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The Effect of Perceived Ease of Use on User's Intention to Use E- learning with Moodle Application in Higher Education Mediated by Perceived Usefulness

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ABSTRACT
This study aims to examine the effect of perceived ease of use on user's intention to use mediated by perceived usefulness in the use of e-learning in university. This research is essential because it is important to know the user's desire to use e- learning with the Moodle application in universities, considering that during the Covid-19 pandemic, the Indonesian government determined to apply online learning. There were 200 e-learning users from STIE Kesuma Negara Blitar selected as samples. The data were collected by using questionnaire and were then analyzed by multiple regression analysis and path analysis

Keywords: Perceived Ease of Use, Perceived Usefulness, User's Intention to Use, Technology Acceptance Model

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INTRODUCTION

In various countries, the Covid-19 pandemic has significantly changed the face-to-face education system into online classes. Likewise, this condition also occurs in Indonesia where all educational institutions have not evenly applied technology to support learning activities from home online. Many educational institutions provide online learning websites in a hurry without socializing sufficient procedures for the users. As a result, this forces the users to use it even though they have not completely mastered it.

Perceived usefulness and perceived ease of use are the main factors in assessing user behavior to whether use or refuse technology based on the Technology Acceptance Model (Davis, 1989). Therefore, in this study, we will examine user behavior in accepting the use of e-learning, especially Moodle application, the official application recommended by the Ministry of Education and Culture of the Republic of Indonesia.

Therefore, in this study, user behavior will be studied in accepting the use of e-learning, in this case using the Moodle application which is the official application recommended by the Ministry of Education and Culture of the Republic of Indonesia.

The perceived usefulness factor and the perceived ease of use factor are the main factors in assessing user behavior to use or refuse to use technology based on the Technology Acceptance Model (Davis, 1989). This model provides a theoretical basis to explore the factors that explain the use of information technology and relate it to user performance. The Technology Acceptance Model (TAM) focuses on attitudes towards the use of information technology by users by developing it based on perceived benefits and ease of use of information technology. TAM is one of many influential research models in the study of determinants of information technology acceptance. TAM is widely used to predict the level of user acceptance and usage based on perceptions of the ease of use of the benefits of information technology. The implications of the level of user acceptance can be studied by examining the relationship between the acceptance of information technology and its impact on individual users.

In the research of Hamid et al., (2016) found that if perceived ease of use has a very important relationship to continuance intention, that is, if a system is easy, system users will continue to intend to continue using the system. This is also reinforced by research by Bandura (1982). Research conducted by Alharbi and Drew (2014) states that there is a significant relationship between perceived usefulness and behavioral intention through attitude toward usage.

This study is a modification of the TAM model created by Davis (1989) by adjusting behavioral intention to become user intention to use and eliminating attitude toward usage. Differences in the results of previous studies that become research gaps in this study are possible due to differences in the location of the place being studied, the analytical tools used, or the culture of a country.

THEORETICAL REVIEW

Perceived Ease of Use

Perceived ease of use can be defined as the extent to which a person believes that using a certain system can free himself from an effort. This is consistent with the definition of "Ease", which is free from difficulty or great effort (Davis, 1989). Perceived ease of use has a very important relationship to the sustainability of a system. If a system is relatively easy to use, the users of the system will find it easier to learn its features and thereby intend to continue using the system. (Hamid *et al.*, 2016). Bandura (1982) shows how

important perceived ease of use in his extensive research that self-efficacy is defined as an assessment of how well a person can take the necessary actions to deal with prospective situations. This understanding shows that self-efficacy has similarities with perceived ease of use. Therefore, perceived ease of use is important in predicting a behavior; according to Bandura (1982), self-efficacy is one of two indicators that can predict behavior well (Davis, 1989). Perceived ease of use is closely related to technology-based learning. Likewise, a study indicates that Perceived Ease of Use is positively related to continuance intention to use web-based learning. (Chiu and Wang, 2008)

