The effect of emotional intelligence, learning discipline and peer interaction on mathematics learning outcomes of state junior high school students in Samarinda

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Abstract This study aimed to determine the effect of emotional intelligence, learning discipline, and the peer interaction on mathematics learning outcomes of State Junior High School (SMP) Students in Samarinda City. This research is a quantitative study using the ex post facto method. The population in this study were all eighth-grade students of SMP in the Samarinda who implemented the 2013 curriculum totaling 899 students. The sample was determined using cluster random sampling techniques and a sample of 279 students was obtained. The instruments used in this study were questionnaires and tests. The results of data analysis using multiple linear regression analysis and obtained a significance value of 0,000 with $\alpha = 0.05$, there is an influence between emotional intelligence, learning discipline and the peer interaction on mathematics learning outcomes. For the learning discipline variable, the significance value of 0.020 is obtained with $\alpha = 0.05$, so there is the effect of the discipline of learning on mathematics learning outcomes. For peer interaction variables obtained significance value of 0.002 with $\alpha = 0.05$ then there is the influence of peer interaction on mathematics learning outcomes. The conclusion of this study shows that emotional intelligence, learning discipline, and peer interaction significantly influence mathematics learning outcomes of SMP in Samarinda city.

1. Introduction

Student learning success can be influenced by several factors, namely internal and external factors, enternal factors such as Emotional Intelligence, learning discipline, and external factors peer interaction. The results of Goleman's Research state that intellectual intelligence only contributes 20% to success, while 80% is contributed by other strength factors, including emotional intelligence.[4] The balance between intellectual intelligence and emotional intelligence is the key to the success of student learning in school [5]. People who have emotional intelligence tend to be able to create optimism, resilience, initiative and adapt to their environment so that people easily reach their desires [11] Prasetyo and Kusumantoro [13] in their journal revealed that "discipline is one of the attitudes or behaviors that students must have". Learning discipline must be owned by every student so that students can participate in teaching and learning activities well.

Learning discipline has a significant effect on student motivation. So that the better the discipline of student learning, the higher the motivation to learn. The discipline of learning influences the readiness

of student learning, so that the higher the discipline of learning, the more ready students are to accept learning and ultimately increase student achievement [1, 9].

Adolescence is a period of human development marked by a transition period, the most important period in which the emergence of peer interactions that have important meaning during adolescence [12].

Jacobson's research [7] provides evidence for the importance of adolescent friendships with peers and their effect on academic achievement. The results of this study indicate that significant and positive social support is related to academic performance. It provides insight into the dynamics of peer relationships and their contribution to academic achievement

According to Sumatri and Satriani [14], learning outcomes are abilities obtained by students after going through mathematics learning activities. Two kinds of mathematics learning outcomes must be mastered by students, namely: mathematical calculations and mathematical reasoning. Maslikhan said that mathematics learning outcomes are abilities students have after receiving a mathematics learning experience.[10] The experience is in the form of knowledge, understanding, understanding, and also the ability to communicate using numbers and symbols. This ability can be seen from the ability to think mathematics in students who lead to the ability of mathematics for solving problems encountered in everyday life [2].

To determine student learning outcomes evaluated learning outcomes. Evaluation is an activity of measuring and assessing. To measure student learning outcomes, the question instrument containing formulation or question indicators is used as a reference or basis for assessment. Evaluation of learning outcomes can be done by giving a test. [10].

Based on observations from SMP Negeri 1 Samarinda, there is a special schedule for singing the national anthem every morning, literacy culture, praying in the congregation for Muslims and praying together for other religions at the time of noon and asr prayer. As for students who are enthusiastic about carrying out literacy, until they forget the time that literacy activities have been completed.

When entering prayer time in the congregation, students often reason not to follow it because they prefer to rest and play with their friends. School regulations have been pursued, but there are still some students who commit violations and even invite other friends. This is a small part of a student's lack of discipline. Students will get the maximum learning outcomes if he can perform disciplined habits in accordance with the position where he is. Therefore, learning discipline can influence learning outcomes. If students have the nature of the discipline of learning, then the student will be able to achieve maximum learning outcomes.

Students are in school for around 7 hours, at the State Junior High School which has used the 2013 curriculum which applies full-day school learning activities. SMP Negeri 1 Samarinda has conducted almost two semesters of full-day learning activities, while at SMP Negeri 4 and SMP Negeri 7 it has been conducted for almost one semester. Because teachers teach according to the subjects they teach so they only interact 4 to 5 hours a week in class when students enter learning time there are still busy with their friends if not supervised by the teacher.

On holidays, students tend to use the time to do assignments in groups or play with friends around the house, so students interact with their peers more than with their family. This causes students to tend to follow the words of peers rather than their parents.

