

## **E-LEARNING AS A FORM OF TECHNOLOGY APPLICATION WITH DIGITAL LEADERSHIP**

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### **Abstract**

The ongoing COVID-19 outbreak in Indonesia has disrupted distance learning. We need technology to learn at home. E-learning currently supports online lectures at the University. An investigation into how digital leadership impacts e-learning Loyalty through e-learning Satisfaction is the goal of this study. Surveys were sent out to lecturers who regularly use e-learning in universities to collect quantitative data. Analyses are performed using SmartPLS software. e-learning satisfaction and loyalty are positively connected with Digital Leadership, affording to the findings of this study. E-learning satisfaction has a direct impact on student loyalty.

Keywords: Digital leadership, e-learning, Loyalty, Satisfaction.

## **1. Introduction**

Since the Covid-19 hits Indonesia in 2019, there has been no sign of an end to the outbreak. Indonesia's education system, of course, suffers as a result of this Covid, leading to the use of distance learning methods (PJJ) or more usually mentioned to as "learning from home" (LFH). In Asia, market on learning is estimated to be worth US\$7.1 billion, with an annual growth rate of 17.3%, market trends in 2017. Indonesia's e-learning market is indeed one of the fastest rising in the world, with an average once yearly growth percentage of 25% above the rest of the globe. Asia has the most interesting trends in knowledge progress, content demand, technology acceptance, the maximum progress rate, integration with capacity management, and strong rule initiatives. For Indonesia, this presents a promising opportunity in 2017, as the country's e-learning market is expected to grow by USD 12.2 billion in 2017. Advances in innovation and strategy are required at all levels of online learning. Consequently, the education field ought to pay more attention to the latest developments in executive leadership [1]. It is possible to judge the quality of universities and educational institutions by the services they provide to their students. Efforts must be made to raise the standard of educational facilities. In addition to the efforts to improve quality, providing learning information systems is one of the ways to improve customer service [1]. Digital tools, Digital native, and Digital strategy are all examples of digital leadership in an organization [2, 3].

Universities and professors alike stand to gain greatly from the adoption of online instruction [4]. First and foremost, e-learning can save universities a significant amount of money by reducing the need for capital expenditures for instructional technology [5]. E-learning also has the potential to improve university efficiency while also aiding our transition to a knowledge-based digital society. Internet technology makes it possible to learn and share information at any time, from any location, and efficiently and conveniently [6]. In addition, e-learning can aid universities in their efforts to become more integrated into the global education community [7].

In some of his previous studies, there were several differences in the results of each variable related to digital leadership affecting e-Learning student satisfaction in the research conducted [6]. However, the results were obtained in addition to research [8], which stated that digital leadership does not affect satisfaction due to several other aspects. In contrast, other studies [9]. found that lecturer trust has no effect on lecturer loyalty but affects lecturer loyalty because the direct effect of lecturer satisfaction with loyalty is considered significant.

The purpose of this research is to learn about the effects of digital leadership on e-learning loyalty through e-learning satisfaction. The novelty of this study was confirming the magnitude of digital leadership's impact on e-learning loyalty by increasing the variable e-Learning satisfaction use as a dependent variable.

## **2. Literature Review**

If you use technology to teach and learn, you're doing electronic education, also known as E-learning or online tutoring. With use electronic devices. Students and teachers can access e-learning at any time and from any location.

Online courses, seminars, and the like are common incarnations of e-learning. An intermediary website is used for e-learning, which means that students can access all

of the material, including quizzes and teaching aids, via the Internet. As an example, existing material can be formatted into a PDF file or a sound file, and some can be streamed via YouTube or Vimeo. Despite the pandemic's impact, educational institutions can benefit from this technological advancement.

As far as e-learning is concerned, there are both websites and apps, as well as existing applications that offer similar features. Figure 1 is the entrance to e-learning at a campus in Bekasi the University of Pelita Bangsa. All lecturers and students in the learning process during this pandemic through the e-learning website.

