

The Effect of Linearity of Teachers' Educational Background on Learning Motivation at SMAN 1 Ngantang

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ABSTRACT

This study aims to: (1) Analyze the linear influence of teacher educational background on student learning motivation at SMAN 1 Ngantang. (2) Determine the significant differences in student learning motivation taught by teachers with linear and non-linear educational backgrounds at SMAN 1 Ngantang. This study uses a quantitative approach with a correlational design. This approach was chosen to test the linear influence between teacher educational background on student learning motivation in Senior High School (SMA). This study was conducted at State Senior High School (SMA) 1 Ngantang, located in Ngantang District, Malang Regency, East Java. To measure students' learning motivation and teachers' educational backgrounds, this study will use an existing questionnaire validated in previous similar studies. The use of instruments that have been tested for validity and reliability enables more accurate data collection and reduces the potential for measurement bias. The results of the study show that the regression equation $Y = 84.194 + 0.129X$ indicates that the linearity of teacher educational background has a positive relationship with student learning motivation. Based on the t-test results, a significance value of $0.462 > 0.05$ was obtained, thus concluding that the linearity of teacher educational background does not significantly influence student learning motivation. The results of the coefficient of determination (R^2) test showed an R-square value of 0.022, which means that the linearity of teacher educational background only contributes 2.2% to student learning motivation, while the remaining 97.8% is influenced by factors outside the research variables.

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1. INTRODUCTION

Education plays a vital role in human life, as it is a means of developing an individual's potential, both intellectually, socially, and emotionally. The primary goal of education is to develop good character and provide skills and knowledge that can help

individuals face life's challenges [1], [2], [3]. In the Indonesian education system, teachers play a vital role in creating a conducive learning environment, enabling students to achieve optimal learning outcomes. Especially at the high school level, student motivation is a key determinant of educational success.

Learning motivation refers to a student's internal drive to achieve their academic goals [4], [5], [6], [7], [8]. Students with high learning motivation tend to be active in the learning process, more enthusiastic, and put more effort into achieving their academic goals. Conversely, students with low motivation often struggle to follow lessons and achieve lower academic performance. One factor that can influence learning motivation is the teacher's educational background. A teacher's educational background serves as a key contextual factor influencing teaching methods, the choice of learning strategies, and the extent to which students feel supported in the learning process. This directly impacts students' level of learning motivation [9].

Several factors influence learning motivation. These factors include external factors, internal factors, and learning approach factors. Of these three factors, the one most relevant to this research is external factors. These external factors relate to the social environment, such as teachers, lecturers, and classmates. One element that can influence a student's motivation and enthusiasm for learning is the teacher. If teachers demonstrate sympathetic, nurturing behavior and set an example for their students, this will increase their motivation to learn [10].

The factors influencing learning motivation are complex, encompassing both internal and external aspects of the student. Internal factors include interests, self-perception, and the need to actualize one's potential [11], [12], [13], [14]. Meanwhile, external factors involve the learning environment, family support, social relationships, and the teacher's role in creating a pleasant learning atmosphere. At SMAN 1 Ngantang, with its unique geographic and socio-cultural background, it is important to further understand the correlation between teacher educational background and student learning motivation.

Previous studies have examined the linearity or relationship between teacher educational background and student learning outcomes. However, the relationship between teacher educational background and student learning motivation, particularly at the vocational high school level, has not been extensively studied. Therefore, this study aims to further explore how teacher educational background can influence student learning motivation, focusing on the linearity between these two variables.

By understanding more deeply the correlation between teachers' educational background and students' learning motivation, this research not only contributes to the development of educational theory but also provides practical benefits. Educators and policymakers at SMAN 1 Ngantang can utilize the findings of this study to design more targeted interventions, thereby improving the mapping of teachers and students' learning motivation. This research confirms that learning motivation remains a key focus in education, influencing not only learning outcomes but also students' readiness to face the challenges of life in the future.

