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The effect of Perceived Usefulness and Perceived Ease of Use on The Use of E-learning with TAM Model in Faculty of Economics Student of Jakarta State University

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Abstract

The purpose of this study to determine the effect of perceived usefulness and perceived ease of use on the use of e-learning with the TAM model on FE UNJ students. The method used is a survey method. The affordable population in this study amounted to 303 students with a sample of 161 students. The data analysis technique used is the first measurement of the outer model consisting of Cronbach's alpha with a value > 0.7. Average Variance Extracted (AVE) value > 0.5 and Composite Reliability value > 0.7. The two measurements of the inner model consist of r^2 with a value of 0.539 for path I and 0.568 for path II. Then the f^2 value of attitudes towards using of behavior intentions to use is 0.451, perceived ease of use of attitudes towards using are 0.380, perceived usefulness to attitudes towards using are 0.155, and perceived usefulness to behavior intentions to use are 0.112. The VIF value is smaller than (<0.5) so that there is no multicollinearity problem. The conclusion of this study states that all hypotheses are accepted.

Abstrak

Tujuan penelitian ini untuk mengetahui pengaruh persepsi kegunaan dan persepsi kemudahan penggunaan terhadap penggunaan e-learning dengan model TAM pada mahasiswa FE UNJ. Metode yang digunakan adalah metode survei. Populasi terjangkau dalam penelitian ini berjumlah 303 siswa dengan sampel 161 siswa. Teknik analisis data yang digunakan adalah pengukuran pertama outer model yang terdiri dari cronbach's alpha dengan nilai > 0,7. Nilai Average Variance Extracted (AVE) > 0,5 dan nilai Composite Reliability > 0,7. Kedua pengukuran inner model tersebut terdiri dari r2 dengan nilai 0,539 untuk jalur I dan 0,568 untuk jalur II. Kemudian nilai f2 sikap terhadap penggunaan niat perilaku untuk menggunakan adalah 0,451, persepsi kemudahan penggunaan sikap terhadap penggunaan adalah 0,380, kegunaan yang dirasakan untuk sikap terhadap penggunaan adalah 0,155, dan kegunaan yang dirasakan terhadap niat perilaku untuk

menggunakan adalah 0,112. Nilai VIF lebih kecil dari (<0,5) sehingga tidak terjadi masalah multikolinearitas. Kesimpulan penelitian ini menyatakan bahwa semua hipotesis diterima.

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PRELIMINARY

Technological progress is currently growing rapidly, which indirectly affects all aspects of human life, including politics, economy, culture and even education. In today's modern era, technological progress is unavoidable, because the more advanced science is, the more advanced the development of the technology. Technological advances have enabled individuals to create networked global learning environments that place students at the core of the learning process, surrounded by various learning resources and e-learning services . E-learning is an approach to the learning process carried out through the help of computer devices connected to the internet, where students seek to obtain learning materials that suit their needs without limiting time and place, so that the learning process between educators and students can be established in an online learning room . (Silahuddin, 2015) .

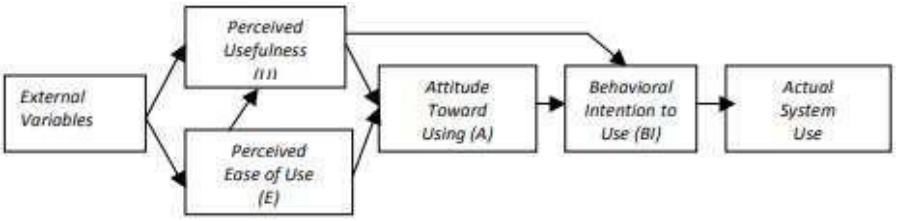
One of the supporters of improving the quality of lecture activities, especially at the Faculty of Economics, State University of Jakarta, has developed an integrated e-learning in the form of a website -based computer network (digilib.fe.unj.ac.id), namely SIBERING (Online Learning Information System). The SIBERING learning management system formed by the Faculty of Economics, State University of Jakarta consists of a list of courses, online presence and documents that have been uploaded to the SIBERING. Currently, there are many approaches that have been developed to determine user acceptance of the application of information systems, one of which is the Technology Acceptance Model (TAM) approach. TAM is the result of research by Ajzend and Fishbein in 1980 and developed by Davis in 1989 to explain and predict users of a system, which is the development of Theory of Reasoned Action (TRA). TAM is a model that links cognitive beliefs with personal attitudes and behavior towards technology acceptance. The conclusion is that perceived usefulness and perceived ease of use are the main determinants of technology use.

