

Empirical Paper

The Influence of Principal Managerial Ability and Communication Competence on Teacher Competence in Public Elementary Schools in Pati District

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Abstract

Purpose: This study examines the influence of principals' managerial capability and communication competence on teacher competency in public elementary schools in Pati District, addressing the need to improve teaching quality and educational outcomes.

Methodology: A quantitative survey design was adopted. The study used a proportional random sample of 186 teachers from a public elementary school. Data were collected using a structured Likert-scale questionnaire and analysed through Structural Equation Modelling (SEM) using SmartPLS.

Results: Principals' managerial capability and communication competence both have significant positive effects on teacher competency. Together, these factors explain 74.4% of the variance in teacher competency, demonstrating their substantial contribution to teacher development.

Novelty and Contribution: The study provides empirical evidence that principals' managerial and communication competencies are important determinants of teacher competency, extending research on educational leadership and teacher development.

Practical and Social Implications: The findings support targeted training programmes to strengthen principals' managerial and communication competencies. Improved leadership practices can enhance teaching effectiveness, teacher development, educational quality, and the quality of human resources in public elementary schools.

Keywords: Managerial Skills, Educational Leadership, Principal Communication Competency, Teacher Education, Structural Equation Modelling

DOI

[10.65820/ejes-21vol2-issue2-2026](https://doi.org/10.65820/ejes-21vol2-issue2-2026)

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How to cite this article:

Suryani, Ismaya, E. A., & Setiadi, G. (2026). The influence of principal managerial ability and communication competence on teacher competence in public elementary schools in Pati District. *Elicit Journal of Education Studies*, 2(2), 261-273. <https://doi.org/10.65820/ejes-21vol2-issue2-2026>

1 Introduction

Education is widely recognised as a fundamental driver of human capital development and national progress (Khan & Fauzee, 2025). In an era characterised by rapid globalisation, technological advancement, and increasing educational demands, schools are expected to produce graduates who are knowledgeable, adaptable, and competitive. Achieving these goals largely depends on teacher quality, as teachers' competence directly influences students' learning outcomes and overall educational quality (Fauth et al., 2019). Consequently, strengthening teacher competence has become a central priority in educational reform initiatives.

Teacher competence encompasses the knowledge, skills, attitudes, and professional attributes required for effective teaching. It consists of four interrelated dimensions: pedagogical, personality, social, and professional competence (Zulkipli et al., 2022). Pedagogical competence relates to teachers' ability to design, implement, and evaluate learning activities; personality competence reflects ethical conduct, maturity, and integrity; social competence concerns effective interaction with students, colleagues, parents, and the wider community; while professional competence refers to mastery of subject knowledge and continuous professional development. Teachers who demonstrate these competencies are better equipped to create engaging learning environments, respond to students' diverse needs, and improve educational outcomes. Recent evidence further indicates that teacher competence is strongly influenced by school leadership and the quality of organisational support provided to teachers (Villena-Martínez & Muñoz-García, 2025; Afghan & Abdurrahman, 2026).

Although teacher competence is shaped by individual characteristics, it is equally influenced by organisational factors within the school environment. Among these, the principal plays a particularly important role by creating conditions that facilitate teachers' professional growth. Effective school leadership extends beyond administrative responsibilities to include strategic management, instructional supervision, and interpersonal communication, all of which contribute to teachers' professional development. Accordingly, principals' managerial ability and communication competence have emerged as two critical determinants of teacher competence.

Principal managerial ability refers to the capacity to plan, organise, implement, and control school resources effectively to achieve educational objectives (Akporehe & Romina, 2023; Sopiah & Herman, 2018). In this study, managerial ability is conceptualised through four dimensions: planning, organising, implementation, and controlling. Principals with strong managerial competence establish effective school systems, coordinate educational programmes, optimise resource utilisation, and provide continuous supervision and professional support for teachers. Such leadership fosters a positive working environment that enhances teacher performance and competence. Empirical studies consistently demonstrate that principals' managerial competence positively influences teachers' professional development and instructional effectiveness across diverse educational settings (Tanjung et al., 2021; Mulyono et al., 2023; Wulaningrum et al., 2025).

