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Determinants of Technology Acceptance Model (TAM) Towards ICT Use for English Language Learning

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ABSTRACT

Background. The use of ICT in learning English can assist learners to improve their language skills, aside from empowering and motivating them in English language learning. ICT utilization can provide opportunities for collaboration and interaction in the learning process.

Purpose. The present study was conducted to examine the motivation, ICT skills, equipment, and attitudes factors towards the use of ICT tools for English learning in English as a Foreign Language (EFL) context.

Methods. The quantitative method was applied involving 303 pre-service teachers of English department at a state university in Jambi, Indonesia. A questionnaire was employed to collect the data and Structural Equation Modeling (SEM) was used to analyze the proposed hypotheses developed in fulfilling the study objectives. Technology Acceptance Model (TAM) was used to examine the attitudes of student teachers toward the use of ICT for English language learning.

Results. Findings suggested that the determinants of the technology acceptance model are the major factors influencing the usage of ICT. In addition, the effect of equipment, motivation, and ICT skills towards the use of ICT had been mediated by three main variables of TAM, namely perceived ease of use, perceived usefulness, and attitudes. Furthermore, it was found that the motivation, ICT skills and attitudes factors affect the actual use of ICT for English learning while the equipment factor does not.

Implications. The results of this study are beneficial for students and teachers both in schools and universities. For students, they need to equip themselves with ICT literacy, ICT skills, motivation, and positive attitudes towards the use of ICT in English learning activities. Teachers should also equip themselves with ICT skills so that they can provide learning experiences according to the needs of students in today's digital age.

KEYWORDS:

English Language Learning, ICT, student teacher, technology acceptance model

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INTRODUCTION

Nowadays, technological advances have had significant impacts on the field of education, especially in learning English as a foreign language. The use of ICT in learning English can assist learners to improve their language skills, aside from empowering and motivating them in English language learning. ICT utilization can provide opportunities for collaboration and interaction in the learning process. Further, the instructional practice can be scaffolded for learners to benefit from such opportunities (Jeong, 2017).

Information and Communication Technology (ICT) is defined as forms of technology used for creating, displaying, storing, manipulating, and exchanging information (Meleisea, 2007). ICT refers to computer-based and network-based technologies that provide a context for information production, delivery, and sharing. In general, ICT relates to computers, hardware and software, smartphones, gadgets, networks, internet, website, e-mail, television, radio, and other computer-based technologies. Empirically, ICT has brought profound changes to all aspects of our lives, and it has a vital role to play in education. The ICT utilization

in the last decade has made a high contribution to English language teaching and learning (Al Arif & Handayani, 2021; Chouthaiwale & AlKamel, 2018).

ICT covers all aspects of computers, networks (internet), and specific other devices with information storage and processing capacities such as TV, mobile phones, and automatic control devices (Caldwell, 2020). In this study, ICT refers to computer-based and internet-based technologies such as desktop, laptops, smartphones, gadgets, e-mail, social networking, website, and software related to English language learning and teaching (Davies & Hewer, 2009; Thamarana, 2015).

In recent times, technologies that interact through the use of computers, the Internet, and telephones have become the subject of most educational studies. The digital era offered technological sophistication including internet and mobile computing that can be brought to educational field. ICT in education can therefore be characterized as an educational practice based on pedagogic theory, resource development and management, method, implementation and evaluation (Jose & Abidin, 2015). The development of ICT enable teachers and educators to make online course and share learning materials to be accessed by students anytime and anywhere (Bauwens, Muylaert, Clarysse, Audenaert, & Decramer, 2020).

Information and Communication Technology (ICT) is more commonly used in language learning and teaching for the last decades (Al Arif, Sulistiyo, Ubaidillah, Handayani, Juninging, & Yunus, 2022; Hwang, 2014; Taj, Ali, Sipra, & Ahmad, 2017). ICT is used for creating, storing, displaying, and sharing information. ICT provides a context for human-human and human-machine communication, and it gives a framework for information production, display, delivery, and sharing. In the context of EFL, ICT can provide English language learners with opportunities for interaction with native speakers through ICT tools such as e-mail, social networking, and video-based communication like Skype.

Since the first appearance of ICT integration in education in the last decades, a substantial investment has been made in ICT facilities and training in Indonesia universities. In Indonesia, as in other countries, the use of ICT in education concentrates on the potential contribution of ICT on teaching and learning process. ICT integration makes teaching and learning more dynamic, which contributes to increase students' engagement. ICT use in English language teaching makes the students tend to have a positive perception and positive attitudes towards ICT integration in the classroom (Mei, Brown, & Teo, 2018; Youssef, Dahmani, & Ragni, 2022).

