

## THE RELATIONSHIP AMONG SELF CONCEPT, HOME LEARNING ENVIRONMENT, AND UTILIZATION OF LEARNING RESOURCES WITH MATHEMATICS LEARNING OUTCOMES IN CLASS VIII

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### ABSTRACT

Low student learning outcomes are associated with many factors. The Self-concept, learning environment, and utilization of learning resources are three factors that allegedly relate to learning outcomes. This study is purposed to determine whether or not a positive and significant correlation self-concept, home learning environment, and utilization of learning resources with mathematics learning outcomes in class VIII State Junior High School 1 Purwareja (SMP Negeri 1 Purwareja) – Klampok Banjarnegara odd semester academic year 2017/2018. The sample class in SMP Negeri 1 Purwareja – Klampok in the academic year 2017/2018 consists of 8 classes. The class sample is class VIII G, chosen by using a random sampling technique. Data collection techniques used questionnaires and tests. The data collection instrument uses a self-concept questionnaire, questionnaire of home study environment, questionnaire of learning resource utilization, and test of learning result. Test of research instrument used validity test, differential test, and reliability test. The prerequisite analysis tests include normality tests, linearity tests, and independent tests. Data analysis for hypothesis testing used simple correlation analysis and multiple regression analysis. The research results show a positive and significant relationship between self-concept, home study environment, and the utilization of learning resources with the results of learning mathematics. At the significant level 5%,  $v_1 = 3$ ,  $v_2 = 27$ ,  $F_{count} = 3,796$  dan  $F_{table} = 2,960$ ,  $F_{count} > F_{table}$  with multiple correlation coefficients,  $R = 0,545$  and multiple regression equations are three variables  $\hat{Y} = -75,139 + 0,728 X_1 + 0,265 X_2 + 0,531 X_3$ . The value of Relative contributions  $X_1 = 57,275\%$ ,  $X_2 = 10,404\%$ ,  $X_3 = 32,321\%$  with its double determinant coefficient 0,297 and its effective contribution  $X_1 = 17,011\%$ ,  $X_2 = 3,118\%$ ,  $X_3 = 9,691\%$ .

**Keywords:** Self Concept, Learning Environment at Home, Utilization of Learning Resources, Learning Outcomes 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 spiritual strength, self-control, personality, intelligence, morals noble, as well as the skills needed by himself, society, nation, and state. Education is a system to develop all the potential of students to the fullest. In education, there is also a learning process. Learning is a process of interaction between students and educators and learning resources in a learning environment. The process of interaction between students and educators is a teaching and learning activity—one of the lessons given in teaching and learning activities in mathematics. Mathematics is a subject that needs to be learned as a basic science and influences other sciences. However, mathematics is a lesson that is generally considered difficult, making students not optimal in learning it.

As happened in SMP Negeri 1 Purwareja - Klampok shows that mathematics learning outcomes are still low. Indicators of low student mathematics learning outcomes can be seen from the assessment of daily test data of algebraic material in class VIII students of SMP Negeri 1 Purwareja - Klampok. There are still many students who score below the Minimum Completeness Criteria (MCC), 76. The following are data that can give an accurate picture of the daily mathematics learning test results in the

form of algebraic material for grade VIII students of SMP Negeri 1 Purwareja - Klampok can be seen in Table 1.

**Table 1.** Daily Results of Material Forms of Algebra Class VIII SMP Negeri 1 Purwareja - Klampok Odd Semester 2017/2018 Academic Year

Class	Total students	Mean	Highest score	Lowest score	Complete	No Complete
VIII A	34	52,765	80	40	1	33
VIII B	32	56,625	80	28	3	29
VIII C	34	50,882	82	17	1	33
VIII D	31	50,290	82	25	1	30
VIII E	32	50,312	78	28	2	30
VIII F	34	50,353	71	25	0	34
VIII G	31	50,811	89	25	1	30
VIII H	32	54,781	89	40	2	30

Data source: SMP Negeri 1 Purwareja - Klampok

From the table above, it can be seen that the average daily tests are still low. Several factors influence the still low learning outcomes of mathematics. Among internal factors and external factors.

