SCHOOL TEACHERS' BEHAVIOR IN REMOTE LEARNING DURING COVID-19 PANDEMIC: INDONESIA PERSPECTIVE

Dr. Shine Pintor Siolemba PATIRO
ORCID: 0000-0001-7912-4724
Faculty of Economics and Business
Universitas Terbuka
Tangerang Selatan, INDONESIA

Dr. Hety BUDIYANTI
ORCID: 0000-0002-9309-9024
Faculty of Economics and Business
State University of Makassar
Sulawesi Selatan, INDONESIA

Received: 07/07/2021 Accepted: 09/03/2022

ABSTRACT

This study aims to uncover the extension of the Technology Acceptance Model (TAM) in understanding, explaining, and predicting elementary school teachers' behavior in Indonesia to use online learning technology during the covid-19 pandemic. The TAM model in this study is extended by accounting for four additional variables, which are subjective norms, and job relevance as a predictor of perceived usefulness, also, computer self-efficacy and computer anxiety to predict perceived ease of use. This study uses an online survey method with a purposive sampling technique involving 475 elementary school teachers located in Jakarta, Palu, and Sorong (some of the big cities in Indonesia). The data analysis technique is Structural Equation Modeling (SEM) with the help of IBM SPSS AMOS 21 software. The results of this study show that the TAM model developed in this study can explain and predict the intentions of elementary school teachers in using online learning technology during the covid-19 pandemic as indicated by the support of the hypotheses tested in this study. Overall, TAM is a very popular model for understanding, explaining, and predicting the use of new technology systems. The implications and limitations of this study are also discussed in this article.

Keywords: Computer anxiety, computer self-efficacy, job relevance, subjective norm, SEM, TAM.

INTRODUCTION

The outbreak of Covid-19 in Indonesia, since March 2, 2020, has harmed various areas of people's lives. After more than a year, there is no sign that the pandemic will recede, instead, the number of Covid-19 cases is increasing at an alarming rate. Deputy Minister of State-Owned Enterprises (BUMN) Kartika Wirjoatmodjo argued, three sectors are most affected by the Covid-19 pandemic, which are energy, tourism, and infrastructure (Artanti, 2020). The Indonesian government has taken some measures to break the chain of virus transmission, such as implementing a social distancing policy, where residents must carry out most activities at home including working, studying, and praying.

The implementation of social distancing policy has a profound impact on many sectors. Apart from impacting the three sectors that have been described, the education sector is also severely affected. Many educational institutions have chosen to cancel all face-to-face classes, including laboratories and other learning activities, and have required students to study remotely from home to help avoid the spread of the virus that causes Covid-19 (UNESCO, 2020). Bond (2020) stated that almost every person in the world has suffered from the pandemic since the beginning of 2020, also institutional education has suddenly shifted to emergency remote education.

In Indonesia, nationwide school closures began on March 23, 2020, while localized closures in some provinces, e.g., DKI Jakarta, Central Java, Banten, West Java, and Aceh, started early on March 16, 2020 (Kumparan, 2020). More than 60 million students and 2.3 million educators across the nation, at 425,451 educational institutions from early childhood to higher education, have been forced to study and work from home during the Covid-19 pandemic (Indonesia ministry education and culture, 2020).

The adoption of online learning in a situation of emergency represents a need, but it has also stimulated experts, policymakers, citizens, teachers, and learners to search for new solutions. This is producing a shift from the concept of online learning to emergency remote teaching, which represents a temporary shift of instructional delivery to an alternate delivery model due to crisis circumstances. In this study, the term "Emergency Remote Learning (ERL)" is used to illustrate the education that took place during school closure, not online or virtual learning, since well-planned online learning experiences are substantially different from those that are delivered online in response to a crisis or catastrophe. ERL is a temporary change from instruction delivery to alternative delivery due to crisis circumstances. It requires the use of entirely remote teaching approaches for instruction or education that would otherwise be provided face-to-face or as blended or hybrid courses, and which will revert to that model once the crisis or emergency has finished (Hodges et al., 2020). The primary objective in this context is not to re-create a stable educational environment, but rather to provide immediate access to education and training in a manner that is easy to develop and easily accessible during an emergency or crisis. Milman (2020) described the situation as emergency remote teaching and learning — or "pandemic pedagogy."

Bozkurt and Sharma (2020) differentiate the difference between distance education and remote education. They stated that distance education is characterized by the distance of time and/or space between students and learning resources, where the learning system is planned systematically. As a student he will automatically undergo distance learning courses, he realizes that some or even all courses will take place remotely without face-to-face contact with the teacher (Bozkurt & Sharma, 2020). While remote education according to Bozkurt and Sharma (2020) is a learning system that refers to the spatial distance where distance is considered differently and seeks to explain it through transactional distance. In other words, this learning system still requires close contact with the teacher, whether through email, chatting, or voice call in which educators remain to have some sort of control in the learning process.

ERL has posed many challenges to both teachers and learners since they are not accustomed to having distance during the learning process. Problems in remote learning arise due to uneven access to technology and inadequate online teaching methods. That is, many of them do not have adequate devices as basic tools required for remote learning. In addition, the ability to access and use online or virtual learning technology is highly limited for teachers, especially in primary and secondary schools. The concern is now growing that remote learning could worsen inequalities in education. Several countries face many obstacles and gaps in the distance learning process (Favale et al., 2020; Goldschmidt, 2020; Guernsey, Ishmael, & Prescott, 2020; Masters et al., 2020). Education systems around the world are facing an unprecedented challenge in the wake of massive school closures mandated as part of public health efforts to contain the spread of Covid-19. Governmental agencies are working with international organizations, private sector partners, and civil society to deliver education remotely through a mix of technologies to ensure continuity of curriculum-based study and learning for all.

In contrast to research conducted by the leading educational organization Cambridge International which is part of the University of Cambridge in England where the results show that Indonesian students use technology in classrooms more than in many other countries including some developed countries. According to the study results, Indonesian students have the highest global use of computer space (40%) (BBC NEWS, 2018). In reality, many teachers and students could not utilize various Information and Communication Technology (ICT) devices and online learning platforms that are widely available in supporting distance implementation, either due to the ability of teachers, parents' economic factors, limited internet access, and the absence of guidance (Azhari & Fajri, 2021). Several studies have shown that Indonesian teachers' ICT competencies are not evenly distributed across regions (Widodo & Riandi, 2013). Furthermore, there are also significant gaps in the quality of education across regions in Indonesia, especially between Java and outside Java, and between socio-economic conditions (Azzizah, 2015; Muttaqin, 2018). In addition, uneven

internet access, gaps in teacher qualifications, quality of education, and a lack of ICT skills increase the challenges in distance learning initiatives in Indonesia (Azzahra, 2020).

The following are five excerpts from the initial interviews of 30 elementary school teachers conducted by the authors. These teachers are spread across three major cities in Indonesia, namely Jakarta, Palu, and Sorong.

> *Oh no…that thing again? how could I manage? I don't have proper computer ability. What can I do now? (Female; age 38; Tenure time 15 years)*
>
> *Mhmmm…that means I need to learn more about communication technology and computer. I could be lag behind if we have to do distance learning now (Male; age 40; Tenure time 18 years)*
>
> *Oh my goodness…hahaha…. that means I have to take a special course on computer and technology. I shall be doomed. All I know is using Facebook and Whatsapp (female; age 35; Tenure time 10 years)*
>
> *mhmm….We are already struggling with technology. we definitely will need a lot of guidance to do this (Male; age 47; Tenure time 18 years)*
>
> *I am really bad with online or distance learning. I could only use Facebook, Whatsapp, or Youtube when I use the internet. That means I need to learn real hard so I won't embarrass myself (Female; age 50; Tenure time 20 years)*

To understand, explain, and predict this phenomenon, we apply the Technology Acceptance Model (TAM) as the theoretical basis. TAM proposed by Davis (1985) has been widely accepted and has been proven applicable in identifying the willingness of consumers to take advantage of information and communication technology (ICT) (Cengiz & Bakirtas, 2020). This theory proposes that Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) are determinants of individual attitudes, while attitudes are determinants of Behavioral Intention (BI) and Behavioral Intention (BI) as determinants of usage behavior (Venkatesh, 2000; Venkatesh & Davis, 2000; Venkatesh & Bala, 2008).

However, there are some challenges among theorists who put forward several strengths and weaknesses regarding TAM. As suggested by Venkatesh and Davis (2000), the TAM model proposed by Davis (1985) does not consider factors such as subjective norms, image, job relevance, output quality, and result demonstrability. Additionally, according to Venkatesh and Davis (2000), these factors may serve as antecedents of perceived usefulness. Further, as they identified that TAM has some limitations in explaining why someone thinks that specific systems are beneficial, they suggest that these variables can be added as antecedents of perceived usefulness.

Moreover, Venkatesh (2000), Venkatesh and Davis (2000), and Venkatesh and Bala (2008) stated that it is also important to reveal the factors underlying the reasons why a person thinks that a particular system can be used efficiently or is user friendly. These researchers point out factors underlying the reasons for someone to think that a system is very user-friendly, such as computer self-efficacy, perceptions of external control, computer anxiety, computer playfulness, perceived enjoyment, and objective usability (Davis, Bagozzi, & Warshaw, 1992; Venkatesh & Davis, 1996; Venkatesh, 2000).

