

Influence of E-Learning Service Quality on E-Learning Student Loyalty through E-Learning Student Satisfaction at University in East Java

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Abstract: *More than one year has passed since the Covid-19 pandemic in Indonesia, which has impacted the distance learning process. E-learning is one of the facilities provided by the University that helps the course of online lectures. This study aims to determine the effect of e-learning service quality on e-learning student loyalty through e-learning student satisfaction. The method used is a quantitative method with data collection, distributing questionnaires to active users of e-learning at universities in East Java. The data were analyzed using WarpPLS 7.0. The results in this study indicate that e-learning service quality affects e-learning student satisfaction and e-learning student loyalty. Likewise, e-learning student satisfaction affects e-learning student loyalty.*

Keywords: *E-learning service quality, E-learning student satisfaction, E-learning student loyalty.*

INTRODUCTION

More than a year has passed in Indonesia since the Covid-19 pandemic, but there is no sign that the pandemic will end. Therefore, a pandemic has a destructive impact on education in Indonesia, resulting in the teaching and learning process being carried out using the distance learning method, commonly referred to as learning from home (LFH).

According to e-learning market trends 2017, the total market in Asia is US\$7.1 billion, with an annual growth rate of 17.3%. Indonesia is one of the fastest-growing countries in the e-learning market, with an average annual growth rate of 25% above Colombia, Ukraine, and the rest of the world. Asia presents the most exciting trends in literacy development, the demand for content, adoption of technology, highest growth rate, integration with talent management, and vital government initiatives. In such a situation, Indonesia will have a promising opportunity in 2017 as it is expected to add USD 12.2 billion to users in the e-learning market.

Online learning requires breakthroughs in innovation and strategy at all levels. Thus, education should focus more on new trends in executive leadership (Flanagan & Jacobsen, 2003). The quality of universities or educational institutions can be seen from the services provided to customers. In improving the quality of educational institutions, efforts need to be made. Providing a learning information system is an effort to improve quality and service quality to consumers (Sasuti et al., 2020). The quality of service at an institution can include several things such as e-learning systems, instructor and course materials, administrative support.

E-learning can provide many benefits for universities and students (Samir et al., 2009). For universities, first, e-learning can help universities save many costs related to investment in physics teaching and learning infrastructure (Ramadiani et al., 2017). Second, e-learning can help universities become more digital and con-

tribute to a digital and knowledge-based society (Arguelles & Busquet, 2016). Third, e-learning can help universities integrate into the global education environment (Wong & Huang, 2011).

There are some differences in research results related to the quality of e-learning services. In their research, Pham et al. (2019) stated that the quality of e-learning services affects e-learning student satisfaction. On the contrary, Larasati & Andayani (2019) stated that it does not affect. Due to several factors. In contrast to other studies, Arguelles & Busquet (2016) found that service quality does not affect satisfaction but does affect loyalty. Students must continue to use e-learning to participate in the lecture process, but the campus does not maximize the performance of the e-learning.

THEORETICAL FRAMEWORK AND HYPOTHESES

Satisfaction Theory

Satisfaction is a feeling of pleasure or disappointment that arises after assessing whether a product's performance results met expectations (Chaw & Tang, 2018). So, consumers will be satisfied if the performance and product results align with user expectations. An assessment that a product or service feature offers a level of comfort related to fulfilling a need, including completing conditions below or exceeding consumer expectations (Song, 2010).

E-learning Service Quality

Service quality measures how much service can be provided by the level of service provided, following consumer expectations (Pham et al., 2019). Based on this definition, service quality depends on the company's ability to meet con-

sumer needs and expectations based on consumer expectations (Karya, 2016). Industrial quality is a product or service that follows the size of the current place of manufacture of the product, and its delivery is at least equal to consumer expectations. Wong & Huang (2011) stated, "The focus of service quality is to meet consumer needs and expectations, as well as the accuracy of delivery to balance consumer expectations, namely consistency between expectations and management concepts, as well as consistency between consumer expectations and employee work standards."

E-learning Student Satisfaction

Customer satisfaction is one of the factors to measure success for any development and implementation of information application systems in a company. Customer perception is a form of a picture of whether service quality is good or bad, not based on service providers' point of view or opinion (Maudiarti, 2018). As stated by Kotler & Keller (2015), "Satisfaction is a person's feelings of pleasure disappointment that results from comparing a product's perceived performance (or outcome) to expectations." Therefore, satisfaction is a feeling of satisfaction or disappointment with someone resulting from comparing the product's perceived performance with his expectations. In the era of the widespread development of ICT and e-commerce, online satisfaction can be defined as the customer's overall assessment of the quality of services or products offered in the online market (Rolph & Srinivasan, 2003).

