EFL University Students' Acceptance and Readiness for e-Learning: A Structural Equation Modeling Approach

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Abstract: The use of information and communication technologies (ICTs) has become essential approach in the field of language learning especially for English as a foreign language (EFL) education. Because ICTs are widely use in higher education, students must be highly digitally proficient and have positive attitudes in order to efficiently manage their classes. Thus, the purpose of this study is to contribute to the literature on EFL university students' perspectives regarding e-learning integration. In this study we extend the technology acceptance model (TAM) to investigate the factors that influence e-learning acceptance and readiness in the context of foreign language learning. Quantitative method was applied in this study, which involved 298 student teachers of English department at a state university in Indonesia. The instrument used in collecting the data was a questionnaire. The collected data were analyzed by using Partial Least Square-Structural Equation Modeling (PLS-SEM) with the SmartPLS3 program. PLS-SEM was used to analyze the proposed hypotheses developed in fulfilling the study objectives. The results indicated the complex relationships between the perceived usefulness, perceived ease of use, perceived enjoyment, motivation, self-efficacy, attitude and actual use of e-learning. Furthermore, the findings revealed that perceived enjoyment and self-efficacy did not have significant influence on actual use of e-learning through the mediating role of perceived usefulness. The findings can help both instructors and students adjust the integration of e-learning in English learning by implementing a learning curriculum and needs that are in line with the user's initial usage objectives, so that users can recognize the importance of e-learning's ease of use and usefulness. This study contributes to educational institutions and e-learning developers to consider developing e-learning apps that support student-centered learning with useful and ease of use to improve students' attitudes towards the use of e-learning. By incorporating e-learning into English language learning, students will have more time to practice and improve their English language skills.

Keywords: e-Learning, EFL University Students, Structural equation modeling, Technology acceptance model (TAM)

1. Introduction

The number of educational institutions offering distance learning has lately increased, owing to the Covid-19 pandemic. University students could not physically participate in the lectures during this period; instead, they attended courses through the distance education system in various nations. Advantages of e-learning in terms of time and space allowed it to come to the forefront. However, adequate attention has not been paid to the individual and technological factors essential for enabling successful learning in higher education institutions (Yavuzalp and Bahcivan, 2021).

E-learning refers to the ability to access learning materials and components in an online environment from any location and at any time (Al-Gahtani, 2016; Sadeghi, 2018). E-learning has pedagogical value in learning a foreign language since it may generate a resource for a learning environment in which learners can practice a new language collaboratively or individually (Rafiee and Naghneh, 2021). To get the benefits of e- learning, EFL university students must have specific technological and educational competencies. The significance of the notion is also tied to the fact that many language learners and teachers are stimulated and motivated by digital technology. As online or internet-based learning has become increasingly popular in recent years, many professional educators have begun to wonder how well distance learning students are equipped to succeed in this setting. EFL Students believe that digital technology can assist them in enhancing their English language skills. As a result, teachers should incorporate digital technological tools into their English language learning (Arif, Armiwati, and Handayani, 2023).

In this context, a number of studies have been conducted that investigate the success of and student satisfaction with e-learning (Hu and AlSaqqaf, 2021; Jiang *et al.*, 2021; Rafiee and Naghneh, 2021; Rahim and Chandran, 2021). It is critical to establish the prior learning experiences of students who have particular expectations from e-learning settings, as well as the degree to which they are prepared for e-learning, so that these environments may be accurately and successfully developed and utilized. As a result, the new concepts of e-learning acceptance and readiness have become crucial and main measures of success of a learning environment. E-

learning acceptance and readiness can be defined as the ability to use digital technology and online resources to improve learning quality (Yavuzalp and Bahcivan, 2021). In reviewing the literature, it is seen that e-learning acceptance and readiness is comprised of elements such as self-efficacy, perceived enjoyment, motivation, perceived usefulness, perceived ease of use, and attitudes (Al-Gahtani, 2016; Mallya, Lakshminarayanan and Payini, 2019; Jiang *et al.*, 2021; Muharam, Zhafira and Lubis, 2021; Hu *et al.*, 2022).

Along with the increased use of e-learning in educational settings, there is growing concern in identifying the important factors that lead to e-learning acceptance and readiness in order to effectively intervene in the relevant circumstances. What is unclear is the acceptance and readiness for e-learning in the context of foreign language acquisition. So far, there has been little discussion on the factors that influence students' acceptance and readiness for e-learning in EFL context. The goal of this study is to investigate the factors influencing EFL university students' acceptance and readiness of e-learning in EFL context. Therefore, the researchers proposed a model based on Technology Acceptance Model (TAM) (Davis, 1989; Venkatesh and Davis, 2000) and related constructs from other theories and models such as Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh *et al.*, 2003). The proposed model was then validated by using partial least squares (SmartPLS). The proposed model can examine the relationships between the main variables influencing e-learning acceptance and readiness by EFL university students.

Considering the global need for developing the learners' digital literacy in the higher education settings, as well as the need for integrating e-learning at the higher education level, not knowing the factors that can contribute to EFL university students' adoption of e-learning may result in depriving learners of the development of students 21st century competences (Zhou, Xue and Li, 2022). The growth of technology and digital learning environments is so quick that students may choose from a variety of e-learning options. This implies that students have the option of using e-learning. Given that e-learning is currently the main trend in education, this study is significant. Knowing that there is a gap between the widespread use of e-learning by EFL university students globally, on the one hand, and the paucity of studies on their e-learning acceptance, on the other, so that this study is focused to examine the attitudes of EFL university students in Indonesia to use e-learning, as well as their actual use of using e-learning in their language classrooms.

This study aims to examine determinants of EFL university students' attitudes as well as the actual use of e-learning in their EFL classrooms at a state university in Indonesia. The research model of this study was an extended of the technology acceptance model (TAM), encapsulating seven constructs: self-efficacy, perceived enjoyment, motivation, perceived usefulness, perceived ease of use, attitudes, actual use. This research aims to answer the following questions; 1). To what extent does the research model (extended TAM) explain EFL university students' attitudes on using e-learning in their EFL classrooms? 2). How well does the study model explain EFL university students' actual usage of e-learning in their EFL classrooms? In addition, this study attempts to answer research hypotheses presented in table 2.

