

# Analysis of the Technology Acceptance Model for Paid E-Learning Applications during the Covid-19 Pandemic

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## ABSTRACT

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The aim of this research is to analyze student perceptions of the use of e-learning platforms in learning. The type of research used is descriptive quantitative. The sample in this research was 57 students from the information technology study program in 2020. The data collection technique in this research uses a questionnaire. The data analysis technique uses simple and multiple regression analysis with the help of the Statistical Product for Servicer Solution (SPSS) 21 program. Based on research results from the questionnaire on convenience variables and usefulness variables, then it can be seen that the research results show that the t count is greater than the t table value, the t table value is 2.060 and the t count value is 10.663 for the convenience variable and 7.478 for the usefulness variable. So t count > t table and each independent variable has a significant value < 0.05. As for the results of multiple linear regression analysis, it was also found that the independent variables simultaneously had a positive effect on the dependent variable and were assessed as significant < 0.05. This indicates that there is a positive influence of the convenience factor and the usefulness of using e-learning by students in participating in learning during the Covid-19 pandemic.

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## I. Introduction

Advances in science and technology, especially Information and Communication Technology (ICT), have had many positive impacts on the progress of the world of education today. Formal education. Informal and non-formal can utilize ICT to support the learning process for students. The advantages offered do not only lie in the speed and ease of obtaining information or material sources, but there are also multimedia facilities that can make the learning process more interesting through interactive visuals [1]. The various benefits of e-learning encourage the use of e-learning today to become a necessity, no longer a requirement or compulsion. The use of e-learning systems in the learning process is no longer inevitable. There are various benefits offered by e-learning is a more flexible learning opportunity without being bound by time and space, making it easier for people to access education, enrich learning materials, enliven the learning process, make the learning process more open, increase learning effectiveness, and support students to learn independently.

The traditional learning system is characterized by meetings between students and teachers to carry out the teaching and learning process [2]. Changes or shifts in the learning system paradigm are starting to appear in the knowledge transfer process. The current learning process tends to place



more emphasis on the teaching process, based on content, abstract and only for certain groups (in this process teaching tends to be passive). Along with the development of ICT science and technology, the learning process begins to shift to the learning process, problem-based (case base), contextual in nature and not limited to certain groups. In a learning process like this, students are required to be more active by optimizing existing learning resources, especially via the Internet.

Behind the various conveniences offered, there are several challenges faced during e-learning. Among the challenges faced by users during online lectures can be grouped into three categories, namely situational and environmental challenges, including difficulty concentrating at home, stress of balancing life, financial problems, lack of social interaction and sudden life changes. Another category of challenges is the challenges of online education, including the difficulty of online lectures, lots of assignments, not concentrating, and not getting used to it. The next category of challenges is emotional challenges such as lack of motivation and negative feelings [3].

In order to help use e-learning optimally, the perception of users or in this case students is needed. For this reason, research was conducted on Teuku Umar University students' perceptions of e-learning in accordance with the Technology Acceptance Model (TAM). The Technology Acceptance Model or TAM is a model used to measure the extent of user acceptance of a technology, especially information technology [4]-[5]. In his research, Davis (1989) proposed two key factors in technology user behavior towards acceptance or adoption of the technology. These two key factors are ease of use and usefulness, both of which are believed to be able to predict attitudes or behavior in using technology. This theory is used to predict and explain how technology users accept and use this technology in everyday life [6]. Research that uses TAM theory is that usability and ease of use factors are important factors and greatly influence attitudes towards using Gojek [7]. Through TAM, it can be understood that users' reactions and perceptions of technology can influence their attitude in accepting technology [8]. Therefore, the aim of this research is to analyze the perceptions of Teuku Umar University students regarding the use of e-learning during the Covid-19 pandemic using the TAM method.