Besides managerial capability, principals' communication competence is equally essential in promoting teacher development. Communication competence refers to the principal's ability to establish open, empathetic, supportive, and equitable relationships with teachers through effective interpersonal communication (Amin, 2022; Oner & Tugba, 2021). This study measures communication competence using five indicators: openness, empathy, supportiveness, positive attitude, and equality. Effective communication enables principals to articulate school goals, provide constructive feedback, resolve conflicts, foster trust, and encourage collaboration among teachers. These interactions create a supportive organisational climate that motivates teachers to improve their professional practice. Conversely, ineffective communication often results in misunderstandings, reduced collaboration, and lower teacher morale (Fatimah et al., 2015; Nisa, 2016). Recent studies similarly show that principals with strong interpersonal communication skills cultivate collaborative school cultures and encourage teachers to respond positively to professional feedback (Sofia et al., 2023).

Despite continuous efforts to improve educational quality, teacher competence remains a challenge in many elementary schools. Teachers continue to experience difficulties in planning instruction, applying diverse teaching methods, developing learning materials, and conducting comprehensive assessments. These challenges are often associated with insufficient managerial guidance and limited communication between principals and teachers, which restrict opportunities for professional development (Anjani et al., 2025).

Similar conditions are evident in public elementary schools in Pati District, where some principals have yet to fully perform their managerial responsibilities or establish effective communication with teaching staff. As a result, teacher

competence has not developed optimally, thereby affecting the quality of classroom instruction and overall school performance. These conditions underscore the need to examine how principals' leadership competencies contribute to teacher competence within this local educational context.

Although numerous studies have examined the relationship between school leadership and teacher competence, important gaps remain in the existing literature. Most previous research has investigated principals' managerial ability and communication competence independently rather than examining their combined and relative influence within a single analytical framework (Sopiah & Herman, 2018; Amin, 2022). Moreover, many studies have focused on secondary or vocational schools, different geographical contexts, or have adopted qualitative approaches that provide limited empirical evidence regarding the simultaneous effects of these leadership dimensions (Mulyon et al., 2023; Wulaningrum et al., 2025). Recent systematic reviews further recommend integrated quantitative investigations that examine both managerial and interpersonal leadership competencies concurrently, particularly within elementary school settings and specific Indonesian district contexts where such evidence remains limited (Bellibaş et al., 2025; Afghan & Abdurrahman, 2026).

Therefore, this study aims to examine both the partial and simultaneous effects of principals' managerial ability and communication competence on teacher competence in public elementary schools in Pati District. By integrating these two dimensions of principal leadership within a single structural model, the study contributes to a more comprehensive understanding of how school leadership enhances teacher competence and provides empirical evidence to support leadership development programmes aimed at improving educational quality. This study aims to examine the effect of principals' managerial ability on teacher competence, assess the effect of principals' communication competence on teacher competence, and determine the combined effect of managerial ability and communication competence on teacher competence.

2 Theoretical Review

Human Capital Theory

This study is anchored in Human Capital Theory (HCT), originally proposed by Becker (1964), which posits that individuals are valuable assets whose productivity and performance can be enhanced through deliberate investments in education, training, and skill development. Rather than viewing employees as organisational costs, the theory conceptualises them as valuable forms of capital capable of generating long-term value when their knowledge, competencies, and capabilities are systematically developed. Within the educational context, teachers represent a school's most important human capital, and their competence is regarded as the cumulative outcome of continuous professional investment rather than an inherent or static characteristic.

From the perspective of Human Capital Theory, the school principal serves as a key investor in teachers' professional development. This investment occurs through two complementary mechanisms. First, principals' managerial ability, reflected in effective planning, organising, implementation, and control, provides the organisational structures that facilitate teacher development through supervision, professional training, resource allocation, performance monitoring, and instructional support. These managerial functions create an enabling environment in which teachers can continuously improve their pedagogical, professional, social, and personal competencies.

Second, principals' communication competence enhances the effectiveness of these managerial investments by fostering supportive interpersonal relationships characterised by openness, empathy, trust, encouragement, and constructive feedback. Effective communication strengthens teachers' motivation, collaboration, and willingness to engage in continuous professional learning, thereby increasing the likelihood that organisational support translates into improved teaching competence. Consequently, Human Capital Theory suggests that teacher competence is strengthened not only through formal managerial practices but also through positive relational interactions that reinforce professional growth.

