THE RELATIONSHIP AMONG LEARNING MOTIVATION, LEARNING FACILITIES, AND PEERS WITH STUDENTS MATHEMATICS LEARNING OUTCOME

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ABSTRACT

Learning motivation is still low, learning facilities are still inadequate, and peers are still poor. The objectives in this research to understanding there or not the positive relationship and the signification between learning motivation, learning facilities, and peers with the result of the study of mathematics to students class VIII Junior High School (SMP) Muhammadiyah 1 Mlati of Sleman Regency even semester in the academic year 2017/2018. This research population is all of the students class VIII SMP Muhammadiyah 1 Mlati of Sleman Regency even semester in the academic year 2017/2018, which consists of five classes totaling 162 students. Class VIIIC, as a research sample class, was taken by random sampling technique for the class. Data collection techniques used a questionnaire method to obtain data on learning motivation, learning facilities, peers, and test methods to obtain data on mathematics learning outcomes. Research instrument test: validity test, different power test, and reliability test. Analysis prerequisite tests include normality test, linearity test, and independence test. Data analysis using product moment analysis and multiple linear regression analysis. The research results show a positive and significant relationship between learning motivation, learning facilities, and peers with mathematics to students class VIII SMP Muhammadiyah 1 Mlati of Sleman Regency even semester in 2017/2018. At the significant level 5%, F_{count} =4,1174 and F_{tabel} =2,99, $F_{count} > F_{tabel}$ with multiple correlation coefficients R =0,5751 and determinant of coefficient double R^2 =0,3307 with multiple regression equations are three variables $\hat{Y} = -9,5520 + 0,3994X_1 + 0,3040X_2 + 0,2262X_3$. Relative contribution X_1 = 49,6284%, X_2 = 36,9707% dan X_3 = 13,4008% and effective contribution X_1= 16,4121%, X_2 = 12,2262% dan X_3 = 4,4316%.

Keyword: learning motivation, learning facilities, peers, mathematics learning outcomes

INTRODUCTION

Education is a need that must be met in society, nation, and state. National education based on Pancasila and the 1945 Constitution of the Republic of Indonesia functions to develop capabilities and shape the character and civilization of a dignified nation to educate the life of the nation, aiming to develop the potential of students to become human beings who believe and fear God Almighty, noble, healthy, knowledgeable, capable, creative, independent, and become citizens of a democratic and responsible.

Mathematics is a fundamental science and useful in everyday life, so mathematics is considered the basis of science to learn other exact sciences. In Indonesia, mathematics subjects have been introduced starting from Elementary School, Junior High School, and High School. Even mathematics has been introduced at the level of Early Childhood Education, even though the presentation of the material used is only limited to introducing numbers and counting. Children are expected to think critically, logically, creatively, and systematically to follow increasingly advanced technology, namely by learning. The factors that influence learning are classified into two, namely, internal factors and external factors. Internal factors within the individual include emotional intelligence, intellectual intelligence, self-confidence, interest, learning motivation, learning intensity, etc. In contrast, external factors that exist outside the individual include the environment, learning facilities, peers, the attention of parents, the community, and others.

Based on interviews with mathematics teachers in class VIII of SMP Muhammadiyah 1 Mlati, Sleman, namely Mr. Ginanjar Rifqi Nugroho on January 23, 2018, where until now mathematics is still categorized as one of the subjects considered difficult and not easily understood by some students. Judging from the Middle Semester Exams' value for mathematics in class VIII of SMP Muhammadiyah 1 Mlati, Sleman, the regency is still low, as in Table 1.

Table 1. Middle-Class Semester Mathematics Deuteronomy Grade VIII SMP Muhammadiyah 1 Mlati

Info.	Class					Amount
	A	**B**	**C**	**D**	**E**	
Above MCC (≥ 75)	0	1	0	1	25	27
Under MCC (< 75)	31	34	29	32	9	135
Total students	31	35	29	33	34	162

Source: SMP Muhammadiyah 1 Mlati   Kabupaten Sleman 2017/2018

Table 1 shows the results of mathematics UTS for students of class VIII of SMP Muhammadiyah 1 Mlati, Sleman Regency. It can be seen that the results of learning mathematics most students are still under the Minimum Completeness Criteria (MCC), which is 75.