Based on the background of the problem, a student who studies mathematics needs the ability to control emotions and arouse enthusiasm. Discipline habits that students do in learning can also help improve learning outcomes. His daily social environment with peers at home, school, and even elsewhere can help improve mathematics learning outcomes.

Based on the description from the background above, the researcher is interested in conducting research to determine the effect of Emotional Intelligence, the discipline of learning and the peer interaction on mathematics learning outcomes in junior high school students in Samarinda City.

2. Research Methods

This research is a quantitative study in which all information is expressed in numbers and analyzed based on statistical analysis [15]. The method used in this study is the ex post facto method, which aims to find a causal relationship by comparing two or more different groups of subjects to measure the same variable. Thus ex post facto research can examine the relationship of two or more variables to determine the effect of the independent variable (X) on the dependent variable (Y).

2.1 Research Design

This study uses 3 independent variables, namely emotional intelligence (X_1), learning discipline (X_2), and peer interaction (X_3), and 1 dependent variable is the result of learning mathematics (Y). To see the effect of the independent variables on the dependent variable in this study, a research design is shown in the following figure.

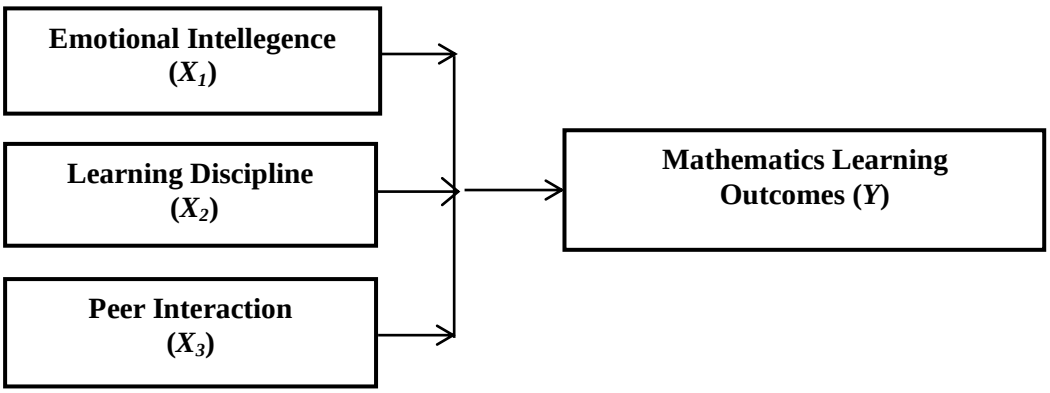

Figure 1. Research design model.

2.2 Population and Samples

This study has a population of 899 students, consisting of all students in three state junior high schools in Samarinda City, namely SMP Negeri 1, SMP Negeri 4 and SMP Negeri 7. The sample was determined using cluster random sampling techniques and a sample of 279 students was obtained. The instruments used in this study were questionnaires and tests.

3. Research Results

3.1 Descriptive Analysis

Below, information on Emotional Intellegence, learning discipline, peer interaction, and mathematics learning outcomes will be presented.

Table 1. Data description variable emotional intelligence.

Score *emotional intellegence*		Frequency (F)	Percentage (%)
Interval	Category		
$X \leq 86$	Very low	19	6,80
$86 < X \leq 94$	Low	80	28,70
$94 < X \leq 103$	Medium	113	40,50
$103 < X \leq 111$	High	55	19,70
$111 < X$	Very High	12	4,30
Total		279	100,00
Maximum Score		124,00	

Minimum Score	57,00
Average	97,83
Standard deviation	8,357
Variance	69,846

Based on table 1, the score for the Emotional Intelligence variable is more in the medium category, the average score of 97.83 is in the medium category.

Table 2. Data description of learning discipline variables.

Score learning discipline		Frequency (F)	Percentage (%)
Interval	Category		
$X \leq 86$	Very low	17	6,10
$86 < X \leq 97$	Low	90	32,30
$97 < X \leq 107$	Medium	94	33,70
$107 < X \leq 118$	High	64	22,90
$118 < X$	Very high	14	5,00
Total		279	100,00
Maximum score		129,00	
Minimum score		53,00	
Average		101,65	
Standard deviation		10,592	
Variance		112,186	

Based on Table 2, the score for the student learning discipline variable is more in the medium category with an average score of 101.65 in the medium category.

Table 3. Data description of peer interaction variables.

Score peer interaction		Frequency (F)	Percentage (%)
Interval	Category		
$X \leq 80$	Very low	21	7,50
$80 < X \leq 89$	Low	91	32,60
$89 < X \leq 98$	Medium	96	34,40
$98 < X \leq 106$	High	55	19,70
$106 < X$	Very High	16	5,70
Total		279	100,00
Maximum score		114,00	
Minimum score		47,00	
Average		92,59	
Standard deviation		8,907	
Variance		79,328	

Based on table 3, the score for the peer interaction variable is more in the medium category with an average score of 92.59 in the medium category.

