

# The Relationship Between Discipline and Motivation on Mathematics Learning Outcomes of SMP Negeri 3 Pana Students

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## Abstract

This research uses quantitative methods. The data obtained were then analyzed with a series of statistical tests to examine the partial and simultaneous relationship between independent variables and the dependent variable. The t-test results show that learning discipline has a positive and significant relationship with Mathematics learning outcomes, with a correlation coefficient of 0.762 and a significant value (Sig.) of 0.000. In addition, learning motivation also has a positive and significant relationship with Mathematics learning outcomes, with a correlation coefficient of 0.726 and a significant value (Sig.) of 0.000. Simultaneously, the F test results show that learning discipline and learning motivation together have a positive and significant relationship with Mathematics learning outcomes, with a calculated value of 38.668 and a significant value (Sig.) of 0.000. Thus, it can be concluded that there is a positive and significant relationship between learning discipline and Mathematics learning outcomes, as well as between learning motivation and Mathematics learning outcomes. Simultaneously, the relationship between learning discipline and learning motivation with Mathematics learning outcomes is also positive and significant. This means that the higher the learning discipline and learning motivation of students, the higher the mathematics learning outcomes achieved.

*Keywords:* learning discipline, learning motivation, learning outcomes.

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## 1. Introduction

Education is a process that aims to develop the potential of students optimally through planned and systematic learning activities (Dimiyati & Mudjiono, 2018). The success of the education process can be seen from the learning outcomes achieved by students, which reflect the level of mastery of knowledge and skills after following learning (Hakim, 2016). Through education, students are equipped with the knowledge, skills, attitudes, and values needed to face the development of science and technology. The success of education in schools can be seen from the learning outcomes achieved by students. Learning outcomes are an important indicator that reflects the level of achievement of learning objectives and the effectiveness of the ongoing teaching and learning process.

In mathematics learning, learning outcomes are often influenced by various factors, both internal and external factors of students. One of the internal factors that plays an important role is learning discipline. Learning discipline is the student's adherence to the rules and learning habits that apply, which aims to create a orderly and conducive learning environment (Musfah, 2015). This is in line with the objectives of mathematics learning according to the 2013 Kemendikbud, namely (1) increasing intellectual ability, (2) problem-solving ability, (3) high learning outcomes, (4) training in communication, and (5) developing student character in Susriyati & Yurida (Fatwa & Nurfadhilah AM Hindi, 2023). Meanwhile, learning outcomes are often the main concern because mathematics is a subject that demands logical, analytical, systematic, and consistent thinking skills. Many students consider mathematics a difficult and frightening subject, which has an impact on low interest, motivation, and learning outcomes. This condition is a challenge for teachers and schools to find factors that influence students' mathematics learning outcomes. The success of learning mathematics is not only influenced by students' cognitive abilities, but also by non-cognitive factors. Non-cognitive factors play an important role in shaping students' learning behavior during the learning process.

Another factor that can influence learning outcomes is students' learning habits. Learning habits are a person's attitude toward learning that has developed over a relatively long period of time, thereby affecting their learning activities (Elmi M & Budi S, 2025). Two non-cognitive factors that have a major influence on learning outcomes are learning

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discipline and learning motivation. According to Prasojo, learning discipline is the degree of obedience of students to rules and regulations in school to obtain better conditions by making discipline a form of self-control that is carried out without coercion (Wati et al., 2024). Study discipline is related to students' compliance with rules, regulations, and study habits that apply, both at school and at home. Study discipline helps students manage their study time, adhere to their study schedule, complete assignments on time, and participate in teaching and learning activities in an orderly manner. Students who have good learning discipline tend to have regular study habits and are responsible for their obligations as students. These habits indirectly support the creation of a conducive learning atmosphere and have a positive impact on learning outcomes.

In addition to learning discipline, learning motivation also plays an important role in determining student learning success. Learning motivation is a driving force within students that generates enthusiasm for learning and maintains the continuity of learning activities (A.M, 2018). High motivation will encourage students to be more focused, diligent and responsible in following learning. (Uno, 2016)states that learning motivation functions as the main driver that determines the intensity of students' learning efforts. Students who have high learning motivation tend to show great interest in learning and strive to achieve optimal learning outcomes. Low learning motivation can cause students to participate less in learning, pay less attention to the teacher's explanations, and be reluctant to do the assignments given. This condition has the potential to have an impact on low learning outcomes, especially in mathematics learning which requires practice and perseverance. Therefore, learning motivation needs to be given serious attention in an effort to improve the quality of learning.

Based on initial observations at SMP Negeri 3 Pana, various problems related to student discipline and motivation to learn were found. Some students come to school only to fulfill their attendance requirements, lack discipline in following lessons, study only when facing exams, and show a low awareness of the importance of learning. In addition, student motivation to learn is still relatively low, as seen from the lack of interest and enthusiasm among students in learning mathematics.

