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Research Article

Use of E-Learning System in Technology Acceptance Model (TAM) on Accredited PTS Students in BAN-PT Bandung

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Abstract.
E-learning is an application utilized to support the teaching and learning process at a private university in Bandung City during the Covid-19 pandemic. The users of E-learning comprise lecturers and students. However, no evaluation has been conducted regarding the user acceptance of the E-learning system employed. This study aims to determine the factors of the Technology Acceptance Model (TAM), namely Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Intention to Use (ITU), and Attitude Towards Using (ATU), on the acceptance of the E-learning system.

The research employs descriptive analysis and verification as the research methods. The research population consists of university students in the city of Bandung, whose universities have been accredited by BAN-PT and already utilize the E-Learning system. Convenient sampling is used, and 260 student respondents from 12 private universities in Bandung using E-Learning are included in the sample. Data analysis is conducted using Structural Equation Model (SEM).

The study's results demonstrate that Perceived Usefulness (PU) has a positive impact on intention. Perceived Ease of Use (PEOU) significantly affects Intention to Use (ITU), and Attitude towards Using (ATU) positively influences the utilization of E-Learning applications among students in private universities in Bandung.

Keywords: perceived usefulness, perceived ease of use, intention to use, e-learning

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1. INTRODUCTION

The COVID-19 pandemic for the past two years has provided significant changes in the level of people's lives, especially in the world of education. Since the Circular Letter of the Kemendikbud Dikti was issued in 2021, it has prohibited the implementation of face-to-face learning processes and replaced them online from the level of Kindergarten to tertiary education, which aims to stop the spread of Covid-19, so that all world of education is not ready. must implement a learning system using online in the learning process [9].

Online learning systems really need support in the form of adequate media to support a better learning process. The use of digital platforms in the learning process is very important so that the learning process continues without the risk of being exposed to viruses. So that several universities began to develop platforms in the form of e-learning systems for students and lecturers. E-Learning is a learning process that utilizes the sophistication of an information technology where the learning process is carried out online by utilizing several tools that can be done on laptops, computers or cellphones [15]. E-Learning is a learning method that uses electronic media / devices as intermediaries to provide and deliver learning materials to users, which includes the delivery of teaching materials including materials, forums, quizzes, assignments and evaluation of learning. namely UTS and UAS. While the lack of using E-Learning is the lack of interaction between students and lecturers so that it can inhibit the formation of values in teaching and learning activities [10]. Likewise, according to [3] that E-learning can increase effectiveness and flexibility in the learning process. The usefulness of a system used can be measured or evaluated with the TAM model.

TAM is a Technology Acceptance Model that has been developed [5]. Credibility of TAM is proven to be very high in measuring the level of acceptance of technology use by system users. Furthermore, according to Wibowo [17] *Technology* Acceptance Model (TAM) is a model built to analyze and understand the factors that influence the acceptance of the use *Technology* Acceptance Model (TAM) to more clearly illustrate that acceptance of the use of information technology is influenced by perceptions of use and ease of use. (Likewise, according to Chuttur [4] in the TAM model there are two main constructs, namely perceived usefulness and perceived easy of use. This means that we want to know the degree to which a person believes that using a particular system can maximize performance.

Perceived usefulness and perceived Easy of use in the use of the E-Learning system in education, especially PTS students in Bandung City can be encouraged due to the

ease (flexibility) in the use *of e-learning* and the encouragement that the E-Learning system has great use in the lectures that are run. by students during the Covid-19 condition. This level of trust will encourage students to always use E-Learning in their lectures . The use of E-Learning provides convenience in accessing lectures anywhere and anytime as long as the user is connected to the internet, even in the midst of a busy life, one can still use E-Learning so that it encourages students to always use E-Learning made by their respective universities.

The urgency of this research is very important because the behavioral in the use of technology is one aspect that is very important to note because it relates to users, in this case students, to the technology used. Information technology whose use is relatively accepted by users will increase the value of the services provided by the institution in the eyes of its users so that they can develop system further.

2. LITERATURE REVIEW

2.1. Technology Acceptance Model (TAM)

According to Davis [6]*, Technology Acceptance Model (TAM)* is one of the approach research models that is often used by researchers in measuring acceptance of the latest information technology. The TAM research model shows that the use of information technology will further help improve a person's work efficiency so that it will support his work. In the TAM model, there are two individual beliefs, namely perceived benefits (*perceived of fullness)* and perceived ease of use (*perceived ease of use*). Furthermore, Davis states that the TAM model is based on describing the characteristics of the information process that lead to the intention to accept or reject technological innovations. TAM has been considered the most powerful and influential model in innovation acceptance behavior. Similarly, according to Wibowo [17], *Technology Acceptance Model* (TAM) is a model built to analyze and understand the factors that influence the acceptance of technology use. TAM more clearly illustrates that acceptance of the use of information technology is influenced by perceived usefulness and perceived ease of use.

