

Evaluating the Effect of EFL College Students' Intention to Utilize Mobile English Vocabulary in the Learning Process: A TAM Framework

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Abstract

In today's world, it is no longer a surprise that (smart) mobile devices have become the most helpful technological devices to be used for various purposes, one of which is in English education. Therefore, studies on improving language learning, especially vocabulary for learners using mobile device technology, have become commonplace in today's digital era. However, to achieve maximum use, there needs to be an intention from students to accept the English vocabulary technology in the learning process. Therefore, this study aimed to evaluate the integration capability of the Technology Acceptance Model (TAM) to predict and explain EFL college students' intention to utilize mobile English vocabulary learning. This research involves TAM because TAM has been widely applied to study information technology because of its effectiveness in assessing the level of user acceptance. Through a quantitative method using a cross-sectional survey approach involving 456 respondents, this study ultimately found that, after being analyzed using the PLS-SEM analysis technique, the constructs in TAM, including perceived ease of use ($\beta = 0.302$, T-Value = 6.587, and P-value = 0.000) and usefulness ($\beta = 0.359$, T-Value = 7.501, and P-value = 0.000), had a positive and significant effect on EFL college students' intention to utilize mobile English vocabulary. Perceived usefulness shows the most dominant effect. However, this study has limitations that need to be considered. And, of course, caution in generalizing is necessary.

Keywords: EFL college student, English vocabulary, perceived ease of use, perceived usefulness, technology acceptance model,

INTRODUCTION

In today's world, it is no longer a surprise that (smart) mobile devices have emerged as the most convenient and often utilized technical equipment in our daily lives. Mobile devices can be used for a range of functions and fulfill various needs. Because education is a fundamental human need, smart mobile devices are integrated into educational settings. This is, without a doubt, inextricably linked to the rapid rise of information technology innovation in recent years (Zhonggen & Xiaozhi, 2019). However, whether they have an impact on learning must be determined. The realm of this technology, referred to as "mobile learning," has subsequently been a prevalent research issue (Yurdagül & Öz, 2018).

Indeed, mobile and handheld devices have been seen as potentially essential learning tools, including language learning (Baron, 2020; Soleimani et al., 2014). Therefore, studies on improving language learning, especially vocabulary for learners using mobile device technology, have become commonplace in today's digital era (Song & Ma, 2021). However, Mahdi (2017) compiled current studies and discovered that vocabulary learning programs delivered via smart mobile devices outperform traditional vocabulary learning tools in terms of improving students' English vocabulary learning. Many others have discovered that studying vocabulary with mobile phones is both motivating and beneficial in terms of assisting students in memorizing target English lexicons. However, to obtain the most out of this technology, students must have a potent intention to accept it as a tool for learning English vocabulary.

Thus, the objective of this study was to see if the Technology Acceptance Model (TAM) could be used to predict and explain EFL college students' intentions to use mobile English vocabulary. TAM is used in this study. After all, it has been used a lot in the field of educational information technology because it is good at figuring out how much people like using information technology (Wang et al., 2017).

In the realm of (educational) technology acceptance, the Technology Acceptance Model (TAM) is one of the pacemaker ideas that seek to predict user behavior towards a given technology based on two elements: "perceived usefulness and perceived ease of use of the technology" (Mei et al., 2017; Putra et al., 2020). When applied to many domains, the model has proven to be a useful foundation for explaining the acceptance of technological integration in general (Putra et al., 2020). Al-Gahtani (2016) argues that it is a true TAM when these two belief formulations are used together.

TAM itself has many and is often developed. However, according to Chocarro et al. (2021) TAM explains user behavioral intentions by two factors: "the new technology's perceived usefulness and ease of use". These two fundamental vital factors were also reaffirmed by (Liu et al., 2017). Thus, two hypotheses in the effect of perceived ease (H1) and usefulness (H2) have a positive and significant effect on EFL college students' intention to utilize mobile English vocabulary learning.