As one of the most influential frameworks for exploring concerns of technology acceptance and rejection, the Technology Acceptance Model (TAM; Davis, 1989; Venkatesh & Davis, 2000) has been widely employed in teaching and learning contexts (Koç, Yüksel, & Altun, 2021). Numerous studies have proven TAM's strength, and the model has grown to become the common ground theory in explaining determinants of user intention toward the adoption of a technology (Jiang, Jong, Lau, Meng, Chai, & Chen, 2021; Mallya, Lakshminarayanan, & Payini, 2019). Although the TAM model is being widely used to examine users' willingness to adopt a technology, only a few empirical studies have been conducted pertaining to EFL learners' technology acceptance (Hu & AlSaqqaf, 2021; Ketmuni, 2021). Particularly, little is known about the factors driving students' adoption of technologies for learning purposes (Zhou, Xue & Li, 2022).

The current study varies from previous studies in that it explores ICT integration among EFL university students in Indonesia, which has a distinct culture that differs from that of other countries. The primary contribution of this study is to use TAM (Technology Acceptance Model) to examine the acceptance of ICT use for English language learning in Indonesia. For that reason, this study aims to examine the determinants of TAM that influence the acceptance of ICT use for English language learning. This study attempts to analyze the relationship of pre-service teachers' attitude toward ICT use with decided constructs such as their ICT's equipment, ICT's skills, and motivation to use ICT for English learning.

LITERATURE REVIEW

Research Focus on the Use of ICT in English Learning

Using ICT in the classrooms has a high potential for English language learning. It can offer an active learning process and motivate the learners. The technological equipment such as Television, Laptop, Projector, and Interactive Video may affect the learners' attitudes in the English language learning process. The learners can improve their language skills while gaining a sense of independence and encouragement through the use of various technological devices (Caldwell, 2020).

The widespread growth of ICT integration for English language learning has made the process of learning easily accessible by students. ICT devices such as tablet, smartphone and laptop, have become learning tools with great potential outside and inside the classrooms. Students have a great motivation when they used ICT tools to access the materials for learning English (Jakob & Afdaliah, 2019; Kohnke, 2020). Using ICT also may reduce the amount of anxiety that learners have and encourage them to perform English language skills (Balbay & Kilis, 2017; Shamsi, Altaha, & Gilanlioglu, 2019).

ICT can assist both teachers and students in English language learning, and it promotes students' engagement and independent learning (Caldwell, 2020; Floris, 2014). ICT has been used in the classrooms from elementary school to higher education (Azevedo, Catholic, Grande, Sul, Orsi, Delgado, & Silva, 2017; Kalra, 2018). ICT utilization provides the opportunity for students to find out the learning material and practice

their English language skills. Moreover, ICT can be used to attract and grow students' interest and their positive attitudes in learning English, and it is also expected that ICT should be used more frequently in the classroom in order to maximize language teaching and learning. The use of ICT can provide students with the opportunities to practice their English in the real context of language use (Kramsch & Thorne, 2002). The learners can use Skype to interact with a native speaker (Dalton, 2011). Also, teachers can use video resources in the classroom to enhance English language learning (Boutonglang & Flores, 2011). ICT can be used to develop students' English language skills (Jakob & Afdaliah, 2019).

The use of ICT can help English language learners to improve their English language skills in the English language teaching process. The university students are more interested in English language learning when the teachers make use of ICT in the English language teaching process (Alfarwan, 2019; Kreutz & Rhodin, 2016). The effects of technology use in the classrooms make the students active and enjoy classroom activities. The integration of ICT also increases students' motivation in the EFL context (Ilter, 2009; Kohnke, 2020).

Many claims are made regarding the benefits of ICT integration in English language teaching (ELT) (see Benghalem, 2015; Dugartsyrenova & Sardegna, 2017; Howlett & Zainee, 2019). Technological equipment, including the Internet, makes the process of teaching and learning more comfortable and faster, but also to increase the students' engagement and motivation (Fatiha, Sliman, Mustapha, & Yahia, 2014; Ilter, 2009). The use of ICT brings many advantages to learners. The learners may have the opportunity to search for a variety of materials. The advantages of utilizing ICT in education included social interaction, learning motivation, and experiential assistance (Habibi, Mukminin, Riyanto, Prasojo, Sulistiyo, Sofwan, & Sudagar, 2018).

The implication of ICT integration in ELT can support both teachers and learners. Technological devices have been viewed and realized as essential and useful tools, especially in English language teaching. ICT use in ELT helps the students to increase their attitudes in learning English (Idowu & Gbadebo, 2017; Sabti & Chaichan, 2014). Using ICT in the classroom may bring positive attitudes for both teachers and learners (Benghalem, 2015).

Moreover, other research conducted to support the benefits of ICT integration in ELT often relies on introducing the learners to the new devices, software, and websites for learning and practicing the English language (Fitriah, 2018; Zhang et al., 2011). Various devices, software, and websites can be accessed by the learners to improve their English skills. The internet-based technologies allow the learners to access the authentic materials to make them enjoy the English language learning (Shevchenko, 2018). These technological devices allow learners to communicate and exchange knowledge as well as learning experience in contextual settings.

