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Indonesian Teachers' Acceptance on Online Teaching Technology During the COVID-19 Pandemic

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Abstract: This study investigates the impact of external variables, technological pedagogical and content knowledge (TPACK) self-efficacy, and facilitating conditions on teacher adoption of online teaching technology during the COVID-19 pandemic. It employs explanatory research to characterize the effect of external variables on the variables of the technology acceptance model. 240 high school teachers filled out Google Forms survey questionnaires for six research variables and analyzed by the SmartPLS program. The result indicates that attitude and perceived usefulness significantly and positively influence behavioral intention. Perceived usefulness and ease of use have a strong positive effect on attitude. Furthermore, perceived ease of use has a considerable effect on perceived usefulness. Perceived usefulness and ease of use are not significantly influenced by external variables. Facilitating conditions significantly positively affect behavioral intention, whereas TPACK self-efficacy negatively affects behavioral intention.

Keywords: *Facilitating condition, pandemic, PLS-SEM, technology acceptance model, TPACK self-efficacy.*

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Introduction

As information and communication technology (ICT) continues to develop, there have been various innovations in the education system. Many educational institutions worldwide have adopted technology to support teaching and learning (Keržič et al., 2019). In particular, during the COVID-19 pandemic, which caused widespread school closures, technology has played a crucial role in education (Ferrel & Ryan, 2020). Virtual classrooms, online learning by using Microsoft Team and WhatsApp (Reflianto et al., 2021), video teleconferencing (Chick et al., 2020), and asynchronous learning (Daniel, 2020) are some of the innovative solutions used to replace face-to-face learning during the pandemic.

The use of ICT can greatly enhance performance effectiveness and efficiency, as noted by De Witte and Rogge (2014). However, this potential is often limited by users who are hesitant to adopt available system technologies, according to Kopcha (2012). Even though there is now a wider range of technology available to support teaching, most teachers still primarily use it for administrative tasks and communication, rather than for teaching purposes.

During the pandemic, teachers faced numerous challenges as they navigated new technologies in their teaching. As a result, the qualifications of teachers and the conditions that facilitated their work became increasingly important in the realm of online learning (Garcia et al., 2023). As recommended by Proedrou et al. (2023), training and technical support for teachers is needed for the successful adoption of technology into classroom learning. Similarly, Marfuah et al. (2022) found that technical support for secondary school teachers in Indonesia was crucial during the transition from face-to-face to online learning, as it helped increase their long-term professionalism.

In addition, to effectively utilize new technologies, such as learning management system (LMS), teachers need to have confidence in their technological abilities (Garcia et al., 2023). During the pandemic, Proedrou et al. (2023) found that computer self-efficacy impacted user attitudes towards technology use. Moreover, according to Saubern et al. (2020) and Sulistiani et al. (2024) in the current learning context, it is not enough for a teacher to just have technological knowledge,

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but rather technological, pedagogical, and content knowledge (TPACK), namely how to integrate technological knowledge with pedagogy and content knowledge for effective learning.

Research recommendations by Proedrou et al. (2023) suggest that facilitating conditions are necessary to support the adoption of new technology in learning, as well as confidence in technological knowledge (Garcia et al., 2023), namely TPACK competence (Saubern et al., 2020). However, previous studies by Proedrou et al. (2023) and Garcia et al. (2023) did not examine how facilitating conditions and TPACK efficacy can affect technology acceptance. Therefore this study was conducted to see the relationship between TPACK self-efficacy and facilitating conditions on teachers' intentions to use technology by adopting the technology acceptance model (TAM). Information about the variables that influence teachers in using online learning technology will be useful to support decisions about implementing online learning during the pandemic and post-pandemic for further long-term implementation.

Literature Review

Technology Acceptance Model

The TAM was created by Davis (1989), and it has been widely used to explain the factors that can influence an individual's adoption of technology. In TAM, two types of internal beliefs, perceived ease of use and perceived usefulness, influence attitude toward using (AT), which in turn affects behavioral intention (BI) (Davis, 1989). Perceived ease of use (PEU) and perceived usefulness (PU) directly affect BI, with PEU also influencing PU.

The original TAM model by Davis (1989) only included PEU, PU, AT, and BI. In response to the criticism of the simplicity of the original TAM model, Venkatesh and Davis (2000) extend the model by incorporating external variables affecting PU and PEU, which is ultimately the intention to use technology. Then, the external variables influence PU and PEU; PEU influences PU; PU and PEU influence BI; and lastly, BI influences the actual use of current technology. As described in Figure 1.