2. Theoretical Frameworks

2.1 E-Learning Integration in English Language Learning

The use of technology in education, particularly language learning, is becoming increasingly popular in today's technological advancements. The growth of technology, along with situations beyond our control, such as the Covid-19 outbreak, has shifted from traditional learning to technology-enhanced language learning, with nearly all of the learning process taking place online. E-learning has expanded rapidly with a variety of technologies and devices to access learning resources, such as laptops, computers, smartphones, and tablets. The advancement of mobile technology is raising more and more attention for autonomous language learning. It is challenging to find appropriate applications in this digital era of rapid technological development and application updating. EFL learners also require extra time and chance to be accustomed to mobile use in the context of learner autonomy (Hui, Liu and Chi, 2023).

There are several factors to be considered while teaching a language online. In contrast to the conventional method, one goal of online language teaching and learning is transitioning from a teacher-centred domain to one shared almost equally by both instructor and students. In addition, there is also the consideration of the tools and materials used. In traditional language classrooms, teachers and students use the whiteboard and a text book. In the teaching and learning of language using e-learning, the main instrument or tool is computing devices and the internet. Computers are seen as having a significant effect on the teaching and learning process, and the Internet provides a wealth of learning resources in a variety of media (e.g., text, pictures, audio, and videos), allowing for self-directed learning and overcoming geographical borders(Al-Fraihat *et al.*, 2020).

Many studies have also highlighted the advantages of incorporating new technology in language education. Rahim and Chandran (2021) highlight the numerous benefits of using technology for foreign language learning. Amongst the advantages are that it help students in improving their learning   performance, allows students to experience learning anytime and anywhere, learners can have a variety of integrated assignment and customizable foreign language learning approaches based on their interests and needs, monitoring student engagement in various educational learning activities, enables students to have a flexible learning platform, students can decide what to learn and how to learn, and the last but not least, it allows FL teachers and the learners to decide on the most appropriate contexts and the accurate contents to teach and learn. Nevertheless, what is most important is the assessment of acceptance by students in learning with technology.

Faozi and Handayani (2023) examined the factors that affect the continuance intention of using Mobile-Assisted Language Learning (MALL) applications in the context of language learning. Their research enhances the field of e-learning by shedding light on the factors that influence the continuance intention to use MALL applications. Their study used the expectation-confirmation model and self-determination theory. The study found that users' perceived usefulness of the application, their satisfaction with its usage, and their self-regulation ability significantly influence their intention to continue using MALL. Bernacki et al. (2020), conducted a study on understanding and measuring the role of mobile technology in education. They confirmed that mobile technology can affects the process and products of learning via interactions with other psychological constructs, provide opportunities to directly affect learning process and outcomes, and provide opportunities to improve understanding and modeling of the learning process.

Kessler (2018), stated that language instructors now have so many options for utilizing technology to improve language learning. Even for individuals who enjoy experimenting with new technology, determining which materials, tools, or Web sites are best suited to a certain lesson, activity, or learning's objective. All of these technological resources are available to us for the benefit of our students, and we can engage them in the learning experience in a way that encourages them to practice the language extensively.

Furthermore, Howlett and Zainee (2019) reported their study on the use of technology tools in EFL context. Their findings indicated that students are able to use mobile devices, and agreed that mobile devices increase their learning potential and satisfaction. The use of technology tools provides opportunities for autonomous learning in partnership with their 21st century learning skills. Another study by Khan et al. (2021) examine the college students' perception and readiness about e-learning system. Their findings show that students have positive perception and acceptance towards e-learning. Indeed, e-learning has evolved as a new method of enhancing the learning process, and social media may further increase the learning output. It has enabled educators to incorporate IT solutions for teaching as well as evaluating student coursework fulfilment.

2.2   Technology Acceptance Research

Numerous users' adoption/acceptance theories have been developed over time in an attempt to predict and explain technology acceptance. Some of the most well-studied theories and models are the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975); the technology acceptance model (TAM) (Davis et al., 1989); the theory of planned behavior (TPB) (Ajzen, 1991); the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003). The majority of them were empirically examined in various commercial and educational settings. These studies defined or examined technology acceptance as a behavioral intention, attitude, and/or utilization (Abdullah and Ward, 2016).

The technology acceptance model (TAM) is a valid model which includes the perceived usefulness (PU) and perceived ease of use (PEoU) as beliefs on a new technology that affect attitude on the use of that technology (Davis, 1989). TAM is one of the most powerful frameworks for understanding how users adopt technology in education. Its popularity stems from the ease with which it can be applied within structural equation modeling frameworks, as well as its ability to explain differences in actual technology usage or intention to use technology (Sulistiyo *et al.*, 2022). The TAM model consists of three key constructs, i.e., perceived ease of use (PEoU), perceived usefulness (PU) and attitudes towards technology (ATT), explaining behavioral intentions (BI) and the use of technology indirectly or directly (Davis, 1989). The definitions of each variable of this current study are shown in Table 1;

Table 1: TAM Variables and Definitions

Variable	Definition
External variables	
Perceived Enjoyment	The extent to which the activity of using the technology is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated (Jiang *et al.*, 2021; Rafiee and Naghneh, 2021; Zhou, Xue and Li, 2022)
Motivation	The inner aspect includes the needs, desires, and wants within the participants in using technology (Pan, 2020; Rafiee and Naghneh, 2021)
Self-Efficacy	a person's belief in his ability to organize and carry out a series of actions needed to complete a particular task using technology (Sumuer, 2018; Pan, 2020; Alfadda and Mahdi, 2021)
Core Variables	
Perceived ease of use	The degree to which the participants believe that using technology would be free of effort (Davis, 1989; Venkatesh and Davis, 2000)
Perceived usefulness	The degree to which the participants believe that using technology would enhance his or her performance (Davis, 1989; Venkatesh and Davis, 2000)
Attitudes	The user's likelihood to use technology (Venkatesh *et al.*, 2003)
Output Variable	
Actual Use	The frequency and the approximate number of times of using technology (Park, 2009; Scherer, Siddiq and Tondeur, 2019)

In different educational contexts the original TAM was extended by including self-efficacy, motivation, and perceived enjoyment as external variable. Alfadda and Mahdi (2021) conducted a study to analyze the correlation of TAM on using Zoom application in language learning. The participants are 75 students taking an online course on the COVID-19 pandemic. The results of the study revealed a strong positive correlation between the actual use of Zoom and the students' attitudes and behavioral intention. In addition, there is a positive correlation between computer self-efficacy and other variables of TAM.