Internal factors are factors that originate from within oneself, while external factors are factors that originate from outside oneself. One internal factor that is thought to influence student learning outcomes is self-concept. The concept of self is an evaluation conducted on the abilities and weaknesses they have. In addition to internal factors, external factors that are thought to influence student learning outcomes are the learning environment at home and the use of learning resources. Based on observations and interviews on 7 August 2017, at SMP Negeri 1 Purwareja- Klampok. Ibu Rini Partiyati, S.Pd, one of the Mathematics Teachers of class VIII at SMP Negeri 1 Purwareja - Klampok said that many constraints influenced the low learning outcomes of grade VIII students, namely the notion of complicated mathematics and made them insecure when told to do so. Working on problems directly in front (on the board), students look pessimistic when working on problems where the questions look different from the examples given, and learning enthusiasm is still low.

Based on the results of an interview on 7 August 2017 at SMP Negeri 1 Purwareja - Klampok with 15 students, they said 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 atmosphere of the house is not conducive when it comes to learning to watch TV with the family when there is a difficult task they rarely want to try and just cheat friends, spend time at home just to play and sleep. In learning, educators and students need learning resources. Based on an interview with Ibu Gunarti as a library officer on 7 August 2017, she said the learning resources at school were adequate. However, not many students were able to make good use of them, especially in class VIII. Students sometimes come to the library only when told by the teacher, some are just playing around, and some even sit with their friends to chat.

Based on the description above, it can be concluded the problems in this study are: 1) Is there a positive and significant relationship between self-concept and mathematics learning outcomes of Grade VIII students of SMP Negeri 1 Purwareja - Klampok odd semester of the 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 Negeri 1 Purwareja - Klampok odd semester of the academic year 2017/2018?; 3) Is there a positive and significant relationship between the use of learning resources with mathematics learning outcomes for students of class VIII SMP Negeri 1 Purwareja - Klampok odd semester of the academic year 2017/2018?; 4) Is there a positive and significant relationship between self-concept and the learning environment at home with the mathematics learning outcomes of Grade VIII students of SMP Negeri 1 Purwareja - Klampok odd semester of the academic year 2017/2018?; 5) Is there a positive and significant relationship between self-concept and the use of learning resources with mathematics learning outcomes of Grade VIII students of SMP Negeri 1 Purwareja - Klampok odd semester of the academic year 2017/2018?; 6) Is

there a positive and significant relationship between the learning environment at home and the use of learning resources with the mathematics learning outcomes of Grade VIII students of SMP Negeri 1 Purwareja - Klampok odd semester of the academic year 2017/2018?; 7) Is there a positive and significant relationship between self-concept, learning environment at home, and the use of learning resources with mathematics learning outcomes of students of class VIII of SMP Negeri 1 Purwareja - Klampok odd semester of the academic year 2017/2018?

The purpose of this study is to find out: 1) The presence or absence of a positive and significant relationship between self-concept and mathematics learning outcomes of Grade VIII students of SMP Negeri 1 Purwareja - Klampok odd semester of the academic year 2017/2018. 2) To find out whether or not there is a positive and significant relationship between the learning environment at home with the mathematics learning outcomes of VIII SMP Negeri 1 Purwareja students - Klampok odd semester of the academic year 2017/2018. 3) There is a positive and significant relationship between the use of learning resources and mathematics learning outcomes of Grade VIII students of SMP Negeri 1 Purwareja - Klampok odd semester of the academic year 2017/2018. 4) Whether or not there is a positive and significant relationship between self-concept and the learning environment at home with mathematics learning outcomes for students of class VIII SMP Negeri 1 Purwareja - Klampok odd semester of the academic year 2017/2018. 5) The presence or absence of a positive and significant relationship between self-concept and the use of learning resources with mathematics learning outcomes of eighth-grade students of SMP Negeri 1 Purwareja - Klampok odd semester of the academic year 2017/2018. 6) The presence or absence of a positive and significant relationship between the learning environment at home and the use of learning resources with mathematics learning outcomes of students of class VIII SMP Negeri 1 Purwareja - Klampok odd semester of the academic year 2017/2018. 7) The presence or absence of a positive and significant relationship between self-concept, the learning environment at home, and the use of learning resources with the mathematics learning outcomes of VIII SMP Negeri 1 Purwareja-Klampok odd semester students in the 2017/2018 school year.