This problem is thought to affect students' math learning outcomes, which are not yet optimal. Although teachers have made various efforts, students' math learning outcomes still show a gap between students who have high discipline and motivation to learn and those who lack discipline and motivation. This condition indicates the need for scientific study to determine the extent of the relationship between learning discipline and motivation and students' math learning outcomes. Previous studies have shown that learning discipline and learning motivation have a significant relationship with learning outcomes. However, studies that specifically examine the relationship between these two variables and the mathematics learning outcomes of students at SMP Negeri 3 Pana are still limited. Therefore, this study is important to provide an empirical description of the relationship between learning discipline and learning motivation and students' mathematics learning outcomes. The purpose of this study is to determine the relationship between learning discipline and learning motivation with the mathematics learning outcomes of students at SMP Negeri 3 Pana, both partially and simultaneously. The results of this study are expected to contribute to the development of educational science, particularly in mathematics learning, and to provide consideration for teachers and schools in designing effective learning strategies.

## 2. Literature Review

The relationship between discipline and learning motivation is closely related to learning outcomes, especially in mathematics. This study is in line with research on “The Relationship between Learning Discipline and Learning Motivation with Students' Civic Education Learning Outcomes” by Lestari et al., which found that there is a positive and significant relationship between learning discipline and learning motivation with learning outcomes in students' civic education subjects. These findings confirm that the higher the level of student discipline and learning motivation, the better the learning outcomes that can be achieved. However, it should be noted that this study has limitations in its generalization because it was conducted in only one school in a rural area. The results may not be fully applicable to other schools with different socio-economic or environmental characteristics (Sanda & Ramadan, 2024). However, Lestari's research focused only on civic education lessons. Another study with a similar title, “The Relationship between Discipline and Learning Motivation on the Learning Outcomes of PJOK Students at SMA Negeri 1 Palupuh, Agam Regency” by Kholil et al., found that the combination of discipline and learning motivation had a greater influence than each factor separately. This means that a holistic approach that combines discipline building with motivation-enhancing strategies (such as interactive learning, giving appreciation, or creating a supportive learning environment) can be an effective solution to improve students' PJOK learning outcomes (Ahmad M.M et al., 2026). However, this study also focuses on PJOK lessons. This is in contrast to a previous relevant study

by Ika et al. entitled “The Effect of Learning Discipline and Learning Motivation on Student Learning Outcomes in Mathematics Learning in Elementary Schools,” which found that learning outcomes were positively influenced by individual learning discipline and learning motivation by a percentage of 0.6%, supporting the rejection of  $H_0$  and the acceptance of  $H_a$ . As a result, learning outcomes will improve and learning will increase if students' learning discipline and motivation increase (Jamilah et al., 2024). These findings are in line with the research conducted by the researcher, but this study focuses on the relationship between discipline and motivation on the mathematics learning outcomes of students at SMP Negeri 3 Pana.

### 3. Research Method

This research uses a quantitative approach with a correlational method. The quantitative approach was chosen because this research aims to measure the relationship between variables objectively through statistical analysis. The correlational method is used to determine whether there is a relationship between learning discipline and learning motivation with students' mathematics learning outcomes. The research was carried out at SMP Negeri 3 Pana in the 2024/2025 academic year. The research subjects were all class VIII and IX students, totaling 35 people. The sampling technique used was saturated sampling, where all members of the population were used as research samples. This technique was chosen because the population size is relatively small, allowing all students to be involved as respondents.

The research instruments used consisted of three types, namely a learning discipline questionnaire, a learning motivation questionnaire, and a mathematics learning achievement test. Zayrin et al. quoted Suharsimi Arikunto's opinion that data collection instruments are tools used by researchers to make the data collection process easier and more organized. This opinion is supported by Sumadi Suryabrata, who explains that instruments are tools for recording various conditions or activities related to a person's psychological aspects, usually in the form of numbers or quantitative data (Fatwa & Harjuna, 2025). The learning discipline questionnaire was compiled based on indicators of student discipline, such as punctuality in attending class, compliance with school rules, seriousness in following lessons, and responsibility in completing assignments. The learning motivation questionnaire was compiled based on indicators of motivation, including perseverance in learning, interest in subjects, drive to achieve, and desire to obtain good learning outcomes.

Both questionnaires underwent validity and reliability tests to ensure that the instruments were suitable for use in the study. The validity test was conducted to determine the extent to which the questionnaire items were able to measure the intended variables, while the reliability test was conducted to determine the consistency of the instruments. The test results showed that the learning discipline and learning motivation questionnaires met the validity and reliability criteria. The mathematics learning achievement test was used to measure students' mastery of the material that had been studied. The tests were designed in accordance with the applicable curriculum and covered indicators of students' cognitive abilities. The tests were given to students after the learning process took place. The data obtained from the questionnaires and tests were then analyzed using descriptive statistics to obtain an overview of the data, as well as Pearson's correlation analysis to test the relationship between variables. In addition, simultaneous tests were used to determine the relationship between learning discipline and learning motivation together with mathematics learning outcomes.