In the research conducted, it was found that there were respondents who experienced more than one problem. So it can be concluded that there are obstacles experienced by students in using SIBERING. Therefore, it is possible to effect attitudes towards the use of SIBERING. The attitude towards the use of SIBERING will continue to have an effect on the intention to use SIBERING. As stated by Purwandani & Syamsiah (2020) stated that attitudes towards use can be used to predict the behavior of a person's intentions in using a product or not using it. Attitude as a term that reflects a sense of fun, not fun, or feeling mediocre (neutral) from someone against something (Kusumawati & Rikumahu, 2019). Therefore, there are factors that must be considered by the Faculty of Economics in the use of e- learning so that it can affect the intention to use SIBERING, namely the first factor that is suspected to effect the intention to use SIBERING is the perception of ease of use. If a technology is perceived as easy to use, people will choose to use it. Conversely, if the technology is difficult to use, people will think again about using it. The second factor that can effect the intention to use SIBERING is the perceived usefulness. Perceived benefit is the degree to which a user believes that using a particular system will improve its performance.

LITERATURE REVIEW

Technology Acceptance Model (TAM)

Davis (1989) states that the Technology Acceptance Model (TAM) has a concept that serves to measure how far the level of consumer behavior towards technology use. The technology acceptance model (TAM) is one model that is generally used to explain user



acceptance of the use of information technology systems (Jogiyanto, 2007). The aim of TAM is to identify and explain predictors of acceptance across various technology systems among various users. The following is a schematic drawing of the initial TAM introduced by Davis (1989).

Picture. Technology Acceptance Model (TAM) Schematic by Davis (1989)

Picture. Technology Acceptance Model (TAM) Schematic by Davis (1989)

Perceived Usefulness

Davis (1989) defines perceived usefulness, namely: "The degree to which a person believes that using a particular system would enhance his or her job performance ". Thus, perceived usefulness can be interpreted as a level where a person believes that a certain system will be able to improve work performance or the performance of users of the system. So also with the opinions Khafit et al (2020) " The perceived usefulness is the extent to the which a person Believes that using a particular technology will improve Reviews their performance " can be interpreted that by using e-learning to improve the quality of the performance and the user will utilize e -learning if their work proves useful. Perception of the usefulness describes the level of a person's belief that use of the system using information technology in the belief that achievement and performance will increase (Jumardi, 2020). From the opinions of the experts above, perceived usefulness is a feeling of the user/user when using a technology that can measure the usability value of a technology.

Perception Ease

The definition of perceived ease of use by Davis (1989) is: "The degree to which a person believes that using a particular system would be free of physical and mental efforts ". It can be interpreted as a degree to which a person believes that the use of a particular system can reduce a person's effort in doing something. Likewise,
according to Khafit et al (2020) " Perceived ease of use is the extent to which a person believes that using a certain technology will be free from effort " which can be interpreted as the ease of using e-learning is also a factor that can effect users to access e-learning . Perceived ease of use is the extent to which a person feels ease when using technology applications to meet their needs (Briliana, V; Prasetio, A. B; Monica, 2020). From the opinions of the experts above, it can be concluded that perceived ease of use is the extent to which a person's level of confidence when using a technology can be easily used and understood so that users do not feel heavy when there is new technology.

Attitudes Toward Usage

Definition of attitude toward behavior according to Davis et al (1989). Namely: “an individual's positive or negative feelings about performing the target behavior ”. This definition can be interpreted as the user's feelings, both positive and negative, to perform a predetermined behavior. Similar to Zuhal Hussein (2017) " attitude as individual characteristics which portraits either positive or negative behavior and reflection of feeling and knowledge to certain concepts or subjects " which can be

interpreted as attitudes as individual characteristics that describe positive or negative behavior and reflections of feelings and knowledge. to a particular concept or subject. Attitude Toward Using, namely the impact of using technology in the form of acceptance or rejection of the technology (Hanifa, 2020) . From the opinions of the experts above, it can be concluded that the attitude in using information technology explains that someone is information technology, where this attitude becomes a benchmark of the attitude of acceptance or rejection of technology after performing a behavior.

