

The Influence of Student Creativity, Learning Media, Teacher's Teaching Style, Family Environment, and Study Hours on the Learning Outcomes of 11th Grade Students in PKK Subject

Nurlatifah¹, Jolianis², Lovelly Dwindah Dahen³

Universitas PGRI Sumatera Barat¹,

*E-mail: tifaa287423@gmail.com

Abstract

This study aims to analyze the effect of student creativity, learning media, teacher teaching style, family environment on the learning outcomes of class XI students in PKK subjects at SMKN 1 Simpang Alahan Mati. Using a quantitative approach with associative research methods, data obtained from 74 students selected through stratified random sampling techniques (strata). Analysis was carried out with path analysis techniques.

Keywords: Student Creativity, Learning Media, Teacher's Teaching Style, Family Environment, Study Hours



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Introduction

Education comes from the Latin word "ducare," which means to guide, direct, or lead, with the prefix "e" meaning out, thus it carries the meaning of "leading out." Based on Law No. 20 of 2003, education is a conscious and planned effort to create a learning atmosphere so that students can develop their potential comprehensively, including spiritual, self-control, personality, intelligence, morals, and skills. Self-learning is a psychological activity that results in behavioral changes, whether cognitive, affective, or psychomotor (Anggelina et al., 2023; Sihalohe & Sihombing, 2023; Rusmono, 2017). The success of education depends on the learning process, which is influenced by internal factors such as intelligence and creativity, as well as external factors such as teacher competence and the environment (Saputra, 2020; Mayora et al., 2018).

SMK N 1 Simpang Alahan Mati became the object of research because it has a low accreditation (C) and a 0.53% decline in student character according to data from the West Sumatra Provincial Education Office 2024. The learning outcomes of the PKK subject for the 11th grade show that 25 out of 105 students have not yet reached the KKM of 75, with the XI APHP class achieving full completion, while the XI TKJ and XI TSM classes are still low. Additionally, student participation in skill projects also varies, with 36 students not participating, which can affect skill development (Nurwidayanti & Mukminan, 2018; Haryadi et al., 2021).

The learning facilities at this school are still inadequate, such as the lack of textbooks, computers, LCDs, and some practical equipment that are partially in disrepair, which could potentially hinder the learning process (Haryadi et al., 2021; Kolopita et al., 2022). Teachers play a crucial role in the success of learning, yet there are still honorary teachers who are not certified. Teaching style, as stated by Astutie in Anggelina et al. (2023) and Diahvitaloka (2024), can influence student participation and learning

effectiveness (Annisa et al., 2021; Gulo & Telaumbanua, 2024; Setiawahyu, 2017). The family environment is also a significant external factor that influences motivation and learning outcomes (Rani & Zakir, 2019; Bonsapia et al., 2023; Nisa & Setiyani, 2016), especially since most students' parents have an income below Rp 2,994,000.

Time management and study hours also influence students' focus and learning outcomes (Dewi, 2019; Nursalma & Pujiastuti, 2023). Most students tend to be more focused in the morning, although some remain productive in the afternoon or evening. Different class schedules between majors also affect the effectiveness of learning. This research focuses on the influence of student creativity, learning media, teacher teaching style, learning environment, and study hours on PKK learning outcomes in the 11th grade at SMK N 1 Simpang Alahan Mati, in order to identify the dominant factors affecting students' academic achievements..

Metode

Education comes from the Latin word *ducare* which means to guide, direct, or lead, with the prefix *e* which means out, so it means "to direct outward." Based on Law No. 20 of 2003, education is a conscious and planned effort to create a learning atmosphere so that students can develop their potential as a whole, including spiritual, self-control, personality, intelligence, morals, and skills. Learning itself is a psychological activity that produces changes in behavior both cognitively, affectively, and psychomotorically (Anggelina et al., 2023; Sihalohe & Sihombing, 2023; Rusmono, 2017). The success of education depends on the learning process, which is influenced by internal factors such as intelligence and creativity, as well as external factors such as teacher competence and the environment (Saputra, 2020; Mayora et al., 2018).

SMK N 1 Simpang Alahan Mati became the object of research because it has low accreditation (C) and a decrease in student character of 0.53% according to data from the Provi Education Office.

