Acceptance of Video Conference Technology as a Distance Learning Media with the TAM Method

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Abstract

The covid19 pandemic has resulted in teaching and learning activities to be carried out online using video conferencing. This study aims to determine the acceptance of video conferencing technology in the teaching and learning process. The research method uses TAM (Technology Acceptance Model). TAM is a model used to measure the extent to which the level of user acceptance of a technology, especially information technology. The results showed that the online learning system using video conferencing could be accepted by students as a solution for distance learning.

Keywords: Video Conference, Electronic Learning, Technology Acceptace Model

1. Introduction

Education is an important thing in human resource development. Education must receive more attention in order to create a future generation who is smarter and more superior. Various efforts have been made by the government and education managers so that teaching and learning activities can run well even in a pandemic atmosphere.

The COVID19 pandemic has a major impact on the world of education. The government enforces a rule that teaching and learning activities must be carried out remotely. This causes teachers and students to use online learning media so that teaching and learning activities can run smoothly. One of the learning media used is a video conference application. Video conferencing is an application that allows users to meet face to face in real time without having to meet physically.

This study uses the TAM technology acceptance model (Technology Acceptance Model). TAM is a model used to measure the extent to which the level of user acceptance of a technology, especially information technology. The TAM model was originally developed by Davis (1989) based on the TRA (Theory of Reasoned Action) model to cover the gaps that explain the factors that influence or encourage users to use technology.[1]

TAM aims to explain and estimate user acceptance of an information system. TAM provides a theoretical basis for knowing the factors that affect the acceptance of a technology in an organization. TAM describes the causal relationship between belief (in the benefits of an information system and its ease of use) and the behavior, goals / needs, and actual use of the user / user of an information system.

The TAM model is actually adopted from the TRA (Theory of Reasoned Action) model, which is a theory of action that has the premise that a person's reaction and perception of something will determine the person's attitude and behavior. The reactions and perceptions of users of Information Technology (IT) will affect their attitudes in acceptance of the technology. One of the factors that can influence it is the user’s perception of the usefulness and ease of use of IT as a reasonable action in the context of technology users, so that the reason someone sees the benefits and ease of use of IT makes that person’s actions or behavior a benchmark in acceptance of a technology.
Online learning or e-learning systems can be accepted by students as a solution to accessing information and forms of virtual learning. Interest in using affects the real use of e-learning by students [2].

Perceived ease of use as a whole, 69.80% of users agree with the ease of use of the e-learning system in the XYZ university environment. Perceived usefulness as a whole, 69.12% of users agree with the benefits of the e-learning system in XYZ university. Overall user acceptance, 72.69% of users agree with the acceptance of the e-learning system at XYZ university. The results of the analysis show that the user, in this case the student, assesses that the e-learning system that is implemented is very useful and easy to use so that it can increase acceptance of using the application. Thus, if the level of user acceptance is high, it can be expected that the level of technology utilization will be high in the future [1].

Perceived ease of use, overall, 97.45% of students are very satisfied with the ease of use of the e-learning system of SMK Labor Pekanbaru. Perceived of usefulness, overall, 97.45% of students are very satisfied with the benefits of the e-learning system of SMK Labor Pekanbaru. The factor of ease of use of the system. Ease of access and use of this e-learning system encourages students to use it. The benefit factors that students get from this e-learning system. With the many benefits that students get from this e-learning system, it encourages students to use it [3]. This study aims to determine the acceptance of video conference application technology with the TAM method used by students for teaching and learning activities.

2. Research and Methodology

2.1. Technology Acceptance Model

Technology Acceptance Model (TAM), first introduced by Davis in 1989. TAM was made specifically for modeling the adoption of users of information systems. According to Davis (1989), the main purpose of TAM is to establish a basis for tracing the influence of external factors on beliefs, attitudes (personalization), and computer user goals. TAM considers that the two main behavioral variables believe in adopting information systems, namely user perceptions of benefits (perceived usefulness) and user perceptions of use (perceived ease of use). Perceived usefulness is defined as the level at which a person believes that using a certain system can improve performance, and perceived ease of use is defined as the level at which someone believes that using the system does not require any effort (free of effort). Perceived ease of use also affects perceived usefulness, which means that if someone feels the system is easy to use then the system is useful for them.

TAM consists of two main constructs, namely perceived use of use and perceived usefulness, which determine a person's intense behavior (behavioral intention) to use technology. The actor's intensity is how much a person wants to take a certain action. Perceived usefulness and perceived ease of use have an influence on behavioral intention, but not vice versa. The use of technology will have a behavioral intention to use technology (actor's interest) if the system or technology is useful and easy to use. If the system is very useful, easy to use or not will still be used [2].

TAM is a type of theory that uses a behavioral theory approach which is widely used to study the process of information technology adoption. TAM provides a basis for determining the influence of external factors on the beliefs, attitudes and goals of its users. In accordance with the term TAM, that "A" stands for "Acceptance" means acceptance. So it can be said that TAM is an analytical model to determine user behavior regarding technology acceptance [4].

