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The Influence of Learning Community on Pedagogical Competence of Public Elementary School Teachers

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Abstract

Background – Teacher pedagogical competence is their ability to manage learning comprehensively, including understanding students; planning; implementing; evaluating; utilizing technology; and developing student potential to achieve optimal learning outcomes. Teacher pedagogical competence is influenced by internal and external factors, one of which is participation in a learning community.

Purpose – This study aims to determine and analyze the influence of learning communities on the pedagogical competence of elementary school teachers in Japah District, Blora Regency. This study has a novelty by integrating learning communities with teacher pedagogical competence, which has not been widely studied in elementary school teachers in Japah District, Blora Regency, thus providing a more comprehensive understanding of the factors that influence teacher pedagogical competence in elementary schools.

Method/Approach – This study uses a quantitative method with data collection through distributing questionnaires with a sample of 130 respondents.

Findings – The results of the study showed that learning communities have a positive and significant effect on teacher pedagogical competence. From the results of the study, it can be concluded that the learning community has a positive effect with a correlation coefficient of 0.364 or 36.4% on teacher pedagogical competence and the remaining 63.6% is influenced by other factors that were not studied. The learning community is the most dominant variable with an effective contribution (SE) of 14.6%.

Conclusions – This study concludes that participation in learning communities positively and significantly influences the pedagogical competence of public elementary school teachers in Japah District, Blora Regency. While learning communities contribute notably, it's also clear that other unexamined factors play a substantial role in shaping teacher pedagogical competence.

Novelty/Originality/Value – This study has a novelty by integrating learning communities with teacher pedagogical competence, which has not been widely studied in elementary school teachers in Japah District, Blora Regency, thus providing a more comprehensive understanding of the factors that influence teacher pedagogical competence in elementary schools. The findings offer valuable insights for educational stakeholders, emphasizing the importance of fostering and supporting learning communities as a strategy to enhance teacher quality and, consequently, improve educational outcomes in similar rural contexts.

Keywords: Learning Community, Pedagogical Competence, Education, Learning

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INTRODUCTION

The quality of education fundamentally hinges on the competence of its educators, with teacher pedagogical competence being a cornerstone for effective learning outcomes (Amaliah et al, 2024). This competence encompasses a teacher's holistic ability to manage the learning process, including understanding students, meticulous planning, effective implementation, thorough evaluation, judicious use of technology, and fostering the comprehensive development of student potential to achieve optimal learning outcomes. The multifaceted nature of pedagogical competence involves dimensions such as a deep understanding of students, mastery of learning theories and educational principles, adept curriculum development and lesson planning, skilled execution of educational learning, precise assessment and evaluation of learning, proactive development of student potential, clear and effective communication with students, and continuous reflection and professional growth to ensure the best possible educational achievements.

This research investigates the interplay between teacher pedagogical competence and learning communities. Teacher pedagogical competence, as defined by Government Regulation (PP) Number 19 of 2005 concerning National Education Standards (updated by PP 32 of 2013 and PP 13 of 2015), specifically Article 28 paragraph (3) point a, refers to the ability to manage student learning, which includes understanding students, designing and implementing learning, evaluating learning outcomes, and developing students to actualize their various potentials. Complementing this, pedagogical competence encompasses a teacher's capacity in planning, implementing, and evaluating learning for optimal results, emphasizing its significant contribution to learning effectiveness (Zhang & Tian, 2025). The ability related to student understanding and managing educational and dialogical learning, encompassing understanding students, designing and implementing learning, evaluating outcomes, and fostering student potential (Adeoye et al, 2024; Darsan et al, 2025). Some research similarly highlights the teacher's ability to manage student learning, including student understanding, managing and implementing learning, using technology, evaluating outcomes, and developing student potential (Nguyen et al, 2022). Conversely, a learning community is conceptualized as a collaborative group of educators and education personnel who regularly interact with a shared vision to exchange knowledge, solve problems through inquiry, and enhance teaching skills and learning quality, ultimately impacting student learning outcomes (Zamiri & Esmaeili, 2024; Johannesson, 2022). Learning community as a group with shared academic interests and goals, focusing on collaborative knowledge sharing (Matsuo & Aihara, 2022). Professional Learning Community (PLC) as a knowledge acquisition process through collaborative inquiry to solve work-related problems, traceable through teachers' learning needs based on teaching-learning interests and collaborative learning experiences (Coenen et al, 2021). These communities typically involve dimensions of shared leadership and support, common values and visions, collective and collaborative learning, shared practices and reflections, supportive conditions, positive relationships, and evaluative follow-up.