## METHODS

This research is classified as quantitative research. The place and time of the study were conducted at SMP Negeri 1 Purwareja - Klampok odd semester of the academic year 2017/2018. The population in this study were students of class VIII SMP Negeri 1 Purwareja - Klampok, with 260 students divided into eight classes. While the sample in this study was determined randomly to the class, namely using a class draw. Analysis of the questionnaire instrument trials and tests using content validity tests by reviewers and product-moment correlation techniques (Arikunto, Suharsimi, 2013: 213). This research is classified as quantitative research. The study's place and time were conducted at SMP Negeri 1 Purwareja -Klampok odd semester of the academic year 2017/2018. The population in this study were students of class VIII SMP Negeri 1 Purwareja - Klampok, with 260 students divided into eight classes. While the sample in this study was determined randomly to the class, namely using a class draw.

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

with:

$n$ : the number of respondents

$X_{ij}$ : the score obtained by the  $i$  respondents to item  $j$

$Y_i$ : the total score obtained by respondents to  $i$

$r_{jxy}$ : the correlation coefficient between the  $x$  and  $y$  variables in item  $j$

(Modifications from Arikunto, Suharsimi, 2013: 213)

The validity test summary can be seen in Table 2.

**Table 2.** Summary of Test Validity of Research Instruments

No	Instrument	Valid amount	Total questions dropped	Item number dropped
1.	Mathematical Learning Outcomes	20	5	5, 10, 11, 16, 24

The discriminating power test uses the discrimination index formula (Arikunto, Suharsimi, 1981: 157-158):

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

with:

$B_A$ : many top groups answered correctly

$B_B$ : the number of groups below who answered correctly

$J_A$ : many top group subjects

$J_B$ : the number of subject groups below

$P_A$ : the proportion of the upper group who answered correctly

$P_B$ : the proportion of the lower classes who answered correctly

The summary of different power tests can be seen in Table 3.

**Table 3.** Summary of the Results of the Different Test Power of Research Instruments

No	Variable	Criteria	Item Number Question
1.	Mathematical Learning Outcomes	Very low	-
		Low	-
		Enough	1, 2, 3, 4, 6, 9, 12, 13, 14, 15, 17, 22, 25
		Good	7, 18, 20, 21
		Very Good	8, 19, 23

While the questionnaire instrument reliability test uses the Alpha Cronbach formula (Arikunto, 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

$\sigma_b^2$ : i-th item variance

$\sigma_t^2$ : total variance

$k$ : the number of statement items or items

$n$ : the number of respondents

and tests using the KR-20 formula (Arikunto, Suharsimi, 2013: 231)

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

with :

$r_{11}$ : overall test reliability

$k$ : the number of statement items or items

$V_t$ : total variance

$p$ : the proportion of subjects who answered correctly

$q$ : the proportion of subjects who answer incorrectly

The reliability test summary can be seen in Table 4.

**Table 4.** Summary of Results of Research Instrument Reliability Tests

Variable	$\chi^2_{count}$	$\chi^2_{table}$	Criteria
X <sub>1</sub>	0,658	0,349	High
X <sub>2</sub>	0,792	0,349	High
X <sub>3</sub>	0,786	0,349	High
Y	0,874	0,349	Very 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 (Khasanah, Uswatun, 2014: 60) using the formula:

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

with :

$r$  : correlation coefficient

$n$  : lots of samples

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

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

with :

F: F price regression

$R^2$ : coefficient of double determination

$n$ : the number of samples

$p$ : number of free variables

## RESULTS AND DISCUSSION

The summary of normality test results can be seen in Table 5.

**Table 5.** Summary of Normality Test Results

Variable	$\chi^2_{count}$	$\chi^2_{table}$	df	Info
X <sub>1</sub>	2,315	7,8147	3	Normal
X <sub>2</sub>	2,423	7,8147	3	Normal
X <sub>3</sub>	1,939	7,8147	3	Normal
Y	0,744	7,8147	3	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 6.

**Table 6.** Summary of Independent Test Results

Variable	$\chi^2_{count}$	$\chi^2_{table}$	df	Info
X <sub>1</sub> and X <sub>2</sub>	18,284	37,6525	25	Independent
X <sub>1</sub> and X <sub>3</sub>	24,613	37,6525	25	Independent
X <sub>2</sub> and X <sub>3</sub>	26,335	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  $\chi^2_{count} \leq \chi^2_{table}$ ; 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 7.

