

THE IMPACT OF TRANSFORMATIONAL LEADERSHIP AND TEACHER'S PEDAGOGICAL COMPETENCE ON EDUCATIONAL QUALITY: A QUANTITATIVE STUDY IN INDONESIAN PRIMARY SCHOOL

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ABSTRACT

This study investigates the impact of transformational leadership and teachers' pedagogical competence on educational quality in public primary schools in the East Ungaran District, Indonesia. Using a quantitative causal survey design, data were collected from 148 teachers across 14 schools through validated and reliable instruments measuring transformational leadership, pedagogical competence, and educational quality. The results indicate that transformational leadership significantly contributes to improved educational quality, as principals who demonstrate a clear vision, inspirational motivation, and exemplary behavior foster productive and innovative school environments. Similarly, teachers' pedagogical competence, particularly in designing instruction and responding to learners' needs, plays a key role in enhancing learning outcomes. Combined, both variables explain 61.7% of the variance in educational quality, demonstrating a strong synergistic effect. These findings underscore the importance of strengthening leadership capacity and pedagogical competence through continuous professional development. The study provides empirical insights for school leaders and policymakers seeking to improve educational quality in primary schools.

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INTRODUCTION

Educational quality is a key determinant of national development because it shapes competent, competitive, and ethical human resources. Improving quality is not only reflected in student learning outcomes but also in the learning process, resource inputs, and effective governance at the institutional level (Isa, Neliwati & Hadijaya, 2023). Educational quality must be continuously improved through a systemic and sustainable quality assurance process at all levels (Khotimah, Juanda & Rosidin, 2023). However, primary education still faces persistent challenges, including low teacher professionalism, weak school leadership, and suboptimal implementation of quality assurance mechanisms, requiring stronger intervention and strategic management.

The quality of education in Indonesia also shows significant disparities across regions. Karolina et al. (2021) argue that equity can be achieved only through comprehensive policies implemented across public and private schools while involving communities, government, and private sectors. Public participation in financing and monitoring schools significantly influences quality improvement. This aligns with Law No. 20 of 2003, which mandates that educators must act professionally to improve educational quality. Thus, professionalism, innovation, and shared responsibility are essential for advancing education that aligns with societal demands (Julita & Latifah, 2023; Daudisa & Veyere, 2020).

The 2024 education report of SD Negeri Kecamatan Ungaran Timur shows a decline in key indicators such as student outcomes, equity, teacher competence, and participatory management. These findings indicate structural governance issues that require investigation into core predictors of educational quality particularly principal transformational leadership and teachers' pedagogical competence.

Educational quality itself refers to an institution's ability to manage resources effectively to produce competent graduates (Tapung, 2024; Julita & Latifah, 2023). Fransisca, Ariani & Handi (2024) emphasize the optimization of learning resources to enhance students' capabilities. Indicators of quality include effective learning, leadership, staff management, quality culture, community participation, and accountability (Sagala, 2019; Kemendiknas, 2023). National standards defined in Government Regulation No. 57 of 2021 further reinforce the need for consistent leadership, curriculum coherence, and professional engagement (Effendi et al., 2020; Khotimah et al., 2023; Nor & Suriansyah, 2024; Daudisa & Veyere, 2020).

Transformational leadership is a strategic factor in creating positive change within schools. Mukaddamah (2024) notes that transformational leaders prioritize organizational goals over personal interests, while Wijayanto, Abdullah & Wuryandini (2021) highlight their role in building trust, loyalty, and collective pride. Yukl (2018) explains that transformational leadership helps organizational members understand the meaning and value of their work. Thus, a transformational principal becomes not only a manager but also a change agent who inspires and motivates the school community.

The characteristics of transformational leadership include openness to change, emotional intelligence, adaptability, and inspirational communication (Usman, 2020). Kusumaningsih, Dwikurnaningsih & Sugiarto (2025) highlight risk-taking and integrity, while Nuryana & Nugraha (2025) emphasize ethical orientation and intellectual stimulation. Carpio-Mendoza et al. (2023) explain four core dimensions: inspirational motivation, intellectual stimulation, individualized consideration, and idealized influence. These dimensions collectively shape an empowering, innovative, and ethical school environment.