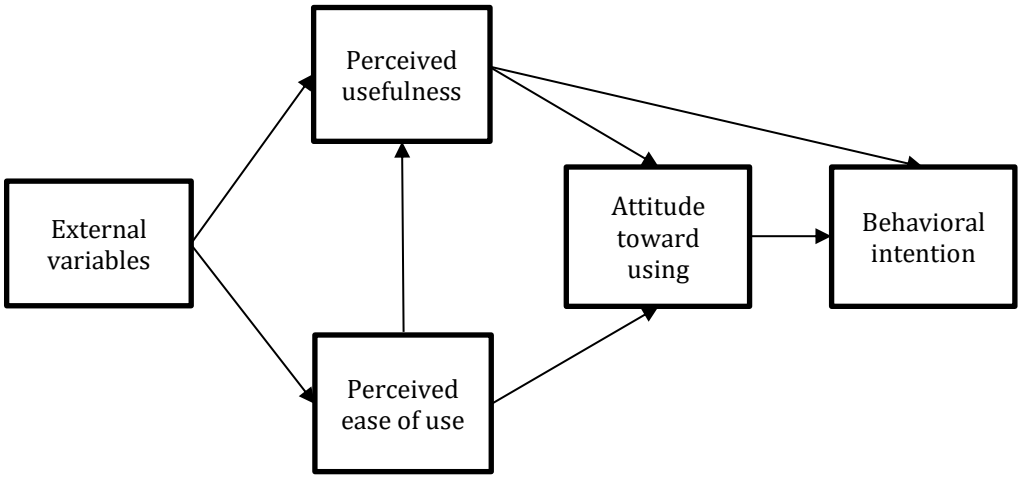


Figure 1. Technology Acceptance Model (Davis, 1989)

According to Davis (1989), the TAM model posits two highly significant factors, PEU and PU, that cause an individual to embrace or reject the use of technology. Multiple studies have confirmed that PEU and PU substantially impact AT (Songkram & Osuwan, 2022). This study underscores that teachers' perceived ease of use and usefulness of online learning technology used during the pandemic have an impact on the trend of positive attitudes towards future use of technology.

Songkram and Osuwan (2022) further explained that when a teacher has a positive attitude towards using technology, there will be a greater tendency to have the intention to use technology in the future. AT is the extent to which an individual has positive emotions toward technology use (Guillén-Gámez & Mayorga-Fernández, 2020). AT is determined to be the determining factor of BI (Stockless, 2018). Thus, AT becomes an important determinant for BI teachers to use technology.

Davis (1989) defines BI as the extent to which individuals desire to use the technology in the future. BI measures the intensity of an individual's intent to engage in specific behaviors (Venkatesh & Davis, 2000). According to Teo (2011), the intention to use technology is a type of technology adoption behavior that is relevant to PEU and PU. A person's intention to use online technology during a pandemic is influenced by perceived usefulness (Alturki & Aldraiweesh, 2021). Thus, the level of suitability and usability of technology must be considered in online learning so that it has an impact on the emergence of intentions to use it in the future.

Based on the findings of the preceding investigation, the following hypotheses are proposed:

H1: AT will positively affect the BI

H2: PU will positively affect the BI.

H3: PU will positively affect the AT.

H4: PEU will positively affect the PU.

H5: PEU will positively affect the AT.

Technological, Pedagogical, and Content Knowledge (TPACK)

Several studies have concluded that online learning during the pandemic, and teachers' intentions to use e-learning in the future are influenced by teacher competencies and attitudes (Baber, 2021). Competencies that must be mastered by teachers when they are in a learning environment that is integrated with technology to create adaptive learning include TPACK (Elmaadaway & Abouelenein, 2023).

TPACK was first suggested by Koehler et al. (2011) about PCK that content and pedagogy competencies are the core skills of a teacher in designing learning. PCK is an interaction between components in a teacher's content knowledge and pedagogy which is influenced by teaching experience (Dewi et al., 2020). Then, it was developed by incorporating the technology domain into the PCK framework. TPACK implies effective teaching knowledge through appropriate technological support regarding pedagogy and content (Koehler et al., 2016). It is a framework that will be useful in providing new directions for educators to solve problems related to technology integration into the classroom learning process.

