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Student E-learning Satisfaction Madrasah in the Digitalization of Education in the Era of Independent Learning in Demak, Central Java

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ABSTRACT

This research aims to determine satisfaction and the implications for the desire to continue using e-learning among madrasah students in the digitalization of education in the era of independent learning. The population of this study was students at MTsS Bahrul General in Demak who used madrasah e-learning. Sampling was carried out by simple random sampling and obtained a sample of 117 students. The data collection method used was using a questionnaire. The data analysis method uses SEM-PLS. The research results show that student attitudes, e-learning quality, and e-learning flexibility have a positive and significant effect on e-learning satisfaction. E-learning satisfaction has a positive and significant effect on the desire to continue using e-learning.

Keywords:
Satisfaction, E-learning, Digitalization of Education, Independent learning, Islamic Boarding School.

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INTRODUCTION

The digital era is an era where all humans can communicate with each other very closely even though they are very far away. We can find out some information quickly, even in real time. The digital era can also be called globalization. Globalization is a process of international integration that occurs due to the exchange of world views, products, thoughts and cultural aspects caused by advances in telecommunications, internet and transportation infrastructure (Krisma Natalia, 2021).

The concept of independent learning in digital era education can be explained that all educational processes require a commitment to increasing investment in developing digital skills in the world of education, implementing the latest technological prototypes to facilitate the learning process and exploring many new forms of collaboration for educational models in the field of improving digital skills so that quality education can be improved (Krisma Natalia, 2021).

One of the agendas of the independent learning program is the great interest in the digitalization of education. The development of digitalization of education is carried out through independent teaching platforms and learning houses. Merdeka Mengajar is a platform that aims to help teachers teach, learn and develop their skills and encourage them to continue

working. Meanwhile, the learning house is a place where students can access independent learning materials and media to improve their abilities. These two applications are steps by the Ministry of Education and Culture to answer the challenges and needs of education in the digital era (Krisma Natalia, 2021).

Currently the application of e-learning is proven to betrend in the world of education and is needed to support the implementation of learning in various educational institutions. E-learning makes it possible to carry out learning activities anytime and anywhere (Purwandani, 2018). E-learning is learning that supports and enables the use of digital tools and content. E-learning generally includes several types of interactions, including e-learning interactions between students and teachers or groups. The use of the term e-learning is more synonymous with learning via the internet or network (Zakiah & Mariah, 2020).

In this research, the e-learning used is madrasah e-learning. Madrasah e-learning uses software Learning Management System (LMS). Madrasah e-learning does not attempt to replace the teacher's position, but seeks to make learning more effective. Madrasah e-learning has met the standards set to make the learning process easier for students and teachers. Students can access the necessary materials through madrasah e-learning. Apart from that, the schedule set by the teacher for using madrasah e-learning makes the learning process easier.

In terms ofinterface, madrasah e-learning is relatively easy to understand for new users, so it is likely to occurhuman error very small. From a security perspective, it is quite safe, because the user has to enterusername and password when logging in. In terms of the operational feasibility of e-learning, madrasahs have met the standards that have been set, namely that their use has met the needs of students and teachers. For example, students can easily access madrasah e-learning anywhere and anytime. Teachers can use madrasah e-learning as a medium for providing independent assignments that can make students play an active role in the teaching and learning process. Through madrasah e-learning, madrasah heads are able to monitor the learning process between teachers and students. The madrasah e-learning program is support for the digitalization of education in the era of independent learning.

Previous research shows that teacher attitudes, e-learning quality, and e-learning flexibility have a positive and significant effect on e-learning satisfaction. E-learning satisfaction has a positive and significant effect on the desire to continue using e-learning at the madrasah tsanawiyah level (Merrydian et al., 2022). This research complements previous research, where previous research was based on the perspective of madrasah teachers and this research was based on the perspective of madrasah students. MTsS Bahrul Ulum is a private madrasah at the tsanawiyah level located in Demak district. The various achievements achieved both academically and non-academicly from provincial to national levels are proof that MTsS Bahrul Ulum has quality education. Madrasah tsanawiyah students are transitioning into adolescence after passing through their childhood years in madrasah ibtidaiyah. In e-learning, students are encouraged to learn independently, so it is necessary to research the satisfaction of e-learning learning at MTsS Bahrul Ulum.