This research will be fascinating because, in addition to looking at the fact that EFL Students currently have a favorable view of online learning through smart mobile (Alfadda

& Mahdi, 2021) and the effectiveness of using cellular in language learning (Mortazavi et al., 2021). A second point raised by Buabeng-Andoh (2018) is the fact that only a few studies have looked at TAM to evaluate students' intentions to utilize mobile English vocabulary learning in developing countries, which is understandable given that mobile English vocabulary learning is a relatively new phenomenon in these countries' educational environments. This includes Indonesia.

This research will also be the first research in Indonesia, considering that similar studies, as far as the authors find, are still being conducted in China (Huang et al., 2017; Jiang et al., 2021; Mei et al., 2017; Zhang & Pérez-Paredes, 2019; Zhou et al., 2021), Taiwan (Hsu & Lin, 2022), Vietnam (Hoi & Mu, 2021), Iran (Haghighi et al., 2018), and Turkey (Cakir & Solak, 2015). And while other studies have only focused on the perspectives of the teachers (Chocarro et al., 2021; Huang et al., 2017; Liu et al., 2017; Scherer & Teo, 2019), this research focuses more on the perspectives of students. Thus, this study will be very much different from most previous studies.

METHOD

This is a quantitative study with 456 participants with a cross-sectional survey design. A cross-sectional survey is a good way to explore huge populations in a short amount of time Nardi (2014). Because this study aims to observe and analyze data from a population through surveys at a single point in time, this approach was chosen.

The respondents in this study were research subjects who were samples selected using a purposive sampling technique from the entire population of EFL college students in Indonesia. Overall, respondents in this study consisted of men (237/51.97%) and women (219/48.03%) who studied at various universities in Indonesia, both private (206/47.25%) and public (230/52.75%) universities. The majority of their respondents are aged 19 – 24 years (271/59.43%).

First of all, the respondents were surveyed using a two-part questionnaire. In the first part, the respondents were asked to fill in their brief biodata such as name, gender, age, and others. Then in the second part, the respondents were asked to fill in about their perceptions (ease of use and usefulness) of mobile English vocabulary learning and their intention to utilize it. This study's ease of use and usefulness variables are exogenous variables, each of which is measured by three indicators developed from previous research (Chung et al., 2015). Meanwhile, the variable intention to utilize mobile English vocabulary learning is an endogenous variable measured by four indicators developed from research (Chung et al., 2015). These indicators are then used as a questionnaire which will be measured on a 1-5 Likert scale. All of these processes are carried out in person or online. The online process is carried out to enable it to reach respondents who cannot meet in person due to their personal reasons as well as to reach respondents who cannot be reached by the authors due to long distances. This is possible by using the google form facility.

Second of all, immediately following the distribution of surveys to all respondents for completion. And after all the data was collected, the Authors then checked over to verify the completeness and suitability of the answers requested. For questionnaires that were not filled out completely, they would be immediately eliminated and would not be processed further. After that, the verified data is analyzed for subsequent. Partial Least Squares (PLS), a statistical approach that is implemented in structural equation modeling (SEM), was used to investigate the relationship between perceived ease and usefulness and intention to utilize (Sarstedt et al., 2014). Essentially, the PLS-SEM analysis is composed of two models: a structural model and a measurement model. Internal validity and reliability metrics were used in the investigation of the structural model. Following the analysis of the structural model, the PLS algorithm employs the t-test and path values to verify the hypotheses generated. SmartPLS 3.0 was utilized to conduct the PLS-SEM analysis in this study.

FINDING AND DISCUSSION

After analyzing the PLS-Algorithm in SmartPLS 3.0, this study found, from the perspective of the measurement model analysis, that all indicators in the study can be declared reliable because the loading value shows > 0.70 . Not only that, all constructs or variables in this study can also be said to be reliable and valid. Evidence of the overall reliability of the variables in this study can be seen from the Composite Reliability (CR) value > 0.70 as well. The convergent and discriminant validity values for all of the variables in this study can be served as evidence that all of the variables are valid. In terms of convergent validity, the evidence that all variables are declared valid in this study refers to the Average Variance Extracted (AVE) value that exceeds the threshold value > 0.50 . All of this evidence can be seen in Table 1.

