

FACTORS AFFECTING E-LEARNING INTENTION TO USE AMONG COLLEGE STUDENTS: A CASE IN INDONESIA

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ABSTRACT

Online learning has become the most feasible method of teaching in higher education, especially during the pandemic. Technology affordances have affected how subject matters are delivered in the classrooms. Various types of media and hypermedia have opened abundant opportunities for teachers and students to interact in virtual environment. E-learning is the term that is used to describe the delivery of a subject matter via numerous types of digital technology and through web-based interaction. Indonesian government has enforced laws and regulations encompassing e-learning policies in higher education since 2013, but these regulations were not fully adopted in higher education settings. Currently, the pandemic forces universities worldwide to shift their teaching method. This study aims at exploring the antecedents of e-learning intention to use among college students in Central Java. To address the research questions, the researchers administered survey to 100 active students in a private university in Central Java, Indonesia. The questionnaire consists of two parts. The first part was used to look at the demography of students such as gender, class standing, digital literacy, and level of comfort with technology. Pearson Correlation test was used to analyze determinants of e-learning intention to use using Technology Acceptance Model. The results of Pearson Correlation Test demonstrated that e-learning intention to use was significantly correlated with attitude to use, perceived usefulness, and perceived ease of use. Digital literacy is found to be a determinant of learner's attitude towards e-learning and comfort with technology. Learners' level of comfort in using technology was significantly correlated with their attitude towards e-learning.

Keywords: e-learning, digital literacy, perceived usefulness, perceived ease of use, attitude, intention to use

INTRODUCTION

E-learning has gained prominence in the last few years, and even more so during the global pandemic of Covid-19. The advancement in the information technology has prompted the change of learning and teaching approaches worldwide (Tick, 2006). Teachers and educational practitioners have begun to acknowledge the benefits of integrating technology in their classes. Currently, e-learning is emerging as the teaching paradigm shifts from teacher-centered class to student-centered class. Students are in charge of the knowledge transfer. E-learning allows students and teachers interact in the exchange of knowledge without being limited by time and space (Sun et al, 2009).

E-learning is commonly defined as the delivery of teaching materials through various types of digital technology such as audio/video tape, interactive TV, Internet, Intranet, and CD-ROM (Engelbrecht, 2005). Others view e-learning as the delivery of teaching materials via digital technology and web-based media in the form of web-based communication, collaboration, knowledge transfer, and training (Kelly & Bauer, 2004; Sun et al. 2007). Masrom (2007) proposed a broader definition of e-learning to include communication via information and communication technology.

In the last few decades, universities in Indonesia are increasingly moving towards the innovative pedagogy involving e-learning. The relationship between technology use and learning outcomes is still hotly debated because of the many moderating variables. Technology has several effects on learning, but it is still difficult to directly measure the effect because of various moderating factors and indirect benefits. Many internal and external factors influence the use of technology such as attitude, motivation, self-efficacy, digital literacy, institutional policies, information quality, and system quality.

Many studies on technology adoption utilized Technology Acceptance Model (TAM) developed by Davis (1989). TAM posits that a user's acceptance and use of technology rely on users' perceived usefulness and ease of use. Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job" (p. 320) while perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free from effort" (p. 320). Studies on learner's acceptance on e-learning TAM has been applied in various contexts and fields such as healthcare (Chau and Hu, 2002), banking (Martins et al., 2014), and education (Fathema et al., 2015; Ong & Lai, 2014).

Studies on the successful adoption of e-learning demonstrated that learners' perceived ease of use was dependent upon computer self-efficacy (Vankatesh & Davis, 1996). Ong & Lai (2004) investigated gender differences among dominants affecting e-learning acceptance. They surveyed 67 female and 89 male employees in six international companies. The findings of their study showed men's rating of computer self-efficacy, perceived usefulness, perceived ease of use, and behavioral intention to use e-learning are all higher than women's. Men's adoption of e-learning is more likely to be influenced by their perceived usefulness. Saadé et al. (2007) conducted a study on multimedia technology environment acceptance among students. Their findings showed that learners' perceived ease of use was significantly correlated with their intention to use, while learners' perceived ease of use had a positive correlation with learners' attitude towards multimedia learning environment.

Numerous studies on e-learning intention to use have been conducted in many countries and many fields of inquiry worldwide. This study aims to bring other variables, namely digital literacy and comfort with technology, into the Technology Acceptance Model proposed by Davis (1989). Therefore, hopefully this study will contribute some additions to the scholarly discussion of factors affecting e-learning intention to use.