Based on interviews with some eighth-grade students at SMP Muhammadiyah 1 Mlati, Sleman Regency on January 25, 2018, many students said that mathematics was complicated. From the interview, there were still many students who said they did not like mathematics, so there was no will in the student starts from understanding the lesson, taking notes on mathematics, or paying attention to the teacher explaining in class, even not doing the math assignment given by the teacher. Students also talk about inadequate learning facilities at home, limited learning tools, and even students who do not have their mathematics textbooks, so students cannot study at home. Lack of other supporting books, stationery, and places of study, such as tables and chairs used to study but used as a dining table.

Based on observations made on January 26, 2018, eighth-grade students of SMP Muhammadiyah 1 Mlati Sleman Regency have low motivation to learn, that there are still many students who ignore the teacher explaining, not doing homework, chatting with my classmates, daydream inside the class, and go to the cafeteria while the lesson is in progress. Some students are not motivated to take math lessons. Then there is still a lack of students' attention in choosing peers. There are still peers who like to play, make noise in class, ignore lessons during the teaching and learning process, lazy to learn even to skip school.

Based on the background of the problems that have been raised can be formulated research problems as follows: 1) Is there a positive and significant relationship between learning motivation with mathematics learning outcomes of Class VIII students of SMP Muhammadiyah 1 Mlati Sleman Regency Even Semester 2017/2018 school year? 2) Is there a positive and significant relationship between learning facilities with mathematics learning outcomes of Class VIII students of SMP Muhammadiyah 1 Mlati Sleman Regency Even Semester 2017/2018 school year? 3) Is there a positive and significant relationship between peers and mathematics learning outcomes of Class VIII students of SMP Muhammadiyah 1 Mlati Sleman Regency Even Semester 2017/2018 school year? 4) Is there a positive and significant relationship between learning motivation and learning facilities with the mathematics learning outcomes of Class VIII students of SMP Muhammadiyah 1 Mlati Sleman Regency Even Semester for the 2017/2018 school year? 5) Is there a positive and significant relationship between learning motivation and peers with mathematics learning outcomes of Class VIII students of SMP Muhammadiyah 1 Mlati Sleman Regency Even Semester 2017/2018 school year? 6) Is there a positive and significant relationship between learning facilities and peers with mathematics learning outcomes of Class VIII students of SMP Muhammadiyah 1 Mlati Sleman Regency Even Semester 2017/2018 school year? 7) Is there a positive and significant relationship between learning motivation, learning facilities, and peers with mathematics learning outcomes of Class VIII students of SMP Muhammadiyah 1 Mlati Sleman Regency Even Semester Academic Year 2017/2018?

METHODS

This research is quantitative. The research site was conducted at SMP Muhammadiyah 1 Mlati in Sleman Regency. In contrast, the research was conducted in the even semester of the academic year 2017/2018. This study's population were all eighth-grade students of SMP Muhammadiyah 1 Mlati, Sleman Regency in the even semester of the academic year 2017/2018 with five classes totaling 162 students. Consists of classes VIII A, VIII B, VIII C, VIII D, and VIII E. In this study, sampling using a random sampling technique for classes, namely by lottery class. Obtained class VIII B as a test class and class VIII C as a research sample class.

In this study, there are two kinds of research variables, namely the independent variable and the dependent variable, namely X_1 (learning motivation), X_2 (learning facilities), and X_3 (peers). In contrast, the dependent variable in this study is the result of learning mathematics (Y). Data collection techniques were used to test techniques and questionnaires. This study's test technique was used to determine the mathematics learning outcomes of VIII grade students of SMP Muhammadiyah 1 Mlati, Sleman Regency, and even 2017/2018. While the questionnaire technique was used to obtain data on learning motivation, learning facilities, and peers of class VIII SMP Muhammadiyah 1 Mlati Sleman Regency even semester of the academic year 2017/2018.

An instrument is said to be good if produced from a valid and reliable measuring instrument. Before retrieving the actual data, the instrument needs to be tested first in class VIII B. The instrument testing is conducted to determine the validity, reliability, and different power of the instrument. A data analysis technique is then performed after the data has been collected, namely, descriptive data analysis, prerequisite test analysis, and hypothesis testing. Analysis prerequisite tests that must be met include normality test, independent test, and linearity test.

RESULTS AND DISCUSSION

The study results stated that the instrument is feasible to be presented or distributed to be filled by respondents. For the instrument trial analysis, based on the test of the validity of the learning outcomes test, it was found that from 25 items, 20 items were declared valid. As seen in Table 2.

Table 2. Validity Test Summary

Variable	Number of Items	Number of Drops	Autumn Bullet	Number of Valid Items
Mathematical Learning Outcomes	25	5	11,15,20,22,25	20

Furthermore, based on the different test results of the learning outcomes obtained from the 20 useful items, there are seven items with good criteria and 13 items with sufficient criteria. It can be seen that useful items also have appropriate criteria to be used, as seen in Table 3.

