

THE RELATIONSHIP BETWEEN LEARNING DISCIPLINE AND SCHOOL ENVIRONMENT WITH STUDENT MATHEMATICS LEARNING OUTCOMES OF CLASS X OF SMK

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ABSTRACT

This research was motivated by the number of students who often come late to school and the poor students' poor way of greeting teachers. This study aimed to determine whether or not the relationship between the learning discipline and school environment with the student mathematics learning outcomes of class X even semester even of the Light Vehicle Engineering Program of Muhammadiyah Vocational High School (SMK Muhammadiyah) Imogiri academic year 2017/2018 or not. The population in this research was all students of class X, even semester program of expertise of Light Vehicle Engineering SMK Muhammadiyah Imogiri academic year 2017/2018, consisting of 6 classes with 211 students. A sample was established using a random sampling of the class and obtained class X TKR 1 with an amount of student 30 people. Methods of data collection using questionnaires to obtain data of learning discipline and school environment and test instrument to obtain mathematics learning result data. The instruments were analyzed of their validity, reliability, discriminant, and difficulty. Data analysis in the form of the prerequisite test included a normality test, linearity test, and independence tests. The hypothesis test consisted of a simple linear regression test and multiple linear correlation-regression tests. The results showed a positive and significant relationship between the learning discipline and the school environment with mathematics learning outcomes of students of class X semester, even the expertise program of Light Vehicle Engineering SMK Muhammadiyah Imogiri academic year 2017/2018. This is shown by $F_{count} \geq F_{table}$ with $R = 0,521089029$ and $R^2 = 0.2715337761$ with $\hat{Y} = 13.268027 + 0,4152482X_1 + 0,2961205X_2$, with $RC X_1 = 75.1\%$, $RC X_2 = 24,9\%$, $EC X_1 = 20,4\%$, and $EC X_2 = 6,8\%$.

Keywords: Learning Discipline, School Environment, Mathematics Learning Outcomes

INTRODUCTION

Education has an important role for humans, especially in living and facing various challenges in life. With human education, it will be wiser in making decisions in solving a problem that is being faced. Education can be pursued through three channels, namely formal education, non-formal education, and informal education. Learning is done to obtain changes in the form of knowledge, attitudes, and skills. Success in learning is the achievement of learning outcomes that exceed the minimum limit with specific criteria predetermined by a school or educational institution. According to Slameto, optimal learning success is influenced by many factors, which outline consist of two factors, namely internal factors, and external factors. Internal factors are factors that originate from within themselves.

In contrast, external factors are factors that originate from outside the individual self. Learning discipline is an internal factor that can affect learning outcomes. With active learning, students will get good learning outcomes. Based on observations at SMK Muhammadiyah Imogiri, the student learning discipline level is relatively low, marked by the number of students who often arrive late to school and play truant during class time. As an external factor, the school environment also has a role in the learning process and influences learning outcomes. The relationship between students and teachers is right, namely treating the teacher as a friend while maintaining good manners and paying attention to words when talking with the teacher.

In this study, the following problems were formulated: (1) Is there a positive and significant

relationship between learning discipline and the school environment with the mathematics learning outcomes of class X students in the even semester of the Light Vehicle Engineering Expertise Program at SMK Muhammadiyah Imogiri in the Academic Year 2017/2018?

From the problems that have been formulated above, the purpose of this study is to find out whether or not there is a positive and significant relationship between learning discipline and the school environment with the mathematics learning outcomes of class X students in the even semester of the Light Vehicle Engineering Skills Program of SMK Muhammadiyah Imogiri Academic Year 2017/2018.

METHODS

This research was conducted in class X Light Vehicle Engineering Skills Program of SMK Muhammadiyah Imogiri Academic Year 2017/2018 on 16-28 April 2018 with a test class that is class X TKR 2 and a sample class that is class X TKR 1 with each class consisting of 30 students. In this study, there are two independent variables, namely learning discipline (X_1) and school environment (X_2) and the dependent variable, mathematics learning outcomes (Y).

Based on the research variables above, the research design scheme is as follows.

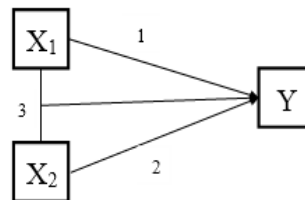


Figure 1. Research design scheme

Information:

X_1 : Learning Discipline

X_2 : School environment

Y : Learning outcomes

In this study, data collection techniques used a questionnaire method to obtain data on learning discipline and the school environment, and test methods to obtain data on mathematics learning outcomes. The questionnaire and test instruments used in data collection were analyzed for validity, reliability, difference power, and difficulty index. The prerequisite tests include the normality test, linearity test, and independence test. Data analysis in this study uses simple linear regression analysis and multiple linear regression analysis.

