Journal of Theoretical and Applied Information Technology
15th March 2023. Vol.101. No 5

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

THE ROLE OF EXPERIENCE AND SELF-EFFICACY IN THE TECHNOLOGY ACCEPTANCE MODEL: A STUDY CASE FOR PRACTITIONERS AND TRAINEES

[1]QUYNH NH, [2]HOAI NT, [3]LOI NV

[123]Vietnam-Korea University of Information and Communication Technology, The University of Danang
E-mail: [1]nhquynh@vku.udn.vn; [2]nthoai@vku.udn.vn; [3]nvloi@vku.udn.vn

ABSTRACT

The purpose of the current study is to estimate the factors stimulating the acceptance and use of information technology (IT) systems by practitioners and trainees. To solve this problem, the research has applied the technology acceptance model (TAM) - this model has been becoming one of the widely accepted research models in the field of IT applications. However, when conducting a comprehensive review of existing literature, it was found that the relationship results in TAM were inconsistent between the studies given the diversity of predictive factors in the TAM along with cultural differences. Therefore, this study attempts to suffice this gap by assessing the interaction factors in TAM with the e-learning context of working adults. The results show that experience, enjoyment, and self-efficacy affected learners' perceived usefulness and ease of use, which in turn affected the satisfaction and intent of the behavior. Therefore, this study has provided insight into how learners shape their attitudes and intentions for e-learning.

Keywords: *E-Learning, Practitioners And Trainees, Experience, Self-Efficacy, TAM*

1. INTRODUCTION

The emergence of the internet and the development of modern information technology have brought about tremendous changes in society, in which education is one of the areas that receive the most positive benefits from this appearance. Unlike in the past, learners' knowledge is mainly provided by books and teachers, today, with the explosion of information technology, the availability of diverse knowledge sources is provided online with supporting of internet connections. Therefore, information technology creates conditions for learners to learn and exchange knowledge easily. It is also a good condition to support educational institutions, businesses, and learners during the COVID-19 pandemic. It also makes it possible for people to self-study at a low cost and contributes to the creation of a lifelong learning society. Moreover, IT also facilitates learners to access diverse and valuable resources that learners in developing countries do not have many opportunities to support. In particular, e-learning has brought great benefits not only for learners and educational institutions but also for society as the physical classroom still represents the limitations of space, time, and location [1]. In contrast, the greatest power of e-learning is based on its potential to offer an appropriate training level of whenever and wherever needed [2], specifically its benefit towards practitioners and trainees. In other words, the main advantage of e-learning is flexibility and accessibility [3]. Specifically, e-learning connects all educational activities conducted by different individuals and groups, online and offline both, through networked or independent devices, allowing users to access to a learning platform without time and space restrictions [4]. The system's competitive advantage stems from its ability to allow users to navigate and customize content through eliminating an education and training approach of one size fits all [5], and to facilitate a learning platform transcending time and space [6]. It becomes an alternative option for learners because it is more comfortable than studying in schools, often due to anxiety, the pressure of direct contact with teachers, crowds, traffic jams, limited time, etc. [7].

The global outbreak of the COVID-19 epidemic has left serious consequences for the whole society, not only negatively affecting human health and economic activities but also causing difficulties in the education sector. For the first time in the history of education in Vietnam, not only the majority of students at universities, but also students from primary to high schools in the country have formally accessed the online learning system. Therefore, grasping the advantages of online

learning can lead to the prevalence of many online courses in the future.

While many current studies focus on e-learning globally, many authors conclude by calling for more examination of e-learning intent in specific countries, typically growing and underdeveloped countries. Even the use of e-learning systems is becoming popular, but there is still a lack of investment and asynchronism in developing countries. This is due to poor internet connection quality, inadequate infrastructure, and lack of financial support [8]. Besides, the lack of knowledge about e-learning [8] and a lack of motivation to adapt to change are other reasons preventing effective technology application.

Review literature indicated that to explore the impact of technology on user attitudes and behaviors, many authors have used TAM as a baseline model in their studies [9, 10]. Although, Legris et al. [11] criticized TAM, authors also expected that other external variables should be added to be shed more light on factors influencing users' technology adoption. It is recognized that two belief constructs including ease of use and usefulness might not identify all the crucial components in predictive technology acceptance [12]. Besides, the assessment of factors affecting the behavioral intent of e-learners also lacks consistency among studies, especially for practitioners and trainees who are busy, needing great support from technology to save time and effort. This study, thus, uses TAM as a platform model to examine the role of technology in e-learning and the core factors of the model can also predict student satisfaction [10, 13, 14]. Some studies have looked into different effects of culture on the appropriateness of models [8, 15, 16,17]. In other words, it can't ignore exploring the nature and influence of individual use and technology context factors to enhance the unique characteristics of a particular technology [18]. This has led to this study being conducted to assess the factors that influence learners' intention to accept information technology in the Vietnamese context. The research results show that experience, enjoyment, and self-efficacy affect the usefulness and ease of use of learners, thereby affecting the satisfaction and intention of the behavior. However, the study has not evaluated the regulatory role of demographic factors. Which is thought to lead to differences in learners' behavior due to differences in gender, income level or education level. This research can help educational institutions tailor their e-learning systems, by exploring the results of this study. Therefore, this study expects to provide relevant results for educational institutions to attract students toward e-learning. By examining the relevance of belief constructs in the context of using technology to study, moreover, also to explain why students in a higher education institution accept or refuse e-learning. This study, therefore, provides a comprehensive model to fill the gap in previous studies by assessing the factors that interact in TAM with the e-learning context of practitioners and trainees.