To test whether each item of statement can actually reveal the variable under study, the validity or validity analysis of the statement is carried out, the higher the validity of the statement means the more precise the measuring instrument is. According to (Nehem et al., 2020) Validity is a measure that shows the level of validity and validity. An instrument is declared valid (valid) if the questions in a questionnaire are able to reveal something that will be measured by the questionnaire. The statement is declared valid if the Corrected Item-Total Correlation > 0.361. The formula used to test construct validity with productmoment correlation technique, namely:

$$R_{xy} =$$

Description:

N = Number of respondents

X = Variable score (respondent's answer)

Y = Total score of the variable for the nth respondent

The decision criteria are as follows:

If $r_{count} \geq r_{table}$, it means valid

If $r_{count} < r_{table}$, it means invalid

Reliability Test

According to Ghazali (2012: 47) Reliability is a tool for measuring a questionnaire which is an indicator of a variable or construct. A construct or variable is said to be reliable if it provides a Cronbach Alpha value > 0.70.

To measure the reliability of an instrument, the alpha formula of Arikunto (2010: 180) is used, which is as follows: $R_{11} =$

Where:

R_{11} = Instrument reliability

K = Number of question items

= Total variance of items
 = Total variance
 Decision criteria:
 Alpha \geq r table = reliable
 Alpha < r table = not reliable
 Normality Test

According to Ghozali (2012: 160) the normality test aims to test whether in regression, confounding or residual variables have a normal distribution. This test is a normality test based on the kurtosis coefficient and skewness coefficient. This test is carried out by comparing the Jarque Bera (JB) statistic with the X^2 table value (Suliyanto, 2011: 75). To calculate the Jarque Bera (JB) statistical value, the following formula is used:

JB = n
 Dimana :
 JB = Statistik Jarque-Bera
 S = Koefisien Skewness
 K = Koefisien Kurtosis
 Uji Heteroskedastisitas

According to (Ghozali, 2012: 139) the heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residuals of one observation to another. If the variance of the residuals of one observation to another observation is constant, it is called homoscedasticity and if it is different it is called heteroscedasticity. In this study using the White Test is done by regressing the squared residuals as the dependent variable with the dependent variable plus the square of the independent variable, then added again by multiplying the two independent variables. The test procedure is carried out with the following hypothesis:

H0 : There is no heteroscedasticity problem
 H1 : There is heteroscedasticity in the regression equavalu

Perform the OLS regression method then get the residuals run the following model to get the X^2 value

If $> \text{critic}2(k-1)$, reject H0.
 Or if $\alpha = 5\%$, then reject H0 if $\text{obs} \cdot R\text{-square} >$ or $P\text{-value} < \alpha$ (Widarjono, 2007: 125).

Multicollinearity Test

According to Ghozali (2012: 105) the multicollinearity test aims to test whether the regression model found a correlation between the independent variables. The multicollinearity test is used to determine whether or not there is a deviation from the classic assumption of multicollinearity. The prerequisite that must be met in the regression model is the presence or absence of multicollinearity.

Suliyanto (2011: 82), suggests that multicollinearity symptoms occur because an independent variable is linearly correlated with another independent. To determine whether an independent variable is linearly related to other independent variables.

In this study using Auxiliary Regression which detects multicoll by regressing each independent variable with the rest of the other independent variables using the following formula:

The decision on whether there is multicollinearity is :
 If $F_{hitung} > F_{tabel}$ then the model contains multicoll symptoms
 If $F_{hitung} < F_{tabel}$ then the model does not contain multicoll symptoms

Where if the VIF value is below 10 then there are no symptoms of multicollinearity. The VIF value can be found by the formula: $VIF =$

Where : VIF: Variance Inflation factor
 : Coefficient of Determination
 If $VIF > 10$, then there is a case of multicollinearity
 If $VIF < 10$, then there is no case of multicollinearity

Multicollinearity test by looking at the VIF (Variance Inflation Factor) value in the regression model using the help of the SPSS version 16.0 program and the test criteria are as follows:

If $VIF > 10$, then there is a multicollinearity problem

If $VIF < 10$, then there is no multicollinearity problem.

Autocorrelation Test

According to (Ghozali, 2012: 110) the autocorrelation test aims to test whether in the linear regression model there is a correlation between confounding errors in the current period and confounding errors in the previous period. The statistical test used to test autocorrelation is the Durbin-Watson (DW) test using the help formula of the SPSS version 16 program.

The autocorrelation test criteria are as follows:

$DW < d1$ = there is positive autocorrelation

$d1 < DW < DU$ = cannot be concluded

$DU < DW < 4 - d1$ = there is no autocorrelation

$4 - DU < DW < 4 - d1$ = cannot be concluded

$DW > 4 - d1$ = there is positive autocorrelation

Description:

DW: Durbin Watson Statistic Calculation Results

DU : Upper limit value (obtained from the table)

DL: Lower limit value (obtained from the table)

Coefficient of Determination (R^2)

The coefficient of determination is used to see how much influence the proportion of variation in changes in the independent variable (independent variable) as a whole has on the dependent variable (dependent variable) (Ghozali, 2011: 97).