RESULTS AND DISCUSSION

Learning discipline data was obtained from questionnaires given to students with 25 items, with the highest score of 75 and the lowest score of 35, and an average value of 56 and a standard deviation of 10.8. From the above data, a grouping of discipline scores is obtained as follows.

Table 1. Distribution of Number of Students by Learning Discipline Category

Category	Score	F	%
Very high	$X \geq 72,206$	4	13,33
High	$61,380 \leq X < 72,206$	6	20
Is	$50,554 \leq X < 61,380$	12	40
Low	$39,727 \leq X < 50,554$	4	13,33
Very low	$X < 39,727$	4	13,33
Amount		30	100

From the results of the categorization, it can be seen that the highest percentage of students in class X of Light Vehicle Engineering Even Semester SMK Muhammadiyah Imogiri, Bantul Regency in the

Academic Year 2017/2018 at intervals of $50.554 \leq X < 61.380$ with a moderate categorization of 12 students or 40%.

School environment data was obtained from a questionnaire given to students with 25 items, with the highest score of 79 and the lowest score of 50, and an average value of 66.7 and a standard deviation of 8.1. From the above data obtained, a grouping of school environmental scores is as follows.

Table 2. Distribution of Number of Students by School Environment Category

Category	Score	F	%
Very high	$X \geq 78,823$	2	6,67
High	$70,741 \leq X < 78,823$	6	20
Is	$62,659 \leq X < 70,741$	12	40
Low	$54,577 \leq X < 62,659$	6	20
Very low	$X < 54,577$	4	13,33
Amount		30	100

From the results of the categorization, it can be seen that the highest percentage of students in class X of Light Vehicle Engineering Even Semester SMK Muhammadiyah Imogiri, Bantul Regency in the Academic Year 2017/2018 at intervals of $62,659 \leq X < 70,741$ with a moderate categorization of 12 students or 40%.

Data on the value of mathematics learning outcomes were obtained from a learning achievement test given to students with 21 items, with the highest score of 76.2 and the lowest score of 33.3, and an average value of 55.7 and a standard deviation of 10.4. From the above data obtained, a grouping of school environmental scores is as follows.

Table 3. Distribution of Number of Students by Mathematical Learning Outcomes Category

Category	Score	F	%
Very high	$X \geq 71,3$	3	10
High	$60,9 \leq X < 71,3$	10	33,33
Is	$50,5 \leq X < 60,9$	8	26,67
Low	$40,1 \leq X < 50,5$	7	23,33
Very low	$X < 40,1$	2	6,67
Amount		30	100

From the results of the categorization, it can be seen that the highest percentage of students of class X in Light Vehicle Engineering Even Semester of SMK Muhammadiyah Imogiri, Bantul Regency in the Academic Year 2017/2018 at intervals of $60.9 \leq X < 71.3$ with a high categorization of 10 students or 33.33%. The analysis prerequisite test is carried out to determine how the planned technical analysis can meet the analysis. The pre-test includes the normality test, linearity test, and independence test.

A normality test is used to test the distribution of data obtained on each variable with normal distribution or not. The normality test in this study uses the Chi-Square formula (χ^2). Decision-making criteria are the distribution of data obtained on each variable normally distributed if $\chi^2_{\text{count}} \leq \chi^2_{\text{table}}$ using a significant level of 5% and a degree of freedom k-1. Where k is the number of interval classes. The summary of normality test results is as follows.

Table 4. Summary of Normality Test Results

No	Variable	χ^2_{count}	χ^2_{table}	df	Info.
1.	Learning Discipline (X_1)	0,09767	5,9915	2	Normal
2.	School Environment (X_2)	0,09478	5,9915	2	Normal
3.	Mathematics Learning Outcomes (Y)	4,40798	5,9915	2	Normal

A linearity test is done to determine whether the independent variable and the dependent variable have a linear relationship. The formula used is a linear regression formula (Test F) with

decision-making criteria if $F_{\text{count}} \leq F_{\text{table}}$ with a significant 5% level and the numerator $df = k - 2$ and the denominator $df = n - k$. For X_1 against Y , it has dk numerator = 15 and d denominator = 13. For X_2 against Y , it has dk numerator = 16 and dk denominator = 12. Summarizing the results of the linearity test as follows.