This theoretical perspective provides the basis for the present study, which conceptualises principals' managerial ability and communication competence as two distinct yet complementary dimensions of leadership that contribute to the development of teacher competence. While managerial ability provides the structural conditions necessary for professional development, communication competence creates the relational climate that enables teachers to

maximise the benefits of those organisational investments. Together, these leadership dimensions are expected to enhance teacher competence in public elementary schools.

Recent empirical evidence supports this theoretical proposition. Zerrad and Schechter (2026) found that effective school leaders promote teacher development through both structured managerial practices, including planning, supervision, and performance management, and relational practices that cultivate trust, belonging, and professional support. Similarly, Auerbach and Green (2024) argue that contemporary applications of Human Capital Theory should recognise that investments in human capability extend beyond formal training to include the social and interpersonal conditions that facilitate knowledge acquisition and professional development. Consistent with this perspective, the present study examines principals' managerial ability and communication competence as complementary investments in teachers' human capital that jointly contribute to improved teacher competence.

3 Method

Research Type and Design

This study adopted a quantitative survey approach to examine the relationships among the research variables. The quantitative approach was considered appropriate because the study sought to test hypotheses and statistically determine the effects of the independent variables on the dependent variable. Quantitative research is grounded in positivism and involves the investigation of specific populations or samples using statistical analysis of collected data (Sugiyono, 2014).

A causal research design was employed to examine the effects of principals' managerial ability and communication competence on teacher competence. The study comprised two independent variables: principals' managerial ability (X_1) and principals' communication competence (X_2), while teacher competence (Y) was the dependent variable. Partial Least Squares Structural Equation Modelling (PLS-SEM) was used to assess the relationships among the variables.

Population and Sample

The study population comprised 347 civil servant teachers (ASN) working in public elementary schools in Pati District. Using proportional random sampling, 186 teachers were selected as the study sample to ensure proportional representation across the participating schools. The sample size was determined using the Slovin formula with a 5% margin of error.

Data Collection Techniques

Data were collected using a structured questionnaire measuring principals' managerial ability, principals' communication competence, and teacher competence. The questionnaire used a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Primary data were obtained directly from teachers, while secondary data were sourced from relevant scholarly literature, government regulations, and supporting documents.

The questionnaire comprised 50 items. Principals' managerial ability was measured through planning, organising, implementation, and controlling. Communication competence was assessed through openness, empathy, supportiveness, positive attitude, and equality. Teacher competence was measured through pedagogical, personal, social, and professional competencies in accordance with the Indonesian teacher competency framework.

Instrument Testing

Instrument validity and reliability were assessed before hypothesis testing. Convergent validity was evaluated using factor loadings, with values above 0.60 considered acceptable. Construct reliability was assessed using Cronbach's Alpha and Composite Reliability, with values exceeding 0.60 considered acceptable.

Data Analysis Techniques

Data were analysed using SmartPLS 3.0. Descriptive analysis was first conducted to describe respondent characteristics and response distributions. Inferential analysis employed PLS-SEM, consisting of measurement and structural model assessments. The measurement model was evaluated using factor loadings, Average Variance Extracted (AVE), discriminant validity, Composite Reliability, and Cronbach's Alpha. An AVE value above 0.50 and reliability values above 0.60 were considered acceptable.

The structural model was assessed using R^2 to determine the explanatory power of the model. Bootstrapping was conducted to evaluate the significance of the hypothesised relationships. A relationship was considered statistically significant when the t-statistic exceeded 1.96, and the p-value was below 0.05 at the 5% significance level.

Hypothesis Testing

Hypotheses were tested using PLS-SEM by importing the data in CSV format, specifying the structural model, running the PLS algorithm, and performing bootstrapping. The hypotheses were supported when the corresponding path coefficient was statistically significant, indicated by a t-statistic greater than 1.96 and a p-value below 0.05.

4 Results and Analysis

Data Description

Based on the data collected from 186 respondents, the descriptive statistical analysis provides an overview of the distribution of the study variables. The principal's managerial ability (X_1) recorded a mean score of 79.91, with scores ranging from a minimum of 65 to a maximum of 90. Principal communication competence (X_2) had a mean score of 62.10, with a minimum value of 53 and a maximum value of 70. Meanwhile, teacher competence (Y) obtained a mean score of 78.74, with scores ranging from 70 to 90.