Dimana :

ESS = Explained Sum Square (Jumlah kuadrat yang dijelaskan)

TSS = Total Sum Square (Jumlah total kuadrat)

Hypothesis Test

T test

This analysis is used to determine the contribution of the independent variable to the dependent variable using the formula Irianto (2010: 207):

Where:

T_o = Test value

B = Simple linear regression coefficient

S_b = Standard error on the regression coefficient

Test level:

If $t \text{ count} < t \text{ table}$ then H_0 is accepted and H_a is rejected, meaning that the independent variable has no effect on the dependent variable.

If $t \text{ count} \geq t \text{ table}$ then H_a is accepted and H_0 is rejected, meaning that the independent variable has an effect on the dependent variable.

Where the test level is $\alpha = 0.05$.

F test

The F test was conducted to see the effect of the independent variables as a whole on the dependent variable. The hypothesis in this test is as follows:

It means that the independent variable has no effect on the dependent variable.

$H_a \neq$

This means that the independent variables have an effect on the dependent variable. The provisions for acceptance or rejection of the hypothesis are if $F \text{ count} \geq F \text{ table}$, then H_0 is rejected H_a is accepted, meaning that together the independent variables affect the dependent variable. Conversely,

if $F_{\text{count}} < F_{\text{table}}$, then H_0 is accepted H_a is rejected, meaning that together the independent variables do not affect the dependent variable. F_{count} can be obtained with the following formula:

Description:

F = Significant measure of multiple regression coefficients as a whole (simultaneously)

K = Number of independent variables

N = Sample size

R^2 = Multiple regression coefficient

Criteria: if $F_{\text{count}} \geq F_{\text{table}}$ then H_a is accepted and H_0 is rejected. If $F_{\text{count}} < F_{\text{table}}$ then H_0 is accepted and H_a is rejected.

Results and Discussions

1. Results

2. Normality Test

3. Normality testing aims to determine the pattern of variance diversity that supports each research variable. In this study, normality testing was carried out using the Jarque-Bera method. Based on the results of the normality test that has been carried out, a summary of the results is obtained in the table below:

Tabel 31. Hasil output uji normalitas

Sumber :Olah data spss 16

Based on table 31 above, the Jarque-bera (JB) value $< X^2$ table so that the standardized residual value is declared normally distributed. To disappear the statistical value of Jarque-bera (JB) is used with the following formula:

Based on the above calculations, the Jarque-Bera statistical value is obtained, while the X^2 value with a df value of: 0.05 is 56.942. Because the Jarque-Bera (JB) statistical value $\leq x^2$ table value, it can be concluded that the racial values are normally distributed.

Multicollinearity Test

According to Ghozali (2012: 129) the multicollinearity test occurs because one or more independent variables are linearly correlated with other independent variables. Multicolonearity test by looking at the VIF (Varian Inflation Factor) value in the regression model using and the test criteria are as follows:

If $VIF > 10$, then there is a multicolonearity problem

If $VIF < 10$, then there is no multi-collinearity problem

The following multi-collinearity test is obtained from analyzing the research data as follows: From the first table 32 shows that the independent variable, namely student creativity (x_1) has a tolerance value of $0.93 > 10$ $VIF 1076 < 10$, so it can be concluded that there is no multicollinearity.

Then the second table shows that the independent variable, namely the family environment (x_2) has a tolerance value of $0.903 > 10$ $VIF 1,108 < 10$, so it can be concluded that there is no multicollinearity.

Then the third table shows that the independent variable, namely study hours (x_3), has a tolerance value of $0.943 > 10$ $VIF 1,060 < 10$, so it can be concluded that there is no multicollinearity.

Heteroscedasticity Test

As for testing the results of heteroscedasticity using the Glacier method, namely if the probability value is greater than the alpha value or ($\text{sig} > 0.05$), it is confirmed that the test does not occur symptoms of heteroscedasticity for more details in the following table:

Tabel 33. Hasil output uji heteroskedastisitas

Sumber :Olah data spss, 2016

From the first data table 33, it can be seen that the significance of the student creativity variable (X_1) has an absolute residual of $0.601 > 0.05$, which means that the regression model is free from hesteroskedastis.

Then in the second data table 33, it can be seen that the significance of the family environment variable (X2) has an absolute residual of $0.716 > 0.05$, which means that the regression model is free from heteroscedastic.

Then in the third data table 33, it can be seen that the significance of the study hour variable (X3) has an absolute residual of $0.620 > 0.05$, which means that the regression model is free from heteroskedastis.