Therefore, Venkatesh (2000), Venkatesh and Davis (2000), and Ali, Gongbing, and Mehreen (2018) conveyed the necessity to reveal the ability of the TAM model in understanding, explaining, and predicting individual behavior in using ICT systems by including the variables previously described in the model. Faqih and Jaradat (2015) and Ali, Gongbing, and Mehreen (2018) stated that the main limitation of TAM is despite the model can provide adequate insight into the acceptance and use of technology by users, TAM only focuses on the consequences of perceived ease of use and perceived usefulness and does not reveal how such perceptions are formed or how they occur. In other words, how these two perceptions can be manipulated to encourage acceptance by system users and increased use are not discussed (Godoe & Johansen, 2012; Faqih & Jaradat, 2015).

Technology Acceptance Model (TAM)

Significant progress has been made over the last decade in explaining and predicting user acceptance of the information technology adopted by organizations. In particular, theoretical support and substantial

empirical research results have been accumulated to support the development of the Technology Acceptance Model (TAM) (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989). Several empirical studies have found that TAM is consistently able to explain and predict most of the variance (usually around 40%) of phenomena associated with the intention and behavior of adopting new technologies and that TAM performs better than alternative models such as Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) (Venkatesh, 1999).

TAM states that an individual's behavioral intention to use information system technology is determined by two beliefs/perceptions, namely: perceived Usefulness (PU), which is defined as the extent to which a person believes that using the system will improve his job performance, and perceived ease of use / perceived ease of use (POU), which is defined as the extent to which a person believes that the technology system to be used is user friendly. TAM also states that the external effects of variables (e.g., system characteristics, development process, training) on the intention to use a new technology system are mediated by their perceived usefulness and ease of use. According to TAM, perceived usefulness is also influenced by perceived ease of use because the easier a system is to use, the more valuable the system will be. Thus, the hypotheses proposed in this study are as follows.

H1 : Perceived Usefulness positively affects elementary school teachers' intention toward using ICT during the Covid-19 pandemic.

H2 : Perceived Ease of Use positively affects elementary school teachers' intention toward using ICT during the Covid-19 pandemic.

H3 : Perceived Ease of Use positively affects elementary school teachers' perceived usefulness toward using ICT during the Covid-19 pandemic.

Subjective Norms

Consistent with the Theory of Reasoned Action (TRA), as the fundamental theoretical basis for the development of TAM, in this study, the authors include social influence through subjective norms. Subjective norms refer to the belief that an important person or group of people will approve and support a particular behavior, and it is determined by the perceived social pressure from others for an individual to behave in a certain manner and their motivation to comply with those people's views (Ajzen & Fishbein, 1980). Subjective norms were included as direct determinants of behavioral intention in the TRA (Fishbein and Ajzen, 2010) and TPB (Ajzen & Madden, 1986; Ajzen, 1991) models. Studies on user acceptance of adopting new technology and examining the direct effect of subjective norms on behavioral intention have produced mixed results. Hwang, Al-Arabiat, and Shin (2016), in their research, did not find a significant effect of subjective norms on behavioral intention, while Ratten (2012) found a significant effect.

A contingency underlying the mixed findings regarding subjective norms was identified by Igwe et al (2020) where they separated respondents into the context of mandatory and voluntary use. Their results revealed that subjective norms had a significant effect on behavioral intentions for categories of mandatory use but not voluntary use. Thus, in the context of implementing online learning technology during ERL, the authors refer to the causal mechanism that underlies this influence as compliance.

In general, when an individual perceived his/her important persons is disapproved of specific behavior, and that person can respect his/her behavior or give punishment if he/she does not behave accordingly, then this individual is having an obedience effect of subjective norms (Rogers, 2003; Lin, 2007; Kim, Kim, & Shin, 2009). Therefore, based on the TAM model in the context of computer use, the direct compliance-based influence of subjective norms on behavioral intention will occur compulsorily, not voluntarily. Thus, based on this description, the hypothesis proposed in this study is as follows.

H4 : Subjective norms positively affect elementary school teachers' perception toward using ICT during the Covid-19 pandemic.

Job Relevancy

One of the critical components in the TAM model that should be considered is the user's assessment of new technology is job relevance, which is defined as an individual's perception of the extent to which the new technological system can be applied to their work (Venkatesh & Davis, 2000). In other words, job relevance is a function of the essential elements in a series of tasks and a person's job that the new system can support (Venkatesh & Davis, 2000). Ketikidis et al (2012) and Venkatesh et al (2003) argue that users have different knowledge regarding their job situation, which they can use to determine which tasks to perform under a particular system. Therefore, the existence of a well-defined knowledge structure regarding job objectives is vital in the concept of personnel psychology as proposed by Legris, Ingham, and Collerette (2003). In this study, the authors consider job relevance as a cognitive assessment that directly affects perceived usefulness, different from the social influence process.

Empirically, user acceptance of new technology has been linked in other studies to variables similar to job relevance, such as job-defined interest variables (Holden & Karsh, 2010), engagement defined by Turner et al (2010) as the importance and personal relevance, task, and technology suitability (Partala & Saari, 2015), and cognitive suitability (Lee et al., 2005). Thus based on this description, the proposed hypothesis is as follows.

H5 : Job relevance positively affects elementary school teachers' perception toward using ICT during the Covid-19 pandemic.

Computer Self-Efficacy

Computer self-efficacy is a variable that is considered new which is proposed and examined as an additional explanatory variable in an individual's IT use model (Bao et al., 2013; Ong & Lai, 2006). Based on the social cognitive theory developed by Bandura (1986), self-efficacy is defined as a person's belief that he/she can perform certain behaviors. Bandura (1986) suggests that self-efficacy plays a vital role in influencing motivation and behavior. The perceived ability of individuals to achieve the standards they have set impacts cognitive reactions and behavior (Nath, Bhal, & Kappor, 2013; Wang et al., 2003; Monsuwe et al., 2004). In addition, it also has a critical influence on decisions involving computer use and the adoption of new technologies (Wang et al., 2003; Monsuwe et al., 2004). Individuals, who perceive computer technology as too complex and believe that they can never control it, will prefer to avoid it and will likely not use it.

To et al (2008) also show that self-efficacy is an essential motivational variable and affects individuals in terms of affection, persistence, and motivation. The relationship between self-efficacy and perceived ease of use is intended to present the effect of self-efficacy on motivation. In addition, individuals who perceived a lower control over a situation will avoid the situation due to the feeling of inadequacy or discomfort. On the other hand, individuals with high self-efficacy will consider a system that is easy to adopt and valuable which will automatically accept changes (Bandura, 1986). The perceived ability of individuals to use a product will successfully influence their evaluative response and behavior towards the product (Chircu & Kauffman, 2000). Therefore, self-efficacy tends to influence beliefs and behaviors. In particular, this will affect system use directly and indirectly through perceived ease of use and perceived usefulness. Thus, based on this description, the hypothesis proposed in this study is as follows.

H6 : Computer self-efficacy positively affects elementary school teachers' perception of easiness toward using ICT during the Covid-19 pandemic.

Computer Anxiety

Dependence on computer technology has become more common in the workplace. When the Covid-19 pandemic hit Indonesia, computer technology becomes a necessity. In this new era of global technology, teachers are faced with the challenge of being more familiar with online learning technology. In addition, teachers must maintain and improve their knowledge and skills in using various computer devices that support the learning process.

However, some people have not been trained adequately in this regard and they are classified as a different generation (e.g., baby boomers). These people pose high fear and anxiety when collaborating with computers and technology devices. Generally, anxiety refers to a complex combination of negative emotional responses that include worrying, fear, and agitation. Anxiety is a natural and unavoidable reaction to the perception of danger or risk. All humans experience anxiety in specific contexts and situations, but not all types of anxiety are the same (Agarwal, 2000).

In studies on the adoption of information systems technology, anxiety is seen as a personality variable that affects the use of the system (Agarwal, 2000; Song & Kong, 2017). Several studies dealing with information systems are very consistent with this view that the relationship between anxiety and behavior is mediated by individual personal beliefs (Chen & Tseng, 2012). Anxiety is included as an antecedent to beliefs of usefulness and convenience using information systems technology (Venkatesh, 2000; van Raaij & Schepers, 2008).

Interestingly, many researchers view anxiety as an intermediate variable in the relationship between beliefs and behavior (Pan & Tang, 2004). Thus, anxiety can be seen as a result of a person's beliefs, not as a predecessor. For example, someone who believes that he will be embarrassed when giving a speech will have anxiety in speaking (commonly known as stage fright). As a result of that anxiety, he will refuse to make a speech. Thus, beliefs that lead to fear are perceived as anxiety, which leads to avoidant behavior. This perspective is used in this study.

Song and Kong (2017) study anxiety over computer use, and define it as an individual's tendency to be uncomfortable, worried, or afraid about current or future computer use. Several studies have provided supporting evidence of a direct link between computer anxiety and computer use (Blut, Wang, & Schoefer, 2016; Beaudry & Pinsonneault, 2010; Bitner, Ostrom, & Meuter, 2002; Chen, Chen, & Chen, 2009; Collier & Barnes, 2015; Curran & Meuter, 2005). In addition, other studies have shown a direct relationship between anxiety and attitudes towards computer use (Chang & Tung, 2008; Escobar-Rodriguez & Monge-Lozano, 2012; Gong, Xu, & Yu, 2004). Studies on computer use anxiety clearly show that highly computer anxious individuals are at a significant disadvantage compared to their peers. One example of such an environment is ERL which is currently being held by almost all primary, secondary and tertiary education institutions, during the Covid-19 pandemic. Thus, based on this, the hypothesis proposed in this study is as follows.