The standard deviation values for all variables were lower than their respective mean scores, indicating relatively low variability among respondents' responses and suggesting that the data are fairly homogeneous. This implies that the responses were consistently distributed around the mean, providing a reliable representation of the characteristics of the study population.

The frequency distribution further revealed considerable variation in teacher competence. The largest proportion of respondents (41%) was classified in the low competence category, while 26% fell into the very high category. The remaining respondents were distributed across the moderate, high, and very low categories, indicating differences in competence levels among teachers in the study area.

Model Testing Results

1. Outer Model (Validity and Reliability)

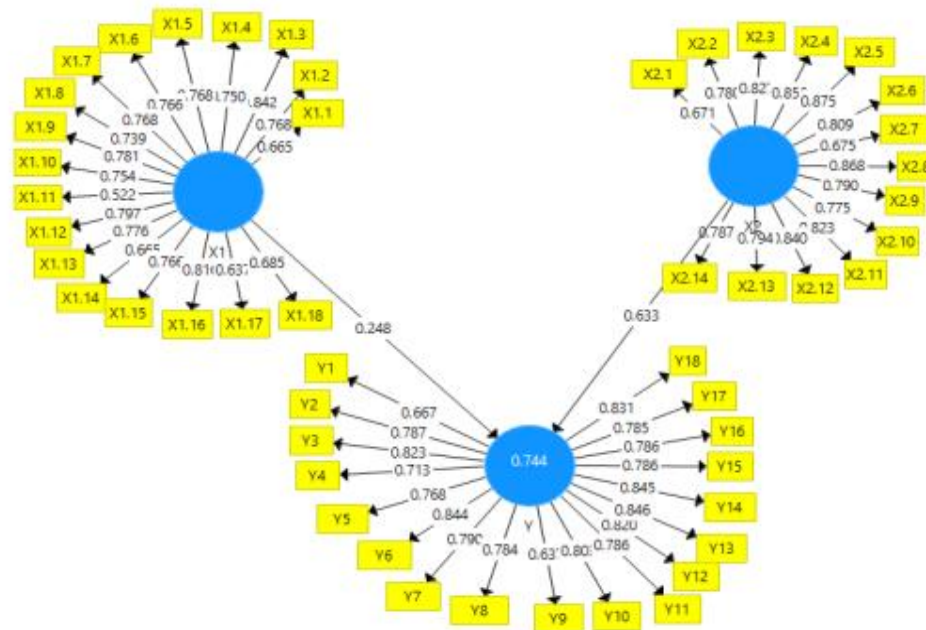


Figure 1 Results of Outer Loading Stage 1

The stage one loading factor results for the principal's managerial competency variable show that one indicator (X1.11) is invalid because the loading factor value is <0.6 . The principal's communication competency variable is valid because it is >0.6 , and the teacher competency variable is valid because the loading factor value is >0.6 . Invalid values will be discarded or not used.

