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THE INFLUENCE OF TECHNOLOGY READINESS AND LEARNING MOTIVATION ON STUDENTS' PERFORMANCE IN ONLINE LEARNING DURING THE COVID 19 PANDEMIC: A STORY OF INDONESIAN HIGHER EDUCATION STUDENTS

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ABSTRACT

Covid 19 Pandemic has changed the learning process at various levels. Higher education has been changing how it operates in meeting the needs of teaching and learning in the midst of restrictions due to the Covid 19 outbreak. Online learning has become the best option to ensure that the learning process continues while the outbreak remains controlled. Regardless of its flexibility, it is undeniable that many parties in the education system doubt the effectiveness of online learning in assisting students in achieving their learning objectives. This research aimed to scrutinize factors affecting students' learning effectiveness in online learning. Using online questionnaires distributed to university students across Indonesia, this research found that technology readiness positively influencing learning motivation and students' performance, and later learning motivation positively influences students' performance.

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INTRODUCTION

Online learning has been around for a while and was mainly implemented in blended learning to allow students to experience a better learning process. Arpaci (2015) stated that online learning had become an essential technology for universities to improve their learning process while managing its operational cost to remain efficient. Online learning has recently gained more significant popularity due to the covid19 outbreak. During the outbreak, a face-to-face meeting is highly restricted to prevent the spread of infection, allowing many to turn to online learning as the replacement for a face-to-face meeting. A similar situation happened in Indonesia when its first case was identified in early 2020. Following other cases reported to be positive the Ministry of Culture and Education on March 17th, 2020 released a policy to require universities to implement online learning in order to prevent the spread of covid19 infection (Surat Edaran Menteri Pendidikan dan Kebudayaan (Mendikbud) Nomor 36962/MPK.A/HK/2020).

Following the covid19 outbreak, face-to-face meeting in the classroom has moved to the use of learning management systems and online meeting platforms to enable the students to achieve the learning process. Whei & Chou (2020) also underlined the ability of online learning through synchronous and asynchronous communication technologies to improve the interaction between students and teachers. Regardless the flexibility in time and place, Pham, Le, & Do (2021) has reported that students have lost their interest on this new learning model due to its massive dependency on internet connection, lack of interaction between the students or between student and lecturers, technology mastery, and various needs of technological tool in joining the class. Alkhwaldi & Abdulmuhsin (2021) also highlighted that universities and society are concerned with the effectiveness of the learning process and students' performance. Given no option other than online learning in completing the degree, understanding the factors affecting students' performance in online learning has become essential to improving students' motivation and performance.

Previous research has shown evidence of factors affecting students' performance in online learning. In research conducted by Geng, Law, & Niu (2019) in China, independence in learning is proven to influence students' motivation in blended learning. Fitri (2020) highlighted the positive correlation between learning motivation and students' performance. Meanwhile, Warden, et al., (2020) evaluated the influence of technology readiness on students' learning independency and found that students with lower technology readiness also tend to have lower independency. Independence in using technology in the learning process positively correlated to perceived ease of using the learning media. Gopal, Singh, & Aggarwal (2021), conducted research in India, found that teachers' quality, feedback, learning design, and students' learning expectation positively influence learning satisfaction. Later, learning satisfaction positively influenced students' performance. However, there is limited research focusing on evaluating the influence of learning motivation and technology readiness on student's motivation, in which technology readiness is also expected to influence learning motivation.

Online learning has gained popularity these past years and has become an evitable topic due to the prevalence of Covid19, as online learning served as the primary solution during the pandemic. E-learning is defined as an information technology-based learning process (Moore et al., 2011). Technology advancement and communication network has enabled the learning process with no direct face-to-face interaction included in the process. Pham, Le, & Do, (2021) explained that giving priority to online learning is part of changes in the education model. Tan (2020) added that the use of e-learning to support the learning process positively affected students' performance. Regardless of the flexibility offered in online learning, the students are faced with challenges including limited internet connection, supporting gadget, and inability to interact freely with other participants and lecturers when implemented fully to replace the in-school learning process.

