THE RELATIONSHIP BETWEEN LEARNING INDEPENDENT, LEARNING ENVIRONMENT AT HOME AND SCHOOL LIBRARY USAGE WITH MATHEMATICS LEARNING OUTCOMES

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ABSTRACT

Poor student learning outcomes are associated with many factors. Learning independently, learning environment at home, and school library usage is three factors that allegedly relate to learning outcomes. This study is purposed to determine whether or not a positive and significant correlation of learning independent, learning environment at home, and school library usage to the student's mathematics learning outcomes in the odd semester of eight grade students of Class VIII Junior High School (SMP) Muhammadiyah 1 Minggir Sleman in the academic Year 2017/2018. The sample class in SMP Muhammadiyah 1 Minggir Sleman in 2017/2018 consists of 5class.The class sample is class VIII F, chosen by using a random sampling technique. Data collection techniques used questionnaires and tests. The data collection instrument uses an independent learning questionnaire, a questionnaire of the learning environment at home, school library usage, and a test of learning results. Test of research instrument used validity test, differential test, and reliability test. The prerequisite analysis tests include normality test, linearity test, and independent test. Data analysis for hypothesis testing used simple correlation analysis and multiple regression analysis. The research results show a positive and significant relationship between learning independently, learning environment at home, and school library usage with learning mathematics. At the significant level 5%, $v_1 = 3, v_2 = 28, F_{count} = 14,596$ dan $F_{table} = 2,950$, $F_{count} > F_{tabel}$ with multiple correlation coefficients $R = 0,781$ and multiple regression equations are three variables $\hat{Y} = -651,273 + 0,265\,X_1 + 0,249\,X_2 + 0,303X_3$. The value of Relative contributions $X_1 = 32,384\%$, $X_2 = 33,525\%$, $X_3 = 34,091\%$ with its double determinant coefficient 0,610 and its effective contribution $X_1 = 19,751\%$, $X_2 = 20,447\%, X_3 = 20,793\%$.

Keywords: Learning Independent, Learning Environment at Home and School Library Usage, Learning Outcomes Mathematics

INTRODUCTION

Based on the Law of the Republic of Indonesia Number 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 spiritual, religious, self-control, personality control, intelligence, noble character, and the skills needed by himself, society, nation, and country. To achieve all this, of course, one must go through a good teaching and learning process. The process in education is nothing but a social interaction both between teacher and student and between students. Indeed, this social interaction can run smoothly if there is a curiosity about what is being learned in the students' learning process. According to observations from SMP Muhammadiyah 1 Minggir, Sleman Regency, it can be seen from the results of the first daily test scores of class VIII odd semester for the academic year 2017/2018 as shown in Table 1.

Table 1. List of Results of First Daily Test Scores of SMP Muhammadiyah 1 Minggir Sleman Regency Semester Odd Academic Year 2017/2018

Class VIII	C	D	E	F	G
Score Max	90	75	92,5	80	80
Score Min	40	20	25	27,5	27,5
Average	60,40	47,33	50,90	56,48	55,40
≥ MMC	3	2	7	2	4
< MMC	29	29	24	30	28
Total Stundent	32	31	31	32	32

Source data: SMP Muhammadiyah 1 Minggir Kabupaten Sleman

From the table above, it is known that the average results of daily tests of students are still low. There are still many students who have not passed the Minimum Completeness Criteria (MCC). It is known that the KKM mathematics lesson at SMP Muhammadiyah 1 Minggir Sleman Regency VIII class is 75. In the opinion of wrong, one Mathematics teacher at SMP Muhammadiyah 1 Minggir in Sleman Regency, Mrs. Endah Kusumawati, S.Pd. Low student learning independence is caused because students consider mathematics a difficult subject and very difficult to understand. Many students do cheating during tests to get good grades. This happened at SMP Muhammadiyah 1 Minggir in Sleman Regency that indicators of low learning independence can be seen from the attitude of students who do math assignments as homework is done at school by cheating on their friends or do not want to do individual tasks in the class given by the teacher but only waiting for their friends who have done it, and ignore the lesson. Also, students still feel hesitant or ashamed when told to work on assignments in front of the class.

Based on the interviews with ten students, information was obtained that mathematics was a complicated subject. Sometimes they were also unsure of the assignments/exercises that were done. They also said they rarely study at home because the house's atmosphere is not conducive, watching TV with the family when there is a difficult task they rarely want to try and cheat friends. Spend time at home to play and sleep. An external factor that is thought to influence mathematics learning outcomes is the learning environment at home. Education in the learning environment at home is the family is the basis of education first and foremost. A family that gives proper attention to the child will become good and responsible for future generations. Parents should be the first person to lay the foundation of education for their children. With this, family life, especially the parents' role, is the first educational environment that has an important role in determining and fostering the child's development process.

