

Quality Management of Academic Supervision in Indonesian Madrasahs: A Case Study Analysis of Principal Leadership and Teacher Professional Development

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Keywords

academic supervision
quality management
teacher professional competence
madrasah
Deming framework

Article History

Received 2025-07-12

Accepted 2025-09-27

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Abstract

The quality of education in madrasahs faces significant challenges, particularly regarding systematic academic supervision and teacher professional competence development. This study examined the implementation of quality management principles in academic supervision conducted by madrasah principals and its impact on enhancing teacher professionalism competence. A qualitative case study approach was employed at Madrasah Aliyah Cijawura, Bandung City, Indonesia. Data were collected through in-depth interviews with madrasah principals, teachers, and supervisors, direct observations of supervision activities, and document analysis. Thematic analysis was conducted using Deming's quality management framework encompassing planning, implementation, evaluation, and follow-up dimensions. The findings revealed four critical dimensions of effective supervision quality management: comprehensive planning incorporating stakeholder needs assessment, structured implementation through classroom observation and collaborative feedback, multi-dimensional evaluation with diverse stakeholder perspectives, and sustained follow-up activities ensuring continuous professional growth. Teachers demonstrated measurable improvements in pedagogical competence, subject mastery, classroom management, and professional confidence following systematic supervision interventions. The successful application of Deming's Plan-Do-Check-Act framework demonstrates the adaptability of quality management principles in Islamic educational contexts. The systematic supervision approach addresses supervisor identity formation challenges while creating conditions for collaborative professional development aligned with social constructivist principles.

INTRODUCTION

The contemporary educational landscape faces unprecedented challenges in maintaining quality standards while adapting to rapid technological advancement and globalization. Educational institutions worldwide struggle with the fundamental issue of low-quality human resources and the inability of educational stakeholders to keep pace with scientific and technological developments (Maharani et al., 2023). Education serves a crucial role in developing individuals who excel intellectually, emotionally, and spiritually, demanding educational outcomes that can effectively address the challenges posed by rapid scientific and technological progress (Hidayat & Asyafah, 2019). Investment in educational quality becomes imperative to produce generations that are not only academically competent but also adaptive and responsive to evolving societal demands (Noer et al., 2022).

The role of educational leaders, particularly school principals, emerges as fundamental to institutional success, as their actions significantly influence teaching practices, school quality, and student outcomes (Aravena & González, 2021). As institutional heads, principals bear responsibility for overseeing all educational activities and performance, establishing and monitoring educational

objectives, supporting teachers and students, managing daily operations, and delegating roles and responsibilities to all stakeholders (Agasisti et al., 2020). Within Islamic educational contexts, madrasah principals face unique challenges in improving educational quality through effective management systems, particularly in financing management components, as madrasahs are typically independently established and managed (Usman, 2016).

Current research reveals that madrasahs encounter complex problems, especially concerning teacher quality, education personnel competency, curriculum relevance to employment market needs, inadequate infrastructure, and ineffective management systems. Academic supervision represents a critical mechanism for addressing these challenges, as it constitutes a collaborative and sustainable effort to develop teacher competence beyond mere administrative activity. Effective academic supervision encompasses classroom observation, constructive feedback provision, training, and mentoring, all aimed at enhancing classroom learning quality (Casmito et al., 2020).

The theoretical foundation for understanding supervision effectiveness draws from social identity theory, which posits that professional identities are derived from social group membership and constructed through social interactions (Tajfel & Turner, 1979). Academic supervision occurs within a "private realm" with limited exposure to supervisory models, making identity formation particularly challenging for early-career educators (Wiggins et al., 2016). Furthermore, supervision represents a complex aspect of academic identity that bridges teaching and research mandates, potentially creating identity conflicts or integration opportunities (Roberts & Seaman, 2018).

Recent studies have examined various dimensions of academic supervision management. Arifin (2022) investigated the implementation of principals' academic supervision management in enhancing teachers' professional competency, revealing significant impacts on teacher development. Faizin (2023) explored academic supervision management by school principals in improving Islamic religious education teachers' professionalism, emphasizing the importance of systematic supervisory approaches. Futiarsa et al. (2023) examined school supervisors' academic supervision in enhancing teacher professionalism, highlighting the collaborative nature of effective supervision. Humaira et al. (2024) analyzed quality management of madrasah principals' academic supervision in improving teacher performance, demonstrating positive correlations between supervision quality and teaching effectiveness.

