THE RELATIONSHIP AMONG LEARNING FACILITIES, THE LOGICAL THINKING ABILITY AND PARENT'S GUIDANCE WITH LEARNING ACHIEVEMENT OF MATHEMATICS STUDENTS CLASS XI

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ABSTRACT

Low students are learning achievement of mathematics associated with many factors. The relationship among Learning Facilities, The Logical Thinking Ability, and Parent's Guidance are some of the factors allegedly related to the learning achievement of mathematics. This research aims to determine the presence or absence of positive and significant relationships among Learning Facilities, The Logical Thinking Ability, and Parent's Guidance with Learning Achievement of Mathematics Students Class XI IPS in Even Semester SMA Muhammadiyah 5 Yogyakarta Academic Year 2016/2017. The population in this research was the students of class XI IPS in even semester SMA Muhammadiyah 5 Yogyakarta academic year 2016/2017, consisted of class XI IPS 1, XI IPS 2, XI IPS 3, XI IPS 4 totaling 111 students. Samples were taken from class XI IPS 1 as the research sample class and the random sampling technique. Technique data collection using documentation method, questionnaire method, and test method. The research instrument use validity test, different power test, and reliability test. Test requirement analysis includes a test of normality, a test of independence, and a linearity test. The writer uses linear regression analysis and correlation analysis. The results showed that there was a positive and significant relationship among Learning Facilities, The Logical Thinking Ability, and Parent's Guidance with Learning Achievement of Mathematics Students Class XI IPS in Even Semester SMA Muhammadiyah 5 Yogyakarta Academic Year 2016/2017. It is showed by $F_{count} > F_{table}$ is $F_{count} = 28{,}641$ and $F_{table} = 2{,}99$ with Coefficient of multiple correlation (R) amount 0,880 and coefficient determination double (R^2) amount 0,775 with the linear regression equation $\hat{Y} = -24{,}584 + 0{,}339X_1 + 0{,}474X_2 + 0{,}311X_3$. RC $X_1 = 29{,}315\%$, RC $X_2 = 43{,}150\%$ and RC $X_3 = 27{,}535\%$ and EC $X_1 = 22{,}708\%$, EC $X_2 = 33{,}425\%$ and EC $X_3 = 21{,}329\%$.

Keywords: Learning Facilities, The Logical Thinking Ability, Parent's Guidance, Learning Achievement of Mathematics.

INTRODUCTION

According to Law No. 20 of 2003 concerning the National Education System, states that education is a conscious and planned effort to create an atmosphere of learning and learning process so that students actively develop their potential to have religious-spiritual strength, self-control, personality, intelligence, morals noble, as well as the skills needed by himself, society, nation, and state. This shows that in the whole education effort, the atmosphere of learning and the learning process are activities that encourage the realization of an education. Furthermore, according to Khadijah, Nyayu (2014: 179), learning is said to be successful when achieving the expected results. Learning one of them is done in school. Learning activities carried out in the form of learning and teaching. Learning is done by students while teaching by teachers.

Several factors can influence learning outcomes. Slameto (2010: 54) argues that the learning process is influenced by two factors, namely, internal and external factors. Internal factors are factors that come from within students, while external factors are factors that come from the environment around students. Internal factors include health, psychological, and fatigue. At the same time, external factors include family, school, community. One factor that originates from students (internal), which are thought to influence student learning outcomes, is the ability to think logically. The ability to think logically is the ability to solve mathematical problems according to logic, correct according to mind or reasoning, and make sense. By thinking logically, students will be able to manage the information received by the sensory system so that they can conclude to give answers.

In addition to factors from within (internal), factors from outside (external) that are thought to influence student learning outcomes are parental guidance. Parental guidance is needed to help the achievement of good learning outcomes. Parental guidance is the assistance given by parents to their children to overcome child learning difficulties so that it will help them achieve the expected achievements. To learn, learning facilities are needed. Learning facilities are all the needs of students to facilitate, expedite, and support learning activities. According to Slameto (2010: 63), children who are learning besides fulfilling their basic needs also need learning facilities such as study rooms, desks, chairs, lighting, stationery, books, etc. Also, according to Hamalik, Oemar (2012: 42) argues that without the right time, a good place, and sufficient equipment is impossible or very difficult, the process of teaching and learning is successful.