Herbert Spencer was the person who first introduced the attitude, which has the meaning of a person's mental status. Some psychologists report attitudes as a form of judgment or reaction to feelings that can be partial or unbiased about certain objects. Another group of experts believes that attitude is a cognitive and affective factor that interacts with each other when controlling and feeling objects (Samudra, 2020). Attitude is a reaction or response generated by an individual towards an object, which gives rise to a tendency for the individual to behave towards that object in a certain way. Attitude is defined as an evaluative reaction. The response will only occur when the individual is faced with a stimulus that requires an individual response. Evaluative responses show that the form of reaction

expressed as an attitude arises from an evaluation process within the individual which concludes that the stimulus is in the form of good or bad, positive or negative, pleasant or unpleasant values, which then crystallizes as a potential reaction to the attitude object (Azwar, 2021).

Attitudes do not stand alone, therefore attitudes consist of 3 components: (1) cognitive, namely components related to aspects of knowledge, views and beliefs, namely various things related to perceptions of the object of attitude; (2) affective, namely components related to feelings of pleasure or displeasure towards the attitude object, as well as components related to the direction of the attitude, both positive and negative; (3) conactive or behavioral, namely components related to the tendency to act towards an attitude object, especially how much a person tends to act or behave towards an attitude object. These attitude components work in harmony and consistently, when faced with an object, these three components will produce a uniform attitude (Azwar, 2021).

E-learning is defined as the learning of subjects taught in a distance mode using information technology. To attract more students, the teaching process must be of high quality. Thus, the quality of distance learning courses depends on many factors, which must be evaluated by experts. The demand for e-learning in education is increasing, competition is increasing, and governments are investing significant resources to improve the quality of e-learning programs. Therefore, effective quality measures for e-learning are necessary (Weis, 2021).

The quality of e-learning is a leitmotif in educational policy, a requirement for providers and user expectations. Quality is a concept characterized not by a precise definition, but by a positive connotation. Quality in e-learning brings together the fields of education, technology, and economics in a comprehensive concept to contribute to community development, to innovate formal, non-formal, and informal learning opportunities, and empower students as citizens to participate (Weis, 2021). Factors that influence the quality of e-learning: (1) the quality of internet access supports the implementation of e-learning, (2) the quality of teachers supports the implementation of e-learning, (3) the quality of learning materials supports the implementation of e-learning (Suryani & Sugianingrat, 2021).

Flexibility has been shown in many studies to have an effect on user satisfaction when using e-learning systems. Without space and time limitations in e-learning, students can communicate with fellow students and teachers directly with the availability of resources at their fingertips (Cheok & Wong, 2015).

The flexibility of implementing e-learning contributes to user satisfaction. Flexibility is defined as the effectiveness of the learning process and the ease of use of the e-learning system (Arbaugh & Duray, 2002). Students can interact and communicate with teachers and friends according to the agreed schedule, process and method (Suryani & Sugianingrat, 2021).

So flexibility is the freedom of time, place and materials for users to use e-learning. Teachers and students can join from their respective places by connecting to the internet network. This flexibility provides benefits for students and teachers who have access to remote locations. This flexibility is an advantage over e-learning (Suryani & Sugianingrat, 2021).

According to Tse and Wilton, satisfaction is a consumer's response to a perceived evaluation of the difference between initial expectations and the actual performance of the product as perceived after product consumption. According to Cadotte Woodruff and Junkins, satisfaction is a feeling that arises after evaluating the experience of using a product. According to Oliver, satisfaction is an assessment of the features of the product/service itself, providing a level of fulfillment related to enjoyable consumption, including levelunder-fulfillment andover-fulfillment (Tjiptono & Chandra, 2019).