**Table 7.** Summary of Linearity Test Results

Variable	$F_{count}$	$F_{table}$	Info
X <sub>1</sub> and Y	0,608	2,46	Linear
X <sub>2</sub> and Y	0,953	2,94	Linear
X <sub>3</sub> and Y	0,754	2,42	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  $F_{count}^2 \leq F_{table}^2$ , this means that there is 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  $df = 29$ , it can be seen that  $t_{count} = 2,917$  and  $t_{table} = 1,6991$  so  $t_{count} > t_{table}$  which means there is a positive and significant relationship between self-concept and mathematics learning outcomes of VIII grade students of SMP Negeri 1 Purwareja-Klampok Banjarnegara District odd semester of the academic year 2017/2018.

From the second hypothesis test at a significant level of 5% and  $df = 29$ , it can be seen that  $t_{count} = 1,829$  and  $t_{table} = 1,6691$  so  $t_{count} > t_{table}$  which means there is a positive and significant relationship between the learning environment at home with the mathematics learning outcomes students of VIII SMP Negeri 1 Purwareja - Klampok Banjarnegara Regency in the odd semester of the 2017/2018 school year.

From the third hypothesis test at a significant level of 5% and  $df = 29$ , it can be seen that  $t_{count} = 2,434$  and  $t_{table} = 1,6991$  so that  $t_{count} > t_{table}$ , which means there is a positive and significant relationship between parental guidance and student mathematics learning outcomes class VIII SMP Negeri 1 Purwareja- Klampok Banjarnegara Regency odd semester of the academic year 2017/2018.

From the fourth hypothesis test at a significant level of 5%,  $v_1 = 2$  and  $v_2 = 28$  so that it can be obtained  $F_{count} = 4,798$  and  $F_{table} = 3,34$  so that  $F_{count} \geq F_{table}$  which means there is a positive and significant relationship between self-concept and learning environment at home with mathematics learning outcomes Grade VIII students of SMP Negeri 1 Purwareja - Klampok Banjarnegara Regency odd semester of the academic year 2017/2018.

From the fifth hypothesis test at a significant level of 5%,  $v_1 = 2$  and  $v_2 = 28$  so that it can be obtained  $F_{count} = 5,702$  and  $F_{table} = 3,34$  so that  $F_{count} \geq F_{table}$  which means there is a positive and significant relationship between self-concept and the use of learning resources with the results of mathematics learning for eighth-grade students of SMP Negeri 1 Purwareja - Klampok Banjarnegara Regency in the odd semester of the academic year 2017/2018.

From the sixth hypothesis test at a significant level of 5%,  $v_1 = 2$  and  $v_2 = 28$  so that it can be obtained  $F_{count} = 3,373$  and  $F_{table} = 3,34$  so that  $F_{count} \geq F_{table}$  which means there is a positive and significant relationship between the learning environment at home and the use of learning resources with mathematics learning outcomes for students of class VIII of SMP Negeri 1 Purwareja - Klampok, Banjarnegara Regency, an odd semester of the academic year 2017/2018.

From the seventh hypothesis test at a significant level of 5%,  $v_1 = 3$  and  $v_2 = 27$  so that it can be obtained  $F_{count} = 3,796$  and  $F_{table} = 2,96$  so  $F_{count} \geq F_{table}$  which means there is a positive and significant relationship between self-concept, learning environment at home, and the use of learning resources with mathematics learning outcomes of students of VIII SMP Negeri 1 Purwareja - Klampok Banjarnegara Regency in the odd semester of the academic year 2017/2018.