Hypothesis

The study is conducted to test the following hypotheses:

- H1: Learners' attitude positively affects e-learning intention to use
- H2: Digital literacy positively affects students' attitude towards e-learning
- H3: Digital literacy positively affects students' technology comfort
- H4: Learners' perceived ease of use positively affects students' attitude towards e-learning
- H5: Learners' perceived ease of use positively affects their perceived usefulness.
- H6: Learners' perceived usefulness positively affects students' attitude towards e-learning
- H7: Learners' perceived usefulness positively affects their intention to use e-learning.
- H8: Comfort with technology positively affects students' attitude towards e-learning.
- H9: Comfort with technology positively affects learner's perceived ease of use.

LITERATURE REVIEW

The definition of e-learning

Although the term e-learning has been used since the 1990s, its notion has not been widely agreed upon. Some researchers view e-learning as the delivery of teaching materials via electronic media, such as audio/video tape, interactive TV, Internet, Intranet, and CD-ROM (Engelbrecht, 2005) while others view e-learning as a web-based learning which includes web-based communication, collaboration, knowledge transfer, and training (Kelly & Bauer, 2004; Sun et al. 2007). The broader definition of e-Learning incorporates both notions. Masrom (2007, p.1) defines e-learning as "learning facilitated and supported through the utilization of information and communication technology (ICTs).

Technology Acceptance Model

Technology Acceptance Model or TAM (Davis, 1989; Davis, Bagozzi & Warshaw, 1989) is one of the models to explain user acceptance and usage behavior regarding information technology. In other words, it is one of the most widely accepted models widely to investigate the determinants of technology acceptance. Many studies analyzing how people use technology have used and expanded this model (Jantan, Ramayah & Chin, 2001; Lee, Yoon, & Lee, 2009; Ramayah et al., 2002).

Technology acceptance model posits that people's desire to use technology is influenced by two beliefs; they are perceived usefulness and perceived ease of use. Perceived usefulness refers to the degree to which a user believes that technology is useful and can increase their productivity. Perceived ease of use refers to the degree in which a user believes that technology can be used with minimal efforts (Davis, 1989). Literature shows that perceived ease of use has a direct effect on both perceived usefulness and technology usage (Adams et al., 1992; Davis, 1989). The following is the model:

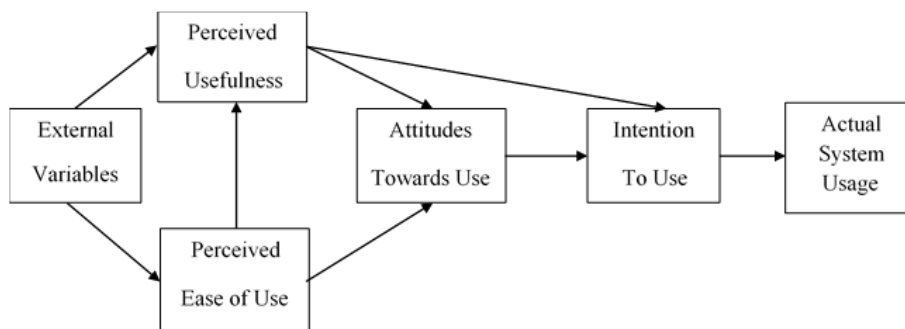


Figure 1. Technology Acceptance Model (Davis, 1989)

In this model, we can see that external factors influenced perceived usefulness and perceived ease of use. Perceived usefulness and perceived ease of use have some influences on the attitude towards technology and intention to use technology (Davis, 1989). TAM constructs have been used to include many aspects of technology in learning, including e-Learning. Research on technology acceptance in universities indicates that (Selim, 2003). Results revealed that perceived usefulness and ease of use of course website were the strongest determinants for the acceptance and usage of course website. Students who believed that course websites were useful and easy to use were more likely to accept it as an effective tool (Selim, 2003). Some studies focus on the motivational aspect of TAM. Roca & Gagné (2008) introduced three motivational factors that affect technology acceptance. They are perceived autonomy support, perceived competence, and perceived relatedness. The perceived autonomy support, competence, and relatedness were shown to influence perceived usefulness, playfulness, and ease of use.

Literature on technology acceptance indicates mixed results. Some researchers found that perceived usefulness was the key determinant in technology acceptance, whereas some studies show mixed results for the perceived ease of use construct (Adams et al., 1992; Hu et al., 1999; Ndubisi et al., 2001). Although the TAM literature reveals that certain inconsistencies exist, but they are rarely dealt with clearly (Mao & Palvia, 2001). Therefore, this research delves into one of the many inconsistencies which may be explored to enrich the literature in the TAM research.

