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Teacher's intention to use online learning; an extended technology acceptance model (TAM) investigation

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Abstract. Pandemic covid-19 requires teachers everywhere to take advantage of online learning. This study aims to investigate the factors that affect the teacher's intention to use online learning based on the extended Technology Acceptance Model (TAM) approach. The extended TAM developed from the previous research. The population of this study were the teachers at Al Asror Islamic Boarding School. The data was obtained by using a questionnaire. The analytical method used was multiple regression analysis. The result showed that only perceived usefulness and teacher's readiness had positive and significant impact on teachers' intention to use online learning. There was negative and significant influence of perceive of ease of use on teachers' intention to use online learning. Prior experience and computer knowledge didn't have significant impact. The results also showed that prior experience and computer knowledge had a significant and positive effect on perceived ease of use and perceived usefulness. Teacher's readiness was the most dominant factor among other variables.

Keywords: intention to use online learning, teacher's readiness, extended TAM

1. Introduction

The world of education in the new normal era continues to improve to provide good educational services to students (Harususilo, 2020). A distance learning model with an online system is developed and gradually begins to be applied. Teachers as the conductor of the implementation of online learning must prepare several things to realize technology-based new normal education. Teachers then must be able to grab the attention of students and parents so that online learning can be well-implemented. Variations and innovations in learning must be carried out in a way that teachers continuously improve their ability to take full advantage of online learning.

In fact, a number of teachers find problems and constraints in implementing online learning. Problems related to teacher readiness and infrastructure readiness are two important factors that can hinder the implementation of online learning. Many teachers still have low technological literacy. In addition, not many schools are ready to implement online learning. Many schools do not have adequate learning management systems (LMS).



This study aims to investigate teacher intentions in implementing online learning within the framework of the extended technology acceptance model (TAM). Several researchers have used TAM to understand a person's intention in accepting and utilizing technology. This study seeks to combine the opinion of previous researchers who offer the concept of extended TAM. Researchers associate these concepts with conditions that occur in the field. On the other hand, there are many models to understand the determinants of intention to use technology besides TAM, namely theory of planned behavior or TPB (Teo, 2019). Meanwhile, other researchers used the Unified Theory of Acceptance and Use of Technology or UTAUT model (Radovan & Kristl, 2017).

2. Literature Review

2.1. *The Concept of Technology Acceptance Model (TAM)*

TAM was developed from the theory of reasoned action (TRA) which was introduced by Azjen Fishbein in 1980 (Fathema et al., 2015). In the original TAM framework, it was explained that perceived ease of use and perceived usefulness were determinants of attitude towards intention to use. These two factors determine the acceptance of the use of a technology (Davis, 1989). It is further explained that attitude towards usage and perceived usefulness will affect behavioral intention to use. And behavioral intention will determine the actual use rate of the technology.

The next researchers tried to develop the extended TAM model by adding new variables such as experience, computer anxiety, computer knowledge, management support, normative pressure, and experience (Al-Alak & Alnawas, 2011). Previous online learning experiences and perceived interactions were able to influence the intention to use the online learning community (Liu et al., 2010). Other researchers offer online learning readiness as a determinant of intention to use technology (Brahmasrene & Lee, 2012). Digital literacy, ICT anxiety, and ICT teaching self-efficacy can also be a determining factor for intention in the extended TAM framework (Callum et al., 2014). Usage experience is what determines the use of technology (Alharbi & Drew, 2014). In addition, there is technological complexity as a determinant of behavioral intention to use (Attis, 2014), facilitating conditions (Fathema et al., 2015; Ursavaş & Reisoglu, 2017), perceived convenience (Attis, 2014; Chang et al., 2012), system quality (Fathema et al., 2015) and perceived mobility and control (Park & Del Pobil, 2013).

2.2. *Hypotheses Development*

The original TAM model explains that perceived usefulness and perceived ease of use are determinants of attitude toward usage and behavioral intention (Davis, 1989). This means that the user's intention to accept and use technology will be influenced by the person's attitude and views on the usefulness of technology and also the perception of convenience. This study will investigate teacher's intention to use online learning by developing the original TAM model. The variables added are teacher's readiness, computer knowledge, and prior experience.

