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Factors Influencing High School Students' Intention and Use of E-Learning to Study Chemistry in Bangkok, Thailand

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Abstract

Purpose: This research aims to identify factors impacting the behavioral intention and use behavior of eLearning among the students who are studying Chemistry in the final two years (Grade 11 and 12) of international schools in Bangkok, Thailand. The conceptual framework is based on performance expectancy, effort expectancy, social influence, facilitating conditions, habit, behavioral intention and use behavior. **Research design, data, and methodology:** A quantitative approach of probability and non-probability techniques was used, including judgmental, stratified random and convenience samplings. Constructed on the UTAUT model used for this study, 500 questionnaires were distributed to high school Chemistry studying students among international schools in Bangkok. Statistical tool of Structural Equation Modelling (SEM) and Confirmatory Factor Analysis (CFA) of IBM SPSS was adopted to explore the collected data and analyze the model fit, reliability, and validity of the various variables. **Results:** Results indicate the strongest relationship between the behavioral intention and use behavior of eLearning. Furthermore, performance expectancy, efforts expectancy, facilitating conditions, and habit significantly affect behavioral intention. Facilitating conditions and habit have a significant impact on use behavior. **Conclusions:** A robust relation has demonstrated a strong association between behavioral intention and the user behavior of eLearning.

Keywords : eLearning, Technology Adoption, Behavioral Intention, Use Behavior, Students

JEL Classification Code: E44, F31, F37, G15

1. Introduction[1]

A rising conglomerate between technology and Education has been observed in the last 50 years. Consequences lead to its linking and inclusion in school learning methods like eLearning, which also has grown at an increasing pace, along with the development of hi-tech innovations, capabilities, and accessibility. Emerging web technologies have remodeled teaching and learning methods to become more student-centered, which has prompted the instant delivery of education lectures as a substitute or a supplement to traditional classes. eLearning and classes (synchronous classes or digital live lectures) are increasingly important in delivering today's Education amongst many schools and educational institutes worldwide.

Academic institutions and higher education organizations have employed Information and Communication Technology (ICT) to improve and amplify curriculum delivery. The prospects of eLearning augment the students' learning adventure and its potential to reach students on an adjustable and mass scale. In today's effectual tertiary education systems, net-based applications narrate an increasingly consequential function in enhancing learning and teaching.

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Despite gaining popularity, a teacher can never be replaced, though eLearning in this era has partly been able to substitute for a teacher. Immense study research has been conducted on the adaption of e-Learning in various countries, this research precisely targets the high school students in the international schools in Bangkok who study Chemistry as a subject. Various learning management systems (LMS) have been indispensable in schools for a long time. Still, e-Learning adoption needs a finer study considering its futuristic perspective.

Considering the educational development and evolution, international bilateral cooperation has been in place between Thailand and other nations. There has been a regular increment in the number of international schools in Bangkok and students enrolling. According to OPEC (2021), some of the popular syllabus modules followed by international schools in Bangkok are

1. American
2. British
3. International Baccalaureate (IB) and
4. other national syllabi of other countries such as Korea, Canada, France, Japan, Germany, Singapore, Switzerland, Australia, India, etc. (International Schools Association of Thailand, 2021)

Research and Markets (2017) predict an expected growth for eLearning, emerging as a $325 billion industry by 2025 owing to furtherance in society, tech innovations, expectations, and advancing trends. These are stimulants prompting educational institutions to reevaluate the long-established didactic. International schools in Bangkok have been practicing eLearning for many years without traversing students' perspectives. Online practical work and students' acceptance of this aspect have not been established in depth. The covid-19 pandemic forced schools to shut down, and schools resorted to online and eLearning, which was a big relief as students had experienced eLearning, elevating e-Learning. Students' intention to adopt eLearning in future academics and factors which impact its usage and continuation has been given a detailed study. Students' perspective is an essential aspect to research and acknowledge. This current study will help explore and conquer issues a pupil faces in eLearning. This study has picked out the high school students specifically enrolled with international schools in Bangkok. The study deliberates on the definition of eLearning and various LMS in practice. The focus is on various factors which impact the Behavioral Intention and Use Behavior of e-learning among Chemistry students in Bangkok.