In addition to the learning environment at home, external factors that influence learning outcomes are libraries in schools or learning resources. School libraries are places for learning activities that influence the learning process and everything that can facilitate learning. Information is obtained to support learning. Book facilities in student libraries rarely read books or borrow available books. The headmaster tries to provide all things supporting education, such as providing new books in the teaching and learning process. Mrs. Nindy Suryaningtyas, the SMP Muhammadiyah 1 Minggir library's guardian, Sleman Regency, explained that most students came to the library during breaks to hang out and eat snacks.

Based on the description above, it can be concluded that the problems in this study are:

1. Is there a positive and significant relationship between students' learning independence and mathematics learning outcomes of class VIII of SMP Muhammadiyah 1 Minggir, Sleman, Semester Gasal, Academic Year 2017/2018?

2. Is there a positive and significant relationship between the learning environment at home with the mathematics learning outcomes of Grade VIII students of SMP Muhammadiyah 1 Minggir Sleman Regency Semester Odd Academic Year 2017/2018?

3. Is there a positive and significant relationship between the use of school libraries and mathematics learning outcomes for students of class VIII of SMP Muhammadiyah 1 Minggir, Sleman Regency Semester Odd Academic Year 2017/2018?
4. Is there a positive and significant relationship between learning independence and the learning environment at home with the mathematics learning outcomes of Grade VIII students of SMP Muhammadiyah 1 Minggir Sleman Regency Semester Odd Academic Year 2017/2018?
5. Is there a positive and significant relationship between learning independence and the use of school libraries with mathematics learning outcomes of students of class VIII of SMP Muhammadiyah 1 Minggir Sleman Regency Semester Odd Academic Year 2017/2018?
6. Is there a positive and significant relationship between the learning environment at home and the school library's use with the mathematics learning outcomes of Grade VIII students of SMP Muhammadiyah 1 Minggir Sleman Regency Semester Odd Academic Year 2017/2018?
7. Is there a positive and significant relationship between learning independence, learning environment at home, and the use of school libraries with mathematics learning outcomes for students of class VIII SMP Muhammadiyah 1 Minggir Sleman Regency Semester Odd Academic Year 2017/2018?

METHODS

This research is classified as quantitative research. The study's place and time were carried out at SMP Muhammadiyah 1 Minggir, Sleman Regency. The time used in this study was an odd semester of the academic year 2017/2018. This study's population were students of class VIII SMP Muhammadiyah 1 Minggir, Sleman Regency, with 158 students divided into five classes. In comparison, this study's sample was determined randomly against the class, namely using a class draw. Analysis of questionnaire instrument trials and tests using content validity tests by reviewers and product-moment correlation techniques (Suharsimi, 2013: 213) use the formula:

$$r_{jxy} = \frac{n \sum_{i=1}^{n} X_i Y_i - (\sum_{i=1}^{n} X_i)(\sum_{i=1}^{n} Y_i)}{\sqrt{\{n \sum_{i=1}^{n} X_i^2 (\sum_{i=1}^{n} X_i^2)\}} \sqrt{\{n \sum_{i=1}^{n} Y_i^2 (\sum_{i=1}^{n} Y_i^2)\}}}$$

With:

n: The number of respondents

X_{ij}: The score obtained by the respondent to i in item j

Y_i: The total score obtained by respondents to i

r_{jxy}: The total score obtained by respondents to i

(Suharsimi, 2013: 213)

The summary of the validity test can be seen in Table 2.

Table 2. Summary of Test Validity of Research Instruments

No	Instrument	Valid amount	Number of questions dropped	Number of questions dropped
1.	Mathematical Learning Outcomes	20	5	5

For the differentiation test, use the discrimination index formula (Suharsimi, 1981:157-158):

$$D = \frac{B_A}{J_A} - \frac{B_B}{J_B} = P_A - P_B$$

With:

B_A: Many groups of people answered correctly

B_B: The number of lower groups who answer correctly

J_A: The number of subjects in the upper group

J_B: Number of subjects in the lower group

P_A: Proportion of the upper group who answered right

P_B: Proportion of the lower group who answers right

While the reliability test of the questionnaire instrument used the Alpha Cronbach formula.

(Suharsimi, 2013: 239)

$$r_{11} = \frac{k}{(k-1)}\left\{1 - \frac{\sum \sigma_b^2}{\sigma_t^2}\right\}$$

With:

r_{11}: Research instrument reliability

σ_b^2: Variance of i-th item

σ_t^2: Total variance

k: Number of statement items or items

n: Number of respondents

and tests using the KR-20 formula (Suharsimi: 2013)

$$r_{11} = \frac{k}{k-1}\left(\frac{V_t - \sum pq}{V_t}\right)$$

With:

r_{11}: Overall test reliability

k: Number of statement items or item

V_t: Total variance

p: Proportion of subjects who answered correctly

q: Proportion of subjects who answer incorrectly

The reliability test summary can be seen in Table 3.