So satisfaction is a feeling of pleasure or displeasure that arises with a product that has been used or purchased. Satisfaction shows the perception of the difference between initial

expectations and actual product performance. If expectations correspond to real performance then it can be said to be satisfied, if expectations do not match real performance then it can be said to be dissatisfied.

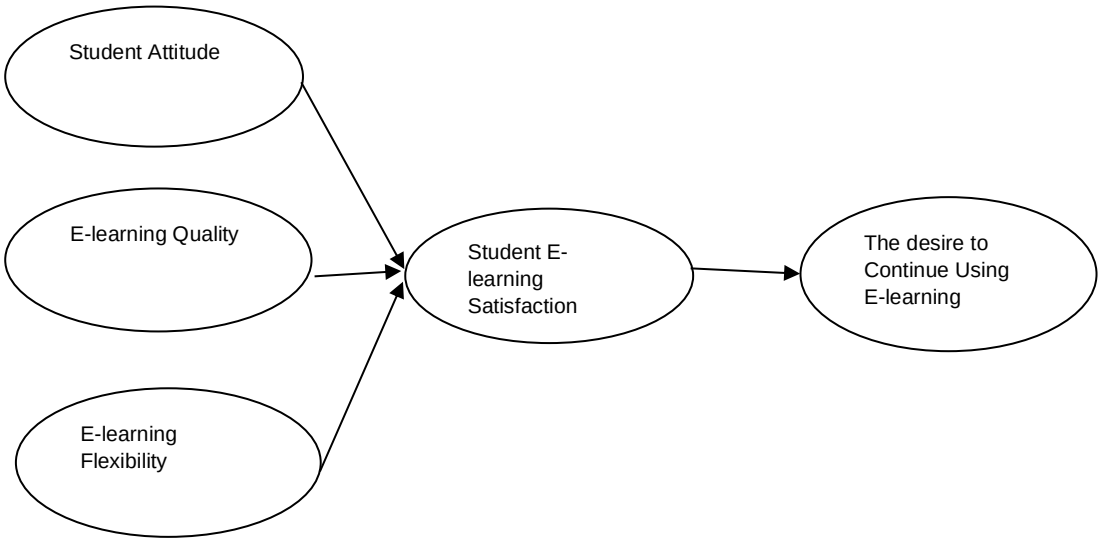
As the world of research develops, the measurement of satisfaction has developed, both in terms of variables and in terms of the dimensions being measured. This development adapts to the context of satisfaction measurement. In this research, the satisfaction measurement variable was adopted from research by Suryani & Sugianingrat (2021). E-learning satisfaction is influenced by 3 variables, namely student attitudes, e-learning quality, and e-learning flexibility.

The success of an e-learning system can continuously influence user behavior. When students are satisfied with doing the e-learning program, students continue to use the e-learning system (Suryani & Sugianingrat, 2021). So when users feel satisfied with the services they experience, users tend to have the desire to continue using e-learning.

The importance of this research is to see the influence of student attitudes, e-learning quality, and e-learning flexibility on satisfaction and the implications for the desire to continue using madrasah e-learning. By measuring the influence of these variables when using e-learning, it can be used as an evaluation and consideration in e-learning learning. This research focuses on measuring instruments that can show satisfaction with students' use of e-learning. This research is also expected to help researchers, teachers, and other interested parties who will come when they want to measure e-learning satisfaction.

According to the previous description, something new in this research concerns influence student attitudes, quality of e-learning, and flexibility of e-learning on satisfaction and implications for the desire to continue using madrasah e-learning. Previous research was based on the teacher's perspective, and the latest research is based on the student's perspective. This student perspective research is the latest in this research. The research population was students of MTsS Bahrul Ulum in Demak Regency. The purpose of this research is to determine the influence of student attitudes, e-learning quality, and e-learning flexibility on e-learning satisfaction learning. Student attitudes, e-learning quality, and e-learning flexibility are independent variables measured by several indicators. E-learning satisfaction and desire to continue using e-learning are dependent variables measured by several indicators. Based on the theoretical description, a research model was built as in Figure 1.