E-Learning Student Loyalty

According to Leonnard et al. (2014), "Customer loyalty is based on very positive characteristics of long-term purchases, consumer com-

mitment to brands, stores or suppliers.” Based on this understanding, it can be explained that the combination of satisfaction and complaints has obtained brand loyalty (Romi Ilham, 2018a) and (Karya, 2020). At the same time, customer satisfaction comes from how the company achieves this satisfaction by minimizing complaints to obtain consumer purchases in the long term (Mahanani & Karya, 2016). Advances in information and communication technology (ICT) are changing all industries and sectors; higher education is no exception (Ramadiani et al., 2017). E-learning may be one of them. With the application of information and communication technology (ICT), e-learning is becoming increasingly popular in universities. The technology provides various teaching options to lecturers and students (Ramadiani et al., 2017).

Relationship between E-Learning Service Quality and E-Learning Student Satisfaction

Humans need high-quality services to lay a solid foundation for building good customer relationships. Services cannot be created suddenly but must be designed slowly. They have a unique memory for the product or service (Romi Ilham, 2018b). Kotler & Keller (2015) stated that “Customer satisfaction is closely linked to quality.” Moreover, quality has a direct impact on product performance and customer satisfaction. In the narrowest sense, quality can be defined as “freedom from defectors,” but most customer’s centered companies go beyond this narrow definition of quality. Instead, they defined quality in terms of customer satisfaction.

If a service has a quality that can meet or even exceed user expectations, it can be said that the service has been able to satisfy the user and can be said to be a quality service (Romi

Ilham & Siregar, 2021). The theory above is supported by previous research conducted by Pham et al. (2019) by obtaining research results, namely that system quality, information quality, and service quality have a positive effect on user satisfaction of e-learning systems. Furthermore, Purwanto & Pawirosumarto (2017) also states in their research that system quality, information quality, and service quality have a significant and significant effect on e-learning users. Meanwhile, Larasati & Andayani (2019) research state that the quality of services provided by e-learning has not been able to meet the needs of students as users.

Relationship between E-Learning Service Quality and E-Learning Student Loyalty

Service quality is a model that compares customer expectations of service with acceptance/feelings to describe customer expectations of service based on experience, word of mouth publicity, and advertising status (Kotler & Keller, 2015). Service quality is the desired level of excellence, and controlling this level of excellence is to meet customer needs (Onuma & Ada, 2016). Service quality can be interpreted as the difference between reality and customer expectations for the services they receive (Leonnard et al., 2014). From the point of view of several experts above, it can be concluded that service quality is the difference between consumer expectations and consumer acceptance. Service quality available in a product has good benefits and satisfaction from the user. This satisfaction can create loyalty from the user to use the product again for the long term (Romi Ilham, 2018a).

In the research conducted by Pham et al. (2019), the overall quality of e-learning services directly affects student e-learning loyalty. In

addition to this research, the same results were also found in Purwanto & Pawirosumarto (2017). The influence of the quality of online tutorial services on student loyalty has a reasonably considerable influence and is unidirectional and significant. However, it was found in Putra (2014) that service quality has a negative and significant effect on user loyalty.

H1: e-learning service quality affects e-learning student satisfaction

Relationship between E-Learning Student Satisfaction and E-Learning Student Loyalty

Student satisfaction is one of the quality standards of e-learning. Student satisfaction with online learning users can indicate that students enjoy the online learning experience. High-quality training courses will give users great pleasure (Song, 2010). Customer loyalty is a long-term commitment to rebuild or re-support one or more products or services that the customer likes forms. It accumulates when the customer feels that consuming the product or service can bring value to him (Pham et al., 2019). In this context, student loyalty towards e-learning treats students as customers and universities as educators, a national service provider organization.

