



Analysis of the Digital-Based Information System Learning Process on Student Readiness in the Digital Era

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ARTICLE INFO

Article history:

Received Jan 14, 2025

Revised Jan 30, 2025

Accepted Feb 11, 2025

Keywords:

Digital-based information systems;
Student Readiness in the Digital Era.

ABSTRACT

North Sumatra has several universities in various regions spread across 33 regencies/cities, where the number of students studying at several universities in North Sumatra according to the higher education database (PDDIKTI) is 130,182 students. As many as 25 percent of the number of students at several universities in North Sumatra who understand the use of information systems at the universities where they study, affect students' readiness to understand information system learning, which reduces students' understanding and knowledge, as well as their competence in knowing the contents of the material, understanding learning objectives, and understanding information system applications for decision making. This study aims to determine and analyze the extent to which the digital-based information system learning process influences students' readiness to understand learning using information systems in the digital era. The research method uses a quantitative descriptive method with a sampling technique using the accidental sampling method, and data collection techniques are carried out using observation, distributing questionnaires and documentation studies. The results of the study describe that the process of learning digital-based information systems has an effect on students' readiness in understanding learning information systems in the digital era, where students must be able to improve their knowledge, understanding and skills sufficiently by reading books and other literature, as well as increasing their applied knowledge about information systems in the digital era in order to be able and ready to improve their understanding of learning information systems.

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1. INTRODUCTION

In the past, students were faced with the rise of digital applications, the first of which was the internet, followed by the emergence of smartphones that could access information technology needed by users in order to increase knowledge and understanding of information that was important for students and also for the general public (Hussain, 2021).

Along with the emergence of digital applications, there are several types of applications that are needed to improve understanding and knowledge about information systems, the benefits of information systems, as well as understanding of learning and learning processes in higher education that must be studied by students in class which in principle are in accordance with the curriculum developed by several faculties related to technology and business (Barra, Cristian, 2024).

The digital applications that have emerged at this time make it seem as if the education taught in universities no longer uses manual equipment that has been used by lecturers in order to improve the learning process which is easy and able to increase students' enthusiasm to understand and improve their knowledge and understanding of the learning material for information systems courses in universities (Wang, Guifang, 2024).

There are several learning processes carried out in universities that are taught by lecturers to students, where information systems courses in universities often aim to provide students with a theoretical and practical understanding of how information systems support organizational operations and decision making, but only provide self-taught material without a clear understanding of the basics of learning information systems that exist in various sources (Galindo-Domínguez, Héctor, 2024).

The existing process must be able to create a clear system for students through designing semester learning plans that are in accordance with the learning methods and models that will be applied at this time, and must create a syllabus in the form of learning that is in accordance with the implementation of outcome based education that no longer refers to theoretical understanding, and must refer to the use of existing practical materials that are related to understanding the use of information systems for decision making (Shen, Hongxia, 2024).

In learning information systems in higher education, teachers (lecturers) are required to always use digital equipment or technology in order to create innovative learning methods and be able to prioritize providing solutions to existing problems, where this learning model and method is very effective in stimulating and improving understanding, as well as the skills of students in higher education to be able to solve problems in society related to decision making (Li, Jing, 2024).

The lecturers must have the ability and expertise that stimulates students' interest in understanding information system learning. The abilities and expertise possessed by lecturers must be able to be used as role models so that students are enthusiastic and consider that the lecturers who deliver information system courses deliver the material well and give students the freedom to understand the material continuously between one semester and another (Dasruth, Judy, Naicker, Suraiya Rathankoomar and Smith, 2024).

The use of technology in every learning greatly influences the strong desire of students to continue to follow the lecturer's direction in understanding the ins and outs of learning by using technology that is currently popular, namely digital technology, where every university must implement an information system in the learning process, either through electronic teacher and student absences, through student information system data using digital applications with Siakad, as well as data related to student academic guidance, both lecturer guidance and student thesis guidance (Klasén, Lena, Fock & and Forchheimer, 2024).

The implementation of information systems carried out by universities and lecturers will tend to be able to increase students' interests and talents in the process of gaining an understanding of knowledge, where with digital technology in the learning process, it is hoped that students can improve their readiness if the implementation is carried out comprehensively in all faculties and institutions in universities that implement information systems majors or study programs, as well as other study programs that are intended to increase students' ease in accessing all course information, especially those closely related to information systems (Hassan, Mahmudul, 2024).

