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Survey of the Relationship Between Student Learning Independence and Scientific Learning Outcomes Islamic Junior High School (Madrasah Tsanawiyah) in South Jakarta

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Abstract

The purpose of this study was to clarify the relationship between student learning independence and scientific learning outcomes. The method used in this survey is a survey. The population of this survey was class VIII Madrasah Tsanawiyah Negeri in South Jakarta, for a total of 720 students, and the sample size of this survey was 88 students. Sampling was performed using a combination of clustering, proportional, and random techniques. This survey data collection is in the form of a survey using the Likert scale model that respondents need to fill out and a data analysis using the SPSS20 program. The result is a value of Sig = 0.000 < 0.05 and tcount = 3.727, H0 is discarded. This means that student learning independence is actively associated with scientific learning outcomes.

Keywords:

Learning Independence, Learning Outcomes, Student

INTRODUCTION

Education plays a crucial role in improving human quality. Education is a very crucial bridge in improving and developing human qualities that can save the life of a country. The function & objectives of national education based on law number 20 of 2003 concerning the national education system states that education functions to develop capabilities and build a dignified national character and civilization to educate the nation's life, aims to develop the potential in humans as beings who have faith & devotion to God Almighty, have a noble character, are healthy, knowledgeable, capable, creative, independent & become the people of a democratic and responsible country.

The explanation above reveals that education can create knowledge, skills, behaviors & norms that are good for humans. For this reason, it is necessary to increase human development as individual and social creatures through formal education, namely in schools/madrasah. One of the determinants of educational success can be observed according how the student's learning output in schools/madrasah.

Learning activities are both exclusively as well as inclusive, always pointing to the achievement of high learning output. High learning outcomes signify the success of the school to be the primary contributor to the improvement of human quality. Therefore, schools & teachers are obliged to further optimize their functions & work so that students are motivated in achieving the best learning output.

Based on the output of observations that have been carried out by researchers on MTs Negeri Class VIII students in South Jakarta, it is known that the output of learning science so far is still low. The root causes of the lack of student science learning output include: 1) Students do not think about

the concepts that have been learned as a result of which the concepts learned do not last long, 2) Students do not want to understand the practice questions first when doing the questions & immediately assume that the questions are difficult to do, 3) Students are difficult to apply the material to daily life.

Learning activities carried out by students affect the formation of good student independence in the learning process. Umar & La Sulo [2], argue that independence in learning is defined as a learning activity whose sustainability is driven more by self-will, one's own choices, & own responsibilities. The independence of student learning is not formed casually but goes through a long process & takes place slowly.

Learning independence can be interpreted as positive biological behaviors that are absolute & must be owned and developed by students who want to create strong self-confidence, namely: strong-willed, not easily given up, & have a strong stand [3]. Independence of learning according to the opinions above is a form of learning that is centered on the student's creation according to the crucial opportunities &experiences of students, as a result of which students can be confident, motivate themselves & able to learn at all times. With this learning independence, students will be able to develop values, behaviors, and knowledge. Independence is influenced by two factors, namely factors that come from within the individual (intrinsic factors) and factors that come from outside the individual (extrinsic factors). Factors derived from within are physiological and psychological factors. Psychological factors include the physical condition of the student, whether healthy or unhealthy, and psychological factors include talents, interests, attitudes, independence, motivation, and intelligence.

The results of preliminary studies show that not all students study independently. This is reflected in the large number of students who are late in collecting homework until the eve of class exams, and some students consciously and deliberately do not identify learning activities as the main activities in their daily schedules.

RESEARCH METHODS

The method used in this study is research using product-moment correlation and regression techniques. That is, it determines the relationship between a free variable and a bound variable. The variables in this study consist of bound variables, namely scientific learning outcomes (Y), and free variables, namely learning independence (X). The population is the whole subject of the study [4].