2. BACKGROUND AND HYPOTHESES

2.1 The technology acceptance model (TAM)

Davis [19] proposed a TAM based on the theory of planned behavior [20, 21] and the theory of rational action [22] which aimed to assess users' perceptions, attitudes, and intentions toward a technology. Agarwal and Karahanna [23] stated that user acceptance is an important factor to prove the value of the system. Therefore, TAM has been constructed as a universal model to explain and predict users' acceptance of diverse information systems like online consumer behavior, e-mail, spreadsheets, word processing, the World Wide Web, and e-commerce [24]. Moreover, TAM is an influential model in the field of information systems and also to predict the e-learning acceptance of learners [25]. For TAM, the expectation to improve work performance is described as a direct predictor of intention to engage in use. The reason justifying this change is that users may not like using technology, but can continue to use it because of their positive awareness of the impact of technology on job performance [26]. TAM incorporates elements PEOU, PU, A, I, and U, laying the foundation for different studies on the application of information and technology by users [26]. Among them, easy-to-use and useful perceptions are considered to be the most important structures that determine system use [27]. This is because users either accept or reject technology, mainly influenced by these two structures (Davis, 1989). Specifically, TAM hypothesizes that user attitudes (UAT) are generally influenced by usability (PU) and ease of use (PEU). Davis et al. [26] has determined that ease-of-use is viewed as the degree to which an individual perceives that employing a particular system is effortless, perceived easy-to-use is proven to indirectly affect the intent of behavior by influencing perceived usefulness. Meanwhile, user perception is that users believe that utilizing the system will improve their performance [27], which

represents the perceived outcome of the available experience [28]. Besides, users' attitudes will directly affect their intention to use technology. Recently, TAM has been applied to the field of e-learning [29]. This study developed an expanded version of TAM to explore the factors that influence learners' decision to use the e-learning system.

2.2 Related constructs

According to TAM, acceptance is regarding the intention to apply a particular system, this is determined by the superiority of use and recognition of the ease of use of the system. Davis et al. [26] shows that PU is directly affected by PEOU and both affect UAT. In the context of e-learning, if learners find it easy to use e-learning systems to study online, they can be more likely to believe that e-learning systems give them more advantages. [15, 30, 31]. Shen and Chuang [32] expanded TAM by combining two external variables, interactivity, and self-efficacy, to test students' attitudes and intentions in the use of interactive whiteboard technology. This extended model has demonstrated that students' attitudes and intent to use the system are influenced by interaction, self-awareness, ease of use, and user awareness. That is, the easier it is for e-learners to interact with the particular e-learning system, the more useful learners will find it. In addition, the greater the ease of use of the particular e-learning system, the more positive its intention to use it is, the more likely it will continue to be used [33].

In addition, TAM assumes the direct influence of PU and ATU on UBI, in which, UAT is an explanatory variable for users to assess positively or negatively in completing certain behaviors when using technology [22]. Following this line of reasoning, satisfaction with the use of technology is chosen as the main indicator of its acceptance in this study. User satisfaction, defined as the extent to which users assess that information system attributes are appropriate to their needs and expectations [34]. Moreover, user satisfaction is considered as an important factor affecting the success of e-learning systems [35, 36].

Therefore, several studies have demonstrated that perceived usefulness and ease of use are closely related to user satisfaction [37, 38]. A rigorous review of educational material illustrates that satisfaction occurs when individuals who believe that a clear understanding of e-learning have achieved expected results or exceeded their cognition about expected results [35, 39, 40]. Sun et al. [9] provided much useful empirical evidence on the positive relationships between learners' satisfaction with e-learning and its usefulness, in turn, learners' satisfaction can have a direct impact on shaping their behavioral intent. Liaw [41] also found a positive causal relationship between the satisfaction of using an e-learning system and the learner's behavioral intentions. The results show that the satisfaction of users is higher for an information system, which will lead to increased intention the more they intend to use the system and vice versa. Based on these discussions, the current study proposes a number of the following hypotheses:

H1: PEU positively affects PU.

H2: PEU positively affects learners' satisfaction.

H3: PU positively affects learners' satisfaction.

H4: PEU positively affects learners' behavioral intentions.

H5: PU positively influences the learner's behavioral intentions.

Although TAM is estimated as one of the most influential and popular models in information technology [42, 43], however, some researchers have improved TAM by combining it with "external variables". Such external variables can improve the viability of TAM, therefore, more and more studies explore extended TAM in different contexts. Specifically, Lee et al. [44] expanded TAM by integrating previous experience factors, computer efficiency, task equivalence, and organizational support to test the impact of factors. As a result, PU has been influenced by organizational support, prior experience, and task equivalency. On the contrary, PEOU is affected by the level of organizational support and computer efficiency. Besides, the expanded TAM proposed by Abdullah et al. [45] investigated the influence of external factors (including self-efficiency, subjective standards, interest, and computer concerns and experience) toward the student's ease of use and their useful awareness and behavioral intent for the electronic portfolio system by

collecting data from 242 UK university students. The results show that the three important factors to predict students' ease of use awareness are experience, enjoyment, and self-efficacy. Meanwhile, the best predictive tool for students' useful perception of this system is the perception of its the ease of use and enjoyment. In addition, many other studies on the effect of experience, self-efficiency, and enjoyment on the two belief structures of TAM have been carried out in different cultures, and the results are consistent. Specifically, while Lau and Woods [46] and Martin [47] demonstrate that experience only affects user-perceived usefulness, research results from Deshp et al. [48] and De Smet et al. [49], show that experience only affects perceived ease of use. Conversely, experience strongly affects both belief structures [50, 51, 52].

