

The Relationship of Offline Learning with Discrete Mathematics Learning Interests After the Pandemic

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Article Info	Abstract
Received March 27, 2022	This article aims to determine the relationship between offline learning and interest in learning discrete mathematics after the pandemic. The research method used is quantitative. The sampling technique in this study used purposive sampling. Data collection in this study used a questionnaire with a Likert scale of 1 to 5. The variables in this study consisted of variable X, namely offline learning and variable Y, namely interest in learning. Each variable consists of 4 indicators. The result of this research is that there is a relationship between offline learning and students' interest in learning in discrete mathematics courses of 0.801. So it can be said that the relationship between offline learning and learning interest is very strong. This is because in offline learning students can interact directly with the lecturer so that discrete mathematics material that has not been understood can be directly asked during learning. Offline learning can also encourage interest in learning so that students are more enthusiastic and enthusiastic about participating in discrete mathematics lectures.
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INTRODUCTION

During the COVID-19 pandemic, students and students are encouraged to study online because it reduces interactions between teachers and students in order to minimize disease transmission. However, online learning has several weaknesses, according to Sadikin and Hamidah (2020) the weakness of online learning is the absence of direct supervision during the learning process and a weak internet network. Since the end of 2021 until the beginning of 2022, the transmission of the corona is getting weaker and the sickness is also decreasing, so schools and campuses are advised to implement offline learning even though it is not yet 100%. So learning is done by combining offline learning and online learning.

Offline learning is learning outside the network, Ambarita, Jarwati, and Restanti (2021) states that offline learning is learning that is done offline or learning that is not connected to the internet, one of which learning can be done face-to-face. Malyana (2020) said that offline learning is a face-to-face learning system or a learning system that can be done directly. Suhendro (2020) states that offline learning can be done using the home visit method. From several opinions,

it can be concluded that offline learning is a direct interaction between teachers and students or between lecturers and students.

According to Nengrum et al. (2021) offline learning has several advantages, namely in the learning process, students are more effective and enthusiastic in participating in lessons and teachers can explain the material directly and thoroughly, namely being able to explain on the blackboard using markers. Ketaren, Kanca, and Lesmana (2021) said that offline learning can be studied directly where the results can be directly evaluated by the teacher. Based on the opinions about offline learning that have been put forward by Nengrum et al. (2021) and Ketaren et al. (2021), the offline learning indicators used in this study are 1) student responses, 2) discrete understanding mathematics courses with offline learning, 3) Materials can be delivered completely and directly by educators to students, 4) use of facilities and infrastructure such as blackboards, projectors, classrooms and adequate markers in providing material.

According to Lestari (2014), interest in learning is an internal drive that grows from within students to improve study habits, one of the factors that can foster interest in learning is when students want to get the best grades. According to Yunitasari and Hanifah (2020) there are several ways to foster student learning, namely by providing positive motivation so that students are enthusiastic about learning and by paying attention to students when learning takes place. From several existing opinions, it can be concluded that interest in learning is one of the important factors in the form of students' willingness or desire to get good learning outcomes.

Research conducted by Wahyuniar et al. (2021) has 4 indicators of interest in learning, namely feelings of pleasure in learning, concentration of attention and learning thoughts, willingness to learn, willingness from within to actively learn. Friantini and Winata (2019) states that there are 5 indicators of student interest in learning, namely 1) feelings of pleasure towards learning, 2) concentration of mind and attention in the learning process, 3) willingness to learn, 4) willingness from within to learn actively, 5) efforts made to realize the desire to learn.

Research conducted by Wahyuniar et al. (2021) found that online learning has an influence on students' interest in learning in discrete mathematics courses. Research that has been conducted by Putra, Juniawan, and Atzmi (2021) shows that students' interest in learning is higher when learning is done offline than online.

During the pandemic, learning is recommended to be done online. Familiarizing learning online during the pandemic turns out to be correlated with student interest in learning, one of which is that students tend to be more passive and encounter many obstacles during online lectures. But gradually, students feel comfortable with online learning because they are used to this situation. After the pandemic period, re-learning is carried out offline, where lecturers can interact directly with students and students can also directly ask questions that are not yet understood. If offline learning is re-applied, it is not yet known whether students still have an interest in learning, considering that online learning has been going on for approximately 4 semesters. Therefore, the purpose of this study was to find out how strong the relationship between offline learning and interest in learning discrete mathematics in discrete mathematics courses was after the pandemic.

RESEARCH METHODS

This research is a type of quantitative research. This research was conducted by applying offline learning to the Discrete Mathematics course in Informatics Engineering Study Program class 1B, 1C, 1D, 1E and 1F.