The population in this study involved all students of MTs Negeri Class VIII in South Jakarta, as many as 720 students. The sampling method in this study used a combination of clustering, proportional, and random methods. The cluster method is used to group students according to the school they are in. proportional method is used in schools whose population is affordable. In the meantime, we used a randomized approach to determine the sample members for each existing school. A sample is a part or representative of the population under study and is called a sampling survey if the findings of the survey are collected as applicable to that population [4]. The same was put forward by Sarwono Jonatan, who defined the sample as part of a set of elements selected for study [5]. In this study, the population was 720, so the determination of the number of samples was calculated using the Slovin Formula approach [6], i.e:

$$n = \frac{N}{Nd^2+1} \quad (1)$$

description:
n = Sample count
N = 720
d^2 = 10 %
n = 87,80

Then from a population of 720, a sample of 88 people was used. The sample members used by the researchers were 36 students from class VIII MTs Negeri 4, Class VIII MTs Negeri 13 as many as 26 students, and Class VIII MTs Negeri 32 students as many as 26 students. Each student selected by lottery will be used as a research resource person. This is done to ensure a fair and unbiased selection of samples.

Dependencies are the result of learning science. The technique of collecting data on science learning outcomes is carried out by testing selected students as research samples. The method of collecting data on student independence in learning uses non-test tools in the form of questionnaires. The means used are statements in the form of a Likert scale consisting of five answers obtained from the results of the Student Learning Independence Questionnaire.

To calibrate the test kits, the effectiveness of each question and the reliability of the test kits were tested using Pearson's product-moment correlation equation. It is used to calculate the validity of the questions in the questionnaire, and the device validity test where the rtabel is determined on the one hand, regardless of whether the acceptance criteria for the device item are valid for which the test was tested with a degree of significance (α) = 0.05 and a confidence level (df) = k – 2 (k = number of subjects). The criterion for the validity of an item is that if the rhitung is greater than the rtabel, the item is considered valid, and if the rhitung is smaller than the rtabel, the item is not used or the question item is discarded.

The calculation of the reliability of the questionnaire using the AlphaCronbach formula was obtained by comparing the confidence values obtained from the following calculations compared to the one-sided test table with a significance level (α) = 0.05 and a confidence level (df) = k-2. Where k = number of valid questions. The criterion of reliability of the instrument is said to be reliable if the rhitung is greater than the rtabel.

RESULTS AND DISCUSSION

Objective tests were used to measure learning independence variables measured in 88 respondents. The highest empirical score is 95 and the lowest is 50. The result of statistical calculations is an average of 81.01, a median of 83.00, and a standard deviation of 9.335. The results of more detailed calculations are shown in Table 1 below:

Table 1. Research Data on Learning Independence Variables

Calculation Results	Score
Mean	81.01
Median	83.00
Std. Deviation	9.335
Minimum	50
Maximum	95

It can be seen from the description that the mean and median are almost the same. That is, 81.01 and 83.00 indicate that the learning independence data obtained in this study are relatively high. Students' above-average scores are above below-average students, indicating that more students have higher learning independence than students with less learning independence. To be clearer, you can use histograms and polygons to see the results as follows:

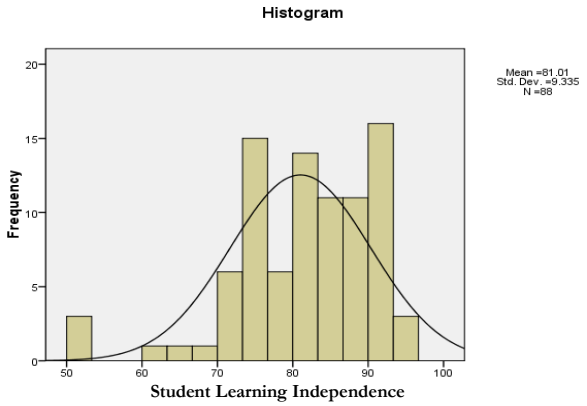


Figure 1. Histogram of Learning Independence Score Data

From the distribution table, histogram, and frequency polygon, it can be concluded that the score data of the learning independence scale of this study tend to be normally distributed.

Scientific Learning Achievement Data Analysis

Variable measurement of science learning outcomes using multiple-choice tests was 88 respondents. The highest empirical score is 25 and the lowest is 10. The result of statistical calculations is an average score of 16.80, a median of 17.00, and a standard deviation of 2.717. A more complete calculation result can be seen in Table 2 below:

Table 2. Research Data on Scientific Learning Outcomes

Calculation Results	Score
Mean	16.80
Median	17.00
Std. Deviation	2.717
Minimum	10
Maximum	25

From the description, we can see that the mean and median are almost the same, namely 16.80 and 17.00. This shows that the science learning outcomes data collected in this study can be classified as moderate. Above-average scores are higher than below-average scores, indicating that there are more students whose Scientific learning outcomes are high than students whose Scientific learning outcomes are low. To be clearer, you can use histograms and polygons to see the results as follows:

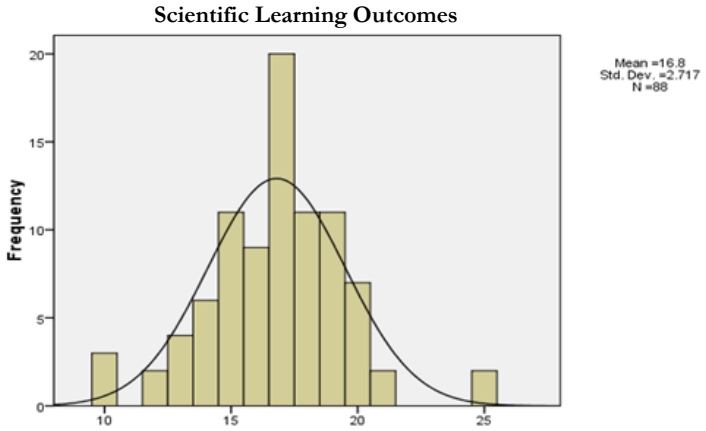


Figure 2. Histogram of Scientific Learning Outcomes Score Data

From the distribution table, as well as the histogram and frequency polygon, it can be concluded that the score data of the Natural Science Learning Achievement scale in this study have a distribution that tends to be normal.

Analysis Requirements Testing

The data analysis requirements test carried out in this study consists of testing the normality and linearity of the partial regression line between the free variable and the bound variable.

a) Data Normality Testing

Testing the normality of each sample's data was tested through the following hypothesis:

H_0 : the data on the sample is normally distributed

H_1 : the data on the sample is not normally distributed

The calculation is carried out with the help of a computer through the SPSS 20 application program. According to the existing rules of the program, the data normality standard is "H0 is accepted if the p-value (sig) > 0.05", meaning that the sample data is distributed. The value of p (sig) is the number reported in the sig column in the table of results/outputs of the normality test calculation results in the SPSS program. In this case, the method used is Kolmogorov-Smirnov. The following calculation results are shown in Table 3.

Table 3. Recapitulation of Kolmogorov-Smirnov Test One-Sample Test Results

		Learning Independence	Science Learning Outcomes
N		88	88
Normal Parameters	Mean	81.01	16.80
	Std. Deviation	9.335	2.717
Most Extreme Differences	Absolute	.109	.132
	Positive	.088	.095
	Negative	-.109	-.132
Kolmogorov-Smirnov Z		1.019	1.241
Asymp. Sig. (2-tailed)		.250	.092

The table above shows that the value of the Sig column of the Kolmogorov-Smirnov method is greater than 0.05 for all samples. Therefore, H_0 is accepted. That is, the data for all samples in the study were normally distributed.

To strengthen the test results, a standard error normality histogram, a standard error plot PP normal chart, and a QQ plot normal chart is displayed for each sample.

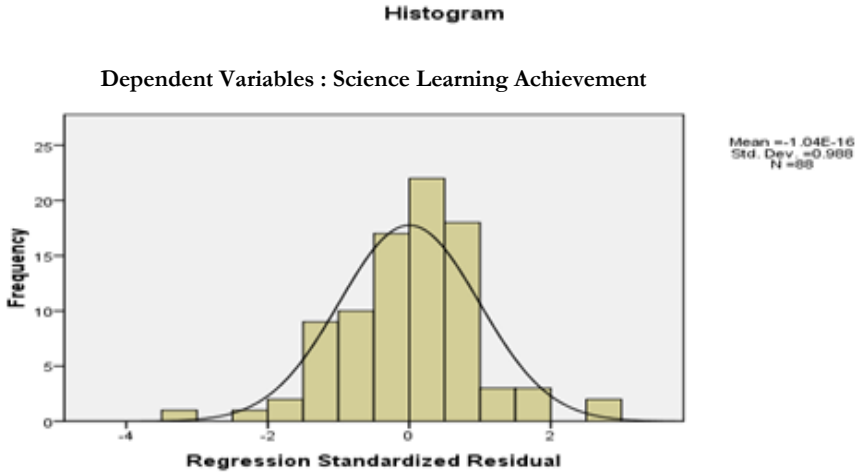
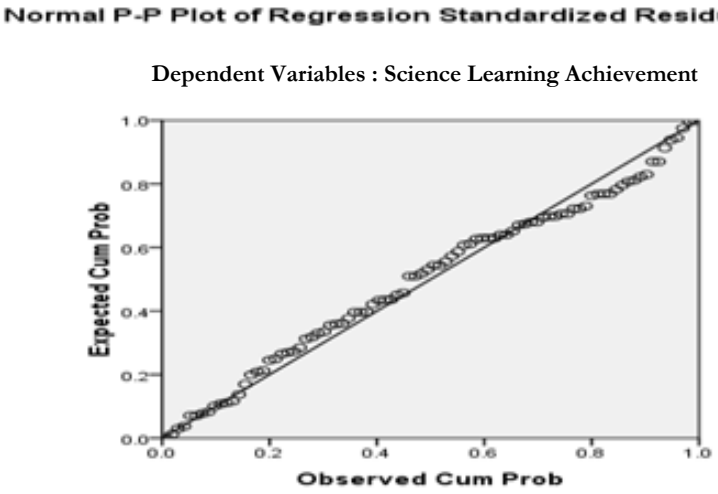