Mishra and Koehler (2006), these seven ideas will show the different kinds of expert skills expected for instructors to incorporate ICT into the study hall. The following is a breakdown of the seven components:

1. Technological knowledge (TK): teacher's understanding of technological device usage in the context of teaching (Koehler et al., 2016).
2. Content knowledge (CK): teacher's knowledge related to the discipline or subject matter for students to study, such as science, language, physics, mathematics for elementary school, and or mathematics for university students (Koehler et al., 2016).
3. Pedagogical knowledge (PK): knowledge of teachers related to the teaching process (Koehler et al., 2016c).
4. Pedagogical content knowledge (PCK): the learning process and teaching practices adapted to the subject matter (Abbitt, 2011).
5. Technological content knowledge (TCK): technological knowledge that is capable of generating new representations of a specific content (subject) (Schmidt et al., 2009).
6. Technological pedagogical knowledge (TPK): knowledge of various technologies that can be used in education by teachers. In addition, it helps to recognize that teachers' lesson plans can be altered by technology (Schmidt et al., 2009).
7. Technological, pedagogical, content knowledge (TPCK): the knowledge that focuses on how technology can be used uniquely/differently in providing teaching on a particular subject in a particular context (Koehler et al., 2016).

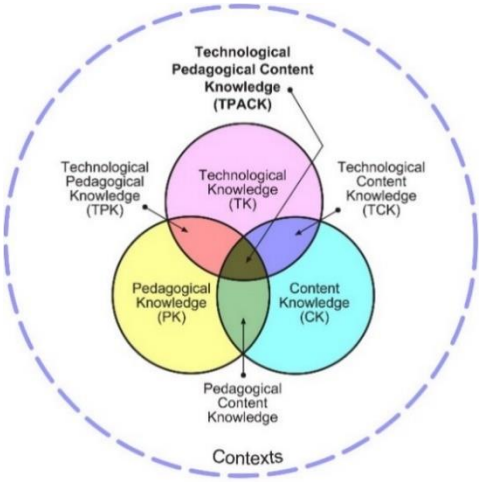


Figure 2. TPACK Framework (Koehler et al., 2013)

TPACK self-efficacy is defined as teachers' assessment of their skill in the TPACK domain, which could affect individuals' perception of the online teaching system. Regarding the relationship of TPACK self-efficacy (TPACK-SE) with technology integration in teaching, teachers who have TPACK-related self-efficacy are more likely to effectively integrate technology into their classroom instruction (Lee & Tsai, 2010). According to Andyani et al. (2020), TPACK has a positive effect on the use of ICT in pedagogy.

Research on the relationship between TPACK and the TAM variable is needed to see the effect of teacher competence on TPACK to use online learning technology. Li (2022) provides clear information regarding ICT competencies (knowledge of technology) that teachers must master for learning readiness during the pandemic. However, this research has not examined whether TPACK self-efficacy is a determining variable in determining teachers' intentions to adopt online learning technology during the pandemic.

TPACK competence significantly affects PEU and PU (Thohir et al., 2023). Correspondingly, Yang et al. (2021) explain that TPACK competence for high school teachers positively and significantly affects PEU and PU. Li (2022) explained that teacher perceptions of TPACK are closely related to the integration of ICT into learning. It was further explained that the perceived ease of use and usefulness of online learning technology is in line with the way teachers use ICT in learning. In addition, the indirect effect of TPACK on BI has been found in several studies. Research by (Joo et al., 2018) confirmed that PEU and PU mediate the effect of TPACK on BI. It indicates that TPACK indirectly affects BI, mediated by PEU and PU.

H6: TPACK-SE will positively affect the PU.

H7: TPACK-SE will positively affect the PEU.

H8: TPACK-SE will positively affect the BI.

Facilitating Conditions (FC)

The term "facilitating condition" refers to having the necessary organizational and technological framework to assist users in embracing new technologies. (Venkatesh et al., 2012). FC is an environmental factor that influences one's decision to use technology (Thompson et al., 1991). The study conducted by Park et al. (2022) explains that facilitating conditions, which are in the form of conditions of resources that support the use of technology, have a positive effect on technology acceptance.

According to Turnbull et al. (2021), one of the keys to a successful learning transition during a pandemic from face-to-face learning to online learning is through good supporting conditions such as providing training support. The support given to teachers during the use of online learning technology during the pandemic has a positive correlation with perceived usefulness of technology (Natasia et al., 2022). Meanwhile, in different contexts, facilitating conditions have a strong influence on perceived ease of use (Sukendro et al., 2020). The effect of fc on PEU and PU shows that good support such as training and technical support regarding the use of new technology is important as a user capital, in this case the teacher, to integrate technology into classroom learning. So, it is concluded that without good support it can have an impact on difficulties in use and technology is considered useless.

