

¹Effects of COVID-19 on Digital Learning of Entrepreneurs

Abstract

The study in hand investigates the effect of information and communication technology (ICT), the quality of e-information, entrepreneurial e-learning education and entrepreneurial satisfaction on the university brand image. This study aims to investigate the effect of COVID-19 on E-learning of entrepreneurs. For this purpose, data is being collected from then entrepreneurial students of public and private universities of Thailand. The data obtained from 345 students by using an e-questionnaire and further analysis has been done through Smart PLS-SEM on 203 useable questionnaires. The findings highlighted that ICT, e-service, e-information quality contribute positively to enhance e-learning education for entrepreneurs, which ultimately leads to satisfaction. Moreover, these association has also lead that the satisfaction of entrepreneurs with e-learning education contributes to a strong university brand image. This study is providing specific findings for universities to establish an e-learning network to cop the COVID-19 challenges for the students. It also shed lights on the academic institutions to incorporate the learning management framework to incese students satisfaction through e-education. The study also discuss the limitations and provide future directions.

Keywords: Covid-19, E-Information, University brand image, Entrepreneurial

Introduction

The Covid-19 crisis has started due to foreign migration and seized most of the business-related activities. On the same note, Covid-19 caused an intense problem for the community due to the chaos and confusion with no remedy or treatment (Leung, Sharma, Adithipyankul, & Hosie, 2020). The Covid-19 brought lockdown, and as a consequence of lockdown or separation policies, freedom of travelling has been substantially reduced. The several institutions have shut down and required e-learning from home. The students and instructors are reacting contrarily as a result of this sudden

¹Anusara Sawangchai, Business Administration in Entrepreneurship Program, Faculty of Management Sciences. Phuket Rajabhat University. anusara.s@pkru.ac.th

²Hiran Prasarnkarn, Business Administration in Entrepreneurship Program, Faculty of Management Sciences. Phuket Rajabhat University, Thailand. hiran.p@pkru.ac.th

³Jati Kasuma, Department of Business Management, Universiti Teknologi MARA, Sarawak Branch, Malaysia. Corresponding Author: jati@uitm.edu.my

⁴Aleksandra G. Polyakova, SAP Next-Gen Lab, Plekhanov Russian University of Economics, Russia: agpolyakova@mail.ru

⁵Saba Qasim, School of Business Management, Universiti Utara Malaysisa. Kedah, Malaysia. sabaqasim90@yahoo.com

shift. Specifically, in the context of education sectors, various coping strategies have been used; for example, employed socialization techniques in the classroom that caused a drastic decrease in physical interaction. In the same time, advance techniques have emerged in an online format to replicate specific socializing patterns. Inventive thought has indicated that it is feasible to utilize the same style of instructional methods digitally but in a new medium. In a technical environment, when the quality of a university depends on society, universities strive to interact more with the community (Bao, 2020). The online learning is vital because it can be done anytime, and it increases community interaction. A successful system of higher education has been characterized as generating awareness and providing support to the community through education and training at complementary levels.

Researchers such as Martin & Turner (2010) proposed that an effective method is needed to develop an entrepreneurial university. Building an entrepreneurial university is vital as successful entrepreneurial universities have distinguished features that differentiate them from their rivals. The Covid-19 crisis has culminated in a desire for more universities to be deemed creative. It would allow management to face economic turmoil, which is triggered by the recession of Covid-19 and forced them to get more inspiring targets (Iwegbunam & Robinson, 2019). Due to Covid-19, universities have to remain vigilant and adaptive. Not only did the disruption created by Covid-19 pose an imminent danger to universities' financial survival, but it has also offered an impetus for creativity to thrive. Universities have had to think critically to build modern interactive distance learning and training for interactional activities. It indicated that universities have the advance technological landscape to respond to the contemporary climate; most of them are unprecedented territories (Ratten, 2017; An et al., 2019).