Rafiee and Naghneh (2021) identified the factors affecting e-learning acceptance and readiness in the context of foreign language learning. A number of university students majoring in English education participated to complete the quantitative survey for this study. The data were analyzed using smart partial least squares (smartPLS) software. The results indicated the complex relationships between the perceived usefulness, perceived ease of use, e-learning motivation, online communication self-efficacy and language learners' acceptance and readiness of e-learning.

Yavuzalp and Bahcivan (2021) investigated relationships of readiness for e-learning, self-efficacy, and motivation on students' self-regulation skills. A total of 749 university students from a Turkish state university volunteered to take part in the study. a cross-sectional survey design was implemented in the study. tha data were analyzed by using structural equation modeling with the AMOS software. The research findings revealed that the university students' readiness for e-learning was effective on their self-regulation skills.

Al-Fraihat et al. (2020) explored the determinants of e-learning; perceived usefulness, perceived satisfaction, support system quality, service quality, information quality, learner quality, and instructor quality. The data were collected from 563 students engaged with e-learning in one of the UK universities, and analyzed using a quantitative approach of Partial Least Squares - Structural Equation Modelling (PLS-SEM). The findings indicated that four constructs were found to be the determinants of e-learning use, namely perceived usefulness, educational system quality, learner quality, and support system quality.

Another related study using the TAM model conducted by Ketmuni (2021), his study investigated students' acceptance of online English language learning at a university in Thailand. His study employed the technology Acceptance Model (TAM). N=400 respondents were selected by simple random sampling technique. The findings of his study indicated that the greatest factor affecting the acceptance of online English learning was Perceived Ease of Use. The students suggested that the teachers should have teaching techniques to stimulate students' interests and provide a variety of activities.

2.3   Research Model and Hypotheses

This current study offered a research model and hypotheses based on the background and literature review, which are shown in Figure 1 and Table 2.
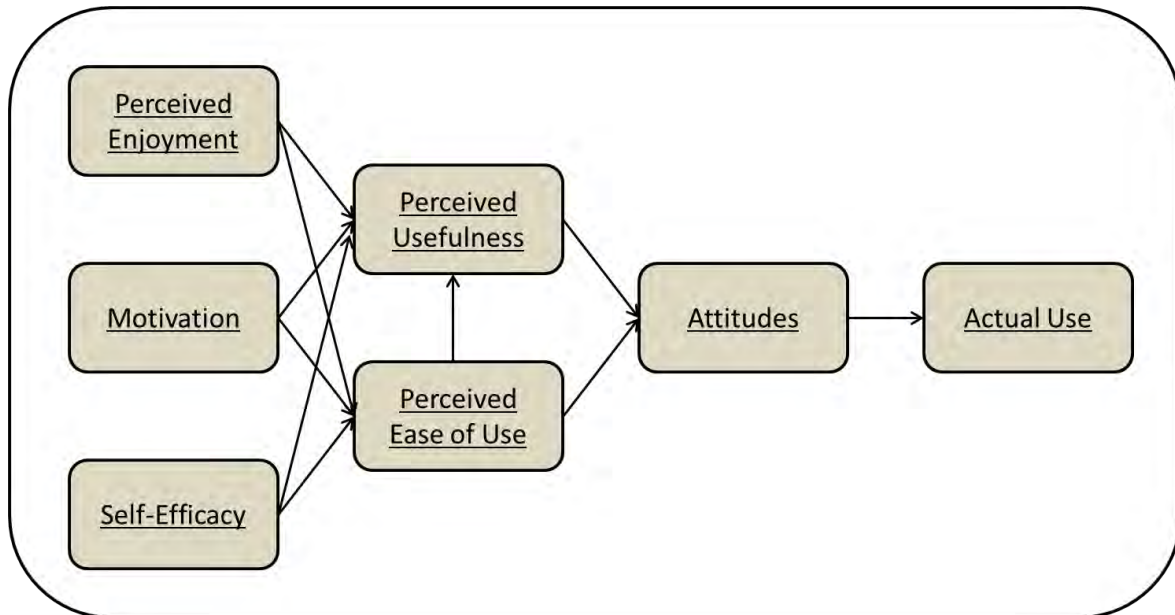

Figure 1: Proposed Research Model

There are seven constructs in this study namely Perceived Enjoyment (PE), Motivation (Mot), Self-efficacy (SE), Perceived Ease of Use (PEoU), Perceived Usefulness (PU), Attitudes (Att), and Actual Use (AU). The research model presented in this study revealed 10 hypotheses as shown in Table 2 below;

Table 2: Hypotheses

No.	Hypotheses
H1	Perceived Enjoyment (PE) will significantly influence Perceived Usefulness (PU)
H2	Perceived Enjoyment (PE) will significantly influence Perceived Ease of Use (PEoU)
H3	Motivation (Mot) will significantly influence Perceived Usefulness (PU)
H4	Motivation (Mot) will significantly influence Perceived Ease of Use (PEoU)
H5	Self-efficacy (SE) will significantly influence Perceived Usefulness (PU)
H6	Self-efficacy (SE) will significantly influence Perceived Ease of Use (PEoU)
H7	Perceived Ease of Use (PEoU) will significantly influence Perceived Usefulness (PU)
H8	Perceived Ease of Use (PEoU) will significantly influence Attitudes (Att)
H9	Perceived Usefulness (PU) will significantly influence Attitudes (Att)
H10	Attitudes will significantly influence Actual Use (AU)

