

Activity Analysis of the Utilization of E-Learning in Student Learning at State Vocational High School 2 Nabire Using the Technology Acceptance Model

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Abstract

This research aims to find out activity analysis of the utilization of e-learning in student learning at State Vocational High School 2 Nabire using the technology acceptance model. Respondents were carried out at State Vocational High School 2 Nabire with the number of students being 632 using a sample calculator, so the responses obtained were 84 students consisting of majors namely Construction and Property Engineering, Electrical Power Installation Engineering, Audio Video Engineering, Motorcycles, Computer Engineering and Network with Class X, XI, and XII. Through this research, it is hoped that it can provide an evaluation of an event and teaching and learning process within the scope of State Vocational High School 2 Nabire. With the number of students is 632 students with the sample taken is 84 students. The research analysis uses a structural equation model, using WarpPLS. The results showed that usability has a positive and significant effect on ease. Usability has a positive and significant effect on ease of use. Ease has a positive and significant effect on ease of use. Ease has a positive and significant effect on attitudes towards behavior. Ease of use has a positive and significant effect on attitudes towards behavior. Attitudes towards behavior has a positive and significant effect on ease of having a positive effect.

Keywords

utilization; learning; student; technology



I. Introduction

Since the emergence of the Coronavirus Disease 2019 (COVID-19) pandemic, teaching and learning activities at State Vocational High School 2 Nabire have been stopped and transferred to home. This fact is taken seriously by the teachers, because like it or not, like it or not, the COVID-19 pandemic has brought many changes from all aspects of human life that affect the relationship between students and teachers and vice versa. The outbreak of this virus has an impact of a nation and Globally (Ningrum et al, 2020). The presence of Covid-19 as a pandemic certainly has an economic, social and psychological impact on society (Saleh and Mujahiddin, 2020). Covid 19 pandemic caused all efforts not to be as maximal as expected (Sihombing and Nasib, 2020).

Virtual reality to support the teaching and learning process is something that cannot be avoided. This is important, because virtual reality affects the recesses of the human heart, including his views on the reality of learning, the meaning structure of school and his identity as a student. Moreover, so far, the online world is often considered a threat through the spread of pornographic videos, violence, criminal practices, and so on. Therefore, during the global COVID-19 pandemic, these threats are no longer being

debated massively, but using the online world as a means to improve the quality of student learning. Therefore, to respond to this, State Vocational High School 2 Nabire developed the online world through WhatsApp as an important part of all learning dynamics and daily representation of the dynamics of science towards education itself in the online world or virtual reality.

Nabire is part of Papua Province where this area is quite strategic but internet speed is not too significant. On the one hand, the internet network is not very stable in doing online, and on the other hand, many do not understand about online. That is why, students and teachers have not mastered the form of online learning, apart from depending on WhatsApp, because this is one of the applications that can be used for e-learning learning.

The application of e-learning for students in the observations of researchers is still not qualified, because it is located in an area that has limited network and has not mastered the sophistication of technology so rapidly. Therefore, researchers will examine the impact of using WhatsApp in helping the learning process in the classroom. To show the novelty of the author's thesis, the author will critically analyze several previous studies that examined the e-learning learning model for students. Each researcher has differences in explaining how the application of the e-learning learning model in improving the quality of student learning. Also, it shows the author's position that is different from previous researchers who researched the use of the technology acceptance model (TAM).

E-learning learning is proven by Hidayat and Prasetya (2020), where in their research it is described that the effectiveness of e-learning by using a smartphone camera is better than without the use of a smartphone camera. Students who use smartphones in accounting courses have better reflective learning abilities. Students who use e-learning are able to review the answers given, both their own answers and those of colleagues, when providing comments on e-learning discussion forums. In addition, these students can increase their focus on the concepts and information provided during e-learning.

Other research on the e-learning learning model is proven by Lubis et al. (2020), whose research emphasizes that there are so many obstacles faced in the learning process using the e-learning model. They show that the lack of competence, unpreparedness of teachers and students in dealing with e-learning learning, and mindset errors have resulted in the learning model not being able to take place optimally.

An interesting thing was also shown by Ferdiansyah et al. (2020) who researched e-learning-based learning in music learning media courses. By using the Four-D model, namely define, design, develop, they found that e-learning-based learning media are very valid, practical, and effective for use as learning media, for example Zoom, Google Meet. However, there are still many teachers, students and guardians who do not understand how to use or work applications from the media mentioned, so it takes quite a long time.