The advantages of TAM are the most widely used approach model, a simple but valid model. The TAM model focuses on the acceptance of a technology by looking at a side of the technology that will later affect the attitudes/behavior of users towards the technology. In addition, TAM has also been tested with many studies, the results of which are TAM is a good model, especially when compared to other models.

2.2. E-Learning

E-learning is a learning system using electronic media with the help of a computer connected to the internet network as an intermediary in delivering material. learning. According to some experts e-learning is learning that is structured with the aim of using electronic systems or computer devices so that it can support the learning process (Michele, 2013)[12] while according to Ardiansyah (2013)[13] e-learning is a learning system that is used or used as a vehicle for the teaching and learning process that According to Chandrawati (2010)[14], e-learning is a distance learning process by combining principles in the learning process with technology. Based on some of the opinions above, it can be concluded that E-Learning is a way of sending learning materials using electronic media in order to increase knowledge and skills that support teaching and learning activities.

The development of e-learning technology has given a new nuance in education. If the previous times had to meet face, this condition has now been enriched by the development of technological developments which no longer always require students to gather together and are limited by time and place. By using *e-learning*, students are free to choose a time and place that suits their individual circumstances. With the existence of e-learning is expected to provide progress in education, because information technology makes it easier and more efficient for humans to work and learn. As the word of God, where people who always provide convenience in seeking knowledge, God will provide spaciousness / convenience for him and raise his status for people who have knowledge as in the letter Al Mujadilah verse 11 .

3. RESEARCH METHOD

The research method used is descriptive and verification. *Sampling uses convenience sampling with 260 student respondents from 12 private universities that have been accredited by BAN PT in Bandung City who have used E-Learning* in their learning process. As for the independent variables in this study, there are two variables, namely perceived usefulness and perceived easy Of Use, while the dependent variable is intention of use. To measure the independent variable and the dependent variable where the measurement to be carried out refers to the indicators that have been developed by Davis [5]; Venkatesh & Davis [6], all variables were measured using a 5-point Likert scale questionnaire starting from strongly disagree, to strongly agree. Statistical analysis used is SEM-PLS.

4. FINDINGS AND DISCUSSION

4.1. Characteristics Respondents by Gender, Age and Generation

Based on the results of questionnaires distributed to 260 private university students accredited by BAN-PT from 12 universities in Bandung, it turned out that the number of female respondents was 165 (63.46%) and the male as many as 95 students (36.54%). Meanwhile, based on the age of the respondents, they were divided into five categories, namely age a less than or equal to 18 years, above 18 to 20 years, above 20 to 22 years, above 22 years to 24 years and age more than 24 years. From the 260 data obtained, the composition of respondents based on age are: 18 respondents or about 6.92% aged up to 18 years, aged over 18 years to 20 years there are 108 respondents or 41.54%, 101 respondents or about38.85% aged over 20 to 22 years, 23 respondents or about 8.85% aged between 22 to 24 years, 10 respondents or about 3.85% aged over 24 years. The results shown in Figure ??.2 are dominated by the number of respondents aged over 18 to 20 years who are young. There are five categories of respondents based on the year of entering college, namely in 2021, 2020, 2019, in 2018 and 2017. From the respondent data obtained, the composition of respondents based on the year of entry is 26 respondents or 10.00% of the 2021 generation, 32 respondents or 12.31% of the class of 2020, 136 respondents or 52.31% of the class of 2019, 51 respondents or 19.62% of the class of 2018, and 15 respondents or 5.77% of the class of 2017. The results shown in Figure ??.3 total respondents are dominated by generation 2019

4.2. Duration of Using e-Learning

The results of the analysis of the characteristics of respondents based on the length of time using e-Learning are divided into 4 categories, namely < 1 year, 1 year, 2 years and > 2 years. From the data obtained from 260 respondents, the composition of respondents based on length of time using e-learning is 22 respondents or 8.46% for duration of using e-learning less than 1 year, 32 respondents or 12.31% for 1 year, 174 respondents or 66 ,92% for 2 years and 32 respondents or 12.31% for those over 2 years. This means that the length of time using e-learning by students accredited by BAN PT is around 2 years, this indicates that private universities in the city of Bandung after the Covid-19 pandemic immediately diverted their lecture activities using e-learning

4.3. E-Learning Application The

types of activities in the e-learning application used by PTS students accredited by BAN-PT, on average use 4 categories, namely (Materials/modules, Forums/discussions, Quizzes and Assignments, so that in the implementation of E-Learning there are PTS that using one type of activity, two types of activity, three types of activity and all of them.From the data obtained from 260 respondents, the composition of respondents based on the type of activity in the e-learning application is 29 respondents or 11.15% for the type of activity in the e-learning application for one type of activity only, 10 respondents or 3.85% for two types of 7 respondents or2.69% for three types and 214 respondents n or 82.31% for all of them. The results in Figure ??.4 show that the types of activities in e-learning applications are dominated by all of them, this indicates that private universities in Bandung City after the Covid-19 pandemic have run their e-learning applications on all existing applications.

