Journal of Educational Sciences
Journal homepage: https://jes.ejournal.unri.ac.id/index.php/JES
P-ISSN 2581-1657
E-ISSN 2581-2203

The Relationship Between Students' Perceptions of Geography Teachers' Pedagogical Competence and the Learning Outcomes of Grade X Students at Palu State Senior High School 9

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ARTICLE INFO

Article history:

Received: 23 Sept 2025
Revised: 13 Oct 2025
Accepted: 25 Oct 2025
Published online: 05 Nov 2025

Keywords:

Student Perceptions,
Pedagogical Competence,
Geography Teachers,
Learning Outcomes

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Article Doi:

https://doi.org/10.31258/jes.9.6.p.5674-5685

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A B S T R A C T

Education is a human endeavor to nurture and develop innate physical and spiritual potential. This study aims to determine students' perceptions of geography teachers' pedagogical competence, assess student learning outcomes, and analyze whether there is a relationship between students' perceptions of geography teachers' pedagogical competence and the learning outcomes of 10th grade students at SMA Negeri 9 Palu. The type of research used was descriptive-correlational research with a quantitative approach. Student learning outcomes were classified as very good, with an average score of 84.27 and the majority of students obtaining scores in the range of 81–85 (40%), although none achieved scores above 90. There is a very strong relationship between students' perceptions of geography teachers' pedagogical competence and the learning outcomes of 10th grade students, as evidenced by a correlation coefficient of 0.907 and an influence contribution of 82.2%. This means that the better the students' perception of the teachers' pedagogical competence, the higher the learning outcomes achieved. Thus, this study confirms that the mastery of teachers' pedagogical competence plays an important role in improving the quality of student learning outcomes at SMA Negeri 9 Palu.

1. Introduction

Education is a human endeavor to nurture and develop innate physical and spiritual potential. According to Mufid (2012), perception is a person's view of a thing or event that is obtained or received, or the process of knowing something through the five senses. Perception is the human ability to distinguish, categorize, and then focus one's thoughts on something and interpret it. The formation of perception occurs when a person receives stimuli from their environment. These stimuli are received through the five senses and processed by the brain, which then forms an understanding (Fajriyani, 2024). Based on the definition of perception described above, it can be concluded that student perception in this study is the process of

students' treatment of information about the teacher who teaches in the classroom, through observation with their senses, so that students can give meaning and interpret the object they observe, in this case the geography teacher.

According to Koesoema (2012), etymologically, the word guru comes from Sanskrit, namely gu, which means ‘darkness’, and the word ru, which means ‘to free’ or ‘to remove’. So, when viewed from its original meaning, guru means ‘to remove or dispel darkness’. From this etymological understanding, it is true when people say that teachers are lights in the darkness. Competence is the ability to perform tasks that require the integration of knowledge, skills, and attitudes (Febriana, 2021). As educators, teachers must have the skills to carry out learning, therefore teachers are required to master pedagogical competence. Pedagogical competence is a unique competence that distinguishes teachers from other professions and will determine the success of the learning process and outcomes of their students (Sapoetra, 2017). Understanding these principles will provide guidance and direction in carrying out learning activities, thereby clarifying the direction of educational goals (Rahman, 2018).

A teacher's pedagogical competence is about how teachers teach and organize the learning system in the classroom by interacting well with students (Sulfemi, 2015). Shawer (2017) explains, "Definitely pedagogy also teaching/instruction and learning seek to achieve a cognitive, affective or psychomotor change. In pedagogy, teachers plan to make cognitive, affective, and psychomotor changes in particular learners, time, and venue." Next is the competence of geography teachers. Geography learning equips students with geographical knowledge, theory, and skills (Listiqowati, 2024). Various environmental issues that exist around students are interesting topics that can be used as a means to foster environmental awareness in students through geography learning. (Asymanidar, 2013).

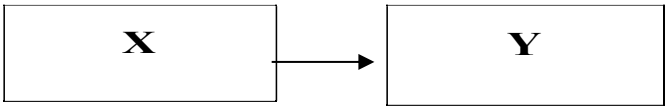
Pedagogical competence requires teachers to master learning theories and principles, because students have different characters, traits, and interests (in terms of moral, emotional, and intellectual aspects) (Fauzan, 2017). Teachers must be able to design various approaches, strategies, methods, and learning techniques that are creative and effective in accordance with competency standards in order to facilitate students in developing their potential (Anwar, 2018). Teachers' skills in evaluating learning aim to measure and assess students' abilities in terms of knowledge, attitudes, and skills in order to make decisions about their level of ability (Elis, 2015).