The use of WhatsApp media is easy, practical, fast, and saves internet data, and can be accessed on mobile phones. And, this is what students at State Vocational High School 2 Nabire can use, because WhatsApp is an easy-to-use application. In addition, other equipment such as computers, laptops, etc., are not owned by students, especially those who live in areas where the internet network is not adequate and is classified as slow. Therefore, WhatsApp media is very useful for society in general and especially students at State Vocational High School 2 Nabire. The group menu option is used as a place to discuss the teacher with students. Thus, the use of e-learning as a learning model presented by these authors will be discussed. Because each has a difference in explaining how the e-learning based learning process is. Therefore, researchers will pay special attention to how to use WhatsApp as a basis for e-learning learning during the COVID-19 pandemic carried out by State Vocational High School 2 Nabire students.

This research aims to find out activity analysis of the utilization of e-learning in student learning at State Vocational High School 2 Nabire using the technology acceptance model.

II. Review of Literature

In contrast to the previous studies that have been shown earlier, this paper would like to emphasize that a virtual meeting room through WhatsApp media can bring a new atmosphere in the development of a variety of learning. Therefore, the novelty lies not in the WhatsApp media, but in encouraging the creativity of educators (teachers) to make learning videos that are delivered to students via WhatsApp. This is in line with what Rohimah et al. (2020) said, he emphasized that virtual learning that is done well can improve learning outcomes to the maximum, including shortening learning time, making learning costs more economical, participants can exchange information and knowledge, students can master the teaching material steadily, and students are actively involved in the teaching and learning process, and if they experience difficulties, they can repeat the lessons given and take control in the teaching and learning process.

Thus, WhatsApp becomes a link in communicating teaching materials delivered by teachers to their students. Another important thing that is the focus of research in exploring this thesis is the making of learning schedules in WhatsApp Groups. Simply put, the collaboration of teachers and students through learning scheduling via WhatsApp is an effort to construct student knowledge. That is, with systematic and massive learning scheduling, the teacher and students/students will evaluate each other's learning outcomes. After understanding the teaching and learning process at State Vocational High School 2 Nabire since the implementation of learn from home, a scheduling model was established that was agreed upon and applied by teachers and students.

Technology acceptance model (TAM) was introduced by Davis in 1989 as an adaptation of the theory of reasoned action (TRA) which is devoted to modeling user acceptance of technology.

Several research models have been carried out to analyze and understand the factors that influence the acceptance of the use of computer technology, including those recorded in various literatures and references to research results in the field of information technology, such as TRA, theory of planned behavior (TPB), and TAM which was developed by Davis et al as reviewed by Jogiyanto (2007). It is one of the most widely used research models in information technology research, because this research model is simpler and easier to apply.

The TAM research model was developed from various theoretical perspectives. At first, the theory of diffusion of innovation was the most dominating theory of acceptance and various models of technology acceptance. Diffusion is the process of information being communicated through certain channels on an ongoing basis to members of a social system. While innovation is an idea, practice, or object that is perceived as something new by individuals or other units of adoption. TAM has the goal of explaining and predicting user acceptance of a technology. TAM is a development of TRA and predicts user acceptance of technology. According to Davis in Jogiyanto (2007), TAM is a theory designed to explain how users understand, understand, and use information technology. TAM uses TRA from Fishbein and Ajzen which is used to see how the level of adoption of respondents in receiving information technology.

Over time, the TAM model has undergone many modifications. Venkatesh and Davis (1996) stated that the elimination of the attitude variable towards the use of the original form of TAM. In line with that, according to Jogiyanto (2007) the construct of this use is not included, because it does not have a significant influence on behavioral intentions.

This perception of convenience is important for learning, because teachers must find easy alternatives, so that students and teachers can have a reciprocal positive correlation in the teaching and learning process. The perception of these benefits directly affects the behavioral intentions of performance in performing tasks as teachers and students. Statements about attitudes toward the use of e-learning systems are a wise idea, thereby increasing student productivity. in accepting the use of e-learning systems. That means, students and teachers have the facilities and time used and appropriate based on the tools used.

Perception of usefulness to ease describes a person's level of belief that the system will improve its performance. People who use information technology because they have the belief that processes and performance will improve. The concept describes the measure by which the usability of a technology is believed to bring about the usability of use.

The usability of the use describes a person's level of confidence that the use of information systems is important where conditions are neither safe nor secure on a particular object. Then the technology is entrusted for ease of use.

Ease of use which describes the level of confidence in someone that the use of information systems is easy, that ease reduces the energy, thought, and time used to learn and use information systems to work more easily than people who work without information systems.