Previous Studies on the ICT Integration

A number of studies on ICT integration for education have been conducted worldwide. For instance, in the U.S, Foti and Mendez (2014) investigated mobile devices in enhancing students' achievement in a graduate program. Forty-six respondents participated in this study. The findings indicated that the students used their mobile devices to enhance learning outside the classroom. Another study in the U.S was conducted by Johri et al. (2014) that investigated digital media and information used by the students. Two hundred and four students participated in a multiple-item survey on the frequency of digital media usage, academic activities, participation in social networking, and searching for information on the internet. The result of the study showed that the students used ICT extensively and frequently. The students asserted that they utilized ICT for general purposes, such as enjoyment and teacher assignments. In Australia, Manakil and George (2017) explored the influence of mobile technology used by students for learning. An online questionnaire was distributed to 251 students enrolled in an Australian university's school of dentistry. The study indicated that the majority of participants (93.2%) used mobile devices for various activities including for educational purposes. The majority of the participants (78.8%) shows that mobile devices and their software may be of positive assistance in education and management. The abovementioned studies investigated the use of ICT for education, however, they did not address the use of ICT for English learning in EFL context.

Situating Previous Studies on the Use of ICT in EFL Contexts

In the EFL context, Shanthi, Adnan, Jamil, Rosle, & Sharminnie (2021) explored university students' acceptance of open distance learning (ODL) using TAM model. ODL took the place of traditional classrooms and created new chances for students and teachers to interact and communicate. The findings reveal that ODL was not a popular choice of learning approach among students. Although students had a positive perception of ODL, the student's attitude and intention to use ODL for future learning were lacking. Alfadda & Mahdi (2021) investigated the correlation between the variables of TAM on using Zoom application in language learning. The study involved 75 undergraduate EFL learners who have studied for online language learning. The results of the study reveal a strong positive correlation between the actual use of ICT and the students' attitudes and behavioral intention. In addition, there is a positive correlation between self-efficacy and other TAM's variables.

Ketmuni (2021) investigated acceptance of Online English Language Learning of Undergraduate Students at a university in Thailand. His study was employed by the technology Acceptance Model (TAM) and conducted as a quantitative and qualitative research. 400 respondents were selected by simple random sampling, and the 30 participants were chosen by purposive sampling. The findings 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. Other related studies were conducted to investigate ICT use in English learning of EFL university students (Alfarwan, 2019). One hundred and thirty-eight of Saudi English and business students at a Saudi university participated in this survey. The findings indicated that the smartphone had the most significant potential for further exploitation concerning English, followed by the laptop and tablet.

Another study related to ICT use in EFL context was conducted by Tri and Nguyen (2014). It involved one hundred and forty-nine EFL students at a university in Vietnam as respondents of the survey. The findings indicated that the learners spent more time using ICT for private purposes than for English learning purposes. Specifically, 88.4% of them used ICT for general purposes, and only 12.6% of them used ICT for English learning purposes.

In the Indonesian context, the students perceive that ICT was useful to be used in English language learning. They used ICT as media in the teaching and learning process (Oktalia et al., 2018). The students used ICT for searching information given by the lecturer, and the lecturer used the ICT for presenting material and as media in teaching. Therefore, ICT integration in English learning should be further investigated to ascertain the factors that influence the technology acceptance model toward the use of ICT in English language learning.

While research studies on the impact of ICT integration on English language learning have been extensively carried out (Alfarwan, 2019; Sabti & Chaichan, 2014; Tri &Nguyen, 2014), typically, these studies examined the effect of ICT use on English-language skills such as listening, reading, speaking and writing. Nevertheless, a few studies, especially in an Indonesian context, focused on the relationship of students' attitudes, motivation, ICT skills, and ICT equipment towards the use of ICT for English language learning. To fill such a gap in knowledge, the present study was designed to examine to what extent TAM variables influence the ICT use in English language learning.

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). Despite widespread acceptance for the TAM, researchers urge others to investigate whether the TAM's belief variables are mediators of the effect of external variables and, if so, which external variables are essential (Venkatesh, 2000; Venkatesh and Brown, 2001). There is no previous literature research has included collectively motivation and ICT skills in a single TAM model, even though these variables are relevant in the context of exploring ICT use for English language learning. Also, while previous research shows that access barriers, such as cost, could influence the use of personal technology (Venkatesh and Davies, 2000), perceived of motivation and ICT skills have not been included as an additional belief variable in previous applications of the TAM.

METHODS

Study Design

This study employed a survey design since it analyzed data in the form of numbers. A survey design provides a quantitative or numeric 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). The current study employed quantitative method to examine factors of TAM toward ICT use for English language learning. Besides, it investigated students' activities related to the usage of ICT for general and English language learning purposes.

Participants

This study used a convenience sample of 303 student teachers of the English Department at a state university in Jambi, Indonesia. The participants are all pre-service teachers majoring English from the first-year to the fourth-year students enrolled in 2020. 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 during their undergraduate study at university. Two hundred thirty-seven respondents were female (78.2%), and sixty-six respondents were male (21.8%).