Winkel (2009) in his book Psychology and Learning Evaluation states that learning is a mental or psychological activity that takes place in active interaction with the environment, resulting in changes in knowledge, understanding, skills, and attitudes. Muhibbin Syah (2017) argues that learning is a stage of relatively permanent change in an individual's behavior as a result of experience and interaction with the environment, which involves cognitive processes, often in the form of learning outcome tests. Learning outcomes are the results obtained by a person after doing something or the level of results achieved by a person from an activity carried out and activities being undertaken. (Fatmawati, 2015).

According to Slameto (2010), there are many types of factors that influence learning, but they can be classified into two categories, namely internal factors and external factors. Internal factors are factors that exist within the individual who is learning, while external factors are factors that exist outside the individual. “Due to the complexity of internal factors within individuals and the complexity of environmental factors (stimuli), these factors can be systematically identified as internal and external factors” (Karwono, 2017). This study aims to determine how students perceive the pedagogical competence of geography teachers, assess student learning outcomes, and analyze whether there is a relationship between students' perceptions of the pedagogical competence of geography teachers and the learning outcomes of 10th grade students at SMA Negeri 9 Palu.

2. Methodology

The type of research used in this study is descriptive-correlational research with a quantitative approach. According to (Sukmadinata, 2019), “Descriptive research is intended to describe or illustrate existing phenomena, both natural and man-made phenomena.” According to Febriani (2019), correlational research is a type of research with characteristics of correlational relationships between two or more variables. The purpose of correlational research is to determine whether there is an association between two or more variables and the extent of the correlation between the variables studied.



Information:
X = Students' perceptions of geography teachers' pedagogical competence
Y = Learning outcomes

This study involved 10th grade students with a sample of 40 respondents. According to Arikunto (2002), the population is “the entire subject of the study.” Meanwhile, according to Sugiyono (2014), the population is “the area of generalization consisting of objects or subjects that have certain qualities and characteristics determined by the author to be studied and then conclusions are drawn.” The questionnaire as variable X is an instrument given to students to find out their opinions or attitudes towards the pedagogical competence of geography teachers. In this case, the author distributed the questionnaire to the respondents and the respondents simply filled out the questionnaire they had received. The type of questionnaire used in this study was a closed questionnaire. According to Siregar (2017), the Likert scale is a scale that can be used to measure a person's attitudes, opinions, and perceptions about a particular object or phenomenon. The Likert scale is used to measure the attitudes, opinions, and perceptions of a person or group of people about social events or phenomena (Riduwan, 2013).

According to Lestari, (2023) student learning outcomes can be seen through report card scores as variable Y. Meanwhile, according to (Tika, 2006), "a research instrument is a tool used to measure and obtain data on the research variables in question." Then, to measure the validity of the instrument, the product moment correlation formula was used with the help of the SPSS version 27 program, with the following formula:

$$r=\frac{n\,(\sum xy)-(\sum x\sum y)}{\sqrt{(n\sum x^2-(\sum x)^2)\ (n\sum y^2-\sum y)^2}}$$

Information :

r : Correlation coefficient between variable x and variable y
n : Number of Respondents
$\sum X$: Item score
$\sum y$: Total score
$\sum X^2$: Square sum of item scores
$\sum y^2$: Square of the total score

The reliability test was conducted after the validity test. The reliability test in this study used the Cronbach's Alpha formula with the help of SPSS version 27. The formula used to determine reliability using Cronbach's Alpha is as follows:

$$r11 = \left(\frac{k}{k-1}\right) \quad \left(1-\frac{\sum \sigma_b^2}{\sum \sigma_t^2}+\right)$$

Information :

$r11$: Instrument Reliability
K : the number of questions
$\sum \sigma_b^2$: Item variance
σ_t^2 : varians total
(Arikunto, 2016).

