The Use of E-Learning to The Effectiveness of Coastal Student Learning of Sumatra Island at Coronavirus Pandemic With Path Analysis

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Abstract

This research aims to determine the effectiveness of student learning in the coastal areas of Sumatra's island at the time of the Covid-19 virus pandemic using e-learning. The respondent is an accounting student at the state Polytechnic in Bengkalis where almost all students live in the island's coastal areas and differ from those in urban areas. The variables examined the perception of benefits, perception of ease, and quality of service towards e-learning and the effectiveness of student learning. The results showed a perception of benefits and quality of service impacting e-learning and the effectiveness of student learning. While the perception of simplicity does not affect the use of e-learning and the effectiveness of student learning. The research results using track analysis show that variable perception of benefits and quality of service affects the effectiveness of learning through the use of e-learning as a mediation variable. While the variable perception of ease has no influence on student learning effectiveness through the use of e-learning as a mediation variable.

Keywords: Perception of e-learning benefits, perception of ease, quality of service, use of e-learning and effectiveness of learning, Coronavirus Pandemic

INTRODUCTION

The effects of the Pandemic's corona outbreak (Covid-19) have targeted the world of Indonesian education; both the central government and local governments have made the policy of interviewing the entire educational institution. This policy is done to reduce the interaction of many people as steps to prevent coronaviruses' transmission. One of its policies is to perform the learning process from home through online/remote learning. In this regard, the Ministry of Education and Culture has issued circular letter number 4 for the year 2020 which contains the implementation of the education policy in the emergency period of the Coronavirus spread (COVID-19).

In line with the government's efforts in disconnecting Corona's virus spreading chains (Covid-19), various colleges in Indonesia have been engaged in teaching-learning and replacing them with remote learning systems (online).

The use of technology and technology utilization one of the efforts in online lectures. E-Learning is one of the learning models that use Internet access to enhance the learning environment without having to come to the classroom anywhere and as long as the user has Internet access.

The state Polytechnic of Bengkalis was one of the universities that sought to perform the learning process online during the Corona pandemic. One of the implementations of e-learning by the state Polytechnic of Bengkalis is Google Classroom. Lecturers and students can only access the Google Classroom Service with access.

Google Classroom is one of the most recommended online learning applications or platforms for Kemendikbud when learning from home. Facilities that can be used by lecturers and students including download lecture materials, task collection, work on quizzes, display quiz scores, assignments, and exams, lecturer and student discussions, and share information and video information related to the learning process without having to come face to hand as usual. Google Classroom also has supporting features that connect with other Google services like Gmail, Youtube, Google Drive, Google Maps, and Google Translate.

The existence of e-learning applications such as Google Classroom in the learning process during the Corona pandemic is expected to facilitate students and lecturers in conducting coursework activities.

Learning Lectures online is certainly difficult because of the existence of inadequate infrastructure and the tradition of long-distance lectures has not become a culture so it is still rare to use it. Some problems that often arise in learning online using e-learning between the quota of Internet packages are certainly more significant than usual. Then from the provider network of each student and lecturers are not the same, where the residence there are some students are in the coastal areas of Sumatra Island where not all of them have good Internet network.

Based on the explanation above, the authors are interested in researching with the title: Analysis of the simplicity of Google Classroom, the benefit and quality of Google classroom towards the use and effectiveness of students ' learning in the Covid-19 Pandemic (Study in Accounting students Department of Commercial Administration of Bengkalis Polytechnic).

LITERATURE REVIEW

E-Learning Terminology

E-Learning is an electronic learning process that uses Internet network media as a means of teaching. E-learning objectives: learning materials can be used and learned by all the parties in need. The learning will facilitate access and the learning process can be done anytime and anywhere as long as there is an Internet connection.

Google Classroom

Google Classroom is one of the learning tools for e-learning that allows online classes in cyberspace. Google Classroom can connect lecturers and students both outside and in the classroom. Lecturers or students can utilize the use of Google Classroom to conduct distance learning such as the distribution of tasks, collecting assignments, assessing the tasks gathered.

Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) is a model compiled by Davis (1989) to explain technology acceptance to be used by technology users.

According to Davis the behavior of using information technology (IT) begins with the perception of the benefits (usefulness) and perception of ease of use (ease of use).

Quality of Service

The quality of a system emphasizes the performance of hardware and software systems and the procedures that govern the system's implementation.

Service quality is an important factor that companies do in producing products that consumers will use. The quality of service provided to consumers is the main thing that companies do to compete and survive to trust by consumers.