Additional research has further illuminated supervision management effectiveness. Kusmiati and Sauri (2022) studied principal supervision management in enhancing teacher professionalism, revealing key factors in successful supervision implementation. Lalupanda (2019) investigated academic supervision implementation for improving teacher quality, providing insights into practical supervision strategies. Marfinda (2022) examined the relationship between principals' academic supervision management and school committee roles toward teacher performance, demonstrating the importance of collaborative approaches. Mukhlisin (2020) analyzed principal supervision management in improving teacher professionalism in private Islamic schools, highlighting context-specific challenges and opportunities.

Teachers' professional development has been widely recognized as essential for continuous learning and growth, with in-service professional development and continuing education considered fundamental for educator proficiency (Liu & Liao, 2019; Dunst et al., 2015). However, traditional approaches involving passive attendance at training courses have demonstrated limited impact on teachers' willingness to implement innovative teaching methods (Duncan-Howell, 2010). The emergence of artificial intelligence technologies, particularly large language models, presents new opportunities for educational enhancement, as these systems can generate human-like text and complete language-related tasks with high accuracy (Kasneci et al., 2023).

Despite extensive research on supervision and teacher development, significant knowledge gaps remain regarding the systematic application of quality management principles to academic supervision in Islamic educational contexts. While Deming's quality management theory provides a comprehensive framework through its Plan-Do-Check-Act cycle, limited empirical evidence exists

regarding its application to madrasah supervision systems. Furthermore, the relationship between systematic academic supervision and specific dimensions of teacher professionalism competence requires deeper investigation within the unique context of Islamic educational institutions.

This study addresses these gaps by examining the quality management of academic supervision conducted by madrasah principals and its impact on teacher professionalism competence development. The research adopts Deming's quality management theory as its theoretical foundation, providing a systematic framework for understanding supervision effectiveness. The investigation focuses on Madrasah Aliyah Cijawura, offering insights into practical supervision implementation within contemporary Islamic educational settings.

The significance of this research lies in its potential contribution to educational management theory and practice within Islamic educational contexts. By examining the systematic application of quality management principles to academic supervision, the study provides valuable insights for educational leaders seeking to enhance teacher professional development. The findings offer practical guidance for madrasah principals in implementing effective supervision systems while contributing to the broader understanding of supervision effectiveness in diverse educational settings. Furthermore, the research addresses the pressing need for evidence-based approaches to educational quality improvement in Islamic educational institutions, supporting the development of more effective supervision practices that can enhance both teacher competence and student learning outcomes.

METHODS

This investigation employed a qualitative research approach utilizing a single case study design to provide an in-depth examination of quality management practices in academic supervision and their influence on teacher professional competence development. The case study methodology was selected to enable comprehensive exploration of complex organizational phenomena within their natural context, allowing for detailed analysis of the supervision processes, stakeholder interactions, and outcomes at Madrasah Aliyah Cijawura. This approach aligns with the research objective of understanding how quality management principles are applied in academic supervision within Islamic educational settings.

The research was conducted at Madrasah Aliyah Cijawura, located at Jalan Margasari No. 221a, Bandung City, Indonesia. This madrasah, established in 2022 under the auspices of Margasari Cijawura Islamic Boarding School, was purposively selected as the research site due to its recent establishment and active implementation of systematic academic supervision practices. The study participants comprised key stakeholders directly involved in the academic supervision process, including the madrasah principal who serves as the primary supervisor, teaching staff who receive supervision, and external madrasah supervisors who provide oversight and guidance. The purposive sampling strategy ensured that all participants possessed relevant experience and knowledge regarding the academic supervision quality management system being investigated.

Data collection employed multiple methods to ensure comprehensive coverage of the research phenomenon and enhance the credibility of findings. In-depth semi-structured interviews served as the primary data collection instrument, designed to gather detailed information regarding the planning, implementation, evaluation, and follow-up processes of academic supervision, as well as participants' perspectives on its impact on teacher professional competence. Interview protocols were developed based on Deming's quality management framework, encompassing questions related to the Plan-Do-Check-Act cycle implementation in supervision practices. Additionally, direct observation of supervision activities was conducted to capture real-time interactions between supervisors and teachers during classroom visits, feedback sessions, and professional development meetings. Documentary evidence was systematically collected, including supervision programs, evaluation reports, lesson plans, and other institutional documents related to supervision quality management.

The validity and reliability of data collection instruments were established through expert validation and pilot testing procedures. Interview protocols underwent review by educational

management experts to ensure content validity and appropriateness for the Islamic educational context. Observation protocols were similarly validated and refined through preliminary field visits. To enhance reliability, standardized procedures were established for all data collection activities, and multiple data sources were triangulated to confirm findings and reduce potential bias.