## II. Method

The first stage of this research is an initial survey of the use of e-learning platforms during the Covid-19 pandemic. From the survey results, it was found that there are many e-learning platforms used by lecturers when providing learning to students. The next step is to distribute the questionnaire online through various media such as the WhatsApp group for students of the Information Technology study program at Universitas Teuku Umar in Meulaboh. Distribution of the questionnaire was carried out for one month, namely September 2021 with a total of 57 respondents. Responses were collected using a questionnaire created using Google Form, distributed in the form of a link with an opening message containing an explanation of the purpose of the questionnaire and how to fill it out. The final step is analyzing the results of the questionnaire using the multiple linear regression statistical method consisting of the dependent variable acceptance and the independent variable consisting of the usefulness and ease of using e-learning. All information from the questionnaire was analyzed using the SPSS v.21 application.

## III. Results and Discussion

There were 57 questionnaires collected in this research. Respondents are students of the Information Technology study program at Universitas Teuku Umar Class of 2020. From the survey conducted, it was found out what types of e-learning had been used by students and what students' perceptions of the acceptance of e-learning were. Demographic data on student perceptions regarding acceptance of e-learning is as shown in the following picture:

### A. Descriptive Analysis of e-Learning Platforms

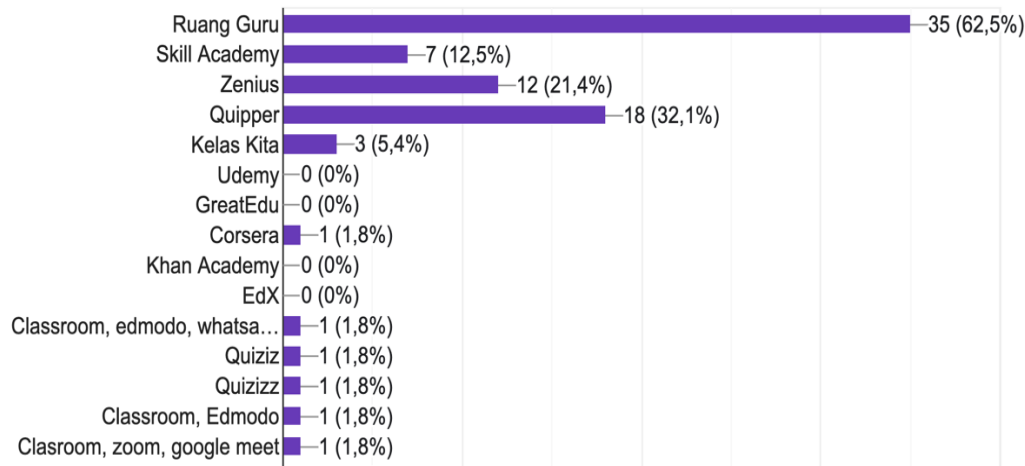


Fig. 1. Types of E-Learning that students have used

From the survey results, it is known what types of e-learning platforms have been used by students. The platform most used by students is Ruang Guru with a total of 35 students. From the survey it is also known that students have used more than one type of e-learning. Other e-learning platforms that are also widely used by students include Quipper, Zenius, Skill Academy and Kelas Kita.

### B. Frequency distribution analysis of the variable's acceptance, ease, and helpfulness

Univariate analysis is an analysis to find out the description of each independent variable (Usefulness, convenience) and dependent variable (Acceptance). The data that has been obtained from the results of data collection is presented in the form of a frequency distribution table and text. The results of the univariate analysis for each variable can be seen in the following table:

Table 1. Frequency distribution of acceptance variables

Acceptance				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid disagree	1	1.8	1.8	1.8
Valid neutral	13	23.6	23.6	25.5
Valid agree	23	41.8	41.8	67.3
Valid strongly agree	18	32.7	32.7	100.0
Total	55	100.0	100.0	

The results of the analysis of the variable acceptance of the use of e-learning showed that on average students accepted the use of e-learning in learning, where it can be seen that the majority of student responses in the agree category were 23 people (41.8%) and 18 people strongly agreed (32.7%), the rest fall into the agree and neutral categories.