Intention to Use (Behavior Intention to Use)

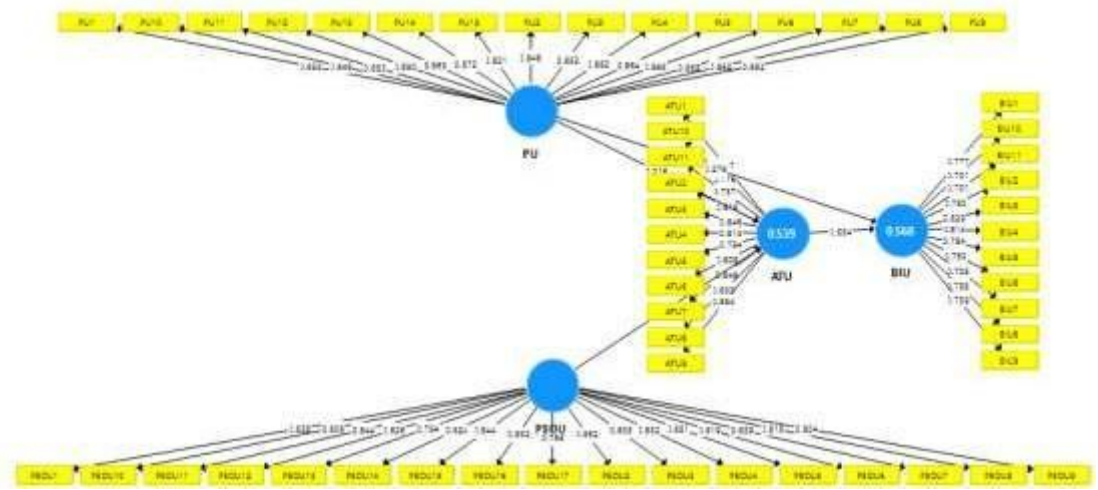
According to Davis et al (1989) "Behavioral intention is a factor that leads people to use the technology. " That could mean that the intention of the usage behavior is a behavioral tendency to continue to use a technology. The level of use of a computer technology on a person can be predicted from the attitude of his attention to the technology. According to Donald L. Amaroso (2004) states "Behavioral intention is a measure of the strength of one's intention to perform a specified behavior. " Likewise with Rio Jumardi (2020) that behavioral intention is a person's desire to perform a certain behavior or a person's tendency to continue to use certain technologies which can be predicted from his or her attention to the technology. According to Setiawan (2020) that the intention to use (intention to use) is defined as a form of a person's desire to use or reuse a certain product or service that is considered appropriate between the motive for use and the attributes or characteristics of products and services that can be considered. It can be concluded that behavioral intention is a person's desire to use or reuse a certain system or technology in meeting user performance.

Actual Usage

Actual system usage is a real condition of system usage. Conceptualized in the form of measuring the frequency and duration of technology use. (Davis, 1989)**.** Actual system usage is the actual condition of using the system. In the context of the use of information technology systems, behavior is conceptualized in actual use, which is a form of measurement of the frequency and duration of technology use. (Saputra, 2019). Actual system usage is a real condition of using the system (Wibowo, 2008). From the explanation above, it can be concluded that the indicators of actual usage are the frequency of use, duration of use and user satisfaction

RESEARCH METHODS

This study uses quantitative methods with survey data collection techniques. The population in this study were 303 respondents with a total sample of 161 respondents. The place of research was conducted at the State University of Jakarta with the sample used, namely Students of the Education Study Program, Faculty of Economics, State University of Jakarta.



Picture. Outer Model

Source: Data Processed by Researchers

To determine the level of validity of the indicators of each variable can also be known through the value of Cronbach's Alpha. If the value of Cronbach's Alpha > 0.7 then the construct is declared valid. The results of the validity test with Cronbach's Alpha can be seen in the following table:

Tabel Cronbach's Alpha

	Cronbach's Alpha
Attitude Toward Using	0,949
Behavior Intention to Use	0,927
Perceived Usefulness	0,970
Perceived Ease of Use	0,974

Source : Data diolah oleh Peneliti

Next, to determine the indicator's reliability value, it can be measured through the value of Average Variant Extracted (AVE) and Composite Reliability. The AVE value will show the variance value obtained by each variable. The test criteria for the AVE value is > 0.5, but the higher the AVE value , the better and the stronger the diversity of indicators. As for the Composite Reliability test value is > 0.7. The higher the Composite Reliability value , the greater the reliability value of a variable. The results of the study can be seen in the following table:

Tabel Composite Reliability dan Average Variance Extracted

	Composite Reliability	**Average Variance Extracted (AVE)**
Attitude Toward Using	0,956	0,665
Behavior Intention to Use	0,938	0,579

Perceived Usefulness	0,973	0,679
Perceived Ease of Use	0,976	0,732

Source: Data processed by researchers

Next, it can be seen for table IV.12 that the Composite Reliability value of the attitude towards use variable is 0.956, the intention variable to use is 0.938, the perceived convenience variable is 0.973 and the perceived usefulness variable is 0.976. The Average Variance Extracted (AVE) value for the attitude variable towards use is 0.665, the intention to use variable is 0.579, the perceived convenience variable is 0.679 and for the perceived usefulness variable is 0.732. All variables have an AVE value > 0.5 and a Composite Reliability value > 0.7, so it can be concluded that all variables are declared reliable in this study.

