

Examining Factors Influencing Students' Acceptance of Online Learning during COVID-19 Pandemic: Evidence from Thailand

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ABSTRACT

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This study examines factors influencing students' acceptance of online learning during the COVID-19 pandemic in Thailand. A self-administered questionnaire gathered from 398 students from two universities in Thailand was analysed via multiple regression analysis using the Statistical Package for Social Sciences (SPSS) version 23. This approach was utilized to evaluate eleven hypotheses. The results revealed that perceived usefulness was the predominant factor that affected students' actual use, readiness, and motivation to use online learning. The findings indicate that when the online learning system and online content are of good quality, students will perceive online learning as valuable, which will result in more actual usage. These students would accept that it is a suitable method for completing homework, obtaining information from the Internet, and learning the English language. This study makes significant contributions to advancing the understanding of factors influencing students' acceptance of online learning during the COVID-19 pandemic in Thailand by applying the technology acceptance model (TAM) as the guiding principle. Thailand's online learning delivery system could benefit from these empirical findings, which could be used to develop guidelines to improve its effectiveness. Directions for future research are also presented.

Contribution/Originality: This study contributes to advancing the understanding of factors influencing students' acceptance of online learning during the COVID-19 pandemic in Thailand. Thailand's online learning delivery system could benefit from these empirical findings, which could be used to develop guidelines to improve its effectiveness.

1. Introduction

The outbreak of Coronavirus disease (COVID-19) was announced as a pandemic which resulted in worldwide lockdowns in more than 180 countries, including Thailand. COVID-19 has left the world in a state of chaos, with various threats and changes to economic development, including the education sector, as the Movement Control Order (MCO) is implemented to varying degrees throughout the country (Mala, 2021; The Star, 2021). Teaching is no exception, as lecturers and teachers are struggling to adapt their curricula and instructional practices to this lockdown situation. The Ministry of Education of Thailand introduced three modes of distance learning, namely television, on-demand resources via the digital education excellence platform (Deep), and interactive online education to ensure learning continuity (Mala, 2021). Moreover, students have faced various challenges in online learning during the pandemic period. According to Scott (2016), the perceptions and expectations of students and teachers regarding e-learning are not always satisfactory during the COVID-19 pandemic. As online learning is a complex process, requiring a number of elements, e.g., technological tools, e-learning platforms, content, and users, virtual classes which need a lot of preparation differ from traditional or other methods of learning. In this regard, Rohman et al. (2020) contended that one of the problems with online learning was a lack of appropriate planning, and a lack of simplicity of use.

During the COVID-19 pandemic, school closures as part of measures to control the spread of COVID-19 posed a challenge that will change the face of education. E-learning has become very popular in one form or another (Radha et al., 2020). However, a common problem with e-learning is that the perceptions and expectations of students and teachers about e-learning are not always satisfactory (Scott, 2016). During the epidemic, one common concern about e-learning was a lack of appropriate planning, a larger number of assignments, and a lack of simplicity of use (Rohman et al., 2020). Preceding studies (e.g., Damm, 2016; Harrison et al., 2017) also revealed that general complaints about e-learning among students include access to the Internet, financial stress, online teaching skills, and the lack of social presence of teachers in the online course. Dumford and Miller (2018) reported that many students were not satisfied with and had a negative perception of e-learning as they experienced a decrease in both effective instruction and communication with peers and classmates.

In a similar vein, Ngampornchai and Adams (2016) expressed great concerns about discrimination and technology gaps among schools, teachers, and students in online learning. They discovered students had difficulty accessing the Internet. Meanwhile, Kuama and Intharaksa (2016) argue that the Internet connection and home-based equipment which are prevalently problematic have a negative impact on students' learning performance and outcomes. In fact, these studies demonstrated that most students found that online learning was an easy task, but they encountered technical problems. Also, they did not think that their instructors could manage their virtual classrooms efficiently and deliver the lessons successfully (Imsa-ard, 2020). In the

meantime, teachers faced increasing difficulties in managing online classrooms and found it difficult to motivate students to concentrate on lessons while teaching online. This situation places additional stress on teachers and educators to become technology literate in order to use smart devices wisely for online learning.