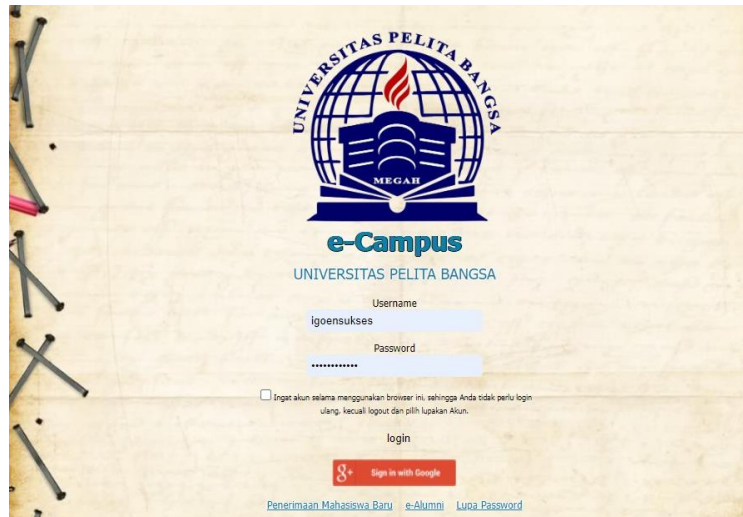


Fig. 1. Login in the e-learning in Universitas Pelita Bangsa.

In Fig. 2, technology makes everything feels easy. There are many menus in the picture there is a menu of materials, discussions, attendance, values, reports, attendance, and even exams. On the e-learning website, some links have been connected to conference applications such as Zoom, Google Meet, MS Teams, etc. Thus, lecturers can be facilitated by the integration of conference applications with e-learning.



Fig. 2. Lecture activities.

Open university is a pioneer of distance learning in Indonesian. Before the pandemic hit the open university, was a long way from implementing e-learning in every learning. Figure 3 is an open university e-Learning display in which there is a menu of presentations ranging from lecture sessions, OER, Attendance, Discussions and can also add video every session.