Soderstorm and Bjork (2015) emphasized the importance of differentiating learning and performance. Learning represents the long-term process of creating permanent changes, while performance refers to observable short-term knowledge and behavior following the learning process. The success of a learning process should be more than measuring the students' ability to complete the assignments and other responsibility as a student, causing teachers and lecturers to be more careful in assessing students' performance. Additionally, assessing learning performance is more difficult when online learning takes place during the pandemic. The use of technology has been able to facilitate the learning process yet, has not been able to provide control to ensure students are attentive and honest throughout the learning and assessment process. Fitri (2020) explained that students' learning motivation is essential to improve student learning outcomes due to a higher willingness to learn and master the subject. This signals that the higher the learning motivation, the better the learning performance.

Parasuraman (2000) defined technology readiness as someone's willingness to utilize technology to complete tasks. Students struggle with various challenges when technology is implemented in the learning process, even when the technology is ready to use. Geng, Law, & Niu (2019), using the theory of planned behavior found that in the context of blended learning, students' technology readiness influenced their learning performance. When students are obliged to use technology in their learning process and access web-based sources and assignments, technology readiness will reduce their burden in adapting to

online learning. Furthermore, technology readiness also helps students to understand instruction, materials, and assignments as parts of the learning process, and later will influence their performance. In the context of online learning during the pandemic, where the students are obliged to use web-based applications to support the learning process, the student has no other option to learn. Thus, technology readiness is considered an essential point in online learning. Warden, et al., (2020) found that students with lowered technology readiness have lower independency in their learning process. When students find it easier to adapt to the learning process, they will find it easier to perform well, and at last, they will have greater learning motivation. Thus, this research proposed the following hypothesis:

H1: Technology readiness positively influences learning motivation in mandatory online learning during the COVID-19 pandemic.

Learning performance includes various aspects. Law, et al., (2019) described that learning performance also includes critical thinking and problem-solving development regarding the course topic. Students with solid technology readiness will face fewer problems participating in the mandatory learning process. Warden et al., (2020), in his study on millennials' technology readiness and independency in online learning, found that students will experience better development when they have positive behavior with the technology used. Thus, this research proposed the following hypothesis:

H2: Technology readiness positively influences students' performance in mandatory online learning during the COVID19 pandemic.

Law et al., (2019) defined learning motivation as students' behavior in participating in the learning process to complete assignments and tasks in achieving the learning objectives. Learning motivation is related to three constructs of the community of inquiry and influencing students' performance positively (Geng, Law, & Niu, 2019). Students with higher learning motivation have high participation, task completion, and understanding. Similar things are also found in the online learning context. Weiner in Law, Geng, & Li (2019) highlighted that motivation is essential in determining students' performance, and it is expected that motivation should be present in every part of the learning process. Zimmergembeck & Locke (2007) emphasized that students with higher learning motivation will find it easier to deal with problems in their learning process. Thus, this research proposed the following hypothesis:

H3: Learning motivation positively influences student's performance in mandatory online learning during the COVID19 pandemic.

Figure 1 provides the research framework of this study:

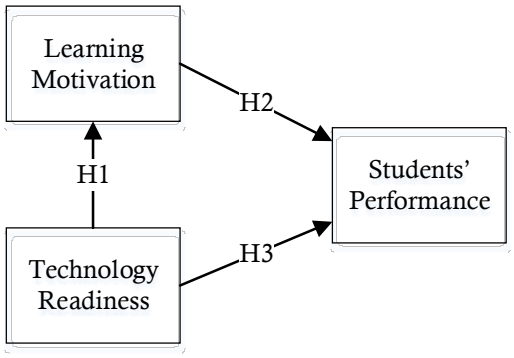

Figure 1: Research Framework

METHODS

This study is quantitative research conducted by running a survey to gather information regarding the effect of technology influence on students' performance in mandatory online learning settings during the COVID19 pandemic. This study is conducted on March – September 2022. The population of this research is university students across Indonesia, including state and private universities. The sample are selected by using simple random sampling. A representative minimum sample adapted from (Hair, et al., 2019) were implemented to ensure that the sample can represent the population. This study collected 423 valid samples that were used for analysis.

This study instrument was prepared using the Likert Type Attitude Scale. The Likert scale in this study has points from 1 to 4. These scoring criteria for alternative answers to each item are as follows: (1) Score 4 for answers strongly agree, (2) Score 3 for answers agree, (3) Score 2 for answers disagree, and (4) Score 1 for answers strongly disagree. The data analysis method used in this research is Partial Least Square - Structural Equation Modeling (PLS-SEM). They tested using the PLS approach with the help of Smart PLS 3.3 software. The PLS approach testing uses stages, namely the measurement and structural models (Hair et al., 2017; Hulland, 1999). The measurement model tests the instrument's validity and reliability, while the structural model tests the proposed hypothesis.