Data Collection

The primary instrument to collect data in this study was a questionnaire. The online questionnaire was modified by the researchers based on the research question and previous related studies in a close-ended format, and distributed to all of the respondents. The modified questionnaire consists of 33 items. The first section elicited background information of the respondents including gender, academic years, ICT devices ownership, the use of ICT for English learning purposes, and their activities in using ICT for English learning purposes (5 items). The second section entailed the variables of TAM in using ICT for English language learning, which included equipment (Eq), 2 items (adapted from Sabti & Chaichan, 2014); motivation (Mo), 2 items (adapted from Sabti & Chaichan, 2014); ICT skills (Sk), 3 items (adapted from Sabti & Chaichan, 2014); perceived ease of use (PEoU), 5 items (adapted from Davies, 1989; Park, 2009; and Venkatesh & Davies, 2000); perceived usefulness (PU), 5 items (adapted from Davies, 1989; Park, 2009, and Venkatesh & Davies, 2000); attitude (At), 3 items (adapted from Davies, 1989; Park, 2009, and Venkatesh & Davies, 2000); and actual use (AU), 4 items (adapted from Davies, 1989; Park, 2009,

and Venkatesh & Davies, 2000), with four-point Likert-type scales, from 1 = strongly disagree to 4 = strongly agree.

Before administering the questionnaire in this study, a representative group (25 students) who were not involved in the main study were piloted to allow the researchers to identify and adjust the instrument. Expert judgment and literature review were employed in developing the questionnaire validity. For the content validity, the questionnaire was validated by two experts in the field of ICT in face-to-face discussions to make sure the relevance and overall quality of each item in the questionnaire. Modifications, including the layout, the scale, and language translation of the questionnaire were made. Considering that the student teachers (ranged from Year 1 to Year 4) possessed varying levels of English proficiency, a combined three-step (i.e., forward translation, review, and back translation) adaptation method was employed to produce a reliable Indonesian version of the questionnaire. Besides, we also used convergent validity and discriminant validity for the instrument. The result of convergent validity was the outer loading's score of each construct > 0.7, and the AVE's score > 0.5. It means that the constructs of the instrument in this study were valid. Discriminant validity was done by using the fornell-larcker criterion. The score of Actual Use (AU), Attitude (At), Equipment (Eq), ICT Skills (Sk), Motivation (Mo), Perceived Ease of Use (PEoU), and Perceived Usefulness (PU) were 0.828, 0.808, 0.893, 0.879, 0.887, 0.805, 0.715, respectively. Each construct had a score > 0,7. It means that each construct is valid. The questionnaire items were translated into Indonesian language to ensure the respondents understand each item being asked.

Data Analysis

The data collected through the online questionnaire (using Google Form) were coded by researchers. First, the data were put in an MS Excel program. Then, they were transferred to SmartPLS3 program (version 3.2.9) to get descriptive statistic which covers mean, standard deviation, frequency, percent, and correlation. To test the hypotheses by Partial Least Squares -Structural Equation Modeling (PLS-SEM). Confirmatory factor analysis and path analysis in partial least squares (PLS-SEM) were performed to examine the effects of TAM factors that affect the use of ICT for English learning purposes. PLS-SEM was performed in order to test the hypotheses with the significant rate 0.05. Before testing the hypothesis, the researchers performed validity and reliability tests to fulfill 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. The proposed research model and hypotheses are presented in Figure 1 and Table 1.

Figure 1

Proposed Research Model

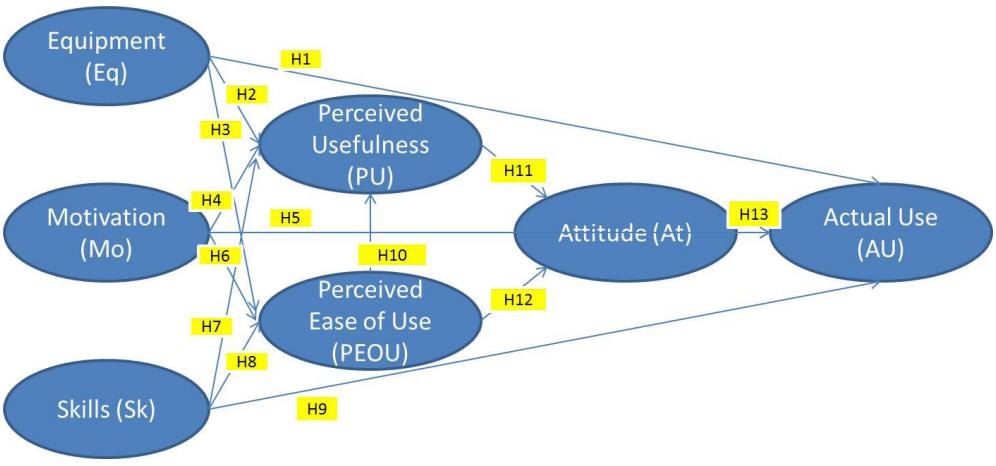

Table 1

Research Hypotheses

No		Hypotheses
H1	Ho	There is no significant effect of Equipment on Actual Use
	Ha	There is a significant effect between Equipment and Actual Use
H2	Ho	There is no significant effect of Equipment on Perceived Usefulness
	Ha	There is a significant effect of Equipment on Perceived Usefulness