Autocorrelation Test

The Autocorrelation test aims to test whether in a multiple linear regression model there is a correlation between confounding errors in the current period and errors in the previous period. In this study to detect the presence or absence of autocorrelation using the Durbin Watson test.

Tabel 34. Hasil output uji Autokorelasi

Based on table 34, it can be seen that Durbin-Watson is 1.562 Decision making on this assumption requires two auxiliary values obtained from the Durbin-Watson table, namely the dL and dU values, with $k = 5$ and $n = 47$, (dU) 1.7736 and (dL) 1.3073. Then compared as shown in the following table: Tabel. 35. Hasil Uji Autokorelasi dengan Uji Durbin Watson

Sumber : olahan data spss, 2016

Based on the results of the analysis, it can be seen that the value (DW) 1.562 is greater than the limit of the origin (DU) 1.3073 while $4 - DU$ is 2.202. Based on the above results, $DU < DW < 4 - DW$ so it can be concluded that there is no autocorrelation, so it can be concluded that the data is suitable for use in the test.

2. Discussions

Uji Hipotesis

Hasil Uji F

Ghozali (2011: 98) suggests the F statistical test basically shows whether all independent or independent variables included in the model have a joint influence on the dependent variable. This test is conducted to see the relationship between the independent variable and the independent variable as a whole. The results of this test will also be compared with the value in the F table. To test the level of influence of all independent variables together on the dependent variable. The results of the F test are as shown in the following table:

From the results of data processing using the SPSS version 16.0 program, it can be seen in table 44 above that for students with high and low income parents, the Fcount value is $12.974 > F$ table 2.449 and a significant value of $0.000 < \alpha = 0.05$. This means that H_0 is rejected and H_a is accepted.

Thus it can be said that student creativity, family environment have a significant effect on learning outcomes in PKK subjects at SMKN 1 Simpang Alahan Mati. Analysis of the data also shows that the learning outcomes of the sample group of students with high-income parents are higher than the sample group of students with low-income parents.

Hasil Uji t

Ghozali (2013: 98) the t statistical test basically shows how far the influence of one explanatory or independent variable individually in explaining the variation in the dependent variable. The hypothesis test used in this study consists of two types, namely the t test (partial), as shown in the following table:

Dari tabel 47 tersebut dapat dilihat pengaruh masing-masing variabel bebas yang mempengaruhi hasil belajar siswa adalah:

Hypothesis 1, there is a negative and significant effect of student creativity (X1) on student learning outcomes (Y) in PKK subjects at SMKN 1 Simpang Alahan Mati with a tcount value obtained of $-3.166 > t$ table of 1.683 with a significance of 0.003, meaning H_a is accepted and H_0 is rejected, thus it can be said that there is a negative and significant effect of student creativity on learning outcomes in PKK subjects at SMKN 1 Simpang Alahan Mati.

Hypothesis 2, there is a negative and significant effect of family environment (X4) on student learning outcomes (Y) in PKK subjects at SMKN 1 Simpang Alahan Mati with a tcount value

obtained of $4.542 > t$ table of 1.683 with a significance of 0.000, meaning that H_a is accepted and H_0 is rejected, thus it can be said that there is a negative and significant effect of family environment on learning outcomes in PKK subjects at SMKN 1 Simpang Alahan Mati.

Hypothesis 3, there is a negative and significant effect of study hours (X3) on student learning outcomes (Y) in PKK subjects at SMKN 1 Simpang Alahan Mati with a t count value obtained of $4.064 > t$ table of 1.683 with a significance of 0.000, meaning H_a is accepted and H_0 is rejected, thus it can be said that there is a negative and significant effect of the family environment on learning outcomes in PKK subjects at SMKN 1 Simpang Alahan Mati.

a. Manuscript Type

This research is purely the researcher's own without plagiarism or taking other research

Conclusion

Based on data analysis, this study shows that there is a negative and significant influence between several independent variables on the learning outcomes of PKK subjects at SMKN 1 Simpang Alahan Mati. Student creativity (X1) has a negative effect on learning outcomes with a t count value of $-3.166 > t$ table 1.683 and a significance of 0.003, so H_a is accepted. Family environment (X4) also has a significant negative effect with a t count value of $4.542 > t$ table 1.683 and a significance of 0.000. In addition, study hours (X5) proved to have a significant negative effect with a t count value of $4.064 > t$ table 1.683 and a significance of 0.000. These results indicate that these factors statistically affect the academic achievement of students in these schools.

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Acknowledgment

Terimakasih untuk semua pihak yang telah membantu dalam proses penelitian yang penulis lakukan. Semoga penelitian ini menjadi pondasi untuk penelitian selanjutnya