The level of someone's perceived usefulness about technology will influence the willingness to use the technology itself. Perceived usefulness will influence teacher's intention to use online learning positively and significantly. This has been shown by the results of previous studies. Perceived usefulness affected the intention to use technology (Alharbi & Drew, 2014; Brahmasrene & Lee, 2012; Callum et al., 2014; Chang et al., 2012; Liu et al., 2010; Teo, 2019). However, there is an insignificant relationship between perceived usefulness and e-learning acceptance (Attis, 2014).

The perception of ease is also a determining factor for teacher's intention to use online learning. When the teacher considers it easy to implement online learning, the teacher will also continue to be

committed to implementing online learning. Perceived ease of use affected the intention to use online learning (Al-Alak & Alnawas, 2011; Alharbi & Drew, 2014; Callum et al., 2014; Liu et al., 2010; Ursavaş & Reisoglu, 2017). However, there are studies that have found a negative relationship between PEOU and e-learning acceptance (Attis, 2014) and was not proven to have a significant effect (Chang et al., 2012).

Teacher's intention to use online learning is also influenced by teachers' readiness to apply online learning. The more unprepared a teacher is, the reluctant he will be to apply it. Previous findings prove that online learning readiness influences the intention to use online learning (Brahmasrene & Lee, 2012). Nevertheless, teachers' experiences in implementing online learning will also affect teacher's intention to use online learning. With the experience they have, teachers will certainly be able to apply online learning. Many researchers have found that the Previous online learning experience is also a factor that can influence the intention to use online learning (Al-Alak & Alnawas, 2011; Attis, 2014; Bakhsh et al., 2017; Liu et al., 2010). Different results were found by other researchers that usage experience was not proven to have a significant effect on intention to use technology (Alharbi & Drew, 2014). Knowledge of computers will also increase teacher's intention to use online learning. The results of previous studies indicate that there is a positive and significant relationship between computer knowledge and intention to use technology (Al-Alak & Alnawas, 2011).

This study also examines the effect of prior experience and computer knowledge on perceived usefulness and perceived ease of use. The experience that teachers have will be able to increase perceived usefulness and perceived ease of use. Teachers who have implemented online learning and get used to it will find online learning useful and easy to implement. Computer knowledge will also greatly influence teachers' perceptions of online learning. Teachers who are less computer literate will tend to think that online learning is very difficult to implement even though it might be useful. Based on this explanation, the research hypothesis that can be developed are as follows:

- H1 perceived usefulness positive and significantly influence on teacher's intention to use online learning
- H2 perceived ease of use positive and significantly influence on teacher's intention to use online learning
- H3 prior experience and significantly influence on teacher's intention to use online learning
- H4 computer knowledge positive and significantly influence on teacher's intention to use online learning
- H5 teacher's readiness positive and significantly influence on teacher's intention to use online learning
- H6 prior experience positive and significantly influence on perceived ease of use
- H7 computer knowledge positive and significantly influence on perceived ease of use
- H8 prior experience positive and significantly influence on perceived usefulness
- H9 computer knowledge positive and significantly influence on perceived usefulness

3. Method

Respondents in this study were 100 teachers at Al Asror Islamic Boarding School. The sampling method used was saturation sampling technique. Data were collected using a questionnaire that has been developed from previous researchers. Questionnaires were distributed to respondents manually to teachers. The validity and reliability of the questionnaire had been tested so that it could be used to obtain data.

The variables in this study were teacher's intention to use online learning, perceived usefulness, perceived ease of use, prior experience, computer knowledge, and teacher's readiness. Teacher's intention and prior experience were measured by 2 statement items on a 7 Likert scale. Perceived

usefulness, perceived ease of use and teacher's readiness were measured by each of the 4 statement items. While computer knowledge was measured by 5 statement items. The data obtained were analyzed using multiple regression analysis techniques. Data processing tool used was IBM SPSS.

4. Result and Discussion

4.1. Result

The results of the study are shown in table 1 below. Perceived usefulness and teacher's readiness have been shown to be able to influence teacher's intention to use online learning. Other results show that perceived ease of use has a negative and significant effect on teacher's intention to use online learning. Meanwhile, prior experience and computer knowledge do not have a positive and significant effect on the intention to use online learning. Prior experience and computer knowledge can be predictors of perceived usefulness and perceive ease of use positively and significantly.