H7 : Computer anxiety negatively affects elementary school teachers' perception of easiness toward using ICT during the Covid-19 pandemic.

PURPOSE OF THE STUDY

This study aims to reveal how the TAM model is expanded in understanding, explaining, and predicting the behavior of elementary school teachers in Indonesia in using online learning technology during ERL. This study will reveal various social factors which affect the perceived usefulness and perceived ease of use of Indonesia's elementary school teachers in using online learning technology. This study will also contribute to the development of marketing science specifically consumer behavior. The field study is the adoption of new technology and educational science focusing on teachers' behavior in using online learning technology.

The TAM model in this study is expanded by including four additional variables, namely subjective norms, job relevance as a form of perceived usefulness, and computer self-efficacy and computer anxiety as a form of perceived ease of use. The main reason for using these four additional variables is based on the results of a preliminary study conducted from April to June 2020 which reveals the factors that shape elementary teachers' perceptions of the benefits and convenience of using online learning technologies applied during the ERL.

Based on the theoretical review and hypothesis development, the models to be proposed in this study are as follows.

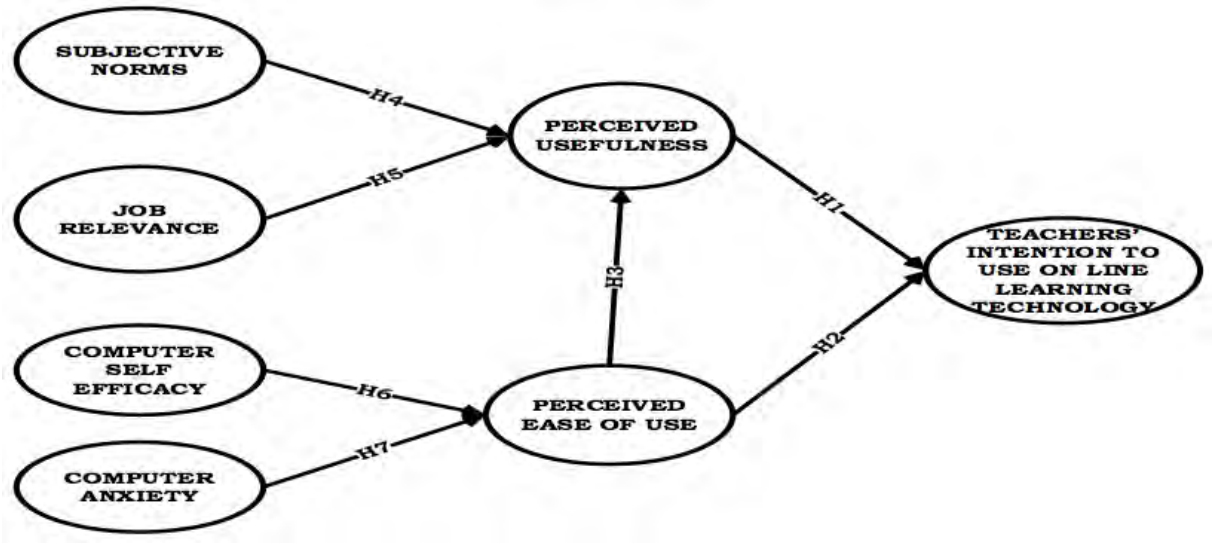

Figure 1. Theoretical Model

METHOD

The study consisted of two studies conducted sequentially as a sequential exploratory study design, where the first study was conducted from April to June 2020. A preliminary study is conducted to reveal the factors that consisted in the phenomenon under study. These factors are certainly related to the variables that will be measured in this research model. In this preliminary study, initial interviews were conducted with several respondents to determine their perceptions regarding the distance learning system implemented during the COVID-19 pandemic. Furthermore, the results from the initial interview will be used as the basis for compiling a questionnaire to be used in the second stage, the quantitative stage.

Participants

The population of this study is elementary school teachers in the cities of Jakarta, Semarang, Medan, Makassar, Palu, and Sorong. The sampling technique used in this study is purposive sampling. Respondents used in this study met the following three criteria: (1) Male or Female, (2) teachers (Civil Servant Apparatus or Non-Civil Servants) who served in elementary schools, (3) aged 30-60 years. In this study, the authors determined the sample size based on similar previous studies on the relationship between intention and behavior using the TAM model where the minimum sample size is ten, and the maximum is 1370 (Yousafzai, Foxall, & Pallister, 2007).

Other factors that influence the determination of the sample size in this study are closely related to SEM as an analytical tool. There are no clear directions for determining the appropriate sample size when using SEM. However, Alam, Sultana, and Rayhan (2019) stated that the sufficient sample size to use SEM, ranging from 100 to 200 samples. According to Ringle and Sarstedt (2016), the minimum sample size in a study using SEM is 5 to 10 times the number of indicators. Since the number of indicators is 17 indicators in this study, thus the minimum sample size is 17 x 10 = 350 respondents (Ringle and Sarstedt, 2016). Hair et al (2014) stated that the minimum sample size used in SEM is 300 with several constructs of 7 or less. According to Aaker et al (2013), the larger the sample size used, the better the study results because it will reduce the sampling error. Therefore, the appropriate sample size in this study is 500 respondents.

Data Collection and Analysis

Study 1

The authors conducted online interviews with 30 elementary school teachers in Jakarta, Palu, and Sorong areas. The sample size follows Creswell (2012) who stated that the ideal sample size for preliminary research

is around 20-30 respondents. In this stage, the author is assisted by colleagues at the city education office in implementing the online interview. The purpose of this stage is to reveal the factors that shape the perceived usefulness and perceived ease of using online learning technology for elementary school teachers.

Next, the authors determine the central ideas generated from the interview transcript by selecting the main ideas chosen by at least 10% of the respondents (Fishbein & Middlestadt, 1995) as the basis in generating a questionnaire for the Exploratory Factor Analysis (EFA) stage. Afterward, the authors conducted an EFA test by distributing the questionnaire to 100 elementary school teachers in Semarang, Medan, and Makassar city. The results of the EFA test show that four main factors shape the perceived usefulness (two factors) and the perceived ease of using (two factors) of online learning technology perceived by elementary school teachers during ERT. These factors are subjective norms and job relevance that shape perceptions of usefulness, also computer self-efficacy, and computer anxiety that shape perceptions of ease of use. See Table 1 for the details.

Table 1. The Factor Analysis Results

Construct	Indicator	Factor Loading Value
Computer Self-Efficacy	SE1	0.777
	SE2	0.861
Computer Anxiety	CA1	0.823
	CA2	0.831
	CA3	0.844
Job Relevance	JR1	0.719
	JR2	0.748
Subjective Norms	NS1	0.828
	NS2	0.824

Study 2

The second study was conducted from August to December 2020. At this stage, the authors formed a questionnaire based on the results obtained in the first study. There are seven constructs that 17 indicators will measure. After the questionnaire was formed, the authors conducted a Confirmatory Factor Analysis (CFA) test where questionnaires are distributed to 150 respondents, whose elementary school teachers in the cities of Jakarta, Medan, Semarang, and Palu. The authors were assisted by colleagues who serve in the Education Office of each city. Data were collected using an online survey via a google form, distributed by each of the Education Offices.

From 500 questionnaires distributed, only 475 were returned. Thus, the rate of return of the questionnaire in this study is 95 percent, which is adequate for further analysis since it exceeds the minimum response rate as stated by Aaker et al (2013), surveys that have high response rates (for example, 70 percent to 80 percent) have the most likely to avoid non-response bias.

The Scale

There are seven constructs that each indicator will measure in this study. The development of a measurement scale is carried out with a purification process for subjective norm, job relevance, computer self-efficacy, and computer anxiety construct based on study results and combined with previous studies. Development was carried out based on previous studies for the construct of behavioral intention, perceived usefulness, and perceived ease of use.

Measuring the subjective norm construct (two indicators) refers to studies by Ajzen and Madden (1986), Fishbein and Ajzen (2010), and Venkatesh (2000). The job relevance construct (two indicators) refers to studies by Venkatesh and Davis (2000). The computer self-efficacy construct (two indicators) refers to the studies by Taylor and Todd (1995), and the computer anxiety constructs (three indicators) refer to studies by Agarwal (2000) and Venkatesh (2000). Measurement of the behavioral intention construct (four indicators) was developed based on Ajzen and Madden (1986), Fishbein and Ajzen (2010), and Venkatesh (2000). The construct of perceived usefulness was developed based on Davis (1989), Venkatesh and Davis (1996), and Venkatesh (2000). Finally, the construct of perceived ease of use was developed based on Davis (1989), Venkatesh and Davis (1996), and Venkatesh (2000). All constructs in this study were measured using a Likert scale of 1 = Strongly Disagree to 5 = Strongly Agree.