METHODS

This study is quantitative in nature. It intends to examine the determinants of e-learning intention to use among college students. The data were taken from Technology Acceptance Survey distributed to students in a private university in Semarang, Central Java.

Participants

The participants of this study were students in a private university in Central Java. The participants were freshmen, sophomores, and junior students whose ages ranged from 18 – 24 years old. Using convenience sampling method, the questionnaire was distributed to 175 students and there were 100 responses. Out of 100 students, 69% were female.

Instrument

The questionnaire used in this study was a modified version of Technology Acceptance Model questionnaire. It consisted of two parts. The first part asked about participants' gender, class standing, digital literacy, and level of comfort with technology. The second part concerned with the four constructs in the technology acceptance model. They are Perceived Usefulness (PU), Perceived Ease of Use (PEU), Attitude Towards e-learning (ATE), and Intention to Use e-learning (ITU). There are 14 question items in this questionnaire. Likert Scale was used to elicit responses from the respondents. Each statement had five response options. They are Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree. The scores were given for each item ranging from 5 for the most favorable response to 1 for the least favorable response. To ensure the reliability of the question items, we ran Cronbach's Alpha.

Procedures

The questionnaire for this study was modified from Technology Acceptance Model. Before administering the survey, the researchers used pilot study to test the reliability and the validity of the survey question items using Cronbach's Alpha to a sample of students. Once the researchers collected the data, the questionnaire were analyzed to look at the interaction between the dependent variables (digital literacy and comfort with technology) and the independent variables (Perceived Usefulness, Perceived Ease of Use, Attitude Towards E-learning, and Intention to Use E-learning) using Pearson's Product Moment Correlation.

FINDINGS AND DISCUSSIONS

Findings

This study aimed to investigate students' acceptance of e-learning in in a private university in Central Java. The questionnaires were distributed to 175 students and there were 100 responses. Out of the samples, 69 students were female, and the rest were male. In regard to digital literacy self-report, 51 students claimed they were intermediate, while the rest were expert. In terms of the technology comfort level, out of 100 students, 68 students reported that they were quite comfortable using technology (68%) and 31% stated they were very comfortable using technology. Only 1 student had low comfort level.

Table 1 below shows the Cronbach's alpha of the question items.

Table 1. Cronbach's Alpha for each variable

	Cronbach's Alpha	Composite Reliability
Attitude	.861	.916
Perceived Ease of Use	.857	.913
Perceived Usefulness	.747	.854
Intention to Use	.856	.897

For digital literacy and comfort with technology, we only have one item, thus we did not run Cronbach's Alpha. We can see from the table that the Alpha value for each variable is more than 0.7. This means that the items were internally consistent. After we conducted the pilot study, we distributed the questionnaire to our respondents. Below are the results of the descriptive statistics of each item.

Table 2. Descriptive Statistics

	Statements	Means	Std. Deviation
PU	E-learning helps me become an effective learner.	3.66	.742
	E-learning is very useful for me.	3.67	.792
	E-learning helps me to be more productive.	3.59	.805
	E-learning allows me to accomplish my task faster.	3.85	.744
	E-learning meets my needs.	3.55	.730
PEU	E-learning method is easy to use.	3.71	.820
	When using e-learning, I don't need a written instruction.	3.40	.899
	I can use e-learning successfully every time.	3.41	.933
ATE	Using e-learning is a good idea.	3.91	.793
	E-learning will make my work more interesting.	3.76	.889
	Working with e-learning is fun.	3.73	.897
ITU	I would like to use e-learning in the future.	3.73	.777
	E-learning should be implemented in most courses.	3.66	.879
	I will recommend e-learning to other students	3.62	.838

The results of the descriptive statistics were useful to examine the favorability of the responses. The table above shows that most responses were favorable. The means were all above 3 (Neutral).

Hypothesis testing using Pearson Correlation was intended to test whether 1) learners' attitude positively affects e-learning intention to use, 2) digital literacy positively affects students' attitude towards e-learning, 3) Digital literacy positively affects students' technology comfort, 4) learners' perceived ease of use positively affects students' attitude towards e-learning, 5) learners' perceived ease of use positively affects their perceived usefulness, 6) learners' perceived usefulness positively affects students' attitude towards e-learning, 7) learners' perceived usefulness positively affects their intention to use e-learning, 8) comfort with technology positively affects students' attitude towards e-learning, and 9) comfort with technology positively affects learner's perceived ease of use.