Fandy Tjiptono (2012:157) defines service quality as the size or level of service provided is capable according to customer expectations.

Hypothesis Development**Impact of benefits on Google Classroom usage interests**

Perception of benefits is the benefit that individuals can obtain when using information technology (Fiddin, 2014). Measurement of benefits based on the frequency of usage and diversity of applications used. In the Technology Acceptance Model (TAM) theory, perception of benefits is the most important factor in affecting user attitudes in using a system or not using the system in the continue.

Influence perception ease on using Google Classroom interests

Ease of use is a level where one believes that a system is used because it is easy to understand and use, so no effort is required (free of effort) (Davis, 1989). According to Jogianto (2007:115), The perception of ease (perceived ease of use) is the extent to which individuals believe that using technology will be free of effort (is the extent to which a person believes that using technology will be free of effort). If individuals feel confident that the information system is easy to use then the individual will use it. Conversely, if someone feels confident that the information system is not easy to use, they will not use it.

Effect of service quality on Google Classroom usage interests

The quality of service of a system must meet the expectations of system users and be perceived effectively when users use it. The quality of service can be said to be

good if the system should meet the user's expectations and be able to feel effective when using it (Nustini, 2018).

The influence of Google Classroom use on student learning effectiveness

Research conducted by Fiddin (2014), the use of information systems is defined as the behavior of an individual who uses information systems because of the benefits that individuals will receive in helping to accomplish their work. In this study, the desire to use Google Classroom was expected to make the learning process effective. The higher the student wishes to use Google Classroom, the higher its effectiveness because using Google Classroom.

Framework of thought

The thought frameworks of this study are as follows:

Figure 1. Framework of thought

Hypotheses in this study were formulated as follows:

H1: Influence of benefits perception on the use of Google Classroom

H2: How to influence perceptual use of Google Classroom

H3: Effect of the quality of Google Classroom services on using Google Classroom

H4: Influence of the use of Google Classroom on Student Learning effectiveness

H5: The influence of the benefit, simplicity, and quality of service to the effectiveness of student learning through the use of Google classroom.

RESEARCH METHODOLOGY

Population and samples

The research object is a student using the Google Classroom e-learning system in the accounting department of Bengkalis Polytechnic. This study's total population amounted to 176 students—sample determination using Solvin formula with a tolerance error rate of 10%.

$$n = \frac{N}{1 + N(e)^2}$$

Description:

N = population size

n = Sample Size

E = Margin of Error, i.e. percent looseness of inaccuracy due to error taking samples that can still be tolerated by 10%

Using a margin of error of 10%, the number of samples that can be taken at least:

$$n = (176) / (1 + 176 (0,1)^2)$$

$$n = 63.8 \text{ or close to } 64.$$

Sampling techniques use Simple Random Sampling or simple random samples. This technique is done by taking samples without regard for strata in the population.

The data types in this study are primary data. While the method used to collect data is the survey method through the dissemination of questionnaires. The instrument used is a Likert scale, i.e., strongly disagreeing (1), disagreeing (2), agrees (3), and strongly agree (4).

For data quality tests, validity and reliability test are conducted. In the reliability test, measurements are performed only once and then the results are compared to other questions or measure the correlation between questions answers. A construction or variable is reliable if it gives the Cronbach Alpha value > 0.60 (Nunnally, 1967 in Ghazali, 2005). While the validity measurements in this study were conducted using the Pearson correlation coefficient by calculating the correlation between each question item's scores with the total score (Ghazali, 2005). It describes all valid research instruments.

Data Analysis Techniques

The analysis used in this study is regression analysis and path analysis. Regression analysis is used to determine the influence of variables independent of dependent variables. The Sobel test was conducted to test the mediation hypothesis.

RESULTS AND DISCUSSION

Descriptive statistics

The author does this on students to know the student's perception of using Google Classroom towards student learning effectiveness during Corona's Pandemic. This study took 65 respondents samples as a source of information according to the questionnaires created.

The results of a descriptive statistical variable of research on the data can be seen following image:

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Perception of Benefits Google Classroom	65	1,600	4,000	2,856	0,561
Perception of Ease Google Classroom	65	2,000	4,000	3,095	0,505
Quality of Service Google Classroom	65	1,800	4,000	2,980	0,532

Perception use of Google Classroom	65	2,000	4,000	2,933	0,523
Effectiveness of Learning	65	1,800	4,000	2,980	0,532
Valid N (listwise)	65				

Tabel 1. Descriptive statistics of research variables

Source: Processed data, 2020

Table 1 obtained the mean, maximum, minimum, and standard deviation values for each of the research variables of 65 respondent samples. For each variable, its minimum value is 1.000. While the maximum value of 4.000. Whereas the overall mean of variables is 2.969.