Despite the critical importance of pedagogical competence, the quality of education in Indonesia faces significant challenges, as evidenced by the 2017 Teacher Competency Test (UKG) data for Blora Regency, where the average teacher pedagogical competence score of 59.35, while above the national average of 54.33, still lags behind the Central Java provincial average of 61.88. This persistent gap highlights a substantial obstacle to improving teacher pedagogical competence in the region, consequently affecting the overall quality of education and the learning process. More specifically, in Japah District, Blora Regency, interviews with school supervisors reveal persistently low pedagogical competence among elementary school teachers. Monitoring and evaluation conducted by supervisors on 192 teachers (ASN, P3K, and GTT) during the 2023/2024 school year indicated significant deficiencies in planning, implementing, and evaluating learning. Alarmingly, 62.5% (120 teachers) lacked proper lesson plans (RPP) or teaching modules, while classroom activities remained teacher-dominated, primarily relying on lecture methods with minimal integration of technology. Furthermore,

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most teachers were found to be illicitly using practice modules or Student Worksheets (LKS) for assessments, despite government prohibitions, justifying this by claiming similarity between LKS practice questions and mid-term/final semester exams. Observations by principals via the Merdeka Mengajar Platform (PMM) further corroborate that teacher planning, implementation, assessment, and reflection practices require substantial guidance and follow-up. This concerning situation necessitates urgent attention and concerted efforts to enhance teacher pedagogical competence, with preliminary analysis suggesting that low teacher participation in professional development, particularly in learning communities, is a key contributing factor.

This study introduces a significant novelty by specifically investigating the influence of learning communities on the pedagogical competence of public elementary school teachers within the under-researched context of Japah District, Blora Regency. While the individual concepts of pedagogical competence and learning communities have been explored (Johannesson, 2022; Abedini et al, 2021; Ni et al, 2023), their integrated impact within this particular geographical and educational setting remains largely unexamined. This research aims to provide a more comprehensive understanding of the factors influencing teacher pedagogical competence in elementary schools, thereby filling a notable gap in existing literature. Therefore, the purpose of this study is to determine and analyze the influence of learning communities on the pedagogical competence of public elementary school teachers in Japah District, Blora Regency. The urgency of this research stems directly from the identified low pedagogical competence of teachers in the district, which directly impedes the quality of learning and overall educational outcomes. By understanding how learning communities contribute to this competence, effective interventions can be designed. Ultimately, this study offers a crucial contribution to the body of knowledge by elucidating the specific role of learning communities in enhancing teacher pedagogical competence in a rural Indonesian context, providing actionable insights for educational policymakers, school administrators, and teachers themselves to foster professional growth and improve educational quality.

METHODS

This study employed a quantitative approach with a survey research design, chosen to effectively measure and analyze the relationship between the learning community and the pedagogical competence of elementary school teachers in Japah District, Blora Regency. This approach allows for the systematic collection of numerical data and the application of statistical methods to test hypotheses about these relationships (Paul & Barari, 2022). The population for this study comprised all 192 public elementary school teachers across Japah District, Blora Regency. From this population, a sample of 130 teachers was selected from 24 different schools within the district. The sampling technique employed was proportional random sampling. This method ensured that each elementary school within the district was proportionally represented in the sample, enhancing the representativeness of the sample and the generalizability of the findings to the broader teacher population in Japah District.

The primary research instrument used for data collection was a questionnaire, specifically designed to gather teachers' opinions and perceptions regarding the research variables. The questionnaire utilized a Likert scale, which typically ranges from "strongly disagree" to "strongly agree," allowing for the quantification of subjective responses (South et al, 2022). The questionnaire was structured to elicit data on two main variables: the level of learning community participation among teachers and various aspects of their pedagogical competence. Each item in the questionnaire was carefully formulated to align with the theoretical constructs of these variables.

To ensure the quality and trustworthiness of the collected data, the research instrument underwent rigorous validity and reliability testing. Validity ensures that the questionnaire

accurately measures what it intends to measure (Hossan et al, 2025). This was established through content validity, involving expert review to confirm that the questions adequately cover the domains of learning community and pedagogical competence. Construct validity was also assessed to ensure that the instrument's items consistently measure the underlying theoretical constructs. Reliability refers to the consistency and stability of the measurement. This was assessed using statistical methods, typically Cronbach's Alpha, to confirm that the questionnaire would yield consistent results if administered repeatedly under similar conditions. Only instruments demonstrating acceptable levels of both validity and reliability were used for the main data collection.