2.2. Electronic Learning (E-learning)

Electronic learning or e-Learning is a learning process with dynamic, collaborative and multimedia information technology. Learning with e-learning allows teachers and students not to meet face to face directly. E-learning uses interactive media based on websites or
mobile which allows transformation and two-way communication between teachers and students online.

E-learning is also used to convey information or solutions to increase knowledge. The purpose of e-learning learning is not to limit students in learning because of time and distance constraints that do not allow direct learning [5].

2.3. Video Conference

Video conferencing is a multimedia application that allows duplex and real time data, voice, and image communication to be applied to networks that have large data transfer speeds due to their large bandwidth capacities. Video conferencing is a multimedia application that enables real-time, duplex and data communication, voice, and images. As the name suggests, the form of this application is a conversation via video and audio between users directly and is expected to replace the face-to-face function directly [6].

Video conferencing (vicon) or video conferencing is part of the world of teleconferencing. Vicon is a video conference where the data is transmitted in the form of audio and video or audiovisual. Vicon is a type of multimedia application that can connect several points simultaneously[7].

3. Result and Discussion

3.1. Research Population

For factor analysis, the recommended sample size is not less than 50 observations, and a sample size of 100 or more is recommended. For regression analysis, it is recommended that 15-20 observations per independent variable, further explain that the sample size can reduce the acceptance limit of factor loading on items. For example, for 100 respondents, a factor loading of 0.55 or more can be considered significant [2].

This study used a sample of 200 students who actively used video conferencing as a learning method. This number fulfills a valid population sample for conducting research and measuring variables.

3.2. Measurement Method

The measurement models used in this study are:

a. Latents Variabel: CSE (Computer Self Efficacy), PU (Perceived Usefullnes), PEOU (Perceived Easy of Use), ATU (Attitude Towards Using), IU (Intention to Use), dan AU (Actual Usage).

b. Structural equation are:

1) Perceived Easy of Use influenced by Computer Self Efficacy
2) Perceived Usefullnes influenced by oleh Perceived Easy of Use and Perceived Easy of Use
3) Attitude Towards Using influenced by Perceived Usefullnes and Perceived Easy of Use
4) Intention to Use influenced by Attitude Towards Using and Perceived Usefullnes
5) Actual Usage influenced by Intention to Use

3.3. Result Research

The following is a model image that has eliminated indicators that do not represent the construct.
If a measurement model has passed the test, the testing process can be done by testing the structural model. Below is a drawing of a structural based model. The result of the transformation of ordinal data into intervals. Here is the result in the picture.

**Figure 1. Measurement Model after respecification**

Structural models that do not fit or do not meet the requirements will be converted into a path model. The result of the transformation of ordinal data into intervals. Here is the result in the picture.

**Figure 2. Structural Model**
Based on the research that has been done, the final path model obtained is as follows:

![Figure 3. Structural Model Transformation]

![Figure 4. The Final Path Model with Standardized Loading Factor]

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Critical Path</th>
<th>t Value</th>
<th>Critical Path</th>
<th>SLF</th>
<th>Hypothesis</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>PU-IU</td>
<td>1.97</td>
<td>5.35</td>
<td>0.5</td>
<td>0.37</td>
<td>Tolak H0</td>
<td>Influenced</td>
</tr>
<tr>
<td>ATU-IU</td>
<td>4.12</td>
<td></td>
<td></td>
<td>0.29</td>
<td>Tolak H0</td>
<td>Influenced</td>
</tr>
<tr>
<td>IU-AU</td>
<td>2.25</td>
<td></td>
<td></td>
<td>0.17</td>
<td>Tolak H0</td>
<td>Influenced</td>
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The endogenous variable Actual Usage (AU) is significantly influenced by the variable, namely Intention to Use (IU). The results of the study explained that the effect was 2.7% of all the influencing factors, while the rest was influenced by other factors.

The endogenous variable Intention to Use (IU) is significantly influenced by the variable, namely Attitude Towards Using (ATU). The results of the study explained that the effect was 4.2 of all the influencing factors, while the rest was influenced by other factors.

The endogenous variable Intention to Use (IU) is significantly influenced by the variable, namely Perceived Usefulness (PU). The results of the study explain that the effect occurs at 9.5% of all influencing factors, while the rest is influenced by other factors.

Computer Self Efficacy (CSE), Perceived Easy of Use (PEOU). From the research results, although students do not yet have the ability to use computers (Computer Self Efficacy) and do not have a perception of ease of use (Perceived Easy of Use), perceived ease of use (Perceived Usefulness), Attitude in using (Attitude Towards Using), Interest in Using (Intention) to Use) has a very high effect on the actual use (Actual Usage) of video conferencing applications.
4. Conclusion

There is a positive and significant influence of Perceived Usefulness on Attitude Towards Using. There is a positive and significant effect of Perceived Usefulness on Intention to Use. There is a positive and significant influence on Attitude Towards Using on Intention to Use. There is a positive and significant effect of Intention to Use on Actual Usage. The online learning system using video conferencing can be accepted by students as a solution for distance learning.

References


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