Abdullah (2015) said that in quantitative research, especially in correlational analysis, there are assumptions of normality, linearity, and homogeneity. To test whether there is a significant relationship between students' perceptions of teachers' pedagogical competence (Variable X) and student learning outcomes (Variable Y), the product moment correlation formula was used. The product moment correlation analysis formula is as follows:

$$r_{xy}=\frac{n\sum XY-(\sum X)(\sum Y)}{\sqrt{\{n\sum X^2-(\sum X)^2\}\{n\sum Y^2-(\sum Y)^2\}}}$$

Information :

rxy : xy correlation coefficient
Σ : item score
Σ : total score (all items)

n : number of respondents

If $r_{hitung} > r_{tabel}$ at a significance level of 0.05, then the correlation is considered valid; conversely, if $r_{hitung} > r_{tabel}$, then the correlation is considered invalid.

3. Result and Discussion

Validity Test Results

To determine the validity test results for 40 respondents with 30 statements using the product moment correlation formula with the help of SPSS version 27, if the result obtained is more than 0.312 (r table for 40 respondents), then the item can be said to be valid. Based on this formula, the results show that all 30 items are valid.

Table 1. Results of the Validity test of the Questionnaire Instrument

No Questions	R hitung	R tabel	Information
1.	0,784	0,312	valid
2.	0,404	0,312	valid
3.	0,596	0,312	valid
4.	0,440	0,312	valid
5.	0,596	0,312	valid
6.	0,407	0,312	valid
7.	0,373	0,312	valid
8.	0,832	0,312	valid
9.	0,418	0,312	valid
10.	0,654	0,312	valid
11.	0,561	0,312	valid
12.	0,498	0,312	valid
13.	0,396	0,312	valid
14.	0,412	0,312	valid
15.	0,890	0,312	valid
16.	0,382	0,312	valid
17.	0,431	0,312	valid
18.	0,720	0,312	valid
19.	0,816	0,312	valid
20.	0,369	0,312	valid
21.	0,445	0,312	valid
22.	0,411	0,312	valid
23.	0,862	0,312	valid
24.	0,485	0,312	valid
25.	0,386	0,312	valid
26.	0,371	0,312	valid
27.	0,434	0,312	valid
28.	0,656	0,312	valid
29.	0,454	0,312	valid
30.	0,637	0,312	valid

Reliability Results

Table 2. Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
0,900	30

Source: Results of data processing using SPSS 27, 2025

Based on the reliability test results, the reliability value of the variable of students' perceptions of geography teachers' pedagogical competence on the learning outcomes of 10th grade students at Palu 9 Public High School was 0.90, which means that the reliability was above 0.60, so it can be said to be reliable and the level of reliability was very high.

Research Data Analysis Results

The inferential statistical analysis referred to in this study includes the Classical Assumption Test, namely the normality and linearity tests, followed by hypothesis testing using simple correlation coefficient analysis and simple regression analysis, as well as the t-test and coefficient determination test. The following is a description of the descriptive analysis of the percentage of students' perceptions of the pedagogical competence of geography teachers at SMA Negeri 9 Palu, as shown in Table 3 below.

Table 3. Descriptive Analysis Results of the Percentage of Student Perceptions of the Pedagogical Competence of Geography Teachers

Percentage Interval	Category	Frequency (f)	Percentage (p)	Average
84,01%-100%	Very High	5	12,5%	
68,01%-84%	High	26	65%	**76%**
52,01%-68%	Moderately High	9	22%	
36,01%-52%	Low	0	0%	
20%-36%	Very Low	0	0%	
Total		**40**	**100**	**High**

Based on Table 3 above, it can be seen that of the 40 respondents in this study, most students, namely 26 people, thought that the pedagogical competence of geography teachers was in the high category with a percentage of 65%. Nine respondents believed that students' perceptions of the pedagogical competence of geography teachers were in the fairly high category, with a percentage of 22%. Meanwhile, five respondents believed that students' perceptions of the pedagogical competence of geography teachers were in the very high category, with a percentage of 12.5%. Zero respondents (0%) believed that students' perceptions of geography teachers' pedagogical competence were low or very low. For further clarification, the following bar chart shows the respondents' responses regarding the pedagogical competence of geography teachers at Palu State Senior High School 9.