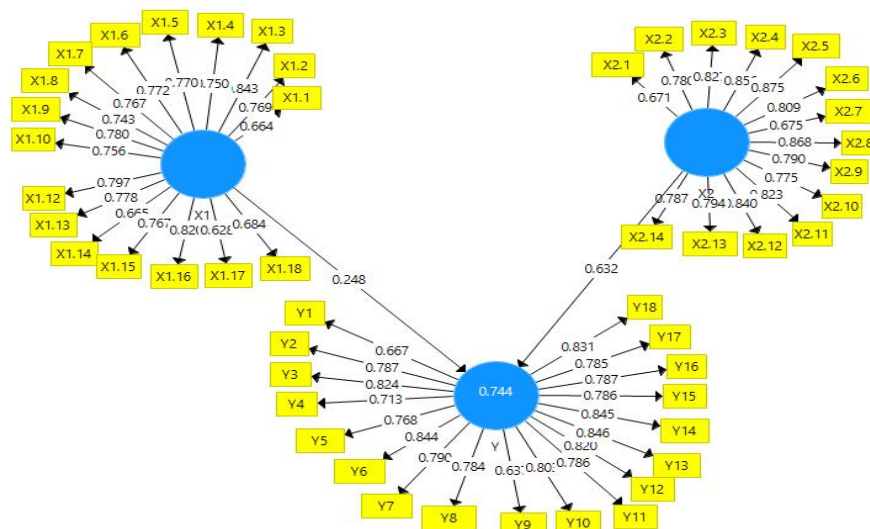


Figure 2 Results of Outer Loading Stage 2

Table 1 AVE Results of Convergence Validity Test

	Average variance extracted (AVE)	Information
Principal Managerial Competencies	0.566	Valid
Communication Competencies	0.640	Valid
Teacher Competencies	0.617	Valid

The AVE values for each variable are: 0.566 for the principal's managerial ability; 0.640 for the principal's communication competence; and 0.617 for the teacher's competence. These three variables have values > 0.50, meaning they are categorised as valid.

Table 2 Cross Loading Results of Discriminant Validity Test

	Principal Managerial Competencies	Communication Competencies	Teacher Competencies	Information
X1.1	0.664	0.586	0.535	Valid
X1.2	0.769	0.623	0.625	Valid
X1.3	0.843	0.737	0.657	Valid
X1.4	0.750	0.650	0.616	Valid
X1.5	0.770	0.674	0.587	Valid
X1.6	0.772	0.679	0.588	Valid
X1.7	0.767	0.668	0.620	Valid
X1.8	0.743	0.686	0.571	Valid
X1.9	0.780	0.697	0.610	Valid
X1.10	0.756	0.697	0.644	Valid
X1.12	0.797	0.763	0.648	Valid
X1.13	0.778	0.733	0.653	Valid
X1.14	0.665	0.597	0.537	Valid
X1.15	0.767	0.710	0.672	Valid
X1.16	0.820	0.759	0.741	Valid
X1.17	0.628	0.557	0.525	Valid
X1.18	0.684	0.672	0.580	Valid
X2.1	0.619	0.671	0.560	Valid
X2.2	0.762	0.780	0.657	Valid
X2.3	0.757	0.827	0.700	Valid
X2.4	0.771	0.856	0.711	Valid
X2.5	0.775	0.875	0.723	Valid
X2.6	0.743	0.809	0.672	Valid
X2.7	0.566	0.675	0.589	Valid
X2.8	0.770	0.868	0.725	Valid
X2.9	0.719	0.790	0.667	Valid
X2.10	0.680	0.775	0.626	Valid
X2.11	0.758	0.823	0.702	Valid
X2.12	0.752	0.840	0.787	Valid
X2.13	0.712	0.794	0.731	Valid

	Principal Managerial Competencies	Communication Competencies	Teacher Competencies	Information
X2.14	0.687	0.787	0.697	Valid
Y1	0.547	0.553	0.667	Valid
Y2	0.650	0.643	0.787	Valid
Y3	0.693	0.699	0.824	Valid
Y4	0.593	0.613	0.713	Valid
Y5	0.591	0.642	0.768	Valid
Y6	0.667	0.701	0.844	Valid
Y7	0.695	0.722	0.790	Valid
Y8	0.585	0.647	0.784	Valid
Y9	0.526	0.554	0.637	Valid
Y10	0.731	0.770	0.803	Valid
Y11	0.625	0.670	0.786	Valid
Y12	0.680	0.719	0.820	Valid
Y13	0.728	0.747	0.846	Valid
Y14	0.685	0.712	0.845	Valid
Y15	0.654	0.662	0.786	Valid
Y16	0.640	0.674	0.787	Valid
Y17	0.599	0.644	0.785	Valid
Y18	0.629	0.679	0.831	Valid

Table 3 Results of the Fornell-Larcker Test

	Principal Managerial Competencies	Communication Competencies	Teacher Competencies
KM	0.752		
KK	0.902	0.800	
KG	0.818	0.856	0.786

Table 4 Cronbach's alpha value

	Cronbach's alpha	Information
Principal Managerial Competencies	0.951	Reliable
Communication Competencies	0.956	Reliable
Teacher Competencies	0.963	Reliable

Cronbach's Alpha values are:

$X_1 = 0.951$

$X_2 = 0.956$

$Y = 0.963$

→ all variables are reliable

Thus, the research instruments are declared valid and reliable.