Subject Chemistry (part of STEM Curriculum) is a very predominant part of a student's Education, and with current trends of eLearning, research on how graduating school students embrace it and thus the impact on them espousing eLearning for the future. Thailand academicians and researchers have conducted studies on the acceptance, adoption, and factors impacting eLearning – prior to and during the pandemic Covid-19, among - EFL students, Nursing students within the university and higher educational institutions (Muangmee et al., 2021). Teo et al. (2011) put forwarded "Assessing e-learning acceptance by university students in Thailand." Furthermore, Ngampornchai and Adams (2016) investigated "Students' acceptance and readiness for E-learning in Northeastern Thailand". Linchpin for this research and study are the international schoolers of grade 11 (year 12) and grade 12 (year 13), and the focus is on the Chem -STEM students in Bangkok, Thailand. Therefore, this study amplifies the Unified Theory of Acceptance and Use of Technology (UTAUT) model by Venkatesh et al. (2003) to identify factors impacting the behavioral intention and use behavior of eLearning among the students who are studying Chemistry in the final two years (Grade 11 and 12) of international schools in Bangkok, Thailand.

While the adoption of eLearning platforms for educational purposes is on the rise, there remains a research gap in understanding the specific factors that influence high school students' intention and use of eLearning to study chemistry in Bangkok, Thailand. Despite the growing popularity of online learning, the context of chemistry education in the high school setting, especially within a specific geographical area like Bangkok, warrants focused investigation. This gap is characterized by the need to explore the unique factors that shape students' attitudes, intentions, and behaviors toward using eLearning platforms for studying chemistry.

2. Literature Review

2.1 eLearning

E-learning is interpreted as distance learning that uses online and digital media in furnishing and implementing learning in various forms like using the internet, laptops, smartphone, digital devices, etc. The use of eLearning accelerates interaction between teachers and students. E-learning is interpreted as a technique for the cultivation of teaching and learning which fully or partially maximizes the accessibility to learning and connectivity and embraces avant-gardes of promoting e-learning (Muhammad Safuan et al., 2022). E-learning is a learning method that has gained a grip in high school education, owing to wider and prompt access and various learning options for teachers and students. (Latip et al., 2020). Both advantages, impediments, issues, and opportunities exist while wielding eLearning, similar to any other uses of technologies. eLearning gives the freedom of pedagogy to students independently, anywhere, anytime,

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simultaneously, bringing down the cost and expenses.

As put forth by researchers and academicians, eLearning can be defined as – Use of numerous electronic media and Information and Communication Technologies with the aim of edification (Cook & Sutton, 2014). A learning opportunity that occurs without the face-to-face (F2F) setup but involves technologies and teaching approaches, an amalgamation of "pedagogy, instructional technology, and WWW in teaching and learning domains" (Carter & Salyers, 2015), Engaging in the current multimedia tech and the net to devise the pedagogical quality by using remote access and collaboration to resources and services (Evoh, 2011). A notion that utilizes "cognitive science principles of effective multimedia" learning using technology (Tadlaoui et al., 2019), Electronic learning, and typically desires a computer to distribute wholly or partially the course in any circumstance of school training or distance learning (Parkavi et al., 2018). An academic process that wholly or moderately pivots on using online media and tech as modules for escalating the convenience of learning, connectivity, and pursuit, embracing current ways is eLearning (Muhammad Safuan et al., 2022).

2.2 Underpinning-Theories

This in-depth research proposes to explore and study the many aspects which impact the Behavioral-intention-(BI) and Use-Behavior-(UB) of electronic-Learning in Chemistry in the final two years of the international school in Bangkok, Thailand, and put in those factors and features which are identified for ascertain a framework that will successfully help implement among school students. After diligently reviewing many earlier researches and studies which used frameworks and models, the current research evidenced the factors impacting eLearning, namely Performance expectancy (PE), Effort expectancy (EE), Social influences (SI), Facilitating conditions (FC), and Habit (HB). UTAUT model by Venkatesh et al. (2012) was the most appropriate to identify the intention to adopt eLearning in school.