FINDINGS

Respondent Characteristics

Table 2. Respondent Characteristics

Variables	Categories	Sum	Percentage
Gender	Male	143	30
	Female	332	70
Marital Status	Single	166	35
	Married	309	65
Age	< 30 years old	47	10
	31-45 years old	238	50
	>45 years old	190	40
Tenure	10-15 years	117	25
	16-20 years	143	30
	21-25 years	143	30
	>25 years	72	15
Education	Undergraduate	285	60
	Postgraduate	190	40
Montly Expenses	Rp 0 – Rp 1,000,000	0	0
	Rp 1,000,001 – 2,500,000	0	0
	Rp 2,500,001 – Rp 5,000,000	318	67
	Rp 5,000,001 – Rp 10,000,000	157	33
	More than Rp 10,000,000	0	0

Table 2 shows that the majority of respondents are female (332 people/70%) and married (309 people/65%). Also, the majority of respondents' age is between 31-45 years (238 people/50%) with a tenure track of 16-20 years (143 people/30%). Overall, the majority of respondents have a bachelor's degree (285 people/60%), and monthly spending of Rp. 2,500,001-Rp 5,000,000 (318 people/67%).

Validity and Reliability Results

Table 3. Discriminant and Convergent Validity Results

Construct (Cronbach Alpha)	Indicator	Loading Factor	Composite Reliability	AVE (Average Variance Extracted)
Computer Self Efficacy (0.902)	SE1	0.941	0.953	0.617
	SE2	0.948		
Computer Anxiety (0.682)	CA1	0.754	0.825	0.675
	CA2	0.817		
	CA3	0.725		
Job Relevance (0.729)	JR1	0.849	0.809	0.577
	JR2	0.746		
Norma Subyektif (0.721)	NS1	0.880	0.878	0.613
	NS2	0.853		
Niat berperilaku (0.963)	I1	0.969	0.973	0.527
	I2	0.877		
	I3	0.960		
	I4	0.950		
Perceived usefulness (0.724)	PU1	0.766	0.879	0.615
	PU2	0.765		
Perceived ease of use (0.962)	POU1	0.893	0.981	0.596
	POU2	0.890		

Table 3 (Fornell & Larcker, 1981; Nunnally & Bernstein, 1994) shows that the convergence validity for each construct is sufficient since the AVE value exceeds 0.5 (Hair et al., 2014; Chin, 1998). Table 3 also shows that the Cronbach alpha value and composite reliability of each construct exceed 0.7, thus the measure used in this study is reliable and better at estimating the internal consistency (Booth and Hughes, 2014; Kock, 2019; Elliott et al., 2021; Kragel et al., 2021).

Structural Model Examination

In conducting this test, the authors used Structural Equation Modeling (SEM) through a two-stage approach with the help of IBM SPSS Amos 21 software. The test results can be seen in Figure 2 and Table 4.

Table 4. The Correlation between Latent Construct

	Construct	1	2	3	4	5	6	7
1	Computer Self-Efficacy	1						
2	Computer Anxiety	0.223*	1					
3	Job Relevance	0.250**	0.192*	1				
4	Subjective Norms	0.141*	0.175*	0.312**	1			
5	Intention to Behave	0.224**	0.239**	0.347**	0.267**	1		
6	Perceived Usefulness	0.230**	0.413**	0.111*	0.211*	0.313**	1	
7	Perceived Ease of Use	0.212**	0.330**	0.201*	0.260**	0.102*	0.298**	1

*Notes: **. Significant at level 0,01 (2-tailed); *. Significant ar level 0,05 (2-tailed)*

Table 4 presents the result of the correlation between latent constructs used in this study. Based on this table, the correlation value between latent constructs is significant.

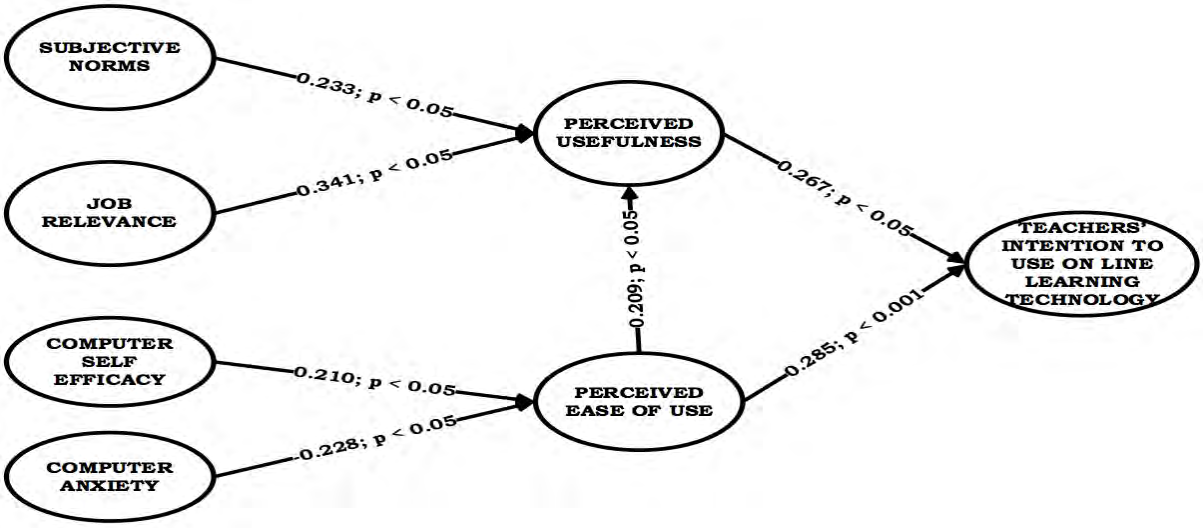

Figure 2. Structural Model Examination Result

*Notes: **. Significant at level 0.001 (2-tailed); *. Significant at level 0.05 (2-tailed);*

x^2= 179.927; CMIN/DF=1,697; GFI=0,905; AGFI=0,901; RMR=0,082; RMSEA=0,059; NFI=0,922; CFI=0,966.

Table 5. Estimated Structural Parameter

	Path Hypotheses	Path Coefficient	t-value	p-value	Conclusion
H1	Perceived Usefulness positively affects elementary school teachers' intention toward using ICT during the Covid-19 pandemic.	0,267	2,299*	0.022	Supported
H2	Perceived Ease of use positively affects elementary school teachers' intention toward using ICT during the Covid-19 pandemic.	0,285	4,607**	0.000	Supported
H3	Perceived ease of use positively affects elementary school teachers' perceived usefulness toward using ICT during the Covid-19 pandemic.	0,209	2,149*	0.030	Supported
H4	Subjective norms positively affect elementary school teachers' perception toward using ICT during the Covid-19 pandemic.	0,233	2,168*	0.030	Supported
H5	Job relevance positively affects elementary school teachers' perception toward using ICT during the Covid-19 pandemic.	0,341	2,752*	0.006	Supported
H6	Computer self-efficacy positively affects elementary school teachers' perception of easiness toward using ICT during the Covid-19 pandemic.	0,210	2,249*	0.026	Supported
H7	Computer anxiety negatively affects elementary school teachers' perception of easiness toward using ICT during the Covid-19 pandemic.	-0,228	-2,193*	0.030	Supported

*Notes: **. Significant level 0,001 (2-tailed); *. Significant at level 0,05 (2-tailed)*

DISCUSSIONS

Based on the results of estimating structural parameters using SEM, hypothesis 1 is supported. The results of this study are consistent with studies conducted by Holden and Karsh (2010), Blut, Wang, and Schoefer (2016), Venkatesh, Thong, and Xu, (2012), Chauhan (2015), and Albayrak et al (2021) which indicate the significant strength of perceived usefulness in explaining and predicting intentions to use or adopt new technological systems. In the TAM framework, PU is hypothesized as a direct predictor of behavioral

intention to use the technology of interest (Park et al., 2014; Catchpole et al., 2022). Previous studies have shown that PU is positively related to sustained intention in the context of research on the use or adoption of new technology systems, such as e-text (Baker-Eveleth & Stone, 2015; Stone & Baker-Eveleth, 2013), instant messaging (Wang, Ngai, & Wei, 2011), mobile service providers (Abbas & Hamdy, 2015; Catchpole et al., 2022), online travel services (Li & Liu, 2014; Albayrak et al., 2021), e-learning (Lin & Wang, 2012), blog learning (Tang, Tang, and Chiang, 2012), as well as knowledge creation (Chou et al., 2009). This study further emphasizes that when elementary teachers believe in the benefits of online learning technology during ELT, the intention to use this technology in the ERL process will be higher.

The second hypothesis is also supported. The results of this study are consistent with research conducted by Aboelmaged and Gebba (2013), Anderson and Agarwal (2010), Bagozzi (2007), Benson, Saridakis, and Tennakoon (2015), Liao, Tsou, & Huang (2007), Bryce and Fraser, (2014), Cengiz and Bakirtas (2020) which concluded that perceived ease of use has a positive and significant effect on using or adopting a new technological system. Researchers of TAM argue that perceived ease of use is the extent to which a person accepts the truth that using the correct method will not cause difficulties for the individual (Davis, Bagozzi, & Warshaw, 1989; Rosander & Eriksson, 2012; Chen, Shing-Han, & Chien-Yi, 2011; Hansen & Levin, 2016; Liang & Elliot, 2021). Rogers (1962) initially emphasized that perceived ease of use is a term that represents the extent to which an innovation is considered not challenging to understand, learn or operate (see: Venkatesh & Davis (2000); Liang & Elliot ((2021); Catchpole et al (2022)). Furthermore, they stated that ease of use is the extent to which consumers perceive a new product or service as a better product than its substitute product (Venkatesh & Davis, 2000; Cengiz & Bakirtas, 2020; Liang & Elliot, 2021). Similarly, Zeithaml, Parasuraman, and Malhotra (2002) and Catchpole et al (2022) stated that ease of use is defined as how innovation is easy to understand.