Table 2. Frequency distribution of convenience variables

Ease				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid neutral	7	12.7	12.7	12.7

agree	26	47.3	47.3	60.0
strongly agree	22	40.0	40.0	100.0
Total	55	100.0	100.0	

The results of the analysis of the variable ease of use of e-learning show that on average students can easily use e-learning in learning, where it can be seen that the majority of student responses in the agree category were 26 people (47.3%) and 22 people (40.3%) strongly agreed. 0%), the rest are included in the neutral category.

Table 3. Frequency distribution of the Helpfulness variable

Helpfulness				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid disagree	1	1.8	1.8	1.8
neutral	6	10.9	10.9	12.7
agree	28	50.9	50.9	63.6
strongly agree	20	36.4	36.4	100.0
Total	55	100.0	100.0	

The results of the analysis of the variable usefulness of using e-learning showed that on average it was useful for students to use e-learning in learning, where it can be seen that the majority of student responses in the agree category were 28 people (50.9%) and 20 people strongly agreed (36.4%). ), the rest are included in the neutral category.

### C. Simple Linear Regression Analysis

From the results of simple linear regression, it can be seen how each independent variable influences the dependent variable, namely the usefulness factor and ease of use factor, on the acceptance of e-learning by students of the Universitas Teuku Umar Information Technology study program separately. The following are the results of simple regression analysis test calculations, this can be seen in table 4 as follows:

Table 4. Simple regression analysis of the convenience variable

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	187.554	1	187.554	113.698	.000
1	Residual	87.428	53	1.650		
	Total	274.982	54			

From the output it is known that the calculated F value is 113.698, with a significance level of  $0.000 < 0.05$ , so it can be concluded that there is an influence of the convenience variable on the acceptance variable.

Table 5. T test results

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.096	1.131		.085	.933
	Convenience	.707	.066	.826	10.663	.000

Based on the output above, it is known that the calculated t value is 10.663. Then we look at the distribution of t-table values, we get a  $t_{\text{table}}$  value of 2.060 and we get a  $t_{\text{count}}$  value of 10.663. So the  $t_{\text{table}}$  10.663 is greater than  $> t_{\text{table}}$  2.060 and the significant value is  $< 0.05$ . So, it can be concluded that  $H_0$  is rejected and  $H_a$  is accepted, which means that there is a significant influence of the ease factor on acceptance of using the e-learning platform by Universitas Teuku Umar students.

Table 6. Simple Regression Analysis of Usefulness variables

ANOVA <sup>a</sup>						
Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	141.178	1	141.178	55.921	.000
	Residual	133.804	53	2.525		
	Total	274.982	54			

From the output, it is known that the calculated F value is 55.921, with a significance level of  $0.000 < 0.05$ , so it can be concluded that there is an influence of the usefulness variable on the acceptance variable.

Table 5. T test results

Coefficients <sup>a</sup>					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	2.078	1.346	1.543	.129
	Utilization	.791	.106	.717	7.478

Based on the output above, it is known that the calculated t value is 7.478. Then we look at the distribution of  $t_{\text{table}}$  values, we get a  $t_{\text{table}}$  value of 2.060 and we get a  $t_{\text{count}}$  value of 7.478. So the  $t_{\text{count}}$  7.478 is greater than  $> t_{\text{table}}$  2.060 and the significant value is  $< 0.05$ . So, it can be concluded that  $H_0$  is rejected and  $H_a$  is accepted, which means that there is a significant influence of the usefulness factor on the acceptance of using the e-learning platform by Universitas Teuku Umar students.

### C. Multiple Linear Regression Analysis

The multiple linear regression test is used to test the influence of independent variables on the dependent variable simultaneously. The test results with multiple linear regression can be seen in the following table:

Table 6. Multiple Linear Regression test results

Coefficients <sup>a</sup>						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	-1.078	1.132	-.952	.345	
	Convenience	.539	.085	.630	6.377	.000
	Utilization	.319	.109	.289	2.924	.005

From the analysis carried out, it can be seen that the significance level of the convenience and usefulness variables on acceptance is 0.00 ( $p < 0.05$ ). This indicates that there is a positive influence

of the ease and usefulness of use factor on the acceptance of e-learning by students in participating in learning during the Covid-19 pandemic. The research results obtained are in line with other research which states that using e-learning platforms in learning has a positive effect on learning [9]. The results of other research also state that the use of e-learning measured in terms of use and convenience can have a positive influence on the perception of student acceptance in learning during [10].