4.4. e-Learning Application Has Disturbance

. The results of the analysis of the characteristics of respondents based on the e-learning application experiencing problems are divided into 4 categories, namely never, sometimes, often, and very often. From the data obtained from 260 respondents, the composition of respondents based on the e-learning application experienced interference, namely 26 respondents or 10.00% for the e-learning application in experiencing interference, 188 respondents or 72.31% for occasional, 39 respondents or 15 0.00% for frequent and 7 respondents or 2.69% for very frequent. The results in Figure ??.4 show that the e-learning application is experiencing problems, this indicates that private universities in the city of Bandung after the Covid-19 pandemic in running their e-learning applications did not experience many problems.

4.5. Respondent's Opinion Regarding the Variables

description of the data from the respondents' opinions can be used to enrich the discussion, through the description of the respondent's opinion data it can be seen how the condition of each variable indicator is being studied. To make it easier to interpret the variables being studied, the respondents' responses were categorised.

Based on the results of research using questionnaires to 260 respondents from private universities in the city of Bandung, it is necessary to discuss descriptive analysis

of how the situation/condition in the implementation of each research variable. The results of the recapitulation of all variables involved in this study are described in Table 1 as follows:

TABLE 1: Recapitulation of Research.

Variables Variables	Average Score	Category
1. Perceived Usefulness	3.55	Good
2. Perceived Ease of Use	3.87	Good
3. Intention to Use	3.89	Good
Average average	**3.77**	**Good**

Source: Primary Data Processed, 2022

The average result of respondents' responses to the Technology Acceptance Model (TAM) is 3.77 or 73.4% is in the good category. Meanwhile, based on each variable, the lowest average score is the perceived usefulness variable 3.55 or 71%, while the highest score is the intention to use variable, which is 3.89 or 77.80%. This means that the usefulness and ease of use of the E-Learning application in the learning process for BAN PT students in Bandung City is good so that it increases the intensity of students to use the E-Learning system application.

4.6. Outer Loading, Reliability Coefficient, Average Variances Extracted and Evaluation of Model Assessment

Source: Research data processing results, 2022

Based on the table above for the Perceived usefulness variable, the largest value of the other loading factor is X_{12}, Perceives Easy of Use is X_{22} and the Intention of Use variable Y12. All of the indicators above have an outer loading factor value of > 0.5, meaning that all indicators of all variables are eligible for reference variables and all variables also meet convergent validity. Judging from the AVE (Average Variance Extracted) it shows that all variables have an AVE > 0.5, this shows that each research variable meets discriminant validity. Meanwhile, judging from the composite reliability coefficient, it shows that each variable has a value of more than 0.7, meaning that this study has met the rule of thumb. Hypothesis Testing Results

TABLE 2: Outer Loading, Reliability Coefficient and Average Variances Extracted.

variables	indicator	Other Loading	Reliability Coefficient	AVE
Perceived Usefulness	X_{11}	**0.809**	0.93	0.68
	X_{12}	**0.867**		
	X_{13}	**0.836**		
	X_{14}	**0.836**		
	X_{15}	**0.799**		
	X_{16}	**0.792**		
Perceived Ease Of Use	X_{21}	**0.853**	0.93	0.68
	X_{22}	**0.874**		
	X_{23}	**0.820**		
	X_{24}	**0.810**		
	X_{25}	**0.719**		
	X_{26}	**0.864**		
Intention Of Use	Y_{11}	**0.826**	0.94	0.72
	Y_{12}	**0.889**		
	Y_{13}	**0.875**		
	Y_{14}	**0.827**		
	Y_{15}	**0.833**		
	Y_{16}	**0.841**		

TABLE 3

	Hypothesis	Results	Perceived
H1	usefulness to the Intention to use	Koef. Beta = 0.34 t-statistics = 5.42 P-values = 0.000	Accepted
H2	Perceived ease of use affects the Intention to use	coefficient. Beta = 0.57 t-statistics = 10.35 P-values = 0.000	Accepted

Source: Primary Data Processed, 2022

4.7. Based on the hypothesis testing conducted, the data obtained are as follows:

The table above shows that the first hypothesis tests whether perceived usefulness has an effect on intention to use. The test results show the value of the perceived usefulness beta coefficient on intention to use is 0.34 and the t-statistic is 5.42 with *p-values* of 0.000. From these results, it is stated that the t-statistic is significant because it is > 1.96 with *p-value* < 0.05 so that **the first hypothesis is accepted**. This proves that perceived usefulness is proven to have an influence on intention to use.

