ANALYSIS OF FACTORS AFFECTING SATISFACTION IN USING DIFFERENT ONLINE SYSTEMS FOR SUCCESSFUL LEARNING IN THE NEXT NORMAL ERA OF HIGH SCHOOL STUDENTS IN THAILAND

Piriyakorn Kornpitack, King Mongkut Institute of Technology Ladkrabang
Sudaporn Sawmong, King Mongkut Institute of Technology Ladkrabang

ABSTRACT

Covid-19 has made its way around the globe. To prevent the virus from spreading, schools around the world were forced to close. Students in Thailand were not permitted to attend classes. The Ministry of Education has mandated that schools use only distant learning, including online learning. Schools in Thailand have been partially and completely used online learning system since the outbreak began. Furthermore, when it comes to student satisfaction, it is believed that student satisfaction is one of the most essential variables in evaluating the quality of an education program because it is recognized as an important predictor of academic experience quality. The rise of online learning altered the way students interacted with their teachers and peers. The aim of this research was to study Analysis of factors affecting satisfaction in using different online systems for successful learning in the next normal era of high school students in Thailand. This research had adopted quantitative method using the five- point Likert scale questionnaire which the reliability was 0.91. The population in this study were Grade 10 (Mattayom 4) to Grade 12 (Mattayom 6) students from extra-large public high school in Thailand consisted of students 371,845 students. The quota and simple random sampling of 270 were collected by Google Form during year 2021. This study has adopted descriptive statistics such as mean percentage frequency and for testing hypothesis was structural equation modelling. The research findings indicated that there were several factors that affect student satisfaction on online learning system (ZOOM meeting, Google Classroom and Microsoft Team) which were Learner Interaction, Facilitating Condition, and Actual Use.

Keywords: Online Learning, Student Satisfaction, Online learning system, New Normal, Students in Thailand

INTRODUCTION

The world has learned about Covid-19. Nearly 209 million cases have been discovered as of the time this research was prepared (WHO, 2021). The pandemic's emergence has altered nearly every element of our lives. To prevent the virus from spreading, the World Health Organization urged people to maintain social distance, physical distance, and wear a mask in public (WHO, 2021). Schools throughout the world were instructed to close. More than 91 percent of the world's student population have been impacted by these closures (UNESCO, 2021). In Thailand, students were barred from attending school in virtually all regions. Public schools in certain areas were mandated by the Ministry of Education to employ solely distant learning, including online education (Ministry of Education, 2021). Schools in Thailand have been partially and completely shuttered for more than 35 weeks since the outbreak began (UNESCO, 2021). Online education was unavoidable for schools.

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Furthermore, in today's markets, student satisfaction is believed to be one of the most significant criteria in evaluating the quality of an education program, since it is viewed as a key indicator of the quality of academic experiences (Al-Rahmi, Shamsuddin & Alismaiel, 2020). There was a wealth of research on student satisfaction; but, with the advent of online learning, empirical settings in recent studies have shifted from physical to online settings (Parahoo, Santally, Rajabalee & Harvey, 2015). The introduction of online learning altered several aspects of traditional learning context. This raises the question of whether the variables that determine student satisfaction differ in physical and online contexts. Numerous studies (e.g., Baber, 2020; Hebebci, Bertiz & Alan, 2020) have been conducted in this area, and several aspects have been identified as influencing student satisfaction. Furthermore, because many of these studies were performed in Western societies, the conclusions may not be relevant to developing countries with a wide range of cultural, economic, and technical circumstances. Consequently, doing comparable research in country like Thailand is possible (Parahoo et al., 2015).

LITERATURE REVIEW

Based on the study title “Analysis of factors affecting satisfaction in using different online systems for successful learning in the next normal era of high school students in Thailand". The related literature review in these areas including online education, online learning system via ZOOM meeting, Google classroom, Microsoft team, and the expected variables may affect student satisfaction such as Learner Interaction, Facilitating Condition, Actual Use from the previous research as following.

Online Education and Online Learning System via ZOOM meeting, Google classroom, Microsoft team

According to Singh & Thurman's (2019) study on the phrase "online education" or “online learning”, which examined all publications that defined the word from 1988 to 2018, "online education" is defined as "education provided via the use of the internet for teaching and learning in an online context." This includes online learning that is not dependent on a student's physical or virtual location. Teachers develop synchronous or asynchronous educational modules that increase learning and engagement, and the content is delivered online.

Online education obviously necessitates the use of media as a mode of instruction in both schools and colleges, as well as the use of various apps to assist the delivery of learning materials. Zoom meetings, Google Classroom, Google Meet, and Microsoft Team are just a few of these apps (Gunawan, Kristiawan, Risdianto & Monicha, 2021).