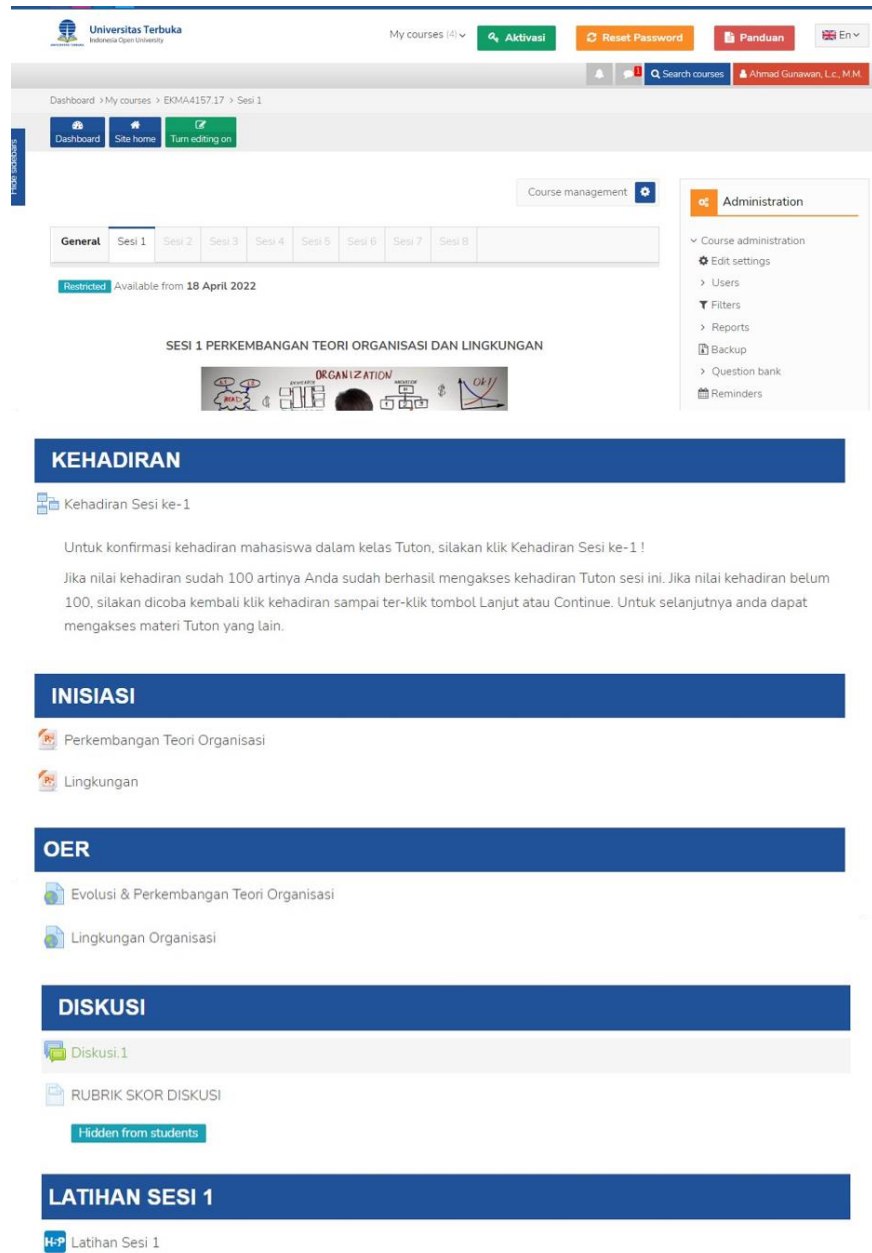


Fig. 3. Open university e-Learning.

Several important aspects are described in the following:

- (i) **Satisfaction:** Satisfaction is the feeling of pleasure or pleasure that a person experiences after assessing the product's perceived performance and results [10]. A satisfied customer is pleased with the outcome of a product if its performance and results are in line with expectations. There is a connection between satisfaction and meeting a need [1]. To put it another way, it's an evaluation of the comfort level provided by a particular service, or even of the goods or services themselves when they meet or exceed a customer's expectations in meeting their needs.
- (ii) **Digital Leadership:** Traditional leadership methods are no longer considered foolproof, and this leads institutions to question their organizational goals. Traditional leadership needs to be replaced with a new type of leadership. An organization's leader can use data of technology to achieve common goals is referred to as a "digital leader" [1]. Rather, leadership is defined as the leader's relationship with his or her crush, in which the leader turns the volume down and suggests that his or her followers take on the task at hand. To be a leader, then, is to exert influence over others to motivate them to work toward a common goal. A new leadership style known as "digital leadership" has emerged as a result of advances in data and communication technology, such as the growth of Internet in the world.
- (iii) **e-Learning Satisfaction:** One way to gauge the success of a process's development and implementation of information application systems is to look at customer satisfaction. Perceptions of service quality based on what customers say rather than what a service provider thinks are examples of customer perceptions [11, 12]. A person's satisfaction is defined as "the pleasure and disappointment they experience when comparing the perceived performance or outcome of a product to their expectations" [13]. If the product's supposed performance matches his potentials, the person is satisfied or satisfied with the product's results. Online satisfaction can be defined as an overall assessment of the value of services or products offered in the online market in an era of widespread ICT and e-commerce development [14].
- (iv) **e-Learning loyalty** [15]. "Long-term purchase, commitment, or pretentiousness" are the positive characteristics of "loyalty". Based on this understanding of brand loyalty, it is possible to explain the relationship between satisfaction and complaints. To ensure that e-learning continues to be used for the long term in the company, satisfaction comes from a reduction in complaints. Information and communication technology (ICT) advances are impacting every industry, and high-stakes gambling is no different [15]. It's one thing that doesn't rule out the possibility of online education. ICT has made e-learning a popular pastime in universities, and the technology continues to provide lecturers with a wide range of options teaching [16].
- (v) **Digital Leadership's Relationship to e-Learning Satisfaction.** To achieve organizational goals by utilizing technology, humans need digital leadership to direct carry out the work from the far. This is a conclusion drawn from the theoretical background above. as well as new models and

tools for information exchange and communication with their customers to improve performance [17].