Figure 1. Research Model



METHOD

Non-experimental research, this research analysis is based on surveys in September 2023. This questionnaire uses a 1–5 likert scale to assess the influence of attitude, quality and flexibility on satisfaction and its implications for the desire to continue using madrasah e-learning. The population is students of MTsS Bahrul Ulum in Demak Regency. The sampling strategy for this research is simple random sampling, where information is collected through a survey using a google form. The data analysis method uses the PLS-SEM analysis method with Smart-PLS.

The number of research participants was 117 madrasah students determined using the Slovin formula at an error rate of 5%, formulated as follows:

$n = N / (1 + N.e^2)$

$n = 166 / (1 + (166 . 0.0025))$

$n = 117$

The variables studied were student attitudes, e-learning quality, e-learning flexibility, e-learning satisfaction, and desire to continue using e-learning. The measurements of all these variables are in accordance with the description in Table 1.

Table 1. Measurement of Research Variables

Variable			Question Indicator	Source
X1	Student attitude	X11	I feel confident using madrasah e-learning	Azwar (2021)
		X12	I feel happy using madrasah e-learning	
		X13	I am willing to use madrasah e-learning	
X2	Quality of e-learning	X21	The quality of internet access supports the implementation of e-learning	Suryani & Sugianingrat (2021)
		X22	Teacher quality supports the implementation of e-learning	
		X23	The quality of learning materials supports the implementation of e-learning	
X3	E-learning flexibility	X31	Madrasah e-learning provides flexibility in my time to study	Suryani & Sugianingrat (2021)
		X32	Madrasah e-learning provides flexibility in the place for me to study	
		X33	Madrasah e-learning provides material flexibility for me to study	
Y1	E-learning satisfaction	Y11	The existing madrasah e-learning can meet my learning needs	Puriwat & Tripopsakul (2021)
		Y12	I am very satisfied with the features in madrasah e-learning	
		Y13	I am satisfied with the material in madrasah e-learning	
Y2	Desire to continue using e-learning	Y21	I will continue to use madrasah e-learning in every lesson	Puriwat & Tripopsakul (2021)
		Y22	I was able to develop knowledge of learning materials through madrasah e-learning	
		Y23	I am ready to help friends in e-learning	

RESULTS AND DISCUSSION

1. Validity Test

Validity test to find out that the indicator validly measures the variable. Mark loading factor greater than 0.70 then all indicators are declared valid for measuring the variable. In other words, the latent variable is said to be quite good in terms of representing the indicator. The following is the output of the validity test results:

Table 2. Validity Test

Indicator	Loading Factor	Information
X11	0.791	Valid
X12	0.910	Valid
X13	0.835	Valid
X21	0.839	Valid
X22	0.933	Valid
X23	0.874	Valid
X31	0.939	Valid
X32	0.933	Valid
X33	0.907	Valid
Y11	0.895	Valid
Y12	0.897	Valid
Y13	0.730	Valid
Y21	0.902	Valid
Y22	0.914	Valid
Y33	0.874	Valid

2. Reliability Test

Reliability test to measure the consistency of the questionnaire as a measuring tool so that a measurement can be trusted. Mark cronbach's alpha greater than 0.70, then all variables are reliable or consistent in measuring. The following is the output of the reliability test results:

Table 3. Reliability Test

Variable	Cronbach's Alpha	Information
X1	0.801	Reliable
X2	0.858	Reliable
X3	0.917	Reliable
Y1	0.795	Reliable
Y2	0.878	Reliable

3. Evaluation of Measurement Models

In testingouter model convergent validity tests, discriminant validity tests and reliability tests will be carried out.