The fact that FC has a direct influence on PEU, PU, and BI has been found in previous studies Teo and Milutinovic (2015) attest to FC's direct influence on PEU and PU. In the context of a pandemic, Fauzi et al. (2021) emphasizes that facilitating conditions are external factors that influences technology acceptance. It was further explained that supporting facilities related to tools and knowledge to use technology had a significant effect on PEU and PU. Research in the perspective of online education during a pandemic conducted by Ahmed et al. (2022) confirmed that facilitating conditions had a significant effect on teachers' intentions to use LMS technology in the future. Based on the above study, some hypotheses are formulated as below:

H9: FC will positively affect the PU.

H10: FC will positively affect the PEU.

H11: FC will positively affect the BI.

Methodology

Research Design

The quantitative approach was used in this study, and the Structural Equation Modeling (SEM) approach was used to construct a research model connected to the association of six research variables: BI, AT, PU, PEU, FC, and TPACK-SE. Data is gathered using instruments provided using Google Forms.

To explain the teachers' acceptance of online teaching technology, the current study involves two external variables, TPACK-SE and FC, as the external variables of TAM, which are perceived to affect teachers' acceptance. The proposed model, as in Figure 3, is used to explore the effect of the external variables on teachers' intention to use online teaching technology.

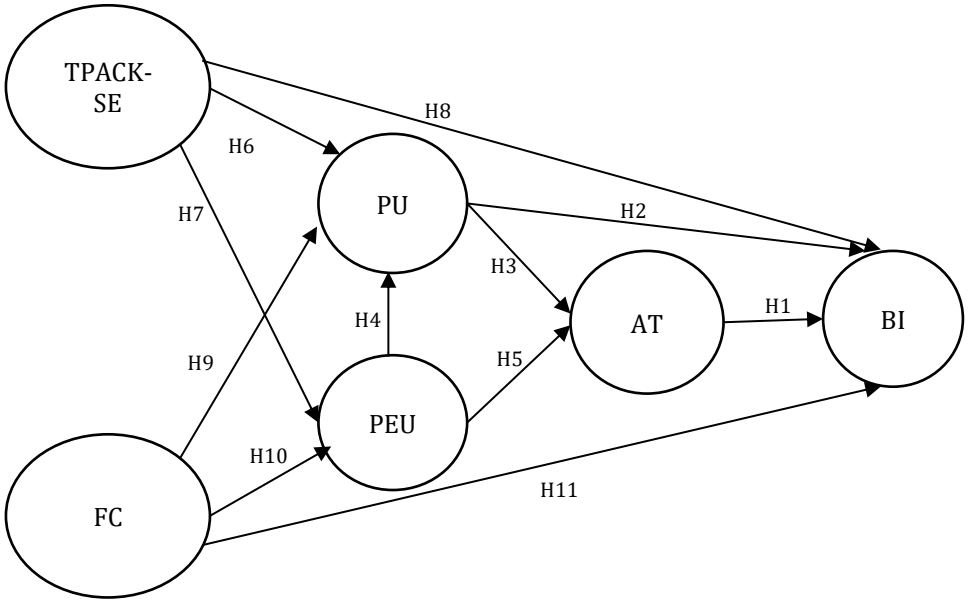


Figure 3. Proposed Research Model

Participants and Data Collection

The current study's participants are 240 high school teachers of Rembang, Indonesia, for the 2021/2022 academic year, which applies distance learning using online teaching technology under the Ministry of Education. Online teaching technology at schools has been initiated due to the school closures for the pandemic, so they adopted technology-based online teaching for 1-2 years.

Table 1. Research Participants

Variable	**N**	**%**
Gender		
Male	79	33%
Female	161	67%
Age Range		
22 – 32	67	27.9%
33 – 43	96	40%
44 – 54	59	24.6%
55 - 66	18	7.5%

Instrument

This study employed survey questionnaires as the instrument, which consist of two parts; demographic information and statements of the six latent variables in detail: TPACK-SE (7 items) adapted from Kazu and Erten (2014); FC (6 items) adapted from Shuhaiber (2016); PEU (6 items) and PU (6 items) adapted from Davis (1993); AT (3 items) adapted from Guillén-Gámez and Mayorga-Fernández (2020); and BI (3 items) adapted from Liu et al. (2005). Each item is measured on a Likert scale with five-answer criteria: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree.

Analyzing of Data

Researchers used descriptive statistical techniques and inferential statistics for data analysis. Descriptive statistics were carried out to see the distribution of research respondents and sample frequency distribution based on variable quality criteria. Furthermore, inferential statistical analysis techniques analyzed the dimensions that make up the variables and see the influence between research variables. Partial least squares-structural equation modeling (PLS-SEM) was used in this work as an inferential analysis method with SmartPLS software. The analysis was carried out on two aspects: the outer model, and the inner model.