3.   Methodology

3.1   Research Design

This current study employed a quantitative method to investigate factors that influence e-learning acceptance and readiness in the context of foreign language learning. This study utilized a survey design since it analyzed data in the form of numbers. A survey design provides a quantitative or numerical description of trends, attitudes, or opinions of a population by studying a sample of that population. From sample results, the researcher generalizes or draws inferences to the population (Creswell, 2014). Furthermore, the extended technology acceptance model (TAM) was used to analyze the proposed hypotheses developed in fulfilling the study objectives. Partial least squares - structural equation modeling (PLS-SEM) approach was used in analysing the data obtained in this study. The Data were analysed using partial least square - structural equation modelling (PLS-SEM) analysis to examine the determinants that influence e-learning acceptance and readiness in the

context of foreign language learning and answer research hypotheses. PLS-SEM is a causal-predictive SEM method that concentrates on creating structural predictions using statistical models. For estimating our model, PLS-SEM outperforms the conventional covariance-based SEM (CBSEM) because it can deal with multivariate normality, measurement level, sample size, model complexity, and uncertain variables (Hair et al. 2019).

3.2 Participants

This study involved (n=298) pre-service teachers of the English department at Jambi University, Indonesia. The participants are all pre-service teachers majoring English from the first-year to the fourth-year students enrolled in 2022. The student teachers had formally learned English for three years at secondary school level, three years at high school level, and continue to study English courses as well as receive instruction through the medium of English. Table 3 presents the detailed analysis of participants' demographic information and other data related to their ownership of technology devices, activities in using e-learning, and experience.

Table 3: Demographic Information of Respondents

	Number	Percentage
Gender		
Male	67	22.5%
Female	231	77.5%
Class Enrollment		
1st Year Students	76	25.6%
2nd Year Students	73	24.6%
3rd Year Students	78	26%
4th Year Students	71	23.8%
Computer Ownership	298	100%
Experience of using e-learning		
0-1 year	34	11.3%
1-2 years	89	30.1%
>2 years	175	58.6%

3.3 Instrumentation

In order to investigate factors that influence e-learning acceptance and readiness in the context of foreign language learning, we employed a multiple-item questionnaire. The questionnaires' first part comprised questions on demographic information (i.e. gender, years of student's enrolment, years of e-learning use, and computer ownership). The second part constituted seven variables of TAM, including Perceived enjoyment (two items), motivation (four items), Self-efficacy (two items), Perceived Ease of Use (five items), Perceived Usefulness (eight items), Attitudes (four items), and Actual Use (three items). Table 4 displays the detailed variables and items of the questionnaire. For measuring each item, a four-point Likert scale was used with 1 = strongly disagree, to 4 = strongly agree. The data collected through the online questionnaire (using Google Form) were coded by researchers.

Table 4: Items of Questionnaire

Variables	Items	Adapted references of the survey instrument
Perceived Enjoyment (PE)	I like to use e-learning for English learning	(Jiang *et al.*, 2021; Rafiee and Naghneh, 2021; Zhou, Xue and Li, 2022)
	I find it entertaining to learn foreign language through e-learning	
Motivation (Mot)	I need for using ICT in ELL to improve my English language skills	(Pan, 2020; Rafiee and Naghneh, 2021)
	I want to use ICT for ELL to improve my Academic Achievement	

Variables	Items	Adapted references of the survey instrument
	I use E-learning to study English since many of my friends do	
	I utilize E-learning to study English since the instructor has asked it	
Self-efficacy **(SE)**	I have knowledge to utilize E-learning for ELL	Alfadda and Mahdi, 2021; Pan, 2020; Sumuer, 2018
	I have skills to utilize E-learning for ELL	
Perceived ease of use **(PEoU)**	It is easy for me to utilize e-learning for ELL	(Davis, 1989; Venkatesh and Davis, 2000)
	Learning English using e-learning is clear and easy to understand	
	It is easy for me to become skilled using e-learning for ELL	
	It is easy for me to find learning resources using e-learning	
	Overall, the use of e-learning in learning English is easy	
Perceived Usefulness **(PU)**	By using E-learning, I can learn English quickly	(Davis, 1989; Venkatesh and Davis, 2000)
	The use of E-learning improves my listening skill	
	The use of E-learning improves my reading skill	
	The use of E-learning improves my speaking skill	
	The use of E-learning improves my writing skill	
	The use of E-learning makes me learn English effectively	
	The use of E-learning makes me easy to understand English learning	
	Overall, the use of E-learning is very useful and beneficial for learning English	
Attitudes **(Att)**	I am interested in using E-learning for ELL	(Venkatesh *et al.,* 2003)
	I feel that adopting E-learning for English study is quite useful	
	The use of E-learning is suitable for learning English	
	The use of E-learning for ELL is a positive thing	
Actual Use **(AU)**	I use E-learning for ELL on campus and at home	(Park, 2009; Scherer, Siddiq and Tondeur, 2019)
	I use E-learning for ELL regularly every day	
	Overall, I always utilize e-learning to study English	

The questionnaire was distributed among the targeted 415 pre-service teachers in the English department as respondents. The respondents who responded to the questionnaire were 298, thus achieving a response rate of 71.8%.

3.4 Data Analysis

In order to analyse the data, we used the partial least squares - structural equation modelling- (PLS-SEM) approach which first implies testing for the measurement model and then the structural model. PLS-SEM enables the researcher to estimate complex models with many constructs, indicator variables and structural paths without imposing distributional assumptions on the data (Hair *et al.*, 2019). All statistical procedures were conducted with SmartPLS3, and for parameters' estimation minimum likelihood method was used. PLS-SEM, on the other hand, is a causal-predictive approach to SEM that emphasises prediction in estimating statistical models, the structures of which are designed to provide causal explanations (Hair, Howard and Nitzl, 2020).