### 4. Results and Discussion

The results of the descriptive statistical analysis show that the mathematics learning outcomes of SMP Negeri 3 Pana students are at a fairly good value range. Most students obtain relatively homogeneous scores, although there are still some students who obtain scores below the average. This condition indicates that students' mathematics learning outcomes still need to be improved. The results of the analysis statistics descriptive are shown in the Table 1.

Table 1 presents descriptive data on the learning outcomes of 35 students. Based on descriptive statistical calculations, it is known that the minimum score obtained by students was 51, while the maximum score was 59. The mean score of all data was 55.43, with a standard deviation of 2.392. This shows that the average learning outcome score of students tends to be in the middle of the score range, and the level of dispersion or variation in scores between students is relatively low due to the small standard deviation. The frequency distribution shows that the most common score obtained by students is 55, which was obtained by 8 students or 22.9% of the total respondents. The next most common scores were 56 (20.0%) and 59 (17.1%). The least common score was 58, obtained by only 1 student (2.9%). From the cumulative data, it can be seen that around 71.4% of students obtained scores between 51

and 56, indicating a concentration of learning outcomes in that range. Overall, these results show that the learning outcomes of students in class VIII of SMP N 3 Pana are within a fairly good range of scores and there are no extreme deviations. Most students scored between 54 and 59, which indicates relatively stable academic performance in this group.

**Table 1.** Descriptive data analysis

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Learning Outcomes	35	51	59	55.43	2.392
Valid N (listwise)	35				
Learning Outcomes					
Valid	Frequency	Percent (%)	Percent Valid (%)	Cumulative (%)	
51	3	8.6	8.6	8.6	
52	2	5.7	5.7	14.3	
53	2	5.7	5.7	20.0	
54	3	8.6	8.6	28.6	
55	8	22.9	22.9	51.4	
56	7	20.0	20.0	71.4	
57	3	8.6	8.6	80.0	
58	1	2.9	2.9	82.9	
59	6	17.1	17.1	100.0	
Total	35	100.0	100.0		

Source: Output SPSS 27.0

Next, a correlation analysis was conducted. According to Faizal Amir & Budi Sartika, correlation is research that involves data collection activities to determine whether there is a relationship and the level of relationship between two or more variables (Dewanto et al., 2022). Meanwhile, according to Lind & Wathen, correlation analysis is a set of techniques for measuring the relationship between two variables, the basic idea of correlation analysis is to report the relationship between two variables. Variable X (horizontal line in the graph) and variable Y (vertical line in the graph) can be non-linear, positive or negative relationships (Pratama et al., 2023). Pearson's correlation analysis is used to determine the relationship between the learning discipline variable (X1) and learning outcomes (Y). This analysis aims to measure the extent of the relationship between the two variables, whether they have a positive, negative, or no relationship at all. This test also includes a significance test to determine whether the relationship found is statistically significant or not. The results of Pearson's correlation analysis show that study discipline has a positive and significant relationship with mathematics learning outcomes. This indicates that the higher the level of student study discipline, the higher the mathematics learning outcomes achieved. Study discipline helps students to be more organized in following lessons, use their study time effectively, and avoid behaviors that can hinder the learning process. The following table presents the results of the Pearson correlation analysis:

**Table 2.** Results Test Pearson Correlation Analysis Relationship between Discipline (X<sub>1</sub>) with Learning Outcomes (Y)

Correlations		Discipline Learning	Learning Outcomes
Discipline Learning	Pearson Correlation	1	.762**
	Sig. (2-tailed)		.000
	N	35	35
Learning Outcomes	Pearson Correlation	.762**	1
	Sig. (2-tailed)	.000	
	N	35	35

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Output SPSS 27.0

In table 2, the results of the Pearson correlation analysis test between the learning discipline variable ( $X_1$ ) and learning outcomes (Y), the correlation coefficient value is 0.762 with a significance value of 0.000. This value indicates that there is a strong and positive relationship between learning discipline and learning outcomes. A significance value of  $0.000 < 0,05$  indicates that the relationship is statistically significant at a significance level of 5%. This means that the higher the student's learning discipline, the higher the learning outcomes they achieve. Thus, there is a significant relationship between discipline and mathematics learning outcomes of eighth grade students at SMPN 3 Pana, Mamasa Regency.

This finding is in line with previous research which states that student discipline contributes positively to academic achievement. Students who are used to being disciplined in learning will have good learning habits, such as studying regularly, completing assignments on time, and preparing before participating in learning. These habits directly or indirectly impact the improvement of mathematics learning outcomes.