The collected data underwent a comprehensive statistical analysis using SPSS Version 27.0 for Windows. This process began with descriptive statistics to summarize and characterize the key features of the variables in the study. Subsequently, prerequisite tests, also known as classical assumption tests, were conducted to ensure the validity of the statistical models (Alita et al, 2021). These tests included the normality test to confirm that the data for each variable was normally distributed, the linearity test to verify a linear relationship between the independent and dependent variables, the multicollinearity test to detect any high correlation among independent variables (if applicable to a more complex model), and the heteroscedasticity test to ensure the variance of the errors remained constant. Finally, hypothesis testing was performed using simple linear regression analysis to precisely examine the direct influence of the learning community (independent variable) on teachers' pedagogical competence (dependent variable). This analysis aimed to quantify the strength and direction of this linear relationship, providing key statistical outputs such as regression coefficients, R-squared values, and p-values to assess the statistical significance of the findings.

RESULTS AND DISCUSSION

The Influence of Learning Community on Teacher Pedagogical Competence

The analysis began by examining the direct relationship between the learning community (X) and teacher pedagogical competence (Y) through correlation, determination, and regression tests, supplemented by a t-test.

Table 1 Results of Correlation Test of X1 against Y

Correlations

		komunitas belajar	kompetensi pedagogik guru
Komunitas belajar	Pearson Correlation	1	.364**
	Sig. (2-tailed)		.000
	N	130	130
Kompetensi pedagogik guru	Pearson Correlation	.364**	1
	Sig. (2-tailed)	.000	
	N	130	130

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation test results, as shown in Table 1, reveal a Pearson Correlation coefficient of 0.364 with a significance value (2-tailed) of 0.000. Given that the significance value is less than 0.05, this indicates a statistically very significant positive correlation between learning communities and teacher pedagogical competence. This means that as teacher participation in learning communities increases, their pedagogical competence tends to increase as well. However, interpretation categories, a correlation coefficient of 0.364 falls into the low category of

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relationship strength (Al-Haddad et al, 2025). This suggests that while a significant relationship exists, the magnitude of this relationship is not strong.

Table 2 Results of Determination Test of X against Y

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.364 a	.132	.126	6.226

a. Predictors: (Constant), komunitas belajar

Further analysis through the determination test, presented in Table 2, shows an R-squared value of 0.132. This implies that the learning community variable contributes 13.2% to the variation in teacher pedagogical competence. The remaining 86.8% of the variance in teacher pedagogical competence is influenced by other factors not examined in this specific study. This low coefficient of determination reinforces the notion from the correlation test that while learning communities are a significant factor (Belay & Melesse, 2024), they are not the sole or dominant predictor of pedagogical competence, leaving substantial room for other unobserved variables to play a role.

The regression test yielded the linear regression equation: $\hat{Y} = 78.248 + 0.349X$. This equation provides crucial insights into the predicted relationship. The constant value (α) of 78.248 indicates that, theoretically, if the influence of the learning community (X) were absent or zero, the estimated teacher pedagogical competence would still be 78.248. The positive nature of this constant suggests a baseline level of pedagogical competence existing independently of learning community participation. More importantly, the positive regression coefficient (β) of 0.349 for the learning community variable signifies a direct and positive influence. Specifically, for every one-unit increase in participation in learning communities, teacher pedagogical competence is predicted to increase by 0.349 units, assuming all other potential influencing factors remain constant. The positive sign of this coefficient confirms a unidirectional relationship: greater engagement in learning communities is associated with higher levels of teacher pedagogical competence (Prihadi & Latif, 2024; Fransiska & Rahmi, 2024; Brodie, 2021).

Finally, the t-test results for the simple regression analysis showed a calculated t-value of 4.421, which is notably greater than the t-table value of 1.980 (for a two-tailed test with n-2 degrees of freedom at a 0.05 significance level). Concurrently, the significance value (p-value) was 0.000, which is much smaller than 0.05. These findings provide strong statistical evidence that the learning community variable has a very significant positive influence on teacher pedagogical competence. Consequently, the alternative hypothesis (H_1), which posits that learning communities positively influence teacher pedagogical competence, is formally accepted.