2.3 Performance Expectancy

A user's belief and faith regarding the attainment of performance while using a tech system (Muhammad Safuan et al., 2022). The level to which productivity and performance are affected defines performance expectancy and studies when related to students. That is, it is the benefits anticipated from technology usage (Marlina et al., 2021). In this study, performance expectancy is a level to which students appreciate that using eLearning tools could help improve their performance in academia. Key variables impacting students' behavioral intention to use eLearning in their studies is their performance expectancy. Therefore, a hypothesis is developed:

H1: Performance expectancy has a significant impact on behavioral intention to use eLearning of chemistry students.

2.4 Effort' Expectancy

Effort expectancy is defined from the users' point of view as how they can use a technology conveniently (Onaolapo & Oyewole, 2018). Effort expectancy can be construed as the ease of applying a given system. Effort expectancy sets forth the possibility of applying technology freely and demonstrating the simplicity and easy-to-use idea for any tech services (Muhammad Safuan et al., 2022). Effort expectancy is the level of naturalness needed while applying the system/technology by students. (Mahande & Malago, 2019). Current research perceives effort expectancy as the degree to which a student assumes that using eLearning would be effortless. Earlier studies assert that effort expectancy positively influences behavioral intention in the context of "internet banking" (Alalwan et al., 2017), "mobile banking" (Alalwan et al., 2017), "social recommender systems" (Oechslein et al., 2014), and "computer-supported collaborative classrooms" (Ali et al., 2016). Consequently, H2 is indicated:

H2: Effort expectancy has a significant impact on behavioral intention to use eLearning of chemistry students.

2.5 Social Influence

Baki et al. (2018). Social influence or Subjective-Norms is pictured as students' or students' thoughts on how important or governing tribes expect them to savor in eLearning. Social influence peripheries a student's manners and actions as guided by others. Peer pressure and family impact are some of the examples leading to SI. It is also defined as the major viewpoint of external entities like parents, school superiors, and peers about using a new system (Alraja, 2015). Many might perceive technology in education to be wholly determined by technological factors, but contrary to this, social factors also majorly influence eLearning acceptance among students. Social influence has been identified to strongly affect the intention to use technology (Tan, 2013). Earlier researches indicate that social influence strongly impacts students' understanding and behavior toward their preparedness to adopt eLearning (Mahande & Malago, 2019). It also impacts students' acceptance and intention to use eLearning (Tayebinik & Puteh, 2012). This research thus intends to identify the relationship between social influence and eLearning acceptance. Accordingly, a hypothesis is proposed:

H3: Social influence has a significant impact on behavioral intention to use eLearning of chemistry students.

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2.6 Facilitating Conditions

Facilitating Conditions refers to the users' perception of support from institutions and the necessary infrastructure ready to assist in using intended technology (Venkatesh et al., 2012). Conventionally, technical assistance, support, and resources that ease the usage of tech systems are grouped under facilitating conditions. Facilitating conditions affect the users' intention (Venkatesh et al., 2012) and actual usage (Venkatesh et al., 2003). Venkatesh defines the construct "facilitating conditions" as "the degree to which an individual believes that an organization and technical infrastructure exists to support the use of the system." This study recognizes facilitating conditions (FC) as the degree to which a student thinks school management, personal gadgets, and technical infrastructure are needed to support eLearning usage. In previous studies related to "mobile social network games" (Baabdullah, 2018) "e-Government services" (Lallmahomed et al., 2017), "information and communication technologies" (Macedo, 2017), and "employment websites" Huang and Chuang (2021) all the results indicated that facilitating conditions have positive influences on behavioral intention. Based on previous studies, below hypotheses are developed:

H4: Facilitating conditions have a significant impact on behavioral intentions to use eLearning of chemistry students.