PLS-SEM was performed to examine the determinants that affect the use of e-learning for English learning purposes. The first step in evaluating PLS-SEM results involves examining the measurement models. Each construct was evaluated using the relevant minimal criterion. If the measurement models meet all the required criteria, researchers then need to assess the structural model. PLS-SEM was performed in order to test the hypotheses with the significant rate 0.05. Before testing the hypothesis, the researchers performed validity (AVE > 0.05) and reliability ($cronbach\ alpha$ > 0.70) tests to fulfil the requirements of analysis using PLS-SEM. The researchers also checked the factor loading's value of each item in the constructs to make sure that the values > 0.70 (Hair et al., 2019).

4. Results

4.1 Descriptive Statistics

We examined the descriptive statistics of each item and presented them in Table 5. The mean scores were over the midpoint 2.00 of the scale, showing mainly positive responses to the models' constructs. The shape of a normal distribution is determined by the mean and the standard deviation. The standard deviation is a statistic that indicates how closely all of the samples in a collection of data are clustered around the mean. It measures the spread of scores within a set of data. The standard deviation of the data is within 1 standard deviation of the average (from μ-1σ to μ+1σ), it indicates a normal distribution. An inspection of the skewness as well as the kurtosis showed them to be within |-1| and |1|, hence the data is normally distributed.

Table 5: Descriptive Statistics

	No.	Missing	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
PE1	1.000	0.000	3.744	4.000	2.000	4.000	0.444	-0.133	-1.240
PE2	2.000	0.000	3.576	4.000	2.000	4.000	0.508	-1.415	-0.463
Mot1	3.000	0.000	3.559	4.000	2.000	4.000	0.503	-1.706	-0.318
Mot2	4.000	0.000	3.431	3.000	2.000	4.000	0.515	-1.478	0.057
Mot3	5.000	0.000	3.064	3.000	2.000	4.000	0.696	-0.931	-0.087
Mot4	6.000	0.000	2.660	3.000	1.000	4.000	0.793	-0.347	-0.210
SE1	7.000	0.000	3.684	4.000	2.000	4.000	0.472	-0.955	-0.889
SE2	8.000	0.000	3.502	4.000	2.000	4.000	0.533	-1.172	-0.343
PEOU1	9.000	0.000	3.350	3.000	1.000	4.000	0.555	-0.023	-0.217
PEOU2	10.000	0.000	3.327	3.000	1.000	4.000	0.530	0.084	-0.022
PEOU3	11.000	0.000	3.175	3.000	1.000	4.000	0.553	0.528	-0.067
PEOU4	12.000	0.000	3.478	3.000	1.000	4.000	0.545	-0.100	-0.478
PEOU5	13.000	0.000	3.333	3.000	1.000	4.000	0.574	-0.032	-0.286
PU1	14.000	0.000	3.172	3.000	2.000	4.000	0.587	-0.290	-0.053
PU2	15.000	0.000	3.421	3.000	2.000	4.000	0.570	-0.789	-0.345
PU3	16.000	0.000	3.286	3.000	2.000	4.000	0.565	-0.530	-0.061
PU4	17.000	0.000	3.091	3.000	1.000	4.000	0.688	-0.019	-0.370

	No.	Missing	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
PU5	18.000	0.000	3.118	3.000	1.000	4.000	0.669	0.238	-0.412
PU6	19.000	0.000	3.172	3.000	1.000	4.000	0.575	0.295	-0.127
PU7	20.000	0.000	3.253	3.000	2.000	4.000	0.592	-0.501	-0.141
PU8	21.000	0.000	3.556	4.000	3.000	4.000	0.497	-1.963	-0.225
Att1	22.000	0.000	3.572	4.000	2.000	4.000	0.521	-1.034	-0.580
Att2	23.000	0.000	3.569	4.000	2.000	4.000	0.528	-0.888	-0.623
Att3	24.000	0.000	3.428	3.000	1.000	4.000	0.565	-0.076	-0.445
Att4	25.000	0.000	3.633	4.000	2.000	4.000	0.509	-0.578	-0.860
AU1	26.000	0.000	3.370	3.000	2.000	4.000	0.572	-0.736	-0.238
AU2	27.000	0.000	2.724	3.000	1.000	4.000	0.700	-0.285	-0.033
AU3	28.000	0.000	3.061	3.000	1.000	4.000	0.689	-0.071	-0.328

4.2 Factor Analysis

Figure 2 shows the factor analysis. The factor loadings and average variance extracted (AVE) were the two procedures to establish convergent validity. Convergent validity was assessed by item factor loading onto the underlying construct. The factor loadings were all greater than the threshold of 0.50 (Hair et al., 2010), demonstrating acceptable convergent validity at the item level. On the other hand, at the construct level, AVE is commonly employed indicators of convergent validity. As shown in Table 6, the AVE-values are acceptable (greater than the threshold of 0.50). The score of factor loadings of each item >.50 and the count of average variance extracted (AVE) > .50. It means that the entire items are valid.
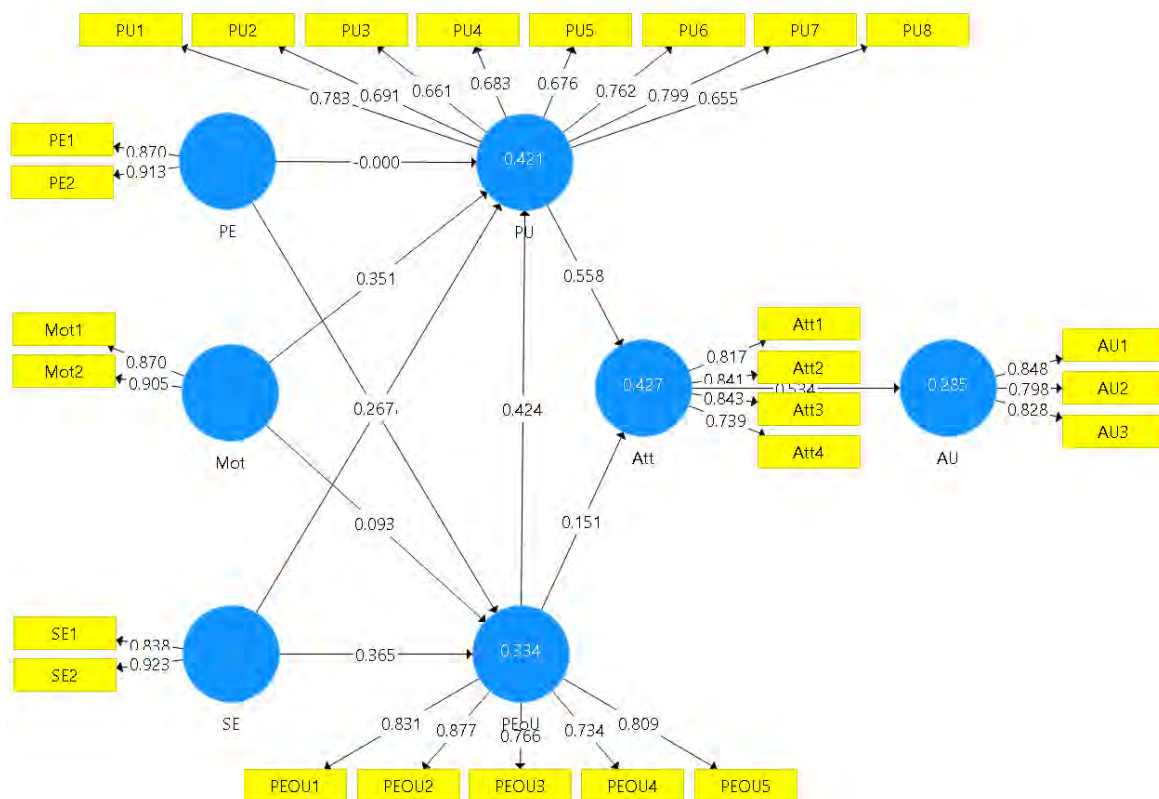