Extensive studies over the past decade have provided evidence regarding the significant effect of perceived ease of use on the intention of use, both directly and indirectly (Hernandez & Mazzon, 2007; Guriting & Ndubisi, 2006; Eriksson, Kerem, & Nilsson, 2005; Wang, Ngai, & Wei, 2011; Venkatesh, 2000; Venkatesh & Davis, 1996; Venkatesh & Morris, 2000). Early in 1962, Rogers argued that understanding technology leads to adapting innovative products by customers is known as ease of use (See Venkatesh & Davis (2000)). Chen and Barnes (2007) have shown empirically in their research that two aspects of interface technology, namely perceived ease of use and perceived usefulness, significantly influence customer adaptation intentions.

Furthermore, the third hypothesis is supported in line with Venkatesh and Davis (2000), Molobi, Kabiraj, and Siddik (2020), and Zhang, Wang, and Li (2021) who concluded that perceived ease of use has an important influence on shaping perceived usefulness. In other words, individuals who find it easy to use new technology will automatically form their perception of the benefits that will be received when adopting the system. Beliefs regarding the value of the usefulness and ease of use of new information systems have been the basis for the formation of TAM (Davis, 1989).

However, only little empirical research was conducted on how and why these two beliefs were used as antecedents at the beginning of the model (Venkatesh & Davis, 2000). Further, another question, for example, explains how users believe that the system will be helpful in their work? What might be a psychological antecedent to the belief that a system is simple or challenging to use? Therefore, from a theoretical perspective, TAM needs to be expanded to include these aspects of the user acceptance process. The results of this study provide evidence that the expansion of TAM by including the effect of perceived ease of use for electronic communication technology on perceived usefulness is well proven.

According to TAM, the use of new technology is determined by the beliefs held by users about perceived usability (PU) and perceived ease of use (PEU). PU is defined as the extent to which a person believes that using a system will improve their performance. PEU refers to the degree to which a person believes that using a particular system will be easy. Although both constructs are significantly correlated with the actual use of technology, Davis (1989) suggests that PU mediates the effect of PEU on actual user behavior (see: Molobi, Kabiraj, & Siddik (2020); Murillo, Novoa-Hernandez, & Rodriguez (2021)).

The fourth hypothesis is also well supported. The TAM model includes two additional theoretical mechanisms by which subjective norms can influence intentions indirectly through perceived usefulness through internalization and identification. According to Kelman (1958) and Warshaw (1980), internalization refers to a process, when a person feels confident that someone, he/she considers important thinks he must use a new

technological system (Venkatesh & Davis, 2000; Albayrak et al., 2020; Liang & Elliot, 2021). In other words, a person inserts these beliefs into his belief structure. This internalization is equivalent to what Deutsch and Gerard (1955) call informational social influence (as opposed to normative), which is defined as the influence to receive information from others as evidence of reality (Ali, Gongbing, & Mehreen, 2018; Molobi, Kabiraj, & Siddik, 2020; Tao et al., 2020; Zhang, Wang, & Li, 2021). In the current context, if a boss or coworker suggests that a particular system might be helpful, then someone might believe that the system is beneficial and thus form the intention to use it. In the taxonomy of power, according to French and Raven (1959), the basis of internalization is expert power, which is when the individual in question connects expertise and credibility with agents who have influence (Venkatesh & Davis, 2000; Cengiz & Bakirtas, 2020).

In the case of internalization, subjective norms have an indirect effect on intentions through perceived usefulness instead of the direct effect of adherence to intentions. A study on the social information processing model proposed by Salancik and Pfeffer (1978) is consistent with the intended effect of internalization (Chau & Hu, 2002; Molobi, Kabiraj, & Siddik, 2022). TAM maintains that internalization is not like compliance. Internalization will occur in the context of voluntary or mandatory use of the system. Even when the use of the system is mandatory by organizations, users' perceptions of usability may still increase in response to persuasive social information as this study demonstrated. When elementary teachers believe that their colleagues suggest that they want to use online learning technology in the ERL, a perception will form within them regarding the perceived usefulness of the technology system (Bozkurt & Sharma, 2020; Bond, 2020).

Furthermore, the fifth hypothesis is also supported in line with Venkatesh and Davis (2000), Molobi, Kabiraj, and Siddik (2020), and Murillo, Novoa-Hernandez, and Rodriguez (2021)), who demonstrated the positive effect of job relevance on perceived usefulness. In this study, TAM is expanded by including job relevance as a factor that directly affects perceived usefulness, as suggested by Venkatesh and Davis (2000), Molobi, Kabiraj, and Siddik (2020), and Murillo, Novoa-Hernandez, and Rodriguez (2021)). According to Venkatesh and Davis (2000), Molobi, Kabiraj, and Siddik (2020), and Murillo, Novoa-Hernandez, and Rodriguez (2021)), job relevance is the individual's perception of the extent to which the adopted information system technology can be applied to his job. Similarly, this study proposed that the relevance of the job held by elementary teachers affects the perceived usefulness of the use of technology during ERL. Thus, the relevance of work in this study is defined as teachers' perceptions of the relevance of the online learning technology system used in managing distance learning activities during ERL. Venkatesh and Davis (2000), Molobi, Kabiraj, and Siddik (2020), and Murillo, Novoa-Hernandez, and Rodriguez (2021))stated that job relevance is believed to have a direct effect on perceived usefulness positively. Thus, this study is successful in providing evidence that job relevance can influence perceived usefulness.

Kieras and Polson (1985) and Polson (1987) stated, new technology users, have different knowledge about their work situation, which they can use to determine the tasks performed with the adopted system (Lee, Kozar, & Larsen, 2003; Naruetharadhol et al., 2021). Furthermore, Roberson (1989) also stated that individuals have a well-defined knowledge structure regarding the purpose of their work in the organization (see: Lee, Kozar, & Larsen (2003); Albayrak et al (2021)). Thus, in line with previous studies, the authors consider job relevance as a cognitive assessment that directly affects perceived usefulness. Beach and Mitchell (1996, 1998) stated that the assessment of job relevance is related to the compatibility test (see: Ketikidis et al (2012); Liang & Elliot (2021)). When the system is judged to be irrelevant to the job, the system will be eliminated from the choices made for further consideration (Tao et al., 2020; Naruetharadhol et al., 2021).

The sixth hypothesis is well supported. Computers' self-efficacy has a vital role in mediating the impact of anxiety on perceived ease of use (Saade & Kira, 2009; Zhang, Wang, & Li, 2021). If these elementary school teachers manage to interact well with computers, they will feel confident in carrying out ERL. According to the concept of computer self-efficacy variables, this variable can reduce the strength and significance of the impact of anxiety on perceptions of the ease of use of computers. Secondly, this variable significantly affects anxiety on computers (Saade & Kira, 2009; Zhang, Wang, & Li, 2021). The results of this study are consistent with previous studies focused on the relationship of computer self-efficacy with some situational factors (Carroll et al., 2009; Rouidi, Elouadi, & Hamdoune, 2022). They further argued that belief in computer self-efficacy appeared to predict many research outcomes and was significantly associated with increased motivation and other academic performance. In addition, according to Weng, Cheong, and Cheong (2009), students with high self-efficacy consider the experience of failure as a challenge rather than a threat because

of more substantial self-efficacy expectations. Following this, Simsek (2011), Bond (2020), and Bozkurt and Sharma (2020) add that teachers' and students' attitudes and perceptions regarding education supported by computers are the main factors for achieving success in online educational practice. Thus, this study uses self-efficacy as a domain-specific measure of elementary school teachers' belief in their ability to operate computers that can influence their perception of the ease of using online learning technology.

Finally, hypothesis seven is well supported. The results of this study are consistent with Saade and Kira (2007) and Zhang, Wang, and Li (2021) who demonstrated that computer anxiety has a positive and significant effect on the perceived ease of using new information system technology adopted by an organization. The use of technology often has unpleasant side effects (Tao et al., 2020; Zhang, Wang, & Li, 2021). In this case, what may happen is the emergence of negative emotional feelings during interaction with computers. Frustration, confusion, anger, anxiety, and similar emotional states can affect the interaction itself and productivity, learning, social relationships, and overall well-being.

Researchers on Tam are currently trying to predict the individual factors that cause perceived computer anxiety. Often, factors such as age, gender, ethnicity, previous computer experience, mathematics anxiety, self-efficacy, learning styles, and attitudes toward computers are recognized as influencing computer anxiety (Tsai et al., 2020; Guo et al., 2013; Simsek, 2011; Saade & Kira, 2007, 2009; Abdullah, Ward, & Ahmed, 2016). As in this study, the respondents included in the sample were elementary school teachers, most of whom were generation X. They are not familiar with computer technology development and communication and information technology. When they became teachers in elementary schools, they were not required to master communication and information technology since most of the learning was conducted physically.