According to Law No. 23 of 2003 concerning the National Education System, article 3 states that National Education functions to develop capabilities and shape a dignified nation's character and civilization in the context of the intellectual life of the nation. To educate the nation's life, this is realized through formal, non-formal, and informal education channels. In formal education held in schools, various fields of study are taught to contribute to the development of students' abilities. One of the subjects taught at school is mathematics. As one of the fields of study, mathematics is expected to contribute to educating and developing critical and logical thinking skills.

In the course of mathematics grade XI IPS SMA Muhammadiyah 5 Yogyakarta, shows that student learning results are still low. The low indicator of students ' mathematical learning results can be seen from the daily replay data results and Matematica students of grade XI IPS even semester SMA Muhammadiyah 5 Yogyakarta school year 2016/2017. Many students have earned a value under the minimal completeness criteria (MCC) of 75.

The problems in this study are: 1) Is there a positive and significant relationship between learning facilities and mathematics learning outcomes of students of class XI IPS even semester in SMA Muhammadiyah 5 Yogyakarta 2016/2017 school year? 2) Is there a positive and significant relationship between the ability to think logically with the mathematics learning outcomes of class XI IPS students even semester in SMA Muhammadiyah 5 Yogyakarta 2016/2017 school year? 3) Is there a positive and significant relationship between parental guidance and mathematics learning outcomes for students of class XI IPS even semester in SMA Muhammadiyah 5 Yogyakarta 2016/2017 school year? 4) Is there a positive and significant relationship between learning facilities and the ability to think logically with the mathematics learning outcomes of students of class XI IPS even semester in SMA Muhammadiyah 5 Yogyakarta 2016/2017 school year? 5) Is there a positive and significant relationship between learning facilities and parental guidance with the mathematics learning outcomes of students of class XI IPS even semester in Muhammadiyah 5 High School Yogyakarta 2016/2017? 6) Is there a positive and significant relationship between the ability to think logically and the guidance of parents with mathematics learning outcomes of students of class XI IPS even semester in SMA Muhammadiyah 5 Yogyakarta 2016/2017 school year? 7) Is there a positive and significant relationship between learning facilities, logical thinking skills, and parental guidance with the mathematics learning outcomes of class XI IPS students even semester at SMA Muhammadiyah 5 Yogyakarta 2016/2017 school year?

The purpose of this study is to find out: 1) The presence or absence of a positive and significant relationship between learning facilities and mathematics learning outcomes of students of class XI IPS even semester at Muhammadiyah 5 High School Yogyakarta in the 2016/2017 school year. 2) There is a positive and significant relationship between the ability to think logically with the mathematics learning outcomes of XI IPS class students in the even semester at Muhammadiyah 5 High School Yogyakarta 2016/2017 academic year. 3) The presence or absence of a positive and significant relationship between parental guidance and mathematics learning outcomes of students of class XI IPS even semester in Muhammadiyah 5 High School Yogyakarta 2016/2017 academic year. 4) The presence or absence of a positive and significant relationship between learning facilities and the ability to think logically with the mathematics learning outcomes of XI IPS class students in the even semester at Muhammadiyah 5 High School Yogyakarta 2016/2017 school year. 5) The presence or absence of a positive and significant

relationship between learning facilities and parental guidance with the mathematics learning outcomes of XI IPS grade students in the even semester at Muhammadiyah 5 High School Yogyakarta in the 2016/2017 school year. 6) The presence or absence of a positive and significant relationship between the ability to think logically and the guidance of parents with mathematics learning outcomes of students of class XI IPS even semester in SMA Muhammadiyah 5 Yogyakarta 2016/2017 school year. 7) The presence or absence of a positive and significant relationship between learning facilities, the ability to think logically, and the guidance of parents with the mathematics learning outcomes of class XI IPS students even semester at SMA Muhammadiyah 5 Yogyakarta 2016/2017 school year.

METHODS

This research is classified as quantitative research. The study's place and time were carried out at Muhammadiyah 5 Yogyakarta High School in the even semester of the 2016/2017 school year with subjects in class XI IPS of Muhammadiyah 5 Yogyakarta High School. The population in this study were students of class XI IPS Muhammadiyah 5 Yogyakarta High School in the 2016/2017 academic year, with 111 students divided into four classes. While the sample in this study was determined randomly to the class, namely using a class draw. The class taken as a sample class is XI IPS 1, with a total of 29 students. The variables used in this study include the independent variables and the dependent variable. The independent variable (independent) consists of learning facilities (X_1), logical thinking ability (X_2), and parental guidance (X_3), while the dependent variable (dependent) is the result of learning mathematics (Y).