Zoom meeting is a free HD program that allows you to share your screen and video with up to 100 people, and it also serves as a video and audio learning tool. And because this program may be utilized on several mobile devices, computers, and tablets, it is currently an alternative for both instructors and students. Zoom Meeting (Zoom, 2021) guarantees that teachers could deliver online and hybrid learning, better engage students through engaging virtual experiences, and increase educational access. With a mix of synchronous and asynchronous learning technologies, this will also improve learning experiences and increase student engagement.

To establish a blended approach, Google Classroom was utilized to provide an online community for students to share and open conversation about subjects addressed during workshops, as well as access, use, and evaluate materials. The goal was to bring students from many faculties together and foster a feeling of community around academic practice improvement. Virtual classroom spaces may be easily created in Google Classroom, and anybody with a Google account can create and join Google Classrooms (Beaumont, 2018). Google Classroom (Google, 2021) is argued to bring all of the learning materials from google

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including Google Meet, Google Drive, Google Sheets together in one place and manage numerous classes from a single location.

Microsoft Teams provides all the benefits of a typical classroom without the need to travel to school. Microsoft Team includes capabilities such as sharing assignments with instructors, projects with other students, chatting with instructors and fellow students, and online meetings for when you want or need face-to-face connection (Lindberg, 2021).

Learner Interaction

Because of the distance between teachers and students, interaction has long been seen as one of the most crucial components of online learning (Kuo, Walker, Belland & Schroder, 2013). When it comes to online learning, the absence of connection between students and teachers was always a major concern (Kuo et al., 2013; Hebebci, Bertiz & Alan, 2020; Baber, 2020).

Moore (1989) presented a paradigm of interaction in which learner-learner interaction, learner-instructor interaction, and learner-content interaction were divided into three categories. Learner-learner interaction is mostly communication between students who may communicate course-related knowledge, information, or opinions. The communication between professors and students is known as learner-instructor interaction. The process of students elaborating, learning, and reflecting on the course content is known as learner-content interaction. Later research by Kuo, et al., (2013) found that learner-learner interaction and learner-instructor interaction were strong indicators of student satisfaction in online learning. The interaction between the learner and the content, on the other hand, was not found to be a predictor. They speculated that this was due to the fact that they did not factor course design into their study topic. According to Parahoo, et al., (2015), it was also supported that learner-learner interactions had a vital effect on student satisfaction. Furthermore, Bisht, Jasola & Bisht (2020) demonstrated that a lack of connection with peers (learners-learners) and faculty members was recognized as a barrier for online education, implying that it could be a predictor of student satisfaction. Alqurashi (2018) also suggested creating an activity to increase learner-to-learner engagement and finding some tasks for students to undertake with one another to stay engaged in class.

Among the three types of interaction, Kuo et al., (2013); Alqurashi (2018) revealed that learner-content interaction is the most important element that influences student satisfaction. This is because when the environment becomes online, kids typically spend a lot of time processing information, digesting content, and learning via a computer screen, according to Alqurashi (2018). This method of self-learning from content may make interaction with content crucial to their learning and satisfaction. Learner-instructor interaction, on the other hand, remains an important indicator of student happiness (Alqurashi, 2018; Baber, 2020). According to Alqurashi (2018), there is still a great likelihood that students will be satisfied provided they have high-quality interactions with their lecturers. Because there is no face-to-face connection in online education, teachers' prompt replies and comments are critical for students.

Technology as Facilitating Conditions

Because most parts of the courses are delivered online, technology is one of the most critical variables that can have a significant impact on the use of online education. Apart from the actual online classroom, online learning could include a variety of online activities (Kuo et al., 2013; Rasmitadila et al., 2020). According to Zhou, Li, Wu & Zhou (2020), a well-established internet infrastructure is required to give a complete and successful online learning experience. Online activities will be impossible to carry out without a strong infrastructure. Students' utilization of online education is greatly impacted by inconsistent internet connectivity. They needed to accommodate an online education and ensure that it

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could reach an area with a poor internet connection. For more than 20 years, the Chinese government has been digitizing their educational system. As a result, they will be able to successfully deliver online education during the epidemic (Zhou et al., 2020). Sun & Chen (2016) discovered that improved technology was a key component in making online education effective. Technical problems while utilizing the internet, according to Kuo, et al., (2013), might generate student aggravation and discontent. It appears that good internet bandwidth is essential for online learners to perform required tasks for an online course. Internet connectivity was also a barrier and a highly essential component for online education in terms of both utilization and satisfaction, according to Bisht, Jasola & Bisht (2020); Mendoza, Jung & Kobayashi (2017). Before attending an online learning session, Nonthamand, Suaklay, Pumila, Intha & Promwong, 2021recommended that students prepare their internet connectivity and physical learning surroundings. Furthermore, Hebebci, et al., (2020); Nonthamand, et al., (2021) emphasized that one of the most significant drawbacks of online education activities is a lack of technology readiness. They also recommended that, in the future, online education would be used more successfully, with improvements. In India, Nambiar (2020) discovered that more than half of the students in the sample said that technical concerns (such as bad internet signal, low video quality, and having to figure out how to log in and out between classes) were the most troublesome aspects of their online class. Furthermore, students want technical assistance from teachers or other staff members. Students, like teachers, needed to be taught how to use an online application or medium that they would use in an online lesson (Nambiar, 2020). These technical issues were also mentioned by Dhawan (2020); Faize & Nawaz (2020) as one of the key challenges students experience in online education. According to Faize & Nawaz (2020), students must have access to the essential materials in order to attend online classes, such as free internet access or a gadget.