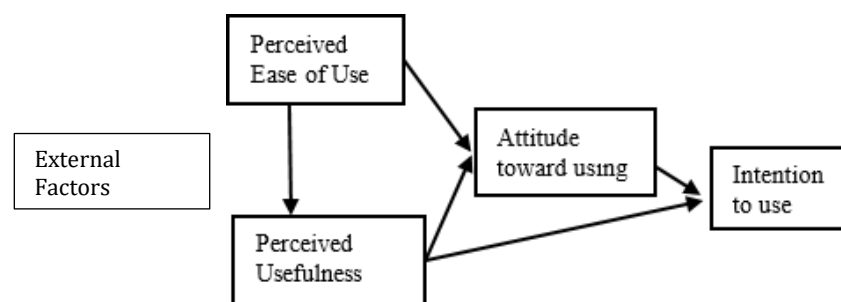
Forced by the sudden increase in COVID-19 cases, many schools have to resort to conducting classes via online platforms without prior planning or preparedness. Not limited to Thailand, many higher educational institutions are in fact unprepared for such a huge migration to online facilities (Gwamba et al., 2018). The Thai education system was not well-prepared to implement online learning due to a vast digital divide between urban and rural areas in terms of facilities needed for online learning (Mala, 2021). The situation has raised concern among higher institutions, academicians, students and parents. Thus, urgent interventions are needed to ensure students do not make less progress in the learning process. This study examines factors influencing students' acceptance of online learning during the COVID-19 pandemic in Thailand. This study furnishes significant contributions to advancing the understanding of factors that influence students' acceptance of online learning during the COVID-19 pandemic in Thailand by applying the technology acceptance model (TAM) as the guiding principle. The empirical findings would serve as guidelines to enhance the effectiveness of online learning delivery during the COVID-19 pandemic.

2. Literature Review

2.1. Technology Acceptance Model

The TAM model established by Davis (1989) is a robust predictive model suited for various forms of technology which has been used and evaluated in different contexts and empirical studies (Rissa, 2014). The model involves factors such as perceived usefulness, perceived ease of use, attitude, and intention to use the technology (see Figure 1). The attitude towards using a technology is predicted by two personal beliefs, i.e., perceived usefulness and perceived ease of use, and these two beliefs at the same time are affected by external and system-specific factors. The attitude, then affects the behavioural intention of using a technology, which eventually predicts the actual system use. Salloum (2018) acknowledged that perceived usefulness and perceived ease of use have contributed to an increase in UAE students' intention to use e-learning systems. Perceived ease of use was the most significant factor that affected the students' intention and their actual use of such systems. Salloum (2018) held that developers should be responsible for creating a useful and easy-to-use system.

Figure 1: TAM Model (Davis, 1989)



2.2. Perceived Ease of Use and Perceived Usefulness

Perceived ease of use and perceived usefulness have been shown to have a significant relationship (Al-Gahtani, 2016; Joo, et al., 2011; Otieno et al., 2016). Past studies claimed that the higher the perceived ease of use of any system, the higher the perceived usefulness will be (Bhatiasevi & Yoopetch, 2015; Kim, 2014). Scholarly works by Sánchez (2010) noted the existence of motivation (extrinsic and intrinsic factors) is indirectly influencing technology acceptance through the perceived usefulness and perceived ease of use (Davis et al., 1989). In addition, Joo et al. (2011) avowed that both perceived ease of use and perceived usefulness positively affect motivation and readiness. They further explain that if students believe that a technology will have a positive impact on their learning experience, they will keep using it, and this shows how perceived usefulness has indirectly affected their actual use of technology. However, according to them, unlike perceived usefulness, perceived ease of use does not affect the actual use of the selected technology. In the same vein, Lee and Kim (2009) yielded the same results that is, perceived ease of use does not influence actual use. The above discussion leads to the formulation of the following hypotheses:

H1: Perceived ease of use has a positive effect on students' perceived usefulness of online learning.

H2: Perceived ease of use has a positive effect on students' motivation to use online learning.

H3: Perceived ease of use has a positive effect on students' readiness to use online learning.

H4: Perceived usefulness has a positive effect on students' motivation to use online learning.

H5: Perceived usefulness has a positive effect on students' readiness to use online learning.

H6: Perceived usefulness has a positive effect on students' actual use of online learning.

