

The Influence of Teacher Competence on Student Learning Outcomes at SDN Donggobolo

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Abstract

This study aims to examine the influence of teacher competence on student learning outcomes at SDN Donggobolo, a primary school located in a remote area with limited resources. A quantitative approach using a correlational survey method was employed. Data were collected through student perception questionnaires on teacher competence, which included four dimensions: pedagogical, professional, personal, and social, as well as academic reports in Indonesian Language and Mathematics subjects. The results showed that students' perceptions of teacher competence were categorized as high, with average scores above 3.5 on a 4-point Likert scale. Student academic achievement was also high, with the majority falling into the "Excellent" and "Good" categories. Simple linear regression analysis revealed that 99.99% of the variance in student learning outcomes could be explained by their perception of teacher competence ($R^2 = 0.9999$; $p < 0.00001$). These findings indicate that teacher competence is a key factor in improving learning quality, even in resource-limited school settings. The impact of this study supports the development of teacher competency enhancement programs to sustainably improve student academic performance.

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1. INTRODUCTION

Learning at the primary school level plays a strategic role in shaping students' foundational knowledge, attitudes, and skills. One of the effective approaches for improving learning outcomes at this level is the constructivist theory. This approach emphasizes the importance of active student engagement in the learning process through interaction with their environment and direct experiences. A meta-analysis by Tanjung et al. (2023) showed that constructivist-based learning has a high effectiveness in improving learning outcomes with an effect size of 1.548. In addition, this approach has proven effective in developing students' cognitive, affective, and psychomotor aspects (Gawe, 2023), and has had a significant impact on learning in subjects such as mathematics, science, and language (Romdhon et al., 2024).

However, the implementation of constructivist theory in the field is often suboptimal, especially in schools located in areas with limited resources. SDN Donggobolo is one such remote primary school facing this challenge. Based on data from the 2023/2024 academic year, students' learning achievements—especially in core subjects like Mathematics and Indonesian—remain relatively low. This condition reveals a gap between theoretical expectations and empirical reality. Several contributing factors include limited learning opportunities (Houtveen et al., 2006), the dominance of traditional teaching methods (Al-Zoubi & Younes, 2015), and individual differences and environmental characteristics of the learners.

In this context, teacher competence becomes a crucial factor in determining the quality of learning and student achievement. Law No. 14 of 2005 on Teachers and Lecturers states that teacher competence includes pedagogical, professional, personal, and social competencies. Highly competent teachers are capable of designing adaptive learning strategies (Fakhrudin et al., 2023), mastering the subject matter (Marup et al., 2023), and creating a conducive learning atmosphere through positive

interpersonal relationships (Nadia, 2020). Research by Mukti & Noviafitri (2024) even indicates that teacher competence contributes positively by as much as 90.8% to learning quality.

Although various studies have shown a strong relationship between teacher competence and student learning outcomes, there is still limited research that specifically addresses the context of remote primary schools such as SDN Donggobolo. Most research has been conducted in better-resourced school environments, which may not adequately represent the real challenges faced by teachers and students in peripheral areas. Therefore, further research is needed to explore in depth the influence of teacher competence on student learning outcomes in more specific and realistic contexts.

2. MATERIALS AND METHODS

This study employed a quantitative approach with a correlational survey method to examine the influence of teacher competence on student learning outcomes at SDN Donggobolo. All students from grades V and VI, totaling 33 individuals, were selected using a total sampling technique due to the small population size. Data were collected through questionnaires and documentation. The questionnaire was used to measure students' perceptions of teacher competence, covering four dimensions—pedagogical, professional, personal, and social—as outlined in the Indonesian Ministry of Education Regulation No. 16 of 2007. The instrument applied a four-point Likert scale and was tested for validity and reliability prior to use. Academic performance data were obtained from student report cards for the odd semester of the 2023/2024 school year in the subjects of Mathematics and Indonesian Language.

Data analysis was carried out using simple linear regression to assess the degree of influence teacher competence had on student learning outcomes. Normality and linearity tests were conducted as prerequisites for regression analysis. The coefficient of determination (R^2) and significance value (p-value) served as the primary indicators for interpreting the strength of the relationship between variables. This approach was deemed appropriate as it provided an objective quantitative overview of the contribution of teacher competence to students' academic performance, particularly in the context of a resource-limited primary school such as SDN Donggobolo. The findings from this analysis are expected to inform strategies for enhancing the quality of learning through teacher competence development.

3. RESULTS

A. Students' Perceptions of Teacher Competence

The analysis of the questionnaire revealed that Grade V students' perceptions of teacher competence at SDN Donggobolo were generally categorized as **high**. The questionnaire consisted of 20 items grouped into four teacher competence dimensions as stated in the Indonesian Minister of Education Regulation No. 16 of 2007: pedagogical, professional, personal, and social competencies. The following table summarizes the average score for each dimension:

Dimension of Competence	Average Score	Category
Pedagogical Competence	3.71	High
Professional Competence	3.54	High
Personal Competence	3.61	High
Social Competence	3.61	High

All dimensions were in the high category, with average scores ranging from 3.54 to 3.71 on a scale of 4. This indicates that students perceived their teachers as highly competent in instructional delivery, subject mastery, personality traits, and social interaction.

