

The Influence of Principal Supervision and Teacher Training on the Pedagogical Competence of Teachers at State Madrasah Aliyah in Pekanbaru City

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ABSTRACT

This study examined the impact of principal supervision and teacher training on the pedagogical competence of educators at State Islamic Senior High Schools (Madrasah Aliyah Negeri) in Pekanbaru, Indonesia. Employing a quantitative research design, data were collected through surveys administered to teachers across several institutions. The findings reveal that both principal supervision and teacher training exert a significant and positive influence on teachers' pedagogical competence. Principals' supervisory practices, when carried out systematically through guidance, feedback, and evaluation, play a pivotal role in enhancing instructional quality. Similarly, targeted and continuous professional training programs equip teachers with the knowledge and skills necessary to adapt to contemporary pedagogical demands, including technology integration and innovative teaching methodologies. The results underscore a synergistic relationship between supervision and training, with statistical analyses indicating that these variables, both independently and collectively, contribute substantially to the development of pedagogical competence. Teachers who receive consistent supervisory support and participate in relevant training demonstrate improved capabilities in lesson planning, classroom management, student assessment, and instructional delivery. These findings highlight the importance of institutional strategies that prioritize sustained supervisory engagement and structured teacher development initiatives as critical pathways for improving teaching effectiveness and educational quality within the madrasah system.

Keywords: *Principal Supervision; Teacher Training; Pedagogical Competence*

INTRODUCTION

Education serves as a cornerstone for national development and the cultivation of competent, adaptive human capital. In an era marked by rapid technological advancement and evolving societal expectations, education systems are challenged to produce graduates who are not only knowledgeable but also capable of critical thinking, creativity, and problem-solving. Within this framework, the role of teachers becomes central. Teachers are not merely transmitters of knowledge; they are

facilitators, mentors, and agents of transformation in the learning process. Their effectiveness significantly shapes student achievement and overall educational quality.

Among the various competencies required of educators, pedagogical competence is regarded as the most foundational. It encompasses a teacher's ability to understand student characteristics, design appropriate learning strategies, implement effective instruction, and conduct meaningful assessments. In the Indonesian context, pedagogical competence is one of the four key competencies mandated by law for professional educators. Specifically, in Islamic-based secondary institutions such as Madrasah Aliyah Negeri (MAN), pedagogical competence holds strategic importance given the dual responsibility of integrating academic and religious instruction in a balanced and relevant manner.

However, despite the recognized importance of pedagogical competence, many educational institutions continue to face challenges in ensuring its optimal development among teachers. Previous studies have highlighted gaps in lesson planning, limited adaptation to students' individual needs, and insufficient integration of modern instructional tools, particularly in madrasah settings. These challenges suggest a need for systemic interventions that support teachers in their professional growth, enabling them to meet the demands of contemporary education effectively.

Two institutional strategies that are widely acknowledged for their role in improving teacher competence are principal supervision and teacher training. Principal supervision, when carried out constructively, can provide teachers with targeted feedback, coaching, and performance monitoring. Such supervision helps foster a culture of continuous improvement and reflective practice. Meanwhile, teacher training—especially when it is needs-based and sustained—offers teachers opportunities to upgrade their knowledge, adopt innovative instructional strategies, and stay aligned with curriculum changes and technological advancements.

Despite their potential benefits, the actual implementation of supervision and training programs often faces several constraints. These include limited time allocation, lack of follow-up mechanisms, insufficient alignment with real classroom issues, and inadequate professional development infrastructure. As a result, the impact of these interventions on pedagogical competence is often inconsistent or suboptimal. This highlights the importance of empirically assessing how these two variables—when properly designed and executed—contribute to the development of teachers' pedagogical skills in specific institutional contexts such as MAN schools.