2. METHOD

Type and Scientific Approach

This research used a quantitative approach with a correlational design. This approach was chosen to examine the linear effect of teacher educational background on student learning motivation in senior high schools (SMA). Quantitative research allows for objective measurement of variables and statistical analysis to determine the relationships between them.

Research Location and Setting

This research was conducted at State Senior High School (SMA) 1 Ngantang, located in the Ngantang District, Malang Regency, East Java. SMAN 1 Ngantang was a highly relevant and appropriate choice for sampling in this study on the linear effect of teacher educational background on student learning motivation.

Population and Research Sample

The population of this study consists of all students of SMAN 1 Ngantang in the 2024/2025 academic year. The sample consists of 100 students selected randomly from various classes by considering gender, age, grade level, and teachers' educational background.

Research Hypotheses

1. H0: There is no significant linear influence between teachers' educational background and students' learning motivation at SMAN 1 Ngantang.
2. H1: There is a significant linear influence between teachers' educational background and students' learning motivation at SMAN 1 Ngantang.
3. H2: There is a significant difference in learning motivation between students taught by teachers with linear and non-linear educational backgrounds.

Data Collection Techniques

1. Student Sample Selection

Student samples were selected using proportionate random sampling. The criteria included students taught by teachers with both linear and non-linear educational backgrounds, students willing to complete the questionnaire, and students with good attendance records.

2. Teacher Sample Selection

Teacher samples were selected using nonprobability sampling with criteria including teachers with linear and non-linear educational backgrounds, a minimum of two years of teaching experience, and willingness to participate in the study. The study involved at least 10 teachers and 100 students.

3. Questionnaire Preparation

The study used validated questionnaires to measure students' learning motivation and teachers' educational backgrounds in order to improve data accuracy and reduce measurement bias.

3. RESULTS AND DISCUSSION

This section presents the empirical findings obtained from the statistical analyses, including respondent characteristics, descriptive statistics, assumption testing, regression analysis, hypothesis testing, and the coefficient of determination.

Analysis Requirements Test

Normality Test

Table 1. Normality Test

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Linearity of Education	.137	27	.200*	.975	27	.732
Motivation to learn	.113	27	.200*	.969	27	.575

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Source: Processed Data, 2026

Based on the results of normality tests using the Kolmogorov–Smirnov and Shapiro–Wilk methods, the significance value for the linearity variable of teacher educational background was 0.200 in the Kolmogorov–Smirnov test and 0.732 in the Shapiro–Wilk test. Meanwhile, the significance value for student learning motivation was 0.200 in the Kolmogorov Smirnov test and 0.575 in the Shapiro–Wilk test.

Based on the normality testing criteria, data is considered normally distributed if the significance value (Sig.) is greater than 0.05. The test results indicate that all significance values for both variables are greater than 0.05, both in the Kolmogorov–Smirnov and Shapiro–Wilk tests. This indicates that the data for the linearity variables of teacher educational background and student learning motivation are normally distributed. Thus, it can be concluded that the research data meets the assumption of normality. Therefore, further analysis can be conducted using parametric statistical analysis, such as correlation tests or linear regression, to determine the linear effect of teacher educational background on student learning motivation.

Linearity Test

Table 2. Linearity Test

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Motivation to learn * Linearity of Education	Between Groups	(Combined)	1440.991	15	96.066	1.134	.425
		Linearity	51.872	1	51.872	.612	.450
		Deviation from Linearity	1389.118	14	99.223	1.171	.402
	Within Groups		931.750	11	84.705		
	Total		2372.741	26			

Source: Processed Data, 2026

Based on the results of the linearity test between the variables of teacher educational background and student learning motivation, the analysis results were obtained using an

ANOVA table. The Linearity section obtained a significance value (Sig.) of 0.450. Furthermore, the Deviation from Linearity section obtained a significance value of 0.402.

Based on the linearity test criteria, the relationship between two variables is considered linear if the significance value of the Deviation from Linearity is greater than 0.05. The analysis results indicate that the significance value of the Deviation from Linearity is $0.402 > 0.05$, thus concluding that there is no deviation from a linear relationship between the two variables.