Actual Usage

The frequency, nature, and length with which an individual makes use of an information system's capabilities is referred to as actual usage (Kim, Chan & Gupta, 2007; DeLone & McLean, 2016; Aldholay, Isaac, Abdullah, Abdulsalam & Al-Shibami, 2018). The frequency and duration of use in online learning are also indicated by actual usage (Kim et al., 2007). In the context of internet technology, several research (Hou, 2012; Isaac et al., 2017; Aldholay et al., 2018) have demonstrated that actual usage has a significant impact on user satisfaction. Hou (2012) aimed to empirically evaluate a paradigm for determining the connections between end-user computing satisfaction, system utilization, and individual performance. The structural equation modeling technique was utilized to verify the linkages provided in the framework using data collected from 330 end users of systems in the Taiwanese electronics sector. Finally, they found that actual usage has an impact on user satisfaction. Isaac, et al., (2017) collected primary data using 530 internet users among workers of Yemen's 30 government ministries and agencies from questionnaire survey approach. They found that user satisfaction is strongly influenced by actual usage.

Student Satisfaction

Student satisfaction is an important indicator of how well students are progressing in their studies. Student satisfaction was suggested as a worthwhile issue to evaluate. Student satisfaction may result in a variety of outcomes, including student retention, and course quality (Bolliger and Martindale, 2004; Kuo et al., 2013; Alqurashi, 2018). Customers who are satisfied are loyal, according to researchers (Devinder & Datta, 2003), and satisfied students are more likely to attend another session taught by the same instructor. These students are seen to be beneficial to educational institutions. They are more likely to convey

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favorable word-of-mouth about the institution, and they may return as alumni (Parahoo et al., 2015). Surveys that provide valuable student satisfaction information, according to Bolliger & Martindale (2004), could be utilized to improve course or program quality.

Student satisfaction in traditional and online education is influenced by a variety of factors, including student characteristics, educational quality and utility, curriculum and instruction, student life, interaction in both online and face-to-face classes, technological features, students' learning styles, support services, and occasionally demographic characteristics (Yilmaz, 2017). Online education, on the other hand, presents a unique set of challenges, as students may never visit a physical venue and may find it difficult to build relationships with their classmates (Bolliger & Martindale, 2004; Yukselturk & Yildirim, 2008; Parahoo et al., 2015). Many research have been conducted in this area, and they have discovered a range of elements that influence student satisfaction. All three types of interactions have an impact on student satisfaction in online learning, according to Sher (2009); Kou, et al., (2013); Alqurashi (2018). Bolliger & Martindale (2004) discovered that technology played a role in student satisfaction in online learning.

Based on the literature review above, the research conceptual framework and hypotheses has drawn out as following.

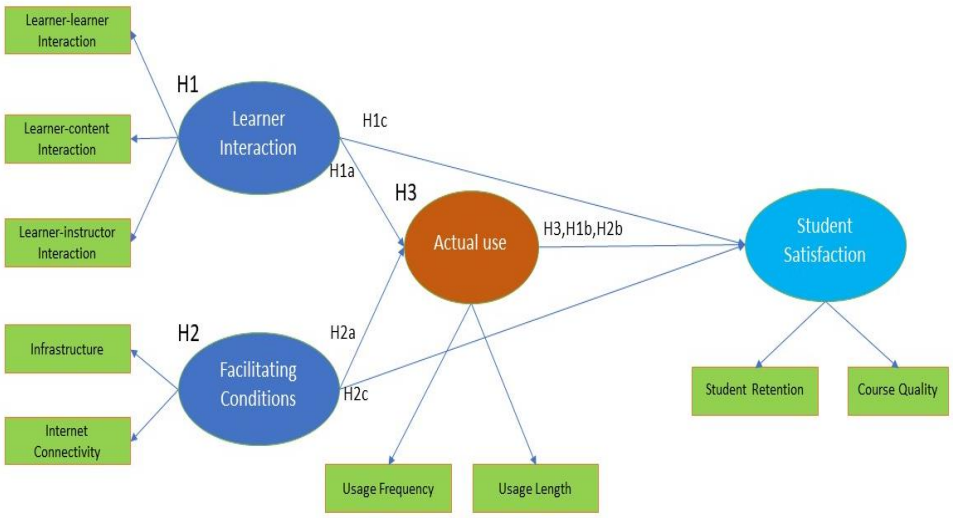

FIGURE 1
RESEARCH CONCEPTUAL FRAMEWORK

Variables in this study

In this study, we study about 4 latent which are 1) Learner Interaction, 2) Facilitating Condition and 3) Actual Use that have an effect on 4) Students Satisfaction from students who use online learning system via ZOOM meeting, Google Classroom and Microsoft Team, where the meanings of those variables are as following:

1. Learner Interaction: Meaning that the student as the learner have interaction via ZOOM meeting, Google Classroom and Microsoft Team as 1) Learner-Learner Interaction and 2) Learner-Content Interaction 3) Learner- Instructor-Interactor
2. Facilitating Conditions: Meaning that the student study via ZOOM meeting, Google Classroom and Microsoft Team has been facilitated by 1) Infrastructure and 2) Internet Connectivity
3. Actual Use: Meaning that the student has actual use via ZOOM meeting, Google Classroom and Microsoft Team 1) Usage Frequency and 2) Usage Length
4. Student Satisfaction: Meaning that the student who use ZOOM meeting, Google Classroom and Microsoft Team are satisfied on it then and can be measured by the degree of 1) student retention and 2) Course Quality they perceived

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RESEARCH HYPOTHESES

This study has set up the three main research hypotheses in using learning management online systems (ZOOM meeting, Google Classroom and Microsoft Team) as following.

H1: Learner Interaction has a direct and indirect effect to student satisfaction.
H1a: Learner Interaction has a direct effect to Actual Use.
H1b: Learner Interaction has an indirect effect to Student Satisfaction.
H1c: Learner Interaction has a direct effect to Student Satisfaction.

Based on the studies of Moore (1989); Kuo, et al., (2013); Parahoo, et al., (2015); Bisht, Jasola & Bisht (2020); Alqurashi (2018); Baber (2020).

H2: Facilitating Conditions have a direct and indirect effect to student satisfaction.
H2a: Facilitating Conditions have a direct effect to Actual Use.
H2b: Facilitating Conditions have an indirect effect to Student Satisfaction.
H2c: Facilitating Conditions have a direct effect to Student Satisfaction.

Based on the studies of Kuo, et al., (2013); Zhou, et al., (2020); Sun & Chen (2016); Hebebci, et al., (2020); Nambiar (2020); Nonthamand, et al., (2021).

H3: Actual Use has a direct effect to student satisfaction.

Based on the studies of Hou (2012); Isaac, et al., (2017); Aldholay, et al., (2018).

RESEARCH METHODOLOGY

In line with the objective of the research title "Analysis of factors affecting satisfaction in using different online systems for successful learning in the next normal era of high school students in Thailand", this study has a adopted the quantitative research method.

The aim of this research was to study Analysis of factors affecting satisfaction in using different online systems for successful learning in the next normal era of high school students in Thailand. The population in this study was 371,845 students from extra-large public high schools in Thailand (OBEC, 2021). The simple random sampling of 270 of student who have use online learning during the first academic year 2021 in Thailand from using 15 times of 9 observation variables (Schumacker & Lomax, 2010; Hair, Black, Babin & Anderson, 2010) to get the minimum appropriate sample number, and then we extended to 270 students to get more accurate data. Then, we divided the data from 270 to 90 students equally from Zoom Meeting, Google Classroom, Microsoft Team learning platform using quota sampling. After that, we used simple random technique to get 90 students who used these three online learning platforms from extra-large public schools. For the instrument, using virtual 26 items of the five- point Likert scale questionnaire with 1 open-ended question, which the questionnaire's validity testing by five experts and reliability was 0.91 of Cronbach's Alpha coefficient (Cronbach, 1951). The descriptive statistics such as mean average, frequency, percentage have been used to analyze the descriptive data and structural equation modelling for testing the three main hypothesis.

Results

In this study, the research finding found that there are some factors affecting satisfaction in using different online systems (ZOOM meeting, Google Classroom and Microsoft Team) for successful learning in the next normal era of high school students in Thailand. The research result showed in two parts, where part one is the information of 270 students (see table 1), part two show the model the research result of the variable that had effects on student satisfaction (see figure 2) where the detail of each part was as following.

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The Research Result of Student Information