Therefore, with the covid-19 pandemic that hit Indonesia and the issuance of a policy by the government to carry out ERL, there is high anxiety regarding the use of computers by people who are not familiar with the development of communication and information technology. Thus, this provides psychological pressure on elementary school teachers when they are required to apply online learning technology, including computers. The concept is following Howard (1986) that when a person is in a stressful situation, such as in computer use, stress can cause tension to the computer (subliminal), anxiety about computers (conscious), fear of computers (specifically related to computer use), or a phobia of computers (severe physical anxiety) (Saade & Kira, 2007). This feeling will affect an individual perception of the ease of applying online learning technology through computers.

CONCLUSION, IMPLICATION, AND LIMITATION

The TAM model developed in this study can explain and predict the intention of elementary school teachers to use online learning technology during the Covid-19 pandemic that hit Indonesia. Perceived ease of use is a predictor variable that has the most significant influence on the intention of elementary school teachers to use online learning technology during ERL during the pandemic. Two factors affect perceived usefulness, namely subjective norms, and job relevance. Job relevance has the most significant influence on perceived usefulness. The factor that most influences perceived ease of use is computer self-efficacy compared to computer anxiety, which negatively affects. All predictor variables in TAM developed for this study can explain and predict criterion variables.

Overall, TAM is a superior model for understanding, explaining, and predicting the use of new technology systems. To date, there have been several interesting studies on the application of TAM. Although confirmatory results have been obtained, skepticism among researchers about the application and theoretical accuracy of the model is still rising. Thus, we can conclude that research on TAM may have reached a saturation level, so future research will focus on developing a new model that takes advantage of the strengths of the TAM model while ignoring its weaknesses.

The results of this study are expected to provide input for stakeholders, which in this case are parties related to the learning process of elementary, middle, and high school students regarding the factors that influence the intention of teachers to use online learning technology in the ERL. Further, the results of this study can also be used as input for the government through the education offices at the provincial and district or city levels in developing the competence of teachers, especially in using and implementing online learning technology for distance learning.

The results of this study can also be used as input in understanding the factors considered capable of influencing the intentions and behavior of organizational members in implementing or adopting information and communication technology systems that are applied and developed by the organization. A training system can be designed to enable them to adopt the new technological system by understanding these factors.

There are several limitations to this study. First, this study only measures the extent of the behavioral intention stage. Therefore, it is supposed to prove the ability of TAM in understanding, explaining, and predicting the behavior of the use or adoption of a new communication and information technology system. It is better to measure up to the behavioral stage. Furthermore, measuring the behavior stage should use actual user data.

Second, this study only involved elementary school teachers in five major cities in Indonesia. Further research is expected to involve teachers at the secondary and high school levels (for example, middle high school, high school, and vocational high school), likewise with the coverage area, which, if possible, covers all big cities in 34 provinces in Indonesia to generalize the results of the research better.

Third, this study uses an online survey. The online method often raises questions when collecting data, whether the elementary school teachers genuinely filled in the questionnaire. However, it cannot be avoided that this method is used because the authors are faced with regulations issued by the government regarding travel restrictions and maintaining distances during the Covid-19 pandemic. Therefore, further research should be carried out using surveys and interact physically with the intended respondents.

BIODATA AND CONTACT ADDRESSES OF AUTHORS

Dr. Shine Pintor Siolemba PATIRO, currently serve as a faculty staff at department of management, faculty of economics and business, Universitas Terbuka, Indonesia. He received his doctoral degree from Gadjah Mada University, Indonesia, majoring in management studies in 2016. His research interest is in consumer behavior, marketing management, human resources management and organizational behavior. He co-authors a book about leadership in public service works and marketing management. He has published his works in several leading academic international and national journals.

Shine Pintor Siolemba PATIRO
Department of Management, Faculty of Economics and Business, Universitas Terbuka
Address: Jl. Pd. Cabe Raya, Pd. Cabe Udik, Kec. Pamulang, Kota Tangerang Selatan, Banten 15437, Indonesia
Email: shinepintor@ecampus.ut.ac.id

Dr. Hety BUDIYANTI currently serves as faculty staff and senior lecturer at the department of management, Faculty of Economics and Business, State University of Makassar, Indonesia. She received her doctoral degree from the Faculty of Economics and Business, Gadjah Mada University, Indonesia, majoring in management studies in 2017. Her research interest is in area of behavioral finance, and human resources management. She co-authors a book about leadership in public service works. She has published her works in several leading academic international and national journals. Moreover, many of her works have also been presented at international and national academic conferences.

Hety BUDIYANTI
Department of Management, Faculty of Economics and Business, State University of Makassar
Address: Jalan Pendidikan No.1. Fakultas Ekonomika dan Bisnis. Universitas Negeri Makassar, Sulawesi Selatan, Indonesia.
Phone: +6281325147387
Email: hety.budiyanti@unm.ac.id

REFERENCES

Aaker, D. A., Kumar, V., Leone, R. P., & Day, G. S. (2013). *Marketing Research* (11th ed.). John Wiley & Sons, Inc.

Abbas, H. A., & Hamdy, H. I. (2015). Determinants of continuance intention factor in Kuwait communication market: A case study of Zain-Kuwait. *Computers in Human Behavior*, *49*, 648–657.

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.

Aboelmaged, M., & Gebba, T. R. (2013). Mobile banking adoption: An examination of technology acceptance model and theory of planned behavior. *International Journal of Business Research and Development*, *2*(1), 35–50.

Agarwal, R. (2000). Individual acceptance of information technologies. In R. W. Zmud (Ed.), Framing the domains of IT management: projecting the future through the past (pp. 85–104). Cincinnati, OH: Pinnaflex Pressgarwal.

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood-Cliffs, NJ: Prentice-Hall.

Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology,*22 (5), 453-474.https://doi.org/10.1016/0022-1031(86)90045-4

Alam, T. F., Sultana, N., &Rayhan, M. I. (2019). Structural equation modeling: an application of broadband penetration and GDP growth in Asia. *Journal of Economic Structures*, *8*(17), 1–11.

Albayrak, T., Gonzalez-Rodriguez, M. R., Caber, M., & Karasakal, S. (2021). *Journal of Vacation Marketing*, 1-19

Ali, Z., Gongbing, B., & Mehreen, A. (2018). Understanding and predicting academic performance through cloud computing adoption: A perspective of technology acceptance model. *Journal of Computers in Education*, *5*(3), 297–327.

Anderson, C. L., & Agarwal, R. (2010). Practicing safe computing: A multimedia empirical examination of home computer user security behavioral intentions. *MIS Quarterly*, *34*(3), 613–643.

Artanti, A. A. (2020). *3 Sektor Ini Paling Terdampak Covid-19.* Medcom. Id. Retrieved 17 March 2020 from https://www.medcom.id/ekonomi/bisnis/yKXDzE6K-3-sektor-ini-paling-terdampak-covid-19

Azhari, B.; Fajri, I. (2021). Distance learning during the COVID-19 pandemic: School closure in Indonesia. *International Journal of Mathematical Education in Science and Technology*, 1–21. https://doi.org/10.1080/0020739X.2021.1875072

Azzahra, N. F. (2020). Ringkasan Kebijakan | Mengkaji Hambatan Pembelajaran Jarak Jauh di Indonesia di Masa Covid-19. *CIPS Center for Indonesian Policy Studies. Ringkasan Kebijakan*, *2*, 1–9.

Azzizah, Y. (2015). Socio-Economic Factors on Indonesia Education Disparity. *International Education Studies*, *8*(12), 218–230.

Bagozzi, R. P. (2007). The legacy of the technology acceptance model and a proposal for a paradigm shift. *Journal of the Association for Information Systems*, *8*(4), 244–254.

Baker-Eveleth, L., & Stone, R. W. (2015). Usability, expectation, confirmation, and continuance intentions to use electronic textbooks. *Behaviour & Information Technology*, *34*(10), 1–13.

Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bao, Y., Xiong, T., Hu, Z., & Kibelloh, M. (2013). Exploring Gender Differences on General and Specific Computer Self-Efficacy in Mobile Learning Adoption. *Journal of Educational Computing Research*, *49*(1), 111–132.

BBC NEWS (2018.). *Pelajar Indonesia jadi salah satu pengguna teknologi tertinggi di dunia*. Bbc.Com. Retrieved March 17, 2020, from https://www.bbc.com/indonesia/majalah-46500293

Beaudry, A., & Pinsonneault, A. (2010). The Other Side of Acceptance: Studying the Direct and Indirect Effects of Emotions on Information Technology Use. *MIS Quarterly*, *34*(4), 689–710.

Benson, V., Saridakis, G., & Tennakoon, H. (2015). Information disclosure of social media users: Does control over personal information, user awareness and security notices matter? *Information Technology and People*, *28*(3), 421–446.

Bitner, M. J., Ostrom, A. L., & Meuter, M. L. (2002). Implementing Successful Self-Service Technologies. *Academy of Management Executive*, *16*(4), 96–108.

Blut, M., Wang, C., & Schoefer, K. (2016). Factors influencing the acceptance of self-service technologies: a meta-analysis. *Journal of Service Research*, *19*(4), 396–416.

Bond, M. (2020). Schools and emergency remote education during the COVID-19 pandemic: A living rapid systematic review, *Asian Journal of Distance Education*,15(2), 191-247

Booth, T., & Hughes, D. J. (2014). Exploratory Structural Equation Modeling of Personality Data. *Assessment*, *21*(3), 260–271.

