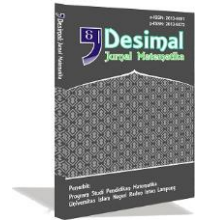




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The effect of memorizing the Quran on students' mathematical logical intelligence

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ABSTRACT

The purpose of this research is to determine the magnitude of the impact of memorizing the Quran on the logical-mathematical intelligence of students at the Private MTs Al-Jamaiyah Medan in the 2021/2022 academic year. This research is research that uses a quantitative approach and a kind of ex-post research. In this research, there are two variables, the independent variable is the memorization of the Quran and the dependent variable is mathematical logical intelligence. The population in this research amounted to 105 students. The sampling technique used simple random sampling. The data analysis method used was simple linear regression analysis. Guided by the results of data analysis, it was found that there is an effect of memorizing the Quran on mathematical logical intelligence. The value of determination shows that 74.1% of memorizing the Quran affects students' logical-mathematical intelligence and the remaining 25.9% is influenced by other factors.

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INTRODUCTION

Intelligence is defined as a person's ability to read a problem and be able to solve the problem (Raharjo et al., 2010). There are nine kinds of intelligence in humans. This concept is contained in the theory of multiple intelligences pioneered by Howard Gardner. One of the nine intelligences in question is mathematical logic intelligence. Mathematical logic intelligence is the human ability to process numbers and think logically (Hartanti, 2019; Syarifah, 2019).

Mathematical logic intelligence is a person's ability to analyze something that is logical, systematic, and in the form of numbers or patterns and is able to see a problem from a simple point of view so that it can solve a problem easily (Indria, 2020). Structured things and also analyzing activities are usually owned by students who have good mathematical logic intelligence. In addition, enjoying things related to numbers, and understanding the pattern of linkages also characterize students who have the ability to think logically. The next indicator is that

students have good abilities in problem-solving aspects, are able to think in general, and are able to think logically (Asmal, 2020; Sukitman, 2013).

Mathematical logic intelligence is very important to be developed for the smooth learning process. This is because mathematical logic intelligence can affect students' learning achievement in mathematics and certainly has an impact on student achievement in school. This statement is in line with research by Rohmah & Maknunah (2019) which found that logical-mathematical intelligence has an effect of 25.8% on student achievement.

The Quran is defined as the word of God which was revealed to the Prophet Muhammad through the intermediary of the Angel Gabriel, in Arabic, gradually (Yasir & Jamaruddin, 2016). Manna 'Qattan (as cited in Yasir & Jamaruddin, 2016) combines two names, namely Al-Quran which means to be read orally, and Al-Kitab which means to be written with a pen. The combination of these two names implies that the revelation was collected and preserved in written form and preserved in the human heart in the form of memorization from the death of the Prophet Muhammad until now. Memorizing the Quran is an activity that has many benefits, especially for students. Adiwijayanti et al. (2019) said that memorizing the Quran can improve brain performance. That means memorizing the Quran can also develop mathematical logical intelligence.

Another fact states that memorizing the Quran can calm the soul, control emotions, and support learning achievement (Masduki, 2018) where the emotional or mental state of students affects the level of students' logical-mathematical intelligence. As revealed by Suminar & Ashshidiqi (2020) that environmental factors, as well as psychological or emotional conditions, play an important role in the process of

developing students' logical-mathematical intelligence. If these two things are not good, they will interfere with the development of students' logical-mathematical intelligence and vice versa, if both things are good, the logical-mathematical intelligence of students will develop well.

Unfortunately, the students do not realize the benefits of memorizing the Quran which causes students to be reluctant to memorize it. The researchers said that this was based on a conversation between the researchers and one of the Tahfidz teachers, he said that there are still MTs students who did not memorize the Quran at all, and there are even those who are not fluent in reading Hijaiyah letters. In addition, many parents do not encourage their children to memorize the Quran because they do not know the urgency of memorizing the Quran.

Many researches have raised the theme of the correlation between memorizing the Quran and students' achievement and learning outcomes in mathematics. From some of these studies, it was found that memorizing the Quran can affect learning achievement, learning outcomes, and emotional intelligence (Khotimah, 2020; Neni, 2015; Romi et al., 2018). Some of the researches above have similarities in one variable, namely memorizing the Koran. Likewise, this research also discusses memorizing the Quran, but with a different combination, namely students' logical-mathematical intelligence.