Table 3. Summary of Different Power Tests

Variable	Criteria	No Item Question
Mathematical Learning Outcomes	Very Good	-
	Good	2,7,12,14,16,18,21
	Enough	1,3,4,5,6,8,9,10,13,17,19,23,24
	Less	-
	Very Less	-

Furthermore, based on the reliability test, the instrument of learning motivation, learning facilities, peers, and reliable mathematics learning outcomes are shown in Table 4.

Table 4. Summary of Reliability Tests

Variable	r_{count}	r_{table}	Status
Motivation to learn	0,7258	0,334	Reliable
Learning Facilities	0,8856	0,334	Reliable
Friends of the same age	0,7985	0,334	Reliable
Mathematical Learning Outcomes	0,7832	0,334	Reliable

The prerequisite test analysis on the normality test found that the learning motivation instruments, learning facilities, peers, and mathematics learning outcomes were normally distributed, as shown in Table 5.

Table 5. Summary of Normality Test Results

Variable	χ^2_{count}	χ^2_{table}	Info.
Motivation to learn (X_1)	0,7210	7,8150	Normal
Independence Learning (X_2)	5,1637	7,8150	Normal
Learning Facilities (X_3)	4,2890	7,8150	Normal
Mathematical Learning Outcomes (Y)	2,0175	3,4810	Normal

Next, based on the independent test, it was found that between the variables of learning motivation (X_1) and learning facilities (X_2), learning motivation (X_1) and peers (X_3), and learning facilities (X_2) and peers (X_3) had independent relationships, such as seen in Table 6.

Table 6. Summary of Independent Test Results independent

Variable	χ^2_{count}	χ^2_{table}	Info.
X_1 with X_2	22,3688	37,6520	Independent
X_2 with X_3	32,3961	37,6520	Independent
X_2 with X_3	16,1255	37,6520	Independent

Furthermore, based on the linearity test, it is found that between learning motivation variables (X_1) and mathematics learning outcomes (Y), learning facilities (X_2) and mathematics learning outcomes (Y), and peers (X_3) and mathematics learning outcomes (Y) have a linear relationship, as seen in Table 7.

Table 7. Summary of Linearity Test Results

Variable	F_{count}	F_{count}	Info.
X_1 with Y	**1,6638**	**2,5536**	**linear**
X_2 with Y	0,2448	2,5072	linear
X_3 with Y	0,3241	2,5072	linear

The first hypothesis test results found a positive and significant relationship of learning motivation with mathematics learning outcomes to test the hypothesis. In the first hypothesis test, a simple correlation coefficient (r) of 0.5961 is obtained at a significant level of 5%.

Obtained a determinant coefficient (r^2) of 0.3553, which can be explained that 35.53% of learning outcomes are influenced by learning motivation. In contrast, the rest is influenced by other factors not discussed in this study. There is a variation in learning mathematics (Y), explained by learning motivation (X_1) through a linear line $\hat{Y} = -4{,}2730 + 0{,}8646X_1$. A regression direction coefficient of 0.8646. This means that every increase of one unit X_1 results in a 0.8646 increase in Y.

From the second hypothesis test results, it is found that there is a positive and significant relationship between student learning facilities with student mathematics learning outcomes. In the second hypothesis test, the correlation coefficient (r) 0.4567 is obtained at a significant level of 5%. To obtain the determinant coefficient (r^2) of 0.2085, which can explain 20.85% of learning outcomes influenced by learning facilities, other factors influence the rest. There is a variation in mathematics learning outcomes (Y) explained by learning facilities (X_2) through linear lines $\hat{Y} = 27{,}1510 +$

$0,4679\,X_2$, with a coefficient of regression direction of 0.4679. This means that every increase of one unit X_2 results in a 0.4679 increase in Y.

From the results of the third hypothesis test obtained that there is a positive and significant relationship of peers with student mathematics learning outcomes. In the third hypothesis test, the correlation coefficient (r) of 0.3211 is obtained (r^2) of 0.1031, explaining 10.31% of learning outcomes influenced by peers. Other factors influence the rest. There is a variation in mathematics learning outcomes (Y) explained by peers (X_3) through a linear line $\hat{Y} = 0{,}1210 + 2{,}3842X_3$ with a coefficient of regression direction of 2.3842. This means that every increase of one unit X_3 results in a 2.33842 increase in Y.