In addition to learning discipline, learning motivation also shows a positive and significant relationship with mathematics learning outcomes. Students who have high learning motivation tend to show greater enthusiasm and perseverance in participating in mathematics learning. Learning motivation encourages students to be more active in asking questions, practicing working on problems, and not giving up easily when facing difficulties. Furthermore, Pearson correlation analysis was carried out to determine the relationship between the learning motivation variable ( $X_2$ ) and learning outcomes (Y). This analysis aims to measure the extent of the relationship between the two variables, whether it shows a positive, negative, or no relationship at all. Significance testing is also used to ensure whether the relationship obtained is statistically significant. The results of the correlation analysis are presented in the Table 3.

**Table 3.** Results Test Pearson Correlation Analysis Relationship between Motivation Learning ( $X_2$ ) with Learning Outcomes (Y)

		<b>Correlations</b>	
		Motivation Learning	Learning Outcomes
Motivation Learning	Pearson Correlation	1	.726**
	Sig. (2-tailed)		.000
	N	35	35
Learning Outcomes	Pearson Correlation	.726**	1
	Sig. (2-tailed)	.000	
	N	35	35

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Output SPSS 27.0

Based on the table, 3 a correlation coefficient of 0.726 was obtained with a significance value of 0.000. This value indicates that there is a strong and positive relationship between learning motivation and learning outcomes. A significance value of  $0.000 < 0,05$  indicates that the relationship is statistically significant at a significance level of 5%. This means that the higher the students' learning motivation, the higher the learning outcomes they achieve. Thus, there is a significant relationship between learning motivation and the learning outcomes of VIII grade students at SMPN 3 Pana, Mamasa Regency.

The results of this study support the view that learning motivation is an important factor in student learning success. High motivation encourages students to work harder, improve concentration, and develop effective learning strategies. Therefore, increasing learning motivation needs to be a primary concern in efforts to improve mathematics learning outcomes.

The next step is to conduct an F test, which is used to determine the relationship between the variables of learning discipline ( $X_1$ ) and learning motivation ( $X_2$ ) together with learning outcomes (Y). The F test aims to find out whether the independent variables together (simultaneously) influence the dependent variable. The F test is performed to see the effect of all independent variables together on the dependent variable (Azhari et al., 2023). This analysis aims to measure the extent to which the two independent variables are simultaneously related to the dependent variable. A significance test is also performed to determine whether the relationship obtained is statistically significant. The F test results are presented in the Table 4.

Based on Table 4, the calculated F value is 38.668 with a significance value of 0.000. This value indicates that there is a strong and significant relationship between learning discipline and learning motivation simultaneously with student learning outcomes. The above shows that learning discipline and learning motivation together have a positive and significant relationship with student mathematics learning outcomes. A significance value of  $0.000 < 0.05$  indicates that the relationship is statistically significant at a 5% significance level. This means that the higher the level of student discipline and learning motivation, the higher their learning outcomes. Thus, there is a significant relationship between discipline and learning motivation and the mathematics learning outcomes of eighth-grade students at SMPN 3 Pana, Mamasa Regency. These findings show that the two variables complement each other in influencing learning outcomes. Learning discipline without strong motivation may not produce optimal results, and likewise, learning motivation without good discipline.

**Table 4.** Result of F test of the Relationship between Discipline ( $X_1$ ) and Learning Motivation ( $X_2$ ) with Learning Outcomes (Y)

		ANOVA <sup>a</sup>						
Model		Sum of Square		df	Mean Square	F	Sig.	
1	Regression	137.625	56.946	2	68.813	1.780	38.668	.000 <sup>b</sup>
	Residual Total	194.571		32				
				34				

a. Dependent Variable: Learning Outcomes

b. Predictors: (Constant), Learning Motivation, Learning Discipline

Source: Output SPSS 27.0

The implication of these findings is the need for teachers and schools to play an active role in fostering discipline and motivation in students. Teachers can consistently enforce classroom rules, set an example of disciplined behavior, and create an engaging and motivating learning environment. In addition, rewards, positive feedback, and tutoring can also be strategies to increase student motivation and learning discipline.

## 5. Conclusion

Based on the results of the research and discussion, it can be concluded that learning discipline and learning motivation have a positive and significant relationship with the mathematics learning outcomes of students at SMP Negeri 3 Pana, both partially and simultaneously. Students who have high learning discipline and motivation tend to achieve better mathematics learning outcomes. The results of this study emphasize the importance of noncognitive factors in the mathematics learning process. Therefore, teachers and schools are advised to develop learning strategies that focus not only on cognitive aspects, but also on building discipline and increasing student motivation to learn. Thus, it is hoped that students' mathematics learning outcomes can be optimized.

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