Results

Descrptive Statistic

Table 2 shows the descriptive statistics for the research constructs. The mean value for all items ranges from 3.28 to 3.69, and the standard deviation value ranges from .56 to .69. Therefore, teachers are neutral on average and agree with the statement items.

Table 2. Frequency Distribution of Research Construct

Constructs	Item	Mean	SD
BI	3	3.28	0.69
AT	3	3.60	0.63
PU	6	3.63	0.57
PEU	6	3.69	0.57
FC	6	3.61	0.56
TPACK-SE	7	3.50	0.60

Evaluation of Outer Model

The outer model is evaluated using a confirmatory factor analysis (CFA) approach with a reflective indicator. The evaluation for reflective measurement models includes: (a) composite reliability for internal consistency; (b) indicator reliability; (c) convergent validity of the AVE value, and (d) discriminant validity (Hair et al., 2014).

The first criterion in the outer model evaluation is internal consistency by considering CA and CR values, and the acceptable CA and CR values must be > .70. Besides, to determine the convergent validity, we must look at the value of the loading factor and AVE. The rule of thumb of the loading factor value is > .708, and the AVE value is > .50 (Hair et al., 2014). Table 3 shows that the CA and CR values for all constructs are > .70. Thus, all of the constructs are declared reliable. Furthermore, Table 3 showcases that the loading value of all indicators is > .708 and the AVE value is > .50. As a result, it determines that all indicators are reliable and fulfill the convergent validity criterion.

Table 3. Outer Model Parameter Estimation.

Construct	Item	Loading factor	CA (>.70)**	CR (>.70)**	AVE (>.50)**
TPACK-SE	TPACK1	.745	.949	.954	.501
	TPACK2	.821			
	TPACK3	.737			
	TPACK4	.918			
	TPACK5	.888			
	TPACK6	.869			
	TPACK7	.891			
Facilitating condition	FC1	.877	.919	.932	.579
	FC2	.886			
	FC3	.862			
	FC4*	.416			
	FC5*	.494			
	FC6	.782			
Perceived ease of use	PEU1	.860	.961	.956	.592
	PEU2	.919			
	PEU3	.907			
	PEU4	.815			
	PEU5	.905			
	PEU6	.762			
Perceived usefulness	PU1	.801	.960	.964	.597
	PU2	.891			
	PU3	.901			
	PU4	.915			
	PU5	.887			
	PU6	.819			
Attitude towards using	AT1	.892	.939	.948	.622
	AT2	.923			
	AT3	.919			
Behavioral Intention	BI1	.892	.939	.948	.746
	BI2	.923			
	BI3	.919			

* Denotes the item that was eliminated
**Acceptable level of validity or reliability

The next stage evaluates the discriminant validity test based on the heterotrait-monotrait ratio (HTMT) correlation. The HTMT method is better at detecting discriminant validity than the previous method of the Fornell-Larcker criterion and cross-loadings test (Henseler et al., 2015). According Henseler et al. (2015), test discriminant validity and HTMT for constructions are almost conceptually similar, and it suggests a threshold value of .90. Table 4 shows that the HTMT correlation values of all constructs are below .90. Therefore, they meet the discriminant validity.

Table 4. Discriminant Validity Test

Constructs	AT	BI	FC	PEU	PU	TPACK-SE
AT						
BI	.847					
FC	.131	.109				
PEU	.714	.521	.091			
PU	.806	.751	.099	.631		
TPACK-SE	.132	.080	.882	.124	.098	

*HTMT thresholds .90 (Henseler et al., 2015)

Evaluation of Inner Model

The inner model evaluation aims to predict causal relationships between constructs and hypothesis testing. In addition, it is used to determine whether or not a particular model is good. PLS-SEM differs from CB SEM, which requires model fit for structural model evaluation. According to Sarstedt et al. (2014), in PLS-SEM, there is no standard Goodness of Fit (GoF). Instead, the model quality is determined by its ability to predict endogenous constructs, with measurement criteria including R^2, Q^2, F^2, and path coefficient.

There are four endogenous constructs (PEU, PU, AT, and BI). The four endogenous variables are tested in a model (Table 5). The R^2 value is used to evaluate the size of the model's prediction accuracy, in which the coefficient indicates the combined effect of exogenous on endogenous variables (Hair et al., 2014). The R^2 values range from 0 to 1, and a higher level indicates higher prediction accuracy.