Table 3. Pearson Product Moment Analysis (n = 100)

	DL	CT	PU	PEU	ATE
CT	.588**				
PU	.419**	.408**			
PEU	.303**	.341**	.492**		
ATE	.408**	.354**	.675**	.532**	
ITU	.425**	.469**	.598**	.552**	.776**

** . Correlation is significant at the 0.01 level (2 tailed).

From the analysis, we can see that learners' attitude positively affects e-learning intention to use ($r = .776$), 2) digital literacy positively affects students' attitude towards e-learning ($r = .408$), 3) digital literacy positively affects students' technology comfort ($r = .588$), 4) learners' perceived ease of use positively affects students' attitude towards e-learning ($r = .532$), 5) learners' perceived ease of use positively affects their perceived usefulness ($r = .492$), 6) learners' perceived usefulness positively affects students' attitude towards e-learning ($r = .695$), 7) learners' perceived usefulness positively affects their intention to use e-learning ($r = .598$), 8) comfort with technology positively affects students' attitude towards e-learning ($r = .354$), and 9) comfort with technology positively affects learner's perceived ease of use ($r = .347$). The results can be summarized in the following figure.

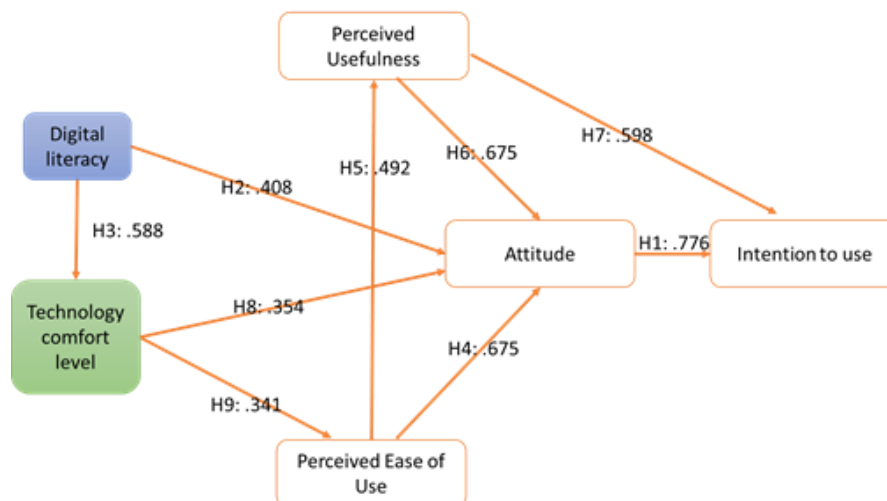


Figure 2. Modified Technology Acceptance Model

Discussion

The study demonstrated several findings that supports the findings of other researchers. In this study, e-learning intention to use was significantly correlated with attitude to use, perceived usefulness, and perceived ease of use. Learners are more likely to use e-learning when they have favorable attitudes, believe that e-learning is easier to use, and is useful for the learning. These findings corroborate with those of other studies which suggested that attitude, perceived usefulness, and perceived ease of use are the key determinants of user's intention to use or behavioral intention for the adoption of technology (Masrom, 2007; Saadé et al., 2007; Shittu et al., 2011; Teo et al., 2019).

In this study, we found that digital literacy is a determinant of learner's attitude towards e-learning and comfort with technology. Students nowadays are avid users of rapid communication technology and web resources which are extremely needed in e-learning contexts (Thomson, 2013). Therefore, it is no surprise that digital literacy positively affects attitude towards e-learning and comfort with technology. These findings are different from what Hamutoğlu, Savaşçı, & Gözde Sezen-Gülteki (2019) found. In their study, they examined the effects of a five-week treatment on prospective teachers' digital literacy skills and attitudes toward e-learning. They found that there was no correlation between digital literacy to attitude towards e-learning. Instead, they found that digital literacy affected students' tendency towards e-learning. Another highlight of this study is that learners' level of comfort in using technology was significantly correlated with their attitude towards e-learning. This supports the findings of several other researchers who focused on the effect of the level of comfort with technology on attitude towards technology (Palak & Walls, 2014).