Empirical studies reinforce the role of transformational leadership in improving school quality. Setiyanti, Kusumaningsih & Nurkolis (2025) find a positive impact on educational quality, while Usman & Haryadi (2023) note its influence on teacher discipline. Muchtar, Nuraeni & Wulandari (2025) and Hasibuan (2025) show its contribution to innovative and collaborative school cultures. Thus, transformational leadership remains a crucial predictor of teaching effectiveness and institutional performance.

Teachers' pedagogical competence is another core determinant of educational success. Pedagogical competence includes understanding students, designing lessons, implementing instruction, evaluating learning, and developing potential (Mulyasa, 2023). Atmojo et al. (2025) describe pedagogical competence as the ability to coordinate diverse learning resources, while Mandasari, Waluyo & Harista (2020) emphasize mastery of learning principles and reflective practice. Empirical evidence shows that pedagogical competence significantly strengthens teacher performance and student outcomes (Tapung, 2024; Marcen, Santosa & Rochanah, 2024). Thus, enhancing pedagogical competence is essential for improving learning quality.

Conceptually, transformational leadership and pedagogical competence form a mutually reinforcing system for educational quality. Transformational principals motivate teachers to innovate, while pedagogical competence ensures effective instructional implementation. This synergy forms the foundation of a high-quality education ecosystem, particularly in primary schools such as SD Negeri Kecamatan Ungaran Timur.

Although previous studies have examined transformational leadership and pedagogical competence separately, there is *limited empirical evidence* on how both factors *jointly* influence educational quality in Indonesian primary

schools. This gap is particularly relevant amid persistent quality disparities and leadership challenges in the Indonesian context.

Therefore, this study aims to analyze the partial and simultaneous effects of transformational leadership and teachers' pedagogical competence on educational quality in SD Negeri Kecamatan Ungaran Timur. The findings are expected to provide theoretical contributions to educational management and practical insights for principals, supervisors, and teachers in enhancing sustainable school quality

METHOD

This study employs a quantitative approach with a causal survey design aimed at statistically testing the effects of transformational leadership and teachers' pedagogical competence on educational quality. The quantitative approach was chosen because it enables objective, systematic hypothesis testing using measurable variables (Sugiyono, 2019), while the causal design allows identification of cause-effect relationships between variables (Arikunto, 2019; Ghozali, 2018). The research was conducted at SD Negeri in East Ungaran District from February to July 2025, following stages that included proposal preparation, instrument development, pilot testing, data collection, and analysis. The population consisted of 235 teachers, and the sample of 148 respondents was determined using Slovin's formula with a 5% margin of error (Sujarweni, 2019) and selected through proportional random sampling to ensure representativeness (Sugiyono, 2017).

Data were collected using a five-point Likert-scale questionnaire developed based on theoretical indicators of transformational leadership, pedagogical competence, and educational quality (Sugiyono, 2015; Mulyasa, 2019). Instrument validation included item analysis using Pearson's Product Moment, where items were declared valid when r_{count} exceeded r_{table} at the 5% significance level (Sugiyono, 2019), and reliability testing using Cronbach's Alpha, which showed coefficients above 0.90 for all variables, indicating high internal consistency (Arikunto, 2017; Ghozali, 2018). Operational definitions were used to guide indicator formulation based on existing theories (Khotimah et al., 2023; Menon, 2024; Effendi et al., 2020; Mandasari et al., 2020; Atmojo et al., 2025). Questionnaires were distributed directly to teachers as primary data sources because they provide authentic perceptions and factual information related to school practices (Pujianto, Arafat & Setiawan, 2020).

Data analysis was performed using SPSS 26 and followed a series of classical assumption tests, including normality, linearity, multicollinearity, and heteroscedasticity, to ensure regression eligibility (Ghozali, 2018). Inferential analysis included Pearson's correlation, simple regression, and multiple regression to test partial and simultaneous effects of the independent variables on educational quality (Sugiyono, 2015; Sugiyono, 2019). Model accuracy was assessed using the coefficient of determination (R^2) following interpretation criteria proposed by Ghozali (2018). To strengthen structural analysis, Partial Least Square (PLS) with bootstrapping was applied, where t -statistics > 1.96 indicated significant paths at the 5% level. The overall methodological procedures ensured the validity, reliability, and generalizability of findings, contributing to the advancement of educational management research and efforts to improve primary school quality.