Regarding the relationship between the enjoyment factor and the two belief structures of TAM, the difference in the research results of the authors was also revealed when some studies showed that enjoyment only affects the perception of usefulness [53, 54], other studies have shown that it only affects the perception of ease of use [55, 56], in contrast, Zare and Yazdanparast [57] and Abdullah et al. [45] conclude that enjoyment strongly influence both belief structures of TAM. Similar results occur with the self-efficacy factor [58, 59]. However, these results are all performed in contexts where the e-learning systems have developed strongly, so it can make a significant difference when assessing the impact of these elements in the different context of emerging economies like Vietnam. In these discussions, the following hypotheses are proposed:

H6: Experience has a positive influence on PU.

H7: Experience has a positive influence on PEU

H8: Enjoy a positive influence on PU.

H9: Enjoy a positive effect on PEU.

H10: Self-efficacy has a positive effect on PU.

H11: Self-efficacy has a positive effect on PEU.

Based on the above discussion, an integrated conceptual framework has been formed and shown in Figure 1.

[Insert figure1 here]

3. METHOD

3.1 Sample

The current study aims to analyze the factors influencing learners' acceptance of information technology and its roles to practitioners and trainees in schools in Vietnam. As a result, the prototype involved students at several universities in Danang, who used technology to study. This target sample includes students of different ages and genders. This study was conducted in August 2021.

In order to achieve accurate research goals and other constraints in the data collection process, we used purposeful sampling data. Five men and five women were trained to collect data. Trained interviewers approached and picked a random individuals from different locations. Individuals were asked whether they have ever applied technology to their learning and at which school they are currently studying. Only students who are currently applying technology to learning can participated in the project. Data from 329 student participants was used.

3.2 Measurement

Seven structures were used including experience, enjoyment, self-efficacy, perceived usefulness, perceived ease of use, satisfaction, and intent of behavior to evaluate research models. The items for each structure were selected from previous studies and adapted to the practitioners and trainees context. This tool has been reviewed by three instructors with relevant expertise to ensure that the wording and content of the items are appropriate.

The items used in the current survey are based on theoretical evaluations of empirical variables and are derived from previous studies (e.g. Abdullah, Ward, & Ahmed, 2016). The items of the experience scale are aggregated based on the scales from these studies.

Five items measuring enjoyment factor taken from the research results of Al-Aulamie et al. [60] and Attis [61], and the next five items used to

measure self-efficacy factors were derived from the study of Abramson et al. [51] Adetiimirin [62] and Al-Ammary et al. [55].

A tool to measure user satisfaction has been adopted from the research results of Saha [63] and Henning_Thurau et al. [64]. This variable has five items used to measure the level of learners' satisfaction with the application of technology for learning. For intent to measure learners' behavior, the scales of Ladd and Profilet [65] was applied to the context of the study.

All items considered in the structures were measured using a 7-point scale, (7) representing full agreement, and (1) representing full disagreement

4. RESULTS

4.1 Assess and complete the scale

After eliminating the invalid answers, 329 of the 345 responses from the survey results were used for analysis. Table 1 showed the demographic characteristics of respondents. While most of the learners are male, accounting for 74.5% of the sample size, the female account for only 25.4%. Among the students surveyed, 92.7% were aged under 40 years, 7.3% were over the age of 40. All of the students interviewed have been applying information technology to learn, shown in Table 1.

[Insert Table 1 here]

One of the most important identifications of a reliable scale is the alpha coefficient.

The reliability of the items needs to be calculated and the items with low reliability will be deleted. First, at Churchill's suggestion, Cronbach's Alpha coefficients were evaluated along with item-to-total correlations of items. The scale assessment is used to determine whether an item should be discarded with item-to-total correlations less than 0.5 [66]. Accordingly, 3 items were removed to improve the correlation between the items and the corresponding Cronbach 'Alpha coefficient, resulting in 34 items that were proposed for further analysis. The results are summarized in Table 2.

[Insert Table 2 here]

As shown in Table 2, before deleting items that do not guarantee the reliability, the Cronbach's alpha coefficients of the structures are from .820 to .902. In turn three items of the recommended structures are removed to achieve better results. After deleting the above items, the Cronbach's alpha of structures from .849 to .902. Therefore, the reliability of seven structures was ensured, with 34 items.

In the next step, exploratory factor analysis (CFA) is performed using AMOS Graphic to provide information about scale screening and further improve the scale through checking data. Alternate statistics such as reliability, AVE, factor load factor are necessary to estimate.

4.2 Evaluation of measurement models

Affirmative factor analysis (CFA) is performed for each research concept employing purified items through internal consistency analysis. Residual difference analysis was performed to screen for additional scales. Specifically, for items with balances greater than ± 2.58, the deletion has been removed to reduce the unidirectional nature of each research concept [67]. The result is as follows: 2 items of PEU have been removed to ensure the model fits.

[Insert Table 3 here]

Table 2 shows that the items of each structure have a higher multiplier than .50. Besides, each structure displays an AVE level within the permissible level (over .5), indicating that each concept of the study is a reliable measurement tool. Also, it is necessary to check that whether the constituent elements are uniquely different from each other and that the concepts are correlated with external variables to prove the validity of each concept.