2.3. Readiness and Motivation

Readiness and motivation are two of the factors behind users' attitudes toward the use of technology (Linjawi & Alfadda, 2018). The influence of these two factors on online tool use for the participants at all levels in their current study was reported to be acceptable, though not too high. Motivation is believed to be a contributing factor to the use of e-learning systems (Knowles & Kerman, 2007). Motivation includes external motivation and internal motivation. External motivation generally comprises recognition and praise for good work, as Sansone and Smith (2000) noted that an extrinsically motivated student tends to seek approval and external signs of worth. Intrinsic motivation generally comprises an internal desire to learn about a specific topic. In Vansteenkiste et al.'s (2004) study, their findings show that, compared with extrinsically-motivated students, intrinsically-motivated students processed reading material more deeply, achieved higher grades, and showed more persistence.

In a separate study, Knowles and Kerman (2007) found that the majority of students were much more internally motivated than externally motivated. The findings also show that, compared to the first week of the course, students' attitude toward online learning was

more positive during the last week. Their respondents also acknowledged that online courses provide a sufficient amount of student-to-instructor interaction, a high amount of student-to-material interaction, and a low amount of student-to-student interaction. However, lack of motivation negatively affects students' online learning, as shown in [Albelbisi and Yasop's \(2019\)](#) study that when lacking self-regulation skills in online learning, individuals tend to spend additional time to complete assignments, submit assignments later than deadlines, or have poor quality performance. Accordingly, this study posited that:

H7: Readiness has a positive effect on students' motivation in using online learning.

H8: Readiness has a positive effect on students' actual use of online learning.

H9: Motivation has a positive effect on students' actual use of online learning.

2.4. Institutional Support

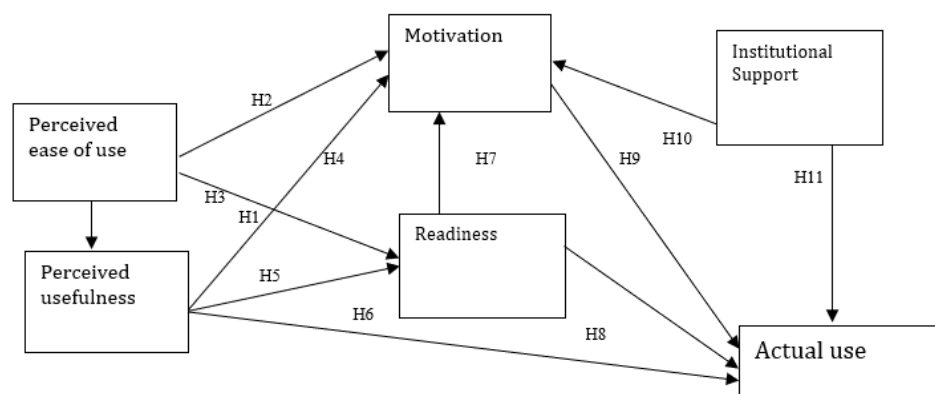
Institutional support is found to be important for e-learning for participants at all levels ([Alsuraihi et al., 2016](#); [Linjawi & Alfadda, 2018](#)). Further, previous research highlighted that "the top-down implementation from the administrative level down to the user level" was "an important and more sustainable strategic movement" ([Linjawi & Alfadda, 2018](#)). Therefore, it is postulated that:

H10: Institutional support has a positive effect on students' motivation in using online learning.

H11: Institutional support has a positive effect on students' actual use of online learning.

Based on the above-mentioned discussion, the present study's proposed theoretical framework is illustrated in [Figure 2](#).

Figure 2: Proposed Research Model



3. Methodology

3.1. Participants and Procedure

Of the 398 respondents, 69% were females and 31% were males. The inclusion criteria to be eligible as participants are, namely (i) they are students aged 18 to 25 years of age, not be in their first year of study so that they have at least had some online learning experience

in the campus through the university management system prior to the unprecedented COVID-19 pandemic and (ii) students who were in their 1st term, academic year 2020 and attended lessons for 15 weeks (July – October, 2019). In terms of age distribution, 11% aged 18 years old. A big portion of the participants (84%) aged between 19 and 21, and the balance 5% aged between 22 and 25 years old. Among the participants from the two Thailand universities, 70% were derived from the Faculty of Liberal Arts and Science, University of Kasersart, while 30% came from King Mongkut's University of Technology, North Bangkok (see [Table 1](#)).