The second hypothesis tests whether perceived easy of use has an effect on intention to use. The test results show the value of the perceived usefulness beta coefficient on intention to use is 0.57 and the t-statistic is 10.35 with *p-values* of 0.000. From these results, it is stated that the t-statistic is significant because it is > 1.96 with *p-value* < 0.05 so that **the second hypothesis is accepted**. This proves that perceived easy of use is proven to have an influence on intention to use.

4.8. Perceived Usefulness Affects Intention To Use

Based on the results of testing the first hypothesis, it turns out that Perceived usefulness has an effect on Intention to use. It can be seen in table 14 that the p-value of 0.000 is smaller than 0.05, or t count 5.42 is greater than t table 1.96, because at a significant level of 5% it was decided to reject Ho. This means that Perceived usefulness has a significant effect on Intention to use among PTS students in using E-Learning. The results of this study provide empirical evidence that the better the perceived usefulness of students in feeling the usefulness of e-learning learning, the greater the intensity of the use of E-learning among PTS students in the city of Bandung. The results of this study are in accordance with research conducted by Rahmawati [12] that 135 university students in East Java who were given a questionnaire related to technology-based learning stated that perceived usefulness had an effect on intention to use as well as according to Ari [1] From 136 community respondents that the use of the core banking system used in financial institutions can affect the intensity of system use (intention to use)

. based on E-Learning is 34%, meaning that 34% intention to use is caused or can be explained by the perceived usefulness of the use of E-Learning in PTS students in Bandung.The results of interviews and questionnaires that have been distributed to respondents, that with the existence of a learning system using E-Learning can me accelerate the tasks that have been given by the lecturer so that the intensity of using the E-Learning system is good in the learning process. This can be seen from the results of the average respondent's answer of 3.65, while the use of the E-learning system can improve performance by an average of 3.46 and is considered good, increasing productivity by an average of 3.34 with a moderate category. good, increasing effectiveness 3.44 with good category, facilitating work 3.61 with good and useful category with an average of 3.81 with good category, so it can be concluded that the implementation of the learning system with E-Learning is very helpful for students in doing assignments from the lecturers so that it increases the effectiveness of time and

cost because the implementation of E-Learning is flexible and can be done anywhere so that it makes work easier and is very useful so that the intensity of the E-Learning learning process is well implemented in every private university in Bandung.

Based on the description above, the results of this study provide empirical evidence that directly supports the concept of perceived usefulness on the intention to use PTS students in Bandung in using E-Learning. The results of this study also support the results of research conducted [19] that perceived usefulness is most often used in Intention to use 3G Technology in private universities, as well as research results [3] which state that perceived usefulness has an effect on significant on behavioral intention to use.

4.9. Perceived Ease Of Use Affects Intention To Use

Based on the results of testing the second hypothesis, it turns out that Perceived Easy Of Use has a significant effect on Intention to use. It can be seen in table 14 that the p-value of 0.000 is smaller than 0.05, or t count 10.35 is greater than t table 1.96, because at a significant level of 5% it was decided to reject Ho. This means that Perceived Easy of Use has a significant effect on Intention to use among PTS students in using E-Learning. The results of this study provide empirical evidence that the better perceived Easy of Use by students in feeling the usefulness of e-learning learning, the more intense the use of E-learning among PTS students in the city of Bandung. The results of this study are in accordance with research conducted [13] 35 students were given a questionnaire indicating that personal factors such as personal innovation can predict the perceived ease of use and can predict attitudes to subsequently influence the intention to use information technology.

The magnitude of the effect of perceived Easy of Use on the intention to use PTS students in Bandung City in using E-Learning-based learning is 57%, meaning that 57% intention to use is caused or can be explained by perceived usefulness in the use of E-Learning in city PTS students. Bandung. These results are supported from interviews related to the perceived Easy of use in the use of E-learning in several PTS universities in Bandung City. The result is that on average, private PTS students in the city of Bandung consider the E-Learning learning system to be good in the accepted learning process. It can be seen from the average that the E-Learning system is easy to learn at 3.93, while the system is clear and easy to understand at 3.96, the system is easily controlled or controlled at 3.75, the system is flexible at 3. .81, the system is easy to become skilled at 3.75 and the E-learning system is easy to use at 4.00. This

shows that the learning system at private universities (PTS) in the city of Bandung using E-learning is effective, which makes students easy to learn and easy to understand so that the learning system has been running effectively in all PTS accredited by BAN-PT Bandung city.

5. CONCLUSION

The use of e-learning with measurements using the Technology Acceptance Model (TAM) method carried out by 12 private universities accredited by BAN PT in Bandung City is good, this can be seen from the ease of use of e-learning by students and the ease of access to the e-learning learning system which is very easy to use. flexible

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