BI is found to be significantly determined by TPACK-SE, FC, PEU, PU, and AT, with R^2 = .682. These results suggest that TPACK-SE, FC, PEU, PU, and AT can explain 68.2% of the BI variant, which indicates that the model is good. It also happens to other endogenous variables that AT can be pointed out by TPACK-SE, FC, PEU, and PU by 65.7%, indicating that the model is moderate. PU can be explained by TPACK-SE, FC, and PEU by 35.8%, which indicates that the model is moderate, while PEU can be explained by TPACK-SE and FC by only 0.7%, showing that the model is weak. Meanwhile, the Q^2 value for the four models (BI, AT, PU, and PEU) is > 0, meaning that the model depicts predictive relevance.

Table 5. Quality of Model (R^2, Q^2 and effect size)

Outcome	R^2	Q^2	Determinant	Standardized estimates		
				Direct	Indirect	Total
BI	.682	.501	AT	.614		.614
			PU	.251	.348	.599
			PEU		.562	.562
			TPACK-SE	-.178	.057	-.121
			FC	.152	-.008	.145
AT	.657	.403	PU	.567		.567
			PEU	.332	.339	.671
			TPACK-SE		.068	.068
			FC		-.010	-.010
PU	.358	.208	PEU	.598		.598
			TPACK-SE	.000	.061	.061
			FC	.007	-.012	-.006
PEU	.007	.004	TPACK-SE	.101		.101
			FC	-.021		-.021

Besides, Henseler et al. (2014) introduce standardized root mean square (SRMR) as one of the conformity measures (Goodness of Fit) for PLS-SEM used to avoid the misspecification model. SRMR value < .10 or < .80 (more conservative version) shows that the model is considered fit. In addition, the fit model criteria can also be seen from the value of root mean square (RMS) Theta with criteria a value of RMS Theta < .12 indicates a model fit, but a value of RMS Theta > .12 shows a less model fit (Henseler et al., 2014). Table 6 shows a model fit based on SRMR and RMS theta.

Table 6. Fit Summary

Model fit	Value	Conclusion
SRMR < 0.080	.079	Fit
RMS theta < 0.12	.119	Fit

Hypothesis Testing

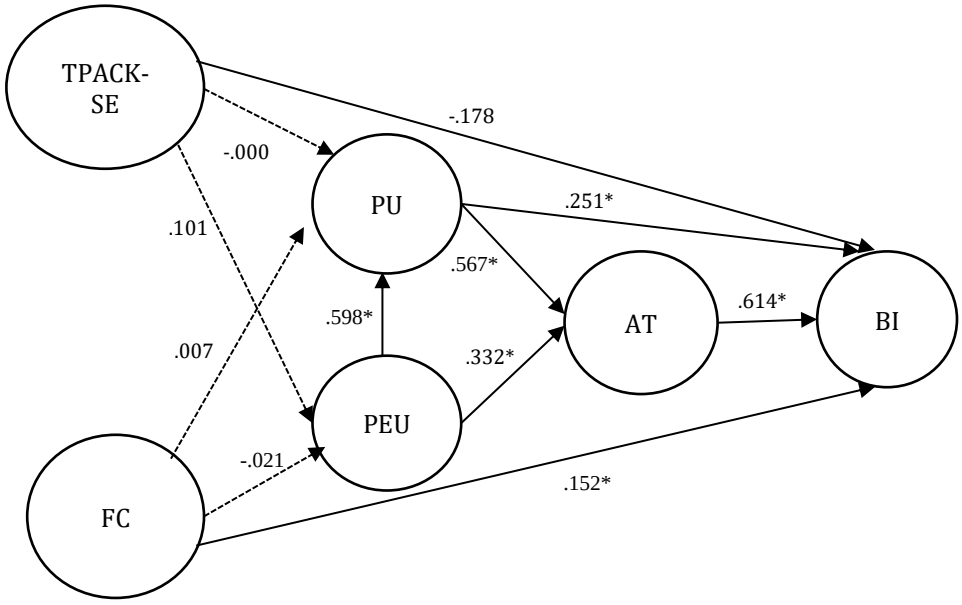
Table 7 displays the outcomes of the research hypothesis test, and Figure 4 displays the route coefficient results of the research model. Six of the eleven study hypotheses are supported by data. The hypotheses related to TAM variables (H1, H2, H3, H4, and H5) are all supported. However, the external variables of TPACK-SE and FC exert no significant direct effect on PEU and PU (H6, H7, H9, and H10). However, FC is found to have a significant effect on BI (β = .152, p < .05) (H11), while TPACK-SE has a direct negative effect on BI (β = -.178, p < .05) (H8).