Table 3. Summary of Research Instrument Reliability Test Results

Variable	χ^2_{count}	χ^2_{table}	Criteria
X_1	0,758	0,349	High
X_2	0,377	0,349	Low
X_3	0,350	0,349	Low
Y	0,874	0,349	High

After the data has been collected, descriptive data analysis, analysis prerequisite tests, and hypothesis testing are carried out. Analysis prerequisite tests include normality tests using the chi-square formula, linearity test, and independence test. To test the hypothesis using the t-test and F-test. For t-test (Uswatun, 2014: 60), use the formula:

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

With:

r: Correlation coefficient

n: Many samples

For the F-test (Uswatun, 2014: 106), use the formula:

$$F = \frac{R^2(n-p-1)}{(1-R^2)p}$$

With:

F: F price regression

R^2: Coefficient of double determination

n: Sample size

p: Number of independent variables

RESULTS AND DISCUSSION

The summary of normality test results can be seen in Table 4.

Table 4. Summary of Normality Test Results

Variable	χ^2_{count}	χ^2_{table}	df	Info.
X_1	1,183	7,815	3	Normal
X_2	1,029	7,815	3	Normal
X_3	0,508	7,815	3	Normal
Y	2,711	7,815	3	Normal

From the normality test at a significant level of 5%, $\chi^2_{count} \leq \chi^2_{table}$, 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 5.

Table 5. Summary of Independent Test Results

Variable	χ^2_{count}	χ^2_{table}	df	Info.
X_1 and X_2	32,041	37,6525	25	Independent
X_1 and X_3	37,455	37,6525	25	Independent
X_2 and X_3	32,302	37,6525	25	Independent

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

The summary of linearity test results can be seen in Table 7.

Table 7. Summary of Linearity Test Results

Variable	F_{count}	F_{table}	Info.
X_1 and Y	-0,426	2,57	Linear
X_2 and Y	-2,373	2,40	Linear
X_3 and Y	1,911	2,40	Linear

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

From the first hypothesis test at a significant level of 5% and df = 30, it can be seen that $t_{count} = 5,879$ and $t_{table} = 1,6973$ so $t_{count} > t_{table}$ There is a positive and significant relationship between learning independence with mathematics learning outcomes of VIII grade students of SMP Muhammadiyah 1 Minggir Sleman Regency Odd semester in the academic year 2017/2018.

From the second hypothesis test at a significant level of 5% and df = 30, it can be seen that $t_{count} = 4,817$ and $t_{table} = 1,6673$, so $t_{count} > t_{table}$, which means there is a positive and significant relationship between the learning environment at home with mathematics learning outcomes of VIII students SMP Muhammadiyah 1 Minggir Sleman Regency Odd semester for the academic year 2017/2018.

From the third hypothesis test at a significant level of 5% and df = 30, it can be seen that $t_{count} = 7,592$ and $t_{table} = 1.6973$, so $t_{count} > t_{table}$, which means there is a positive and significant relationship between the use of school libraries with mathematics learning outcomes of VIII students SMP Muhammadiyah 1 Minggir Sleman Regency Odd semester 2017/2018 school year.

From the fourth hypothesis test at a significant level of 5%, $v_1 = 2$ and $v_2 = 29$ so that it can be obtained $F_{count} = 26,904$ and $F_{table} = 3,330$ so $F_{count} \geq F_{table}$ which means there is a positive and significant relationship between learning independence and learning environment at home with learning outcomes Mathematics of Grade VIII students of SMP Muhammadiyah 1 Minggir Sleman Regency Odd semester 2017/2018 school year.

From the fifth hypothesis test at a significant level of 5%, $v_1 = 2$ and $v_2 = 29$ so that it can be obtained $F_{count} = 36.025$ and $F_{table} = 3.330$ so that $F_{count} \geq F_{table}$ which means there is a positive and

significant relationship between learning independence and the use of school libraries with mathematics learning outcomes Grade VIII students of SMP Muhammadiyah 1 Minggir Sleman Regency Odd semester 2017/2018 school year.

From the sixth hypothesis test at a significant level of 5%, $v_1 = 2$ and $v_2 = 29$ so that it can be obtained $F_{count} = 35.926$ and $F_{table} = 3.330$ so that $F_{count} \geq F_{table}$ There is a positive and significant relationship between the learning environment at home and the use of the library school with mathematics learning outcomes for students of class VIII SMP Muhammadiyah 1 Minggir Sleman Regency Semester odd year 2017/2018.

From the seventh hypothesis test at a significant level of 5%, $v_1 = 3$ and $v_2 = 28$ so that it can be obtained $F_{count} = 14.593$ and $F_{table} = 2.950$ so $F_{count} \geq F_{table}$ There is a positive and significant relationship between learning independence, learning environment at home, and library use school with mathematics learning outcomes for students of VIII SMP Muhammadiyah 1 Minggir Sleman Regency Odd semester 2017/2018 school year.