Table 1: Distribution of Participants

University	No. of Students	Faculty	Year of Study
King Mongkut's University of Technology North Bangkok	49	Engineering	2 nd – 4 th
	28	Engineering	2 nd – 4 th
	43	Technical Education	2 nd – 4 th
University Kasersart	278	Liberal Arts and Science	3 rd – 4 th

3.2. Questionnaire Development and Instrument

The survey instrument used in this study was adapted from [Salloum \(2018\)](#), which was originally based on the constructs validated by [Davis \(1989\)](#). The survey instrument consists of a total of 31 items, of which 5 items represent institutional support, 5 items reflect perceived ease of use, 5 items denote perceived usefulness, 13 items designate motivation toward using the technology, and 7 items represent actual use. These items were measured using a 5-point Likert scale ranging from "strongly disagree" to "strongly agree" (institutional support; perceived usefulness; motivation and actual use); and "cannot be accessed at all" to "very easy to access" (perceived ease of use). The measurement of instruments in the Thai version is followed by the English version. In order to verify the suitability of questionnaires, two Thai scholars who are the co-researchers of the present study went through the contents of questionnaires written in English, revised some contents based on the educational context in Thailand, and then translated them into the Thai language, so as to enhance the validity of the questionnaires.

3.3. Statistical Technique

Multiple regression analysis was performed via the Statistical Package for Social Sciences (SPSS) version 23 to assess the eleven hypothesised relationships with the aim of examining which of the independent variables significantly influences the dependent variable.

4. Result

4.1. Reliability and Validity Analysis

The internal consistency of constructed items of the questionnaires was evaluated via Cronbach's alpha. According to [Pallant \(2013\)](#), a Cronbach's Alpha value above 0.800 for the scale is preferable and suggests very good internal consistency reliability, while a value of above 0.700 is considered acceptable. [Table 2](#) details that the readings of Cronbach's

Alpha ranged between 0.798 and 0.934, which topped 0.70, inferring an adequate internal consistency of the construct items used in this study.

Table 2: Reliability Analysis

Factors	Cronbach' Alpha	N of items
Perceived ease of use	0.830	5
Perceived usefulness	0.893	5
Motivation	0.868	5
Actual use	0.934	7
Institution support	0.861	5
Readiness	0.798	4

To assess the validity of the constructs, the measurement criteria of this study were revised based on the related literature and validated by the invited experts from practical and academic domains, and then a pilot test was conducted to verify the content validity of the formal questionnaires. Principal component analysis with Oblimin rotation factor analysis was performed to reduce a large number of variables to a smaller number of factors. The appropriateness of the factor model in the research was indicated by both the Kaiser-Mayer-Olkin (KMO) statistic value of 0.958, which confirmed its high sampling adequacy, and the significance ($2=8,808$; $p= 0.05$) of the Barlett's test of sphericity. The analysis revealed six factors with an eigenvalue of greater than 1.0 were derived and named as perceived ease of use, perceived usefulness, motivation, readiness, institutional support, and actual use. This six-factor solution explained 68.54% of the total variance. However, question M51, "I find online learning interesting" was excluded because it overlapped with a factor item in the perceived usefulness variable.

4.2. Hypotheses Testing

Four sets of regression models were performed to test the formulated hypotheses. The first set of regression models was measured for testing H1 that perceived ease of use has a positive effect on students' perceived usefulness of online learning. Table 3 shows that perceived ease of use has a positive effect on students' perceived usefulness of online learning ($\beta_1=0.512$, $t\text{-value}=11.875$, $p<0.05$). Consequently, H1 was supported. The model's coefficient of determination (R^2) is 0.263, which signifies that 26% of the variance in students' perceived usefulness of online learning is influenced by the aspect of perceived ease of use.