Table 7. Hypothesis Testing: Path Coefficient Estimates and F Square

Hypotheses	Path	Path coefficient	f^2	p values	Conclusion
H1	AT → BI	.614*	.482	.000	Supported
H2	PU → BI	.251*	.081	.001	Supported
H3	PU → AT	.567*	.602	.000	Supported
H4	PEU → PU	.598*	.554	.000	Supported
H5	PEU → AT	.332*	.207	.000	Supported
H6	TPACK-SE → PU	-.000	.000	.999	Not Supported
H7	TPACK-SE → PEU	.101	.003	.413	Not Supported
H8	TPACK-SE → BI	-.178	.032	.007	Not Supported
H9	FC → PU	.007	.000	.942	Not Supported
H10	FC → PEU	-.021	.000	.859	Not Supported
H11	FC → BI	.152*	.024	.017	Supported

* significant at p < .05.

The effect size (f^2) test shows the extent to which the effect exerted from exogenous constructs (predictors) on endogenous constructs in the structural order (Hair et al., 2014). Effect size is classified into three levels of effect: (a) .02 < f^2 ≤ .15 represents a weak effect; (b) .15 < f^2 ≤ .35 represents a moderate effect; and (c) f^2 > .35 represents a strong effect. The magnitude of the explanatory effect of exogenous to endogenous constructs can be seen in the f^2 value. Table 7 shows no effect on the structural relationship of exogenous constructs TPACK-SE and FC to endogenous constructs PEU and PU because the f^2 value is < .02. Meanwhile, a strong effect comes from the relationship of AT to BI (.482), PEU to PU (.554), and PU to AT (.602). A moderate effect is found in the relationship of PEU with AT (.207), and a weak effect comes from FC relation to BI (.024), PU to BI (.081), and TPACK-SE to BI (.032).



*significant at p < .05

Figure 4. Patch Coefficients of Research Model

Discussion

The current study investigates the factors affecting teachers' acceptance of online teaching technology during COVID-19. It employs a structural analysis model by inserting external variables TPACK-SE and FC into the model of TAM (Davis, 1989).

The study reveals that both AT and PU have a significant positive impact on BI (H1). These findings are consistent with the research conducted by Songkram and Osuwan (2022). Similar to Songkram and Osuwan's (2022) study, the positive attitude of online learning technology users during the pandemic directly affects their inclination to use technology in the future. Additionally, the present study and Songkram and Osuwan's study show that AT has the strongest influence on the intention to use future technology. These results suggest that attitudes toward technology play a crucial role in determining the likelihood of using technology (Songkram & Osuwan, 2022).

The study's results indicate that PU impacts BI (H2), which aligns with Alturki and Aldraiweesh's (2021) findings. However, it differs from Songkram and Osuwan's (2022) research, which suggests that PU is not significant to BI. The disparity in results can be explained by teachers' views that online learning technology is useful during a pandemic but not necessarily reusable in the future. This same viewpoint was observed in the study's sample, where most teachers were using online learning technology for the first time due to the pandemic. Nevertheless, the study's results affirm that perceived usefulness plays a role in teachers' intention to use technology in the future.

According to Songkram and Osuwan (2022), both PU and PEU have a significant impact on AT, which is supported by the results of this study. The data indicates that if teachers feel that online learning technology is easy to use and beneficial, then they will have a positive attitude towards incorporating technology in their teaching. Similarly, if technology is perceived as user-friendly, it will lead to the belief that it is useful (H4). These results align with previous research conducted by Alturki and Aldraiweesh (2021), as well as Songkram and Osuwan. The study highlights that teachers' perception of the ease of use of online learning technology during a pandemic impacts their perception of its usefulness. When technology is easy to use, it influences the perception that it is useful.

The findings reveal that TPACK-SE and FC are not reliable predictors for explaining TAM components. Specifically, the study shows that TPACK-SE and FC do not have a significant direct effect on PEU and PU (H6, H7, H9, H10). Therefore, the results suggest that having high TPACK self-efficacy and good facilitating conditions does not necessarily mean that teachers perceive the technology used as easy and useful.

According to Yang et al. (2021), the technological knowledge (TK) domain has a greater influence on PEU and PU. One possible explanation for the absence of external variable influence on PU and PEU is demographic factors, such as age and gender. Studies have shown that older teachers have higher PCK competence, but lower TK competence (Muhaimin et al., 2019). Additionally, male teachers tend to use computers more often than female teachers due to higher technical competence (Polat et al., 2022). The technological knowledge of male teachers in Indonesia was found to be higher than that of female teachers (Muhaimin et al., 2019), while the majority of research participants being female teachers. So technological knowledge is thought to play a role in determining its effect on PU and PEU.