RESULTS AND DISCUSSION

The measurement model test results show that 9 indicators (MB 1,2,4,6, SP 3, KT 4,5,6,7) have a loading value below 0.7. Indicators that have a loading value below 0.7 are removed from the model for decision-making. Measurement model testing shows a loading value of more than 0.7 and an AVE value of more than 0.5 (see Table 1). HTMT ratio shows a value below 0.9 (see Table 2). From the test results, it can be concluded that the instrument meets discriminant validity and convergent validity (Chin, 1998; Hair et al., 2017; Hair et al., 2019; Henseler, Ringle, & Sarstedt, 2014). The reliability test results indicate Cronbach's alpha (α) and rho alpha (ρα) of more than 0.7 (see Table 1). thus it can be concluded that the instrument meets reliability (Dijkstra & Henseler, 2015; Hair et al., 2014, 2017).

Table 1. *Validity and Reliability*

Variable	Code	Loading	AVE	Alpha	rho_A
Students' Performance	SP1	**0.919**	0.843	0.814	0.814
	SP2	**0.917**			
Learning Motivation	LM3	**0.785**	0.628	0.803	0.807
	LM5	**0.763**			
	LM7	**0.791**			
	LM8	**0.829**			
Technology Readiness	TR1	**0.819**	0.636	0.714	0.717
	TR2	**0.813**			
	TR3	**0.760**			

Table 2. *HTMT Ratio*

	SP	LM
LM	0.838	
TR	0.430	0.465

Structural model is used to test the effect of technology readiness on learning motivation (H1), the effect of learning motivation on student performance (H2), and the effect of technology readiness on student performance (H3). The model and test results are presented in figure 2.

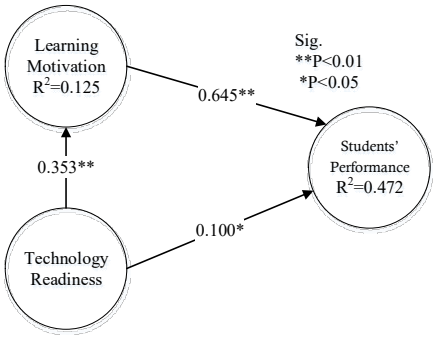

Figure 2. Model and test result

The test results showed a significant positive effect of technology readiness on learning motivation β = 0.353; p < 0.01), a significant positive effect of learning motivation on student performance β = 0.645; p < 0.01), and a significant positive effect of technology readiness on student performance β = 0.100; p < 0.05). The analysis also showed that technology readiness contributed 12.5% to learning motivation (R2 = 0.125), and technology readiness and learning motivation contributed 47.2% to student performance (R2 = 0.475). From the results of the analysis, it can be concluded that all hypotheses (H1, H2, H3) are supported. The analysis results are briefly presented in table 3.

The test results show that all hypotheses are supported. Technology readiness has a positive influence on learning motivation. This finding is in line with the findings of Warden, et al., (2020), which showed similar results. The positive relationship indicates that technology readiness significantly influences students' motivation for online learning. Furthermore, motivation will affect student performance. This finding is in line with the finding Law, et al., (2019). In addition, technology readiness also has a significant influence on student performance. This finding is confirmed by the previous study conducted by Zimmergembeck & Locke (2007).

Table 3. *Hypothesis test result*

Hypothesis	Path	Beta	Mean	St. Dev.	t stat	P Values	Note
H1	TR ➔ LM	0.353	0.355	0.047	7.574	0.000	Supported
H2	LM ➔ SP	0.645	0.646	0.034	18.786	0.000	Supported
H3	TR ➔ SP	0.100	0.099	0.040	2.474	0.013	Supported

CONCLUSION

This study explores the influence of technology readiness on learning motivation, the influence of technology readiness on influences students' performance, and the influence of learning motivation on student's performance in mandatory online learning. The study shows that technology readiness is able to influence learning motivation and students' performance in the context of mandatory online learning. In addition, learning motivation is also able to influence student performance.

This study has limitations that need to be considered by future research. This study uses a quantitative approach that relies on questionnaires to capture the phenomenon. The questionnaire is only able to capture the phenomenon that occurs at that time. In addition, future studies should involve other variables such as organizational support or ease of use of technology.

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