In terms of discriminant validity, referring to Table 2, the results of this study confirm that all constructs in this study are also valid from the discriminant side (based on the Fornell-Larcker criteria). This is because the overall AVE square root of a determinant has exceeded the correlation it shows with other constructs. Thus, in terms of the measurement model analysis, all of the variables in this study are valid and reliable.

On the other hand, this study also found that the value of the magnitude of the influence of perceived ease of use and usefulness on the intention to utilize mobile English vocabulary was still relatively low and tended to be moderate. It can be referred to the value of F^2 in Table 3, which is still around > 0.02 to < 0.15 (0.092 for perceived ease of use and 0.130 for perceived usefulness). At the same time, the R^2 value of the intention to utilize mobile English vocabulary is 0.348. Both “perceived ease of use and perceived usefulness” only contribute 34.8% in predicting the intention to utilize mobile English vocabulary. The rest (65.2%) was predicted by other variables that were not involved in this study.

Table 1. The results of the measurement model test

Variables	Loading	CR	AVE
Perceived Ease of Use (PEoU)		0.874	0.635
I think that learning vocabulary through mobile phones is easier	0.854		
I think that learning vocabulary through mobile phones saves more time	0.820		
I think that learning vocabulary through mobile phones is more simple	0.753		
I think that learning vocabulary through mobile phones is more effortless	0.756		
Perceived of Usefulness (PU)		0.819	0.531
As far as I am concerned, using mobile phones to learn vocabulary is not constrained by time or location	0.748		
I believe that learning vocabulary on my phone will assist me in getting the information I require	0.728		
I believe that using a mobile phone to learn vocabulary improves my ability to learn English better.	0.710		
I believe that learning vocabulary through mobile phones can assist in English task completion	0.728		
Intention to Utilize Mobile English Vocabulary (IU)		0.877	0.641
I am eager to learn vocabulary by using mobile phones	0.836		
In the future, I am willing to keep using mobile phones to learn English vocabulary	0.854		
In general, I intend continually to increase my vocabulary by using mobile phones	0.805		
I am willingly recommending others to learn vocabulary through mobile phones	0.700		

Table 2. Fornell-Larcker Criterion of Discriminant Validity

Variables	PEoU	PU	IU
Perceived Ease of Use	0.797		
Perceived of Usefulness	0.585	0.729	
Intention to Utilize Mobile English Vocabulary	0.512	0.536	0.801

Table 3. The results of the Structural model test

Variables	Inner Model	
	F²	R²
Perceived Ease of Use	0.092	
Perceived of Usefulness	0.130	
Intention to Utilize Mobile English Vocabulary		0.348

Table 4. The Results of the Hypothesis test

Hypothesis	β	T-Value	P-value
Perceived Ease of Use → Intention to Utilize Mobile English Vocabulary (H ₁)	0.302	6.587	0.000
Perceived Usefulness → Intention to Utilize Mobile English Vocabulary (H ₂)	0.359	7.501	0.000

The last is the primary analysis, namely the analysis of hypothesis testing. Referring to Table 4, it can be proven that this study's hypothesis can be demonstrated to be completely confirmed and accepted. The proof of H₁, which states that "perceived ease of use has a positive and significant effect on the intention to utilize mobile English vocabulary," is accepted because it has a value of $\beta = 0.302$, T-Value = 6.587, and P-value = 0.000. These results are, of course, in line with the results of previous studies (Al-Gahtani, 2016; Ameen et al., 2019; Chocarro et al., 2021; Chung et al., 2015; Eraslan Yalcin & Kutlu, 2019) and contradict the research (Chen et al., 2020; Ifinedo, 2006) who found that perceived ease of use was not a predictor of intention.