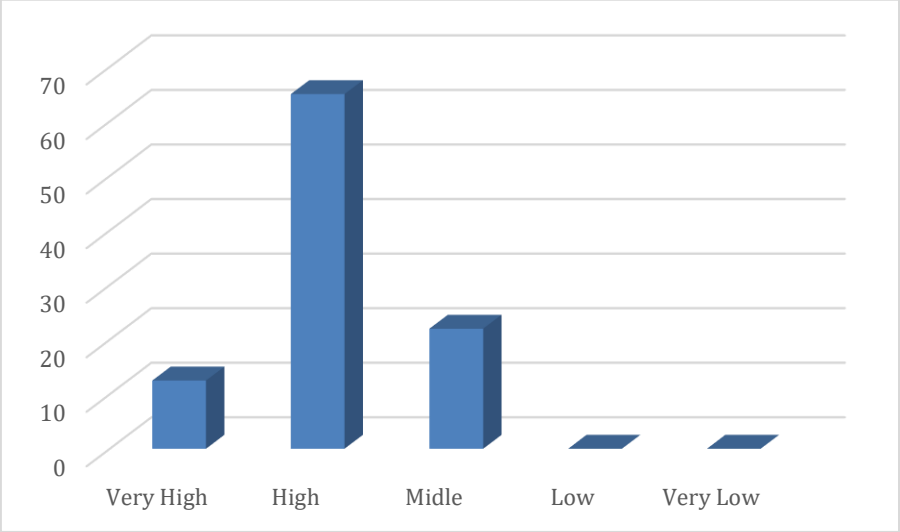


Figure 1. Respondents' Responses Regarding the Pedagogical Competence of Geography Teachers at State Senior High School 9 in Palu

Normality Test

The results of the Kolmogorov-Smirnov normality test can be seen in the following Table:

Table 4. Normality Test *Kolmogorov-Smirnov*

One Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			40
Normal Parameters	Mean		,0000000
	Std. Deviation		1,35345588
Most Extreme Differences	Absolute		,130
	Positive		,130
	Negative		-,71
Test Static			,130
A symp Sig. (2-tailed)			,087
Monte Carlo Sig. (2-tailed)	Sig.		,090
	99%Confidence Interval	Lower Bound	,082
		Upper Bound	,097

Source: SPSS data management 27

Based on the normality test using the one-sample Kolmogorov-Smirnov test, it was found that the Asymp. Sig was 0.087 > 0.05, so it can be concluded that the data was normally distributed. Then, based on the P-Plot results, the following was found:

Figure 2. P-Plot Normality Test Results

Based on the P-Plot test, it was found that the data points were scattered along the diagonal line, indicating that the residuals were normally distributed.

Linearity Test

The results of the linearity test can be seen in the following Table:

Table 5. Linearity Test Results

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Student learning outcomes *Student perceptions of geography teacher pedagogical competence	Between Groups	(Combined	385,761	25	15,430	13,323	,000
		Linearity	330,533	1	330,533	285,394	,000
		Deviation from Linearity	55,228	24	2,301	1,987	,092
	Within Groups		16,214	14	1,158		
	Total		401,975	39			

Based on the linearity test results, it can be seen in the deviation from linearity column. The deviation from linearity result is 0.092. If the deviation from linearity is above 0.05 (0.092 > 0.05), then the data is linear. It can therefore be concluded that there is a relationship between variable X (students' perceptions of geography teachers' pedagogical competence) and variable Y (student learning outcomes).

Hypothesis Testing

a. Simple correlation coefficient analysis

To test whether there is a significant relationship between students' perceptions of geography teachers' pedagogical competence (X) and student learning outcomes

(Y), the product moment formula is used. The results of the product moment correlation analysis are as follows:

Table 6. Simple Correlation Analysis Results

Correlations

		Students' perceptions of geography teachers' pedagogical competence	Student learning outcomes
Students' perceptions of geography teachers' pedagogical competence	Pearson Correlation	1	,907
	Sig. (2-tailed)		,000
	N	40	40
	Pearson Correlation	,907	1
	Sig. (2-tailed)	,000	
	N	40	40

Based on the correlation test results, the correlation between students' perceptions of geography teachers' pedagogical competence (X) and student learning outcomes (Y) is 0.907. This indicates that there is a significant relationship between students' perceptions of geography teachers' pedagogical competence and student learning outcomes because it is in the range of 0.80-1.000. From this figure, it can be seen that the correlation between students' perceptions of geography teachers' pedagogical competence and student learning outcomes is very strong with a unidirectional relationship. This means that the higher the level of students' perceptions of geography teachers' pedagogical competence, the higher the student learning outcomes.