Inner Model (Hypothesis Testing)

The hypothesis testing results are as follows:

Variable Relationship	T-Statistics	P-Value	Result
$X_1 \rightarrow Y$	2.252	0.025	Significant
$X_2 \rightarrow Y$	5.779	0.000	Significant

Interpretation:

The principal's managerial ability has a significant effect on teacher competence.

The principal's communication competence has a stronger effect on teacher competence.

The R-Square value of 0.744 indicates that 74.4% of the variance in teacher competence can be explained by the two independent variables. This is categorised as a strong model.

5 Discussion

The Effect of Principal Managerial Ability on Teacher Competence

The findings indicate that the principal's managerial ability has a significant positive effect on teacher competence ($T = 2.252$; $p = 0.025$), although the comparatively small effect size suggests that it is not the most dominant driver of teacher competence within this sample. Viewed through Human Capital Theory (Becker, 1964), this result confirms that structural investment in teachers, namely school programme planning, resource organisation, implementation of educational activities, and performance evaluation, functions as a genuine channel through which teachers' pedagogical and professional capital accumulates over time. Principals with strong managerial capabilities are better positioned to create a supportive and conducive working environment that motivates teachers, encourages instructional innovation, and promotes continuous professional development, consistent with the view that effective school management constitutes a deliberate, structural investment in the school's human capital rather than an incidental administrative function.

This finding is corroborated by a substantial body of literature. Akporehe and Romina (2023) found that principals' managerial skills significantly predicted teachers' job performance in public secondary schools, reinforcing the notion that managerial competence is a transferable driver of teacher capability across educational levels. Similarly, Sopiah and Herman (2018) demonstrated that principals' managerial abilities, together with teachers' work culture, significantly shaped teacher competence, while Tanjung et al. (2021) showed that principals' managerial competence directly improved elementary school teacher performance through structured coaching and supervision. More recently, Mulyono et al. (2023) confirmed that principals' managerial competence remained decisive for teacher performance even under the demands of Indonesia's Merdeka Curriculum reform. Riyadi et al. (2024) similarly found that principals' managerial skills, alongside academic supervision and work motivation, significantly improved elementary school teacher performance in Central Java.

The Effect of Principal Communication Competence on Teacher Competence

The results further reveal that the principal's communication competence has a highly significant positive effect on teacher competence ($T = 5.779$; $p < 0.001$), with an effect size ($f^2 = 0.293$) indicating a moderate but clearly dominant influence relative to managerial ability. Within the Human Capital Theory framing, this finding positions communication as the relational investment channel through which formal managerial structures are translated into lived, everyday improvements in teaching capability; openness, empathy, clarity of information, and reciprocal dialogue between principal and teachers appear to convert structural opportunity into applied skill more effectively than managerial planning alone.

This result is consistent with converging evidence across several related studies. Amin (2022) found that principals' communication behaviour and work motivation significantly enhanced the performance of teachers and education personnel in elementary schools, while Oner and Tugba (2021) reported that teachers rated principals' organisational communication competencies as a key contributor to their own professional functioning. Similarly, Sofia et al. (2023)

observed, from the classroom teacher's perspective, that principals' effective communication cultivated a more collaborative teaching atmosphere and encouraged constructive engagement with feedback. Most directly, Hasti and Purwanto (2024), examining 163 elementary school teachers, reported that principals' interpersonal communication had a statistically significant positive effect specifically on teacher competence ($t = 4.487$; $p < 0.001$), closely mirroring the magnitude and direction of the present result. Conversely, Fatimah et al. (2015) showed that when communication between principals and teachers is poor, the resulting misunderstandings and conflict actively erode teacher performance, underscoring, by contrast, why the strength of this pathway matters here.

Simultaneous Effect of Principal Managerial Ability and Communication Competence on Teacher Competence

The simultaneous analysis demonstrates that principal managerial ability and communication competence jointly exert a significant effect on teacher competence, with a coefficient of determination (R^2) of 0.744, indicating that 74.4% of the variance in teacher competence is explained by these two variables while the remaining 25.6% is attributable to factors outside this model. Read through Human Capital Theory (Becker, 1964), this result offers direct empirical support for the theory's central premise: that investment in human capital, whether structural or relational, is not merely additive but jointly determinative of the resulting stock of competence, and that neither channel alone is sufficient to account for the outcome observed.