Table 3: Impact on Perceived Usefulness of Online Learning

Relationship	Unstandardized Beta Coefficient	Std. Error	Standardized Beta Coefficient	t-value	Sig.
Constant)	7.421	0.974		7.622	0.000
Perceived Ease of Use ---> Perceived Usefulness	0.584	0.049	0.512*	11.875	0.000

Note: * $p<0.05$

The second set of regression models was executed to evaluate the effect of perceived ease of use, perceived usefulness, readiness, and institutional support on students' motivation to use online learning, which were postulated in H2, H4, H7, and H10, respectively. Specifically, Table 4 evidences that perceived ease of use ($\beta_2=0.158$ with $t\text{-value}=3.484$)

and perceived usefulness ($\beta_4=0.346$ with $t\text{-value}=6.752$) significantly and positively influenced students' motivation to use online learning as $p<0.05$, thus maintaining H2 and H4 as predicted. Similar significant results also exist concerning the effect of readiness ($\beta_7=0.170$ with $t\text{-value}=3.791$) and institutional support ($\beta_{10}=0.184$ with $t\text{-value}=3.449$) on students' motivation to use online learning as $p<0.05$. Accordingly, H7 and H10 were sustained. The model had an R^2 value of 0.509, which implied that 51% of the variance in students' motivation to use online learning is affected by the aspects of perceived ease of use, perceived usefulness, readiness, and institutional support.

Table 4: Impact on Students' Motivation to Use Online Learning

Relationship	Unstandardiz ed Beta Coefficient	Std. Error	Standardized Beta Coefficient	t-value	Sig.
Constant)	4.487	0.822		5.461	0.000
Perceived Ease of Use ---> Motivation to Use	0.162	0.046	0.158*	3.484	0.001
Perceived Usefulness ---> Motivation to Use	0.312	0.046	0.346*	6.752	0.000
Readiness ---> Motivation to Use	0.196	0.052	0.170*	3.791	0.000
Institutional Support ---> Motivation to Use	0.171	0.050	0.184*	3.449	0.001

Note: * $p<0.05$

The third set of regression models was performed to investigate the effect of perceived ease of use and perceived usefulness on students' readiness to use online learning, which were stated in H3 and H5, respectively. Table 5 presents the findings about the impacts of perceived ease of use and perceived usefulness on students' readiness to use online learning. In detail, students' readiness to use online learning is positively and significantly affected by the element of perceived ease of use ($\beta_3=0.182$ with $t\text{-value}=3.863$ at $p<0.05$), indicating that H3 is accepted. Likewise, an inspection of the linkages between perceived usefulness and students' readiness to use online learning was also positive and significant as ($\beta_5=0.482$, $t\text{-value}=10.230$, $p<0.05$). Henceforth, support H5. Consequently, perceived usefulness and perceived ease of use are able to explain 36% of the variance in students' readiness to use online learning as the R^2 value is 0.355.

Table 5: Impacts on Students' Readiness to Use Online Learning

Relationship	Unstandardiz ed Beta Coefficient	Std. Error	Standardized Beta Coefficient	t-value	Sig.
Constant)	5.662	0.764		7.407	0.000
Perceived Ease of Use ---> Readiness	0.162	0.042	0.182*	3.863	0.000
Perceived Usefulness ---> Readiness	0.377	0.037	0.482*	10.230	0.001

Note: * $p<0.05$

The fourth set of regression models was performed to assess the impact of perceived usefulness, readiness, motivation, and institutional support on students' actual use of online learning, which were put forth in H6, H8, H9, and H11, respectively. As depicted in Table 6, students' actual use of online learning was affected by the aspects of perceived usefulness ($\beta_6=0.411$, $t\text{-value}=9.491$, $p<0.05$) and readiness ($\beta_8=0.204$, $t\text{-value}=5.595$, $p<0.05$). Henceforth, support H6 and H8. In a similar vein, motivation ($\beta_9=0.080$, $t\text{-value}=1.611$, $p>0.05$) and institutional support ($\beta_{10}=0.080$, $t\text{-value}=1.611$, $p>0.05$) were not significant.

value=2.000, $p<0.05$) and institutional support ($\beta_{11}=0.272$, t -value=6.670, $p<0.05$) also positively and significantly influenced students' actual use of online learning. The finding demonstrates that H9, and H11 were also strengthened. Indeed, the four factors were able to explain 68% of the variance in students' actual use of online learning as $R^2=0.684$.