According to the study, perceived ease of use "refers to the degree to which a person believes that utilizing a technology will be reasonably straightforward both physically and psychologically" (Davis, 1989; Huang et al., 2017), and is a predictor of EFL college students' desire to employ mobile English vocabulary in their learning process. It means that the greater an EFL college student's intention to use a mobile phone for acquiring English vocabulary, the easier it is for them to do it. In EFL college students' perspectives, however, the more difficult it is to use a mobile phone to learn English vocabulary, the less likely they are to use it. As a result, perceived ease of use plays an important role in defining behavioral intent.

On the other hand, proof of the acceptance of H₂, "perceived usefulness has a positive and significant effect on the intention to utilize mobile English vocabulary," can be seen from the value of $\beta = 0.359$, T-Value = 7.501, and P-value = 0.000. These results are in line with the results of other previous studies conducted by (Al-Gahtani, 2016; Ameen et al., 2019; Calisir et al., 2014; Chen et al., 2020; Chocarro et al., 2021; Eraslan Yalcin & Kutlu, 2019; Scherer & Teo, 2019) where they found and proved that perceived usefulness did affect behavioral intention positively and significantly. Unfortunately, a study by (Natasia et al., 2022) revealed the contrary, rejecting the hypothesis that behavioral intention is positively influenced by perceived usefulness. However, in his research, Calisir et al. (2014) concluded that perceived usefulness was among the variables in the TAM that had the most dominant influence on behavioral intention. And it seems that this is reaffirmed in the results of this study for sure as well.

It indicates that perceived usefulness "refers to the extent to which a person believes that technology will help him and improve performance to perform certain tasks efficiently and productively." (Davis, 1989; Huang et al., 2017), is a predictor of EFL college students'

intention to utilize mobile English vocabulary in their learning process as well as perceived ease of use. The more useful a mobile phone is to use for learning English vocabulary in EFL college students' perceptions, the more their intention to utilize it will be. On the other hand, the more a cellular has no use for mobile to learn English vocabulary in EFL college students' perceptions, the lower their intention to utilize it. It is logical because, after all, Mobile learning must help and provide benefits for college students (Kumar Basak et al., 2018; Rojabi, 2021). Thus, perceived usefulness is also an essential factor in behavioral intention along with perceived ease of use.

With the acceptance of the whole hypothesis where perceived ease of use and usefulness are the main predictors of intention to utilize, this study is corresponding with previous empirical research conducted by (Al-Gahtani, 2016). It proves a theory that both are specifically designed to influence behavioral intention (Poong et al., 2016). And this, of course, demonstrates at the same time that a viable explanation for individual acceptance of technology using TAM in educational contexts has been empirically tested across a variety of technologies and populations, providing valuable insight into the development of effective programs to increase technology acceptance among various academic users, particularly in English education as expressed by (Mei et al., 2017).

Nonetheless, this study has diver limitations that should be considered. Due to its small size and inability to accurately represent Indonesia's wide variation in socioeconomic level from one location to another, the sample is unrepresentative of the country as a whole. Due to the fact that the respondents to this survey were confined to EFL college students at multiple universities in Indonesia, it is possible that the results will not be applicable to a broader population. Consequently, more studies with bigger sample sizes and broader geographic scopes will be required to corroborate the beneficial influence of perceived simplicity and usefulness on interest in utilizing mobile English vocabulary learning applications in the future.

CONCLUSION

This study of EFL college students at multiple universities in Indonesia, using the TAM theory, has made a substantial contribution to the scientific literature on student technology adoption, which is currently lacking. Overall, the findings of this paper indicate that the proposed version of TAM can be effective in explaining the technology integration of EFL college students in a broader and more diverse context than the version currently in use. It was discovered in this study that the perceived ease of use and usefulness of mobile English vocabulary by EFL college students had a statistically significant beneficial effect on their intention to utilize it. Overall, we conclude that the Technology Acceptance Model (TAM) is a powerful model for explaining the intention of EFL college students to utilize technology in terms of mobile English vocabulary. However, there are certain limitations to this study that should be considered. And, of course, extreme caution should be exercised when making broad generalizations. And on this premise, this research does not rule out the possibility of

future research in this area, and in fact, it tends to encourage the creation of comparable studies.

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