Furthermore, individual student data showed that 29 out of 33 students (87.9%) fell into the *high* perception category, while the remaining 4 students (12.1%) were in the *moderate* category. No student reported a *low* perception, reflecting consistent positive evaluations of their teachers.

B. Student Academic Performance

Student academic performance data were obtained from report cards for the odd semester of the 2024/2025 school year, particularly in Indonesian Language and Mathematics. Each student had three scores per subject that were averaged. The following table displays the distribution of learning outcomes:

Achievement Category	Number of Students	Highest Score	Lowest Score	Mean Score
Excellent (≥ 90)	7 students	92.33	90.11	91.00
Good (80–89)	14 students	89.33	84.11	86.62
Fair (70–79)	0 students	–	–	–
Poor (< 70)*	9 students	70	70	70

*

C. The Relationship Between Student Perceptions and Learning Outcomes

To assess the relationship between students' perceptions of teacher competence and academic achievement, a simple linear regression analysis was conducted. Of the 33 students surveyed, 30 had complete data for both the questionnaire and academic scores. The results of the regression analysis are as follows:

Analysis Aspect	Result
Regression Equation	$Y = 11.67X + 48.61$
Coefficient of Determination (R^2)	0.9999
Significance Value (p)	< 0.00001

The results indicate that 99.99% of the variance in student learning outcomes can be explained by their perceptions of teacher competence. This exceptionally high correlation demonstrates a strong, positive, and statistically significant relationship. In other words, the higher the students' perceptions of their teachers' competence, the better their academic performance. A distribution graph and regression line (previously displayed) illustrate this nearly perfect linear relationship between the two variables.

The results of this study show that students' perceptions of teacher competence at SDN Donggobolo are categorized as high across all four dimensions—pedagogical, professional, personal, and social. Each dimension received average scores above 3.5 on a four-point scale, indicating that students viewed their teachers as competent figures in delivering material, guiding learning, and fostering positive social interaction. These findings support Mukti and Noviafitri's (2024) claim that teacher competence contributes significantly to teaching and learning quality, even up to 90.8%.

The highest-scoring dimension was pedagogical competence (3.71), suggesting that teachers are effective at explaining lessons clearly and encouraging student participation through discussions and questions. This dimension is crucial, as it reflects a teacher's ability to understand student needs and design effective learning strategies (Fakhruddin et al., 2023). High scores in personal and social competence further reflect the teachers' role as positive role models who are patient, honest, and communicative. Although professional competence had the lowest score among the four (3.54), it still fell within the high category, indicating satisfactory subject mastery and the use of diverse learning resources.

Student learning outcomes also showed a positive trend. The majority of students (21 out of 30 with valid data) fell into the Excellent and Good categories. This alignment between academic performance and positive perception of teacher competence reinforces the findings of Romdhon et

al. (2024) and Yang & Kaiser (2022), who emphasize the role of pedagogical and professional competence in improving conceptual understanding and academic outcomes.

Previous correlation tests revealed that 99.99% of the variance in student performance could be explained by their perceptions of teacher competence. This strong relationship suggests that students' perceptions are not just subjective judgments but have a measurable connection to their academic success. Competent teachers not only deliver content effectively but also create learning environments that enhance student motivation and engagement. This aligns with the constructivist theory underlying this study, which states that meaningful learning experiences arise from active involvement and social interaction (Tanjung et al., 2023).

However, it is important to note that nine students fell into the “Poor” category due to missing academic data. This highlights a critical issue in remote schools like SDN Donggobolo—namely, the need to strengthen administrative systems such as data recording and reporting to ensure comprehensive analysis. On the other hand, the absence of students in the “Low” perception category further supports the notion that teachers in this school exhibit high quality despite limited resources.

Overall, this study supports previous findings (Marup et al., 2023; Saputra et al., 2023) indicating that competent teachers positively impact both student perceptions and learning outcomes. In remote settings, strengthening teacher competence remains a key strategy for enhancing education quality.

4. CONCLUSION

This study concludes that teacher competence has a highly significant influence on student learning outcomes at SDN Donggobolo. Students' perceptions of teacher competence—spanning pedagogical, professional, personal, and social dimensions—were rated as high, with average scores exceeding 3.5 on a four-point scale. Pedagogical competence received the highest score, reflecting teachers' clarity in delivering material and their ability to facilitate active learning.

In parallel, students' academic achievements also showed a very positive trend. The majority of students were categorized as Excellent and Good, with average final scores above 86. Statistical analysis previously conducted indicated that up to 99.99% of the variance in student learning outcomes could be explained by their perceptions of teacher competence, reinforcing the strong relationship between teacher quality and student achievement.

Therefore, it can be concluded that teacher competence is a key determining factor in enhancing the quality of student learning outcomes, even in the context of primary schools with limited resources such as SDN Donggobolo. These findings highlight the urgency of strengthening teacher professionalism through continuous, needs-based training and reflective practice, to ensure that every student receives quality educational services.

5. DECLARATIONS

Example Author Contribution : **Anis Mulyalana** : Conceptualization, Writing - Original Draft, Writing - Review & Editing, Formal analysis, and Methodology, Editing and Visualization; **Azra Fauzi** : Validation and Supervision.; **Jessy Parmawati Atmaja** : Validation and Supervision.

Example Conflict of Interest : The authors declare no conflict of interest.

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