RESULT AND DISCUSSION

Result

The research instrument consists of three variables: transformational leadership of school principals, teachers' pedagogical competence, and educational quality. Based on the validity test results using Pearson's Product Moment correlation, all statement items have $r_{calculated}$ values greater than the r_{table} value at the 5% significance level, indicating that all items are valid. The reliability test also shows Cronbach's Alpha values above 0.90 for all variables, demonstrating a very high level of internal consistency. These psychometric results indicate that the measurement instruments possess strong accuracy and stability, allowing the analysis to be based on data of trustworthy quality.

Table 1. Results of Validity and Reliability Testing

Variable	Number of Items	Cronbach's Alpha	Criteria
Transformational Leadership of School Principal	33	0,931	Reliable

Teachers' Pedagogical Competence	30	0,914	Reliable
Educational Quality	32	0,937	Reliable

A total of 148 teachers from 14 public primary schools participated in the study. The descriptive statistics show that the mean scores of transformational leadership, pedagogical competence, and educational quality fall within high to very high categories. This pattern illustrates that the schools involved in the study generally operate within a well-managed environment where leadership, instructional practice, and service quality function at a strong level. This condition also reflects the presence of an organizational climate that supports consistent professional performance among educators.

Table 2. Descriptive Results of Research Variables

Variable	Mean	Category
Transformational Leadership of School Principals	4.35	Very High
Teachers' Pedagogical Competence	4.21	High
Educational Quality	4.32	High

The results of multiple linear regression analysis indicate that transformational leadership and teachers' pedagogical competence both have significant positive effects on educational quality. The regression coefficients show that improvements in either variable correspond to proportional increases in educational quality, demonstrating the functional role of leadership and teacher competence in shaping institutional performance. Both predictors are statistically significant, indicating the robustness of their contribution to the model.

Table 3. Multiple Linear Regression Test Results

Independent Variable	Coefficient (B)	t-value	Sig.	Remarks
Transformational Leadership of School Principals	0.257	6.417	0.000	Significant
Teachers' Pedagogical Competence	0.204	5.631	0.000	Significant
Constant (a)	7.268	-	-	-

The simultaneous test produces an F-value of 61.825, which exceeds the F-table value, confirming that the regression model is appropriate for explaining the collective influence of the independent variables on educational quality. The coefficient of determination (R^2) of 0.617 shows that 61.7% of the variance in educational quality is explained by the two predictors. This percentage represents a moderate-to-strong explanatory power, suggesting that leadership and pedagogical competence form an integrated foundation that drives improvements in school performance. The remaining variance indicates that other school-level or contextual factors may also contribute to educational quality beyond the variables examined in this study.

Table 4. Results of Simultaneous Test (F-Test) and Coefficient of Determination

Test Statistic	Value	Significance Criteria	Remarks
F-calculated	61.825	$0.000 < 0.05$	Significant
F-table	2.67	-	-
Coefficient of Determination (R^2)	0.617	-	Moderate-Strong

Overall, the results highlight the importance of transformational leadership and pedagogical competence in shaping educational quality. Principals who demonstrate strong leadership practices create strategic direction and supportive environments, while teachers with high pedagogical competence are better able to implement effective teaching processes that enhance learning outcomes. The interaction between these two variables forms a synergistic mechanism that strengthens school quality at the institutional level.

Discussion

The Impact of Transformational Leadership of School Principals on Educational Quality

The research results show that transformational leadership of school principals has a positive and significant impact on educational quality. A principal with a clear vision, the ability to motivate, and the ability to lead by example can create a productive and innovative school environment. Transformational leadership encourages teachers to work beyond their personal interests for the success of the school (Carpio-Mendoza et al., 2023). A principal who applies

this leadership style is able to foster teachers' self-confidence and accountability towards the quality of teaching (Usman & Haryadi, 2023).

Research by Setiyanti et al. (2025) demonstrates that transformational leadership enhances organizational commitment and teacher work enthusiasm, and Muchtar et al. (2025) found that transformational principals effectively build a collaborative work culture in primary schools. Additionally, Hasibuan (2025) emphasizes that inspiration- and motivation-oriented leadership creates a participatory and quality-oriented work environment. These findings support Yukl's (2018) conceptualization of transformational leadership, which involves ideal influence, inspirational motivation, and intellectual stimulation.

The findings of this study emerge because transformational leadership practices directly shape the psychological and structural conditions that enable teachers to perform more effectively. The underlying mechanism is not merely that teachers become more motivated, but that transformational leadership shifts how teachers make meaning of their work, enhances their sense of efficacy, and broadens their opportunities for participation in decision-making. Consequently, improvements in educational quality occur as a result of strengthened collective work capacity within the school, rather than simply as an outcome of top-down directives.

