

Synergizing Transformational Leadership and Learning Communities: A Quantitative Path to Enhancing Elementary Teacher Professionalism

Ana Rifatun^{1*}, Supandi², Nurkolis³

Education Management Department, Universitas Persatuan Guru Republik Indonesia Semarang,
Central Java, Indonesia

Email: rifatunana@gmail.com¹, supandi@upgris.ac.id², nurkolis@upgris.ac.id³

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Abstract:

This study aims to analyze the influence of the principal's transformational leadership and the effectiveness of the learning community on elementary school teachers' professional competence. The background is the suboptimal development of teacher professional competence, most of which remains at a basic level of understanding. The principal's role as a learning leader and the learning community's activities have not been effective. The research method uses a quantitative, correlational design. The population in this study consisted of all elementary school teachers, and the sample comprised 137 respondents selected using proportional random sampling. Data were collected through questionnaires that had been tested for validity and reliability, and analyzed using simple and multiple linear regression. The results of the study showed that the principal's transformational leadership had a positive and significant effect on teacher professional competence, the regression coefficient was 0.710, the effectiveness of the learning community had a positive and significant effect on teacher professional competence with a regression coefficient of 0.435 simultaneously, transformational leadership and the effectiveness of the learning community had a significant effect on teacher professional competence with a contribution (R Square) of 60.2%. An inspiring leadership style and the optimization of the learning community are key factors in improving teacher professionalism.

Keywords: *Transformational Leadership, Learning Communities, Teacher Professional Competence*

Abstrak:

Penelitian ini bertujuan menganalisis pengaruh kepemimpinan transformasional kepala sekolah dan efektivitas komunitas belajar terhadap kompetensi profesional guru Sekolah Dasar. Latar belakang didasari oleh belum optimalnya capaian kompetensi profesional guru, sebagian besar masih pada level pemahaman dasar. Peran kepala sekolah sebagai pemimpin pembelajaran serta aktivitas komunitas belajar belum efektif. Metode penelitian dengan pendekatan kuantitatif dengan desain korelasional. Populasi dalam penelitian ini seluruh guru Sekolah Dasar, sampel 137 responden teknik proporsional random sampling. Data dikumpulkan melalui angket yang telah diuji validitas dan reliabilitasnya, dianalisis menggunakan regresi linier sederhana dan regresi linier berganda. Hasil penelitian kepemimpinan transformasional kepala sekolah berpengaruh positif dan signifikan terhadap kompetensi profesional guru, koefisien regresi 0,710, efektivitas komunitas belajar berpengaruh positif dan signifikan terhadap kompetensi profesional guru dengan koefisien regresi sebesar 0,435 secara simultan, kepemimpinan transformasional dan efektivitas komunitas belajar berpengaruh signifikan terhadap kompetensi profesional guru dengan kontribusi (R Square) sebesar 60,2%. Gaya kepemimpinan yang

menginspirasi dan optimalisasi komunitas belajar menjadi faktor kunci dalam meningkatkan profesionalisme guru.

Kunci: *Kepemimpinan Transformasional, Komunitas Belajar, Kompetensi Profesional Guru*

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INTRODUCTION

Improving the quality of education is largely determined by the professionalism of teachers, who are key actors in the learning process. Teachers' professional competence at the elementary school level plays a strategic role because it is directly related to mastery of learning materials, understanding of student characteristics, and the ability to apply the curriculum effectively and contextually (Roesminingsih & Windasari, 2025). With the implementation of the Independent Curriculum, demands on teachers' professional competence have become increasingly complex (Obaid et al., 2024; Padang et al., 2023). Teachers are required not only to master the learning content but also to design innovative learning experiences, implement formative assessments, utilize digital technology, and engage in continuous reflection and collaboration within learning communities.

One important factor influencing the improvement of teacher professional competence is the principal's leadership. The principal acts not only as an administrator but also as a learning leader responsible for establishing a vision, school culture, and work climate that supports teacher professional development (Wahjusaputri et al., 2025; Yalçinkaya et al., 2021). Transformational leadership, which emphasizes inspiring vision, motivation, intellectual stimulation, and individualized attention, has been shown to drive changes in teacher attitudes, behaviors, and practices toward more innovative and meaningful learning (Ausat et al., 2022; Diding Nurdin, 2023).