- (vi) The traditional face-to-face interaction has been replaced by e-Learning media in order to use information technology with communes in a network base by digital leadership. organization/institutional purpose, so that the virtual leader or can be called as digital leadership can provide services that facilitate information challenges and features that aid in user work. yes. The digital leadership system used to achieve the organization's goals has increased performance, and e-Learning users will be pleased with the ease with which they can access information. Rmasi that uses digital technology Leaders who are able to delegate the study goals of professors can use information technology as a tool for networking. As a result, lecturers have a good feeling about using information technology. Digital leadership variables have been shown to have a weighty impact on E-learning satisfaction in previous research [6]. The simultaneous use of online media by students and lecturers [6, 8], had no effect on their satisfaction with the lecturer. Digital leadership has no effect on E-learning A number of other factors contributed to this feeling of satisfaction. .

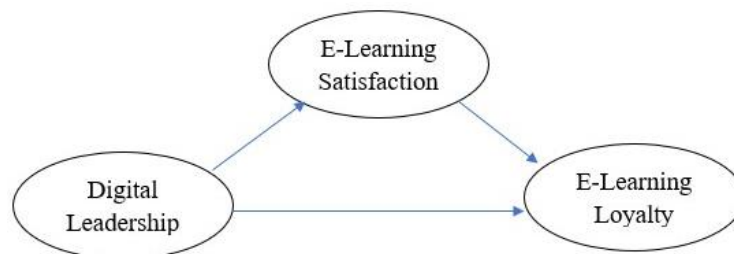
There are several assumptions:

- (i) **H1:** Digital Leadership affects E-Learning Satisfaction Digital Leadership Relationship to E-Learning Loyalty. Lecturers can easily achieve their goals thanks to digital leadership, which provides lecturers with digital technology. In order for professors to feel that the digital technology provided gives them more. "Digital leadership" refers to a strategy-based leadership that accomplishes organizational goals. The transformation of the company is driven by this leadership. Incorporating digital tools such as e-mail, website, and social media into daily tasks is important, but so is establishing data as a source of digital leadership. e-learning loyalty is strongly influenced by digital leadership variables [9]. Other studies have shown that the quality of online learning has an impact on student outcomes. The quality of instruction provided by professors has a direct bearing on the quality of student learning. Users' loyalty to an e-Learning program is strongly influenced by its quality and satisfaction levels, as evidenced here [11]. Professor loyalty was not found to be affected by student trust in lecturers, it is also listed on another study.
- (ii) **H2:** Digital leadership affects e-learning student loyalty e-learning student satisfaction relationship to e-learning student loyalty. A product or service's level of satisfaction can be measured by the number of people who are happy with it. As a result, customer satisfaction can be impacted by a variety of different transactions and experiences. Customers who feel valued by their service provider are more likely to be satisfied. A product, service, system, or something of value is what provides this value [12]. E-quality learning standards include instructor satisfaction. Students who are satisfied with their online learning users can indicate that they are having a positive experience with online education. The user will get a lot of enjoyment out of high quality training [5]. It is a long term commitment to rebuild or support one or more products or services that one likes, which are formed and accumulated when the user feels that using the service can bring value to him

or her. Teachers' e-learning loyalty is based on treating students like customers and universities like service providers. Teachers expect universities to provide the best possible educational resources. Teachers are more likely to stick around if they are given the best educational resources available. Research displays that general e-learning service excellence positively influences student e-learning satisfaction, which in turn has a positive effect on student e-learning loyalty. The study [18] also found a correlation between instructor happiness and instructor loyalty. Partial customer satisfaction, service, customer value, and partial customer satisfaction with loyalty were all found to be positively impacted by the study's findings. Instead, focus on research. Customers are not as loyal as they could be because they aren't satisfied with the service [13].