Figure 3. Standard Error Normality Histogram



Gambar 4. Histogram Normal P-P Plot Galat Baku Data

b) Regression line Linearity Testing

Linearity testing in this study used the following hypotheses:

H_0 : regression line of the relationship between the variable X and the linear variable Y

H_1 : regression line of the relationship between the variable X and the variable Y is not linear

The calculation is carried out using a computer through the SPSS 20 application program. According to the existing rules of the program, the standard of data normality is "H_0 is accepted if the

p-value (sig) > 0.05". Samples come from homogeneous populations. The value of p (sig) is the number indicated on the sig row of the Linearity column of the ANOVA table and is the result of a regression linearity test calculated with the SPSS 20 program.

Linearity of the Regression Line relationship between Variable X and Variable Y
The results of the calculation of the linearity test of the regression line of the relationship between variable X and variable Y can be seen in Table 4.

Table 4. Recapitulation of Linearity Test Results of Regression Lines of The Relationship Between Variable X and Variable Y (Anova Table)

			Sum of Squares	df	Mean Square	F	.Sig
Scientific Learning Outcomes	Between Groups	(Combined)	266.562	24	11.107	1.862	.026
		Linearity	79.270	1	79.270	13.291	.001
Learning Independence		Deviation from Linearity	187.293	23	8.143	1.365	.165
	Within Groups		375.756	63	5.964		
	Total		642.318	87			

In the table above, you can see that the deviation of the Sig line from linearity = 0.165 column values greater than 0.05 for all samples. Therefore, H0 is accepted. In other words, the regression line shows that the linear relationship between the variable X and the variable is Y.

The Effect of Learning Independence (X) on Scientific Learning Achievement (Y)
The hypotheses of this influence are:

$H_0 : \beta_2 = 0$

$H_1 : \beta_2 \neq 0$;

Means:
H0 : there is no significant influence of Learning Independence on Scientific Learning Achievement
H1 : there is a significant influence of Learning Independence on Scientific Learning Achievement

To prove the hypothesis, consider the values/numbers listed in column t and the Sig of the Learning Independence row (Variable X) in Table 4. An important criterion for regression according to existing regulations is "For Sig < 0.05, H0 is rejected". This means that the free variable X has a great effect on the bound variable Y. The Sig value is the number listed in the Sig column of the Learning Independence row (variable X) in Table 4. The calculated value of t is the number listed in column t of the Learning Independence row (variable X) in Table 4. The t value of the table is the value of the distribution table with a significance level of 5% confidence level (df = n-2) = 86. Where n is the number of respondents.

From Table 4, Sig Values = 0.000 < 0.05 and t count = 3.727. Then H0 was rejected. This means that the free variable X (independence in learning) has a great influence on the bound variable Y (science learning outcomes).

From the results of the regression test, it can be concluded that there is a positive relationship between the free variable X (learning independence) and the bound variable Y (science learning outcomes).

CONCLUSION

Based on the findings and analysis of survey data, it can be concluded that there is a relationship between the student learning independence index in MTs Negeri Jakarta Selatan and the results of learning science. This is shown by the achievement of Sig = 0.000 < 0.05 and t count =

3.727. Then H0 was rejected. This means that there is a positive relationship between the free variable X (learning independence) and the bound variable Y (scientific learning performance).

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