Table 1
SUMMARY OF STUDENT INFORMATION

Type of information	Brief Summary of result
1. Gender	71.85 per cent of the respondents were female, and the less were male.
2. Age	Most of the students in this survey was 17-year-old students with 41.48 per cent. And secondly, 31.85 per cent was 16-year-old students. Thirdly, 14.07 per cent was 18-year-old students and older.
3. Grade of student	Most of the students in this survey is in grade 12 with 46.30 per cent. Secondly, 32.59 per cent was G11 students, and the less was G10 with 21.11 per cent.
Type of information	**Brief Summary of result**
4. Place (province) of living	Extra-large high school in Thailand, the most is Phetchaburi Province with 33.33 per cent. And there were 6 more provinces with an equally percentage of 8.52. And 2 more provinces with 7.78 per cent equally.
5. The online learning system you use at school	Zoom Meeting, Google Classroom, and Microsoft Team users were divided equally with 90 students each.
6. Is the school's online learning system able to study asynchronously?	More than half (58.15 per cent) of the students from this survey answered that their schools offer to study asynchronously. 42.85 per cent of students from this survey answered that their schools did not offer to study asynchronously.
7. In addition to studying online with the school, do you have extra online tuition with other places?	Roughly more than half (52.22 per cent) of the students have extra online tuition with other places. The less (47.78 per cent) studied online only with their school.
8. How many hours do you study online in a day?	7 – 8 hours was the most picked answer with 43.70 per cent. The second most was 4-6 hours with 31.48 per cent. The third most was 8 hours and more with 20 per cent.
9. Family's average monthly income	10,001 baht to 25,000 baht is the most picked answer for family's average monthly income (35.19 per cent). The second most was lower than 10,000 baht with (21.85 per cent. The third most was 40,001 baht to 55,000 baht with 21.48 per cent.
10. Who do you live with?	Students Live with both of their parents the most with the percentage of 64.44 per cent, followed by 24.07 per cent of students who lived with either their mother or their father. And thirdly, 10.37 per cent of student answered that they lived with their relative or others.
11. What devices do you primarily use for online learning?	131 students (48.52 per cent) used smartphone the most as their primary device. The second most used device was laptop with the percentage of 23.33. The third most used device was computer desktop with 14.81 per cent.
12. The device in question 11 already exists or needs to be purchased new.	233 students (89.30 per cent) already have their gadgets in question 11 whereas the less (13.70 per cent) had to find the new one.
13. Internet signal used by phone SIM or Wi-Fi signal	198 students (73.33 per cent) used Wi-Fi signal for their online learning, and the less (26.67 per cent) used their phone sim for the source of internet signal.
14. Overall, how much does online learning cost more?	181 students (61.04 per cent) stated that online learning cost them 0 - 5,000 baht more. The second most answered answer was 5,001 – 10,000 baht with 60 students (22.22 per cent). The third most answered answer was 10,001 – 15,000 baht (5.92 per cent).
15. How much additional monthly expenses do you have each month?	92 students (34.07 per cent) paid additional monthly expense of 101 - 500 baht. Secondly, 89 students (32.96 per cent) paid additional monthly expense of 501 – 1,000 baht, and thirdly, 68 students (25.19 per cent) paid additional monthly expense more than 1,000 baht.
16. How to improve online learning system in Thailand (Open-ended)	91 students (33.70 per cent of the total respondents) provided the answers. Most of the answer stated about the online course design problem. Some of the answer stated a political-related answer.

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From table 1 and from the result, we can find that the majority of the respondents were female with the number of 194 from the total of 270 respondents. Most of the students in this survey is 17-year-old student with 41.48 per cent, which indicated that most of the respondents were from Grade 12 or Mattayom 6. The respondents were from 9 provinces in Thailand which are Kalasin, Trang, Buriram, Pathum Thani, Phetchaburi, Phrae, Sa Kaeo, Ayutthaya, and Ubon Ratchathani. Most respondents were from Phetchaburi whereas the other was roughly equal in percentage. In addition, the number of students that used Zoom Meeting, Google Classroom, and Microsoft Team is equal with 90 respondents each. For their online learning system, 58.15 per cent of respondents stated that their schools offer them to study asynchronously as well. However, there were nearly half (47.78 per cent) of the students have extra online tuition with other places in addition to studying online with the school, which can be questioned that if the online learning system from their school cannot satisfy the student expectation. For the average hours student study online each day, 63.70 per cent of students stated that they studied online at least 7 hours a day. In addition to personal information, 10,001 baht to 25,000 baht is the most picked answer for family's average monthly income with 35.18 per cent. And the least picked answer went to more than 70,000 baht. 64.45 per cent of students live with both of their parents. Moreover, smartphone is the most used device for primary usage for students with 48.52 per cent. And most of the students already processed their primary used device with the percentage of 86.30. Wi-fi signal is the main source of the internet connectivity with the percentage of 73.33 and the less is from phone sim. As most of the students already have the devices for studying, online learning overall costed most students from 0 to 5,000 baht. In term of the monthly expenses, just 7.78 per cent stated that they had only 0 to 100 baht additional expenses a month whereas others stated that they had 101 to 500 baht, 501 to 1,000 baht, and more than 1,000 baht with the percentage of 34.07, 32.96, and 25.19 respectively, which could be derived that this was related to internet connectivity expenses.