No		Hypotheses
H3	Ho	There is no significant effect of Equipment on Perceived Ease of Use
	Ha	There is a significant effect of Equipment and Perceived Ease of Use
H4	Ho	There is no significant effect of Motivation on Perceived Usefulness
	Ha	There is a significant effect of Motivation on Perceived Usefulness
H5	Ho	There is no significant effect of Motivation on Actual Use
	Ha	There is a significant effect of Motivation on Actual Use
H6	Ho	There is no significant effect of Motivation on Perceived Ease of Use
	Ha	There is a significant effect of Motivation on Perceived Ease of Use
H7	Ho	There is no significant effect of Skills on Perceived Usefulness
	Ha	There is a significant effect of Skills on Perceived Usefulness
H8	Ho	There is no significant effect of Skills on Perceived Ease of Use
	Ha	There is a significant effect of Skills on Perceived Ease of Use
H9	Ho	There is no significant effect of Skills on Actual Use
	Ha	There is a significant effect of Skills on Actual Use
H10	Ho	There is no significant effect of Perceived Ease of Use on Perceived Usefulness
	Ha	There is a significant effect of Perceived Ease of Use on Perceived Usefulness
H11	Ho	There is no significant effect of Perceived Usefulness on Attitude
	Ha	There is a significant effect of Perceived Usefulness on Attitude
H12	Ho	There is no significant effect of Perceived Ease of Use on Attitude
	Ha	There is a significant effect of Perceived Ease of Use on Attitude
H13	Ho	There is no significant effect of Attitude on Actual Use
	Ha	There is a significant effect of Attitude on Actual Use

RESULTS

This section presents the results of this study consisting of path coefficients, descriptive statistics, validity, reliability, and hypothesis testing. The path coefficient is depicted in Figure 2 below. The path coefficients provide the basis for the relationships hypothesized in the proposed model. Each score of factor loading is more than 0.5. It signifies that each item accepted with the positive path coefficients. There are six main constructs that may affect the actual use of ICT for English language learning namely, equipment, motivation, ICT skills, perceived usefulness, perceived ease of use, and attitude.

Table 2 shows the descriptive statistics of this study. Descriptive statistics in terms of mean (M), standard deviation (SD), kurtosis, and skewness are reported. The mean score for each item ranges from 2.723 to 3.743, which can be defined as satisfactory which the measurement of the Likert scale ranges from 1 (strongly disagree) to 4 (strongly agree). Overall, respondents tended to have positive attitude on English language learning using technology.

Table 3 shows the convergent validity. The Outer loading and average variance extracted (AVE) were the two procedures to establish convergent validity. Convergent validity was assessed by item outer loading onto the underlying construct. The outer 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 3, the AVE-values are acceptable (greater than the threshold of 0.50). The score of outer loading of each item >.50 and the count of average variance extracted (AVE) > .50. It means that the entire items are valid.