Table 5. Summary of Linearity Test Results

No.	Variable	F_{count}	F_{table}	Info.
1.	X_1 to Y	0,383016	2,53	Linear
2.	X_2 to Y	1,617172	2,53	Linear

The independence test is used to determine whether there is a relationship between the two independent variables, namely learning discipline (X_1) and the school environment (X_2) using the Chi-Square formula. The decision making criteria are variables X_1 and X_2 are said to be independent if $\chi^2_{\text{count}} \leq \chi^2_{\text{table}}$ with a significant level of 5%, and the degree of freedom is $df = (B - 1)(K - 1)$. Where B is the number of rows, and K is the number of columns. The summary of independence test results is as follows.

Table 6. Summary of Independence Test Results

No.	Variable	χ^2_{count}	χ^2_{table}	Info
1.	X_1 and X_2	33,39065	37,39065	Independent

The purpose of the discussion of the results of this study was to determine the relationship between Learning Discipline (X_1) and School Environment (X_2) with Mathematics Learning Outcomes (Y) in class X students of the Light Vehicle Engineering Expertise Program at SMK Muhammadiyah Imogiri Academic Year 2017/2018. In this section, further discussion of the results of the research was analyzed in correlation. In this research, hypothesis testing is done to prove whether the proposed hypothesis is accepted or rejected.

In the first hypothesis test, a simple regression coefficient (r) of 0.4788 is obtained, so that (r^2) of 0.2292 means that 22.92% of learning outcomes are influenced by learning discipline. Other factors influence the rest. There is a variation in mathematics learning outcomes (Y) explained by learning disciplines (X_1) through linear lines $\hat{Y} = 29,8122 + 0,4668 X_1$, with a regression coefficient of 0.4668. This means that each increase of one unit X_1 results in 0.4668 increase Y . The first hypothesis test results are accepted that there is a positive and significant relationship between learning discipline with mathematics learning outcomes. In other words, the higher the level of student learning discipline, the better student learning outcomes. This is by the statement Sukmanasa (2016: 22) that is if the discipline of learning is high, then student learning outcomes will be high and vice versa.

The second hypothesis test obtained a simple regression coefficient (r) of 0.3184, so that obtained (r^2) of 0.1014 means that the school environment influences 10.14% of learning outcomes. Other factors influence the rest. There is a variation in mathematics learning outcomes (Y) explained by the school environment (X_2) through a linear line $\hat{Y} = 27,1579108 + 0,443975 X_1$, with a regression direction coefficient of 0.4439. This means that each increase of one unit X_1 results in a 0.4439 increase in Y . The second hypothesis test result is accepted that there is a positive and significant relationship between the school environment and mathematics learning outcomes. In other words, the better the condition of the school environment, the better student learning outcomes. This is by Sumantri and Puspita (2016: 91), which states that the better the learning environment, the higher the mathematical learning outcomes. Conversely, the worse the learning environment, the lower the mathematical learning outcomes.

The third hypothesis test obtained multiple regression coefficients (R) of 0.5211. The coefficient of determination (R^2) of 0.2715 is obtained, meaning that 27.15% of learning outcomes are influenced by the discipline of learning and the school environment. In contrast, the rest is influenced by other factors. There are variations in mathematics learning outcomes (Y) explained by learning

discipline (X_1) and school environment (X_2) through linear $\hat{Y} = 13,268027 + 0,4152482 X_1 + 0,2961205 X_2$. This means that each increase of one unit X_1 results in 0.4152482, an increase in Y, and each increase in one unit X_2 results in 0.2961205, an increase in Y. While for the relative contribution of X_1 by 75.1% and X_2 by 24.9% and the effective contribution of X_1 by 20, 4%, and X_2 of 6.8%, the discipline can be concluded of learning variables contributed the most to the learning outcomes than the school environment variables. The third hypothesis test results are accepted that there is a positive and significant relationship between learning discipline and the school environment with mathematics learning outcomes.

CONCLUSION

Based on the results of research and discussion, it was concluded that there was a positive and significant relationship between learning discipline and the school environment with the mathematics learning outcomes of class X students in the even semester of the Light Vehicle Engineering Expertise Program at SMK Muhammadiyah Imogiri in the Academic Year 2017/2018. This is indicated by the F-test that is $F_{\text{count}} = 5,0321 > F_{\text{table}} = 3,35$. The multiple correlation coefficient (R) between learning disciplines and the school environment with mathematics learning outcomes of 0.5211 and (R^2) of 0.2715 with a double linear regression equation $\hat{Y} = 13,268027 + 0,4152482 X_1 + 0,2961205 X_2$. The relative contribution of X_1 to Y is 75.1%, and the relative contribution of X_2 is 24.9%. The effective contribution of X_1 is 20.4%, and the effective contribution of X_2 is 6.8%.

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