Bozkurt, A. and Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to CoronaVirus pandemic, *Asian Journal of Distance Education,* 15(1), i-iv

Bryce, J., & Fraser, J. (2014). The role of disclosure of personal information in the evaluation of risk and trust in young peoples' online interactions. *Computers in Human Behavior*, *30*, 290–306.

Carroll, A., Houghton, S., Wood, R., Unsworth, K., Hattie, J., Gordon, L., & Bower, J. (2009). Self-efficacy and academic achievement in Australian high school students: the mediating effects of academic aspirations and delinquency. *Journal of Adolescence*, *32*(4), 797–817.

Catchpole, K., Privette, A., Roberts, L., Alfred, M., Carter, B., Woltz, E., Wilson, D., & Crookes, B. (2022). A Smartphone Application for Teamwork and Communication in Trauma: Pilot Evaluation "in the Wild", Human Factors, 64(1), 143-158

Cengiz, E., & Bakirtas, H. (2020). Technology Acceptance Model 3 in Understanding Employee's Cloud Computing Technology. *Global Business Review*, 1–20.

Chang, S. C., & Tung, F. C. (2008). An empirical investigation of students' behavioural intentions to use the online learning course websites. *British Journal of Educational Technology*, *39*(1), 71–83.

Chau, P.K., & Hu, P. J. (2002). Investigating healthcare professionals' decisions to accept telemedicine technology. *Information & Management*, *39*(4), 297–311.

Chauhan, S. (2015). Acceptance of mobile money by poor citizens of India: integrating trust into the technology acceptance model. *Info*, *17*(3), 58–68.

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.

Chen, S-C, Chen, H-H., & Chen, M.-F. (2009). Determinants of Satisfaction and Continuance Intention towards Self-Service Technologies. *Industrial Management and Data Systems*, *109*(9), 1248–1263.

Chen, S. C., Shing-Han, L., & Chien-Yi, L. (2011). Recent related research in technology acceptance model: A literature review. *Australian Journal of Business and Management Research*, *1*(9), 124–127.

Chen, Y. H., & Barnes, S. (2007). Initial trust and online buyer behaviour. *Industrial Management and Data System*, *107*(1), 21–36.

Chin, W. W. (1998). The partial least squares approach for structural equation modeling. In George A Marcoulides (Ed.), *Methodology for business and management. Modern methods for business research* (pp. 295–336). Lawrence Erlbaum Associates Publishers.

Chircu, A. M., & Kauffman, R. J. (2000). Limits to value in electronic commerce-related IT investments. *Journal of Management Information Systems*, *17*(2), 59–80.

Chou, S.-W., Min, H.-T., Chang, Y.-C., & Lin, C.-T. (2009). Understanding continuance intention of knowledge creation using the extended expectation–confirmation theory: an empirical study of Taiwan and China online communities. *Behaviour & Information Technology*, *29*(6), 557–570.

Collier, J. E., & Barnes, D. C. (2015). Self-Service Delight: Exploring the Hedonic Aspects of Self-Service. *Journal of Business Research*, *68*(5), 986–993.

Creswell, J. W. (2012). *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research* (4th ed.). Boston, MA: Pearson Education International, Inc.

Curran, J. M. & Meuter, M. L. (2005). Self-Service Technology Adoption: Comparing Three Technologies. *Journal of Services Marketing*, *19*(2), 103–113.

Davis, F. B. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319–339.

Davis, F., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, *35*(8), 982–1003. http://www.jstor.org/stable/10.2307/2632151

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, *22*(14), 1111–1132.

Elliott, M. L., Knodt, A. R., Caspi , A., Moffitt, T. E., & Hariri, A. R. (2021). Need for Psychometric Theory in Neuroscience Research and Training: Reply to Kragel et al. (2021). *Psychological Science*, *32*(4), 627–629.

Eriksson, K., Kerem, K., and Nilsson, D. (2005). Customer acceptance of internet banking in Estonia. *International Journal of Bank Marketing*, *23*(2), 200–216.

Escobar-Rodriguez, T., & Monge-Lozano, P. (2012). The acceptance of Moodle technology by business administration students. *Computers & Education*, *58*(4), 1085–1093.

Faqih, K. M., & Jaradat, M. I. R. M. (2015). Assessing the moderating effect of gender differences and individualism-collectivism at individual-level on the adoption of mobile commerce technology: TAM3 perspective. *Journal of Retailing and Consumer Services*, *22*, 37–52.

Favale, T., Soro, F., Trevisan, M., Drago, I., & Mellia, M. (2020). Campus traffic and e-learning during COVID-19 pandemic. *Computer Networks*, *176*. https://doi.org/10.1016/j.comnet.2020.107290

Fishbein, M. and Ajzen, I. (2010). *Predicting and Changing Behavior: The Reasoned Action Approach*. New York, NY: Psychology Press Taylor and Francis Group.

Fishbein, M., & Middlestadt, S. (1995). Noncognitive Effects on Attitude Formation and Change: Fact or Artifact? *Journal of Consumer Psychology*, *4*(2), 181–202. https://doi.org/10.1207/s15327663jcp0402_05

Fornell, C. & Larcker, D. F. (1981). Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. *Journal of Marketing Research*, *18*(3), 382–388.

Godoe, P., & Johansen, T. (2012). Understanding adoption of new technologies: Technology readiness and technology acceptance as an integrated concept. *Journal of European Psychology Students*, *3*(1), 38–52.

Goldschmidt, K. (2020). The COVID-19 pandemic: Technology used to support the wellbeing of children. *Journal of Pediatric Nursing*, *53*, 88–90. https://doi.org/10.1016/j.pedn.2020.04.013

Gong, M., Xu, Y., & Yu, Y. (2004). An enhanced technology acceptance model for web-based learning. *Journal of Information Systems Education*, *15*(4), 365–374.

Guernsey, L., Ishmael, K., & Prescott, S. (2020). *Online learning in the wake of COVID-19 tips and resources for PreK-12 with equity in mind*. NEW AMERICA. Retrieved September 8, 2020, from https://www.newamerica.org/educationpolicy/%0Aedcentral/online learning-wake-covid-19/%0A

Guo X, Sun Y, Wang N, Peng Z., & Yan, Z. (2013). The dark side of elderly acceptance of preventive mobile health services in China. *Electronic Markets*, *23*(1), 49–61.

Guriting P., & Ndubisi N, O. (2006). Borneo online banking: evaluating customer perceptions and behavioural intention. *Management Research News*, *29*(1/2), 6–15.

Hair, Jr. J. F., Black, W. C., Babin, B. J., and Anderson, R. E. (2014). *Multivariate Data Analysis*, 7th ed. Essex, England Pearson Education Limited.

Hansen, J. M., & Levin, M. A. (2016). The effect of apathetic motivation on employees' intentions to use social media for businesses. *Journal of Business Research*, *69*(12), 6058–6066.

Hernandez, J. M. C., & Mazzon, J. A. (2007). Adoption of internet banking: proposition and implementation of an integrated methodology approach. *International Journal of Bank Marketing*, *25*(2), 72–88.

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *EDUCAUSE Review.* Retrieved September 8, 2020, from https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Holden, R. J. & Karsh, B. (2010). The technology acceptance model: its past and its future in healthcare. *Journal of Biomedical Informatics*, *43*(1), 159–189.

Hwang, Y., Al-Arabiat, M., & Shin, D.-H. (2016). Understanding technology acceptance in a mandatory environment: A literature review. *Information Development*, *32*(4), 1266–1283.

Igwe, A., Ogbo, A., Agbaeze, E., Abugu, J., Ezenwakwelu, C., & Okwo, H. (2020). Self-Efficacy and Subjective Norms as Moderators in the Networking Competence–Social Entrepreneurial Intentions Link. *Sage Open*, 1–16.

Ketikidis, P., Dimitrovski, T., Lazuras, L., & Bath, P. A. (2012). Acceptance of health information technology in health professionals: An application of the revised technology acceptance model. *Health Informatics Journal*, *18*(2), 124–134.

Kim, H-b., Kim, T., & Shin, S. W. (2009). Modeling roles of subjective norms and eTrust in customers' acceptance of airline B2C eCommerce websites. *Tourism Management*, *30*(2), 266–277.

Kock, N. (2019). Factor-based structural equation modeling with WarpPLS. *Australasian Marketing Journal (AMJ)*, *27*, 57–63.

Kragel, P. A., Han, X., Kraynak, T. E., Gianaros, P. J., & Wager, T. D. (2021). Functional MRI can be highly reliable, but it depends on what you measure: A commentary on Elliott et al. (2020). *Psychological Science*, *32*(4), 622–626.

Kumparan. (2020). *Anies Tutup Sekolah di DKI Jakarta Selama 2 Minggu untuk Cegah Corona [Anies closes school in DKI Jakarta for 2 weeks to prevent Corona]*. KumparanNEWS. Retrieved May 11, 2020 from https://kumparan.com/kumparannews/anies-tutup-sekolah-di-dki-jakarta-selama-2-minggu-untuk-cegah-corona-1t1V7X57VID

Lee, Y., Kozar, K. & Larsen, K. (2003). The technology acceptance model: past, present, and future. *Communications of the AIS*, *12*(50), 752–780.

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.