Perceived Usefulness

Perceived usefulness can be defined as the extent to which a person believes that a system will improve his job performance. This is in line with the definition of "useful" which means "can be used beneficially" (Davis, 1989). Chau (1996) states that regarding the Technology Acceptance Model (TAM), perceived usefulness can be categorized into 2 types: long-term and short-term. Within the TAM framework, Perceived Usefulness is hypothesized as a direct predictor of behavioral intention to use (BI) in the interested technology (Park, 2009). Besides, Franco and Roldan (2005) also show a strong relationship between perceived usefulness and the user's behavioral intention that leads to the goals (Surendran, 2012). An exploratory study conducted by Schultz and Slevin (1975) found that perceived usefulness can reliably predict the use of a self-predicted decision model. Robey (1979) then replicated the study conducted by Schultz and Slevin (1975) and confirmed that there is a significant correlation between perceived usefulness and the use of the system (Chuttur, 2009). In brief, a system with high perceived usefulness is a system where users believe in the existence of a positive use-performance relationship (Davis, 1989).

User's intention to Use

Behavioral intention to use is defined as a measure of the possibility that someone will use or adopt an application, which in TAM, it uses actual usage to represent a self-reported measure of the time or frequency of application adoption. (Davis *et al.*, 1989). Specifically, TAM assumes that people's beliefs about their ability to use technology and their subjective evaluation of the usefulness of that technology are the key to behavioral intention to use. (Tsai, 2012). In the basic theory of TAM, the higher a person has a positive attitude towards the use of a new information technology, the higher the behavioral intention to use the technology. In addition, perceived usefulness directly affects behavioral intention to use (Davis *et al.*, 1989). In general, behavioral intention to use related to the actual use of information technology can be grouped into four

categories: individual context, system context, social context, and organizational context; social context means how social influences personal acceptance in the information technology, organizational context emphasizes more on how the influence organization influences or supports a person in the use of information technology (Park, 2009).

Research Framework and Hypothesis

To provide clarity about the relations between research variables in this study, here we show the research framework.

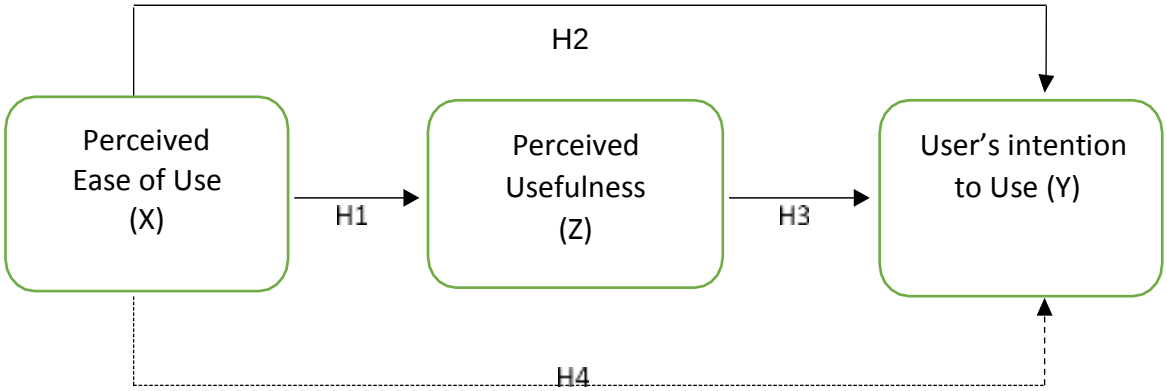

Figure 1. Research Framework

H1 : Perceived Ease of Use positively affects Perceived Usefulness in the use of e-learning with Moodle application in universities

H2 : Perceived Ease of Use positively affects User's intention To Use e-learning Moodle application in universities

H3 : Perceived Usefulness Use positively affects User's intention To Use e-learning with Moodle application in universities

H4 : Perceived Usefulness mediates the influence of Perceived Ease of Use on User's intention to Use e-learning with Moodle application in universities

METHODOLOGY

This study was conducted at universities in Blitar City since, on average, universities in Blitar City had never fully implemented e-learning based on the Moodle application before the Covid-19 pandemic in Indonesia. So, when e-learning using the Moodle

application began to be used, the users responded with various behavior, including the convenience factor and the usability factor of this Moodle application. When this research was conducted, the university that used the Moodle application for all its online lectures in Blitar City was STIE Kesuma Negara Blitar. There were 200 active users of the Moodle application at STIE Kesuma Negara Blitar selected as thesamples of this study.