Table 4. Description of variables data mathematics learning outcomes.

Score Mathematics Learning Outcomes		Frequency (F)	Percentage (%)
Interval	Category		
$X \leq 21$	Very low	15	5,40
$21 < X \leq 41$	Low	91	32,60

$41 < X \leq 62$	Medium	93	33,30
$62 < X \leq 82$	High	51	18,30
$82 < X$	Very High	29	10,40
Total		279	100,00
Maximum score		97,00	
Minimum score		0	
Average		51,02	
Standard deviation		20,595	
Variance		424,151	

Based on the description in Table 4, it can be seen that the scores for mathematics learning outcomes are more in the medium category with an average score of 33.30.

3.2 Inferential Analysis

3.2.1 Assumption Test

Data normality test is used to find out whether the analyzed data are from normally distributed populations. To test the normality of the data, in this study data analysis with statistical software was obtained as follows:

Table 5. Normality test results.

Variabel	Significance
Emotional Intellegence	0,433
Learning Discipline	0,410
Peer Interaction	0,084
Mathematics Learning Outcomes	0,084

A statistical significance level (α) used by 5% or 0.05 means the value of statistical significance > level of significance of the test. Because the value of statistical significance > level of significance of the test can be concluded that the data for all variables come from populations that are normally distributed.

Data homogeneity testing is done by looking at the results of the Scatter Plot Dependent Variable. Based on the results of data analysis on the Scatter Plot Dependent Variable it produces a scatter diagram pattern as shown below:

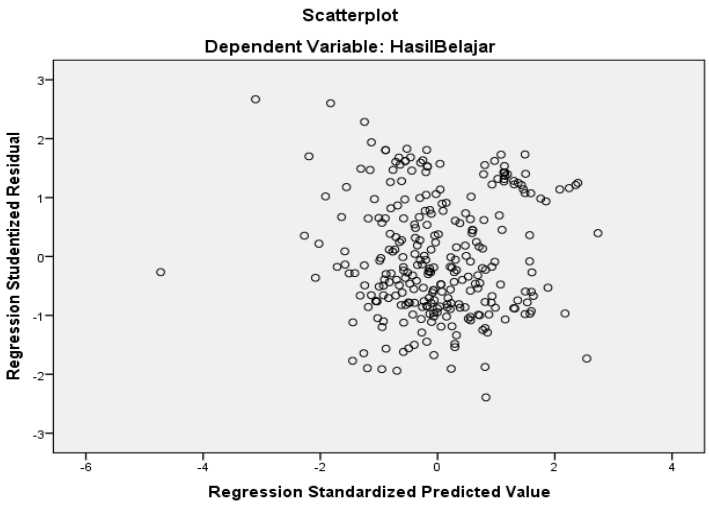

Figure 2 Examination of data homogeneity.

The results of the residual plot of the dependent variable that is the result of learning mathematics produce scatter diagram patterns that do not form a particular pattern. So the data used in this study is homogeneous.

To use multiple linear regression analysis, the predetermined model must be linear. Based on the results of the linearity analysis results obtained as follows:

Table 6. Results of linearity test**.**

Variable	Significance	
	Liniearity	*Deviation of linearity*
Emotional Intellegence	0,000	0,639
Learning Discipline	0,000	0,053
Peer Interaction	0,000	0,074

Table 6 shows that for the emotional intelligence variable, the deviation value of linearity obtained a significance value of 0.639. then the linear regression model is obtained. For the learning discipline variable the value of the deviation from linearity obtained a significance value of 0.053, then the linear regression model was obtained. For the peer interaction variable, the deviation from the linearity obtained a significance value of 0.074, the linear regression model was obtained.

To show the presence or absence of multicollinearity between variables can be seen in the following table.

Table 7. Results of multicollinearity test.

Variable	*VIF*
Emotional Intellegence	1,699
Learning Discipline	2,229
Peer Interaction	1,868

Based on Table 7, the multicollinearity test results show the VIF value for the variable Emotional Intelligence, learning discipline, and peer interaction is 1,699; 2,229; and 1,868 which means that the VIF value for the three variables is less than 10, it can be concluded that there is no multicollinearity between the three independent variables.

3.2.2 Hypothesis Testing

Based on the results of the analysis of the research hypothesis test using multiple linear regression analysis as follows:

Table 8. Results of multiple linear regression analysis.