H6: Facilitating conditions have a significant impact on the use behavior of eLearning of chemistry students.

2.7 Habit

According to Limayem et al. (2007), the construct "habit" was described as "the extent to which people tend to perform behaviors (use IS) spontaneously owing to learning." In the current study, habit is related to the extent of the user, namely - students who intend to use eLearning spontaneously out of the pattern. In past research on "social networks sites," Herrero and San Martín (2017), information and communication technologies" Macedo (2017), and "mobile banking," Baptista and Oliveira (2015) all recommend that habit has a strong influence on the behavioral intention and the use behavior. Hence, hypotheses are instituted:

H5: Habit has a significant impact on behavioral intentions to use eLearning of chemistry students.

H7: Habit has a significant impact on use behavior of eLearning of chemistry students.

2.8 Behavioral intention

Behavioral intention is behavioral preparedness to acquire and undertake any specific technology. Davis (1989) behavior intention is defined as the creditableness of anyone's intention to employ technology. It indicates a straight-through implication on the actual use of behavior. The user intends to acquire the tech systems and any pupil's readiness towards adopting the system. (Venkatesh et al., 2003). BI, as stated by Salloum and Shaalan (2018), resolve that students and pupil exercise with available eLearning and entail tireless usage to the future from the present. As a result, a hypothesis is obtained:

H8: Behavioral intention has a significant impact on use behavior of eLearning of chemistry students.

2.9 Use Behavior

User behavior is the consumption of eLearning technology, signified by the repetition and the purpose thereof. Indicated as self-reported iterative use of eLearning and is understood to be the magnitude of the utilization of tech-system (Venkatesh et al., 2003). The iterative physical and mental operations are indulged in while accessing the information collected into the pupil's available information base (Berry, 2017). Certain activities use specific sources, e.g., knowledge acquisition and learning activities regarding eLearning approaches (Raith, 2019). This research recognizes user behavior as a continuity of eLearning by school students in their current scenario and for future pursuits.

3. Research Methods and Materials

3.1 Research Framework

UTAUT framework was adopted for the variables in this study. The pivot point examined the significant variables in this study model influencing eLearning among high school Chemistry students. Figure 1 represents the association among the evaluation variables of eLearning implementing the UTAUT model. Using the literature review and various contributions, the research framework was designed and designates the below research hypotheses:

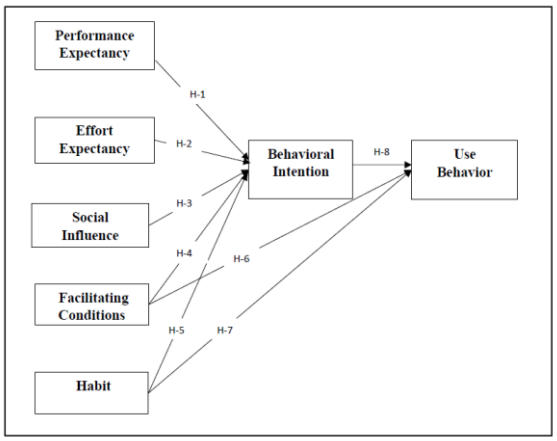

Figure 1: Conceptual Framework
Source: Created by the author.

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H1: Performance expectancy has a significant impact on behavioral intention to use eLearning of chemistry students.
H2: Effort expectancy has a significant impact on behavioral intention to use eLearning of chemistry students.
H3: Social influence has a significant impact on behavioral intention to use eLearning of chemistry students.
H4: Facilitating conditions have a significant impact on behavioral intentions to use eLearning of chemistry students.
H5: Habit impacts has a significant impact on behavioral intentions to use eLearning of chemistry students.
H6: Facilitating conditions have a significant impact on use behavior of eLearning of chemistry students.
H7: Habit has a significant impact on use behavior of eLearning of chemistry students.
H8: Behavioral intention has a significant impact on use behavior of eLearning of chemistry students.

