of mobile communication device adoption has a statistically significant direct impact on the variance of visual production, accounting for 1.3% of the variance.

5.2 Discussion

The use of mobile communication devices significantly and positively influenced the variable of image creation, as statistically significant results indicated. This research aligns with the findings of Pinsook (2015) who studied the acceptance of information technology, quality of electronic services, and marketing mix from the perspective of customers, which influenced satisfaction levels in booking movie tickets online through the application systems in the Bangkok Metropolitan Area. Data was collected from 280 individuals who had previously used the movie ticket booking service

via the application system. The data was analyzed using multiple regression analysis. The study revealed that factors related to ease of use and convenience in application usage had a significant impact on customer satisfaction, which is one of the outcome variables used in measuring the level of image creation in online movie ticket booking, at a statistically significant level of .05.

The image creation significantly and positively influenced the variable of customer satisfaction among independent travelers. This research is consistent with the findings of Thongkij (2017) who studied the factors that contribute to community-like feelings among members of Facebook's mobile phone technology troubleshooting group in Thailand. The objective of the study was to examine the relationships of multiple factors affecting members' satisfaction with the virtual community. The study tested the appropriateness of the structural equation model with empirical data. The research sample consisted of 94 members of the virtual community, and the data was analyzed using the Structural Equation Model. The analysis revealed that customer satisfaction, which is one of the outcome variables used in measuring the level of image creation, significantly and directly influenced members' strong liking for the community.

The use of mobile communication devices significantly and positively influences the variables of customer satisfaction among independent travelers, both directly and indirectly, as indicated by the statistical significance. This research aligns with the findings of Thongtao (2019) who studied the causal relationships between service innovation, relationship quality, and customer satisfaction in the mobile phone service providers in Thailand. The study employed a survey questionnaire with a total of 400 respondents. The data analysis revealed that the adoption of new technology in service provision or the adjustment of mobile communication devices, which is one component of service innovation, significantly affects customer satisfaction. This, in turn, is a key factor in relationship quality and also has an impact on overall customer satisfaction, both directly and indirectly. Therefore, service business operators should enhance service innovation together with developing relationship quality to create customer satisfaction effectively.

5.3 Recommendation

5.3.1 Suggestions for Applying the Research Results

From this research, the variable of using mobile communication devices has a statistically significant positive direct influence on the variable of customer satisfaction among independent travelers. Therefore, business operators should focus on enhancing the organization's competitive capabilities by adjusting their work processes to utilize mobile communication devices more effectively. They should also develop comprehensive mobile applications that cater to customer needs, such as marketing apps, communication apps, and financial transaction apps, among others. These developments will lead to an increase in the level of customer satisfaction and overall customer image.

The variable of Productivity has a statistically significant positive direct influence on the variable of customer satisfaction among independent travelers. Therefore, business operators should implement strategies to enhance their Productivity in order to increase customer satisfaction. This can be achieved through improving the quality of services offered, exceeding customer expectations, and reducing waiting time for customers. Additionally, providing greater convenience to customers will also contribute to higher levels of customer satisfaction.

5.3.2 2 Suggestions for Further Research

(1) In future research, it is recommended to study factor models that are related to customer satisfaction among specific groups of independent travelers, focusing on or identifying the nationalities of tourists, such as Chinese or Indian tourists. This will enable tourism operators whose primary customer segment consists of these nationalities to utilize the research findings for formulating targeted marketing communication strategies.

(2) As the results of this research have indicated a statistically significant positive influence of both the variables, namely, the use of mobile communication devices and customer image, on customer satisfaction among independent travelers, it is therefore suggested to conduct further in-depth research on these factors. For instance, exploring strategies to enhance competitive advantage through the use of mobile communication devices by tourism operators or investigating factors that significantly impact the satisfaction levels of independent travelers in the tourism industry, etc.

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