As shown in Table 3, the model's appropriate index is $\chi 2$ / df = 2.04, respectively. GFI = 0.853, TLI = 0.92. CFI = 0.929, IFI = 0.93. RMSEA = 0.056.

It is also necessary for conducting the Measurement of discriminant validity [68], in which the correlation between concepts and their associated confidence intervals is figured out, the two concepts will not externalize significant divergences when the confidence interval encompasses 1.0 [69]. Table 4 denotes all suitable criterions such as standard error, the correlation

between each concept, confidence interval, and the AVE.

[Insert Table 4 here]

4.3 Analysis of structural models

The experimental testing of the proposed framework was implemented by utilizing Structural equation modeling (SEM). The results showed that TLI, CFI, IFI (respectively .898, .907, and .908) met the requirements, indicating a good fit between structure and data. The values of RMSEA, GFI are .064 and .831, respectively, indicating close to the appropriate level. $\chi 2$ / df (2,339) is within the proposed range. These suitability indicators are sufficient and maintain that the structural model shows appropriate data after considering the sample size and can be applied to illuminate the hypotheses of the particular study, meaning all suitable indicators are placed between the respective proposed evaluation and the research model, providing for a good model fit.

An analysis of structural equation models has also been performed to test this research hypothesis. The results are presented in Table 5.

[Insert Table 5 here]

The results illustrate that all hypotheses are supported excepting the pairs between Enjoyment and PU, and Self-efficacy and, PEU are insignificant.

The results manifest that all hypotheses are supported, except for the relationship between enjoyment and PU and between self-efficiency and PEU, meaning hypotheses 8 and 11 are rejected (β = -. 254, p> .1 and β = -.223, p> .1). First, the strongest relationships are related to PU. Specifically, the usefulness perceived by learners has the greatest influence on their satisfaction and intentions (β = .586, p <.001 and β = .415, p <.001). That means hypotheses 3 and 5 are accepted. Next is the influence of external factors on the belief structure of TAM, in which self-efficacy strongly affects the usefulness perceived by learners (β = .301, p <.001), hypothesis 10 is accepted. Next is the relationship between experience, enjoyment and PEU, experience and PU also identified as positive (β = .26, p <.001; β = .193, p <.01 and β = .145, p <.05), so the hypotheses 7, 9, 6 are accepted respectively. Finally, the relationship between PEU and PU, satisfaction and behavioral intentions of learners were also found to be positive (β = .247, p <.001; β = .215, p <.001 and β = .199, p <.01), that is, the hypothesis 1, 2, 4 are accepted. These results, therefore, show that there is a difference in the influence of external factors on PU. The study of Ngo et al. [14] indicated that experience has the strongest effects on PU. This difference is attributed to differences in research contexts. In addition, the study findings are consistent with the results of Zare and Yazdanparast [57] and Abdullah et al. [45] who suggested that enjoyment strongly influences both belief structures.

5. CONCLUSION AND IMPLICATIONS

5.1 Conclusion

This study has attempted to explain the satisfaction and intentions of learners towards e-learning in the context of economies in developing countries. An expanded technology adoption model with a combination of other external variables such as learners' experience, enjoyment, and self-efficacy unravel further the behavioral intention of practitioners and trainees.

To do that, the important purposes of the current research were to 1) investigate the roles of Self-efficacy, enjoyment, and experience in the e-learning context of practitioners and trainees; 2) unravel the relationships between Self-efficacy, enjoyment, and experience and TAM's belief structures; and 3) to shed more light on the role of the satisfaction and behavioral intention of learners toward e-learning to consolidate and enhance their engagement intention. The results of the research have clarified the subjective assumptions that people who both learn and work have many opportunities to be exposed to technology and so those experiences have made them more engaged in the studying process through the e-learning system. Firstly, the study findings are consistent with the results of Abdullah et al. [45] and Martin [47] who suggested that learner' experience has a significant influence on TAM's belief constructs. That means learners' experience is one of the key premises deciding the level of their perception of usefulness and ease of use. Besides, practitioners and trainees are not just motived by the extrinsic factors (prior experience) of e-learning but intrinsic motivation (e.g. enjoyment, self-efficacy) also, these motivators are important to enhance future behavioral intentions towards the learning process. Therefore, the findings also confirm that self-efficacy of learners influence their perception of usefulness without PEU. This result is consistent

with some previous studies proposing self-efficacy as one of the primary elements in e-learning [45]. Also, in the new context, for e-learners that are those working adults, the research results confirm their enjoyment has a positive relationship to PEU. However, when comparing the effects of these external factors on the two belief constructs, it was found that PU was most strongly influenced by self-efficacy whereas enjoyment was found to be non-correlative with PU. The remaining belief structure, PEU, was found to be most influenced by experience. Therefore, it not only supports new empirical evidence that can unravel more on the TAM in Davis's study [19] but is consistent with some prior studies such as Chang et al. [50], Lai and Ulhas [53], and Zare and Yazdanparast [57]. This implies that working adults emphasize the criterion of saving time and effort in the learning process, so once they feel that e-learning will help them achieve this goal, they will have deeply awareness of the technology acceptance's usefulness and effectiveness in e-learning and be more cohesive. The results show that PEU is an important factor that not only promotes PU but also leads to user satisfaction and behavioral intentions. This means that increasing PEU will minimize the mental and physical losses for learners, which will give learners confidence in the usefulness of applying information technology in learning. Besides, the ease of use brings satisfaction to users and stimulates future behavioral intentions.