From the fourth hypothesis, test results showed a positive and significant relationship between student motivation and learning facilities with student mathematics learning outcomes. From the multiple correlation analysis, the multiple correlation coefficient (R)-value was obtained as 0.6601. This study also obtained a coefficient of determination (R^2) of 0.4357, meaning that 43.57% of learning outcomes are influenced by learning motivation and learning facilities while other factors influence the rest. There are variations in mathematics learning outcomes (Y) that can be explained by learning motivation (X_1) and learning facilities (X_2) through the linear line $\hat{Y} = -22{,}2080 + 0{,}7560X_1 + 0{,}3109X_2$. This means an increase of one unit (X_1) results in a 0.7560 increase in Y. An increase in one unit (X_2) resulted in a $0{,}3109$ increase in Y. While for relative contributions, X_1 amounted to 71,3015% and X_2 amounted to 28.6985% and effective contributions of X_1 amounted to 31.0660% and X_2 amounted to 12.5039%.

The fifth hypothesis test results obtained a positive and significant relationship between learning motivation and peers with student mathematics learning outcomes. The multiple correlation analysis obtained the value of the multiple correlation coefficient (R) of 0.6257. This study also obtained a coefficient of determination (R^2) of 0.3915, meaning 39.15% of learning outcomes influenced learning motivation and peers. Other factors influence the rest. There are variations in mathematics learning outcomes (Y), which can be explained by learning motivation (X_1) and peers (X_3) through linear lines $\hat{Y} = -22{,}2941 + 0{,}8196X_1 + 0{,}2790X_3$. This means an increase in one unit (X_1) results in a 0.8196 increase in Y. An increase in one unit (X_3) results in a 0.2790 increase in Y. While for relative contributions, X_1 is 86.0363% and X_3 is 13.9637%, and effective contribution X_1 at 33.6832% and X_3 at 5.4668%.

The sixth hypothesis test results obtained a positive and significant relationship between learning facilities and peers with student mathematics learning outcomes. From the multiple correlation analysis, it is obtained the value of the multiple correlation coefficient (R) of 0.4856. This study also obtained a coefficient of determination (R^2) of 0.2358, meaning 23.58% of learning outcomes are influenced by learning facilities and student peers, while other factors influence the rest. There are variations in mathematics learning outcomes (Y) that can be explained by learning facilities (X_2) and peers (X_3) through linear lines $\hat{Y} = 3{,}6382 + 0{,}4062X_2 + 0{,}3699X_3$. This means an increase in one unit (X_2) resulted in a 0.4062 increase in Y. An increase in one unit (X_3) resulted in a 0.3699 increase in Y. While for relative contributions, X_2 amounted to 69,2708% and X_3 amounted to 30,7291% and effective contributions X_2 of 16.3340% and X_3 of 7.2459%.

The seventh hypothesis test results obtained a positive and significant relationship of learning motivation, learning facilities, and peers with student mathematics learning outcomes. The multiple correlation analysis obtained the value of the multiple correlation coefficient (R) of 0.5751. This study also obtained a coefficient of determination (R^2) of 0.3307, meaning 33.07% is influenced by learning motivation, learning facilities, and peers. The rest are by other factors. Variations in mathematics learning outcomes (Y) can be explained by learning motivation (X_1), learning facilities (X_2), and peers (X_3) through linear lines $\hat{Y} = -9{,}5520 + 0{,}3994X_1 + 0{,}3040X_2 + 0{,}2262X_3$. This means an increase in one unit (X_1) results in a 0.3994 increase in Y, an increase in one unit (X_2) results in a 0.3040 increase in Y. An increase in one unit (X_3) results in a 0.2262 increase in Y. Whereas for the relative

contribution of X_1 by 49,6284 %, X_2 of 36.9707% and X_3 of 13.4008% and effective contribution of X_1 of 16.4121%, X_2 of 12.22262% and X_3 of 4.4316%. This shows that learning motivation provides the most significant relationship to learning outcomes in mathematics than learning facilities and peers, as shown in Table 8.

Table 8. Summary of Relative Contributions (RC) and Effective Contributions (EC)

Variable	RC	EC
Motivation to learn (X_1)	49,6284%	16,4121%
Learning facilities (X_2)	36,9707%	1 12,2262%
Friends of the same age (X_3)	13,4008%	4,4316%
Amount	100%	33,07%

CONCLUSION

Based on the results of the study and discussion, several research conclusions can be drawn as follows:

1. There is a positive and significant relationship between learning motivation and mathematics learning outcomes of VIII grade students of SMP Muhammadiyah 1 Mlati, Sleman Regency, Even semester, the academic Year 2017/2018. This is indicated by the t-test that is $t_{count} > t_{table}$ or $3.8577 > 1.7033$. The simple correlation coefficient (r) between learning motivation and mathematics learning outcomes is 0.5961. And the simple regression equation Y for X_1 is $\hat{Y} = -4,2730 + 0,8646\,X_1$.