This study aims to investigate the influence of principal supervision and teacher training on the pedagogical competence of teachers at State Madrasah Aliyah in Pekanbaru, Indonesia. It seeks to determine the individual and combined effects of these two factors through quantitative analysis, offering evidence-based insights into how institutional support mechanisms can enhance instructional quality. The results of this research are expected to inform educational leadership practices and policy formulation, contributing to the development of more effective, responsive, and sustainable teacher development strategies within the Indonesian madrasah education system.

METHOD

This study employed a quantitative research approach using a survey method to examine the influence of principal supervision and teacher training on pedagogical competence among teachers at State Islamic Senior High Schools (Madrasah Aliyah Negeri) in Pekanbaru City. The research design was correlational in nature, aiming to identify and measure the strength of the relationship between the independent variables (principal supervision and teacher training) and the dependent variable (teachers' pedagogical competence).

The research was conducted across all MAN schools in Pekanbaru, selected as the study population due to their representativeness in implementing Islamic secondary education under government supervision. The target population included all teachers working in these institutions. A proportional random sampling technique was used to select respondents, ensuring adequate representation from each school while maintaining randomness in the selection process. The final sample size was determined based on the total number of teachers in the population and statistical adequacy for inferential analysis.

Data were collected through a structured questionnaire designed to capture respondents' perceptions and experiences related to principal supervision, participation in teacher training programs, and self-assessed pedagogical competence. The instrument was developed based on theoretical constructs drawn from educational administration literature and was validated through expert review and a pilot test to ensure clarity, relevance, and reliability. The questionnaire items employed a Likert scale to quantify responses, allowing for statistical interpretation.

To ensure data validity and reliability, the instrument underwent both construct validity and reliability testing. Cronbach's alpha coefficients were calculated for each variable, with all values exceeding the acceptable threshold of 0.70, indicating strong internal consistency. In addition, the research adhered to ethical research principles, including informed consent, confidentiality, and voluntary participation of respondents.

The data analysis process included descriptive statistics to summarize the demographic characteristics of respondents and the overall distribution of responses. Inferential statistics, particularly multiple linear regression analysis, were used to test the hypotheses and determine the magnitude of the effect of each independent variable on the dependent variable, both individually and simultaneously. The significance level was set at 0.05.

This methodological approach allowed the researcher to empirically test the theoretical assumption that principal supervision and teacher training significantly contribute to the enhancement of teachers' pedagogical competence. The findings from this study are expected to inform school leadership practices and professional development policies in Islamic secondary education contexts.

FINDINGS AND DISCUSSION

The findings of this study are based on the analysis of data obtained from the responses of teachers at several State Madrasah Aliyah (MAN) in Pekanbaru. Descriptive statistics revealed that the majority of respondents had participated in at least one form of professional training and had received some level of instructional supervision from school principals. Most teachers reported moderate to high levels of pedagogical competence, particularly in areas related to lesson planning and classroom management.

Inferential analysis using multiple linear regression demonstrated that both principal supervision and teacher training had a statistically significant effect on pedagogical competence. Principal supervision (X_1) showed a positive and significant relationship ($p < 0.05$), indicating that teachers who were regularly supervised exhibited greater pedagogical capabilities. Similarly, teacher training (X_2) was also found to have a significant effect ($p < 0.05$), suggesting that exposure to structured professional development activities enhances teachers' instructional skills.

Table 1. Descriptive Statistics of Pedagogical Competence (Y)

Statistic	Value
N (Valid)	73
Mean	86.36
Median	89.00
Mode	88
Minimum	67
Maximum	103
Total Score	6,304
Std. Deviation	–

Source: SPSS Processed Data, 2025

Table 2. Descriptive Statistics of Principal Supervision (X1)

Statistic	Value
N (Valid)	73
Mean	58.01
Median	61.00
Mode	61
Minimum	37
Maximum	70
Total Score	4,235

Source: SPSS Processed Data, 2025

Table 3. Descriptive Statistics of Teacher Training (X2)

Statistic	Value
N (Valid)	73
Mean	77.56
Median	78.00
Mode	78
Minimum	62
Maximum	94
Total Score	5,662