This interpretation is reinforced by recent theoretical and empirical work on integrated leadership. Zerrad and Schechter (2026) found that principals themselves conceptualise their role as human capital developers along two simultaneously operating dimensions, a structured managerial dimension and a relational, socio-emotional dimension, echoing the dual-channel result obtained here. Bellibaş et al. (2025) similarly argue, in a systematic review of culturally situated school leadership, that context-specific leadership effectiveness depends on the joint operation of task-oriented and relational leadership behaviours rather than either in isolation, while Afghan and Abdurrahman (2026) found that principals cultivate teachers' personal competencies most effectively when managerial structuring and interpersonal guidance are combined within the same developmental strategy. In the same vein, Wulaningrum et al. (2025) emphasise, in a systematic literature review of principal management research, that studies isolating a single leadership dimension tend to under-explain teacher performance outcomes compared to those that model managerial and relational leadership jointly, a pattern consistent with the substantial combined R^2 obtained in this study. At the same time, Auerbach and Green (2024) caution that human capital returns are rarely purely economic or structural, reinforcing why the relational channel captured here contributes a distinct, non-redundant share of the explained variance rather than simply duplicating the contribution of managerial ability.

6 Conclusion

Overall, the findings demonstrate that principals' managerial ability has a significant positive effect on teacher competence, although its individual contribution is relatively modest. Principals' communication competence exerts a stronger and more dominant influence on teacher competence. When considered jointly, managerial ability and communication competence make a substantial contribution to explaining variations in teacher competence.

The combined effect of the two variables accounts for 74.4% of the variance in teacher competence, indicating their substantial explanatory contribution. These findings suggest that effective school leadership requires principals to possess both strong managerial capabilities and effective communication skills. Improving educational quality at the elementary school level therefore depends, in part, on principals' ability to manage school activities effectively while maintaining clear, supportive, and constructive communication with teachers.

Based on these findings, educational authorities should strengthen principals' managerial and communication competencies through continuous leadership training, mentoring, and professional development programmes. Schools should also promote effective communication and sound management practices to support teacher development, strengthen professional competence, and improve overall educational quality.

Limitation and Future Research Considerations

The study was limited to public elementary school teachers in Pati District and employed a cross-sectional quantitative design, which restricts the generalisability of the findings and does not capture changes over time. Researchers may also adopt longitudinal or mixed-methods approaches to better understand the causal relationships between school leadership and teacher competence. Furthermore, teacher competence was assessed using self-reported questionnaire data, which may be subject to response bias.

Future studies should include teachers from different educational levels and geographical regions to improve the generalisability of the findings. Additionally, future research should examine other factors influencing teacher competence, such as organisational culture, teacher motivation, job satisfaction, and instructional leadership.

Practical and Social Implications

The findings provide evidence that enhancing principals' managerial and communication competencies can significantly improve teacher competence. The results can guide policymakers, school administrators, and educational institutions in designing leadership development programmes and policies aimed at improving teacher performance and educational outcomes. Improving teacher competence through effective school leadership contributes to better teaching quality, improved student learning outcomes, and the development of skilled human resources. Ultimately, this supports sustainable educational development and strengthens the education system's capacity to meet national development goals and global challenges.

Acknowledgements

The authors gratefully acknowledge all teachers who participated in the study for their valuable time and cooperation. The authors also appreciate the contributions of colleagues and reviewers whose comments and suggestions helped improve the quality of the manuscript.

Funding

This study was conducted without financial support from any external funding agency, institution, or organisation.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request and subject to appropriate conditions for data access.

Conflict of Interest

The authors declare that they have no financial, professional, or personal interests that could have influenced the conduct, findings, or reporting of this study.

Declaration of Generative AI Use

Generative artificial intelligence tools were used solely to assist with language editing, grammar, clarity, and formatting. No generative AI tools were used for the conceptualisation of the study, research methodology, data collection, statistical analysis, interpretation of findings, or development of the study's conclusions. The authors remain fully responsible for the accuracy, originality, and integrity of the manuscript.

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