The results also reveal that PU also strongly influences the satisfaction and intentions of learners, which is accordance with the results of prior studies [9]. Therefore, educational managers should provide learning-related software, applications, and materials that must be directed to their usefulness to please and maintain learner engagement, so that learners can feel the effectiveness of information technology application firstly, it is convenient, fast, time-saving, and effective.

5.2 Implications

The study results are providing an extended TAM that can evaluate the roles of its antecedence and consequences in the e-learning context of practitioners and trainees. Hence, they contribute some important implications for behavioral theory groundwork and TAM literature such as how external variables have influence on two belief constructs of TAM in particular context (e.g. Vietnamese practitioners and trainees) and what potential outcomes are likely to be predicted. However, these findings reveal that increasing competition pressure among educational institutions leads to creating the most conducive and friendly environment for learners through building a useful and easy-to-use electronic learning system is the necessity for service providers. To facilitate learners in acquiring and remembering lesson content, e-learning guides should use a variety of creative methods and multimedia tools in the design process of lectures [70]. Besides, to enhance the connection between learners and e-learning guides, there is a need to create a convenient interactive environment. This means that the more personalized the service, the greater the engagement of the customer [17, 71, 72]. Therefore, education managers need to establish learner-centered courses to enhance learners' interest through electronic learning systems [1].

In addition, practitioners and trainees have several disadvantages in the learning process such as time limitation, working pressure, poor memory retention and inattention. Therefore, the creation of an e-learning system that takes advantage of and stimulates the learners' experience will help them become more aware of the convenience, initiative, and attraction of e-learning. That means that experience in technology application has become an important factor in evaluating the effectiveness of the ease of use and usefulness of the e-learning system. Besides, while an essential need of modern society is communication, integration of e-learning is difficult. E-learning has several limitations that reduce the interaction among learners and between learners and teachers. Therefore, educational managers need to fully exploit electronic communication tools such as box chat, virtual classrooms and also encourage teachers to increase interactive elements in teaching such as gamification or interactive quizzes.

5.3 Limitations and future research

In addition to contributing to marketing materials, the research has some limitations.

Firstly, the research was conducted by conducting surveys in the Danang area and taking educational services for practitioners and trainees only as a research context without making comparisons, leading to a limited research result. Therefore, future studies can extend this study by

comparing different learner subjects and regions to further elucidate the important role of the antecedents and the consequences of two belief constructs of TAM.

Second, previous studies suggested that service quality [24] and cognitive risk [73, 74] are two of the most crucial factors influencing consumers' decision-making process. In which, service quality is regarding interactive and link quality, the cognitive risk is related to personal information security policies. It is expected, thus, that an encompassing these two factors to explore their effect level on learner behavior will be conducted in the future extended TAM.

Finally, the role of situational factors (such as demographic characteristics) is seen as a factor that significantly influences the strength of the relationship between factors [17, 75]. However, this study did not consider their influence on learners' attitudes and behaviors. Therefore, further research can examine the influence of these factors on the relationship in TAM.

REFRENCES:

[1] Liu, I. F., Chen, M. C., Sun, Y. S., Wible, D., & Kuo, C. H. (2010). Extending the TAM model to explore the factors that affect Intention to Use an Online Learning Community. Computers & education, 54(2), 600-610.

[2] Capece, G., & Campisi, D. (2011). Technological change and innovation behaviour in high level education: An international comparison between Italian and Portuguese samples. Knowledge and Process Management, 18(1), 67-74.

[3] Wu, J. H., Tennyson, R. D., & Hsia, T. L. (2010). A study of student satisfaction in a blended e-learning system environment. Computers & Education, 55(1), 155-164.

[4] Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. Studies in higher education, 31(2), 199-218.

[5] Pantazis, C. (2002). Maximizing e-learning to train the 21st century workforce. Public Personnel Management, 31(1), 21-26.

[6. Trentin, G. (1997). Telematics and on-line teacher training: the Polaris Project. Journal of Computer Assisted Learning, 13(4), 261-270.

[7. Yulihasri, M. Aminul Islam & Ku Amir Ku Daud.(2011). Factors that influence customers' buying intention on shopping online. International Journal of Marketing Studies, 3(1), 129-130.

[8. Tarhini, A., Hassouna, M., Abbasi, M. S., & Orozco, J.: Towards the Acceptance of RSS to Support Learning: An empirical study to validate the Technology Acceptance Model in Lebanon. Electronic Journal of e-Learning, 13(1), 30-41 (2015).

[9. Sun, P. C., Tsai, R. J., Finger, G., Chen, Y. Y., & Yeh, D.: What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. Computers & education, 50(4), 1183-1202 (2008).

[10. Shin, W. S., & Kang, M.: The use of a mobile learning management system at an online university and its effect on learning satisfaction and achievement. International Review of Research in Open and Distributed Learning, 16(3), 110-130 (2015).

[11. Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. Information & management, 40(3), 191-204.

[12. Edmunds, R., Thorpe, M., & Conole, G.: Student attitudes towards and use of ICT in course study, work and social activity: A technology acceptance model approach. British journal of educational technology, 43(1), 71-84 (2012).

[13] Weng, C., Tsai, C. C., & Weng, A.: Social support as a neglected e-learning motivator affecting trainee's decisions of continuous intentions of usage. Australasian Journal of Educational Technology, 31(2) (2015).