Based on some of the theories above, it can be concluded that user loyalty depends on the satisfaction felt by its users; the better the quality of service that the provider provides to users, the greater the possibility of new users becoming customers. Furthermore, the number of customers can give trust to others, so the more people who use e-learning as a learning tool, the more effective the system in e-learning will be. Research conducted by Pham et al. (2019) shows that the overall quality of e-learning services is positively related to student e-learning satisfaction, which positively affects

e-learning student loyalty. The research of Sasuti et al. (2020) also said that student satisfaction positively impacts student loyalty. On the other hand, research from Ilham et al. (2021) states that user loyalty is not optimal because users have not felt satisfaction from the service. In this case, the role of lecturers as a sub-system in the learning process takes an important role. H2: e-learning service quality affects e-learning student loyalty

The Relationship of E-Learning Service Quality to E-Learning Student Loyalty through E-Learning Student Satisfaction

Student loyalty to e-learning must be maintained because users can use e-learning more often than usual with loyalty. Related to service quality and e-learning user satisfaction, the user's feelings of pleasure or disappointment will appear after comparing the performance of the e-learning system with user satisfaction expectations (Strong, 2012). Due to loyalty, users will first assess the quality of service from the e-learning provided and their satisfaction with the e-learning system. The overall quality of e-learning services was positively related to e-learning satisfaction, which positively affected student e-learning loyalty Pham et al. (2019). Strong (2012), in their research, revealed that satisfaction with loyalty showed a positive relationship. So the better the satisfaction, the higher the loyalty

H3: e-learning student satisfaction affects e-learning student loyalty

Framework

The framework of thought in this study is described as follows:

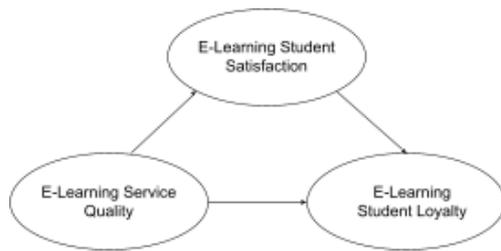


Figure 1 Thinking Framework

The population of this study are users of social media Youtube, Facebook and Instagram. The method used is purposive sampling. There are three criteria in sampling in this study; firstly, the questionnaire must be filled out by students using e-learning for more than one year. Second, students must fill out the questionnaire using the Moodle e-learning application in East Java. Third, accredited universities A or B. Several campuses that meet these criteria include Hayam Wuruk Perbanas University Surabaya, Brawijaya University, Brawijaya University, UPN Veteran Surabaya, Untag Surabaya, University of Jember, Ciputra University, Ubaya, Surabaya State University.

The data collection technique in this study used a survey technique through a questionnaire provided by Google Forms. The measurement of the variables was carried out using a Likert scale. The analytical method used in this research is warp partial least square (PLS). In the PLS (partial least square) method, the analytical techniques used are outer model analysis, inner model analysis and hypothesis testing.

DATA ANALYSIS

Overview of Research Subjects

Questionnaires began to be distributed on 17 June 2021, and the collection was limited to 1 July 2021. As a result, 138 questionnaires could be processed at 20 universities in East

Java. Therefore, the total questionnaires that can be processed according to the research criteria are 138 questionnaires. The data shows that most respondents in the study came from the Hayam Wuruk Perbanas University Surabaya, with 52 respondents and the University of Muhammadiyah Malang as many as 16 respondents. The rest were respondents spread across several universities in East Java.

Data analysis

Outer Model Analysis

Table 1 Outer Model Results

Variable	Indicator	Loading Factor			AVE	CA	CR
		E-SE	ONE	E-LO			
E-SE	X1.1	0.751	-0.317	-0.122	0.529	0.888	0.910
	X1.2	0.693	-0.018	-0.133			
	X1.3	0.729	0.031	0.038			
	X1.4	0.666	0.330	-0.029			
	X1.5	0.791	-0.030	0.026			
	X1.6	0.757	0.110	0.224			
	X1.7	0.649	0.035	-0.123			
	X1.8	0.776	0.213	-0.287			
	X1.9	0.721	-0.331	0.399			
ONE	Z1.1	0.086	0.886	-0.078	0.722	0.806	0.886
	Z1.2	0.065	0.809	0.154			
	Z1.3	-0.151	0.851	-0.065			
E-LO	Y1.1	0.098	0.083	0.925	0.855	0.831	0.922
	Y1.2	-0.098	-0.083	0.925			

Convergent Validity

Based on the table above, it can be seen that all of the variable items above are valid. The loading factor value for the variable e-learning service quality (X1) ranges from 0.649 to 0.791. These values are all above 0.5. Moreover, for the AVE value of the variable more than 0.5, that is 0.529. Therefore, it can be concluded that all items from the variable e-learning service quality (X1) have a high level of validity and can be used for further knowledge research.