Factors affecting satisfaction in using different online systems for successful learning in the next normal era of high school students in Thailand (The result of research hypotheses testing)

Table 2
THE CONFORMITY INDEX OF THE ANALYSIS OF FACTORS AFFECTING SATISFACTION IN USING DIFFERENT ONLINE SYSTEMS FOR SUCCESSFUL LEARNING IN THE NEXT NORMAL ERA OF HIGH SCHOOL STUDENTS IN THAILAND

	χ^2	Df	χ^2/Df	GFI	CFI	NFI	RMSEA	RMR
Criteria	-	-	≤ 3.00	≥ 0.90	≥ 0.90	≥ 0.90	≤ 0.07	≤ 0.08
Final Model	4.53	12	0.3775	0.996	1.000	0.998	0.0000	0.0113
Result	-	-	Passed	Passed	Passed	Passed	Passed	Passed

Note: χ^2 = Chi-squares, Df = Degree of freedom, GFI = Goodness of fit index, CFI = comparative fit index, NFI = Normed Fit Index, RMSEA = root mean square error of approximation, RMR = root mean square residual

Table 2 above showed that the model for the analysis of factors affecting satisfaction in using different online systems for successful learning in the next normal era of high school students in Thailand was perfectly fit with the statistical value shown above.

The research finding factors affecting satisfaction in using different online learning systems (Via Zoom, Google Classroom and Microsoft Team) for successful learning in the next normal era of high school students in Thailand as shown in figure 2 and table 3, table 4, and table 5.

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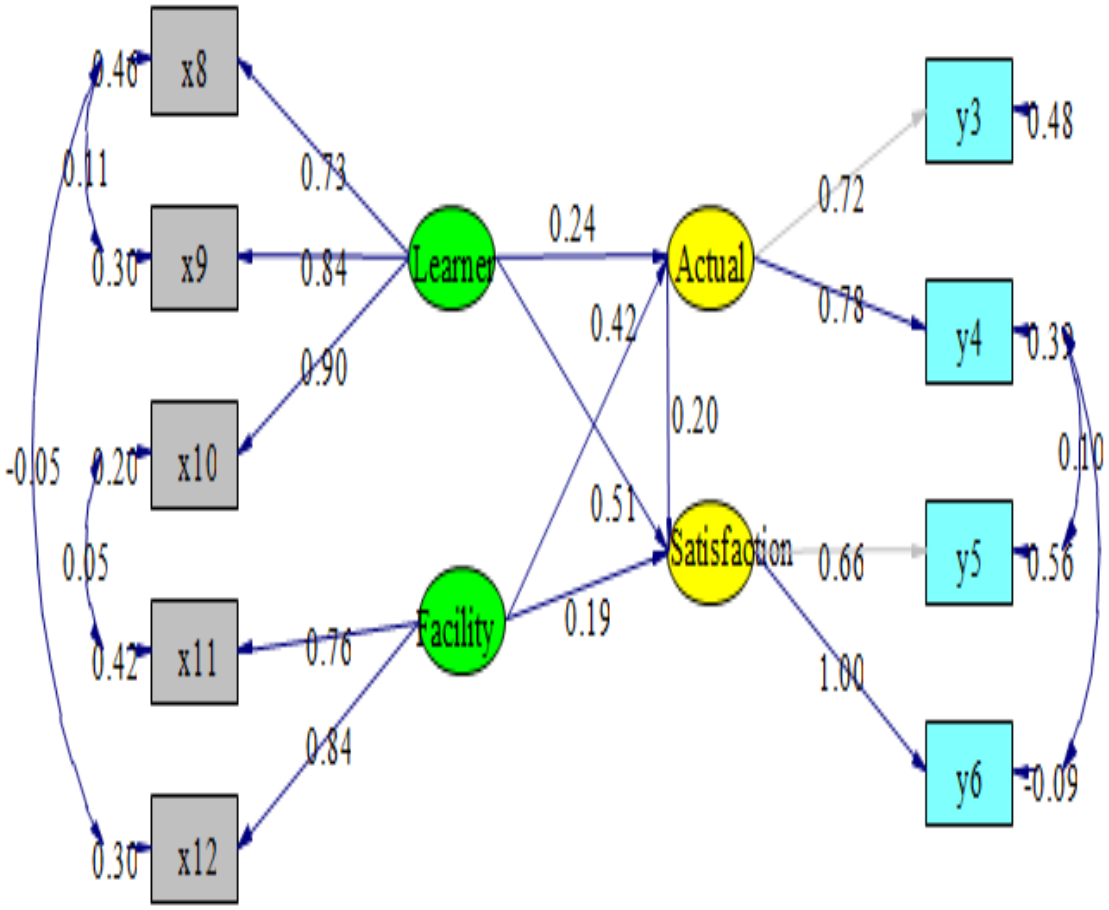

FIGURE 2
STRUCTURAL EQUATION MODELLING

The SEM was used to assess the effect of the independent variables (LI and FC) on the AU, and the effect of AU to SS of the use of different online learning systems (Via Zoom, Google Classroom and Microsoft Team) for successful learning in the next normal era of high school students in Thailand.