Therefore, it can be concluded that the relationship between teacher educational background and student learning motivation is linear. Therefore, the data in this study meets the assumption of linearity, allowing further analysis using linear regression analysis to determine the effect of teacher educational background on student learning motivation at SMAN 1 Ngantang.

Heteroscedasticity Test

Table 3. Heteroscedasticity Test

Model	Coefficients ^a				
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	27.011	10.080		2.680	.013
Linearity of Education	-.209	.105	-.371	-1.996	.057

a. Dependent Variable: Abs_Res1

Source: Processed Data, 2026

Based on the results of the heteroscedasticity test using the Glejser test method, the results are shown in the Coefficients table with the dependent variable Abs_Res1 (absolute residual value). The significance value for the linearity variable of teacher educational background is 0.057, with a regression coefficient of -0.209.

Based on the criteria for the Glejser heteroscedasticity test, if the significance value (Sig.) is greater than 0.05, it can be concluded that there are no symptoms of heteroscedasticity in the regression model. The test results indicate that the significance value of the linearity variable of education is $0.057 > 0.05$, thus concluding that the regression model in this study does not experience heteroscedasticity.

Therefore, it can be concluded that the regression model used in this study meets the assumption of homoscedasticity, namely relatively constant residual variance. Therefore, the regression model is suitable for further analysis to determine the effect of linearity on teacher educational background on student learning motivation at SMAN 1 Ngantang.

Hypothesis Testing

Simple Linear Regression Analysis

Table 4. Simple Linear Regression Analysis

Model	Coefficients ^a				
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	84.194	16.592		5.074	.000
Linearity of Education	.129	.172	.148	.748	.462

a. Dependent Variable: Motivation to learn

Source: Processed Data, 2026

Based on the results of the simple linear regression analysis, the regression coefficient for the linearity variable of teacher educational background was 0.129 with a significance value (Sig.) of 0.462. Furthermore, the constant value was 84.194 with a significance value of 0.000. Based on these coefficient values, a simple linear regression equation can be constructed as follows:

$$Y = 84.194 + 0.129X$$

This equation shows that if the linearity value of teacher educational background (X) increases by one unit, student learning motivation (Y) will increase by 0.129 units, assuming other variables are held constant. A positive regression coefficient value indicates a positive relationship between the linearity of teacher educational background and student learning motivation, meaning that the higher the linearity of teacher educational background, the higher the student learning motivation tends to be.

t-test

Table 5. t-test

Model	Coefficients ^a				
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	84.194	16.592		5.074	.000
Linearity of Education	.129	.172	.148	.748	.462

a. Dependent Variable: Motivation to learn

Source: Processed Data, 2026

Based on the results of the t-test (partial test) in the Coefficients table, the calculated t-value for the linearity variable of teacher educational background is 0.748 with a significance value (Sig.) of 0.462. The regression coefficient obtained is 0.129, indicating a positive relationship between the linearity of teacher educational background and student learning motivation.

Based on the hypothesis testing criteria, if the significance value (Sig.) is less than 0.05, then the independent variable has a significant effect on the dependent variable. Conversely, if the significance value is greater than 0.05, then the independent variable does not have a significant effect on the dependent variable. The analysis revealed that the Sig. value of 0.462 is > 0.05, thus concluding that the linearity variable of teacher educational background does not significantly influence student learning motivation.

Thus, the results of the t-test indicate that the research hypothesis stating that there is a linear effect of teacher educational background on student learning motivation is rejected. This means that in the research conducted at SMAN 1 Ngantang, the linearity of teachers' educational backgrounds did not significantly influence students' learning motivation.

Coefficient of Determination Test (R²)

Based on Table 5, the results of the coefficient of determination (R²) test in the Model Summary table, the R² value was 0.022. This value indicates that the linearity of teacher educational background only explains 2.2% of the variation in student learning motivation.