The employees establish skills of expertise that could be a precious source of creativity in academics. Further, there has to be an agreement on the best potential causes of action because of the various interests amongst participants in a university. Besides, there has to be alignment and collaboration between participants of the university to promote progress, especially in the time of crisis, such as Covid-19 (Khalili & Xyrichis, 2020). Such atmosphere fosters the utilization of the primary information of a university that requires advanced research. Although this is also practised by universities participating in economic development initiatives like technology transfer, still, there should be a strong emphasis on how to resolve the ongoing crisis in Covid-19. To effectively cope with the challenges of Covid-19, there is a worldwide initiative toward online education (Adnan & Anwar, 2020). The rapid change to all education sectors is being done by introducing an online classroom environment which was entirely unexpected. It indicated that there was not much opportunity for students and teachers to adapt to a new world that puts more impact compared to face-to-face communication. That led the teachers to several challenges on how to collaborate in an online environment with students. From the context of Thailand on 17th April 2020,

the Ministry of Public Health of Thailand reported everyday cases of COVID-19 are happening, which was laboratory-confirmed, the overall number of cases was 2,700. Out of 77 provinces, 68 have registered cases by June 2020. The largest number of cases reported in Bangkok (1,371), accompanied by Phuket. (192) and (148) to Nonthaburi. That shows that it is not possible to open and provide education based on physical interaction among students and faculty members. Hence, immediately after the closing of the universities in Thailand. However, the higher education system in Thailand tends to focus on the conventional teaching technique and training in general. Due to pandemic situation, the study aims to boost the image of brands of the university while providing better education facilities to entrepreneur student through online in the perspective of Thailand.

Litterature Review

Entrepreneurship teachers considered into account that the difference between delivering learning experience through physically and online is enormous. The need for more innovative approaches to cope with this problem that has been driven by the Covid-19 spread (He & Harris, 2020). Although entrepreneurship teachers have recommended that the university must do experiential practices in the existing Covid-19 constraints as it become the challenge to achieve. Experiential learning is considered as a mean for learners to learn by experiencing activities. Entrepreneurship teachers who value practical teaching and learning deemed useful to their teaching styles. Further, more participatory forms of learning are promoted to enhance the learning process. This encourages students of entrepreneurship to cope explicitly with the fact by evaluating knowledge and then drawing on it (Anggadwita, Luturlean, Ramadani, & Ratten, 2017). It also strengthens the capacity of a student to engage with the business world, creating a smoother transition between scholars and trainees. In addition to this, the main objective of entrepreneurship education programs is to prepare entrepreneur students to behave as an entrepreneurial way through practical skills. Although this means to be an entrepreneur in certain situations, it may also require to behave in an entrepreneurial way. Similarly, in order to do this, the gap between having knowledge and apply this knowledge into the real world should not be widened, especially to develop an entrepreneurial potential. To achieve these objectives, entrepreneurship teachers need to update their programs and develop the ability to understand the role of participants in co-creating value (students, government, business, practitioners, community). Likewise, more students have become digital natives, since they focus on computer technologies. This implies that immediate access to data is required across information platforms. To achieve this, educators, while making use of conventional methods, need to focus on modern technological methods (Hussain et al., 2020).

In this regard, interactive learning is used in modern education to form a platform of virtual and face-to-face interaction. As, after the Covid-19 pandemic decreases, there is a possibility of online learning in a significant way. This would require technologies, as technologies play a key role in learning education and skills for entrepreneurship. Moreover, in accordance with Gërguri-Rashiti, Ramadani, Abazi-Alili, Dana, & Ratten, (2017) advance methods of integrating technologies would revitalize the program of e-learning. More contact with technology is anticipated due to the rising presence and speech of digital natives. Nonetheless, the usage of experiential learning in entrepreneurship education is important. This suggests that active learning techniques are likely to integrate any degree of mixed reality in order to deal with the constraints of social distance. Therefore, educators in entrepreneurship need to learn to align experimental education with existing social needs (Anggadwita, Ramadani, Alamanda, Ratten, & Hashani, 2017). To achieve social needs, more technology is expected to be introduced into instructional strategies in the context of video sports. It would facilitate the development of innovative learning environments that promote entrepreneurship for students. Furthermore, there is expected to be more university-industry cooperation as industry-relevant education is required for entrepreneurship to enhance the interest of students by promoting exchanges of information (Ramadani, Ademi, Ratten, Palalić, & Krueger, 2018). By the utilization of technologies, students would eventually be best qualified for the workforce (Raza et., 2020).

The potential for educational advancement can be characterized as educational innovations that focused on significant benefits such as promoting teaching activities that, focus on operational benefits (Ratten, 2017). It suggests that, as a reaction to the Covid-19 crisis, universities can design and introduce reforms in educational technologies for the needs and demands of students during the Covid-19 crisis. Similarly, universities management need to devote increasing emphasis on online formats since students need to study from the residence to avoid physical interaction (Wang, Cheng, Yue, & McAleer, 2020). It indicated that university should devote greater attention to reinforcing their instructional practices online. Also, when the education sector depends on student attendance by using online teaching approaches, they can improve quicker from the recession. It would indicate that universities will have a lot of practice and understanding of online education to go forward.