2. There is a positive and significant relationship between learning facilities with mathematics learning outcomes of VIII grade students of SMP Muhammadiyah 1 Mlati Sleman Regency Even Semester 2017/2018 Academic Year. This is indicated by the t-test that is $t_{count} > t_{table}$ or $2.6673 > 1.7033$. The simple correlation coefficient (r) between learning facilities with mathematics learning outcomes of 0.4567. A simple regression equation for Y over X_2 is also obtained. $\hat{Y} = 27,1510 + 0,4679\,X_2$.

3. There is a positive and significant relationship between peers and mathematics learning outcomes of VIII grade students of SMP Muhammadiyah 1 Mlati Sleman Regency Even Semester 2017/2018 Academic Year. This is indicated by the t-test that is $t_{count} > t_{table}$ or $1.7618 > 1.7033$. The simple correlation coefficient (r) between peers and mathematics learning outcomes of 0.3211. Also, a simple regression equation of Y for X_3 is obtained as well as $\hat{Y} = 0,1210 + 2,3842X_3$.

4. There is a positive and significant relationship between learning motivation and learning facilities with mathematics learning outcomes of VIII grade students of SMP Muhammadiyah 1 Mlati, Sleman Regency Even Semester, the academic Year 2017/2018. This is indicated by the F test that is $F_{count} > F_{table}$ or $10.0374 > 3.37$. The multiple correlation coefficient (R) between learning motivation and learning facilities with mathematics learning outcomes is 0.6601. The coefficient of determination (R^2) is 0.4357 with a linear line equation $\hat{Y} = -22,2080 + 0,7560X_1 + 0,3109X_2$. The relative contribution of X_1 is 71.3015%, and X_2 is 28.6985%, and the effective contribution of X_1 is 15.8063%, and X_2 is 12.5039%.

5. There is a positive and significant relationship between learning motivation and peers with the mathematics learning outcomes of VIII grade students of SMP Muhammadiyah 1 Mlati Sleman Regency Even Semester Academic Year 2017/2018. This is indicated by the F test, which is $F_{count} > F_{table}$ or $8.3640 > 3.37$. The correlation coefficient (R) between learning motivation and peers with mathematics learning outcomes is 0.6257. The coefficient of determination (R^2) is 0.3915 with a linear line equation $\hat{Y} = 22,2941 + 0,8196X_1 + 0,2790X_3$. The relative contribution of X_1 is 86.0363%, and X_3 is 13.9637%, and the effective contribution of X_1 is 33.6832%, and X_3 is 5.4668%.

6. There is a positive and significant relationship between learning facilities and peers with mathematics learning outcomes of VIII grade students of SMP Muhammadiyah 1 Mlati Sleman Regency Even Semester 2017/2018 Academic Year. This is indicated by the F test that is $F_{count} >$

F_{table} or $4.0114 > 3.37$. The correlation coefficient (R) between learning facilities and peers with mathematics learning outcomes is 0.4856. The coefficient of determination (R^2) is 0.2358 with the linear equation $\widehat{Y} = 3{,}6382 + 0{,}4062X_1 + 0{,}3699X_3$. The relative contribution X_2 amounted to 69.2708%, and X_3 amounted to 30.7291%, and effective contributions X_2 amounted to 16.3340%, and X_3 amounted to 7.2459%.

7. There is a positive and significant relationship between learning motivation, learning facilities, and peers with mathematics learning results for eighth-grade students of SMP Muhammadiyah 1 Mlati Sleman Regency Even Semester Academic Year 2017/2018. This is indicated by the F test that is $F_{count} > F_{table}$ or $4.1174 > 2.99$. The correlation coefficient (R) between learning motivation, learning facilities, and peers, with mathematics learning outcomes of 0.5751 and a coefficient of determination (R^2) of 0.3307 with a linear line equation $\widehat{Y} = -9{,}5520 + 0{,}3994X_1 + 0{,}3040X_2 + 0{,}2262X_3$. The relative contribution of X_1 is 49.6284%, X_2 is 36,9707% and X_3 of 13,4008% and effective contribution of X_1 of 16.4121%, X_2 amounted to 12.2262% and X_3 amounted to 4.4316%.

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