In this study, the data collection techniques used were documentation, questionnaires, and tests. Documentation techniques for obtaining data about names, number of students, and list of UHB grades for class XI IPS students. The questionnaire technique is to obtain data on learning facilities and parental guidance. The test technique is to obtain data about tests of logical thinking ability and student mathematics learning outcomes. The questionnaire test uses the content validity test by the reviewers and the instrument reliability test with the alpha formula. In contrast, the test instrument questions use the content validity test by the reviewers and product-moment correlation techniques, the differentiation power test, and the reliability test with the KR-20 formula.

Analysis prerequisite test with normality test with Chi-squared formula, independent test with Chi-squared formula, and linearity test with F-test formula. The research hypothesis test uses a simple correlation test, multiple correlation test, and multiple linear regression test with three independent variables. Research hypothesis testing using a simple correlation test is performed to determine the presence or absence of a positive and significant relationship between 1) learning facilities with student mathematics learning outcomes, 2) logical thinking skills with student mathematics learning outcomes, 3) parental guidance with learning outcomes student mathematics.

Research hypothesis test using a multiple correlation test was conducted to determine the presence or absence of a positive and significant relationship between 1) learning facilities and the ability to think logically with student mathematics learning outcomes, 2) learning facilities and parental guidance with student mathematics learning outcomes, 3) the ability to think logically and the guidance of parents with student mathematics learning outcomes. Whereas the multiple linear regression test with three independent variables was carried out to determine the presence or absence of a positive and significant relationship between learning facilities, logical thinking skills, and parental guidance with student mathematics learning outcomes.

RESULTS AND DISCUSSION

The summary of normality test results can be seen in Table 1.

Table 1. Summary of Normality Test Results

Variable	χ^2_{count}	χ^2_{table}	df	Information
X_1	2,890	5,9915	2	Normal
X_2	2,569	5,9915	2	Normal

X_3	1,122	5,9915	2	Normal
Y	1,949	5,9915	2	Normal

From the normality test at a significant level of 5%, it is seen $\chi^2_{count} \leq \chi^2_{table}$. This means that the distribution of data obtained on each variable is normally distributed.

The summary of independent test results can be seen in Table 2.

Table 2. Summary of Independent Test Results

Variable	χ^2_{count}	χ^2_{table}	df	Information
X_1 and X_2	18,194	37,6525	25	Independent
X_1 and X_3	36,093	37,6525	25	Independent
X_2 and X_3	34,982	37,6525	25	Independent

From the independent test at a significant level of 5% and the degree of freedom $(df) = (\mathrm{k} - 1)(\mathrm{b} - 1)$, we can see $\chi^2_{count} \leq \chi^2_{table}$. This means that the distribution of data obtained on each variable is mutually independent.

The summary of linearity test results can be seen in Table 3.

Table 3. Summary of Linearity Test Results

Variable	F_{count}	F_{table}	Information
X_1 and Y	0,826	2,81	Linear
X_2 and Y	0,879	2,51	Linear
X_3 and Y	1,593	2,70	Linear

From the linearity test at the 5% significance level and the degree of freedom of the numerator $(v_1) = \mathrm{k} - 2$ and the denominator $(v_2) = n - k$, we can see $F^2_{count} \leq F^2_{table}$, this means that there is a linear relationship between the independent variables (X) and the dependent variable (Y).

The summary of the results of the first hypothesis test can be seen in table 4.

Table 4. Summary of First Hypothesis Test Results

t_{count}	t_{table}	df	Information
5,135	1,7033	27	H_0 rejected, H_1 accepted

From the first hypothesis test at a significant level of 5% and df = 27, it can be seen that $t_{count} = 5{,}135$ and $t_{table} = 1{,}7033$ so $t_{count} > t_{table}$ which means there is a positive and significant relationship between learning facilities and mathematics learning outcomes of XI IPS semester students even Muhammadiyah 5 Yogyakarta High School 2016/2017 academic year.

The summary of the results of the second hypothesis test can be seen in Table 5.