Inner Model Evaluation

The first step in measuring the structural model is to calculate the significance of the relationship between constructs. R-square can be used to assess the effect of certain independent latent variables on the dependent latent variable whether it has a substantive effect . The higher the R-square value, the more significant the effect will be.

Tabel R-Square (R^2)

	R Square
Attitude Toward Using	0,539
Behavior Intention to Use	0,568

Sumber : Data Diolah oleh Peneliti

According to the table R-Square (R^2) above, can be described as follows: R- Square model of the path I = 0.539 , meaning the ability to construct a variable perception of usefulness and perceived ease in explaining the attitude t erhadap the use of 0.539 or 54 % (moderate / moderate). R-Square model of track II = 0.639, meaning the ability to construct perception variable usefulness, perceived ease and attitude towards use in explaining the intention of the m enggunakan amounted to 0,568, or 57 % (moderate / medium).

The f -square test aims to determine how much the relative effect of the independent latent construct on the dependent latent construct. The results of f- square can be seen in the following table.

Table IV.15 f-square (f^2)

	Attitude Toward Using	Behavior Intention to Use	Perceived Ease of Use	Perceived Usefulness
Attitude Toward Using		0,451		
Behavior Intention to Use				
Perceived Ease of Use	0,380			
Perceived Usefulness	0,155	0,112		

Source: Data Processed by Researchers

Described from table f-square above can be described that Effect between variables perceived ease of the attitudes t erhadap the use of 0.380 which means Both jets a have a strong effect , Effect between perception variable usefulness of the attitudes t erhadap the use of 0.155 which means both have effect medium, The effect between the variables of attitude towards use of the intention to use is 0.451, which attitude towards use of the intention to use is 0.451, which means that both have a strong effect. The effect of the perceived usefulness variable on the intention to use is 0.112, which means both have a moderate effect.

Hypothesis testing
Analysis of Direct Effects : Path Coefficient

Path Coefficient Table

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Value s
ATU -> BIU	0,554	0,551	0,068	8,115	0,000
PEOU -> ATU	0,570	0,571	0,084	6,764	0,000
PU -> ATU	0,216	0,214	0,085	2,554	0,011
PU -> BIU	0,276	0,280	0,070	3,923	0,000

Source: Data Processed by Researchers

H^1 : Perceived Usefulness Has a Positive and Significant Effect on Attitudes towards Using

Based on the test results of the path coefficients in the above table, the variables perceived usefulness positively affects attitudes towards using can be seen from the original sample of 0.216 and the t-statistic > 1.96 is 2.554. Then, based on the p-values, namely 0.011 < 0.05. It can be concluded that the perceived usefulness positive and significant impact on the attitude towards using, then H^1 in this study received

H^2 : Perceived Ease of Use of Positive and Significant effect on Attitudes towards Using

Based on the test results of the path coefficients in the above table, the variables perceived ease of use a positive effect on the attitude towards the direct use can be seen from the original sample of 0.570 and the t-statistic > 1.96 is 6.764. Then, based on the p-values, namely 0.000 <0.05. It can be concluded that the perceived ease of positive and significant effect on attitudes towards the use of direct, then H^2 in this study received.

H^3 : Perceived usefulness has a positive and significant effect on behavior intention to use

Based on the test results of the path coefficients in the above table, the variables positively affects perceived usefulness in using the direct intention can be seen from the

original sample of 0,276 and a t-statistic > 1.96 is 3.923. Then, based on the p-values, namely 0.000 <0.05. It can be concluded that the perceived usefulness positive and significant impact on the attitude towards the direct use, then H^3 in this study received.

H^4 : Attitudes towards the using of positive and significant effect on the behavior intention to use

Based on the test results of the path coefficients in the above table, the variables attitude towards the use of positive effect on the behavior intention to use the directly visible from the value of the original sample of 0.554 and the t-statistic > 1.96 is 8.115. Then, based on the p-values, namely 0.000 <0.05. It can be concluded that the attitude towards the use of positive and significant effect on the intention of using it directly, then H^4 in this study received.