Some facets of entrepreneurship curriculum contribute to entrepreneurial students in relation to online schooling, while others need more productive preparation and intentional thinking to implement. Providing online education for entrepreneurs two aspects such as entrepreneurial attitude and entrepreneurial behavior (applying skills) should be focus on (Morris & Liguori, 2016). Generally, entrepreneurial students receive much of their business concepts from their business classes instead of just relying on an entrepreneurship classroom (Liguori & Winkler, 2020). Thus, the following two categories such as basics of entrepreneurship; entrepreneurial mentality

and competencies reflect what is learnt in entrepreneurship schools around the world (Morris & Liguori, 2016). The dichotomy between two categories is, where the greatest barrier in learning online entrepreneurship education lies: although there is a gap between teaching entrepreneurs through online with conventional approaches and teaching entrepreneurs through non-traditional and modern online education approaches (Liguori & Winkler, 2020). In the case of e-learning, this successful satisfaction can decrease and affect the institution's credibility, in lockdown because of covid-19, many universities go for online learning that can influence the satisfaction of the entrepreneurs along with the credibility of the institutions (Shehzadi, et al 2020). Nevertheless, active e-learning has a significant effect on the degree of entrepreneurs retention.

The notion of information communication technology (ICT) has been discussed immensely since its evolution. A few decades earlier, Hsu, (2010) stated that a concerted and concrete effort to incorporate ICT in learning could be traced. To improve the advancement of ICT in the educational sector, researchers have established a two-dimensional scale (Cognitive & Technical) for calculating the ICT capabilities of students and teachers developed by (Markauskaite, 2007). Researchers such as Giavrimis, Giossi, & Papastamatis, (2011) established a framework which focused on five thematic areas such as reasons for the follow-up of the ICT curriculum, Satisfaction with the ICT program and the teaching methods selected by their teachers/trainers, ICT information gained as a consequence of participating in the program, Attitudes towards ICT after implementation of the program and sociological aspects of ICT. On the other hand, one of the most relevant facets of e-services is the availability of knowledge, since the sharing of information between two different parties is essential. It is observed that the internet facility is a general term that is often used to satisfy the demand for expertise and to fulfil the need for awareness in the education field. It's obvious that one of the important online activities is the acquisition of knowledge and information. The continuous progress in ICT leads to the academic successes of students. Due to the failure of the coronavirus prevention, the present condition around the world has raised the need for ICT in terms of entrepreneur's student learning. The use of ICT in Thailand was already significant before COVID-19, almost all educational institutions implemented ICT after the coronavirus lockout and provided students with e-learning during a lockout scenario. In addition, in the lockdown scenario, Thailand's academic or non-educational institutions have implemented ICT when engaging through online business meetings with entrepreneurs's students and other market stakeholders. During COVID-19, the ICT use in Thailand has thus become an integral part of any institution in the world. This facility removed the physical interactions between teachers and students that increase the demand of ICT in the learning of entrepreneurial students around the world (Liguori & Winkler, 2020).

Empirical researchers have found that students' e-learning is mainly dependent on the level of e-information is offered. The contrast between conventional services and web-based services has established the foundation for the belief that all service quality attributes do not affect the overall level of service which provided to learners (Giraldo, 2019). There is a vast amount of need for the high standard of e-information in this complicated coronavirus case, which improves the entrepreneur's students' e-learning. So, it is observed that the characteristics of service quality are particularly essential in the formulation of quality of service in the online education environment. Thus, the consistency of e-information is the vital aspect of the e-learning session that boosts the students' e-learning, which is the necessary prerequisite in the context of coronavirus lockout situation worldwide (Shehzadi et al., 2020).

The image of the university is significantly important to influence the decision making of students,. To get students engaged, interested and to make the school competitive, the innovative publicity technique, university branding, is used effectively. Likewise, researchers suggest that university image branding is important in this increasingly competitive era for the implementation of image branding strategies. As the brand reveals the university's willingness to meet customer requirements, creating trust in the quality of the university to provide customers/students with good services(Chen & Chen, 2014). However, the web sessions, instead of physical lessons due to coronavirus, the comfort level of the students might be impacted. The universities have also introduced online courses for students that would not only affect entrepreneur student learning but could also affect their satisfaction level with the university's brand name and image.