As for knowing the convergent validity test of the e-learning student satisfaction (Z1) vari-

able, it can be seen in the table above that all of the variable items above are valid. The loading factor value for the variable e-learning student satisfaction (Z1) ranges from 0.809 to 0.886. The value of the loading factor of each indicator is greater than the measurement criteria, namely 0.5. Moreover, for the AVE value of the variable more than 0.5, that is 0.722. Therefore, it can be concluded that all items from the variable e-learning student satisfaction (Z1) have a high level of validity and can be used for other e-learning student satisfaction research.

E-learning student loyalty (Y1) from the table above shows that all variables above are valid. The dependent variable's loading factor value for the e-learning student loyalty (Y1) is 0.925. The loading factor value of each of these indicators is more significant than 0.5. And for the value of 2 variables more than 0.5, namely 0.855. Therefore, it can be concluded that the item from the dependent variable of e-learning student loyalty (Y1) has a high level of validity and can be used for e-learning student loyalty research.

Discriminant Validity

The test results that can be seen in the table above have been met because each indicator measuring the variable has a loading factor value more significant than the loading factor value in the measurement of other variable indicators. Therefore, in this study, all the variables used in the model are valid.

Reliability Test

From the table above, it can be seen that the value of Cronbach's alpha is in the range of 0.806 to 0.888, while the value of composite reliability is in the range of 0.886 to 0.922, where the e-learning student loyalty variable

(Y1) has the most considerable composite reliability value. From these results, all-composite reliability values of each variable are more than 0.6. The value is greater than the Cronbach alpha value, which means that the internal consistency of an indicator in the latent variable is reliable.

Table 2 Path Coefficient and P-Values

Correlation	Path Coefficient	P-Values	Information
E-SE → E-LO	0.549	0.010	Significantly
E-SE → E-SA	0.749	0.010	Significantly
E-SA → E-LO	0.285	0.010	Significantly
E-SE → E-SA → E-LO	0.214	0.010	Significantly

Based on Table 2, it can be explained that the variable e-learning student satisfaction on e-learning student loyalty has a significant influence. The result of the last correlation is an indirect effect, showing the effect of e-learning service quality on e-learning student loyalty through e-learning student satisfaction is significant, as seen from the coefficient value of 0.214 and p-values of 0.010.

Table 3 Coefficient of Determination

	E-Learning Service Quality	E-Learning Student Satisfaction	E-Learning Student Loyalty
R-squared		0.561	0.626
Cronbach Alpha	0.888	0.806	0.831
Full Collin. VIF	3,280	2,329	2,504
Q-squared		0.566	0.626

Based on the table above, the results from the inner model show that the R-squared value is 0.561 or 56 per cent, which means that 56 per cent affects e-learning service quality on e-learning student satisfaction. So it can be concluded from the coefficient of determination on the mediating variable that e-learning student satisfaction is less moderate. The R-squared size affects the dependent variable, namely e-

learning student loyalty, with a value of 0.626 or 63 per cent, which can be interpreted as much as 63 per cent of the influence. The independent variable is e-learning service quality to the dependent variable, namely e-learning student loyalty; other variables outside the study explain the rest.

While the Q-squared value in the table above, it can be concluded that the value of predictive validity is more than 0, then the research data that has been distributed has been well constructed and has a predictive relationship. Research using the Cronbach alpha test on the dependent variable, namely e-learning student loyalty on the independent variable e-learning service quality with a value of 0.888, the mediating variable e-learning student satisfaction with a value of 0.806 and the performance of e-learning student loyalty with a value of 0.831. then the test results above are declared free from collinearity because it is less than the composite reliability value.

Hypothesis testing

Hypothesis 1: e-learning service quality variable significantly influences e-learning student satisfaction at universities in East Java. Table 3 shows that the variable e-learning service quality significantly influences e-learning student satisfaction at universities in East Java, which can be seen through the path coefficient value of 0.749 and the p-values less than 0.05.

Hypothesis 2: e-learning service quality variable significantly affects e-learning student loyalty at universities in East Java. Table 3 shows that the variable e-learning service quality significantly influences e-learning student loyalty at universities in East Java, which can be seen through the path coefficient value, which is 0.549 and the p-values less than 0.05.

Hypothesis 3: variable e-learning student satisfaction significantly affects e-learning student loyalty at universities in East Java. Table 3 shows that the variable e-learning student satisfaction significantly influences e-learning student loyalty at universities in East Java, which can be seen through the path coefficient value, which is 0.285 and the p-values less than 0.05.