[14] Quynh, N.H., Hoai, N.T., & VanLoi, N. (2020b), Investigating the role of user experience in the online shopping system: an extension of the technology acceptance model, Journal of Theoretical and Applied Information Technology, 98(20), 3165-3179

[15] Teo, T.: Pre-service teachers' attitudes towards computer use: A Singapore survey. Australasian Journal of Educational Technology, 24(4), (2008).

[16] Van, H. T., Kim, B., Lee, S. Y., & Gim, G. Y. (2019, July). The difference of intention to use E-government based on national culture between Vietnam and Korea. In 2019 20th IEEE/ACIS International Conference on

Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD) (pp. 409-420). IEEE.

[17] Quynh, N.H., Hoai, N.T., Adang, T., Thu, NTN. (2021). What Motivates Students Engaging with Public Universities: A Case in Vietnam. Psychology and Education Journal, 58(2), 1111-1130

[18] Venkatesh, V., & Brown, S. A. (2001). A longitudinal investigation of personal computers in homes: Adoption determinants and emerging challenges. MIS quarterly, 71-102.

[19] Davis, F. D. (1985). A technology acceptance model for empirically testing new end-user information systems: Theory and results (Doctoral dissertation, Massachusetts Institute of Technology).

[20] Azjen, I. (1980). Understanding attitudes and predicting social behavior. Englewood Cliffs. Prentice-Hall.

[21] Ajzen, I. (1991). The theory of planned behavior. Organizational behavior and human decision processes, 50(2), 179-211.

[22] Ajzen, I., & Fishbein, M. (2000). Attitudes and the attitude-behavior relation: Reasoned and automatic processes. European review of social psychology, 11(1), 1-33.

[23] Agarwal, R., & Karahanna, E. (2000). Time flies when you're having fun: Cognitive absorption and beliefs about information technology usage. MIS quarterly, 665-694.

[24] Kim, S., & Song, Y. (2009). Determinants Influencing Individualsâ€™ Likelihood of Adopting and Actual use of Blueberry. JApSc, 9(20), 3662-3671.

[25] Šumak, B., HeričKo, M., & PušNik, M. (2011). A meta-analysis of e-learning technology acceptance: The role of user types and e-learning technology types. Computers in Human Behavior, 27(6), 2067-2077.

[26] Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. Management science, 35(8), 982-1003.

[27] Chen, K. Y., & Chang, M. L. (2013). User acceptance of 'near field communication'mobile phone service: an investigation based on the 'unified theory of acceptance and use of technology'model. The Service Industries Journal, 33(6), 609-623.

[28] Niederhauser, D. S., & Perkmen, S. (2010). Beyond self-efficacy: Measuring pre-service teachers' instructional technology outcome expectations. Computers in Human Behavior, 26(3), 436-442.

[29] Carswell, A. D., & Venkatesh, V. (2002). Learner outcomes in an asynchronous distance education environment. International Journal of Human-Computer Studies, 56(5), 475-494.

[30] Chatzoglou, P. D., Sarigiannidis, L., Vraimaki, E., & Diamantidis, A. (2009). Investigating Greek employees' intention to use web-based training. Computers & Education, 53(3), 877-889.

[31] Lee, B. C., Yoon, J. O., & Lee, I. (2009). Learners' acceptance of e-learning in South Korea: Theories and results. Computers & Education, 53(4), 1320-1329.

[32] Shen, C., & Chuang, H. (2010). Exploring users' attitudes and intentions toward the interactive whiteboard technology environment. International Review on Computers and Software, 5(2), 200-208.

[33] Chen, H. R., & Tseng, H. F. (2012). Factors that influence acceptance of web-based e-learning systems for the in-service education of junior high school teachers in Taiwan. Evaluation and program planning, 35(3), 398-406.

[34] Ives, B., Olson, M. H., & Baroudi, J. J. (1983). The measurement of user information satisfaction. Communications of the ACM, 26(10), 785-793.

[35] Hui, W., Hu, P. H., Clark, T. H., Tam, K. Y., & Milton, J.: Technology-assisted learning: a longitudinal field study of knowledge category, learning effectiveness and satisfaction in language learning. Journal of Computer Assisted Learning, 24(3), 245-259 (2008).

[36] Shee, D. Y., & Wang, Y. S. (2008). Multi-criteria evaluation of the web-based e-learning system: A methodology based on learner satisfaction and its applications. Computers & Education, 50(3), 894-905.

[37] Mawhinney, C. H., & Lederer, A. L. (1986, October). Managerial personality type and end-user computing. In Proceedings of the twenty-second annual computer personnel research conference on Computer personnel research conference (pp. 117-128).

[38] Bhattacherjee, A. (2001). Understanding information systems continuance: an expectation-confirmation model. MIS quarterly, 351-370.

[39] Andres, H. P., & Shipps, B. P. (2010). Team learning in technology-mediated distributed

teams. Journal of information systems education, 21(2), 213.

[40] Longyara, T., & Van, H. T. (2015). Diffusion of Innovation in Asian: A Study of Mobile NFC (Near Field Communication) Payment in Korea and Thailand. International Journal of Managerial Studies and Research (IJMSR), 3(10), 36-42.

[41] Liaw, S. S.: Investigating students' perceived satisfaction, behavioral intention, and effectiveness of e-learning: A case study of the Blackboard system. Computers & education, 51(2), 864-873 (2008)

[42] Benbasat, I., & Barki, H. (2007). Quo vadis TAM?. Journal of the association for information systems, 8(4), 7.