Evaluation of the measurement model can be seen in tables 4 and 5.

Table 4. Convergent Validity and Reliability

Variable	Indicator	Loading Factor	AVE	Composite Reliability	Cronbach's Alpha
X1	X11	0.791	0.717	0.883	0.801
	X12	0.910			
	X13	0.835			
X2	X21	0.839	0.78	0.914	0.858
	X22	0.933			
	X23	0.874			
X3	X31	0.939	0.858	0.948	0.917
	X32	0.933			
	X33	0.907			
Y1	Y11	0.895	0.713	0.881	0.795
	Y12	0.897			
	Y13	0.730			
Y2	Y21	0.902	0.804	0.925	0.878
	Y22	0.914			
	Y33	0.874			

Table 5. Discriminant Validity

Variable	Indicator	X1	X2	X3	Y1	Y2
X1	X11	0.791	0.551	0.686	0.659	0.531
	X12	0.910	0.674	0.704	0.788	0.608
	X13	0.835	0.590	0.682	0.699	0.575
X2	X21	0.630	0.839	0.650	0.638	0.525
	X22	0.626	0.933	0.566	0.660	0.527
	X23	0.643	0.874	0.560	0.686	0.544
X3	X31	0.773	0.634	0.939	0.723	0.589
	X32	0.746	0.609	0.933	0.738	0.548
	X33	0.744	0.616	0.907	0.786	0.654
Y1	Y11	0.795	0.704	0.819	0.895	0.623
	Y12	0.775	0.686	0.766	0.897	0.638
	Y13	0.552	0.488	0.421	0.730	0.621
Y2	Y21	0.542	0.581	0.517	0.671	0.902
	Y22	0.660	0.519	0.647	0.691	0.914
	Y33	0.615	0.523	0.574	0.624	0.874

The convergent validity test is used to determine the correlation between each indicator and its latent variable, which can be seen in the value loading factor and Average Variance Extracted (AVE). The condition is if the value loading factor greater than 0.70 and Average Variance Extracted (AVE) is greater than 0.50 then it is said to be valid. Based on the results from table 4 mark loading factor greater than 0.70 and Average Variance Extracted (AVE) is greater than 0.50, then all indicators are declared valid for measuring the variable.

The discriminant validity test is used to determine whether there is a correlation between each indicator and other latent variables. The way to find out is by looking at the value cross loading on each indicator, if valuecross loading an indicator with its own latent variable greater than the value cross loading with other latent variables, the indicator can measure the latent variable well. Mark cross loading greater than 0.70 for each indicator,

then the indicator can measure the latent variable well. Based on the results from table 5 mark cross loading an indicator with its own latent variable greater than the value cross loading with other latent variables with value cross loading greater than 0.70, then all indicators are declared valid for measuring the variable.

The reliability test is used to describe the consistency, accuracy and precision of indicators in measuring latent variables. The reliability of the indicator can be seen in the value composite reliability and cronbach's alpha, if value composite reliability and cronbach's alpha greater than 0.70, it can be said that the indicator is consistent in measuring the latent variable. Based on the results from table 4 values composite reliability and cronbach's alpha greater than 0.70, then all variables are reliable or consistent in measuring.

4. Structural Model Evaluation

Mark R-square is the coefficient of determination on the endogenous construct. R-Square is a value that shows how much the exogenous/independent variable influences the endogenous/dependent variable. Mark R-Square categorized as strong if it is more than 0.67, moderate if the value is between 0.33 – 0.67, and weak if it is lower than 0.33.

Based on the results from table 6, the values can be seen R-Square e-learning satisfaction variable is 0.788 or 78.8%. This can show that the e-learning satisfaction model is a strong model. Mark R-Square the variable desire to continue using e-learning was 0.546 or 54.6%. This can show that the model of desire to continue using e-learning is a moderate model.