The data in this study were collected by using questionnaires with a five-point Likert scale, ranging from 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. All instruments of the questionnaire used to measure the constructs were taken from the research of Amoroso and Hunsinger (2009) to maintain the validity of the questionnaire.

RESEARCH RESULTS

In this study, the data used were the results of questionnaires distributed to 200 respondents using e-learning with the Moodle application provided by STIE Kesuma Negara Blitar. From the results, there were 2 types of users: 187 students and 17 lecturers. All respondents received the same questionnaires containing a total of 15 questions including 6 questions regarding perceived ease of Use, 5 questions regarding percived usefulness, and 4 questions regarding user's intention to use. To analyze the data and to test the hypothesis, we used SPSS application.

This study used a significance error of 5% or 0.05. Based on the results of the validity test, the product moment (*r* count) for each of the 15 question items in the questionnaire has a value greater than *r* table 0.138, which means that all question items are valid. For the reliability test, each question in the questionnaire has a value greater than 0.60, which means that all question items in this research questionnaire are reliable.

Table 1. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.792[a]	.627	.626	2.449

a. Predictors: (Constant), X_Perceived_Ease_of_Use

Table 2. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.143	1.027		.1390	.890
	X_Perceived_Ease_of_Use	.764	.042	.792	18.260	.000

a. Dependent Variable: Z_Perceived_Usefulness

In the Coefficients table, the significance value of the Perceived Ease of Use (X) variable is 0.000 which is smaller than 0.05. This can be assumed that Regression Model 1 can prove that the Perceived Ease of Use (X) variable has a significant effect on the Perceived Usefulness (Z) variable. The value of R Square (R^2) in Regression Model 1 is 0.627, which means that the contribution of the Perceived Ease of Use (X) variable to the Perceived Usefulness (Z) variable is 62.7 %, while the remaining 37.3% is contributed by other variables not included in the model. The formula to calculate *e1* is √ (1-sig value) = √ (1-0.627), so that the value of *e1* in Regression Model 1 is 0.610.

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.867[a]	.751	.749	1.548

a. Predictors: (Constant), Z_Perceived_Usefulness, X_Perceived_Ease_of_Use

Table 4. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.084	.649		1.671	.096
	X_Perceived_Ease_of_Use	.280	.043	.376	6.459	.000
	Z_Perceived_Usefulness	.415	.045	.538	9.248	.000

a. Dependent Variable: Y_Intention_to_Use

Based on the results of Regression Model 2 in the Coefficients table, the significance value of both the Perceived Ease of Use (X) and the Perceived Usefulness (Z) variable is 0.000, which is smaller than 0.05. It can be concluded that the Perceived Ease of Use (X) variable and the Perceived Usefulness (Z) variable have a significant influence on the User's intention to Use (Y) variable. The value of R Square (R^2) in regression model 2 is 0.751, which means that the contribution of the Perceived Ease of Use (X) and Perceived Usefulness (Z) variables to the User's intention to Use (Y) variable is 75.1%, while the remaining 24.9% is contributed by other variables not observed in this study. The formula for calculating *e2* is √ (1-sig value) = √ (1-0.751), so that the value of *e2* in regression model 2 is 0.499. Based on the Regression Model 2, the path diagram can be constructed as follows in Figure 2.