Figure 2

Path Coefficients

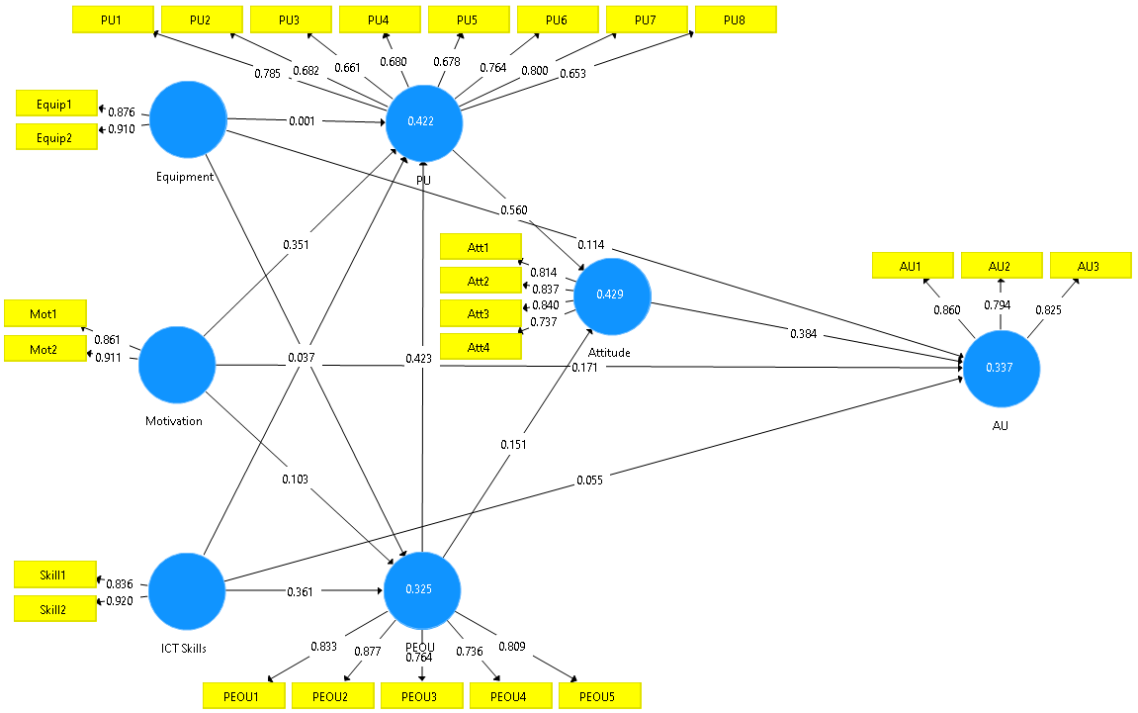

Table 2

Descriptive Statistics

Constructs	Items	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
Equipment	Equip1	3.743	4	2	4	0.445	-0.171	-1.228
	Equip2	3.574	4	2	4	0.508	-1.43	-0.454
Motivation	Mot1	3.558	4	2	4	0.503	-1.714	-0.312
	Mot2	3.426	3	2	4	0.514	-1.48	0.081
ICT Skills	Skill1	3.683	4	2	4	0.472	-0.966	-0.886
	Skill2	3.502	4	2	4	0.532	-1.185	-0.337
Perceived Ease of Use	PEOU1	3.347	3	1	4	0.553	-0.027	-0.194
	PEOU2	3.323	3	1	4	0.527	0.084	-0.001
	PEOU3	3.168	3	1	4	0.552	0.546	-0.061
	PEOU4	3.475	3	1	4	0.544	-0.134	-0.459
	PEOU5	3.330	3	1	4	0.577	-0.049	-0.291
Perceived Usefulness	PU1	3.172	3	2	4	0.583	-0.267	-0.043
	PU2	3.419	3	2	4	0.568	-0.8	-0.33
	PU3	3.287	3	2	4	0.563	-0.532	-0.054
	PU4	3.089	3	1	4	0.681	0.035	-0.365

Constructs	Items	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
	PU5	3.119	3	1	4	0.664	0.274	-0.409
	PU6	3.172	3	1	4	0.572	0.319	-0.116
	PU7	3.251	3	2	4	0.588	-0.485	-0.126
	PU8	3.554	4	3	4	0.497	-1.965	-0.22
Attitude	Att1	3.574	4	2	4	0.520	-1.038	-0.583
	Att2	3.568	4	2	4	0.528	-0.911	-0.612
	Att3	3.426	3	1	4	0.563	-0.097	-0.429
	Att4	3.630	4	2	4	0.509	-0.62	-0.842
Actual Use	AU1	3.370	3	2	4	0.576	-0.721	-0.258
	AU2	2.723	3	1	4	0.696	-0.273	-0.035
	AU3	3.056	3	1	4	0.699	-0.012	-0.369

Table 3

Convergent Validity

Construct	Items	Outer Loading	Average Variance Extracted (AVE)
Equipment	Equip1	0.871	0.797
	Equip2	0.914	
Motivation	Mot1	0.867	0.786
	Mot2	0.906	
ICT Skills	Skill1	0.835	0.772
	Skill2	0.921	
Perceived Ease of Use	PEOU1	0.833	0.649
	PEOU2	0.877	
	PEOU3	0.764	
	PEOU4	0.736	
	PEOU5	0.809	
Perceived Usefulness	PU1	0.785	0.511
	PU2	0.682	
	PU3	0.661	
	PU4	0.680	
	PU5	0.678	
	PU6	0.764	
	PU7	0.800	
	PU8	0.653	
Attitude	Att1	0.814	0.653
	Att2	0.836	
	Att3	0.840	

Construct	Items	Outer Loading	Average Variance Extracted (AVE)
	Att4	0.737	
Actual Use	AU1	0.851	0.685
	AU2	0.797	
	AU3	0.834	

Table 4 shows the discriminant validity. It was done to test the discriminant validity by using the Fornell-Larcker criterion. The square root of any construct value in bold is much greater than the correlation coefficients in the same row or column, indicating good discriminant validity of the external factors and the internal constructs. The score of actual use is 0.828, attitude 0.808, equipment 0.893, ICT Skills 0.879, motivation 0.887, PEOU 0.805, and PU 0.715, each construct has a score > 0.7, which implies that each construct is valid.