- (iii) **H3:** E-learning student satisfaction affects e-learning student loyalty Digital Leadership Relationship to e-learning loyalty through e-learning satisfaction. There is a chance that students will use e-learning more frequently if the lecturer is loyal to the technology. Satisfaction with an e-learning system is measured by how happy or disappointed a user is with it after comparing it to what they had expected in terms of performance or results. However, a person is satisfied if the results achieved at least meet his expectations, whereas a person is dissatisfied if the results achieved fail to meet his expectations. E-learning users' satisfaction and quality of service are also factors in this. As a result of customer loyalty, users will begin by evaluating how well the e-learning system meets their expectations in terms of service quality and overall satisfaction. The total value of e-learning services was positively associated with e-learning satisfaction, which in turn had a positive effect on lecturers' e-learning loyalty, in line with research. A positive relationship between customer satisfaction and loyalty can be inferred [19]. Because the more satisfied customers are, the more likely they are to become long-term customers.

Another important point is the frame of mind. The frame of mind in this study is described in Fig. 4.



**Fig. 4. Research model.**

### 3. Method

In this research, the population of interest is people who use e-learning. Purposive sampling is the strategy employed. This study's sampling criteria include the following: Lecturers of e-Learning students are required to complete questionnaires for a period exceeding one year. E-learning application users in Bekasi are required to complete the survey by providing the necessary information.

### **3.1. Data methods**

Primary and secondary data are both used. In this research, survey methods such as questionnaires were used to gather data. In Bekasi, survey methods are used to gather information on e-learning users. Computer-delivered surveys, or "computer-delivered surveys," use the internet to disseminate survey questionnaires. Links (links) created from the questionnaires that have been created will be distributed to discussion groups relevant to the research topics, social media, and others. This study uses a data collection method that is considered to be time and cost-effective.

### **3.2. Research variables**

Digital Leadership (X) is the exogenous variable in this study.

- E-learning loyalty is an endogenous variable (Y).
- E-learning satisfaction (Z) is an intervening variable.
- Definition of Operational Parameters and Variables

It is possible to find and measure variables in the field by formulating the operational definition of variables in such a way that it does not lead to multiple interpretations. The Likert scale, which has five levels of answer preference, should be used.

### **3.3. Research instruments**

The questionnaire was the primary research tool. The Likert scale is used for a variety of measurements. The following are the measurements that were made: First, respondents are asked to answer a series of questions about their gender, age, and the data they need for variables such as the applications of inter-culinary service providers they've visited. At their perceptions, respondents are asked to agree or disagree with statements made by researchers. The answer has five scale options: strongly agree (SS), agree (S), neutral (N), and disagree (TS) (STS). For a strongly agreed answer (SS), the score is 5, and for a strongly disapproved answer, the score drops to 3. (STS)

### **3.4. Data analysis Techniques**

Smart Partial Least Squares is the analysis method employed in this study (PLS). Inner model analysis and hypothesis testing are carried out in the PLS. Outer model analysis (with convergent validity indicators and indicators of discriminant validity, composite validity, and Cronbach's alpha).

Google form deployment aims to spread more quickly and widely in areas where it is difficult to do so. It began distributing questionnaires on March 1, 2022, and the collection period was ended on March 25, 2022. At universities in Bekasi, 166 questionnaires can be processed. The total number of questionnaires that can be handled following the research criteria is 166. The data revealed that Pelita Bangsa University had the greatest number of participants in the survey.

## **4. Result and Discussion**

An overview of research subjects is shown in Table 1.



**Table 1. Outer model results.**

Variable	Indicator	Loading factor			AVE	CA	CR
		DL	E-Satis	E-Loyal			
DL	X1.1	0.748	-0.009	0.016	0.654	0.826	0.868
	X1.2	0.782	0.221	-0.190			
	X1.3	0.817	-0.025	-0.037			
	X1.4	0.783	0.008	0.000			
	X1.5	0.096	-0.122	0.317			
	X1.6	0.507	-0.123	0.241			
	X1.7	0.608	-0.114	-0.294			
	X1.8	0.763	-0.180	0.082			
	X1.9	0.720	0.027	-0.065			
	X1.10	0.326	0.328	0.540			
Z1	Z1.1	-0.060	0.893	-0.042	0.875	0.845	0.907
	Z1.2	-0.059	0.920	-0.033			
Y	Y1	0.139	-0.111	0.893	0.893	0.747	0.888
	Y2	-0.139	0.111	0.892			

#### 4.1. Convergent validity

All of the variables listed in Table 1, are valid. The Digital Leadership (X1) variable has a loading factor of 0.326 to 0.817. It's safe to say that all of these numbers are above 0.5. As well as for AVE values greater than 0.5, which is 0.654. Since all of the digital leadership variables have high validity, it can be concluded that they can be used in future research.