The analytical model is depicted in Figure 2. The inner model and the outside model are both present. The connection between the four latent variables and their observed variables is shown in the outer model. The outer weights or loadings are represented by the route between the latent and observed variables. The model of interest in this study is represented by the inner model. It illustrates how the independent and dependent variables are related. The path coefficients (total effects) in the inner model indicate the proportion of the independent variable's influence on the dependent variable (AU) and Student Satisfaction (SS) in the model. The data shows that the effect of LI is 24.2 % and FC is 41.8 % on AU respectively. This shows that Facilitating Condition (FC) has the highest effect on Actual Usage (AU) to use of different online learning systems (Via Zoom, Google Classroom and Microsoft Team) for successful learning in the next normal era of high school students in Thailand. Whereas the effect of LI is 51 % and FC is 19 % on SS respectively. This shows that Learner Interaction (LI) has the highest effect on Student Satisfaction (SS) with the use of different online learning systems (Via Zoom, Google Classroom and Microsoft Team) for successful learning in the next normal era of high school students in Thailand.

The effects of each construct (LI and FC) on AU and SS were evaluated by direct effect, indirect effect, and total effect and the results are summarized in the Table 2 below.

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Table 3
SUMMARY OF DIRECT EFFECT, INDIRECT EFFECT OF EACH CONSTRUCT (LI AND FC) ON AU AND SS

Endogenous Latent Variables	Effects	Exogenous Latent Variables		
		LI	FC	AU
Actual Usage (AU)	DE	0.242	0.418	
	IE	-	-	
	TE	0.242	0.428	
Student Satisfaction (SS)	DE	0.51	0.19	0.204
	IE	0.049	0.085	-
	TE	0.559	0.275	0.204

Table 4
EFFECTS OF EACH CONSTRUCT ON AU AND SS

	beta	t-statistics	Significance
LI to AU	0.24	2.86**	Significant
FC to AU	0.42	4.49**	Significant
LI to SS	0.51	6.58**	Significant
FC to SS	0.19	2.67**	Significant
AU to SS	0.20	2.15*	Significant
*Sig. at $p < 0.05$, **Sig. at $p < 0.01$			

The tables above shows that Learner Interaction (LI) has a positive and significant relationship with Actual Usage (AU) ($\beta = 0.24$, $t = 2.86$, $p < 0.01$) of the use of different online learning systems (Via Zoom, Google Classroom and Microsoft Team) for successful learning in the next normal era of high school students in Thailand. The data also indicated that a significant positive direct relationship between Facilitating Condition (FC) and AU ($\beta = 0.42$, $t = 4.49$, $p < 0.01$), Learner Interaction (LI) and Student Satisfaction (SS) ($\beta = 0.51$, $t = 6.58$, $p < 0.01$), Facilitating Condition (FC) and Student Satisfaction (SS) ($\beta = 0.19$, $t = 2.67$, $p < 0.01$), and Actual Usage (AU) and Student Satisfaction (SS) ($\beta = 0.20$, $t = 2.15$, $p < 0.05$). From table 2, the results also indicated an indirect effect from Learner Interaction (LI) to Student Satisfaction with the effect of 4.9 %, and an indirect effect from Facilitating Condition (FC) to Student Satisfaction (SS) with the effect of 8.5 %. In summary, we can conclude the research results with the hypotheses as the table below. The information contained in table 4 below has summarized about hypothesis summary of the testing result.

Table 5
SUMMARY OF HYPOTHESES TEST RESULT

Hypothesis	Brief Summary	Result
H1a	Learner Interaction has a direct effect to Actual Use.	Supported
H1b	Learner Interaction has an indirect effect to Student Satisfaction.	Supported
H1c	Learner Interaction has a direct effect to Student Satisfaction.	Supported
H2a	Facilitating Conditions have a direct effect to Actual Use.	Supported
H2b	Facilitating Conditions have an indirect effect to Student Satisfaction.	Supported
H2c	Facilitating Conditions have a direct effect to Student Satisfaction.	Supported
H3	Actual Use has a direct effect to student satisfaction.	Supported

From Table 4, it can be concluded that all hypotheses were supported. It could be derived from figure 2 that Learner Interaction has an influence on Student Satisfaction, with learner-learner, learner-instructor, and learner-content interaction significantly affected both

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actual usage and student satisfaction. For the relationship between Actual Usage and Student Satisfaction, usage length played a vital role in the effect between these two variables. For the facilitating condition, infrastructure and internet connectivity played important roles on the effect on both Actual Use and Student Satisfaction.

CONCLUSION AND DISCUSSION

This study has sought to the analysis of factors affecting satisfaction in using different online learning systems for successful learning in the next normal era of high school students in Thailand, where the online system has three types to include Zoom Meeting, Google Classroom and Microsoft Team.

The researcher had divided the conclusion and discussion to be two parts 1) Student Information and 2) Factors affecting satisfaction in using different online systems for successful learning in the next normal era of high school students in Thailand.