Table 4

Discriminant validity

Discriminant Validity; Fornell-Larcker Criterion							
Constructs	**Actual Use**	**Attitude**	**Equipment**	**ICT Skills**	**Motivation**	**Perceived Ease of Use**	**Perceived Usefulness**
Actual Use	0.828						
Attitude	0.536	**0.808**					
Equipment	0.361	0.417	**0.893**				
ICT Skills	0.312	0.408	0.407	**0.879**			
Motivation	0.417	0.487	0.388	0.324	0.887		
Perceived Ease of Use	0.460	0.461	0.443	0.499	0.318	**0.805**	
Perceived Usefulness	0.567	0.643	0.339	0.362	0.498	0.553	**0.715**

Table 5 shows the reliability of the instrument. To test the reliability of the instrument, we used Cronbach's alpha, rho_A, composite reliability, and AVE. Cronbach's Alpha, rho_A, CR, and AVE were the four procedures to establish reliability. The results of data analysis indicate that the scores Cronbach's alpha are > 0.70, rho_A >.70, composite reliability >.70, and AVE >.50. It means that the entire constructs are reliable.

Table 5

Reliability

Constructs	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Actual Use	0.773	0.791	0.867	0.685
Attitude	0.822	0.828	0.882	0.653
Equipment	0.747	0.766	0.887	0.797
ICT Skills	0.713	0.771	0.871	0.772
Motivation	0.730	0.743	0.880	0.786
Perceived Ease of Use	0.863	0.865	0.902	0.649
Perceived Usefulness	0.862	0.867	0.893	0.511

Table 6 represents the results of model fit. Standardized root mean square residual (SRMR) is used to evaluate the model fit. SRMR must be less than 0.08 for an excellent model fit. We confirm that the data fit the model well, as the SRMR is lower than 0.08 (Hu & Bentler, 1999).

Table 7 shows the hypotheses testing. Ten of the thirteen 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_o was rejected and H_a is accepted. This indicated that there was a significant effect among variables.

Table 6

Model Fit

	Saturated Model	Estimated Model
SRMR	0.065	0.078
d_ULS	1.464	2.144
d_G	0.614	0.648
χ^2	1112.462	1144.486
NFI	0.719	0.710

Table 7

Hypotheses Testing

Hypothesis	Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistic (|O/STDEV|)	P Values	Decision
H1	Equipment -> Actual Use	0.114	0.113	0.048	2.378	0.009	Accepted
H2	Equipment -> Perceived Usefulness	0.001	-0.001	0.050	0.024	0.491	Rejected
H3	Equipment -> Perceived Ease of Use	0.255	0.257	0.060	4.238	0.000	Accepted
H4	Motivation -> Perceived Usefulness	0.351	0.353	0.052	6.797	0.000	Accepted
H5	Motivation -> Actual Use	0.171	0.175	0.056	3.071	0.001	Accepted
H6	Motivation -> Perceived Ease of Use	0.103	0.108	0.058	1.779	0.038	Accepted
H7	ICT Skills -> Perceived Usefulness	0.037	0.034	0.057	0.643	0.260	Rejected
H8	ICT Skills -> Perceived Ease of Use	0.361	0.360	0.066	5.443	0.000	Accepted
H9	ICT Skills -> Actual Use	0.055	0.057	0.048	1.145	0.126	Rejected
H10	Perceived Ease of Use -> Perceived Usefulness	0.423	0.427	0.058	7.241	0.000	Accepted
H11	Perceived Usefulness -> Attitude	0.560	0.558	0.055	10.234	0.000	Accepted
H12	Perceived Ease of Use -> Attitude	0.151	0.151	0.067	2.244	0.013	Accepted
H13	Attitude -> Actual Use	0.384	0.384	0.063	6.131	0.000	Accepted

The findings in this study revealed that: **H1** *Equipment – Actual Use* with *t*-statistic = 2.378 and *P*-value = .009. **H2** *Equipment – Perceived Usefulness* with *t*-statistic = .024 and *P*-value = .4991. **H3** *Equipment – Perceived Ease of Use* with *t*-statistic = 4.238 and *P*-value = .000. **H4** *Motivation – Perceived Usefulness* with *t*-statistic = 6.797 and *P*-value = .000. **H5** *Motivation – Actual Use* with *t*-statistic = 3.071 and *P*-value = .001. **H6** *Motivation – Perceived Ease of Use* with *t*-statistic = 1.779 and *P*-value = .038. **H7** *ICT Skills – Perceived Usefulness* with *t*-statistic = 0.643 and *P*-value = .260. **H8** *ICT Skills – Perceived Ease of Use* with *t*-statistic = 5.443 and *P*-value = .000. **H9** *ICT Skills – Actual Use* with *t*-statistic = 1.145 and *P*-value = .126. **H10** *Perceived Ease of Use – Perceived Usefulness* with *t*-statistic = 7.241 and *P*-value = .000. **H11** *Perceived Usefulness – Attitude* with *t*-statistic = 10.234 and *P*-value = .000. **H12** *Perceived Ease of Use – Attitude* with *t*-statistic = 2.244 and *P*-value = .013. **H13** *Attitude – Actual Use* with *t*-statistic = 6.131 and *P*-value = .000.