All of the above variables are valid listed on Table 1, which shows the convergent validity test for the e-learning student satisfaction variable. For the e-learning student satisfaction variable, loading factor values can be found in the range of 0.808 to 0.920. Each indicator's loading factor value exceeds the 0.5 measurement criterion. Additionally, for AVE values greater than 0.5, which is 0.875. Because of this, it can be decided that all of the variables of e-learning satisfaction have a high level of validity and can be used for other e-learning student satisfaction research.

Table 1's e-learning loyalty can be seen to have all of the above variables in place. The dependent variable e-learning loyalty has a loading factor of 0.893. There is a greater than 0.5 loading factor for each of the indicators. In addition, the AVE value is 0.893 for variables with a value greater than or equal to 0.5. A high degree of validity has been established for items of interest in the dependent variable e-learning loyalty (Y), which can be used in future research.

#### 4.2. Discriminant validity

Table 1 shows the test results. The results have been met because each variable indicator has a loading factor value greater than the loading factor value in other variable indicator measurements. Therefore, it can be concluded that all of the variables in the model are valid in this research.

#### 4.3. Reliability test

The e-learning loyalty variable has the highest composite reliability value, with a Cronbach alpha of 0.747 to 0.845 and a composite reliability value of 0.868 to

0.907. There are composite reliability values of more than 0.6 for each variable, and the value is greater than the Cronbach alpha value, which indicates that the internal consistency of an indicator in latent variables is trustworthy.

**4.4. Fit model test**

In Table 2, Model indicators APC 0.451, ARS 0.419, and P0.001 indicate that the data in the two-point table is statistically significant. A fit model is used to test the research data to ensure that multicollinearity does not occur, even though vif of 1,762 qualifies for a vif of less than 5.

**Table 2. Fit model test results.**

Model	Fit Indices	P Values
APC	0.451	P>0.001
ARS	0.419	P>0.001
AVIF	1.762	Good If < 5

**4.5. Relationships between test variables**

In Table 3. P values under 0.001 and 0.05 indicate that the model developed has an impact, as shown in Table 3 of the relationships between the various variables. The satisfaction level with e-learning is strongly influenced by digital leadership.

Digital leadership also demonstrates that e-learning loyalty is influenced by results. As with e-learning satisfaction, e-learning loyalty is strongly influenced by it.

**Table 3. Test results of relationships between variables.**

		P-Values
DL (X)	→ E-Statis (Z)	<0.001
DL (X)	→ E- Loyal (Y)	<0.001
E-Statis (Z)	→ E- Loyal (Y)	<0.001

**4.6. Inner model analysis**

It can be determined from the results of this research in Table 4, that digital leadership affects e-learning loyalty with a p-value less than 0.010, which means that the digital leadership exogenous variable has a significant effect on e-learning loyalty, followed by that of the digital leadership exogenous variable. It can be explained that the endogenous variable e-learning satisfaction has a significant effect on the digital leadership variable with a coefficient value of 0.669 and a P-values value of less than 0.010 and that the endogenous variable e-learning satisfaction has a coefficient value of 0.408 and a P-values value of less than 0.010 against the endogen e-learning loyalty variable. Affording to the coefficient of 0.214 and the p-values value of 0.010, this correlation shows that digital leadership influences e-learning loyalty through e-learning satisfaction.