3.2 Research Methodology

A quantitative descriptive design approach was implemented for this research study. The study aims to ascertain factors impacting eLearning's behavioral intention and use behavior. Since high school students were participating as the population, the most appropriate way to do the survey was to distribute Questionnaire and further data analysis. The data collection was the primary source, and secondary data was not used for analysis. Questionnaire was distributed to students who took Chemistry pursuing high school and an international syllabus on how the survey was performed.

Before the data collection, the application of Item Objective Congruence (IOC) Index and pilot testing of 30 participants with Cronbach's Alpha reliability test was carried out. Questionnaire is designed into three parts; screening questions, five-point Likert scale items, and demographic information. Five-point Likert scale was employed to gauge the scale items. Endpoints in the Likert scale range from "strongly disagree" to "strongly agree." The response indicates the participant's degree of consensus as they mark one out of the five responses. The data were analyzed with descriptive analysis, Confirmatory Factor Analysis (CFA), and Structural Equation Model (SEM).

3.3 Population and Sample Size

The population and the target were the students studying Chemistry in their high school's syllabus from International Schools in Bangkok. The accessible population was essentially from schools agreeing to permit the questionnaire distribution for the research survey. A questionnaire distribution request letter was sent to school authorities well in advance. Of the thirty-one schools contacted, only around twenty-one agreed to distribute questionnaires. The required sample size was decided using the Daniel Soper statistic calculator. A number 500 sample size was returned.

3.4 Sampling Technique

The sample techniques were engaged for this research study. First, judgmental sampling was applied in targeting high school physics students in international schools in Bangkok. Next, stratified random sampling was carried out to divide the strata of subgroup, instituting 500 participants. Convenience sampling was to distribute offline via paper base and online via chat application and online community platform of students. This study involved the methodology of the quantitative survey in bringing about results to the research questions by way of testing hypotheses.

4. Results and Discussion

4.1 Demographic Information

The demographic profile of the 500 targeted responses received from Thai and non-Thai nationals' students learning Chemistry in international schools in Bangkok is compiled as shown in the table below. From the data collected, it is noticeable that the results are unbiased of gender, and the number of students in year 12 (grade 11) – 225 is also almost the same as year 13 (grade 12) – 275. In addition, most of the students – 440 in number have spent many years in the same school, which leads to the understanding of school management and teachers in a better way to give an unbiased response to the questionnaire. Furthermore, 95 percent with 475 students intend to take STEM (Science, Technology, Engineering & Mathematics) in their bachelor's degree following graduation. This signifies that Chemistry as a subject carries enormous significance in their future careers. The 5 percent taking chemistry but not pursuing STEM generally study the subject about a subject interest. International schools in Bangkok have a pretty good mix of Thai and non -Thai nationals. The demographic questions lead to a complete view of the percentage of genders, the number of students in the last two years of schooling, years spent in one school, and students who intend to study STEM later in their education. In all, 500 questionnaires were collected from 23 international schools in Bangkok.

Table 1: Demographic Profile

Demographic and General Data (N=500)		Percentage	Frequency
Gender	Male	43%	215
	Female	52%	260
	Other	5%	25
Grade	Year 12 (Grade11)	45%	225

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Demographic and General Data (N=500)		Percentage	Frequency
	Year 13 (Grade 12)	55%	275
Years spent in Current School	2 Years or more	12%	60
	3 years or more	88%	440
Thai Citizen or others	Yes	14%	70
	No	86%	430
Pursuing STEM in Bachelor level	Yes	95%	475
	No	5%	25

4.2 Confirmatory Factor Analysis (CFA)

The aim of this research applied Confirmatory Factor Analysis (CFA). All scale items in each variable showed significance and represented the factor loading to identify/test discriminant validity. The factor loading signifies each item being admissible values indicating the goodness of fit (Hair et al., 2006). Factor loadings show a greater value than 0.30 and a p-value lower than 0.05. The construct reliability (CR) is greater than the cut-off points of 0.7, and the average variance extracted (AVE) was higher than the cut-off point of 0.5 (Fornell & Larcker, 1981) in Table 2. Thus, all the estimates are significant.