Variable	Coeff. regression	t_{count}	Sig.	Coeff. determination
Constanta	-68,051	-4,881	0,000	
X_1	0,339	1,992	0,047	0,140
X_2	0,360	2,341	0,020	0,181
X_3	0,533	3,180	0,002	0,182
R			0,478	
R^2			0,228	
Probability			0,000	
F_{count}			27,118	

The alleged regression equation model in this study is as follows:

$$\hat{Y} = b_0 + b_1X_1 + b_2X_2 + b_3X_3$$

Based on Table 8, the value of b_0 is obtained as a constant in the assumed regression model equation, and b_1, b_2, b_3 are coefficients for the variables X_1, X_2, X_3 respectively, so that the regression equation model can be arranged into the following equation::

$$\hat{Y} = -68{,}051 + 0{,}339X_1 + 0{,}360X_2 + 0{,}533X_3$$

Table 8 also explains that the value of F_count> F_table or 27.118> 2.60 which shows that the regression model obtained means, it can be said that there is an influence between Emotional Intelligence, learning discipline, and peer interaction on student mathematics learning outcomes.

4. Discussion

Parents and teachers should pay more attention to children about Emotional Intelligence, learning discipline, and peer interactions. Students who have good emotional intelligence will get good learning outcomes. When in school the teacher must direct students to recognize, manage, and motivate students about the condition of their emotional intelligence. This is consistent with the statement that Emotional Intelligence is the ability to regulate feelings and abilities and motivate themselves in learning and working for success and achievement. In addition, students are lazy to try again when they do not find answers to mathematical problems. This can find out students are able to recognize self emotions. Because when it fails, students with high learning outcomes will not be lazy to find answers to these questions [17].

Emotional intelligence is influenced by attitudes or parenting parents. Parents can apply appropriate parenting to improve children's emotional intelligence. The role of parents is very large in instilling good habits. So that parents are able to meet and maintain the emotional needs of children so that the emotional intelligence of students is good in improving mathematics learning outcomes in school. [16]

When in school the teacher must direct students to enter class on time, obey and obey school rules, arrange study time, and do assignments. Nurdiansyah stated that in the learning process learning behaviors that are appropriate to the educational goals are needed, with these learning behaviors the educational goals can be achieved effectively and efficiently so that academic achievement can be improved. Matters related to good learning behavior can be seen from the habit of following the lessons, the habit of reading books, library visits, the habit of facing exams, and others [8].

Mistakes that are often made by students in the discipline of learning are damaging school equipment, which is caused by the lack of supervision of teachers and school staff towards the activities of all students in the school.. So that students feel free to do what they want such as damaging school facilities, students only work on assignments on grades, without realizing the exercises given by the teacher can help students learn to improve learning outcomes, students late to class to take lessons so that he missed the learning process, lack of activeness to ask the teacher when not understanding during the learning process. And students do not do the assignments given by the school. Then not many students manage their study time at home, such as studying the material that will be studied at school tomorrow, and lack of interest in reading. the lack of discipline in student mathematics learning contributes to or influences in improving student mathematics learning outcomes. Student peer interactions can be considered while studying at school or at home. Hurlock [6] states that in general young teens like to complain about school and about prohibitions, food in the canteen, and how to manage schools. They are critical of the teacher and how to teach the teacher. When in school the teacher should pay attention to students regarding the attitude of individual openness, cooperation between individuals, and the frequency of individual relationships both individually and in groups. The teacher can help direct student interactions positively in terms of teaching and learning, such as giving assignments or group projects. Theoretically, peer groups are a means for teenagers to interact with each other. Each peer group has its own rules, has its own expectations for its members [6].

Ernawati, et al stated that peer groups play an important role in the lives of adolescents [3]. Based on the results of the research and discussion above it can be concluded that there is an influence between

Emotional Intelligence, learning discipline, and peer interaction on the mathematics learning outcomes of SMP students in Samarinda.

5. Conclusions and Suggestions

The conclusion that can be drawn based on the results of research and discussion is that there is the influence of Emotional Intelligence, learning discipline, and peer interaction on junior high school mathematics learning outcomes in Samarinda City.

Based on the results of the study, the suggestions that can be given are:

a. For students, they should be able to manage emotional intelligence so they have a good personality. So that students have a high awareness of the discipline of learning at home or at school, and students can establish positive peer interactions between students at school at mathematics SMP in Samarinda City.
b. For teachers, it can provide and direct students to regulate and manage emotional intelligence in themselves, accustom students to disciplined learning in the learning process, and supervise and control peer interaction between students in the classroom during mathematics subjects in the SMP Samarinda City environment.
c. For schools, it can improve and supervise learning activities that take place in class, especially the discipline of learning and peer interaction between students in school in order to improve learning outcomes in mathematics with the material relations and functions of students at the school. Then, the school can collaborate with teachers and students' parents in an effort to recognize emotional intelligence, learning discipline, and peer interaction, especially SMP in Samarinda City.

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