Figure 2: Factor Analysis Results

4.3 Evaluation of the Measurement Model

A confirmatory factor analysis (CFA) was used to evaluate the measurement model with uncorrelated errors. Higher values generally indicate higher levels of reliability and validity. Reliability of the data was established by the use of the Cronbach's Alpha (which are regarded to be adequate if they equal or exceed 0.70.), rho_A (> 0.70), Composite Reliability (> 0.70) as well as Average Variance Extracted (AVE) in assessing convergent validity, An acceptable AVE is 0.50 or higher indicating that the construct explains at least 50 per cent of the variance of its items (Hair *et al.*, 2019). Furthermore, standardized estimates of the items were consulted likewise. The Cronbach alpha, rho_A, CR, and AVE of the constructs were within the acceptable ranges, as shown in table 6 below.

Table 6: Construct Validity and Reliability

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
AU	0.768	0.785	0.864	0.680
Att	0.826	0.832	0.885	0.658
Mot	0.732	0.743	0.881	0.788
PE	0.745	0.764	0.886	0.796
PEoU	0.863	0.865	0.902	0.648
PU	0.863	0.867	0.893	0.512
SE	0.721	0.784	0.875	0.777

The next step we assessed discriminant validity, which is the extent to which a construct is empirically distinct from other constructs in the structural model. Discriminant Validity (Fornell-Larcker Criterion) was used to determine that each construct's AVE should be compared to the squared inter-construct correlation (as a measure of shared variance) of that same construct and all other reflectively measured constructs in the structural model. The shared variance for all model constructs should not be larger than their AVEs, as displayed in table 7.

Table 7: Discriminant Validity - Fornell-Larcker Criterion

	AU	Att	Mot	PE	PEoU	PU	SE
AU	**0.825**						
Att	0.534	**0.811**					
Mot	0.417	0.483	**0.888**				
PE	0.367	0.414	0.384	**0.892**			
PEoU	0.457	0.459	0.314	0.451	**0.805**		
PU	0.569	0.641	0.495	0.340	0.552	**0.716**	
SE	0.322	0.407	0.322	0.405	0.504	0.363	**0.882**

Table 8 shows the goodness-of-fit of the model. Several goodness-of-fit indices were used to assess the measurement model's fit, including the standardised root mean residual (SRMR) with a value of < 0.08 considered optimal (Hu & Bentler, 1999). SRMR was used to quantify the PLS-SEM divergence between the observed and estimated covariance matrices, should be considered with extreme caution. From the results of CFA, the measurement model in this study has a good fit to the sample data (SRMR = 0.078).

Table 8: Model Fit

	Saturated Model	Estimated Model
SRMR	0.065	0.078
d_ULS	1.467	2.854
d_G	0.613	0.675
Chi-Square	1.087.173	1.159.923
NFI	0.720	0.701

4.4   Evaluation of the Structural Model (Hypotheses Testing)

Table 9 shows the hypotheses testing. Seven of the ten hypotheses proposed in this study are accepted, while three others are rejected. The researcher uses the t-statistic and P-Value to determine the result of hypothesis testing. If t-statistic > 1.96 and P-Value < .05, H_0 was rejected and H_a is accepted. This indicated that there was a significant effect among variables.

Table 9: Hypothesis Testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Decision
PE -> PU	-0.000	0.001	0.051	0.008	0.993	Not Supported
PE -> PEoU	0.267	0.269	0.060	4.453	0.000	Supported
Mot -> PU	0.351	0.354	0.051	6.838	0.000	Supported
Mot -> PEoU	0.093	0.096	0.059	1.592	0.112	Not Supported
SE -> PU	0.036	0.036	0.056	0.652	0.515	Not Supported
SE -> PEoU	0.365	0.364	0.066	5.496	0.000	Supported
PEoU -> PU	0.424	0.424	0.060	7.032	0.000	Supported
PEoU -> Att	0.151	0.154	0.069	2.205	0.028	Supported
PU -> Att	0.558	0.557	0.057	9.848	0.000	Supported
Att -> AU	0.534	0.536	0.045	11.845	0.000	Supported

The results revealed that EFL students' actual usage of e-learning in learning English was significantly influenced by Attitude (*P*-value = .000), while PU and PEoU significantly influenced Attitude (*P*-value = .000 and .028 respectively). PU, however, was significantly influenced by PEoU (*P*-value = .000). The extended variable, PE had a significant influence on PEoU (P-value = .000) but not on PU (*P*-value = .993). Motivation had a significant influence on PU (*P*-value = .000) but not on PEoU (*P*-value = .112). SE had a significant influence on PEoU (P-Value = .000) but not on PU (P-value = .515).