Source: SPSS Processed Data, 2025

Table 4. Multiple Linear Regression Analysis Results

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	25.555	6.098	–	4.191	0.000
Principal Supervision (X1)	0.588	0.107	0.586	5.487	0.000
Teacher Training (X2)	0.344	0.125	0.295	2.761	0.007

Source: SPSS Processed Data, 2025

Regression Equation: $Y = 25.555 + 0.588X_1 + 0.344X_2$

Table 5. F-Test (Simultaneous Test)

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	5,086.582	2	2,543.291	83.030	0.000
Residual	2,144.157	70	30.631		
Total	7,230.740	72			

Source: SPSS Processed Data, 2025

Table 6. Coefficient of Determination (R^2)

R	R Square	Adjusted R ²	Std. Error of Estimate
0.839	0.703	0.695	5.535

Source: SPSS Processed Data, 2025

Interpretation: 70.3% of the variance in pedagogical competence is explained by X_1 and X_2 .

Furthermore, the regression model revealed that the combination of the two independent variables (supervision and training) accounted for a substantial proportion of the variance in pedagogical competence ($R^2 > 0.60$). This implies that these institutional support mechanisms, when implemented together, create a synergistic effect that more effectively fosters teacher growth than either factor alone. Thus, the hypothesis that both principal supervision and teacher training significantly influence pedagogical competence was supported by the data.

These findings reinforce the theoretical premise that teacher quality can be substantially improved through sustained institutional investment in professional development and instructional leadership. The positive effect of principal supervision is consistent with previous literature suggesting that supportive leadership practices—such as feedback, observation, and mentoring—enhance teacher performance and instructional quality. In the context of MAN schools, this implies a need for principals to adopt more systematic and developmental approaches to supervision rather than relying solely on administrative evaluation.

Likewise, the impact of teacher training on pedagogical competence aligns with existing theories on adult learning and continuous professional development. Training that is relevant, practical, and ongoing equips teachers with the tools and strategies necessary to meet the diverse learning needs of students and to respond to dynamic curricular demands. However, it is also important that training programs are aligned with teachers' actual classroom challenges to maximize their effectiveness.

Together, these results highlight the importance of a holistic and coordinated approach to teacher development. School leaders, policy makers, and training providers must work collaboratively to ensure that both supervision and training are

not only available but also meaningful, contextual, and sustained. Ultimately, improving pedagogical competence through these strategies will enhance the overall quality of education provided by madrasah institutions, supporting national goals for educational equity and excellence

CONCLUSION

This study set out to investigate the influence of principal supervision and teacher training on the pedagogical competence of teachers at State Islamic Senior High Schools (Madrasah Aliyah Negeri) in Pekanbaru. The findings clearly indicate that both factors significantly and positively affect teachers' pedagogical abilities. Effective supervision from school principals, characterized by structured guidance, constructive feedback, and ongoing monitoring, plays a critical role in enhancing teachers' instructional performance. In parallel, teacher training contributes meaningfully to the development of pedagogical competence by equipping educators with up-to-date strategies and relevant content knowledge aligned with contemporary educational demands.

The statistical analysis demonstrated that the combined influence of principal supervision and teacher training accounted for more than 70% of the variance in pedagogical competence, indicating a strong and complementary relationship between these variables. Teachers who receive consistent supervisory support and engage in relevant professional development activities are more capable of understanding student needs, designing adaptive learning plans, managing classrooms effectively, and conducting meaningful evaluations.

Based on these conclusions, it is recommended that educational institutions—particularly within the madrasah system—strengthen the quality and continuity of principal-led supervision and invest in ongoing, context-sensitive training programs. Such initiatives should be integrated into school improvement plans and supported by educational policies to ensure long-term impact. By institutionalizing these practices, schools can create a more supportive environment for teacher growth, which ultimately leads to improved educational outcomes for students.

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