Researchers using this theme because there has not been a single research that discusses the effect of memorizing the Quran and students' mathematical logical intelligence. This discussion needs to be investigated considering the importance of logical-mathematical intelligence, especially for students to solve problems encountered at school or in the community. The report from this research can be used as a reading

resource for parents who want to develop their students' logical-mathematical intelligence and can also be used by teachers to motivate their students in the process of memorizing the Quran. This research was conducted with the purpose of determining the magnitude of the impact memorizing the Quran has on students' mathematical logical intelligence.

METHOD

The researcher uses the type of ex-post-facto research which is included in the quantitative approach as a method in this research. Ex-post-facto research was chosen because it fits perfectly with the purposes and objectives of this research, namely finding out causal correlations between variables based on the fact that the researcher did not give any treatment to the research subjects. The Quran memorization is the independent variable in this research and the dependent variable is mathematical logical intelligence. The research design can be seen in Figure 1.

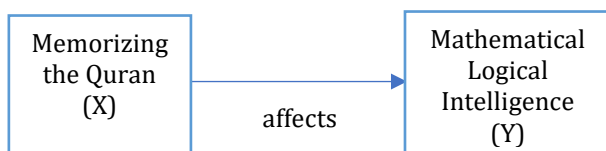


Figure 1. Research Design

This research was conducted from December 2021 to January 2022 at Madrasah Tsanawiyah Swasta Al-Jamaiyah. The school is located on Jl. Denai

Ujung No. 272 Medan City. All students of Al-Jamaiyah Private MTs were used as the population in this research. If calculated as a whole there are 105 students divided into four classes. All students are included in the Tahfidz Quran program which is routinely carried out every morning before starting other lessons. Based on this fact, the researcher chose to use a simple random sampling technique as a way of determining the sample. 30 students from class VIII were selected as samples.

Researchers use documentation as a data collection technique related to the number of students, a list of student names, and data on the number of students' memorization, where this amount of memorization is contained in the Tahfidz report card and to prove the number of students' memorization, the researcher took several students to test their memorization. For scoring the memorization of students, the researchers limited the memorization of the surahs to only the top 15 surahs in Juz 30, starting with Surah An-Naba '. The first 3 surahs get 2 points for each surah and the other 12 surahs are given 1 point for each surah. So, the total points if students have memorized 15 surahs are 20 points.

The instrument used in this research was to obtain data on students' logical-mathematical intelligence, namely a test of 5 essay questions. The essay questions were given to students and then students were asked to work on the questions within 45 minutes.

Table 1. Mathematical Logical Intelligence Indicator

Variable	Indicator	Sub Indicator
Mathematical Logical Intelligence	Analyze linkage patterns	Determine the most logical and consistent order of numbers. Finding a solution to a number pattern.
	Generalization	Draw general conclusions for a number pattern
	Problem solving ability	Solving problems in the form of case studies.
	Logic ability	Determining the true value of a mathematical proposition

The formulation of mathematical logical intelligence test items is based on the indicators in Table 1. The scoring of student answers is limited to a range of 0-4 per question. Before being used as a measuring tool for mathematical logical intelligence, the essay questions were validated first by testing the questions on several students who were not included in the sample in this research. Then the test data were analyzed using the Cronbach Alpha test to determine the reliability of the instrument and the Pearson Moment Product test to determine the validity of each item. In addition, the instrument was also tested for the level of difficulty and the power of difference. The data analysis that the researcher uses is simple linear regression analysis. In order to proceed to the regression analysis stage, researchers need to test for normality, autocorrelation, heteroscedasticity, and t-test to determine the influence between variables.

RESULTS AND DISCUSSION

Simple linear regression data analysis is carried out with several conditions namely, the data must be normally distributed, the data must go through a linearity test process, and must be free from heteroscedasticity problems. From the research data that was processed using SPSS 26, it was found that the research data was normally distributed which could be seen through its significance value of 0.2. The data is said to be normally distributed because the significance value is more than 0.05, where the condition for normally distributed data is the Sig value. 0.05. The next condition is that the data must not

have problems with its heteroscedasticity. And from the results of the heteroscedasticity test can be observed in the scatterplot graph in Figure 2.