5.   Discussion

The purpose of this study was to examine the factors that influence EFL university students' attitudes and actual usage of e-learning in English learning. We developed a research model based on the technology acceptance model (TAM) as the core framework, extended with three external variables (perceived enjoyment, motivation, and self-efficacy). Using PLS-SEM, we confirmed that the suggested research model fits the data well. This study advances the field of e-learning by shedding light on the factors that influence the attitude and actual usage of e-learning. By uncovering the importance of perceived enjoyment, self-efficacy, motivation, perceived usefulness, perceived ease of use, and attitude, the study contributes to the understanding of user behaviour and decision-making in the context of e-learning usage. The findings can inform the adoption and integration of e-learning, leading to more engaging and effective language learning experiences in online and remote settings. This study contributes to the advancement of e-learning practices by providing evidence-based insights into the factors that drive user attitude and adoption of e-learning in English language learning.

5.1   EFL University Students' Attitudes Towards e-learning

This study investigated the extent to which attitudes influence EFL students' actual usage of e-learning by determining the significant indirect and direct predictors of Actual Use (AU) and evaluating the amount of variance in AU explained by PE, Mot, SE, PU, PEoU, and Att. Using PLS-SEM, this study found that three main variables of TAM, namely PU, PEoU, and Att, significantly influence the students' actual usage of e-learning in English learning. These findings emphasize the importance of these factors in influencing users' attitude and actual use of e-learning for English language learning. Understanding the factors that influence users' attitude and actual usage of e-learning allows educational institutions and application providers to develop and adjust their offerings and tailor them to meet the requirements and expectations of language learners.

This study shows that Attitude has a direct positive effect on the actual use of e-learning, suggesting that EFL students with positive attitudes towards the use of e-learning are likely to use them for English language learning. The results show that attitude mediated the influence of PU and PEoU on actual use of e-learning.

When students in Indonesia find e-learning easy to use and beneficial, their attitudes towards e-learning are likely to be positive, and these positive attitudes contribute to a higher likelihood of utilizing e-learning. These findings, consistent with previous studies on the use of e-learning (Rafiee and Naghneh, 2021; Yavuzalp and Bahcivan, 2021), supported the significant roles that PU, PEoU and attitude played in determining EFL students' usage of e-learning. The findings indicate that when teachers develop a positive attitude towards the use of e-learning in teaching EFL, they are willing to utilize it regularly in their practice. This can be facilitated by their experience with the use of e-learning.

The significant influence found for PU on Attitude in this study is in line with studies that examined the underlying reasons for students' usage of e-learning (Zhou, Xue and Li, 2022). Also, this study found that PEoU significantly influences PU. In addition, this study showed that PEoU significantly influence Attitude, which is consistent with previous studies on TAM (Jiang *et al.*, 2021; Sulistiyo *et al.*, 2022).

The present study revealed that PE was found to have significant influence on PEoU but had no significant effect on PU. This finding is quite contradictory to Jiang et al. (2021) who did not find the influence of enjoyment on either PU or PEoU. This contradiction might occur due to several potential reasons. The present study was conducted in an EFL context in Indonesia, and as evident, interaction is particularly critical in a foreign language class. Besides, connection delays and the hardware instability might exacerbate students' unpleasant of e-learning experiences. Therefore, the students perceived e-learning is easy to use but they might not feel the joy of e-learning.

Motivation had a significant effect on PU. This finding is consistent with some previous studies (Pan, 2020; Rafiee and Naghneh, 2021) who found the influence of Motivation on Perceived Usefulness. Besides, motivation mediated the relations of technology acceptance, technological self-efficacy, and attitude toward the use of technology in English learning. On the other hand, Motivation did not have a significant influence on PEoU. A plausible explanation for the absence of a significant influence of Motivation on PEoU in our study is that the respondents in this study were millennial students who already had substantial experience in using technology. They do not perceive technology tools as a new object that is difficult to use and will have little impact on their decisions, but rather as a community of practice focused on sharing knowledge and skills in utilizing technology for English language learning.

E-learning Self-efficacy (SE) had a significant effect on PEoU. It is in line with a study conducted by Pan (2020) who found the influence of SE on PEoU, and self-efficacy showed higher attitude toward technology use in English learning. While, SE had no significant influence on PU. It is consistent with the findings by Jiang et al. (2021) indicated a lack of significant association between self-efficacy and PU. For instance, students may still do well in face to face classrooms, but in e-learning lack of interaction between students and teachers. Therefore, foreign language classes must provide students with as many opportunities for interaction as possible.

Attitude was also shown to be significantly predicted by PU and PEoU, which is in line with the findings by Alfadda and Mahdi (2021) and Zhou et al. (2022) who found that perceived ease of use positively impacts perceived usefulness and perceived usefulness significantly affect users' intention to use technology. When students perceive that e-learning is easy to use and useful, thereby eliciting positive feeling (attitudes towards e-learning) and their behavioral intention to use e-learning.

5.2 EFL University Students' Actual Use of E-learning

The influence of PE, Mot, SE, PEoU, PU and Att on EFL university students' actual usage (AU) of e-learning in English learning was examined by determining the significance and the amount of variance in AU that these variables explained. Together, six variables PE, Mot, SE, PEoU, PU, and Att significantly explained 28.5% of the variance in AU.

The results show that there are complex relationships between the perceived usefulness, perceived ease of use, perceived enjoyment, e-learning motivation, self-efficacy, attitude and actual use of e-learning. Furthermore, attitude was found to be a significant predictor of students' actual usage of e-learning in English learning. This result is consistent with those of previous research on technology acceptance in language learning (Alfadda and Mahdi, 2021; Rafiee and Naghneh, 2021; Arif *et al.*, 2022; Sulistiyo *et al.*, 2022), demonstrating that factors of the technology acceptance model are the main factors influencing students' adoption of technology for language learning.