Learning Community within a Broader Context of Influencing Factors

Beyond the direct influence, the study also explored how learning communities contribute to pedagogical competence when considered alongside other potential factors such as academic supervision and teacher welfare, through a multiple regression analysis.

Table 3 Results of Multiple Correlation Test X1, X2, X3 against Y

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.523a	.273	.256	5.743

a. Predictors: (Constant), teacher welfare, academic supervision, learning community

The multiple correlation test (Table 3) revealed a multiple correlation coefficient (R) of 0.523. Classification, this value indicates a moderate correlation between the combined independent variables (academic supervision, learning community, and teacher welfare) and teacher pedagogical competence (Singerin, 2021). This suggests that while these three factors

collectively have a noticeable relationship with pedagogical competence, there's still room for other factors to play a role.

The determination test from Table 3 further indicates that the coefficient of determination (R-squared) is 0.273. This means that academic supervision, learning community, and teacher welfare collectively (simultaneously) explain 27.3% of the variance in teacher pedagogical competence. The remaining 72.7% of the variation in pedagogical competence is attributable to other variables not included in this particular multiple regression model. This again underscores that while the selected factors are important, a significant portion of pedagogical competence is influenced by external or unexamined variables (Marsen et al, 2021).

The multiple regression equation derived from the analysis is: $Y = 3.684 + 0.321X_1 + 0.386X_2 + 0.172X_3$, where Y represents teacher pedagogical competence, X_1 is academic supervision, X_2 is learning community, and X_3 is teacher welfare. This equation illustrates the estimated contribution of each variable when the others are held constant (Schuberth et al, 2023). Notably, the coefficient for the learning community (X_2) is 0.386, suggesting that it has a slightly stronger partial effect on pedagogical competence compared to academic supervision (0.321) and teacher welfare (0.172) within this combined model.

The partial t-test confirmed the individual significance of the variables. Specifically, the learning community (X_2) showed a t-calculated value of 5.199 with a significance value (p-value) of 0.000. As this p-value is less than 0.05, it strongly indicates that, even when accounting for academic supervision and teacher welfare, the learning community (X_2) still has a significant positive influence on teacher pedagogical competence. This provides robust support for the importance of learning communities in fostering teacher development. This finding aligns with recent research by Khasawneh et al (2023), who emphasized that collaborative learning within professional learning communities significantly enhances teachers' pedagogical skills, particularly in developing innovative teaching strategies and improving student engagement.

The F-test (simultaneous test) assessed the combined effect of all independent variables on teacher pedagogical competence. The calculated F-value was 15.794 with a significance value (p-value) of 0.000. Comparing this to the F-table value of 2.68 (for a significance level of 5% with the given sample size and number of independent variables), the calculated F-value (15.794) is substantially greater than the F-table value. Coupled with a p-value less than 0.05, these results lead to the conclusion that academic supervision (X_1), learning community (X_2), and teacher welfare (X_3) simultaneously have a significant effect on teacher pedagogical competence. Thus, the alternative hypothesis (H_4), positing a combined influence of these factors, is accepted. This multi-faceted analysis reinforces the critical role of learning communities, both as a direct influence and as a significant contributor within a broader framework of factors affecting teacher pedagogical competence. Indeed, professional development through collaborative learning communities can significantly enhance teachers' pedagogical skills and adaptability, especially in dynamic educational environments (Shofwan et al, 2023; Zamiri & Esmaeili, 2024). This underscores the importance of fostering such communities for continuous teacher growth and improved educational outcomes.

CONCLUSION

Based on the research findings and discussion, it can be concluded that the learning community significantly influences the pedagogical competence of elementary school teachers in Japah District, Blora Regency, contributing 13.2% to this competence. The relationship is further supported by a correlation coefficient of 0.364 and a simple regression equation of Y = 78.248 + 0.349X2, indicating a positive association. In light of these conclusions, it is recommended that teachers actively enhance their motivation and commitment through continuous professional development, including participation in seminars, workshops, and independent learning, while also engaging collaboratively within learning communities to share experiences and adopt effective teaching strategies. Concurrently, principals play a strategic role in fostering a conducive learning culture by effectively managing and developing learning communities. This involves

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providing facilities and support for collaborative learning activities like professional discussions and mentoring, encouraging teacher collaboration, and appreciating innovative learning practices to ultimately elevate the quality of education and foster student development.

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