b. Simple linear regression analysis

This regression analysis is used to calculate the magnitude of the influence between the independent variable of students' perceptions of geography teachers' pedagogical competence (X) and student learning outcomes (Y). The results of the simple linear regression are shown in the following table:

Table 7. Simple Linear Regression Results

Coefficients[a]

Model	Unstandardized Coefficients B	Standardized Coefficients Std. Error	Beta	t	Sig.
(Constant)	56,491	2,107		26,816	,000
Students' perceptions of geography teachers' pedagogical competence	,246	,019	,907	13,259	,000

Based on a simple linear regression analysis of the research data, a regression coefficient of 0.246 and a constant of 56.491 were obtained. Thus, the relationship between the variables can be presented in the regression equation Y = 56.491 + 0.246X.

Discussion

Pedagogical ability is the ability of teachers to manage student learning, which includes understanding students, designing and implementing learning, evaluating learning outcomes, and developing students to actualize their various potentials (Mulyasa, 2007). Based on the analyzed research data, the research results are discussed below. Based on the research results, students' perceptions of the pedagogical competence of geography teachers at SMA Negeri 9 Palu were in the high category with an average percentage of 79%. This shows that geography teachers have performed their roles well in managing learning according to the indicators of pedagogical competence. In general, the distribution of student assessments shows that 65% of students rate the pedagogical competence of teachers in the high category, 22% in the fairly high category, and 12.5% in the very high category, and no students give a low rating. Thus, it can be concluded that students have a positive perception of the pedagogical competence of geography teachers.

Based on research data, student learning outcomes at SMA Negeri 9 Palu with a minimum passing grade (KKM) of 65 and an average student score were classified as satisfactory. This can be classified as dominant, with 16 or 40% of students obtaining scores of 81-85. Meanwhile, 10 students (25%) scored between 76 and 80, and only 14 students (35%) scored between 86 and 90. No students scored between 91 and 95 or between 96 and 100 (0%). Based on these scores, the results are very good. The average score was 84.27. These data indicate that student learning outcomes were dominated by the good to very good categories. However, no students achieved the highest score category (91–100). This shows the need to improve the quality of learning, especially in encouraging students who are already doing well to achieve the exceptional category. This finding is in line with Rusmono (2017), who states that learning outcomes are an indicator of the success of the learning process obtained by students after interacting with teachers, materials, and the learning environment.

Based on the results of this study, these findings are in line with the pedagogical competence theory proposed by the Departemen Pendidikan Nasional (2007), which states that teachers with good pedagogical competence will be able to understand the characteristics of their students, develop effective learning plans, and carry out objective evaluations, which will ultimately have an impact on improving student learning outcomes. Furthermore, the relationship between students' perceptions of geography teachers' pedagogical competence and student learning outcomes at SMA Negeri 9 Palu has a correlation coefficient of 0.907, indicating that there is a relationship and that the more positive students' perceptions of teachers' pedagogical competence are, the higher the learning outcomes achieved. The variable of students' perceptions of geography teachers' pedagogical

competence (X) and the variable of student outcomes (Y) are at a very high level of correlation. This means that student learning outcomes are also related to the extent of students' perceptions of geography teachers' pedagogical competence in implementing the independent curriculum in teaching.

4. Conclusion

Based on the description of the research results and discussion explained in the previous chapter, it can be concluded that students' perceptions of the pedagogical competence of geography teachers at SMA Negeri 9 Palu are in the high category. The highest indicator is effective communication skills, while the lowest indicator is reflective actions to improve the quality of learning. Student learning outcomes are classified as very good, although none have achieved a score above 90. There is a very strong relationship between students' perceptions of the pedagogical competence of geography teachers and the learning outcomes of 10th grade students, meaning that the better the students' perceptions of the teachers' pedagogical competence, the higher the learning outcomes achieved. Thus, this study confirms that the mastery of teachers' pedagogical competence plays an important role in improving the quality of student learning outcomes at SMA Negeri 9 Palu.

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How to cite this article:

Nabila, P., Nurvita., Hamid, A., & Durrotunnisa. (2025). The Relationship Between Students' Perceptions of Geography Teachers' Pedagogical Competence and the Learning Outcomes of Grade X Students at Palu State Senior High School 9. *Journal of Educational Sciences*, *9(6)*, 5674-5685.