Validity and Reliability Test

Data is valid if $R \text{ counts} > R \text{ table}$. In this study, r tables were obtained with degrees of freedom $(N-2)$ or $65 - 2 = 63$ with a significant rate of 5%. From the table obtained criticism numbers for the validity test in this study is 0.2441.

Table 2. Validity Test

Variabel	Question Item	Pearson Corelation	Status
Perception of Benefits	PMF1	0,594	Valid
	PMF2	0,754	Valid
	PMF3	0,737	Valid
	PMF4	0,745	Valid
	PMF5	0,661	Valid
Perception of Ease	PMD1	0,776	Valid
	PMD2	0,713	Valid
	PMD3	0,791	Valid
	PMD4	0,708	Valid
	PMD5	0,717	Valid
	PMD6	0,812	Valid
Quality of Service	KLP1	0,753	Valid
	KLP2	0,798	Valid
	KLP3	0,763	Valid
	KLP4	0,669	Valid
	KLP5	0,747	Valid
Perception use of Google Classroom	PGC1	0,731	Valid
	PGC2	0,866	Valid
	PGC3	0,814	Valid
	PGC4	0,840	Valid
Effectiveness of Learning	EP1	0,645	Valid
	EP2	0,485	Valid
	EP3	0,690	Valid
	EP4	0,769	Valid

Source: Processed data, 2020

Table 2 above, variable perception of benefit, perception of ease, quality of service, use of Google Classroom, and the effectiveness of each statement's learning visible score item is R calculate $> R$ table that all instruments of the specified statement item are valid.

The reliability test is used to quantify a liquid questionnaire from a variable or a construct. A questionnaire is reliable if a person's answer to the statement is consistent from time to time.

Table 3. Reliability Test Result

Variabel	Cronbach h alpha	Status
Perception of Benefits	0,736	Reliable
Perception of Ease	0,853	Reliable
Quality of Service	0,772	Reliable
Perception use of GCr	0,829	Reliable
Effectiveness of Learning	0,645	Reliable

Source: Processed data, 2020

Table 3 above shows that Cronbach Alpha's value for each instrument > 0.6 which suggests that the overused to be reliable.

Test normality

The normality test is performed to determine whether the distributed data is normal or not. The normality test results can be seen in the following table 4:

Table 4. Kolmogorov-Smirnov test results

One-Sample Kolmogorov-Smirnov Test		
N		Unstandardi zed Residual 65
Normal Parameters ^{a,b}	Mean	,0000000
	Std. Deviation	,82592542
Most Extreme Differences	Absolute	,099
	Positive	,077
	Negative	-,099
Test Statistic		,099
Asymp. Sig. (2-tailed)		,187 ^c
a. Test distribution is Normal.		
b. Calculated from data.		

c. Lilliefors Significance Correction.

Source: Processed data, 2020

From table 4 above, can be seen the value Kolmogorov-Smirnov has a significance value of $> 5\%$ so that data is deduced data has a normal distribution.

Hypothesis Testing

Regression analysis Model I

Regression analysis of Model 1 is used to know the strength of a variable's relationship independent of the intervening variables. This study, conducted a T-Test to test the perception of Google Classroom benefits (X1), Google Classroom Ease (X2), and Google Classroom Service Quality (X3) on partial use of Google Classroom. Test analysis results can be seen in the following 5 tables:

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
1	(Constant)	,865		,677	,501
	Perception of Benefits	,368	,089	,422	,000
	Perception of Ease	,063	,084	,087	,454
	Quality of Service	,299	,099	,368	,004
a. Dependent Variable: Perception use of GCr					

Source: Processed data, 2020

By using α levels (significance) of 0.05 can be seen the variable perception of benefits and service quality has a significant rate of < 0.05 . It can be concluded that the level of use of Google Classroom and the quality of Google Classroom services affect student interest in using Google Classroom during Corona's Pandemic.

While the ease variables have a significant rate of $0.454 > 0.05$, so it can be concluded that the ease variables do not affect the interest of the use of Google Classroom by students during the corona pandemic.