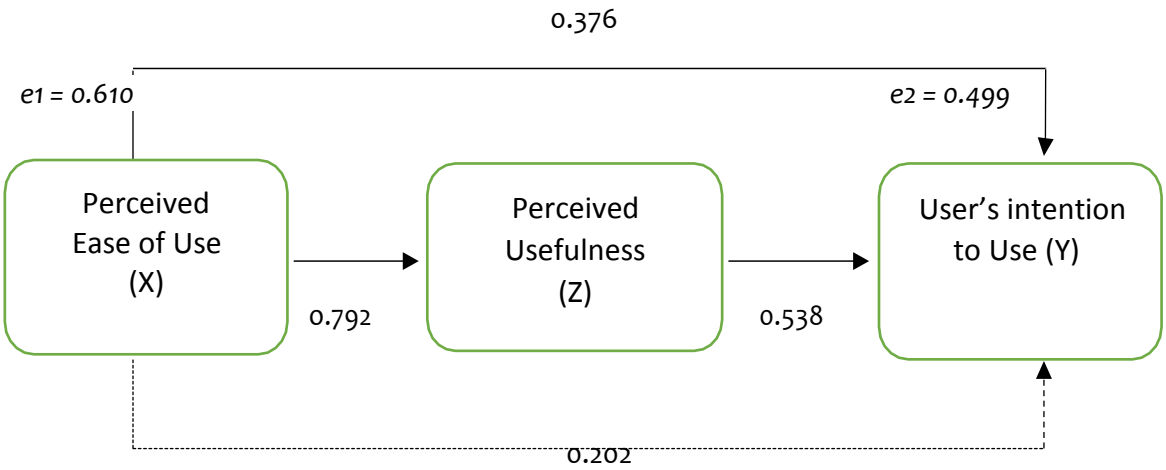

Figure 2. Path analysis

DISCUSSION

The Direct Effect of Perceived Ease of Use on Perceived Usefulness

H1: Perceived Ease of Use (X) positively affects Perceived Usefulness (Z) in the use of e-learning with Moodle application. The results of this study show that this hypothesis is accepted since the Perceived Ease of Use (X) variable has a significance value of 0.000 which is smaller than 0.05. This indicates that there is a direct significant influence of Perceived Ease of Use (X) on Perceived Usefulness (Z).

The Direct Effect of Perceived Ease of Use on User's intention to Use

H2: Perceived Ease of Use (X) positively affects User's Intention to Use (Y) in the use of e-learning with Moodle application. The results of this study show that this hypothesis is accepted since the Perceived Ease of Use (X) variable has a significance value of 0.000

which is smaller than 0.05. This indicates that there is a direct significant influence of the Perceived Ease of Use (X) on the User's Intention to Use (Y).

Direct Effect of Perceived Usefulness on User's intention to Use

H3: Perceived Usefulness Use (Z) positively affects User's Intention to Use (Y) e-learning with Moodle application in universities. The results of this study show that this hypothesis is accepted since the Perceived Usefulness (Z) variable has a significance value of 0.000 which is smaller than 0.05. This indicates that there is a direct significant influence of the Perceived Usefulness (Z) on the User's Intention to Use (Y).

The Effect of Perceived Ease of Use and User's intention to Use mediated by Perceived Usefulness

H4: Perceived Usefulness (Z) mediates the influence of Perceived Ease of Use (X) on User's Intention to Use e-learning (Y) with Moodle application in universities. The results of this study show that this hypothesis is accepted since the Perceived Ease of Use (X) has a direct influence on the Intention to Use (Y) variable with a value of 0.376, While the value of the indirect effect of the Perceived Ease of Use (X) on the User's intention to Use

(Y) mediated by the Perceived Usefulness (Z) was obtained from the multiplication of the beta value of the Perceived Ease of Use (X) variable on the Perceived Usefulness variable (Z). The result is 0.376 x 0.538 = 0.202, which indicates that the total effect of Perceived Ease of Use (X) on User's intention to Use (Y) is a direct effect plus an indirect effect, which is 0.376 + 0.202 = 0.578. Then, it shows that the value of direct influence is greater than the value of indirect influence which is 0.376>0.202. It can be concluded that indirectly, there is a significant influence of the Perceived Ease of Use (X) on the User's intention to Use (Y) mediated by the Perceived Usefulness (Z).

CONCLUSIONS AND RECOMMENDATIONS

This study aims to empirically test the influence of Perceived Ease of Use on User's intention to Use both directly and when mediated by Perceived Usefulness. The results show that users of e-learning with the Moodle application provided by universities

consider the ease of use factor in determining the choice of whether or not to continue using it. In other words, the easier it is to use e-learning, the higher the intention to use it. Likewise, the more e-learning with the Moodle application is useful for online lecture activities, the higher the intention to use it, especially if e-learning with the Moodle application is easy to use.

For further research on the Technology Acceptance Model, we recommend taking a wider scope of objects and also develop other factors that may be more dominant in influencing users' intention to use e-learning such as the use of other applications as well as the availability of an adequate internet connection. In addition, other analytical tools can also be used in further study.

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