Data analysis followed a systematic qualitative approach employing thematic analysis techniques. The collected data underwent multiple phases of analysis, beginning with data familiarization through repeated reading of interview transcripts and observation notes. Initial coding was performed to identify meaningful segments of data, followed by pattern identification and theme development. The analysis process was guided by Deming's quality management dimensions, allowing for structured examination of planning, implementation, evaluation, and follow-up aspects of academic supervision. Triangulation of data sources was employed to validate emerging themes and ensure the trustworthiness of findings. Member checking was conducted with key participants to verify the accuracy of interpretations and enhance the credibility of results. The analytical process culminated in the development of comprehensive thematic networks that illustrated the relationships between quality management practices and teacher professional competence development within the madrasah context.

RESULTS AND DISCUSSION

Results

The research findings reveal four primary dimensions of academic supervision quality management at Madrasah Aliyah Cijawura, aligned with Deming's Plan-Do-Check-Act framework. These dimensions encompass quality planning, implementation, evaluation, and follow-up actions in academic supervision practices.

Quality Planning of Academic Supervision

Interview data with the madrasah principal revealed systematic approaches to supervision planning. The principal articulated the planning process: "We develop our supervision program by first analyzing teacher needs through preliminary observations and discussions. This helps us identify specific areas requiring development, whether in pedagogical skills, subject matter competency, or classroom management." Document analysis of the annual supervision program confirmed structured planning that includes scheduled classroom visits, observation techniques, and feedback methodologies. The planning framework incorporates identification of teacher developmental needs, preparation of supervision instruments, and establishment of clear objectives aligned with the madrasah's educational vision.

Observational data during planning meetings demonstrated collaborative approaches involving senior teachers and external supervisors. The systematic planning process addresses multiple competency domains, as evidenced by supervision schedules that allocate specific time periods for pedagogical, professional, social, and personality competence development. This comprehensive planning approach ensures targeted guidance provision to teachers, supporting simultaneous improvement across all professional competency areas.

Implementation of Quality Academic Supervision

Implementation data revealed structured supervision processes conducted through multiple mechanisms. Classroom observations were conducted systematically, with the principal maintaining detailed observation records documenting teaching methods, student engagement levels, and learning resource utilization. Interview responses from teachers indicated positive reception of supervision activities: "The principal's classroom visits are not intimidating but supportive. She provides specific feedback on our teaching techniques and suggests practical improvements we can implement immediately."

Documentation analysis revealed that supervision implementation includes direct classroom observation, lesson plan evaluation, assessment system review, and reflective discussions between

the principal and teachers. Observational data confirmed that supervision activities extend beyond classroom visits to encompass personal meetings, group discussions, professional development training, and continuous coaching sessions. The implementation process emphasizes constructive feedback delivery and collaborative problem-solving approaches to address identified teaching challenges.

Evaluation of Academic Supervision Quality

Evaluation processes involve comprehensive assessment of supervision program effectiveness in enhancing teacher professional competence. Interview data with teachers revealed measurable improvements in their professional practices: "After receiving supervision, I have improved my lesson planning skills and become more confident in managing classroom discussions. The feedback helped me understand my strengths and areas needing development." The madrasah principal confirmed systematic evaluation procedures: "We assess supervision effectiveness through teacher performance indicators, student learning outcomes, and feedback from teachers themselves about their professional growth."

Documentary evidence includes evaluation reports containing quantitative and qualitative assessments of supervision outcomes. These reports document improvements in teacher competency areas, including enhanced pedagogical skills, improved subject matter mastery, better classroom management, and increased professional confidence. The evaluation process incorporates multiple stakeholder perspectives, including self-assessment by teachers, peer evaluations, and external supervisor assessments.

Follow-up Actions in Academic Supervision

Follow-up activities demonstrate sustained commitment to teacher professional development beyond initial supervision interventions. The principal described comprehensive follow-up strategies: "After supervision, we provide additional coaching for teachers who need extra support, facilitate attendance at relevant training programs, and create opportunities for peer learning through teacher working groups." Observational data confirmed implementation of various follow-up mechanisms, including individual coaching sessions, group professional development activities, and participation in subject-specific teacher forums.

Documentation analysis revealed systematic tracking of teacher progress following supervision interventions. Follow-up actions include providing comments and input on teaching practices, requiring lesson plan improvements when necessary, facilitating access to professional development opportunities, and conducting reflective guidance sessions. The follow-up process ensures continuity in teacher professional growth and sustained improvement in educational quality.