Table 6: Impacts on Students' Actual Use of Online Learning

Relationship	Unstandardized Beta Coefficient	Std. Error	Standardized Beta Coefficient	t-value	Sig.
Constant)	-0.511	1.001		-0.511	0.610
Perceived Usefulness ---> Actual Use	0.583	0.061	0.411*	9.491	0.001
Readiness ---> Actual Use	0.370	0.066	0.204*	5.595	0.001
Motivation ---> Actual Use	0.125	0.063	0.080*	2.000	0.046
Institutional Support ---> Actual Use	0.400	0.060	0.272*	6.670	0.000

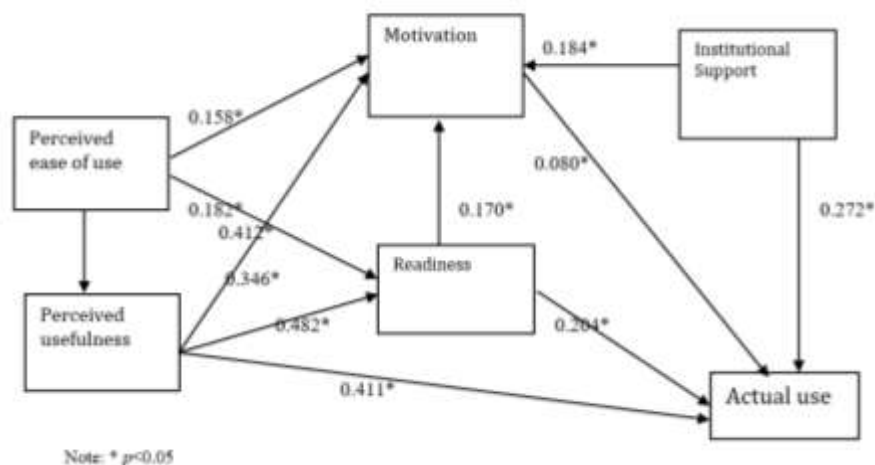
Note: * $p<0.05$

Multiple regression analysis was performed via the Statistical Package for Social Sciences (SPSS) version 23

5. Discussion

This study examined factors influencing students' acceptance of online learning during the COVID-19 pandemic in Thailand. Eleven hypotheses as illustrated in Figure 2 and Figure 3 were tested via four sets of regression models. Specifically, the results of the multiple regression analysis showed that H1 that perceived ease of use has a positive effect on the perceived usefulness of online learning was supported. The result infers that when students perceive that the online learning system is easier to use than conventional learning, they will perceive online learning to be more useful. Indeed, they considered perceived usefulness in terms of doing assignments, obtaining information, learning English, and contributing to their future career, while their perceived ease of use in terms of the ease of accessing a computer/laptop with adequate software and mobile technology with fast Internet or WIFI.

Figure 3: Results of Hypothesised Testing



Further assessment was performed on whether students' motivation to use online learning is influenced by the aspects of perceived ease of use, perceived usefulness,

readiness, and institutional support as posited in H2, H4, H7, and H10, respectively. Interestingly, these postulated hypotheses were supported. To be specific, in terms of strength of impact, perceived usefulness was the leading factor that impacted students' motivation to use online learning. This is followed by institutional support, readiness, and perceived ease of use, respectively. The current result is analogous to the scholarly works by [Chow et al. \(2012\)](#), who avowed that perceived usefulness is the primary determinant of the use of a specific technology. Students are more motivated to engage in online learning due to the belief that online skills will help them in their future career, and using an online learning system for learning and doing assignments increases their work productivity, helps them obtain information easily, and improves their English proficiency through surfing online English materials. Such motivation is intrinsic in nature.

[Shroff et al. \(2007\)](#) identified intrinsic motivation as an important characteristic of online learners. In fact, motivation to learn in online contexts is influenced by the complexity of factors that need greater understanding ([Hartnell, 2016](#)). The development of a supportive network among different parties also fosters students' motivation to learn online. Building such a network needs interaction. That is, "the primary mechanism through which community is built and sustained" ([Rovai & Lucking, 2003, p. 6](#)). However, the unreadiness of these aspects can demotivate students from engaging in online learning. [Hartnell \(2016\)](#) noted that frustration with technical unreadiness or technical problems reduces students' intrinsic motivation to learn online.