The findings of this study shed light on the importance of pedagogical and technical support for both students and teachers to ensure the quality of e-learning in higher education. Students are mostly avid users of digital technology (Purcell, Buchanan & Friedrich, 2013) and the wide array of digital tools for communication and learning has opened a plethora of opportunities for classroom engagement. From this study, we can see that students were confident in their ability to use digital technologies to their advantage. On the contrary, teachers often felt numerous challenges such as lack of time and meaningful professional development in integrating technology in their classrooms (Goos & Bennison, 2018) and new technologies (Cheung, Wan, & Chan, 2018). Thus, universities have to provide trainings, workshops, or other professional development events to accommodate teachers' needs and to help teachers decrease their technology anxiety. For students, such trainings and workshops should be designed to improve their information and digital literacy as well as their familiarity with the university's e-learning platform. Learning process is in itself a complex process since it touches on cognitive, behavioral, motoric, and affective aspects. Learning with technology adds to the complexity and the subtlety of the process. Therefore, technology has to be implemented with caution. Teachers need to find the most appropriate tools that match students' characteristics, course objectives, students' learning styles, and the available resources. Inappropriate tools may lead to stressful experiences, negative attitude, and decreased motivation.

CONCLUSION AND SUGGESTIONS

Conclusion

The purpose of this study is to test nine hypotheses. They are was intended to test 1) learners' attitude positively affects e-learning intention to use, 2) digital literacy positively affects students' attitude towards e-learning, 3) Digital literacy positively affects students' technology comfort, 4) learners' perceived ease of use positively affects students' attitude towards e-learning, 5) learners' perceived ease of use positively affects their perceived usefulness, 6) learners' perceived usefulness positively affects students' attitude towards e-learning, 7) learners' perceived usefulness positively affects their intention to use e-learning, 8) comfort with technology positively affects students' attitude towards e-learning, and 9) comfort with technology positively affects learner's

perceived ease of use. Pearson's Correlation Test showed that attitude towards e-learning and perceived usefulness are key determinants for learner's intention to use e-learning. This study additionally supports other studies which found positive relationship between digital literacy and attitude towards e-learning. Comfort with technology is also a determinant for attitudes towards e-learning and learner's perceived ease of use.

This study was conducted at the onset of the pandemic in which online learning is no longer an option, but a required mean of teaching and learning in higher education. Thus, the findings show strong relationships among variables. This implies that the situation during the pandemic is a driving force for students as well as teachers to embrace technology and be more comfortable in using technology in the classrooms. The findings imply that the majority of students were capable of using technology and were comfortable using technology; thus, they did not perceive e-learning as obstacles.

Suggestions

The results of this study can be useful for the institutions in several ways. First, the results concerning students' comfort with technology mirror the findings of other studies on technology and young generations. Young people adapt better to technological advances. Thus, institutions should encourage teachers, who sometimes are less flexible with technological changes, to adopt e-learning in their courses. Students reported that e-learning is useful; therefore, teachers need to invent ways to include e-learning model in their courses. Future research should be designed to focus on the qualitative analysis and investigate students' challenges and motivations in using e-learning, especially after the pandemic. In-depth analysis of learner's e-learning intention to use will help teachers and university administrators in design e-learning policies. Future research, in addition, needs to expand the model to include variables related to internal factors from the learners themselves such as self-efficacy and self-directed learning.

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REFERENCES

- Adams, D. A., Nelson, R. R., & Todd, P. A. 1992. Perceived usefulness, ease of use, and usage of information technology: A replication. *MIS Quarterly*, 16(2), pp. 227-247.
- Chau, P. Y., & Hu, P. J. H. 2002. Investigating healthcare professionals' decisions to accept telemedicine technology: an empirical test of competing theories. *Information & management*, 39(4), pp. 297-311.
- Cheung, G., Wan, K., & Chan, K. (2018). Efficient use of clickers: A mixed-method inquiry with university teachers. *Education Sciences*, 8(1), 31.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), pp. 319-340.
- 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.
- Engelbrecht, E. 2005. Adapting to changing expectations: Post-graduate students' experience of an e-learning tax program. *Computers & Education*, 45(2), 217-229.
- Fathema, N., Shannon, D., & Ross, M. (2015). Expanding the Technology Acceptance Model (TAM) to Examine Faculty Use of Learning Management Systems (LMSs) In Higher Education Institutions. *Journal of Online Learning & Teaching*, 11(2). pp. 210 – 232
- Goos, M., & Bennison, A. (2008). Surveying the technology landscape: Teachers' use of technology in secondary mathematics classrooms. *Mathematics Education Research Journal*, 20(3), 102-130.
- Hamutoğlu, N. B., Savaşçı, M., & Sezen-Gültekin, G. (2019). Digital Literacy Skills and Attitudes towards E-learning. *Journal of Education and Future*, (16), 93-107.
- Hu, P. J., Chau, P. Y., Sheng, O. R. L., & Tam, K. Y. 1999. Examining the technology acceptance model using physician acceptance of telemedicine technology. *Journal of management information systems*, 16(2), pp. 91-112.
- Jantan, M., Ramayah, T., & Chin, W. W. 2001. Personal computer acceptance by small and medium companies evidence from Malaysia. *Jurnal Manajemen & Bisnis*, 3(1), pp. 1-14.
- Kelly, T., & Bauer, D. 2004. Managing intellectual capital via e-learning at Cisco. In: C. Holsapple, ed. *Handbook on knowledge management 2: Knowledge directions* Springer, Berlin, Germany. (pp. 511-532.
- Lee, B. C., Yoon, J. O., & Lee, the researchers. 2009. Learners' acceptance of e-learning in South Korea: Theories and results. *Computers & Education*, 53(4), 1320-1329.