Discussion

The findings demonstrate successful implementation of quality management principles in academic supervision at Madrasah Aliyah Cijawura, aligning with Deming's theoretical framework. The systematic approach to supervision planning, implementation, evaluation, and follow-up reflects comprehensive application of the Plan-Do-Check-Act cycle in educational management contexts, supporting the theoretical argument that effective supervision requires robust theoretical foundations (Larson et al., 2018).

The planning dimension findings corroborate Arifin's (2022) research emphasizing the importance of systematic supervision program development in enhancing teacher professional competency. The collaborative planning approach observed at Madrasah Aliyah Cijawura extends beyond traditional administrative supervision models, incorporating stakeholder input and comprehensive needs assessment procedures. This aligns with Faizin's (2023) findings regarding the significance of systematic supervisory approaches in improving Islamic religious education teachers' professionalism. The structured planning process addresses the challenge identified by Wiggins et al. (2016) regarding the "private realm" nature of academic supervision by creating transparent, systematic approaches to

supervision that provide clear models for professional practice. Moreover, the systematic planning framework reflects the principle that educational institutions require targeted measures to support supervisors in their roles, as academic developers must provide structured support systems for effective supervision (Larson et al., 2018).

The comprehensive planning approach observed at Madrasah Aliyah Cijawura demonstrates how theoretical frameworks can serve as evaluation tools for existing supervisory supports, challenging assumptions about supervision practices and establishing evidence-based approaches (Glanz et al., 2002). The integration of multiple competency domains in supervision planning reflects the multifaceted nature of educational leadership, where principals must balance both leadership and managerial functions to ensure institutional effectiveness (Agasisti et al., 2020). This finding supports the notion that effective educational management requires concrete actions, decision-making processes, and organizational strategies that contribute to operational effectiveness (Connolly et al., 2019).

Implementation findings reveal effective translation of supervision plans into concrete actions that positively impact teacher development. The multi-faceted implementation approach, encompassing classroom observation, feedback provision, and collaborative discussions, supports Futiarso et al.'s (2023) emphasis on collaborative supervision practices. The positive teacher responses to supervision activities contrast with traditional punitive supervision models, reflecting the constructivist approach advocated by social identity theory where professional development occurs through supportive social interactions rather than evaluative judgments (Tajfel & Turner, 1979).

The implementation process demonstrates successful navigation of supervisor identity formation challenges, where the madrasah principal effectively integrates teaching and research mandates through supervision activities. This addresses the complexity identified in the literature regarding supervisor identity development, where supervision straddles both instructional and research-based dimensions of academic work (Roberts & Seaman, 2018). The systematic implementation approach creates conditions for comparative fit and normative fit within the academic community, enabling teachers to categorize themselves as competent professionals through alignment with expected behaviors and abilities (S. A. Haslam & Turner, 1992; Van Rijswijk et al., 2006).

Furthermore, the implementation findings align with research demonstrating that managerial practices can be significantly associated with improvements in educational outcomes (Bloom et al., 2015; Di Liberto et al., 2015). The structured supervision activities observed at Madrasah Aliyah Cijawura reflect efficient resource utilization and operational monitoring, addressing the efficiency dilemma that educational leaders face in minimizing resource expenditure while maintaining quality standards (Wildy et al., 2004).

The systematic evaluation processes identified align with Humaira et al.'s (2024) findings demonstrating positive correlations between supervision quality and teaching effectiveness. The comprehensive evaluation approach, incorporating multiple stakeholder perspectives and both quantitative and qualitative indicators, addresses the complexity of measuring supervision effectiveness noted in educational management literature. This multi-dimensional evaluation framework supports Kusmiati and Sauri's (2022) identification of key factors in successful supervision implementation, particularly the importance of comprehensive assessment procedures.

The evaluation dimension reveals how effective supervision extends beyond student achievement metrics to encompass broader outcomes including teacher engagement, professional climate, and instructional practices (Gemici et al., 2014; Leithwood & Jantzi, 1999; Robinson et al., 2008). The observed evaluation processes demonstrate how supervision affects teacher instructional practices and contributes to overall institutional culture, mediating student outcomes through improved teaching quality (Ten Bruggencate et al., 2012; Pont et al., 2008).

Follow-up activities demonstrate sustained commitment to teacher professional development, extending beyond initial supervision interventions. This continuous development approach aligns with Lalupanda's (2019) insights regarding practical supervision strategies that maintain long-term impact

on teacher quality. The systematic follow-up procedures address Marfinda's (2022) emphasis on collaborative approaches by creating ongoing support systems that facilitate sustained professional growth.