[43] Lee, Y., Kozar, K. A., & Larsen, K. R. (2003). The technology acceptance model: Past, present, and future. Communications of the Association for information systems, 12(1), 50.

[44] Lee, J. H., Phaal, R., & Lee, S. H. (2013). An integrated service-device-technology roadmap for smart city development. Technological Forecasting and Social Change, 80(2), 286-306.

[45] Abdullah, F., Ward, R., & Ahmed, E. (2016). Investigating the influence of the most commonly used external variables of TAM on students' Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) of e-portfolios. Computers in Human Behavior, 63, 75-90.

[46] Lau, S. H., & Woods, P. C. (2008). An investigation of user perceptions and attitudes towards learning objects. British journal of educational technology, 39(4), 685-699.

[47] Martin, R. G. (2012). Factors affecting the usefulness of social networking inE-learning at German University of Technology in Oman. International Journal of e-Education, e-Business, e-Management and e-Learning, 2(6), 498.

[48] Deshpande, Y., Bhattacharya, S., & Yammiyavar, P. (2012, December). A behavioral approach to modeling Indian children's ability of adopting to e-learning environment. In 2012 4th International Conference on Intelligent Human Computer Interaction (IHCI) (pp. 1-7). IEEE.

[49] De Smet, C., Bourgonjon, J., De Wever, B., Schellens, T., & Valcke, M. (2012). Researching instructional use and the technology acceptation of learning management systems by secondary school teachers. Computers & Education, 58(2), 688-696.

[50] Chang, C. T., Hajiyev, J., & Su, C. R. (2017). Examining the students' behavioral intention to use e-learning in Azerbaijan? The general extended technology acceptance model for e-learning approach. Computers & Education, 111, 128-143.

[51] Abramson, J., Dawson, M., & Stevens, J. (2015). An examination of the prior use of E-learning within an extended technology acceptance model and the factors that influence the behavioral intention of users to use M-learning. SAGE Open, 5(4), 2158244015621114.

[52] Purnomo, S. H., & Lee, Y. H. (2013). E-learning adoption in the banking workplace in Indonesia: an empirical study. Information Development, 29(2), 138-153.

[53] Lai, J. Y., & Ulhas, K. R. (2012). Understanding acceptance of dedicated e-textbook applications for learning. The Electronic Library.

[54] Lin, Y. C., Chen, Y. C., & Yeh, R. C. (2010). Understanding college students' continuing intentions to use multimedia e-learning systems. World Transactions on Engineering and Technology Education, 8(4), 488-493.

[55] Al-Ammary, J. H., Al-Sherooqi, A. K., & Al-Sherooqi, H. K. (2014). The acceptance of social networking as a learning tools at University of Bahrain. International Journal of Information and Education Technology, 4(2), 208.

[56] Al-Gahtani, S. S. (2016). Empirical investigation of e-learning acceptance and assimilation: A structural equation model. Applied Computing and Informatics, 12(1), 27-50.

[57] Zare, H., & Yazdanparast, S. (2013). The causal Model of effective factors on intention to use of information technology among payamnoor and traditional universities students. Life Science Journal, 10(2), 46-50.

[58] Hsiao, K. L., & Chen, C. C. (2015). How do we inspire children to learn with e-readers?. Library Hi Tech.

[59] Jung, H. J. (2015). Fostering an English teaching environment: Factors influencing English as a foreign language teachers' adoption of mobile learning. Informatics in Education-An International Journal, 14(2), 219-241.

[60] Al-Aulamie, A., Mansour, A., Daly, H., & Adjei, O. (2012, June). The effect of interinsic motivation on learners' behavioural intention to use e-learning systems. In 2012 International

Conference on information technology based higher education and training (ITHET) (pp. 1-4). IEEE.

[61] Attis, J. (2014). An investigation of the variables that predict teacher e-learning acceptance.

[62] Adetimirin, A. (2015). An empirical study of online discussion forums by library and information science postgraduate students using technology acceptance model 3. Journal of Information Technology Education: Research, 14(1), 257-269.

[63] Saha, G. C. (2009). Service quality, satisfaction, and behavioural intentions. Managing Service Quality: An International Journal.

[64] Hennig-Thurau, T., Gwinner, K. P., & Gremler, D. D. (2002). Understanding relationship marketing outcomes: an integration of relational benefits and relationship quality. Journal of service research, 4(3), 230-247.

[65] Ladd, G. W., & Profilet, S. M. (1996). The Child Behavior Scale: A teacher-report measure of young children's aggressive, withdrawn, and prosocial behaviors. Developmental psychology, 32(6), 1008.

[66] Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. Long range planning, 46(1-2), 1-12.

[67] Kline, R. B. (1998). Software review: Software programs for structural equation modeling: Amos, EQS, and LISREL. Journal of psychoeducational assessment, 16(4), 343-364.

[68] Jöreskog, K. G. (1971). Simultaneous factor analysis in several populations. Psychometrika, 36(4), 409-426.

[69] Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. Psychological bulletin, 103(3), 411.

[70] Lee, Y. C. (2006). An empirical investigation into factors influencing the adoption of an e-learning system. Online information review.

[71] Ngo, H.Q. (2019). The Moderating Influence of Brand Image on the Relationship Between Customer Engagement and Customer Loyalty. Indian Journal of Marketing, 49(9), 42-56.

[72] Quynh, N.H., N.H. Nha, N.P.N. Hoai, N.T. G.D, Kang. (2020a), The role of customer engagement in the interrelationship process: moderating effect of customer experience. Int. J. Business Innovation and Research, 23(1), 64-86.