Table 6. R-Square

Y Variable	R-Square
Y1	0.788
Y2	0.546

The test statistic used is $t_{statistics}$ by using a significance level of 5%, so that the value of t_{table} is 1.96. rejected if $t_{statistics} > t_{table}$ or if p.value < a = 5%. The following hypothesis testing results were obtained:

Table 7. Hypothesis Testing

Hypothesis	Coefficient	T-statistics	P-value	Results
X1 -> Y1	0.434	5.108	0.000	Ho was rejected
X2 -> Y1	0.240	3.337	0.000	Ho was rejected
X3 -> Y1	0.296	3.493	0.000	Ho was rejected
Y1 -> Y2	0.739	13.584	0.000	Ho was rejected

a) Hypothesis 1: Student attitudes have a positive and significant effect on e-learning satisfaction.
   The results of the t-statistic calculation are 5.108 > 1.96, and the p-value 0000 < 0.05, so Ho is rejected. So student attitudes have a positive and significant effect on e-learning satisfaction.
b) Hypothesis 2: The quality of e-learning has a positive and significant effect on e-learning satisfaction.
   The results of the t-statistic calculation are 3.337 > 1.96, and the p-value 0000 < 0.05, so Ho is rejected. So the quality of e-learning has a positive and significant effect on e-learning satisfaction.

c) Hypothesis 3: E-learning flexibility has a positive and significant effect on e-learning satisfaction.
   The results of the t-statistic calculation are 3.493 > 1.96, and the p-value 0000 < 0.05, so Ho is rejected. So e-learning flexibility has a positive and significant effect on e-learning satisfaction.
d) Hypothesis 4: E-learning satisfaction has a positive and significant effect on the desire to continue using e-learning.
   The results of the t-statistic calculation are 13.584 > 1.96, and the p-value 0000 < 0.05, so Ho is rejected. So e-learning satisfaction has a positive and significant effect on the desire to continue using e-learning.

Hypothesis 1 shows that Ho is rejected, meaning that student attitudes have a positive and significant effect on e-learning satisfaction. Hypothesis 2 shows that Ho is rejected, meaning that the quality of e-learning has a positive and significant effect on e-learning satisfaction. Hypothesis 3 shows that Ho is rejected, meaning that e-learning flexibility has a positive and significant effect on e-learning satisfaction. Hypothesis 4 shows that Ho is rejected, meaning that satisfaction with e-learning has a positive and significant effect on the desire to continue using e-learning. The results above show that student attitudes, e-learning quality, and e-learning flexibility are variables that influence e-learning satisfaction. E-learning satisfaction is a variable that influences the desire to continue using e-learning.

CONCLUSION

Hypothesis 1: It is known that the influence of student attitudes on e-learning satisfaction has a path coefficient of 0.434 (positive), so an increase in the value of the student attitude variable will be followed by an increase in the value of e-learning satisfaction. The influence of student attitude variables on e-learning satisfaction has a p-value of 0.000 < 0.05 so Ho is rejected and Ha is accepted, which means the influence of student attitudes on e-learning satisfaction is significant. Thus, student attitudes have a positive and significant effect on madrasah e-learning satisfaction at MTsS Bahrul Ulum. This means that if student attitudes increase, e-learning satisfaction will also increase, and if student attitudes decrease, e-learning satisfaction will also decrease. The results of this research are in line with research conducted by Suryani & Sugianingrat (2021), Nguyen (2020), Merrydian et al (2022) and Cheok & Wong (2015) stating that attitude has a positive and significant effect on e-learning satisfaction. So it can be stated that student attitudes are one of the factors that influence madrasah e-learning satisfaction. In relation to the digitalization of education in the era of independent learning, student attitude variables in e-learning contribute to independent learning. Students feel confident, happy, and willing to use madrasah e-learning which is an implementation of the digitalization of education in the era of independent learning.