The effectiveness of professional learning communities is a strategic element in teacher professional development, alongside school leadership (Bendtsen et al., 2022; Geletu & Mihiretie, 2023; Lee & Ip, 2023). Learning communities serve as collaborative platforms for teachers to share best practices, reflect on learning, and collectively and continuously improve the quality of teaching. Although learning communities such as the Teachers' Working Group (KKG) have been established in Tanggungharjo Regency, their implementation remains variable, and most are not oriented toward in-depth reflection on learning practices.

Despite these conditions, there remains a gap between the demands of teacher professionalism and the realities of practice in the field. This study aims to empirically examine the influence of principals' transformational leadership and the effectiveness of learning communities on the professional competence of elementary school teachers in the Tanggungharjo District. The results of this study are expected to provide empirical contributions to the development of school leadership policies and the strengthening of learning communities as strategies for improving teacher professionalism.

Previous studies indicate that principals' transformational leadership plays a crucial role in enhancing teacher competence and performance, particularly through individualized consideration and inspirational motivation, which directly strengthen teachers' professional competence (Gao et al., 2024; Zhang et al., 2023). This perspective is further supported by findings showing that transformational leadership not only improves teacher performance but also fosters an innovative school culture grounded in a shared vision (Anastasiou & Garametsi, 2021; Diding Nurdin, 2023; Sürücü et al., 2022). The effectiveness of learning communities has been consistently associated with improved teacher professionalism, as collaborative practices such as lesson study and reflective dialogue contribute significantly to the development of pedagogical and professional competencies (Mukti & Noviafitri, 2024; Shermukhammadov, 2022; Sholeh, 2021). Empirical evidence also demonstrates that the simultaneous influence of transformational leadership and effective learning communities significantly enhances teacher professionalism, indicating the importance of integrating strong leadership with a collaborative school culture.

Although several studies have addressed the influence of principals' transformational leadership and learning communities on teacher professionalism, this study offers novelty in several key aspects. It specifically focuses on teacher professional competence, using indicators and achievement levels from the latest Teacher Competency Model (Directorate General of Teacher and Teacher Education, 2023), which has not been widely used in previous empirical studies. By applying these updated competency standards, this study provides a more up-to-date, policy-relevant empirical analysis of the relationships among transformational leadership, learning community effectiveness, and teacher professional competence.

RESEARCH METHODS

This study uses a quantitative approach with a causal associative research type, which aims to examine the influence of transformational leadership of school principals and the effectiveness of learning communities on teachers' professional competence. A quantitative approach was chosen because the research data consist of numerical data, which is analyzed statistically to examine the cause-and-effect relationship between variables (Pregoner, 2025). The research design used is *ex post facto* with a correlational causal model, which is research that examines the relationship between variables without manipulating the independent variables. The variables in this study consist of: Transformational leadership of school principals (X_1), Effectiveness of learning communities (X_2), Teacher professional competence (Y).

The research was conducted in public elementary schools in Tanggunharjo Subdistrict, Grobogan Regency, Central Java Province. The research was conducted from June to December 2025. The research population comprised all public elementary school teachers, totaling 208. The sample was determined using the Slovin formula with a 5% margin of error, resulting in a sample of 137 teachers. The sampling technique used was proportional random sampling (Duckett, 2021),

which accounts for the proportion of teachers in each school to ensure the sample is representative.

Research data were collected using a Likert-scale questionnaire, with indicators for each variable. The questionnaire was used to collect data on school principals' transformational leadership, the effectiveness of learning communities, and teachers' professional competence. The collected data were analyzed using inferential statistics, namely multiple linear regression analysis, to determine the effect of the principal's transformational leadership on teachers' professional competence, the effect of the effectiveness of the learning community on teachers' professional competence, and the simultaneous effect of the principal's transformational leadership and the effectiveness of the learning community on teachers' professional competence. All statistical tests were conducted at a significance level of $\alpha = 0.05$.

RESULTS AND DISCUSSION

Results

The Influence of Transformational Leadership on the Professional Competence of Teachers

This finding presents the results of the statistical analysis examining the relationship between principals' transformational leadership and teachers' professional competence. The analysis used Pearson's correlation to determine the strength, direction, and significance of the relationship between the two variables. The results of this analysis are presented in Table 1 below.