Li, H., & Liu, Y. (2014). Understanding post-adoption behaviors of e-service users in the context of online travel services. *Information & Management*, *51*(8), 1043–1052.

Liang, L. J. and Elliot, S. (2021). A systematic review of augmented reality tourism research: What is now and what is next? *Tourism and Hospitality Research*, 21(1), 15-30

Liao, C. H., Tsou, C. W., & Huang, M. F. (2007). Factors influencing the usage of 3G mobile services in Taiwan. *Online Information Review*, *31*(6), 759–774.

Lin, W.-S., & Wang, C.-H. (2012). Antecedences to continued intentions of adopting e-learning system in blended learning instruction: A contingency framework based on models of information system success and task-technology fit. *Computers & Education*, *58*(1), 88–99.

Lin, H.-F. (2007). Predicting consumer intentions to shop online: an empirical test of competing theories. *Electronic Commerce Research and Applications*, *6*(4), 433–442.

Masters, G. N., Taylor-Guy, P., Fraillon, J., & Chase, A.-M. (2020). *Ministerial briefing paper on evidence of the likely impact on educational outcomes of vulnerable children learning at home during ministerial briefing paper on evidence of the likely impact on educational outcomes of vulnerable children learning at home.* Australian Government Department of Education, Skills, and Employment. retrieved May 11, 2020, from https://research.acer.edu.au/learning_processes/24

Milman, N. B. (2020). Pandemic Pedagogy. *Phi Delta Kappan: The Professional Journal for Educators*. Retrieved 11 May 2020 from https://kappanonline.org/pandemic-pedagogy-covid-19-online-milman/

Molobi, L., Kabiraj, S., & Siddik, M. N. A. (2021) Behavioural Intention Factors Influencing Sharing Economy Innovations: An Exploratory Research of Uber in South Africa. *Metamorphosis,* 19(1) 42–58,

Monsuwe, T.P., Perea,T., Dellaert, B.G., & Ruyter, K. D. (2004). What drives consumers to shop online? A literature review. *International Journal of Service Industry Management*, *15*(1), 102–121.

Murillo, G. G., Novoa-Hernandez, P., & Rodriguez, R. S. (2021). Technology Acceptance Model and Moodle: A systematic mapping study. *Information Development*, 37(4) 617–632

Muttaqin, T. (2018). Determinants of Unequal Access to and Quality of Education in Indonesia. *The Indonesian Journal of Development Planning*, *2*(1), 1–20.

Naruetharadhol, P., Ketkaew,C., Hongkanchanapong, N., Thaniswannasri, P., Uengkusolmongkol, T., Prasomthong, S., & Gebsombut, N. (2021). Factors Affecting Sustainable Intention to Use Mobile Banking Services. *SAGE Open*, 1-13.

Nath, R., Bhal, K. T., & Kapoor, G. T. (2013). Factors influencing IT Adoption by Bank Employees: An Extended TAM Approach. *Vikalpa: The Journal for Decision Maker*, *38*(4), 83–96.

Nunnally, J.C. & Bernstein, I. H. (1994). *Psychometric Theory* (3rd ed.). New York: McGraw-Hill.

Ong, C., & Lai, J. (2006). Gender differences in perceptions and relationships among dominants of e-learning acceptance. *Computers in Human Behaviour*, *22*(5), 816–829.

Pan, W., & Tang, M. (2004). Examining the effectiveness of innovative instructional methods on reducing statistics anxiety for graduate students in the social sciences. *Journal of Instructional Psychology*, *31*(2), 149–159.

Park, N., Rhoads, M., Hou, J., & Lee, K. M. (2014). Understanding the acceptance of teleconferencing systems among employees: An extension of the technology acceptance model. *Computers in Human Behavior*, *39*(0), 118–127.

Partala, T., & Saari, T. (2015). Understanding the most influential user experiences in successful and unsuccessful technology adoptions. *Computers in Human Behavior*, *53*, 381–395.

Ratten, V. (2012). Entrepreneurial and ethical adoption behaviour of cloud computing. *Journal of High Technology Management Research*, *23*(2), 155–164.

Ringle, C. M. & Sarstedt, M. (2016). Gain more insight from your PLS-SEM results The importance-performance map analysis. *Industrial Management & Data Systems*, *116*(9), 1865–1886.

Rogers, E. M. (2003). *The diffusion of innovation* (5th ed.). New York: The free press.

Rosander, M. & Eriksson, O. (2012). Conformity on the Internet – The role of task difficulty and gender differences. *Computers in Human Behavior*, *28*(5), 1587–1595.

Rouidi, M., Elouadiand, A., & Hamdoune, A. (2021). Acceptance and use of telemedicine technology by health professionals: Development of a conceptual model. *Digital Health*, 8, 1–9

Saade,′ R. G., & Kira, D. (2007). Mediating the impact of technology usage on perceived ease of use by anxiety. *Computers & Education*, *49*(4), 1189–1204.

Saade, R. G., & Kira, D. (2009). Computer anxiety in e-learning: the effect of computer self-efficacy. *Journal of Information Technology Education*, *8*, 177–191.

Simsek, A. (2011). The Relationship between Computer Anxiety and Computer Self-Efficacy. *Contemporary Educational Technology*, *2*(3), 177–187.

Song, Y. and Kong, S.-C. (2017). Investigating Students' Acceptance of a Statistics Learning Platform Using Technology Acceptance Model. *Journal of Educational Computing Research*, *55*(6), 865–897.

Stone, R. W., & Baker-Eveleth, L. (2013). Students' expectation, confirmation, and continuance intention to use electronic textbooks. *Computers in Human Behavior*, *29*(3), 984–990.

Tang, J.-t. E., Tang, T.-I., & Chiang, C.-H. (2012). Blog learning: effects of users' usefulness and efficiency towards continuance intention. *Behaviour & Information Technology*, *33*(1), 36–50.

Tao, D., Shao, F., Wang, H., Yang, M., & Qu, X. (2021). Integrating usability and social cognitive theories with the technology acceptance model to understand young users' acceptance of a health information portal. *Health Informatics Journal*, 26(2) 1347–1362

Taylor, S. & Todd, P.A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6(2), 144-176. https://doi.org/10.1287/isre.6.2.144

To, P.-L., Liao, C., Chiang, J. C., Shih, M.-L., & Chang, C.-Y. (2008). An empirical investigation of the factors affecting the adoption of instant messaging in organizations. *Computer Standards & Interfaces*, *30*(3), 148–156.

Tsai, T-H., Lin, W-Y., Chang, Y-S., Chang, P-C., & Lee, M-Y. (2020). Technology anxiety and resistance to change behavioral study of a wearable cardiac warming system using an extended TAM for older adults. *PLoS ONE*, *15*(1–24).

Turner, M., Kitchenham, B., Brereton, P., Charters, S., & Bugden, D. (2010). Does the technology acceptance model predict actual use? A systematic literature review. *Information Software of Technology*, *52*(5), 463–479.

UNESCO. (2020). *COVID-19 Impact on Education*. UNESCO. retrieved September 8, 2020, from https://en.unesco.org/covid19

van Raaij, E. M., & Schepers, J. J. (2008). The acceptance and use of a virtual learning environment in China. *Computers & Education*, *50*(3), 838–852.

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, *39*(2), 273–315.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, *46*(2), 186–204.

Venkatesh, V., & Davis, F. D. (1996). A model of the antecedents of perceived ease of use: Development and test. *Decision Sciences*, *27*(3), 451–481.

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*, *36*(1), 157–178.

Venkatesh, A., & Morris, M. G. (2000). Why don't men ever stop to ask for directions? gender, social influence, and their role in technology acceptance and usage behavior. *MIS Quarterly*, *24*(1), 115–139.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: toward a unified view. *MIS Quarterly*, *27*(3), 425–478.

Venkatesh, V. (1999). Creation of favorable user perceptions: Exploring the role of intrinsic motivation. *MIS Quarterly*, *23*(2), 239–260.

Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, *11*(4), 342–365.

Wang, W., Ngai, E. W. T., & Wei, H. (2011). Explaining Instant Messaging Continuance Intention: The Role of Personality. *International Journal of Human-Computer Interaction*, *28*(8), 500–510.

Wang, Y.S., Wang, Y.M., Lin, H.H., & Tang, T. I. (2003). Determinants of user acceptance of internet banking: An empirical study. *International Journal of Service Industry Management*, *14*(5), 501–519.

Weng, F., Cheong, F., & Cheong, C. (2009). The combined effect of self-efficacy and academic integration on higher education students studying IT majors in Taiwan. *Education and Information Technologies*, *15*(4), 333–353.

Widodo, A., & Riandi. (2013). Dual-mode teacher professional development: challenges and re-visioning future TPD in Indonesia. *Teacher Development*, *17*(3), 380–392.

Yousafzai, S.Y., Foxall, G.R.., & Pallister, J. G. (2007). Technology acceptance: A meta-analysis of the TAM: Part 2. *Journal of Modelling in Management*, *2*(3), 281–304.

Zeithaml VA, Parasuraman A, & M. A. (2002). Service quality delivery through Web sites: a critical review of extant knowledge. *Journal of The Academy of The Marketing Science*, *30*(4), 362–375.

Zhang, X., Wang, Y., & Zhengren Li (2021). User acceptance of machine learning models – Integrating several important external variables with the technology acceptance model. *International Journal of Electrical Engineering & Education*, 0(0) 1–20