Table 1. Results of multiple regression analysis

Research hypotheses	Coefficient	Sig.	Result
H1. Perceived Usefulness → teacher's intention to use online learning	0.191	0.003	Supported
H2. Perceived Ease of use → teacher's intention to use online learning	-0.384	0.000	Not Supported
H3. Prior Experience → teacher's intention to use online learning	-0.002	0.984	Not Supported
H4. Computer Knowledge → teacher's intention to use online learning	0.034	0.544	Not Supported
H5. Teacher's Readiness → teacher's intention to use online learning	0.409	0.000	Supported
H6. Prior Experience → Perceived Usefulness	0.548	0.014	Supported
H7. Computer Knowledge → Perceived Usefulness	0.370	0.000	Supported
H8. Prior Experience → Perceived Ease of Use	0.348	0.097	Supported
H9. Computer Knowledge → Perceived Ease of Use	0.374	0.000	Supported

4.2. Discussion

The findings in this study indicate that teacher's intention to use online learning is only influenced by perceived usefulness and teacher's readiness. Teachers consider online learning important during the Covid-19 pandemic so that the teacher must inevitably have a strong will to implement it. The teacher believes that online learning is the best solution in times of a pandemic. Teacher's intention also increases when teacher's readiness is in good shape. Teachers who are ready to implement online learning tend to have better intentions. Teacher readiness will encourage teachers to do their best in online learning.

The same result was obtained by previous researchers, that perceived usefulness is a determinant of behavioral intention (Alharbi & Drew, 2014; Brahmasrene & Lee, 2012; Callum et al., 2014; Chang et al., 2012; Kardoyo et al., 2015; Teo, 2019). However, there is an insignificant relationship between perceived usefulness and e-learning acceptance (Attis, 2014). Previous researchers also found that the teacher's readiness variable had a significant effect on behavioral intention (Brahmasrene & Lee, 2012).

Perceived ease of use has been proven to have a negative and significant effect on teacher's intention to use online learning. The same findings were obtained by previous researchers (Attis,

2014). This result is contrary to previous findings which stated that perceived ease of use was a determinant of behavioral intention (Al-Alak & Alnawas, 2011; Alharbi & Drew, 2014; Callum et al., 2014; Ursavaş & Reisoglu, 2017). Teacher's intention is significantly influenced by perceived ease of use. However, the effect was negative. This means that teachers who find online learning too easy will tend to be reluctant to continue to use it.

Prior experience and computer knowledge have not been shown to have a significant effect on teacher's intention to use online learning. It can be understood that teacher's intention is more likely to be influenced by the demands of the profession. Teachers are required to apply online learning even though they do not have sufficient experience and adequate computer knowledge. The same results were obtained by previous researchers who found no significant effect of previous experience on behavioral intention (Alharbi & Drew, 2014). The results of this study are contrary to the findings of previous studies which found a significant effect of prior experience (Al-Alak & Alnawas, 2011; Attis, 2014; Bakhsh et al., 2017) and computer knowledge on behavioral intention (Al-Alak & Alnawas, 2011).

The results of this research also indicate that prior experience and computer knowledge are able to positively and significantly influence perceived usefulness and perceived ease of use. The experience that teachers have as well as knowledge about computers can lead teachers to have the view that online learning is very useful and easy to implement. Teachers who have never implemented online learning before will tend to think online learning is a very difficult thing to do. This might be worse if the teacher does not have adequate computer knowledge.

5. Conclusion

The conclusion of this study is that the extended TAM framework could not be proven to investigate the determinants of teacher's intention to use online learning. Only perceived usefulness and teacher's readiness were able to have a significant effect on intention to use. Teacher's readiness was a more dominant factor in increasing the intention to use online learning. Meanwhile, perceived ease of use actually had a negative and significant effect on teacher's intention. Prior experience and computer knowledge did not have a significant effect on teacher's intention but had a significant effect on perceived usefulness and perceived ease of use.

The Extended TAM used in this study was not fully proven to understand teacher behavior in implementing online learning. Another extended TAM concept could be used to re-investigate the determinants of teacher's intention to use online learning, such as facilitating conditions and managerial support. Teachers would be more willing to implement online learning if they had adequate facilities and get full support from school management.

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