Attitude towards use is the tendency of initial responses or conditions that are favorable or unfavorable to certain objects. Attitude is a person's feelings, good or bad, beneficial or detrimental, attitudes arise because someone has a value that is determined by belief in the object. In other conditions, certain behaviors can also affect a person's new beliefs so as to bring about changes in attitudes.

The ease of use of this attitude and behavior illustrates the ease of use of information and attitudes taken so that behavior can improve performance at work.

The influence of attitudes on behavior towards ease of having a positive effect on the intention or desire to do or behave to determine the behavior of certain behavioral intentions using certain technologies. For example, the motivation to continue.

III. Research Method

Respondents are subjects or people who are called to provide responses to answers from a person's research (Octiva et al., 2018; Pandia et al., 2018; Pandiangan, 2015). The type of questionnaire distributed to research respondents is in the form of representing individuals, couples, or organizations (Asyraini et al., 2022, Octiva, 2018; Pandiangan et al., 2022). Respondents were carried out at State Vocational High School 2 Nabire with the number of students being 632 using a sample calculator, so the responses obtained were 84 students consisting of majors namely Construction and Property Engineering, Electrical Power Installation Engineering, Audio Video Engineering, Motorcycles, Computer Engineering and Network with Class X, XI, and XII.

From the distribution of the questionnaire, the results of the respondents' descriptions were obtained as follows:

Table 1. Questionnaire Answers

Answer	Answer Code	Score
Strongly Agree	SS	5
Agree	S	4
Don't Know	TT	3
Disagree	KS	2
Strongly Disagree	STS	1

Through this research, it is hoped that it can provide an evaluation of an event and teaching and learning process within the scope of State Vocational High School 2 Nabire. The evaluation in question can be in the form of criticism, suggestions, input, or other forms of evaluation to support decision making about similar events that will be carried out.

Survey research is a type of research conducted on large or small populations, but the data studied are data from samples taken from the population (Octiva et al., 2021; Pandiangan et al., 2018). This means that the research is carried out by taking certain samples to formulate the entire research population (Pandiangan, 2018; Pandiangan et al., 2021). One type of survey research, namely the interview method in the form of face to face. From the results of these interviews, data and information were collected in the form of opportunities possessed by State Vocational High School 2 Nabire, weaknesses faced by State Vocational High School 2 Nabire, activities carried out by State Vocational High School 2 Nabire and problems faced in implementing teaching and learning activities at State Vocational High School 2 Nabire. With the number of students is 632 students with the sample taken is 84 students which we can see based on the size of the sample as in the picture below with a margin of error that can be taken is 10%, the 95% confidence level of the population is 632 then the sample is 84 students who collect questionnaire.

The research analysis uses a structural equation model, using WarpPLS. Structural equation model is a set of statistical techniques used to measure and analyze the relationships of observed and latent variables. Similar but more powerful than regression analyses, it examines linear causal relationships among variables, while simultaneously accounting for measurement error (Pandiangan, 2022; Tobing et al., 2018).

Raosoft® Kalkulator ukuran sampel

Berapa margin kesalahan yang dapat Anda terima? %
5% adalah pilihan umum

Tingkat kepercayaan diri apa yang Anda butuhkan? %
Pilihan tipikal adalah 90%, 95%, atau 99%

Berapa ukuran populasinya?
Jika Anda tidak tahu, gunakan 20000

Bagaimana distribusi responnya? %
Beriikan ini sebagai 50%

Ukuran sampel yang Anda rekomendasikan adalah **84**

Margin of error adalah jumlah kesalahan yang dapat Anda toleransi. Jika 90% responden menjawab ya, sedangkan 10% menjawab tidak, Anda mungkin dapat mentolerir kesalahan yang lebih besar daripada jika responden terbagi 50-50 atau 45-55.
Margin kesalahan yang lebih rendah membutuhkan ukuran sampel yang lebih besar.

Tingkat kepercayaan adalah jumlah ketidakpastian yang dapat Anda toleransi. Misalkan Anda memiliki 20 pertanyaan ya-tidak dalam survei Anda. Dengan tingkat kepercayaan 95%, Anda akan mengharapkan bahwa untuk salah satu pertanyaan (1 dari 20), persentase orang yang menjawab ya akan lebih dari margin kesalahan dari jawaban yang benar. Jawaban sebenarnya adalah persentase yang akan Anda dapatkan jika Anda mewawancarai semua orang secara mendalam.
Tingkat kepercayaan yang lebih tinggi membutuhkan ukuran sampel yang lebih besar.