Table 2: Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Variables	Source of Questionnaire (Measurement Indicator)	No. of Item	Cronbach's Alpha	Factors Loading	CR	AVE
Performance Expectancy (PE)	Venkatesh et al. (2003)	5	0.857	0.618-0.867	0.830	0.500
Effort Expectancy (EE)	Venkatesh et al. (2003)	5	0.907	0.710 -0.895	0.860	0.550
Social Influence (SI)	Venkatesh et al. (2003)	5	0.828	0.657-0.830	0.830	0.500
Facilitating Conditions (FC)	Venkatesh et al. (2003)	5	0.847	0.621-0.838	0.860	0.550
Habit (HB)	Limayem et al. (2007)	3	0.866	0.801-0.855	0.870	0.690
Behavioral Intention (BI)	Venkatesh et al. (2012)	7	0.924	0.762-0.874	0.920	0.640
Use Behavior (UB)	Venkatesh et al. (2012)	6	0.922	0.762-0.860	0.920	0.670

The square root of the extracted average variance determined that all the correlations are more than the corresponding correlation values for that variable as of Table 3. Additionally, GFI, AGFI, NFI, CFI, TLI, and RMSEA are used as indicators for model fit in CFA testing.

Table 3: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	< 3.00 Hair et al. (2006)	2.613
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.861
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.838
NFI	≥ 0.80 (Wu & Wang, 2006)	0.875
CFI	≥ 0.80 (Bentler, 1990)	0.919
TLI	≥ 0.80 (Sharma et al., 2005)	0.911
RMSEA	< 0.08 (Pedroso et al., 2016)	0.057
Model summary		**Acceptable Model Fit**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, CFI = Comparative fit index, TLI = Tucker-Lewis index and RMSEA = Root mean square error of approximation
Source: Created by the author.

The convergent validity and discriminant validity were also confirmed for collected results, as depicted in Table 4, being higher than acceptable values. Consequently, convergent validity and discriminant validity are established. Fornell and Larcker (1981) mention that testing for discriminant validity should be estimated by calculating the square root of each AVE. Based on this, all values of discriminant validity are larger than inter-construct/factor correlations. Thence, the discriminant validity is supported as per Table 4.

Table 4: Discriminant Validity

	PE	EE	SI	FC	HB	BI	UB
PE	**0.740**						
EE	0.033	**0.830**					
SI	0.064	0.070	**0.710**				
FC	0.054	0.092	0.095	**0.740**			
HB	0.055	0.09	0.139	0.144	**0.830**		
BI	0.375	0.322	0.237	0.288	0.415	**0.800**	
UB	0.215	0.201	0.184	0.334	0.458	0.668	**0.820**

Note: The diagonally listed value is the AVE square roots of the variables
Source: Created by the author.

4.3 Structural Equation Model (SEM)

This section inquired about checking out the eight hypotheses in this research using the SEM model. The hypotheses sought to evaluate the relationship between the study's dependent and independent variables in terms of behavioral intention and use behavior of the eLearning among Chemistry students in international schools in Bangkok, Thailand. Hair et al. (2006), the Structural Equation Modeling (SEM) substantiates casual relationships within variables in a proposed model and borders the measurement imprecision in the structure coefficient. The goodness of fit (GOF) indices for the Structural Equation Model (SEM) are measured as indicated in Table 5. The model fit measurement should not exceed 3 for Chi-square/degrees-of-freedom (CMIN/DF) ratio, and

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GFI and CFI should be higher than 0.8 as recommended by Greenspoon and Saklofske (1998). The calculation in SEMs using SPSS AMOS version 20, the results of fit index indicated good fit, which are CMIN/DF = 2.613, GFI = 0.857, AGFI = 0.838, NFI = 0.873, CFI = 0.917, TLI = 0.911 and RMSEA = 0.057, complying to the acceptable values are mentioned in Table 5.