DISCUSSION

From the findings, we can conclude that H1, H3, H4, H5, H6, H8, H10, H11, H12, H13 had t-statistic > 1.96 and P-Value < .05. So that Ho was rejected, and Ha is accepted. This indicated that there was a significant effect among variables. On the other hand, H2, H7 and H9 had t-statistic 1.96 and P-Value > .05, so that Ho was accepted, and Ha is rejected, it means that there was no significant effect among variables.

This study employed the TAM model as the core construct and that was expanded by three external constructs. The TAM model consists of PEOU, PU, Attitude, and Actual Use of ICT, while the external constructs consist of Equipment, Motivation and ICT Skills (e.g., general skill to operate ICT devices, and specific skill to utilize ICT device for English learning) for English language learning. The determinants of the actual use of ICT for learning English can be identified by testing the hypothesis.

The results of hypothesis testing show that the strongest determinant on the use of ICT for English language learning is attitude. However, the strongest determinant on the attitude is PEOU. These findings are consistent with (Alfadda & Mahdi, 2021; Sabti & Chaichan, 2014) which stated that attitude had been the main determinant of TAM model. The TAM model has three main variables that can be used for measuring the user's behaviors in the actual use of technology namely, PEoU, PU, and attitude (Hu & AlSaqqaf, 2021; Ketmuni, 2021).

Other determinants on the actual use of ICT for English language learning are equipment, motivation, and ICT skills. Based on the findings, equipment had significant effect on actual use of ICT with P <.05 as well as motivation with P <.05, while ICT skills had no significant effect on actual use of ICT with P >.05. In contrast, both perceived usefulness (PU) and perceived ease of use (PEoU) indicated have significant effect on affecting user attitude. PU with P <.001 had the strongest effect on user attitude, whereas PEOU with P =.013 means that the significancy is lower than PU.

The results of this study illustrate that attitude towards ICT use influences students actual use of ICT for English language learning. Consistent with Koç et al., (2021) & Zhou et al., (2022), the current study has confirmed that there is a positive and significant correlation between students' attitude and their actual use of ICT. Additionally, it reveals that PU and PEoU are positive and significant predictors for students' attitude towards ICT use. This result is in line with Shanthi et al., (2021) & Al-Gahtani (2016) in terms of the appropriateness of TAM to examine students' acceptance of ICT use for English language learning.

Nowadays, the ICT use is closely linked to human activity. ICT provides an access for information and enhances the quality of human life. ICT enables learners to access resources and support them in language education, especially in EFL context (Alfadda & Mahdi, 2021; Lai, 2013; Reinders & White, 2016). The use of ICT can improve students' English language skills (Jiang et al., 2021; Mallya et al., 2019). In addition to that, the students perceived that English learning can be more enjoyable if the teacher integrates ICT into the teaching and learning process (Al Arif, 2019; Kessler, 2018) so that students' positive attitudes on the use of ICT is enhanced (Ketmuni, 2021; Sabti & Chaichan, 2014; Tri & Nguyen, 2014).

CONCLUSION

To summarize, not only the student attitudes but also the motivation factor has positive effect on the use of ICT in learning English, even if there is an interesting phenomenon that neither the equipment factor nor students' ICT skills have a significant effect on the use of ICT for learning English. ICT integration has a significant influence on learning English, especially among EFL school and university students. In today's digital era, the existence of ICT is needed to improve English language skills for those whose first language is not English. They use ICT tools in learning English and they show a positive attitude towards the use of ICT for their learning activities.

The results of this study are beneficial for students and teachers both in schools and universities. For students, they need to equip themselves with ICT literacy, ICT skills, motivation, and positive attitudes towards the use of ICT in English learning activities. As for teachers, they should assist students and encourage them to have positive attitudes and motivation to learn English using ICT. Teachers should also equip themselves with ICT skills so that they can provide learning experiences according to the needs of students in today's digital age. Although this study yielded meaningful findings for learners-related determinants of ICT use for English language learning, it has potential a limitation in terms of sample number. Further research studies are recommended to replicate the current study using larger sample of respondents who have more experiences in using ICT for learning English so the results will lead to a better generalization.

DECLARATION OF COMPETING INTEREST

None declared. ■

AUTHOR CONTRIBUTIONS

Urip Sulistiyo: conceived and designed the analysis, designed the method and its analysis, contributed data or analysis tools, performed the analysis, wrote the paper.

Tubagus Zam Zam Al Arif: collected the data, contributed data or analysis tools, performed the analysis.

Reli Handayani: contributed data or analysis tools.

M. Faruq Ubaidillah: performed the analysis, proofread the manuscript.

Mujiyono Wiryotinoyo: contributed data or analysis tools.

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