Student Information

In this study, there were more female respondents than male respondents (female (71.85 per cent), male (28.15 per cent)). It can be gathered that female students have greater adoptability of online educational mode that male students, which was concurrent with Bisht et al. (2020). Most of the respondents were students from Grade 12 (Mattayom 6). It is evidence that this group of students have most effects from online learning during the pandemic as they need to do an entrance exam early next year (2022); thus, they were the main group who can tell us how to improve the quality of online learning system in Thailand. For the online learning system, 58.15 per cent of respondents stated that their schools offer them to study asynchronously as well as synchronously, but the less still did not offer. It was the area that every school can improve and offer to support students at this point. Furthermore, nearly half of the students still needed to study an extra online tutoring course. It can mark the question to our education standard from schools if they are all at the same standard, or if the entrance exam measures students' knowledge beyond the curriculum. In term of the usage duration each day, more than 63.70 per cent of students studied more than 6 hours a day, which they argued later in the open-ended question that it was too much. Another important point was the most used primary device was a smartphone. We can see that smartphone has a small screen thus it was not very supportive for using a long-hour online course. However, nearly all students already have their primary device, and around 70 per cent used wifi signal as the main source of their internet connectivity. It can be seen that presently in Thailand students can access to these infrastructures; however, whether these basic infrastructures enough or not. As we can see from the last question in this part before open-ended that only 7.78 per cent stated that they have only 0 – 100 baht as an extra monthly expense related learning, which means students still needed to upgrade their internet connectivity in order to get a stable online learning. For the open-ended question, around 30 per cent of the respondents provided an answer to this open-ended question. Nearly 50 per cent of the respondents concerned about the design of the online course for example, there were too much homework for students. The exam system for online learning was not applicable and not suitable for most students. Also, they stated that the way some of their teachers taught online was like a waste of time. And the way schools manage their online learning system for their students was not systematic enough. Furthermore, students confirmed again here that usage length in online learning was very important not only because of the effectiveness of their learning process but also the long-hour online learning will affect students' physical health. This was also supported by the research from Thailand Physical Activity Knowledge Development Centre (TPAK) (Diawkee, 2021). In addition to an effective online learning, students also stated that teachers can be a key factor to make

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student satisfy with online learning, but very few of them could achieved that.

Factors Affecting Satisfaction in Using Different Online Systems for Successful Learning in the Next Normal Era of High School Students in Thailand

The Learner Interaction of students who use ZOOM meeting have affected on both actual usage and student satisfaction. This research finding concurrent with Moore (1989); Kuo, et al., (2013); Parahoo, et al., (2015); Bisht, Jasola & Bisht (2020); Alqurashi (2018); Baber (2020). Also, facilitating condition of ZOOM meeting have effect on both actual usage and student satisfaction as well. This research finding concurrent with Kuo, et al., (2013), Zhou, et al., (2020); Sun & Chen (2016); Hebebci, et al., (2020); Nambiar (2020); Nonthamand, et al., (2021). Lastly, Actual usage have affected on student satisfaction. The findings were concurrent with Hou (2012); Isaac, et al., (2017); Aldholay, et al., (2018). For the observed variables, it can be seen that LLI, LII, and LCI could explain the effect of learner interaction on both actual usage and student satisfaction, which can confirm the full model with the purposed model from Moore (1989) and partly confirm with Kuo, et al., (2013); Parahoo, et al., (2015); Bisht, Jasola & Bisht (2020); Alqurashi (2018); Baber (2020). For facilitating condition, infrastructure and internet connectivity were found to be able to explain the effect on both actual usage and student satisfaction, which were concurrent with Kuo, et al., (2013); Zhou, et al., (2020); Sun & Chen (2016); Hebebci, et al., (2020); Nambiar (2020); Nonthamand, et al., (2021). However, only usage length and course quality were found to be able to explain actual usage and student satisfaction respectively. It was because of the current situation with online learning in Thailand, as it is compulsory due to the pandemic and the satisfaction score did not show the high degree of satisfaction. It may cause student retention rate to be low.

To conclude, it can be derived that overall, learner interaction and facilitating condition can be a determinant for student satisfaction and actual use. In addition, the degree of actual use can predict the level of student satisfaction. However, there is a limitation in this study that may affect the result. From the answer to the open-ended question on how to improve online learning system in Thailand, a number of students still have an emotional bias from the political issues in the country as many answers stated politic or vaccine related answers. Furthermore, it is suggested that students' views about online learning may be impacted by the pandemic's unpleasant feelings (Patricia Aguilera-Hermida, 2020). However, Overall, apart from the prior conclusion, I could conclude from the questionnaires that the online education in Thailand presently was not a success. The average result for student satisfaction with online learning was 2.15 out of 5, which was very low. It can be derived that students do not satisfy with the online learning system in Thailand. There is still a plenty of rooms for improvements. From the research results, we can see that learner interaction was very important in online learning, and students were needed to facilitate or support with the proper technologies. Thus, the government or the other stakeholders can focus firstly to improve these factors in order to increase the degree of student satisfaction with the use of different online learning systems.

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