Hypothesis

H1: The positive effect of e-information quality on e-learning of entrepreneur

H2: The positive e-learning of entrepreneur on entrepreneur satisfaction

H3: The positive effect of e-information quality on university brand image

H4: The positive of entrepreneur satisfaction on university brand image

H5: The positive effect of ICT on e-learning of entrepreneur

H6: The mediating effect of e-learning of entrepreneur between e-information quality and entrepreneur satisfaction

H7: The mediating effect of e-learning of entrepreneur between ICT and entrepreneur satisfaction

H8: The mediating effect of e-learning of entrepreneur between e-information quality and university brand image

H9: The mediating effect of e-learning of entrepreneur between ICT and university brand image

H10: The mediating effect of entrepreneur satisfaction between e-learning of entrepreneur and university brand image

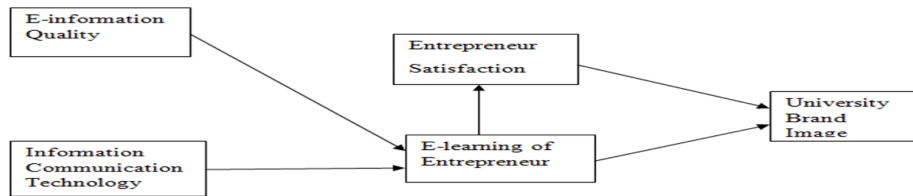


Figure 1. Conceptual Framework

Research Methodology and Measurements

The students of public and private universities were the selected for this research. The top 5 universities which included public and private were chosen for data collection based on a ranking released in 2019 by the higher education commission of Thailand. The selected universities were indicative of all other institutions since several of the them were already well placed in the 2020 QS World Ranking. An online questionnaire has been used to collect data from the private and public sector universities that started to utilize an online learning framework for continuity of education in this pandemic. The unit of study was citizens of Thailand, and the responders were university students who planned to be an entrepreneur and took their online courses to engage in e-learning. The data was obtained from an online survey of questionnaires in the time period of four months. To fill out the online questionnaire, the researchers shared an internet service through Facebook and WhatsApp groups to meet most university students (entrepreneurs). The researchers got a total of 345 answers to the questionnaire. After initial screening and deletion of incompletd questionnaires and outliers, the study selected 203 for further analysis. In the survey, 44 items were part of the questionnaire. Information technology is assessed by 15 elements developed by (Bhat & Bashir, 2018). Moreover, a four-item scale was developed for entrepreneurs student e-learning and education, based on a report by (Udo, Bagchi, & Kirs, 2011). Nine elements were assessed by entrepreneurs' student satisfaction and developed by (Headar, Elaref, & Yacout, 2013). Additionally, online information quality was measured by nine items developed by (Zhou et al., 2014). Finally, eight elements assessed the university brand image developed by (Sultan & Wong, 2019).

Measurement Model Assessment

The first part of data analysis in measurement model assessment (MMA) is factor loading, Cronbach's alpha, composite reliability (CR) and average variance extracted (AVE) (Henseler, Ringle, & Sinkovics, 2009). As per Hair, Black, Babin, Anderson,

and Tatham, (1998) stated that the value of factor loadings must be >0.5 and below 0.05 should be erased. The value of alpha > 0.9 is excellent, 0.8 is good and < 0.7 is acceptable". The CR must be >0.7 (George & Mallery, 2003). Furthermore, the value of convergent validity (CV), and AVE should also be equal or >0.5 that leads to internal consistency. MMA shows that all the values are acceptable. Factor loading, Cronbach alpha and CR are also >0.7 . The factor loading items which have less than 0.7 values were deleted. In addition, AVE is >0.5 , that leads to convergent validity.

Similarly, the validity of the constructs is measured through convergent validity (CV) and discriminant validity (DV). The values of AVE for all the latent constructs are greater than 0.50 as stated by (Chin, 1998). Duarte and Raposo (2010) argued that discriminant validity (DV) indicates how much latent constructs is distinctive from others. The current study measures the discriminant validity (DV) through the method of Fornell and Larcker (1981) by taking the square root of Average Variance Extracted of all the latent constructs. The study show that the square roots of Average Variance Extracted are greater.