Table 5: Goodness of Fit for Structural Model

Index	Acceptable	Statistical Values Adjustment
CMIN/DF	< 3.00 Hair et al. (2006)	2.613
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.857
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.838
NFI	≥ 0.80 (Wu & Wang, 2006)	0.873
CFI	≥ 0.80 (Bentler, 1990)	0.917
TLI	≥ 0.80 (Sharma et al., 2005)	0.911
RMSEA	< 0.08 (Pedroso et al., 2016)	0.057
Model Summary		**In harmony with empirical data**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, CFI = Comparative fit index, TLI = Tucker-Lewis index and RMSEA = Root mean square error of approximation
Source: Created by the author.

4.4 Research Hypothesis Testing Result

The path coefficients (β), t-statistics, and p-value were sought to measure and compute the significance of all the direct effects or hypotheses in the structural model. The conclusion for each variable is depicted in Table 6 propounds that all hypotheses were strengthened with a significance at $p < 0.05$. Habit among the variables has the strongest influence (with $\beta = 0.396$) on Behavioral Intention to use eLearning. Performance Expectancy was the next strong influencer with a $\beta = 0.392$ on BI. Continuity to use eLearning and the actual use illustrated by Use Behavior (UB) strongly influence behavioral intention with $\beta = 0.583$ and t values = 11.184.

Table 6: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-value	Result
H1: PE → BI	0.392	8.702*	Supported
H2:EE→ BI	0.320	7.706*	Supported
H3: SI → BI	0.145	3.592*	Supported
H4: FC → BI	0.217	5.336*	Supported
H5: HB → BI	0.396	9.086*	Supported
H6: FC→ UB	0.151	3.909*	Supported
H7: HB→ UB	0.212	5.065*	Supported
H8: BI→ UB	0.583	11.184*	Supported

Note: * p<0.05
Source: Created by the author

H1: The study results were consistent with previous research works that indicated performance expectancy to have a direct effect on behavioral intention (Chang, 2012; Ngampornchai & Adams, 2016; Taiwo & Downe, 2013; Venkatesh et al., 2012). Performance expectancy was theoretically and empirically proven to provide an impact on behavioral intention for eLearning.

H2: The study results agreed with the results from prior studies that showed effort expectancy having a direct effect on behavioral intention (Chang, 2012; Nasir, 2013; Ngampornchai & Adams, 2016; Venkatesh et al., 2012). The evaluation of the acceptance of the eLearning course confirmed that effort expectancy theoretically and empirically impacted behavioral intention to accept or use the eLearning among school students learning Chemistry.

H3: Social influence theoretically and empirically affected behavioral intention to accept or use eLearning in international school students, and results affirm this hypothesis. Similar research showed that social influence directly affected behavioral intention (Chang, 2012; Fatmasari, 2011).

H4: Facilitating conditions theoretically and empirically impacted behavioral intention to accept or use eLearning in international school students, and results affirm this hypothesis. The results indicated a similar relation to previously conducted research that stated that facilitating conditions directly impacted behavioral intention (Chang, 2012; Handayani & Sudiana, 2017; Venkatesh et al., 2012).

H5: The habit was measured as theoretically and empirically impacting behavioral intention to accept or use eLearning in international school students, and results affirm this hypothesis. The results showed similarity among previously conducted research that showed Facilitating conditions directly impacted behavioral intention (Ambarwati, 2020; Chao, 2019)

H6: In addition to the facility condition towards behavioral intention, the facility condition directly

affects the use/ eLearning acceptance and provides more effect than the facility condition toward the behavioral intention. The results of this study were in line with the results of prior work that showed that facilitating conditions directly affected eLearning acceptance (Chang, 2012; Handayani & Sudiana, 2017; Venkatesh et al., 2012).

H7: As implied by the research results, students' as main users' habits significantly affect their user behavior. It has also been indicated in previous work by (Tadesse et al., 2018).