This student readiness is important so that later students can operate digital technology so that later they are able to make decisions whether the material provided by the lecturer can be understood well or not, where student readiness can make it easier for lecturers and universities to continue to improve the quality of learning and practice that will be obtained in courses in the information systems study program (Tariq, Manal, Maryam, Sayeda Zeenat and Shaheen, 2024).

North Sumatra has several universities in various regions spread across 33 regencies/cities, where the number of students studying at several universities in North Sumatra according to the

higher education database (PDDIKTI) is 130,182 students. Along with the emergence of digital applications in Indonesia, especially in North Sumatra Province, as many as 25 percent of the number of students in several universities in North Sumatra who understand the use of information systems at the universities where they study, so that there is still minimal student readiness in understanding learning through the use of information systems used in the current digital era, so that it will reduce understanding, and reduce the quality of the learning process, especially those related to information systems study programs that make students lack understanding and knowledge, as well as their competence in knowing the contents of the material, understanding learning objectives, and understanding information system applications for decision making

The aim of this study is to determine and analyze the extent to which the digital-based information system learning process influences students' readiness to understand learning using information systems in the digital era.

2. RESEARCH METHOD

This research method uses a quantitative descriptive method, where according to (Desmaryani, Susi, 2024) quantitative descriptive analysis is a research method that attempts to describe data on the influence of variable X on Y. The population in this study was 130,182 students at several universities in North Sumatra who understand learning using information systems in their university environment, where the sampling method was carried out using the accidental sampling method, where according to (Tian, 2024) the sampling method using the accidental sampling method is a sampling method that is a certain part of the existing population. For data collection techniques, observation studies, questionnaire distribution and documentation studies are used, as well as data analysis using simple linear regression tests.

Determining the sample can be done using the Slovin formula, where the sample formula is as follows:

$$n = N / (1 + Ne^2) = 130.182 / (1 + 130.182 \times 0.1^2) = 99.92 = 99$$
 students at several universities in North Sumatra who understand learning using information systems in their university environment.

3. RESULTS AND DISCUSSIONS

3.1 Validity and Reliability Test

Data Validity Test

Digital Based Information System Learning Process Variables

The results of the validity test of the digital-based information system learning process variables are:

Table 1 Validity Test of Digital-Based Information System Learning Process Variables

Question	Corrected Total Item Correlations	R table	Information
X. Quest 1	0,369	0,197	Valid
X. Quest 2	0,653	0,197	Valid
X. Quest 3	0,432	0,197	Valid
X. Quest 4	0,657	0,197	Valid
X. Quest 5	0,688	0,197	Valid
X. Quest 6	0,664	0,197	Valid
X. Quest 7	0,623	0,197	Valid
X. Quest 8	0,308	0,197	Valid

Source: 2024 Data Processing Results

Based on the data processing results, from the existing data analysis, all data answers in the digital-based information system learning process variables are valid and suitable for use.

Student Readiness Variables in Understanding Information Systems Learning in the Digital Era

The results of the validity test are as follows:

Table 2 Validity Test of Student Readiness in Understanding Information Systems Learning in the Digital Era

Question	Corrected Total Item Correlations	R table	Information
Y. Quest 1	0,475	0,197	Valid
Y. Quest 2	0,525	0,197	Valid
Y. Quest 3	0,545	0,197	Valid
Y. Quest 4	0,521	0,197	Valid
Y. Quest 5	0,688	0,197	Valid
Y. Quest 6	0,455	0,197	Valid
Y. Quest 7	0,600	0,197	Valid
Y. Quest 8	0,609	0,197	Valid

Source: Data Processed in 2024

The distribution of data according to the results of data processing in the table above for the variable of student readiness in understanding information system learning in the digital era is valid and suitable to be continued to a simple linear regression test.

Data Reliability Test

The results of the data reliability test for each variable can be seen in the following table:

Table 3 Results of Data Reliability Test

Variable	Cronbach Alpha	Item Question	Information
Peoses Pembelajaran Sistem Informasi Berbasis Digital (X)	0,785	8	Reliabel
Kesiapan Mahasiswa Dalam memahami Pembelajaran Sistem Informasi Di Era Digital (Y)	0,704	8	Reliabel

Source: 2024 Data Processing

The results of data processing show that the data distribution of variables X and Y is reliable and valid, and can be used for simple linear regression tests.