The subjects of this study were students of level 1 of the Mathematics Study Program, namely grades 1B, 1C, 1D, 1E and 1F and the population used was 232 students. The sampling technique used in this research is purposive sampling. According to Sugiyono (2011), purposive sampling is a sampling technique by determining certain criteria. In this study, 3 criteria were used, namely 1) Male, 2) The final score of the discrete mathematics course was ≥ 80 , 3) Students who did not work. The three criteria were taken because 1) in the Informatics Engineering study program the majority of students are male, 2) according to Lestari (2014), one of the factors that can foster interest in learning are students who have high or best scores and 3) the third criterion that taken are students who do not work, this is because students who have not worked only focus on lectures, if students are already working the priorities are different and interest in learning is very low. From the predetermined criteria, 51 students were obtained as samples in this study.

Table 1. Questionnaire indicators

Variable	Indicator	Statement Items
Offline Learning (X)	a. Student response	2
	b. Understanding discrete mathematics courses with offline learning methods	2
	c. The provision of material can be delivered completely and directly by educators to student	2
	d. Facilities and infrastructure	2
Interest in Learning (Y)	a. There is a feeling of pleasure towards discrete mathematics courses	2
	b. There is a concentration of attention and thought on discrete mathematics	2
	c. Willingness to learn discrete mathematics	2
	d. There is a willingness from within to actively participate in discrete mathematics lectures	2

Data collection techniques in this study were observation and questionnaires. Observations are made to find out how much students want to study in discrete mathematics courses. Questionnaires are used to collect data taken from respondents/students. The questionnaire contains statements about offline learning and students' interest in learning. The questionnaire used a Likert scale of 1 to 5, then the questionnaire was distributed to the students who were sampled.

The instrument test in this study used a validity test and a reliability test to see that the instrument was valid and reliable. The data analysis technique in this study used a correlation test. The data analysis tool in this study used SPSS version 22.

Variables in this study include variable X and variable Y. Variable X is offline learning with 4 indicators. Variable Y in this study is interested in learning with 4

indicators and each indicator of each variable consists of 2 statement items. The indicators for each variable are presented in Table 1.

RESULTS AND DISCUSSION

Data were collected from questionnaires that had been filled out by 51 students who were set as samples. Then the data is processed using SPSS 22 to test the validity, reliability and correlation test.

Validity Test

The validity test was obtained from the results of a questionnaire regarding offline learning and student interest in learning which was then processed using SPSS version 22.

Table 2. Validity of offline learning (X)

Statement Number	Correlation Value	Correlation Probability	Information
1	0,770	0,000	Valid
2	0,733	0,000	Valid
3	0,703	0,000	Valid
4	0,652	0,000	Valid
5	0,784	0,000	Valid
6	0,587	0,000	Valid
7	0,719	0,000	Valid
8	0,517	0,000	Valid

(Source: SPSS 22 output results)

Then the data results are presented in the form of Tables 2 and 3 below. Potu (2013) states if the correlation probability (significant level) is less than 0.05 (5%), then the statement/questionnaire is said to be valid, otherwise if the correlation probability (significant level) is more than 0.05 then the statement/questionnaire is said to be invalid.

Table 3. Validity of learning interest (Y)

Statement Number	Correlation Value	Correlation Probability	Information
1	0,758	0,000	Valid
2	0,709	0,000	Valid
3	0,832	0,000	Valid
4	0,861	0,000	Valid
5	0,658	0,000	Valid
6	0,540	0,000	Valid
7	0,442	0,000	Valid
8	0,880	0,000	Valid

(Source: SPSS 22 output results)

Table 2 shows the results of the validity of the variable X (Offline Learning) with 8 statement/questionnaire items. The results of the validity test obtained from

Table 2 show that statements number 1 to statement 8 are declared valid because the correlation probability (significant level) is less than 0.05.

Table 3 shows the results of the test of the validity of the Y variable (Learning Interest) with 8 statement/questionnaire items. The results of the validity test obtained from Table 3 show that statements number 1 to statement 8 are declared valid because the correlation probability (significant level) is less than 0.05. Because all statement items in the questionnaire were declared valid, the next step was a reliability test to find out whether the questionnaire was reliable.

Reliability Test

Sugiyono (2013) states that the reliability test is the extent to which the measurement results using the same object will produce the same data. An instrument is said to be reliable if the Cronbach's Alpha value obtained is more than 0.70. As stated by Riyadi and Mulyapradana (2017), an instrument is said to be reliable if it gives Cronbach's Alpha value is more than 0.7. The results of the reliability test are presented in Table 4.