Additional research was explored on testing the effect of students' readiness to use online learning is significantly influenced by the aspects of perceived ease of use and perceived usefulness in H3 and H5, respectively. The regression model revealed that both hypotheses were reinforced. Indeed, the relationship between perceived usefulness and students' readiness to use online learning is more pronounced than the relationship between perceived ease of use and students' readiness to use online learning. This result implies that when students perceive online learning to be useful, they tend to feel that they themselves (learner's readiness) and other parties in the supporting community (e.g., institutions, government, society) would be more ready to engage and enhance the online learning system respectively. These parties can play different roles in the supporting community. For example, they can encourage online learning, provide infrastructure and funding, as well as draft policies and regulations ([Selvarajah & Hajariah, 2017](#)). In comparison to the literature, perceived usefulness was also studied as a predictor of the intention to use information technology by [Davis et al. \(1989\)](#) or as a measurement of e-learning systems' success ([Joo et al., 2011](#); [Hsieh & Cho, 2011](#)). These studies show that perceived usefulness is a valid factor to measure and predict the effectiveness of e-learning systems.

The final regression model was further executed to evaluate whether students' actual use of online learning is determined by the elements of perceived usefulness, readiness, motivation, and institutional support which are put forth in H6, H8, H9, and H11, respectively. The results of multiple regression analysis disclosed that H6, H8, H9 and H11 were maintained as predicted. Indeed, perceived usefulness is predominantly affected by students' actual use of online learning. This is followed by institutional support, readiness, and motivation, respectively. The finding infers that when the online system and online content have quality, this will make students perceive online learning to be useful and lead them to engage in a higher amount of actual use. They acknowledged perceiving online learning as useful as it is a suitable means to do assignments, to obtain information over the Internet, and to learn the English language. [Thongsri et al. \(2019\)](#) and [Thongsri and](#)

Bao (2019), in their studies conducted in Thailand, discovered ease of use significantly associated with the actual use of the e-learning system (Thomas, 2020). Institutional and social support are critical to student retention in the context of online learning. Such support can make a difference in students' motivation to learn online. Similarly, Aguilera-Hermida (2020) held that a small announcement showing encouragement can make a difference in students' motivation to learn online.

6. Conclusion

In order to boost students' motivation and readiness to use online learning, university management should get rid of students' own technophobia traits, which do not like computers and would prefer to learn traditionally. Thus, students should be motivated to change themselves, being more open-minded and devoting their attention to increasing their digital competency. In dealing with the obstacles, adaptability is necessary to the situation that arises. There should be prompt online technical and administrative support that could assist in online learning and technology due to students mainly rely on their instructors/lecturers, family, and colleagues' advice regarding online learning and as a source of motivation in completing their tasks online. When students are ready technologically (ease of use), this would enhance their motivation to learn online.

Institutional support is an external factor that influences students' motivation to learn online. Accordingly, university management should put more attention towards enhancing the teaching and learning facilities that could provide users with a better online experience. An incentive for the ownership of better computer/tablet/smartphone equipment and related apps for online learning should be introduced. Besides, Internet connection speed and mobile technology should be enhanced to provide an uninterrupted online learning experience for students. Establishing up-to-date infrastructure and technical capabilities in the classrooms and courses is recommended to university management. Financial support to invest in user-friendly applications would enable lecturers to virtually interact with students. Additionally, university management should design effective teaching and learning content, employ a reliable online testing system, and provide digital literacy training to their faculty members for better teaching and learning activities. Students should be informed to treat online exams with caution as cheating in online tests may come in various forms. This includes taking screenshots of the exam papers, unlocking the listening test videos' subtitles or their auto-generated scripts, recording the sound of the listening dialogues over the smartphone's microphone, sending the test links or their QR codes to other classmates, might be prevalent among digital age test-takers.

Future research is recommended to broaden the size of the sample for better generalizability of findings, as the present research involved responses from only two universities in Thailand. In addition, the utilisation of the proposed model for assessment of the students' perspective from urban and rural cities is another consideration for future research. This would enrich the minimal research of students' acceptance of online learning during the COVID-19 pandemic in the context of Thailand.

Ethics Approval and Consent to Participate

All procedures conducted in this study involving human participants were performed in accordance with the ethical standards of the institutions. Informed consent was obtained from all participants.

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Conflict of Interest

The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest with respect to the research, authorship, or publication of this article.

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