CONCLUSION

Based on the results of research and discussion, the following research conclusions can be drawn:

1. There is a positive and significant relationship between learning independence with mathematics learning outcomes for students of class VIII of SMP Muhammadiyah 1 Minggir, Sleman Regency in the odd semester of 2017/2018. This is indicated by the t-test that is $t_{count} > t_{table}$ or $5.879 > 1.6973$. The simple correlation coefficient (r) between learning independence with mathematics learning outcomes of 0.732 with a linear regression equation $\widehat{Y} = -58{,}666 + 1{,}342\,X_1$

2. There is a positive and significant relationship between the learning environment at home with the mathematics learning outcomes of VIII grade students of SMP Muhammadiyah 1 Minggir, Sleman Regency in the odd semester of the academic year 2017/2018. This is indicated by the t-test that is $t_{count} > t_{table}$ or $4.817 > 1.6973$. The simple correlation coefficient (r) between the learning environment at home with mathematics learning outcomes of 0.660 with a linear regression equation $\widehat{Y} = -53{,}953 + 1{,}236X_2$

3. There is a positive and significant relationship between the use of school libraries and mathematics learning outcomes of VIII grade students of SMP Muhammadiyah 1 Minggir, Sleman Regency in the odd semester of 2017/2018. This is indicated by the t-test, which is $t_{count} > t_{table}$ or $7.592 > 1.6973$. The simple correlation coefficient (r) between school libraries' use with mathematics learning outcomes of 0.811 with a linear regression equation $\widehat{Y} = -65{,}788 + 1{,}504\,X_3$.

4. There is a positive and significant relationship between learning independence and the learning environment at home with mathematics learning outcomes for students of class VIII of SMP Muhammadiyah 1 Minggir, Sleman Regency in the odd semester of the academic year 2017/2018. This is indicated by the F-test that is $F_{count} > F_{table}$ or $26.904 > 3.330$. The multiple correlation coefficient (R) between self-concept and learning environment at home with mathematics learning outcomes of 0.806 with a double linear regression equation $\widehat{Y} = -90{,}237 + 0{,}981\,X_1 + 0{,}733\,X_2$. with a relative contribution of X_1 of 60.219% and X_2 of 39.781% and an effective contribution of X_1 of 39.130% and X_2 of 25.850%.

5. There is a positive and significant relationship between learning independence and school libraries with mathematics learning outcomes of eighth-grade students of SMP Muhammadiyah 1 Minggir, Sleman Regency in the odd semester of 2017/2018. This is indicated by the F-test, which is $F_{count} > F_{table}$ or $36.025 > 3.330$. The multiple correlation coefficient (R) between learning independence and the use of school libraries with mathematics learning outcomes is 0.844 with a double linear regression equation $\widehat{Y} = -81{,}542 + 0{,}599\,X_1 + 1{,}084\,X_3$. with a relative contribution of X_1 of 33.486% and X_3 of 66.514% and effective contribution of X_1 of 23.876% and X_3 of 47.425%.

6. There is a positive and significant relationship between the learning environment at home and school libraries with mathematics learning outcomes of students of class VIII of SMP Muhammadiyah 1 Minggir, Sleman Regency in the odd semester of the academic year 2017/2018. This is indicated by the F-test that is $F_{count} > F_{table}$ or 35.926> 3.330. The multiple correlation coefficient (R) between the learning environment at home and the use of the school library with mathematics learning outcomes of 0.844 with a double linear regression equation $\hat{Y} = -86{,}668 + 0{,}537\,X_2 + 01{,}195 X_3$, with a relative contribution of X_2 of 26,607% and X_3 of 73,393% and effective contribution X_2 of 18.956% and X_3 of 52.289%.

7. There is a positive and significant relationship between learning independence, learning environment at home, and school libraries with mathematics learning outcomes of Grade VIII students of SMP Muhammadiyah 1 Minggir Sleman Regency in the odd semester of the academic year 2017/2018. The F-test indicates this, namely $F_{count} > F_{table}$ or 14.593> 2.950. The multiple correlation coefficient (R) between learning independence, learning environment at home, and the use of school libraries with mathematics learning outcomes of 0.781 and (R^2) equal to the linear regression equation $\hat{Y}= -651{,}273 + 0{,}265\,X_1 + 0{,}249\,X_2 + 0{,}303\,X_3$ with the contribution of linear relative X_1 by 32.384%, the relative contribution of X_2 by 33.525%, the relative contribution of X_3 by 34.091%. Effective contribution X_1 is 19.751%, effective contribution X_2 is 20.444%, effective contribution X_3 is 20.793%.

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