The second hypothesis, the influence of e-learning quality on e-learning satisfaction has a path coefficient of 0.240 (positive), so an increase in the value of the e-learning quality variable will be followed by an increase in the value of e-learning satisfaction. The influence of e-learning quality variables on e-learning satisfaction has a p-value of 0.000 < 0.05 so Ho is rejected and Ha is accepted, which means the influence of e-learning quality on e-learning satisfaction is significant. Thus, the quality of e-learning has a positive and significant effect on madrasah e-learning satisfaction at MTsS Bahrul Ulum. This means that if the quality of e-learning increases, satisfaction with e-learning will also increase, and if the quality of e-learning decreases, satisfaction with e-learning will also decrease. The results of this research are in line with research conducted by Suryani & Sugianingrat (2021) and Merrydian et al (2022) which states that the quality of e-learning has a positive and significant effect on e-learning satisfaction. So it can be stated that the quality of e-learning is one of the factors that influences

madrasah e-learning satisfaction. In relation to the digitalization of education in the era of independent learning, the quality variable of e-learning contributes to independent learning. The quality of internet access, the quality of teachers, and the quality of madrasah e-learning materials are implementations of the digitalization of education in the era of independent learning.

The third hypothesis, the effect of e-learning flexibility on e-learning satisfaction has a path coefficient of 0.296 (positive), so an increase in the value of the e-learning flexibility variable will be followed by an increase in the value of e-learning satisfaction. The influence of the e-learning flexibility variable on e-learning satisfaction has a p-value of 0.000 < 0.05 so Ho is rejected and Ha is accepted, which means the influence of e-learning flexibility on e-learning satisfaction is significant. Thus, e-learning flexibility has a positive and significant effect on madrasah e-learning satisfaction at MTsS Bahrul Ulum. This means that if e-learning flexibility increases, e-learning satisfaction will also increase, and if e-learning flexibility decreases, e-learning satisfaction will also decrease. The results of this research are in line with research conducted by Prasetya & Harjanto (2020), Nguyen (2020), Cheok et al (2017), Merrydian et al (2022) and Cheok & Wong (2015) state that e-learning flexibility has a positive and significant effect on e-learning satisfaction. So it can be stated that e-learning flexibility is one of the factors that influences madrasah e-learning satisfaction. In relation to the digitalization of education in the era of independent learning, the variable flexibility of e-learning contributes to independent learning. The flexibility of time, place and madrasah e-learning materials is an implementation of the digitalization of education in the era of independent learning.

The fourth hypothesis, the influence of e-learning satisfaction on the desire to continue using e-learning has a path coefficient of 0.739 (positive), so an increase in the value of the e-learning satisfaction variable will be followed by an increase in the value of the desire to continue using e-learning. The influence of the e-learning satisfaction variable on the desire to continue using e-learning has a p-value of 0.000 < 0.05 so Ho is rejected and Ha is accepted, which means the influence of e-learning satisfaction on the desire to continue using e-learning is significant. Thus, e-learning satisfaction has a positive and significant effect on the desire to continue using madrasah e-learning at MTsS Bahrul Ulum. This means that if e-learning satisfaction increases, the desire to continue using e-learning will also increase, and if e-learning satisfaction decreases, the desire to continue using e-learning will also decrease. The results of this research are in line with research conducted by Suryani & Sugianingrat (2021), Puriwat & Tripopsakul (2021), Seta et al (2020), Martinez-Arguelles & Batalla-Busquet (2016), Merrydian et al (2022) and Salam & Farooq (2020) state that e-learning satisfaction has a positive and significant effect on the desire to continue using e-learning. So it can be stated that e-learning satisfaction is one of the factors that influences the desire to continue using madrasah e-learning. In relation to the digitalization of education in the era of independent learning, the e-learning satisfaction variable contributes to independent learning. Feeling satisfied with the e-learning features, feeling satisfied with the e-learning materials, and madrasah e-learning meeting the learning needs of madrasah students is an implementation of the digitalization of education in the era of independent learning.

The limitations of this research include: this research is limited to 5 (five) research variables, of course the research will be richer if we develop indicators and variables.

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