H8: The result of this study mirrored the results of earlier studies, which pointed out that behavioral intention directly impacts the user behavior of eLearning. Researchers studied them along the same line (Chang, 2012; Faulina, 2017; Ngampornchai & Adams, 2016; Venkatesh et al., 2012). This result established that behavioral intention theoretically and empirically impacted eLearning usage immensely.

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5. Conclusion and Recommendation

5.1 Conclusion and Discussion

The influencing factors for eLearning were accomplished using variables and indicators developed from the UTAUT model. The external variables in this study were adopted from the UTAUT framework and were created for the highest effect of relevance on eLearning acceptance. The model utilized core variables in UTAUT: "performance expectancy, effort expectancy, social influence, facilitating conditions, habit, behavioral intention and use behavior."

The evaluation was confirmed through a hypothesis test that indicated that performance expectancy, effort expectancy, facilitating conditions, and social influence and habit all had direct and significant positive effects on the behavioral intention for eLearning. Facilitating conditions, habit, and behavioral intention positively affected eLearning use behavior. Variables that turned out to provide the highest effects on eLearning were Performance-Expectancy and Habit and Behavioural -Intention. Enhanced learning ability, especially during Covid-19, when schools closed and students were forced on only eLearning, performance effort played a major influence as delineated by the results. Students must maintain their performance by adopting eLearning against instructor-led or in-class/person learning. This furthers students to successful adoption of eLearning in their future academics. Habit, on the other hand, also impacted the BI majorly. Though practices are well adopted by school students and come naturally to Gen-Z students. Additionally, the behavioral intention was strongly impacted by the level of students' credence in the future of eLearning and the students' fervor for eLearning so that eLearning can be sustainably integrated into future academics. Technology is shifting from AR to VR to XR, and the education sector is not left behind. The current study indicates and explicates the school students' receptiveness to eLearning and inclination to pursue eLearning in the future as well. With the approach of Web 3.0, it is a highly positive sign that high school students are enthusiastic about eLearning. Because of the results of the current research, students' behavioral intention strongly and positively impacts the use behavior (actual use) of eLearning

5.2 Recommendation

Students find eLearning a pleasant experience and it has become a way of life, keeping in view the covid-19 pandemic which disrupted the entire academics for over two years. Though continuous use of eLearning is challenging as it entails continuous exposure to light and screen and less physical activities for this age group. Thus, it is noticeable and apparent that students do appreciate eLearning and intent to continue for their further education and in future as well. Students can have successful adoption of eLearning in their future academics as evidenced by the major impact of habit on behavioral intention. Though a habit, students are well adapted to the use of eLearning and would the adoption in their outside class and future education. Additionally, behavioral intention was strongly impacted by the level of students' confidence and positive attitude in the future of eLearning, so eLearning can be sustainably integrated into their future academic plan.

In addition, technology is shifting from AR, VR and now to XR. There are many more technologies for the enhancement of future eLearning. The current study indicates and explicates the students' receptiveness to eLearning and inclination to pursue eLearning in future. With approach of Web 3.0, it is a positive sign that high school students are enthusiastic about eLearning. In the results, students' behavioral intention strongly promotes the use of eLearning which can accelerate their use of system in many ways. Important quarters impacted by this study are the School Management - for improved efficacy, providing seamless academic details, training teachers and instructors, and investing in the latest technologies and hardware. Teachers and instructors - to keep updated and ensure the effortless performance improvement of students. Student's cohort - to be aware of their habits and adoption intention of eLearning.

5.3 Limitation and Further Study

The present research was focused on high school students studying in international schools in Bangkok and taking Chemistry. The research can be broadened to reach out to students from other various academic sectors and the whole country of Thailand. It would be contemplated for students from among govt schools and not just international schools. The current study applied UTAUT as the main framework. Future studies can be conducted on other populations of students studying Subjects of STEM. Other constructs like digital distraction, health issues, social anxiety, FOMO (Fear of Missing Out), etc., could also be analyzed. Qualitative study should be conducted to gain in-dept logical reasons of sample groups of why and what factors determining the most and the least important in the technology adoption process.

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