Table 5. Summary of Second Hypothesis Test Results

t_{count}	t_{table}	df	Information
5,168	1,7033	27	H_0 rejected, H_1 accepted

From the second hypothesis test at a significant level of 5% and df = 27, it can be seen that t_{count} = 5.168 and t_{table} = 1.7033 so $t_{count} > t_{table}$ This means there is a positive and significant relationship between logical thinking ability and mathematics learning outcomes of students of class XI IPS even semester of Muhammadiyah 5 Yogyakarta High School 2016/2017 academic year.

The summary of the results of the third hypothesis test can be seen in Table 6.

Table 6. Summary of Third Hypothesis Test Results

t_{count}	t_{table}	df	Information
5,037	1,7033	27	H_0 rejected, H_1 accepted

From the third hypothesis test at a significant level of 5% and df = 27, it can be seen that t_{count} = 5,037 and t_{table} = 1.7033 so $t_{count} > t_{table}$ This means there is a positive and significant relationship

between parental guidance and mathematics learning outcomes of students of class XI IPS even semester of Muhammadiyah 5 Yogyakarta High School 2016/2017 academic year.

The summary of the results of the fourth hypothesis test can be seen in Table 7

Table 7. Summary of Fourth Hypothesis Test Results

F_{count}	F_{table}	df	Information
34,155	3,37	$v_1 = 2$ $v_2 = 26$	H_0 rejected, H_1 accepted

From the fourth hypothesis test at a significant level of 5%, $v_1 = 2$ and $v_2 = 26$ so that it can be obtained F_{count} = 34.155 and F_{table} = 3.37 so that $F_{count} \geq F_{table}$ which means there is a positive and significant relationship between learning facilities and logical thinking skills with learning outcomes mathematics grade XI IPS students even semester of Muhammadiyah 5 Yogyakarta High School 2016/2017 academic year.

The summary of the results of the fifth hypothesis test can be seen in Table 8.

Table 8. Summary of the Fifth Hypothesis Test Results

F_{count}	F_{table}	df	Information
18,419	3,37	$v_1 = 2$ $v_2 = 26$	H_0 rejected, H_1 accepted

From the fifth hypothesis test at a significant level of 5%, $v_1 = 2$ and $v_2 = 26$ so that it can be obtained $F_{count} = 18{,}419$ and $F_{table} = 3{,}37$ so that F_{count} $\geq$ F_count_F_tabel which means there is a positive and significant relationship between learning facilities and parental guidance with the results learn mathematics class XI IPS students even semester high school Muhammadiyah 5 Yogyakarta 2016/2017 school year.

The summary of the results of the sixth hypothesis test can be seen in Table 9.

Table 9. Summary of the Results of the Sixth Hypothesis Test

F_{count}	F_{table}	df	Information
33,239	3,37	$v_1 = 2$ $v_2 = 26$	H_0 rejected, H_1 accepted

The sixth hypothesis test at a significant level of 5%, $v_1 = 2$, and $v_2 = 26$ so that it can be obtained $F_{count} = 33{,}239$ and $F_{table} = 3{,}37$. Hence, $F_{count} \geq F_{table}$ This means there is a positive and significant relationship between the ability of logical thinking and parental guidance with Mathematics learning outcomes of XI IPS grade students in the even semester of Muhammadiyah 5 Yogyakarta High School 2016/2017 academic year.

The summary of the results of the seventh hypothesis test can be seen in Table 10.

Table 10. Summary of Seventh Hypothesis Test Results

F_{count}	F_{table}	df	Information
28,641	2,99	$v_1 = 3$ $v_2 = 25$	H_0 rejected, H_1 accepted

From the seventh hypothesis test at a significant level of 5%, $v_1 = 3$ and $v_2 = 25$ so that it can be obtained $F_{count} = 28{,}641$ and $F_{table} = 2{,}99$ so $F_{count} \geq F_{table}$ which means there is a positive and significant relationship between learning facilities, logical thinking skills, and guide parents with mathematics learning outcomes of XI IPS grade students in the even semester of SMA Muhammadiyah 5 Yogyakarta 2016/2017 school year.