Berapa banyak orang yang ada untuk memilih sampel acak Anda? Ukuran sampel tidak banyak berubah untuk populasi yang lebih besar dari 20.000.

Untuk setiap pertanyaan, apa yang Anda harapkan hasilnya? Jika sampel sangat miring satu atau lain cara, populasi mungkin juga demikian. Jika Anda tidak tahu, gunakan 50%, yang memberikan ukuran sampel terbesar. Lihat di bawah di bawah **Informasi lebih lanjut** jika ini membingungkan.

Ini adalah ukuran minimum yang disarankan untuk survei Anda. Jika Anda membuat sampel sebanyak ini dan mendapatkan tanggapan dari semua orang, kemungkinan besar Anda akan mendapatkan jawaban yang benar daripada dari sampel besar di mana hanya sebagian kecil sampel yang menanggapi survei Anda.

Figure 1. Sample Size Calculator

IV. Result and Discussion

4.1 Profile of State Vocational High School 2 Nabire



Figure 2. State Vocational High School 2 Nabire

Respondents were carried out at State Vocational High School 2 Nabire with the number of students being 632 using a sample size calculator, so the responses obtained were 84 students in this study using WarpPLS.

4.2 Structural Equation Model

The structural model in this study was adjusted to the research hypotheses which included one direct effect hypothesis and six moderating influence hypotheses.

4.3 Direct Effect

The results of hypothesis testing contain path coefficient value and p-value. In Table 2 below:

Table 2. Results of Research Hypothesis Testing

No.	Variable Relationship			Path Coefficient	P-Value	Information
1	Usability	→	Ease	0.566	0.001	Significant
2	Usability	→	Ease of Use	0.511	0.001	Significant
3	Ease	→	Ease of Use	0.206	0.024	Significant
4	Ease	→	Attitudes Towards Behavior	0.412	0.001	Significant
5	Ease of use	→	Attitudes Towards Behavior	0.496	0.001	Significant
6	Attitudes Towards Behavior	→	Ease of Having a Positive Effect	0.727	0.001	Significant

The path coefficients in Table 2 show the strength and weakness of the influence between variables. In addition, the sign on the path coefficient (positive or negative) can explain the direction of the relationship between variables, positive means that there is a unidirectional influence (relationship) and negative is an opposite relationship. Furthermore, p-value is used to show the significance of the effect (relationship) between variables. If the p-value is less than or equal to 0.05, it can be said that it is significant, namely the research hypothesis is accepted. The following describes the results of testing the research hypothesis.

Usability has a positive and significant effect on ease. Usability has a positive and significant effect on ease of use. Ease has a positive and significant effect on ease of use. Ease has a positive and significant effect on attitudes towards behavior. Ease of use has a positive and significant effect on attitudes towards behavior. Attitudes towards behavior has a positive and significant effect on ease of having a positive effect.

4.4 Indirect Effect

In addition to testing the direct and moderating effects in accordance with the formulated hypotheses, this study also tested the indirect effects. The indirect effect shows that the relationship between two variables can be mediated by the mediating variable. In Table 3, the indirect effect test is presented.

Table 3. Results of Indirect Effect Analysis

Variable			Coefficient	P-Value	Information
Independent	Mediation	Dependent			
Usability	Ease	Ease of Use	0.117	0.061	Not Significant
Usability	Ease, Ease of Use	Attitudes Towards Behavior	0.487	0.001	Significant
Ease	Ease of Use	Attitudes Towards Behavior	0.102	0.088	Not Significant
Ease	Attitudes Towards Behavior	Ease of Having a Positive Effect	0.300	0.001	Significant
Ease of Use	Attitudes Towards Behavior	Ease of Having a Positive Effect	0.361	0.001	Significant

Based on Table 3, information is obtained that there are three significant indirect effects and two insignificant indirect effects.

Through the technology acceptance model can be used to measure the level of success of learning at State Vocational High School 2 Nabire. Student participation in the e-learning process through WhatsApp is very helpful for students and teachers to maintain and organize learning, so that despite being in a challenge caused by the Coronavirus Disease 2019 (COVID-19) pandemic, it does not prevent students from absorbing the teaching materials provided by the teacher at school.

V. Conclusion

The results showed that usability has a positive and significant effect on ease. Usability has a positive and significant effect on ease of use. Ease has a positive and significant effect on ease of use. Ease has a positive and significant effect on attitudes towards behavior. Ease of use has a positive and significant effect on attitudes towards behavior. Attitudes towards behavior has a positive and significant effect on ease of having a positive effect.

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