- Martins, C., Oliveira, T., & Popovič, A. 2014. Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. *International Journal of Information Management*, 34(1), 1-13.
- Masrom, M. 2007. Technology acceptance model and e-learning. *Technology*, 21(24), 81.
- Mao, E., & Palvia, P. (2001). Information Technology Acceptance: How much do the researchers =now?. *AMCIS 2001 Proceedings*, 335.
- Ndubisi, N. O., Jantan, M., & Richardson, S. (2001). Is the technology acceptance model valid for entrepreneurs? Model testing and examining usage determinants. *Asian Academy of Management Journal*, 6(2), 31-54.
- Palak, D., & Walls, R. T. (2009). Teachers' beliefs and technology practices: A mixed methods approach. *Journal of Research on technology in Education*, 41(4), 417-441.
- Purcell, K., Buchanan, J., & Friedrich, L. (2013, February). *Bringing Technology into the Classroom*. Pew Research Center. Retrieved on January, 2020 from <https://www.pewresearch.org/internet/2013/02/28/part-iii-bringing-technology-into-the-classroom/>
- Ong, C. S., & Lai, J. Y. (2006). Gender differences in perceptions and relationships among dominants of e-learning acceptance. *Computers in human behavior*, 22(5), 816-829.
- Ramayah, T., Siron, R., Dahlan, N., & Mohamad, O. 2002. Technology usage among owners/managers of SME's: The role of demographic and motivational variables. In *The proceedings of the 6th Annual Asian-Pacific Forum for Small Business on Small and Medium Enterprises Linkages, Networking and Clustering*.
- Roca, J. C., & Gagné, M. 2008. Understanding e-learning continuance intention in the workplace: A self-determination theory perspective. *Computers in Human Behavior*, 24(4), 1585-1604.
- Saadé, R., Nebebe, F., & Tan, W. 2007 Viability of the " technology acceptance model" in multimedia learning environments: a comparative study. *Interdisciplinary Journal of E-Learning and Learning Objects*, 3(1), 175-184.
- Selim, H. M. 2003. An empirical investigation of student acceptance of course websites. *Computers & Education*, 40(4), 343-360.
- Shittu, A. T., Basha, K. M., AbdulRahman, N. S. N., & Ahmad, T. B. T. (2011). Investigating students' attitude and intention to use social software in higher institution of learning in Malaysia. *Multicultural Education & Technology Journal*. 5(3), 194 - 208.
- Sun, P. C., Cheng, H. K., & Finger, G. 2009. Critical functionalities of a successful e-learning system—An analysis from instructors' cognitive structure toward system usage. *Decision Support Systems*, 48(1), 293-302.
- Tick, A. 2006. A Web-based e-learning application of self-study multimedia programme in military English. In *Proceedings of the 3rd Romanian–Hungarian Joint Symposium on Applied Computational Intelligence* (pp. 25-26).
- Teo, T., Zhou, M., Fan, A. C. W., & Huang, F. (2019). Factors that influence university students' intention to use Moodle: A study in Macau. *Educational Technology Research and Development*, 67(3), 749-766.
- Thompson, P. (2013). The digital natives as learners: Technology use patterns and approaches to learning. *Computers & Education*, 65, 12-33.
- Vankatesh, V., & Davis, F. D. 1996. A model of the antecedents of perceived ease of use: Development and test. *Decision sciences*, 27(3), 451-481.

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