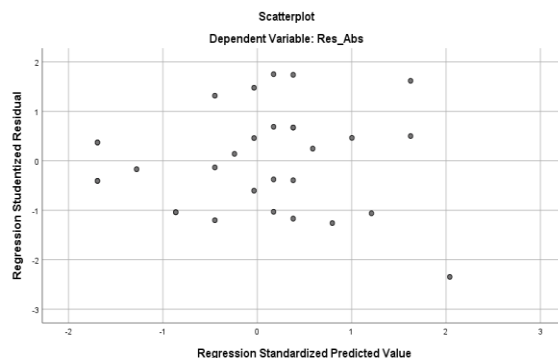


Figure 2. Scatterplot Graph

Based on Figure 2, it can be seen that the points are randomly distributed above and below the number 0 on the Y line. It means that the data is free from heteroscedasticity problems. In addition, there is one method that can be used to analyze the symptoms of heteroscedasticity, namely the Glejser test. In this way, a significant value will be obtained in the coefficient table of 0.062. With a significant value of more than 0.05, it means that the data in this research has no problem with heteroscedasticity. The next stage is the linearity test stage. If the data to be used is not linear, the analysis cannot be continued. The results of the linearity test showed that $F_{calculate} = 1.79 > F_{table} = 2.43$ with a significance level of 5%. With the three tests mentioned above, the data can enter the next stage, namely the hypothesis testing stage using simple regression analysis. The results of the regression analysis are shown in Table 2.

Table 2. Simple Linear Regression Test Results

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Standard Error	Beta	t	Significant
1	(Constant)	19.635	4.776		4.112	.000
	Memorizing the Quran	.671	.075	.861	8.955	.000

The results of the simple linear regression test show that the constant value is 19.635 while the coefficient value is 0.671. So, the linear regression equation can be written as follows:

$$Y' = 19.635 + 0.671 X$$

The equation shows that if students do not have memorization, then the logical-mathematical intelligence of students is worth 19.643 while if memorization increases or the value increases by 1 point, the value of students' mathematical logical intelligence will increase by 0.671. And from the equation, it can be seen that the coefficient x is positive, which means that changes in students' Quran memorization are directly proportional to changes in students' logical-mathematical intelligence. Next is a discussion of hypotheses. In this research, two initial hypotheses were proposed, namely:

H_0 : There is no effect of memorizing the Quran on students' mathematical logical intelligence.

H_1 : There is an effect of memorizing the Quran on students' mathematical logical intelligence.

The criteria for determining whether the hypothesis is accepted or rejected is that if the significant number is > 0.05 , then H_0 is rejected and if the significant number is < 0.05 , then H_1 is accepted. From table 2 it can be seen that the significant value is $0.000 < 0.05$, then H_0 is rejected and H_1 is accepted. Then to find out whether or not there is an influence between the independent variables on the dependent variable is to look at the value of $t_{calculate}$ which if it is greater than the value of t_{table} then there is an effect. From table 2, it is known that $t_{calculate} = 4.112 > t_{table} = 2.048$. Based on the significant value and t value, it can be concluded that there is an effect of memorizing the Quran on students' mathematical logical intelligence.

Table 3. Coefficient of Determination Results

Model	R	R Square
1	.861	.741

To find out how much influence of memorizing the Quran has on students' mathematical logical intelligence is to look at the value of the coefficient of determination. The value of determination is the value of R Square in table 3. which is 0.741 or it can be written that the effect of memorizing the Quran is 74.1% on students' mathematical logical intelligence while the remaining 25.9% is influenced by other factors.

The elaboration of the results of the research above can form a conclusion that there is an effect of memorizing the Quran on the mathematical logical intelligence of the students of MTs Swasta Al-Jamiyah Medan. This is in line with (Lubis, 2020) who found a positive effect of memorizing the Quran on students' intelligence. The results of this research are supported by several previous studies which explain that humans are born equipped with various kinds of intelligence that can develop but must be carried out with training, learning activities, and some stimulus (Qowim, 1970). In addition, Sholikhah and Budiyo (as cited in Pramudita, 2018) explain that logical intelligence is one of the intelligences that can be developed.

Mathematical logical intelligence is one of several things that are closely related to students' mathematical problem-solving abilities. This means that, so that students are able to easily solve problems, especially in doing their mathematical tasks, students must hone their logical-mathematical intelligence. One way is to increase the memorization of the Quran. Because in this research it was found that the more students memorized, the higher the mathematical logical test scores. What makes students' logical intelligence honed is the

memorization process itself. In the memorization process, students are required to remember word for word and also the number of each verse that students memorize. In addition, through this memorization process, students are also accustomed to the discipline to deposit memorization. This will shape the mindset of students to be structured.

CONCLUSIONS AND SUGGESTIONS

Based on the results of the research described in the results and discussion section, it can be concluded that there is a significant influence between the memorization of the Quran on the mathematical logical intelligence of the students of MTs Swasta Al-Jamaiyah Medan. In addition, what can be concluded from this research is that memorizing the Quran contributes 74.1% to students' logical-mathematical intelligence.

From the research process that the researchers have carried out, there are several suggestions that the researchers would like to convey. The first is that it is recommended for further researchers to carefully compile research instruments and must be able to become a variable measuring instrument. Or it could be to develop an existing instrument but with some additions to save research time.

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