Table 1. The Power of Transformational Leadership on Teachers' Professional Competence

Correlations			
		Transformational Leadership	Teachers' Professional Competence
Transformational Leadership	Pearson Correlation	1	,726**
	Sig. (2-tailed)		<,001
	N	137	137
Teachers' Professional Competence	Pearson Correlation	,726**	1
	Sig. (2-tailed)	<,001	
	N	137	137

Table 1 shows a positive and statistically significant relationship between principals' transformational leadership and teachers' professional competence based on the results of the simple linear regression analysis. Pearson's correlation test yielded a coefficient of $r = 0.726$ and a p-value of $p < 0.001$, indicating a strong relationship. These findings indicate that the higher the transformational leadership of school principals, the higher the professional competence of teachers. Thus, the hypothesis that transformational leadership influences teachers' professional competence is accepted.

Table 2. The Effect of Transformational Leadership on Teachers' Professional Competence

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3910.502	1	3910.502	150.123	<,001 ^b
	Residual	3516.564	135	26.049		
	Total	7427.066	136			

Table 2 shows that the regression model is statistically significant based on the ANOVA results, as indicated by an F-value of 150.123 ($p < 0.001$). Since the p-value is below the significance level ($\alpha = 0.05$), the model is considered fit for predicting the dependent variable. These results indicate that the independent variables simultaneously have a significant effect on the dependent variable.

Table 3. Contribution of Transformational Leadership to Teachers' Professional Competence

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	,726 ^a	,527	,523	5,104	

Table 3 shows that the correlation coefficient (R) is 0.726, indicating a positive relationship between the independent and dependent variables. The R Square (R^2) value of 0.527 suggests that the independent variables explain 52.7% of the variance in the dependent variable, while the remaining 47.3% is attributed to factors outside the scope of this study.

Table 4. Regression Coefficients of Transformational Leadership on Teachers' Professional Competence

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.609	10.146		1.144	.255
	Transformational Leadership	.935	.076	.726	12.252	<,001

Table 4 shows that, based on the simple linear regression analysis in the Coefficients table, the constant value is 11.609 and the regression coefficient for transformational leadership is 0.935. The constant indicates that when transformational leadership is zero, teachers' professional competence is predicted to be 11.609. Furthermore, the positive regression coefficient (0.935) suggests a positive (unidirectional) relationship, meaning that each one-unit increase in transformational leadership is associated with a 0.935 increase in teachers' professional competence.

The Effect of Learning Community Effectiveness on the Professional Competence of Teachers

Simple linear regression analysis was used to test the effect of learning community effectiveness on teachers' professional competence. The strength of the relationship between variables was analyzed using the product-moment correlation coefficient, with the interpretation provided. The test results showed

that the learning community's effectiveness was significantly related to teachers' professional competence, supporting the hypothesis that the former affects the latter.

Table 5. Strength of the Relationship Between the Effectiveness of Learning Communities and Teachers' Professional Competence

Correlations			
		Effectiveness of Learning Communities	Teachers' Professional Competence
Effectiveness of Learning Communities	Pearson Correlation	1	.621**
	Sig. (2-tailed)		<,001
	N	137	137
Teachers' Professional Competence	Pearson Correlation	.621**	1
	Sig. (2-tailed)	<,001	
	N	137	137

Table 5 shows that the results of Pearson's correlation analysis indicate a positive and statistically significant relationship between the effectiveness of learning communities and teachers' professional competence. The Pearson correlation coefficient ($r = 0.621$) suggests a strong relationship between the two variables, meaning that greater effectiveness in learning communities is associated with higher teachers' professional competence. Additionally, the p-value ($p < 0.001$) indicates that the relationship is statistically significant at the 0.01 level (2-tailed). Thus, it can be concluded that there is a strong and meaningful relationship between the effectiveness of learning communities and teachers' professional competence.

Table 6. The Effect of Learning Community Effectiveness on Teachers' Professional Competence

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2862.494	1	2862.494	84.660	<,001 ^b
	Residual	4564.572	135	33.812		
	Total	7427.066	136			

Table 6 shows that the regression model is statistically significant based on the ANOVA results, as indicated by an F-value of 84.660 ($p < 0.001$). Since the p-value is below the significance level ($\alpha = 0.05$), the model is considered fit for explaining the dependent variable.