The follow-up dimension findings challenge traditional approaches to professional development that rely on passive participation in training courses, which have demonstrated limited impact on teachers' implementation of innovative methods (Zhang et al., 2017; Duncan-Howell, 2010). Instead, the madrasah's approach emphasizes continuous, situated learning experiences that align with social constructivist principles where teachers become more inclined to apply new approaches when they have prior experience through structured professional development programs (Huang et al., 2021).

The comprehensive follow-up system observed reflects principles of blended professional development models that combine technology integration with face-to-face interaction, creating conditions for sustained professional growth (Serrano et al., 2019). The systematic tracking and support mechanisms demonstrate how structured follow-up can enhance teachers' proficiency in advanced teaching methods required for contemporary education (Amador et al., 2021; Beilstein et al., 2021).

The findings support social constructivist principles outlined in the literature, where learning occurs through social interaction and situated practice (Vygotsky, 1962). The collaborative supervision model observed at Madrasah Aliyah Cijawura creates conditions for active knowledge construction, with teachers as co-constructors of meaning rather than passive recipients of evaluation. This approach aligns with Adams' (2006) constructivist learning environment principles, particularly the focus on learning rather than performance and the emphasis on guidance rather than instruction. The supervision model demonstrates how knowledge construction emerges from social interaction, interpretation, and understanding, with the contextual environment playing a crucial role in the learning process (Kim, 2001; Woolfolk, 2016).

The research findings contribute to understanding the application of quality management principles in Islamic educational contexts, addressing gaps identified in existing literature regarding systematic supervision approaches in madrasah settings. The successful implementation of Deming's framework demonstrates the adaptability of quality management theories across diverse educational contexts, supporting broader theoretical applications in educational administration. The study provides evidence that theoretical frameworks can effectively guide supervisory practice development and evaluation, supporting the argument that strong theoretical foundations are essential for effective educational supervision (Quigley, 2011).

However, certain limitations warrant consideration within the broader theoretical context. The single case study design limits generalizability of findings across different madrasah contexts, potentially restricting the comparative fit analysis that would enable broader understanding of supervision identity formation across diverse educational settings (Stevenson & Muldoon, 2010). The relatively recent establishment of Madrasah Aliyah Cijawura may influence the sustainability of observed practices over longer time periods, particularly given that perceiver readiness and identity categorization are influenced by previous experiences and long-term institutional culture (C. Haslam et al., 2018).

Future research should examine supervision quality management implementation across multiple madrasah contexts and investigate long-term outcomes of systematic supervision approaches on both teacher competence and student learning achievements. Additionally, studies should explore how different institutional contexts influence supervisor identity formation and the effectiveness of various theoretical frameworks in supporting supervision practice development across diverse educational settings.

CONCLUSION

This study demonstrates that systematic implementation of Deming's quality management framework in academic supervision significantly enhances teacher professional competence

development within Islamic educational contexts. The research reveals four critical dimensions of effective supervision quality management: comprehensive planning that incorporates stakeholder input and needs assessment, structured implementation through classroom observation and collaborative feedback, multi-dimensional evaluation incorporating diverse stakeholder perspectives, and sustained follow-up activities that ensure continuous professional growth. These findings establish that quality management principles can be successfully adapted and applied within madrasah settings to create systematic, evidence-based approaches to teacher professional development.

The study contributes to educational management theory by providing empirical evidence of Deming's framework applicability in Islamic educational institutions, addressing significant knowledge gaps regarding systematic supervision approaches in madrasah contexts. The research extends social identity theory applications to educational supervision, demonstrating how systematic supervision practices facilitate professional identity formation and competence development through structured social interactions. Additionally, the findings contribute to understanding how theoretical frameworks can guide supervision practice development and evaluation across diverse cultural and religious educational settings.

The practical implications suggest that madrasah leaders should adopt systematic quality management approaches to supervision, emphasizing collaborative planning, structured implementation, comprehensive evaluation, and sustained follow-up activities. Educational policymakers should consider integrating quality management principles into supervision training programs and institutional development initiatives. The research also indicates that effective supervision requires moving beyond traditional evaluative models toward collaborative, constructivist approaches that position teachers as active co-constructors of professional knowledge.

Several limitations constrain the generalizability of these findings. The single case study design limits transferability across different madrasah contexts, while the institution's recent establishment may influence long-term sustainability assessments. The study's focus on one Islamic educational setting restricts broader applicability to diverse educational contexts.

Future research should examine supervision quality management implementation across multiple madrasah contexts to establish broader empirical foundations. Longitudinal studies investigating long-term impacts on both teacher competence and student learning outcomes would strengthen understanding of supervision effectiveness. Additionally, comparative studies exploring supervision quality management across different educational systems and cultural contexts would enhance theoretical development and practical application possibilities.

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