Structure Equation Model

The structural model assessment (SMA) of hypotheses to measure direct and indirect relationships. Direct hypotheses for accepting or rejecting were measured. All the relationships with t-value greater than 1.96 and P value is less than 0.05 would be accepted. Thus, H1, H2, H3, H4 and H5 are accepted. The relationship of e-information quality and E-learning of entrepreneur is accepted with the β -value is 0.414 , t value is $6.544 > 1.96$ and p value is $0 < 0.05$. The relationship of E-learning of entrepreneur and entrepreneur satisfaction is accepted with the β -value is 0.624 , t value is $19.5765 > 1.96$ and p value is $0 < 0.05$. Between student e-learning and consumer satisfaction, these results are aligned with previous studies, as previous research has also shown that online learning has a positive effect on academic performance for students (Nortvig et al., 2018; Vate-U-Lan, 2020). The relationship of E-learning of entrepreneur and university brand image is accepted with the β -value is 0.280 , t value is $4.330 > 1.96$ and p value is $0.00 < 0.05$. The relationship of entrepreneur satisfaction and university brand image is accepted with the β -value is 0.417 , t value is $7.205 > 1.96$ and p value is $0 < 0.05$. The relationship of information communication technology and E-learning of entrepreneur is accepted with the β -value is 0.197 , t value is $3.335 > 1.96$ and p value is $0.001 < 0.05$. The method of bootstrapping analyses using 95 percent bias corrected and accelerated confidence intervals (CIs) was employed over other methods of mediation testing (Preacher & Hayes, 2008). The results show that the mediating effect of E-learning of entrepreneur between e-information quality and entrepreneur satisfaction as the t-value 6.170 greater than 1.96 , p value 0.000 less than 0.05 and β value 0.259 is significant. Thus, H6 is accepted. Similarly, the results show that the mediating effect of E-learning of entrepreneur between information communication technology and

entrepreneur satisfaction as the t-value 3.017 greater than 1.96, p value 0.000 less than 0.05 and β value 0.123 is significant. Thus, H7 is accepted. The results show that the mediating effect of E-learning of entrepreneur between e-information quality and university brand image as the t-value 3.637 greater than 1.96, p value 0.003 less than 0.05 and β value 0.116 is significant. Thus, H8 is accepted. The results show that the mediating effect of E-learning of entrepreneur between information communication technology and university brand image as the t-value 2.536 greater than 1.96, p value 0.011 less than 0.05 and β value 0.055 is significant. Thus, H9 is accepted. The results show that the mediating effect of entrepreneur satisfaction between E-learning of entrepreneur and university brand image as the t-value 6.306 greater than 1.96, p value 0.000 less than 0.05 and β value 0.260 is significant. Thus, H10 is accepted.

Adjusted R-square

In addition, in multiple regression model, adjusted R2 (R2 adj) value is calculated as it assists to avoid biases of the complex model when the outcomes are dealt with different numbers of data set of exogenous latent constructs. Thus, R2 adjusted is used to compare the PLS-SEM results with a different number of exogenous constructs and/or with different sample size (Hair, Black, Babin, Anderson, & Tatham, 1998).

In general, adjusted R2 value reduces the value of R2 by the number of explaining construct and sample size. Thus, the interpretation of adjusted R2 is not possible like R2 but provides an overall idea about how it produces results in a different setup. The results of adjusted R2 are very close to R2 value meaning that no significant differences between the original data set and extended or other data set. Although the value of R2 and adjusted R2 differ slightly no changes occur at the significant level, therefore, different datasets are expected to produce the same results regarding these relationships. The R square and R adjusted value of ELOE is 0.305 and 0.301, value of ES is 0.389 and 0.388, and value of UBI is 0.398 and 0.395. In the end, the quality of model is measured through construct cross-validated redundancy called predictive relevance (Q2). Achieving a certain quality of model, the value of Q2 should be greater than 0 (Chin, 1998). The value of Q2 of e-information quality is 0.173 >0 and E-learning of entrepreneur is 0.233 >0.