Table 7. Contribution of Learning Community Effectiveness to Teachers' Professional Competence

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.621 ^a	.385	.381	5.815	

Table 7 shows that the correlation coefficient (R) is 0.621, indicating a positive relationship between learning community effectiveness and teachers' professional competence. The R Square (R²) value of 0.385 suggests that learning community effectiveness explains 38.5% of the variance in teachers' professional competence, while the remaining 61.5% is attributable to factors outside the research model.

Table 8. Regression Coefficients for the Effectiveness of Learning Communities on Teachers' Professional Competence

Model	Coefficients ^a				t	Sig.
	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta			
(Constant)	98.419	9.655			10.193	<.001
1 Effectiveness of Learning Communities	.209	.066	.262		3.149	.002

Table 8 shows that the results of the simple linear regression analysis yield a constant value of 98.419 and a regression coefficient for learning community effectiveness (X₂) of 0.209. Accordingly, the regression equation can be expressed as $Y = 98.419 + 0.209X_2$. The constant indicates that when learning community effectiveness is zero, teachers' professional competence is predicted to be 98.419. Furthermore, the positive regression coefficient (0.209) suggests a positive (unidirectional) relationship, meaning that each one-unit increase in learning community effectiveness is associated with a 0.209 increase in teachers' professional competence.

The Influence of Transformational Leadership and the Effectiveness of Collaborative Learning Communities on Teachers' Professional Competence

Multiple linear regression analysis was used to test the simultaneous effects of school principals' transformational leadership and learning community effectiveness on teachers' professional competence. The strength of the relationship between variables was analyzed using correlation coefficients with interpretations. The test results showed that transformational leadership and learning community effectiveness together had a significant relationship with teachers' professional competence, thereby supporting the hypothesis of simultaneous influence.

Table 9. The Strength of the Relationship between Transformational Leadership and the Effectiveness of Learning Communities Together on Teachers' Professional Competence

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.776 ^a	.602	.596	4.697	.602	101.319	2	134	<.001

Table 9 shows a correlation coefficient (R) of 0.776, indicating a positive relationship among the independent variables (Transformational Leadership and Learning Community Effectiveness) and the dependent variable (Teacher Professional Competence). The R Square (R²) value of 0.602 indicates that the two independent variables explain 60.2% of the variation in Teacher Professional Competence. In contrast, the remaining 39.8% is influenced by factors outside the research model. In addition, the change in R Square (R Square Change) of 0.602, with an F Change value of 101.319 and a significance level of < 0.001, indicates that the addition of independent variables to the model significantly improves the model's ability to explain the variability of the dependent variable. Thus, it can be concluded that the Effectiveness of Learning Communities and transformational leadership simultaneously make a strong, positive, and significant contribution to Teacher Professional Competence.

Table 10. The Combined Effect of Transformational Leadership and Learning Community Effectiveness on Teachers' Professional Competence

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4470.689	2	2235.345	101.319	<,001 ^b
	Residual	2956.377	134	22.063		
	Total	7427.066	136			

Table 10 shows that the F-count value was 101.319, and the significance value was < 0.001. These results indicate that the regression model is statistically significant, so it can be concluded that the independent variables simultaneously have a significant effect on the dependent variable. Thus, the regression model used is declared fit to explain the relationship between the research variables. Thus, the research hypothesis stating that the Effectiveness of Learning Communities and Transformational Leadership jointly influence Teacher Professional Competence is accepted.

Table 11. Contribution of Transformational Leadership and Learning Community Effectiveness Together to Teachers' Professional Competence

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.776 ^a	.602	.596	4.697

Based on the regression analysis results in Table 11, a multiple correlation coefficient (R) value of 0.776 was obtained, indicating a positive but weak relationship between the independent and dependent variables. The R-squared value of 0.602 indicates that the independent variables in the model explain 60.2% of the variation in the dependent variable. In comparison, the remaining 39.8% is influenced by factors outside the model.

Table 12. Regression Coefficients of Transformational Leadership and Joint Learning Community Effectiveness on Teachers' Professional Competence

Model	Coefficients ^a			t	Sig.
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta		
(Constant)	15.314	10.758		1.423	.003
1 Transformational Leadership	.710	.083	.551	8.538	<.001
Learning Community Effectiveness	.435	.086	.325	5.039	<.001

Table 12 presents the results of the multiple linear regression analysis, which show that transformational leadership and learning community effectiveness have a positive and significant effect on teachers' professional competence. The regression equation obtained is $Y = 15.314 + 0.710X_1 + 0.435X_2$. The regression coefficients for transformational leadership ($t = 8.538$; $p < 0.001$) and learning community effectiveness ($t = 5.039$; $p < 0.001$) indicate a significant influence. The standardized beta coefficients indicate that transformational leadership ($\beta = 0.551$) has a greater influence than learning community effectiveness ($\beta = 0.325$). Thus, the hypothesis stating that both variables influence teachers' professional competence is accepted.