Regression analysis Model II

Regression analysis of Model 2 is used to determine the independent variable's relationship strength to the dependent variable. In this study, regression analysis of Model 2 by conducting T-tests on the variable perception of benefit, perception of ease, and quality of service to learning effectiveness. The results of the T-test analysis can be seen in the following table 6:

Coefficients ^a					
Model	Unstandardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
1 (Constant)	3,469	1,006		3,450	,001
Perception of Benefits	,327	,070	,472	4,659	,000
Perception of Ease	,022	,066	,038	,333	,740
Quality of Service	,233	,078	,362	3,003	,004

a. Dependent Variable: Effectiveness of Learning

Source: Processed data, 2020

By using α levels (significance) of 0.05 can be seen the variable perception of benefits and service quality has a significant rate of < 0.05 . It can be concluded that the level of use of Google Classroom and the quality of Google Classroom services affect the effectiveness of student learning in using Google Classroom during Corona's Pandemic.

While the ease variables have a significant rate of $0.740 > 0.05$, so it can be concluded that the ease variables do not affect the effectiveness of student learning in using Google Classroom during the Corona pandemic.

Regression analysis of Model III

A regression analysis of model III was conducted to determine the influence of the Google classroom usage variable on student learning effectiveness during the Corona pandemic. The results of T-test analysis can be seen in the following table 8:

Coefficients ^a					
Model	Unstandardized		Standardize	t	Sig.
	Coefficients		d		
	B	Std. Error	Coefficients		
1 (Constant)	5,293	,822		6,436	,000
Perception use of GCr	,572	,069	,720	8,242	,000

a. Dependent Variable: Effectiveness of Learning

Source: Processed data, 2020

Based on regression test results significant values for Google classroom usage variables for learning effectiveness were 0.000, so the variable interest in the use of Google Classroom was influential towards the effectiveness of student learning during the corona pandemic.

Path Analysis

The analysis of the pathways used in this study aims to determine the indirect influence of variable perception of benefit, the perception of ease, and the quality of service to the effectiveness of student learning by using Google classes as a variable intervening. This study conducted the Sobel test. The analysis of Sobel in can research is seen as follows:

The results of a track analysis using a Sobel test shows that the value M from the benefit of Google Classroom to the effectiveness of student learning through the use of Google Classroom is $5.220 > 1.96$ so that there is an influence on the use of Google Classroom mediation in conjunction with the perception of the effectiveness of student learning. These results can mean that the value of influence perception of the benefit to the effectiveness of student learning through the use of Google Classroom is greater than the direct perception of Google Classroom's benefits on the effectiveness of student learning.

The Sobel test results in the variable perception of ease on the effectiveness of student learning through the use of Google Classroom as an intervening variable of $0.0646 < 1.96$. These results can mean that the value of Google Classroom's ease of influence on student learning effectiveness during the corona pandemic through the use of Google Classroom has no indirect influence or no mediation factor in the ease of perception variables use of Google classroom.

The Sobel test value in the Google Classroom service quality variable to the effectiveness of student learning through the use of Google Classroom as an intervening variable of $3.5016 > 1.96$. These results can mean that the value of the influence of the quality of Google Classroom services on student learning effectiveness during the corona pandemic through the use of Google Classroom has an indirect impact on the mediation factors in service quality variables use of Google Classroom.

CONCLUSION

Based on the results of research and discussion that has been explained, several conclusions can be displayed:

The result of a descriptive analysis shows that the mean value of the whole variable is the benefits of Google Classroom, the ease of Google Classroom, the Google Classroom service, the Google classroom usage, and the learning effectiveness is 2.969, with respondents agreeing to the use of Google Classroom as a learning medium during the corona pandemic.

The results showed that the factors of benefit and quality of service affect the use of the Google classroom during the corona pandemic. While the use of Google Classroom influences the effectiveness of student learning during the corona pandemic.

The easy factor of using Google Classroom does not influence the use of Google Classroom as a learning medium for students. It has no effect on the effectiveness of student learning during the corona pandemic. This can be because almost all students reside in coastal areas of Sumatra island where not all regions have sufficient Internet network to access e-learning such as Google Classroom

The results of the analysis using the Sobel test can be concluded that the variable of Google Classroom benefits and the quality of the Google Classroom Service influences the effectiveness of student learning during the Corona pandemic through the use of Google Classroom as an intervening variable.

Google Classroom Ease variables have no effect on student learning's effectiveness during the Corona pandemic with the use of Google Classroom as an intervening variable.

Suggestion

The suggestions that can be given by the authors after conducting this research are:

Provision of assistance such as package quotas for students to conduct online lectures using e-learning, thus motivating students to follow the schedule even if the condition of the area of network residence is insufficient.

For lecturers adjust lectures according to the student condition so that the effectiveness of student learning in the Corona pandemic period can run well.

Further research can use condition variables that facilitate the user towards the use of e-learning and student learning effectiveness.

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