Data Normality Test

The results of the data normality test can be seen in the following p-plot diagram:

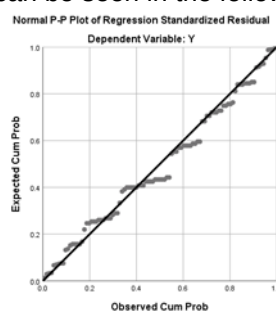


Figure 1 P-Plot Normality Test Diagram

Source: Processed Data 2024

The diagram above explains that the distribution of data from the existing variables is still parallel and is between the horizontal lines. This indicates that the distribution of data has met the assumption of data normality.

Multicollinearity Test

For the multicollinearity test, see the following table:

Table 4 Test of Multicollinearity

Coefficients ^a					
Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics

		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	27.016	2.650		10.195	.000		
	X	.354	.492	.059	7.580	.003	.720	1.310

a. Dependent Variable: Y

Source: 2024 Data Processing Results

According to the results of the existing data processing, the tolerance value shows that it is greater than 0.1 and the VIF value is less than 10, which indicates that the data from the independent variables does not experience a strong influence, so that there is no multicollinearity between the independent variables.

Heteroscedasticity Test

The heteroscedasticity test results data can be seen in the following figure:

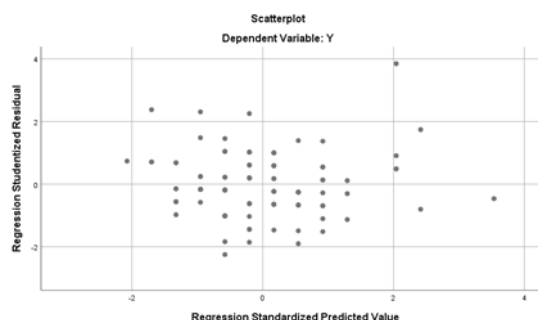


Figure 2 Scatterplot Diagram

Source: Processed Result Data 2024

According to the image above, it can be seen that the data distribution from the regression model is spread evenly on the vertical and horizontal lines, so that the existing regression models do not influence each other, which means that the regression model does not experience heteroscedasticity.

Simple Linear Regression Test

The results of the simple linear regression test can be seen in the following table:

Table 5 Simple Linear Regression Test

		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	27.016	2.650		10.195	.000		
	X	.354	.492	.059	7.580	.003	.720	1.310

a. Dependent Variable: Y

Source: Processed Data Results for 2024

According to the existing table, the simple linear regression equation as follows:

- The constant value of 27.016 indicates that if all the variables of the digital-based information system learning process are 0, it will increase students' readiness in understanding information system learning in the digital era by 27.016 or 27.02%.

- There is a regression coefficient value of 0.354, where if the digital-based information system learning process increases by one unit, it will increase student readiness in understanding information system learning in the digital era by 0.354 or 3.54%.

t-test

The results of the t-test can be seen in the following table:

Table 6 Test of t
Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	27.016	2.650		10.195	.000		
	X	.354	.492	.059	7.580	.003	.720	1.310

a. Dependent Variable: Y

Source: Processed Data 2024

According to the table above, it can be seen that the variable of the digital-based information system learning process has an effect on students' readiness in understanding information system learning in the digital era. This can be seen from the calculated t value of 7.580 which is greater than the t table value of 1.660, with a significant value of 0.003 which is smaller than 0.05.

Coefficient of Determination Test

The results of the determination coefficient test can be seen in the following table:

Table 7 Test of Coefficient Determinant

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change	Durbin-Watson
						F Change	df1	df2		
1	.759 ^a	.703	.807	2.44640	.703	6.336	1	97	.002	1.926

a. Predictors: (Constant), X

b. Dependent Variable: Y

Source: Processed Data 2024

From the results of the existing data processing, it can be concluded that students' readiness in understanding information system learning in the digital era can be explained very strongly by 80.7% by the variable of the digital-based information system learning process, the remaining 19.3% are variables that are not explained in this study.

Discussion

Based on the research results, it can be concluded that the digital-based information system learning process has an effect on students' readiness in understanding information system learning in the digital era. This is in line with research (Ni'mah, Yatim Lailun, Pertiwi, Anggun Cahyaning and Suprpto, 2024) which states that the information systems learning process can run smoothly if students are technically and mentally prepared to understand how to learn and apply information systems in real life.

4. CONCLUSION

The results of the study explain that the process of learning digital-based information systems has an effect on students' readiness in understanding learning information systems in the digital era, where students must be able to improve their knowledge, understanding and skills sufficiently by reading books and other literature, as well as increasing their applied knowledge about information systems in the digital era in order to be able and ready to improve their understanding of learning information systems.

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