Discussion

The results of the study indicate that the transformational leadership of school principals and the effectiveness of learning communities have a positive and significant effect on teachers' professional competence, both partially and simultaneously. Transformational leadership shows a regression coefficient of 0.710 ($t = 8.538$, $p < 0.001$) and a learning community effectiveness coefficient of 0.435 ($t = 5.039$, $p < 0.001$). These results indicate that both independent variables contribute significantly to improving teachers' professional competence. Transformational leadership has also been linked to increased teacher commitment and self-efficacy (Tian & Guo, 2024), both of which are essential components of professional competence (Chang et al., 2021; Suryadi et al., 2024; Zainal & Matore, 2021).

These findings are consistent with empirical evidence in the education literature that transformational leadership plays an important role in influencing teacher performance quality through empowerment, professional development, and the creation of a collaborative school culture. Ke et al. (2025) found that transformational leadership is significantly correlated with teachers' professional competence by fostering a supportive school climate. Chang et al. (2021) also showed that principals with a transformational leadership style can motivate teachers to improve their pedagogical skills and professionalism continuously.

Similarly, the significant influence of learning communities on teachers' professional competence is reinforced by global studies that confirm that professional learning communities (PLCs) improve learning practices through systematic collaboration. Professional learning communities have been consistently reported to improve teachers' ability to plan and reflect on learning

practices (Amin et al., 2024; Noer, 2023). Research by Grimm (2024) also shows that PLCs improve teachers' professional competence through peer coaching and reflective discussion.

Simultaneously, both independent variables show a strong combined effect on teachers' professional competence, confirming that transformational leadership acts as a catalyst for the formation of effective learning communities. Heenan et al. (2023) emphasize that transformational leadership plays a significant role in shaping the learning culture in schools, thereby strengthening the positive impact of learning communities on teachers' professionalism.

In addition to being consistent with previous theories and findings, this study's results also show that transformational leadership contributes more ($\beta = 0.551$) than the effectiveness of the learning community ($\beta = 0.325$) to teachers' professional competence. This can be explained by the fact that principals have a stronger structural and strategic role in determining the direction of teacher professional development than do learning communities, which are more functional and practical. The importance of leadership in improving the overall professional capacity of school organizations (Castro & Jimenez, 2022; Leithwood et al., 2020; Warisno & Hidayah, 2022).

However, this study has limitations. This study was conducted in public elementary schools in one subdistrict, so the generalizability of the findings to a broader context must be approached with caution. Future research is recommended to combine mixed-methods approaches to enrich the understanding of the mechanisms of influence of variables through qualitative data, such as interviews and observations. In addition, future research could include other variables, such as school organizational culture, work motivation, and educational policy support, which, in several studies, have been shown to moderate the relationship between leadership and professional competence. In practice, this study's findings indicate that to improve teachers' professional competence continuously, principals need to develop a strong transformational leadership style while encouraging collaborative, structured learning community practices.

CONCLUSION

The findings of this study underscore the significant influence of transformational leadership and learning community effectiveness on elementary school teachers' professional competence. Transformational leadership was found to have a positive and substantial impact, explaining 52.7% of the variance in professional competence, while learning community effectiveness accounted for 38.5% of the variance. When considered together, both factors explained 60.2% of the total variance in teachers' professional competence. This highlights the importance of both visionary leadership and the cultivation of collaborative learning environments in fostering teacher development.

The results contribute to the existing literature on educational leadership and professional learning communities, reinforcing the idea that effective leadership and a strong professional culture are crucial for improving teacher competence. For practical implementation, it is recommended that school

principals focus on maintaining transformational leadership practices that prioritize teacher growth, while also enhancing learning communities as platforms for continuous reflection and collaboration. Future studies should explore additional factors, such as teacher motivation and organizational culture, using mixed-methods or longitudinal designs to provide a deeper understanding of the factors that contribute to teacher professional development.

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