#### IV. Conclusion

From the research conducted, it is known what types of e-learning platforms have been used by students of the Universitas Teuku Umar Information Technology study program. Besides that, research also finds that perceived usefulness has a positive effect on acceptance of the use of e-learning. This means that if students feel that the more benefits they get from e-learning applications, the greater their interest in using e-learning. Likewise, with the perception of ease of use of e-learning, the easier it is to use e-learning features, the higher student interest in using e-learning. This cannot be separated from the updates carried out by e-learning platform developers, where e-learning applications, especially in the mobile version, are becoming easier to use by implementing user interfaces and user experiences that are attractive and easy to operate.

#### References

- [1] Napitulu, D. Kajian Penerimaan E-Learning Dengan Pendekatan TAM Study Of E-Learning Acceptance Based On TAM Approach. Prosiding Seminar Nasional Multidisiplin Ilmu Universitas Budi Luhur. 2017.
- [2] Siahaan, T. Wagi, E. Analisis Technology Acceptance Model (TAM) pada Sistem E-Learning Universitas Advent Indonesia. Jurnal TeKa, Volume 7, Nomor 2, Oktober 2017. 2017.
- [3] Anugraha, A. Hambatan, Solusi dan Harapan: Pembelajaran Daring Selama Masa Pandemi Covid-19 Oleh Guru Sekolah Dasar. Scholaria: Jurnal Pendidikan dan Kebudayaan, Vol. 10 No. 3, September 2020: 282-289.2020
- [4] Napitupulu, D. Evaluasi kualitas website universitas XYZ dengan pendekatan Webqual. Buletin Pos dan Telekomunikasi, 14(1), pp: 51-64. 2016.
- [5] Davis, F. D. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly, 13(3), pp: 319-339. 1989.
- [6] Agustini. 2014. Penerapan Sistem Terintegrasi Panduan Pariwisata Berbasis Mobile Untuk Pelaku Pariwisata Di Kabupaten Buleleng Dengan Model Tam. Jurnal Pendidikan Teknik Informatika. [https://www.researchgate.net/publication/313033778\\_penerapan\\_sistem\\_terintegrasi\\_panduan\\_pariwisata\\_berbasis\\_mobile\\_untuk\\_pelaku\\_pariwisata\\_di\\_kabupaten\\_buleleng\\_dengan\\_model\\_tam](https://www.researchgate.net/publication/313033778_penerapan_sistem_terintegrasi_panduan_pariwisata_berbasis_mobile_untuk_pelaku_pariwisata_di_kabupaten_buleleng_dengan_model_tam)
- [7] Dilarbo, P. A. 2017. Pengaruh Persepsi Kegunaan Dan Persepsi Kemudahan Penggunaan Terhadap Sikap Perilaku Penggunaan Aplikasi Go-Jek Di Kota Malang | Dilarbo | Jurnal Aplikasi Bisnis. <http://jab.polinema.ac.id/index.php/jab/article/view/85>
- [8] R. Scherer, F. Siddiq, and J. Tondeur, "The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education," *Comput. Educ.*, vol. 128, pp. 13–35, 2019.
- [9] Zefriyenni, Sefriani, R., Sepriana, R. 2022. Technology Acceptance Model: the use of E-Study Applications in E-Learning. *Journal of Education Technology*. Volume 6, Number 4, 2022 pp. 704-710
- [10] Maita, I., Almarozi. 2022. Analisis Penerapan E-learning Menggunakan Thechnology Acceptance Model (TAM). *Jurnal Informasi dan teknologi*, vol 4, No 2. <https://doi.org/10.37034/jidt.v4i2.201>