In the context of EFL university students, these findings are consistent with some of the previous findings (Arif and Handayani, 2021; Al-Fraihat et al., 2020; Ketmuni, 2021; Yavuzalp and Bahcivan, 2021) indicating that, when perceived voluntariness and habit are not taken into account, students' actual usage of e-learning is greatly influenced by attitude, which is the case in this study. Although the support of all TAM hypotheses in this study was expected, the data generated new insights into the perceived enjoyment, motivation, and e-learning self-efficacy and their relationships with other constructs. We found that the main TAM variables (PEoU, PU, and Att) are significant variables on determining the factors that affect EFL university students' acceptance towards e-learning.

The findings of this study explain how the PU and PEoU influence students' actual use of e-learning through the mediating role of attitude. The results of this study showed that only a small portion of actual e-learning usage by EFL university students in Indonesia can be explained by the characteristics of attitude, perceived usefulness and perceived ease of use, with the remainder explained by factors other than the variables studied. This indicates that some additional factors have not been included in this study. Other factors can be inadequate ICT competences of both, teachers and learners, slow internet connection, and lack of technological devices.

6. Limitation of the Study and Future Research

In this study, several limitations exist. First, data were collected through a survey of 298 students from a state university in Indonesia. Although the data are adequate for research in technology acceptance, they may not capture the actual use of e-learning among EFL university students in Indonesia. As a result, including respondents from numerous universities in Indonesia could be considered in future research.

Second, the results indicate that, while perceived enjoyment, motivation, and e-learning self-efficacy may explain the main TAM variables, they can only explain a small portion of actual e-learning usage by EFL university students, with the rest explained by factors other than the variables studied. One of the primary areas of further research might be to examine and discover the reasons for this dissonance. Other variables, such as facilitating conditions, experience, ICT competences of teachers and learners, perceived voluntariness, and social influence, may explain EFL university students' intention to use and actual use of e-learning.

Third, some additional qualitative questions could be used to explore the more nuanced aspects of how/why EFL university students use e-learning in English learning and how specific contextual and personal factors might affect behaviour. This type of data could be gathered via open-ended survey questions and/or follow-up interviews with interested participants in order to inform the educational community on how EFL university students in Indonesia are addressing and dealing with their specific contextual constraints. Furthermore, future research may need to consider more demographic information from respondents, such as socioeconomic status and relevant cultural factors in understanding the relationships between external and internal factors.

7. Implications for Practice

The results of this current study indicate that every aspect of external variable, namely self-efficacy, motivation, and perceived enjoyment, might influence language learners' attitude and actual usage of e-learning. The findings of the study provide significant contributions to both theory and practice. In terms of the theoretical contribution of the study, it validated a model that can be applied in predicting the usage of e-learning in English learning. This study has the potential to contribute to the current debates on the relevance of TAM as a proposed model to explain and predict e-learning usage among EFL university students, as well as to existing literature on the acceptance of e-learning by EFL university students. Moreover, using an extended TAM in a middle-income country allows the validity and robustness of the findings to be assessed in both comparable and different contexts.

In terms of practice, the relationship between the three external variables, namely self-efficacy, motivation, and perceived enjoyment, has a complicated relationship, as these three variables do not completely influence both perceived ease of use and perceived usefulness. Therefore, instructors and students can adjust the integration of e-learning in English learning by implementing a learning curriculum and needs that are in accordance with the user's initial usage objectives, so that users are able to sense the significance of the ease of use and usefulness of e-learning. For educational institutions and e-learning developers who decide to design e-learning for English learning, they should consider developing e-learning apps that support student-centred learning with utility and simplicity of use to improve students' attitudes towards the use of e-learning. By incorporating e-learning into English language learning, students will have more time to practice and improve their English language skills. Furthermore, this study has the potential to inform teacher educators in EFL context such as

countries in Asia. For example, all stakeholders involved in teacher professional development (i.e. policymakers and teacher educators) should promote and provide opportunities to ensure successful e-learning use among EFL university students. Aside from technology skills, teacher educators should address concerns relating to their attitudes and perceptions. Moreover, teachers should incorporate instructional activities that assist EFL students develop positive attitudes and motivation toward e-learning in order to increase their adoption of e-learning for English language learning.

8. Conclusion

This study shows that the factors that influence the actual usage of e-leaning are perceived usefulness, perceived ease of use, and attitude. In this study, it was also found that the self-efficacy and perceived enjoyment influenced perceived ease of use. Another finding of this study is that motivation influence perceived usefulness. The variables that could predict actual use of e-learning in English learning among EFL university students in Indonesia were investigated in this study. In order to explain the respondents' actual usage of e-learning, the extended Technology Acceptance Model (TAM) was applied by perceived enjoyment, motivation, and e-learning self-efficacy as external variables. The findings revealed complex relationships between the perceived usefulness, perceived ease of use, perceived enjoyment, e-learning motivation, self-efficacy, attitude and actual use of e-learning. Furthermore, perceived enjoyment and self-efficacy did not have significant influence on actual use of e-learning through the mediating role of perceived usefulness. Understanding the factors affecting the adoption of new technologies has the ability to improve the quality of the English learning process and enable students to benefit from the potential and advantage of e-learning. Teachers should also be equipped with technological education abilities in order to deliver learning experiences that meet the demands of students in today's digital age. In addition, the findings suggest and encourage the use of e-learning as an innovative approach of English language teaching and learning.

This is one of the few studies in Asia that covers research gaps from previous studies on EFL university students' acceptance and readiness for e-learning. This study includes some external variables; self-efficacy, motivation, and perceived enjoyment. This research also used the TAM approach and data analysed using PLS-SEM. This is what differentiates it from several previous studies. Given the scarcity of such research, it serves as a good reminder to practitioners and researchers to optimize the affordances of e-learning as a tactical and strategic response in teaching English with technology to facilitate both teachers and students in achieving their foreign language educational goals. Because the current respondents are students at a state university in Jambi, Indonesia, and the variables are limited to the TAM model, future research could take a larger research sample and examine other variables that may influence e-learning usage that are not included in the variables of this study.

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