DISCUSSION

Effect of E-Learning Service Quality on E-Learning Student Loyalty

The variable e-learning service quality has a significant effect on e-learning student loyalty. The quality of e-learning services provided by the campus to students, whether good or bad, will affect student loyalty using e-learning. Based on the questionnaire and the indicators contained in the e-learning service quality variable; this variable has a significant effect on the loyalty of e-learning users because the feasibility of excellent and quality e-learning services can provide added value to the campus. The quality of e-learning makes students more comfortable following daily learning, especially during the pandemic. In addition, e-learning services include website display, administration, materials, and instructors' added values to make students feel free and loyal to use e-learning during the lecture process (Pandey & Pande, 2014). The quality of e-learning services is a factor that will determine the advantages of campus facilities which aim to identify, provide convenience, and develop superior e-learning services (Jiang et al., 2014).

Effect of E-Learning Service Quality on E-Learning Student Satisfaction

The variable quality of e-learning services significantly affects e-learning student satisfac-

tion, meaning that the campus has provided e-learning services well. Assessment of e-learning services can include systems, administration, layout, materials to instructors. Based on the questionnaire and the indicators contained in the e-learning service quality variable, this variable is essential in the satisfaction of using e-learning. Student satisfaction is the primary goal of an e-learning service; Arnold & Sangrà (2018) states that e-learning is good if students are satisfied.

Effect of E-Learning Student Satisfaction on E-Learning Student Loyalty

The variable of e-learning student satisfaction has a significant effect on e-learning student loyalty, meaning that students who are satisfied with e-learning systems and services will become loyal students and trust e-learning. The creation of user loyalty depends on the satisfaction felt by the user; the better the quality of service provided by the provider to the user, the more likely new users become customers (Nisar & Prabhakar, 2017). The number of customers can give trust to others, so the more people who use e-learning as a learning tool, the more effective and high-usefulness of the e-learning system will be (Kenepohl & Moore, 2016).

The Effect of E-Learning Service Quality on E-Learning Student Loyalty through E-Learning Student Satisfaction

Based on the analysis results, the path coefficient value of e-learning service quality is 0.214, and p-values are 0.010 for e-learning student loyalty through e-learning student satisfaction. This indirect relationship results in the conclusion that the variable quality of e-learning services has a significant effect on e-learning

student loyalty through e-learning student satisfaction. To achieve loyalty from students as users of e-learning, what must be achieved first is to provide satisfaction to users through services that are applied to e-learning (Belanche Gracia et al., 2015). E-learning is said to be successful if students are satisfied and loyal. Students and the campus can feel these satisfactory results.

CONCLUSIONS, LIMITATIONS OF THE RESEARCH AND SUGGESTIONS

Conclusion

Based on the results of the tests and discussions described, it can be concluded that *e-learning service quality* affects e-learning student satisfaction. This is because, on average, the respondents agree that the assessment and quality of e-learning services, whether good or bad, will affect the satisfaction of e-learning users themselves, namely university students. *E-learning service quality* effect on e-learning student loyalty. This means a person's loyalty in using the e-learning facilities provided by the University can be influenced by the quality of service. This shows that good service quality will create a sense of loyalty from the student. *E-learning student satisfaction* effect on e-learning student loyalty. This is because creating a sense of satisfaction from students with e-learning facilities makes students comfortable and can use e-learning well so that student loyalty will arise.

Research Limitations

In this study, several limitations cannot be overcome, including the following, This research was carried out during the Covid-19 pandemic, so the research questionnaires can only be dis-

tributed through the Google form. Furthermore, researchers cannot provide instructions or explanations if respondents do not understand the statement to be filled out. In addition, this study includes respondents on the island of Java, but the distribution of respondents has not been able to represent it evenly. This condition is due to time constraints when distributing questionnaires to universities in areas outside Surabaya where the research is domiciled.

Suggestion

Based on the results of the conclusions above, the researchers can give suggestions for further research as follows:

1. For further researchers, if at the time of the study, the Covid-19 pandemic had subsided, it would be best if the questionnaire was distributed directly to explain the statements to be filled out by respondents. This method is beneficial for equating the interpretation of statements between respondents and researchers.
2. For further researchers, it is hoped that they can maximize the use of questionnaires in expanding the scope of the research area and even out the number of respondents in each region on the island of Java to make it more valid.

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