## 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 self-concept and mathematics learning outcomes of students of class VIII of SMP Negeri 1 Purwareja - Klampok, Banjarnegara Regency, an odd semester of the academic year 2017/2018. This is indicated by the t-test that is that  $t_{count} >$

- $t_{table}$  or  $2.917 > 1.6991$ . The simple correlation coefficient ( $r$ ) between self-concept and mathematics learning outcomes of 0.476 with a linear regression equation  $\hat{Y} = -32,943 + 0,979 X_1$ .
2. There is a positive and significant relationship between the learning environment at home with the mathematics learning outcomes of Grade VIII students of SMP Negeri 1 Purwareja - Klampok Banjarnegara Regency in the odd semester of the academic year 2017/2018. This is indicated by the t-test that is that  $t_{count} > t_{table}$  or  $1.829 > 1.6991$ . The simple correlation coefficient ( $r$ ) between the learning environment at home with mathematics learning outcomes of 0.322 with a linear regression equation  $\hat{Y} = -28,388 + 0,878 X_2$ .
  3. There is a positive and significant relationship between the use of learning resources with mathematics learning outcomes for students of class VIII of SMP Negeri 1 Purwareja - Klampok, Banjarnegara Regency in the odd semester of the academic year 2017/2018. This is indicated by the t-test that is that  $t_{count} > t_{table}$  or  $2,434 > 1,6991$ . The simple correlation coefficient ( $r$ ) between the use of learning resources and mathematics learning outcomes was 0.412 with a linear regression equation  $\hat{Y} = -22,639 + 0,928 X_3$ .
  4. There is a positive and significant relationship between self-concept and the learning environment at home with the mathematics learning outcomes of Grade VIII students of SMP Negeri 1 Purwareja - Klampok Banjarnegara Regency in the odd semester of the academic year 2017/2018. This is indicated by the F-test, which is  $F_{count} \geq F_{table}$  or  $4.798 > 3.34$ . The multiple correlation coefficient ( $R$ ) between self-concept and learning environment at home with mathematics learning outcomes of 0.505 with a second linear regression equation  $\hat{Y} = -64,795 + 0,853 X_1 + 0,490 X_2$ , with a relative contribution of  $X_1$  of 77.338% and  $X_2$  of 22.615% and effective contribution  $X_1$  of 19.733% and  $X_2$  5.767%.
  5. There is a positive and significant relationship between self-concept and utilization of learning resources with mathematics learning outcomes of Grade VIII students of SMP Negeri 1 Purwareja - Klampok, Banjarnegara Regency, an odd semester of the academic year 2017/2018. This is indicated by the F-test, which is  $F_{count} \geq F_{table}$  or  $5.702 > 3.34$ . The multiple correlation coefficient ( $R$ ) between self-concept and the use of learning resources with mathematics learning outcomes is 0.538 with a double linear regression equation  $\hat{Y} = -61,585 + 0,769 X_1 + 0,609 X_3$ , with a relative contribution of  $X_1$  of 61.527% and  $X_3$  of 38.777% and contributions effective  $X_1$  by 17.781% and  $X_3$  by 11.119%.
  6. There is a positive and significant relationship between the learning environment at home and the use of learning resources with the mathematics learning outcomes of Grade VIII students of SMP Negeri 1 Purwareja - Klampok Banjarnegara Regency in the odd semester of the academic year 2017/2018. This is indicated by the F-test that is  $F_{count} \geq F_{table}$  or  $3.373 > 3.34$ . The multiple correlation coefficient ( $R$ ) between the learning environment at home and the use of learning resources with mathematics learning outcomes of 0.441 with a double linear regression equation  $\hat{Y} = -50,689 + 0,476 X_2 + 0,756 X_3$ , with a relative contribution of  $X_2$  of 28,873% and  $X_3$  of 71,127% and effective contribution of  $X_2$  by 5.606% and  $X_3$  by 13.801%.
  7. There is a positive and significant relationship between self-concept, learning environment at home, and the use of learning resources with mathematics learning outcomes of students of class VIII of SMP Negeri 1 Purwareja-district Banjarnegara odd semester of the academic year 2017/2018. This is indicated by the F-test, namely  $F_{count} \geq F_{table}$  or  $3.796 > 2.960$ . The multiple correlation coefficient ( $R$ ) between self-concept, learning environment at home and the use of learning resources with mathematics learning outcomes of 0.545 and ( $R^2$ ) of 0.297 with a double linear regression equation  $\hat{Y} = -75,139 + 0,728 X_1 + 0,265 X_2 + 0,531 X_3$ , with a relative contribution of  $X_1$  of 57.275%, a relative contribution of  $X_2$  of 10.404%, a relative contribution of  $X_3$  of 32.332%. Effective contribution  $X_1$  is 17.01%, effective contribution  $X_2$  is 3.118%, effective contribution  $X_3$  is 9,691%.

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