**Table 4. Path coefficient and P values.**

Correlation	Path Coefficient	P Values	Description
X →Y	0.277	0.001	Significant Effect
X →Y	0.669	0.001	Significant Effect
X →Y	0.408	0.001	Significant Effect
X →Y	0.214	0.001	Significant Effect

#### 4.7. Coefficient of Determination

In the data in Table 5, the inner model has an R-squared value of 0.447, or 44 percent, indicating that digital leadership has a significant effect on student satisfaction with e-learning. In this study, the coefficient of determination on mediation variables, namely e-learning satisfaction and R-squared size, can be used to infer that up to 39% of the influence of independent variables, such as digital leadership, on dependent variables, such as e-learning loyalty can be deduced from R-squared size, namely e-learning loyalty.

Table 5 shows the Q-squared value of e-learning satisfaction at 0.448 and the dependent variable at 0.393 for the mediation variable. This means that if the predictive validity is greater than zero, then the research data disseminated is of high quality and has predictive relationships. e-learning loyalty was the independent variable in a study using the Cronbach alpha test. These results are declared to be collinearity free because they are less than the composite reliability value for digital leadership (0.826), mediation (0.907) for electronic learning satisfaction (e-learning satisfaction), and performance (e-learning loyalty) for electronic learning loyalty (e-learning loyalty).

**Table 5. Coefficient of determination.**

	Digital Leadership	E-Loyalty	e-Satisfaction
<b>R Squared</b>		0.447	0.392
<b>Cronbach Alpha</b>	0.826	0.907	0.888
<b>Full Collin, VIF</b>	1.918	2.077	1.606
<b>Q-Squared</b>		0.448	0.393

#### 4.8. Hypothesis test

Hypothesis 1: E-learning satisfaction at universities in the Bekasi Regency is influenced by digital leadership variables. E-learning satisfaction at Bekasi's universities are influenced by digital leadership variables, as showed by the path coefficient value of 0.669 and the p-values value of less than 0.05.

It is hypothesized that the University of Bekasi's digital leadership variables has a significant effect on e-learning loyalty. As can be seen from the path coefficient value of 0.277 and p-values of less than 0.05, digital leadership variables have a positive influence on e-learning loyalty at universities in Bekasi .

Hypothesis 3: At the University of Bekasi, e-learning loyalty is strongly influenced by student satisfaction with their e-learning experience. A path coefficient of 0.408 and a p-value of less than 0.05 indicate that e-learning satisfaction has a positive influence on e-learning loyalty at Bekasi universities.

#### 4.9. Discussion

E-Learning loyalty is influenced by digital leadership. This means that the campus's e-learning program for top professors has a significant impact on the proficiency of those professors who use e-learning. This proves the theory that lecturers are less reluctant and more committed to using e-learning in the classroom when the university provides them with better digital tools for e-learning, including resources, teachers, and staff.

This shows that the campus's ability to recognize, offer comfort, and develop outstanding e-learning facilities will be influenced by the quality of the campus's digital tools. Satisfaction with Online Learning as Influenced by Digital Leadership. Students' satisfaction with their e-learning experiences is strongly influenced by factors related to digital leadership. In other words, the campus's digital leadership has done an excellent job of providing online and e-learning resources. E-learning facility tools provided by universities should be of high quality so that lecturers can be satisfied and follow the learning without any obstacles that could diminish their value as university teachers.

This demonstrates that the advantages of the Universities strategic digital information facilities and digitals, which aim to identify, provide comfort, and develop outstanding e-learning services, can be determined by digital leadership. Loyalty to e-learning is influenced by satisfaction with it. E-learning loyalty is strongly influenced by a student's level of satisfaction with his or her online education. As a result, lecturers who are fulfilled with the e-learning system and services will become e-learning loyalists and e-learning supporters. These findings support the idea that when instructors are happy and comfortable with using e-learning, the learning process can run smoothly and efficiently, resulting in instructors having no objections or developing loyalty to learning via e-learning in the long run. Students are more likely to stick around for the long haul if they have a positive experience with their e-learning professors.

## 5. Conclusion

The first hypothesis is that digital leadership affects e-learning satisfaction, and this is supported by the test and discussion that have been outlined. The second hypothesis is that e-learning loyalty is affected by e-digital leadership. Student satisfaction with online learning has an impact on that student's loyalty to online learning, conferring to hypothesis number three.

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