Meanwhile, the remaining 97.8% is influenced by factors outside the variables examined in this study.

Table 5. Coefficient of Determination Test

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.148 ^a	.022	-.017	9.63508

a. Predictors: (Constant), Linearity of Education

Source: Processed Data, 2026

Furthermore, the Adjusted R^2 value of -0.017 indicates that after adjusting for the number of variables and sample size, the regression model's ability to explain student learning motivation is very small. This indicates that the linearity of teacher educational background has a very small contribution to explaining changes in student learning motivation.

Therefore, it can be concluded that the linearity of teacher educational background has a very small influence on student learning motivation at SMAN 1 Ngantang. Student learning motivation in this study is likely more influenced by other factors, such as teacher learning methods, the learning environment, family support, and internal factors within the students themselves.

Discussion

Overall, the findings indicate that teacher educational background has a positive but statistically insignificant relationship with student learning motivation ($\beta = 0.129$, $p = 0.462$). The regression model explains only 2.2% of the variance in learning motivation ($R^2 = 0.022$), suggesting that other factors play a much larger role in shaping students' motivation.

Based on the results of the descriptive statistical analysis, the variable of the linearity of educational background had a mean score of 95.78 with a standard deviation of 10.98. This indicates that, in general, the level of teachers' educational linearity was relatively high. Most teachers had educational backgrounds that were relevant to the subjects they taught. Theoretically, this suitability can support the quality of learning because teachers possess deeper academic understanding of the material delivered to students. Meanwhile, the student learning motivation variable had a mean score of 96.23 with a standard deviation of 8.83, indicating that students' learning motivation was generally in a good category. This shows that students generally had strong motivation to participate in school learning activities.

The description of respondent characteristics also illustrates the students' conditions in this study. Most respondents were female, both in the educational linearity data and learning motivation data. In addition, most students lived with their parents and had a moderate distance from home to school (2–5 km). In terms of study habits, most students had irregular independent study schedules and tended to study only when assignments or homework were given. This condition indicates that although students' learning motivation was relatively good, independent learning habits were still not fully structured. Furthermore, most students' parents worked in the private and agricultural sectors, indicating diverse

socioeconomic backgrounds. However, most students already had adequate learning facilities such as mobile phones and internet access to support the learning process.

Based on the results of the prerequisite tests, the research data met the required statistical assumptions. The normality test results showed significance values greater than 0.05 for both variables, indicating normally distributed data. Furthermore, the linearity test showed that the relationship between the linearity of teachers' educational background and students' learning motivation was linear because the significance value in the Deviation from Linearity was greater than 0.05. In addition, the heteroscedasticity test indicated that the regression model did not experience heteroscedasticity symptoms because the significance value was greater than 0.05. Thus, the data met the requirements for simple linear regression analysis.

The results of the simple linear regression analysis showed that the regression coefficient of the teachers' educational background linearity variable was 0.129 with a positive relationship direction. This means that theoretically, an increase in the linearity of teachers' educational background tends to be followed by an increase in students' learning motivation. However, the t-test results showed a significance value of 0.462, which is greater than 0.05. Therefore, it can be concluded that the linearity of teachers' educational background does not significantly influence students' learning motivation at SMAN 1 Ngantang. In other words, although the relationship was positive, the influence was not statistically strong enough to state that teachers' educational linearity was the main factor affecting students' learning motivation.

This finding is also supported by the coefficient of determination (R^2) value of 0.022, indicating that the linearity of teachers' educational background explained only 2.2% of the variation in students' learning motivation. Meanwhile, 97.8% of the variation was influenced by other factors outside the studied variable. This suggests that students' learning motivation is a complex phenomenon influenced by various internal and external factors. Internal factors include learning interest, learning goals, and students' psychological conditions, while external factors include teaching methods, learning environment, family support, learning facilities, and social interactions at school.