[73] Doolin, B., Dillon, S., Thompson, F., & Corner, J. L. (2005). Perceived risk, the Internet shopping experience and online purchasing behavior: A New Zealand perspective. Journal of Global Information Management (JGIM), 13(2), 66-88.

[74] Dillon, S., Buchanan, J., & Al-Otaibi, K. (2014). Perceived risk and online shopping intention: A study across gender and product type. International Journal of E-Business Research (IJEBR), 10(4), 17-38.

[75] Quynh, N.H., Hoai, N. T., Loi, N.V. (2021). The role of emotional experience and destination image on ecotourism satisfaction. Spanish Journal of Marketing-ESIC, 25(2), 312-332.

Journal of Theoretical and Applied Information Technology
15th March 2023. Vol.101. No 5

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

.

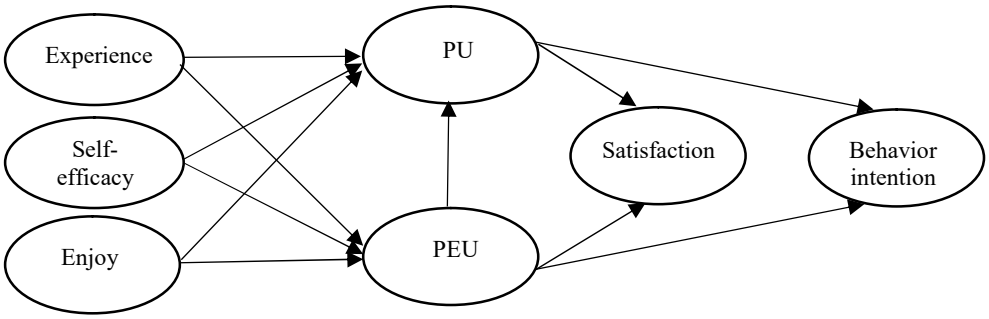

Figure 1: Proposed model

Table 1. Demographic characteristics of respondents

		Frequency	Percentage
Sex	Female	84	25.5
	Male	245	74.5
Age	Under 40 years	305	92.7
	From 40 +	24	7.3
Education	Private school students	120	36.5
	Public school students	209	63.5

Table 2 Internal reliability

Construct	Before the purification			After the purification		
	Number of items	Item-total correlation	Cronbach's alpha	Number of items	Item-total correlation	Cronbach's alpha
EX	5	.275-.816	.821	3	.739-.833	.885
EN	5	.705-.740	.884	5	.705-.740	.884
SE	5	.257-.743	.820	4	.722-.776	.881
PEU	7	.520-.732	.849	7	.520-.732	.849
PU	5	.633-.739	.866	5	.633-.739	.866
SAT	5	.691-.757	.890	5	.691-.757	.890
BI	5	.709-.823	.902	5	.709-.823	.902
EX: experience; EN: Enjoy; SE: Self-efficacy; SAT: satisfaction; BI: behavior intention.						

Table 3: CFA results of the measurement model

Constructs	Cronbach's alpha	CR	AVE	Parameter estimate	T-value
EX	.885	0.892	0.628	.802-.930	18.577-19.283
EN	.884	0.884	0.604	.761-.793	14.504-15.007
SE	.881	0.882	0.650	.792-.829	15.998-16.49
PEU	.849	0.867	0.519	.646-.730	10.342-11.650
PU	.866	0.843	0.567	.697-.803	13.055-14.561
SAT	.890	0.889	0.622	.733-.821	13.813-15.811
BI	.902	0.903	0.652	.774-.880	15.937-19.907

Table 4 Results of correlation analysis between variables with confidence intervals

Construct	Mean	EX	EN	SE	PEU	PU	SAT	BI
EX	4.5279	.628						
EN	4.3435	.511 (.091) [.329; .693]	.604					
SE	4.2356	.435 (.095) [.245; .625]	.532 (.086) [.36; .704]	.650				
PEU	4.4049	.441 (.101) [.239; .643]	.428 (.085) [.258; .598]	.422 (.092) [.238; .606]	.519			
PU	4.2261	.476 (.093) [.29; .662]	.549 (.083) [.383; .715]	.553(.09) [.373; .733]	.555 (.097) [.361; .749]	.567		
SAT	4.2729	.370(.157) [.058; .171]	.64(.087) [.466; .814]	.092(.039) [.014; .170]	.183(.066) [.056; .318]	.126(.045) [.036; .215]	.6222	
BI	4.0626	.31(.11) [.09; .53]	.44(.099) [.242; .638]	.46(.108) [.244; .676]	.414(.111) [.192; .636]	.463(.104) [.255; .671]	.62(.111) [.398;.842]	.652

Table-5: The results of the relationships among proposed constructs

Hypothesis	Estimate	C.R.	p	Result
H1 PEU-PU	0.247	4.013	***	Supported
H2 PEU-SAT	0.215	3.411	***	Supported
H3 PU-SAT	0.586	8.314	***	Supported
H4 PEU-BI	0.199	2.85	0.004	Supported
H5 PU-BI	0.415	5.822	***	Supported
H6 EX-PU	0.145	2.445	0.015	Supported
H7 EX-PEU	0.26	3.779	***	Supported
H8 EN-PU	-0.254	-0.891	0.55	Not supported
H9 EN-PEU	0.193	2.599	0.009	Supported
H10 SE-PU	0.301	4.796	***	Supported
H11 SE-PEU	-0.223	-0.157	0.25	Not supported