The Impact of Teachers' Pedagogical Competence on Educational Quality

Teachers' pedagogical competence is a key factor in determining the success of the learning process and educational quality. Teachers with high pedagogical competence are able to understand students' characteristics, select appropriate learning strategies, and create an interactive classroom environment. Mandasari et al. (2020) describe pedagogical competence as reflective, empathetic, and adaptive abilities to meet students' needs. Research by Atmojo et al. (2025) also shows that teachers with good pedagogical competence can manage more effective, student-centered learning.

The research by Tapung (2024) supports the finding that pedagogical competence significantly influences teacher performance and student learning outcomes. Marsen, Santosa, & Rochanah (2021) add that competent teachers can create creative, relevant learning aligned with 21st-century skills. Siswanto, Hasan, Sowiyah, & Ridwan (2020) also found that pedagogical competence improves learning effectiveness in primary schools.

These findings occur because pedagogical competence determines the quality of instructional decisions made by teachers from planning and implementation to the evaluation of learning. Competent teachers are able to adjust their strategies based on students' actual needs, thereby ensuring that the learning process becomes more meaningful and impactful. In other words, improvements in educational quality arise not merely because teachers master the subject matter, but because they are able to create adaptive and responsive learning experiences that align with students' developmental progress.

The Simultaneous Impact of Transformational Leadership and Pedagogical Competence on Educational Quality

The research results show that the transformational leadership of school principals and teachers' pedagogical competence simultaneously have a significant effect on educational quality. The synergy between these variables forms a sustainable and directed educational management system. A principal who acts as a transformational leader establishes a positive work climate, while teachers' pedagogical competence becomes a direct outcome of leadership practices that support instructional improvement.

Research by Mandasari et al. (2020) found that the combination of transformational leadership and teachers' pedagogical competence contributes significantly to teacher performance. Tapung (2024) also highlights that integration between leadership and teacher competence is a determining factor in the success of primary educational institutions.

The simultaneous impact of both factors emerges because educational quality is the result of an interaction between structural factors (leadership) and instructional factors (teacher competence). Transformational leadership creates the vision, collaborative culture, and professional support required for the development of pedagogical competence. Conversely, teachers' competence strengthens the effectiveness of leadership through high-quality

instructional practices. Thus, improvements in educational quality do not depend on a single variable but on the systemic integration between leadership and teachers' professional capacity.

CONCLUSION

Based on the research conducted at the public elementary schools in East Ungaran District, it can be concluded that both the transformational leadership of school principals and teachers' pedagogical competence significantly affect the quality of education. The transformational leadership of school principals has proven to play a crucial role in creating a productive and innovative school environment. Principals with a clear vision, the ability to motivate, and the ability to lead by example can encourage teachers to go beyond personal interests for the success of the school, thereby contributing positively to the improvement of educational quality.

In addition, teachers' pedagogical competence is also a key factor in determining the success of the learning process and educational quality. Teachers with high pedagogical competence are able to manage learning effectively, create an interactive classroom atmosphere, and understand the characteristics of their students well. The synergy between the transformational leadership of school principals and teachers' pedagogical competence forms a more directed and sustainable educational management system, contributing to the improvement of teacher performance and the quality of learning.

Practically, the results of this study provide a basis for school principals and education policymakers to continue developing transformational leadership styles and enhancing teachers' pedagogical competence through ongoing training and development. Therefore, the improvement of educational quality at the public elementary schools in East Ungaran District is greatly influenced by the principal's ability to lead visionarily and empower all elements of the school, as well as by strengthening teachers' pedagogical competence, with a focus on effective learning that is relevant to the needs of 21st-century learners.

However, this study has limitations, particularly because the research was conducted in a single district, which may limit the generalizability of the findings to broader educational contexts. Future studies should therefore expand the scope of research to other districts to obtain more comprehensive comparative results.

Based on the findings, several recommendations can be proposed. First, schools should strengthen continuous professional development (PD) programs to ensure that teachers consistently improve their pedagogical competence. Second, leadership training programs for principals need to be enhanced so that they can more effectively apply transformational leadership practices. Third, future research is encouraged to expand the study to other districts and adopt broader methodological approaches to deepen understanding of the relationship between leadership, teacher competence, and educational quality.

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