Indirect Effect Analysis : Test the Role of Intervening Mediator Variables

Indirect Effect Table

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
PEOU -> BIU	0,316	0,316	0,069	4,591	0,000
PU -> BIU	0,120	0,116	0,045	2,663	0,008

Source: Data Processed by Researchers

H^5 : Attitude towards Using Mediates the Effect of Perceived Usefulness on behavior Intention to Use Positive and Significant

Based on the results of the calculation in the indirect effect table above, the perceived usefulness variable affects the intention to use with the attitude towards use as a mediator between the two. The original sample value of the effect of these three variables is 0.120 and the t-statistic is 2.663 > 1.96. Then, based on p- values 0.008 < 0.05. It can be concluded that the perception variable uses positive and significant effect on the intention to use the attitude towards the use of mediation and concluded that H^5 in this study received.

H^6 : Attitude towards Using Mediates the Effect of Perceived Ease of Use on Behavior Intention to Use in a Positive and Significant

Based on the results of the calculations in the indirect effect table above, the perceived ease of use variable affects the intention to use with the attitude towards using it as a mediator between the two. The original sample value of the effect of these three variables is 0.316 and the t-statistic is 4.591 > 1.96. Then, based on p-values 0.000 < 0.05. Dpaat then concluded that the variable perceived ease of sue of positive and significant effect on the intention to use the attitude towards the use of mediation and concluded that H^6 in this study received.

CONCLUSION

Based on the results of research and discussions that have been carried out by researchers regarding the effect of perceived usefulness and perceived ease of use on the use of e-learning with the TAM model, the following conclusions can be drawn:

There is a positive and significant effect between perceived usefulness and attitudes towards using. The result of the calculation through the test path coefficients, the variable perceived usefulness of a positive effect on the attitude towards using can be seen from the original sample of 0.216 and the t-statistic > 1.96 is 2.554. Then, based on the p-values, namely 0.011 < 0.05. So it can be concluded that with a high level of perceived usefulness can have a high effect on the attitude of the given usage and vice versa.

There is a positive and significant effect between perceived ease of use and attitudes towards use. The results of test calculations path coefficients, the variable perceived ease of use positive effect on attitudes towards using can be seen from the original sample of 0,579 and a t-statistic > 1.96 is 6.764. Then, based on the p- values, namely 0.000 <0.05. So it can be concluded that with a high level of perceived convenience can have a high effect on the attitude of the given usage and vice versa.

There is a positive and significant effect between perceived usefulness and behavior intention to use. The result of the path coefficients variable perceived usefulness of a positive effect on the behavior intention to use the directly visible from the value of the original sample of 0,276 and a t-statistic > 1.96 is 3.923. Then, based on the p-values, namely 0.000 <0.05. It can be concluded that the high perceived level of usability that can provide a high effect on the behavior intention to use and so is the reverse of his.

There is a positive and significant effect between attitudes towards using and behavior intentions to use. The results of the path coefficient test, the variable attitude towards using have a positive effect on intention to use it directly, it can be seen from the original sample value of 0.554 and t-statistic > 1.96 which is 8.115. Then, based on the p-values, namely 0.000 < 0 0.05. So it can be concluded that with a good level of attitude to use can have a high effect on intention to use and vice versa.

There is a positive and significant effect between perceived usefulness and behavior intention to use mediated by attitudes towards using. The original sample value of the effect of these three variables is 0.120 and the t-statistic is 2.663 >1.96. Then, based on p-values 0.008 < 0.05. So it can be concluded that the perceived usefulness variable has a positive and significant effect on intention to use with attitudes toward use as a mediation.

There is a positive and significant effect between perceived ease of use and behavior intention to use mediated by attitudes towards using. The original sample value of the effect of these three variables is 0.316 and the t-statistic is 4.591 > 1.96. Then, based on p-values 0.000 < 0.05. So it can be concluded that the perceived ease of use variable has a positive and significant effect on intention to use with attitudes toward using as a mediation.

IMPLICATIONS

Based on the research, it is necessary to improve or improve on matters relating to perceived usefulness, perceived ease of use, attitudes towards use and intention to use in Economics Education students of UNJ. In the aspect of perceived usefulness and perceived convenience, students must improve the mindset that can lead to the attitude of using SIBERING which can affect the intention to use the SIBERING. This can be done on the faculty who should be able to improve the quality of SIBERING which can trigger perceptions of usefulness and perceptions of convenience which can have an impact on attitudes and intentions in using SIBERING.

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