CONCLUSION

Based on the analysis of the research data and its discussion, this activity concludes the following:

1. There is a positive and significant relationship between learning facilities and mathematics learning outcomes of students of class XI IPS in the even semester of SMA Muhammadiyah 5 Yogyakarta 2016/2017 academic year. The results of t_{count} = 5.135 indicate this and t_{table} = 1.7033 at the 5% level seen $t_{count} > t_{table}$. The simple correlation coefficient value between learning facilities with mathematics learning outcomes of 0.703 with a simple regression equation Y for X_1 is $\hat{Y} = 0{,}303 + 0{,}737\ X_1$.
2. There is a positive and significant relationship between the ability to think logically with the learning outcomes of students of class XI IPS in the even semester of Muhammadiyah 5 Yogyakarta High School 2016/2017 academic year. The results of t_{count} = 5.168 indicate this and t_{table} = 1.7033 at the level of 5% seen $t_{count} > t_{table}$. The simple correlation coefficient value between the ability to think logically with mathematics learning outcomes of 0.705 with a simple regression equation Y over X_2 is $\hat{Y} = 18{,}959 + 0{,}706\ X_2$.
3. There is a positive and significant relationship between parental guidance and mathematics learning outcomes of class XI IPS students in the even semester of SMA Muhammadiyah 5 Yogyakarta 2016/2017 academic year. The results of t_{count} = 5,037 indicate this and t_{table} = 1.7033 at the level of 5% seen $t_{count} > t_{table}$. The simple correlation coefficient value between parental guidance and mathematics learning outcomes is 0.696 with a simple regression equation Y for X_3 is $\hat{Y} = 0{,}344 + 0{,}706\ X_3$.
4. There is a positive and significant relationship between learning facilities and the ability to think logically with the mathematics learning outcomes of students of class XI IPS even semester of SMA Muhammadiyah 5 Yogyakarta 2016/2017 school year. This is indicated by the results $F_{count} = 34{,}155$ and $F_{table} = 3{,}37$ at a level of 5% seen $F_{count} > F_{table}$. The multiple correlation coefficient between learning facilities and logical thinking skills with mathematics learning outcomes is 0.851 with a regression equation $\hat{Y} = -17{,}334 + 0{,}537\ X_1 + 0{,}517\ X_2$. The relative contribution of X_1 is 49.746%, and X_2 is 50.254%, and the effective contribution of X_1 is 36.032%, and X_2 is 36.400%.
5. Mathematics learning outcomes of XI IPS grade students in the even semester of Muhammadiyah 5 Yogyakarta High School 2016/2017 academic year. The results of $F_{count} = 18{,}419$ and $F_{table} = 3{,}37$ indicate this at 5% level seen $F_{count} > F_{table}$. The multiple correlation coefficient between learning facilities and parental guidance with mathematics learning outcomes is 0.766 with a regression equation $\hat{Y} = -11{,}285 + 0{,}450X_1 + 0{,}414X_3$. The relative contribution of X_1 is 51.490%, and X_3 is 48.510%, and the effective contribution X_1 is 36.186%, and X_3 is 28.438%.
6. There is a positive and significant relationship between the ability to think logically and the guidance of parents with mathematics learning outcomes of students of class XI IPS in the even semester of SMA Muhammadiyah 5 Yogyakarta 2016/2017 school year. This is indicated by the results $F_{count} = 33{,}239$ and $F_{table} = 3{,}37$ at a 5% level seen as $F_{count} > F_{table}$. The multiple correlation coefficient between the ability of logical thinking and parental guidance with mathematics learning outcomes is 0.848 with a regression equation $\hat{Y} = -15{,}156 + 0{,}521X_2 + 0{,}513X_3$. The relative contribution of X_2 is 51,030% and X_3 is 48,970% and the effective contribution of X_2 is 36,683% and X_3 is 35,202%.
7. There is a positive and significant relationship between learning facilities, logical thinking skills, and parental guidance with mathematics learning outcomes of students of class XI IPS in the even semester of Muhammadiyah 5 Yogyakarta High School in the 2016/2017 school year. The results of $F_{count} = 28{,}641$ and $F_{table} = 2{,}99$ indicate this at 5% level seen $F_{count} > F_{table}$. The multiple correlation coefficient between learning facilities, logical thinking skills, and parental guidance with mathematics learning outcomes is 0.880, and the coefficient of determination is 0.775 with a regression equation $\hat{Y} = -24{,}584 + 0{,}339X_1 + 0{,}474X_2 + 0{,}311X_3$. The relative contribution of X_1 is 29,315%, X_2 is 43,150% and X_3 is 27,535% and the effective contribution X_1 is 22,708%, X_2 is 33,425% and X_3 is 21,329%.

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