Discussion

The purpose of the study is to examine the effect of e-information quality, information communication technology on the university brand image with the mediating effect of E-learning of entrepreneur and entrepreneur satisfaction. Based on previous studies, 10 hypotheses were proposed on the post effect of Covid-19 in Thailand. An investigation was done out and data from universities was obtained. Finally, utilizing the statistical instrument to accomplish the goal of the present analysis, the data was evaluated. As a result of COVID-19, the findings of the present study partly fulfilled the goal and

offered important ideas for universities into modern online learning. In universities, the findings of the research and implementations of this study concept are a paradigm change since this concept allows the university to adopt a whole different approach that promotes online learning. In an extreme emergency such as COVID-19, the new research has shown that e-learning for students is one of the major components of providing online education. E-learning for students, that being said requires three main components: ICT, quality of e-service and quality of e-information. The findings of the study emphasized that ICT has a positive effect to play in enhancing e-learning for students. Better ICT will boost e-learning for students. The Direct hypotheses for accepting or rejecting were measured. All the relationships with t-value greater than 1.96 and P value is less than 0.05 would be accepted. Thus, H1, H2, H3, H4 and H5 are accepted. The relationship of e-information quality and E-learning of entrepreneur is accepted with the β -value is 0.414, t value is $6.544 > 1.96$ and p value is $0 < 0.05$. Previous studies also match these findings. According to (Shehzadi et al., 2020), ICT supports student e-learning. Further studies also promote this relationship (Wilkinson, Roberts, & While, 2010).

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The method of bootstrapping analyses using 95 percent bias corrected and accelerated confidence intervals (CIs) was employed over other methods of mediation testing (Preacher & Hayes, 2008). The results show that the mediating effect of E-learning of entrepreneur between e-information quality and entrepreneur satisfaction as the t-value 6.170 greater than 1.96, p value 0.000 less than 0.05 and β value 0.259 is significant. Thus, H6 is accepted. Similarly, the results show that the mediating effect of E-learning of entrepreneur between information communication technology and entrepreneur satisfaction as the t-value 3.017 greater than 1.96, p value 0.000 less than 0.05 and β value 0.123 is significant. Thus, H7 is accepted. The results show that the mediating effect of E-learning of entrepreneur between e-information quality and university brand image as the t-value 3.637 greater than 1.96, p value 0.003 less than 0.05 and β value 0.116 is significant. Thus, H8 is accepted. The results show that the mediating effect of E-learning of entrepreneur between information communication technology and university brand image as the t-value 2.536 greater than 1.96, p value 0.011 less than 0.05 and β value 0.055 is significant. Thus, H9 is accepted. The results show that the mediating effect of entrepreneur satisfaction between E-learning of entrepreneur and

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Theoretical and Practical Contribution

For literature, the present research has significant consequences. The current research gave a detailed context with valuable insights into fostering a paradigm change in universities. Theoretically, up to the researcher's knowledge this is the first study which is offering a detailed structure as a post-effect of COVID-19 to launch the student e-learning scheme. In the literature regarding the e-learning of students, numerous studies are available; but this is the first research that addressed the post-effect of COVID-19. Second, the study introduced a method for creating a successful structure of online learning that can improve the reputation of the university brand. Third, by investigating the post-effect of COVID-19 in the scenario of South Asia as it is targeted the most impacted COVID-19 nation, the current research also fills the contextual gap. Fourth, the novelty of this research is that it examined that ICT, e-service efficiency and e-information quality as the core tools of e-learning for learners in the worse situation of COVID-19. In addition to this contribution, the current research also referred to the idea that universities need a positive brand image to successfully implement e-learning, which is achievable through encouraging entrepreneur student satisfaction. The current research has proposed to university management that universities can encourage ICT, e-service quality and e-information quality to build a thriving online learning environment. The outcomes of this research have culminated in enhancing the image of the brand by student satisfaction. Therefore, the most functional consequence of this research, along with other implications, is that this analysis offers the answer as a post-effect of COVID-19 to address different problems relevant to the online learning framework. Therefore, the present research has specific perspectives that allow universities to consider the history to the online learning environment and its association with the brand picture of universities, as it is an essential contemporary challenge for states, higher education boards and universities to fight with COVID-19.

Conclusion, Limitations and Future study

This study showed that ICT, e-service quality and e-information quality are needed to encourage user satisfaction in order to build a stronger user e-learning environment. In the stressful state of COVID-19, this whole process improves the image of the university brand and enables universities to resume their regular operations. Additionally, one of the moves toward a paradigm change in Thailand universities is the partnership between ICT, e-service quality and e-information quality to brand value of universities by focusing on the e-learning of students, satisfaction. The study in hand is limited to Thailand's context and incorporated universities role. The future studies should generalize these findings to other contexts and also should be tested to corporate

sector including public and private companies. Furthermore, a comparative study would provide more generalization of this phenomena.

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