Table 4. Reliability test

Variable	Number of items	Cronbach's Alpha	Information
Offline Learning (X)	8	0,831	Reliabel
Interest Learning (Y)	8	0,865	Reliabel

(Source: SPSS 22 output results)

Table 4 shows that the results of the reliability test for variable X (offline learning) and variable Y (student interest in learning) obtained Cronbach's Alpha is more than 0.7, so it can be said that both variables are reliable and deserve to be tested for correlation.

Correlation Test

To find out the relationship between offline learning methods and students' interest in learning in discrete mathematics courses, correlation analysis was used. Astuti (2017) states that correlation analysis is used to measure the closeness of the relationship between two variables regardless of the affected variable or the influencing variable and how much influence one variable has on other variables. Two variables can be said to have a relationship/correlation if there is a change in one of the variables and the other variables will follow regularly in the same direction (positive correlation) or opposite (negative correlation).

Table 5. Interpretation of correlation coefficient

Coefficient Interval	Relationship Level
0.00	No Connection
0.00 – 0.25	Very Weak Correlation
0.25 – 0.50	Enough Correlation
0.50 – 0.75	Strong Correlation
0.75 – 0.99	Very Strong
1	Perfect Correlation

(Source: (Sarwono, 2009))

To determine the size of the correlation found in this study, it is necessary to have the same interpretation guidelines. Table 5 shows the interpretation of the correlation coefficient.

The following will be presented in Table 6. regarding the results of the correlation test between the X variable (offline learning) and the Y variable (interest in learning).

Table 6. The results of the correlation test of offline learning and learning interest

X Variable	Y Variable	Coefficient Interval	
Offline Learning	Interest Learning	Correlation	0.801
		<i>Significance</i>	0.000

(Source: SPSS 22 output results)

The results from Table 6 show that the correlation/relationship between variable X (offline learning) and variable Y (student interest in learning) is 0.801 with a significance value of 0.000, which means that the relationship between the two variables X and Y is very strong. These results refer to Table 5 regarding the interpretation of the correlation coefficient, where if the interval coefficient/correlation value is between 0.75-0.99, it can be said that the relationship between variables is very strong. So it can be said that offline learning has a strong relationship with students' interest in learning, especially in discrete mathematics courses.

This study is in line with research conducted by Putra et al. (2021) which obtained the results that students' interest in learning was very high when learning was carried out offline. The similarity with this study is that they both use the offline/offline learning model as the independent variable and use learning interest as the dependent variable, besides that students' interest in learning is very high if learning is carried out offline/offline. The difference is that the research conducted by Putra et al. (2021) on the independent variables used in addition to the offline/offline learning model also uses online learning, then the test used in the study Putra et al. (2021) is a different test, while in this research this is using correlation test.

Research conducted by Laili et al. (2021) concludes that the correlation coefficient is 0.45, so it can be said that the relationship between offline learning and interest in learning is in the moderate category. The similarity with this study is that they both use the offline learning model as the independent variable and use learning interest as the dependent variable, besides that the offline learning model also has a relationship with students' interest in learning. The difference is that the research conducted by Laili et al. (2021) on the independent variables used in addition to the offline learning model also uses online learning, besides that the correlation value/relationship between offline learning and learning interest is 0.45 while in this study the correlation value is 0.801. Then the tests used in the study Laili et al. (2021) were correlation and regression tests, while in this study only correlation tests were used.

Research conducted by Mardiaty et al. (2021) concluded that students' interest in learning with the offline learning model was higher than students' interest in learning during online learning. The similarity with this study is that they both use the offline learning model as the independent variable and use learning interest as

the dependent variable, besides that the offline learning model produces high learning interest. The difference is that the research conducted by Mardiaty et al. (2021) on the independent variables used in addition to the offline learning model also uses online learning, so the test used in the study Mardiaty et al. (2021) is a different test, while in this study using correlation test.

Based on the correlation results obtained, the relationship between offline learning and student interest in learning is very strong. It can be seen that during offline learning, students can interact directly with the lecturer so that discrete mathematics material that has not been understood can be directly asked during learning. In addition, lecturers can also freely convey material, because the material can be explained directly on the blackboard or through PowerPoint, so that students can more easily understand discrete mathematics material. Offline learning can also encourage students' interest in learning to be more enthusiastic, enthusiastic and active in participating in discrete mathematics lectures.

CONCLUSION

Based on research that has been conducted to determine how strong the relationship between offline learning and interest in learning discrete mathematics after the pandemic, it can be concluded that the relationship between offline learning and student interest in learning in discrete mathematics courses is very strong with the correlation value obtained is 0.801.

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