The results of this study share similarities and differences with previous studies. Research conducted by Julsari Karopak [15] showed that teachers' educational linearity had a positive and significant effect on student learning outcomes. The study explained that teachers with educational backgrounds relevant to the subjects they taught tended to have better pedagogical competence, thereby improving learning quality and ultimately affecting student achievement. Compared with the present study, both studies found a positive relationship direction, but in this study the effect was not significant on students' learning motivation. This difference may occur because the dependent variables differed. Julsari Karopak examined learning outcomes, while this study focused on learning motivation, which psychologically is influenced by more factors.

Furthermore, other research examined that vocational high school students majoring in Computer and Network Engineering (TKJ), found a significant relationship between teacher professionalism and students' learning motivation [16], [17], [15]. Compared with this study, the results differ because the present study found no significant effect of teachers'

educational linearity on learning motivation. This difference may be caused by differences in school characteristics and educational contexts.

Research conducted by Gisselawati [18] and Aqilah [19] also highlighted the importance of teachers' educational suitability. The studies explained that teachers teaching outside their field of expertise (mismatch) often experienced difficulties in mastering subject matter and developing engaging teaching methods. This condition could make learning monotonous and less varied, thereby reducing students' enthusiasm and learning motivation. Theoretically, these findings support the importance of teachers' educational linearity. However, this study did not find a significant effect.

The findings of this study can also be compared with research published in *Didaktika: Jurnal Kependidikan* (2024), which stated that teachers' professional competence strongly influences students' learning motivation [20]. The study explained that professional competence obtained through linear educational backgrounds can improve teaching quality, thereby motivating students to learn. In addition, the study showed that students' learning motivation acted as a mediating variable connecting teacher competence and student achievement. Compared with the present study, the difference in findings may be due to this study focusing only on the variable of teachers' educational background linearity without directly considering professional or pedagogical competence factors.

Thus, it can be understood that the suitability of teachers' educational backgrounds does not directly determine the level of students' learning motivation. Learning motivation is more influenced by how teachers deliver material, the teaching strategies used, and teachers' ability to create an engaging and interactive learning atmosphere. Therefore, although teachers' educational linearity remains important in supporting academic competence, pedagogical factors and teaching approaches also play a very important role in improving students' learning motivation.

Overall, the results of this study indicate that the linearity of teachers' educational backgrounds at SMAN 1 Ngantang was already at a relatively good level, but it did not have a significant effect on students' learning motivation. This indicates that improving students' learning motivation does not solely depend on the suitability of teachers' educational backgrounds, but is also influenced by various other factors related to the learning process and students' learning environment. Therefore, efforts to improve students' learning motivation should be carried out comprehensively by considering various aspects influencing the student learning process.

4. CONCLUSION

Conclusion

Based on the research results regarding the linear effect of teacher educational background on student learning motivation at SMAN 1 Ngantang, the following results were obtained:

1. The regression equation $Y = 84.194 + 0.129X$, indicating that the linear effect of teacher educational background has a positive relationship with student learning motivation.

2. The t-test results obtained a significance value of $0.462 > 0.05$, thus concluding that the linear effect of teacher educational background does not significantly influence student learning motivation.
3. The coefficient of determination (R^2) test results showed an R-square value of 0.022, indicating that the linear effect of teacher educational background only contributes 2.2% to student learning motivation, while the remaining 97.8% is influenced by factors outside the research variables.

Therefore, it can be concluded that the linear effect of teacher educational background on student learning motivation at SMAN 1 Ngantang is very low.

Recommendations

Based on the research findings, which show that teachers' educational background does not significantly influence student learning motivation, the following recommendations are recommended:

1. Schools are expected to improve the quality of the learning process by providing adequate learning facilities and encouraging teachers to use more varied and engaging learning methods to increase student learning motivation.
2. Teachers are expected to motivate students through innovative, interactive, and student-specific learning strategies, thereby increasing student interest and enthusiasm in participating in learning activities.
3. Future researchers are advised to examine other factors that may influence student learning motivation, such as the family environment, learning methods, learning facilities, and internal student factors, to provide a more comprehensive picture of the factors influencing student learning motivation.

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