Additionally, the correlation between TPACK-SE and BI is not significant (H8), indicating that having confidence in technological, content, and pedagogical knowledge does not necessarily result in increased use of technology in the future. In summary, having a high level of knowledge of TPACK competencies alone is not enough to guarantee the use of technology in the future.

However, it is in contrast to the direct influence of TPACK-SE on BI, which is negative. The negative relationship between TPACK-SE and BI shows that the higher the teachers' self-efficacy on TPACK competence, the lower the intention to use the technology for online teaching. According to the teacher's experience, the sudden application of online learning technology during the pandemic only focused on the availability of internet access and digital infrastructure (Garcia et al., 2023). This shows that TPACK self-efficacy is not the cause of someone using online learning technology during a pandemic, but the intention to use technology only if the supporting conditions are good.

Despite this, it has been found that FC has a direct and significantly positive impact on BI (H11). This indicates that good facility support, such as the availability of technical assistance, compatible and familiar systems, and knowledge/ training support, reduces the likelihood of teachers using technology-based online teaching systems. These findings are consistent with previous research conducted by Ahmed et al. (2022). Therefore, in order to increase teachers' willingness to use technology-based online teaching systems, it is crucial to provide good facilitating conditions. However, these results are not in line with the research conducted by Songkram and Osuwan (2022), who found that even with good FC, it does not always affect teachers' intentions to use technology in the future. However, good supporting conditions are important for teachers to tend to use online learning technology, especially during emergencies such as the sudden switch to online learning due to the pandemic (Garcia et al., 2023). Good facilitating conditions are crucial for technology acceptance during the transition to online learning amidst a pandemic.

According to Infurna et al. (2018), teachers' self-efficacy is significantly impacted by demographic factors, including their teaching experience and length of service. Meanwhile, on average, the participant's experience and length of teaching by

technology are 1-2 years. The main reason for using technology is simply because of school closures during the pandemic, so teachers are less prepared when there is a sudden transition from face-to-face learning to online learning.

Conclusion

Six of the eleven hypotheses (H1, H2, H3, H4, H5, and H11) have been accepted, while the remaining five (H6, H7, H8, H9, and H10) have been rejected. This shows that the acceptance of online learning technology among high school teachers in Indonesia is in the fairly good category. Most of the accepted hypotheses are related to the Technology Acceptance Model (TAM) variables, but external factors such as facilitating conditions and TPACK self-efficacy do not have a significant impact on teachers' adoption of online learning systems, except for facilitating conditions, which directly influence their intentions to use technology. This means, that with the various conditions faced by teachers during the sudden transition to online learning, teachers' perceptions of the technology used (PEU and PU) are not influenced by the good or bad of facilitating conditions and teacher TPACK efficacy. However, teachers' tendencies to use technology can be increased through good supporting conditions. In particular, teachers' behavioral intentions to use online learning technologies in the future are strongly influenced by attitudes toward use. Teachers' positive attitudes towards the use of technology are determined by perceived ease of use and usefulness. Therefore, considering the ease and usefulness of technology is important to generate positive attitudes in teachers which have an impact on intentions to use technology. Good facilitating conditions are also needed such as online technical support and training support especially in urgent situations, although this does not have a direct impact on teachers' perceptions of the ease and usefulness of technology, it has direct effect on intentions to use technology.

Recommendations

According to this study, it is important to consider the user's attitude towards technology and the availability of good support when deciding to use online technology, whether during a pandemic or in the future. To encourage a teacher's positive attitude towards new technology, it should be easy to use and useful. In addition, the author did not determine why the TPACK-SE effect had a negative impact on teachers' intention to use online teaching technology. Additionally, no reasons were found for the lack of significant effect of external variables TPACK-SE and FC on TAM components, PEU and PU. Therefore, further research is needed to investigate the effect of TPACK-SE and FC variables in relation to demographic factors such as age, gender, and teaching experience with technology.

Limitations

This research has limitations, including the types of online learning systems are very diverse and not limited to users of specific platforms. In addition, there are limitations to research participants who are not determined by the same age and educational background because one of the factors of technology acceptance can be determined by differences in age and educational background.

Authorship Contribution Statement

Musthofa: Conceptualization, design, data acquisition, analysis, interpretation, and writing. Degeng: Reviewing, supervision. Setyosari: Statistical analysis, final approval. Sulthoni: Reviewing and technical support.

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