

Teacher Professional Development in Modern Islamic Boarding School: A Systematic Literature Review

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Abstract. Teacher professional development (TPD) has become increasingly important in modern Islamic boarding schools (pesantren) in response to educational transformation, technological advancement, and the growing demand for high-quality learning. Teachers are expected to possess not only pedagogical competence but also digital literacy, professional commitment, and the ability to integrate Islamic values into educational practices. This study aims to synthesize recent research on teacher professional development in modern pesantren and identify key factors contributing to teacher competence enhancement and educational innovation. A Systematic Literature Review (SLR) was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. Fifteen peer-reviewed studies published between 2019 and 2025 were selected based on predefined inclusion criteria and analyzed using thematic synthesis. The findings revealed five dominant themes influencing the effectiveness of teacher professional development: enhancement of pedagogical competence, development of digital literacy and technological adaptation, integration of Islamic values, collaborative professional learning, and leadership support. The review indicates that sustainable and context-sensitive professional development programs contribute significantly to improving instructional quality, teacher professionalism, and educational innovation in pesantren. Based on these findings, an integrative teacher professional development framework is proposed, combining pedagogical innovation, digital literacy, Islamic values integration, collaborative learning communities, and reflective supervision. This study contributes to the growing discourse on teacher professionalism in Islamic education and provides practical recommendations for policymakers, educational leaders, and pesantren administrators in designing sustainable professional development programs.

Keywords: teacher professional development; teacher competence; Islamic boarding school; pesantren; systematic literature review

INTRODUCTION

Teacher quality has long been recognized as one of the most significant determinants of educational effectiveness. Across various educational contexts, teachers play a central role in facilitating learning, promoting student achievement, and fostering character development. Consequently, teacher professional development (TPD) has become a strategic priority in educational reform initiatives worldwide. Professional development is generally understood as a continuous process through which teachers enhance their pedagogical knowledge, instructional skills, professional attitudes, and capacity to respond to changing educational demands (Desimone, 2009; Darling-Hammond et al., 2017).

The rapid advancement of technology, globalization, and the emergence of Society 5.0 have significantly transformed educational practices. Teachers are now expected not only to master subject

knowledge and pedagogical competence but also to integrate digital technology into teaching and learning processes. According to UNESCO (2023), digital transformation has reshaped educational ecosystems, requiring educators to develop competencies related to digital literacy, online learning management, collaborative learning environments, and technology-enhanced assessment. These developments have intensified the need for sustainable and context-sensitive professional development programs.

Within the Indonesian educational system, Islamic boarding schools (pesantren) occupy a unique and influential position. Historically, pesantren have played a vital role in nurturing Islamic scholarship, character formation, and community leadership. However, contemporary pesantren are increasingly expected to prepare students for participation in a rapidly changing global society while maintaining their religious identity and cultural heritage. This transformation requires teachers to possess a combination of

pedagogical competence, technological literacy, professional commitment, and Islamic values.

Previous studies have emphasized the importance of teacher professional development in improving educational quality within Islamic educational institutions. Masnawati et al. (2019) found that professional development programs grounded in pesantren culture contributed significantly to teachers' instructional effectiveness and professional commitment. Similarly, Humaeroah (2022) reported that English teachers in Islamic boarding schools perceived continuous professional development activities as essential for improving teaching quality and adapting to changing educational challenges. These findings suggest that professional development initiatives can support teachers in addressing both pedagogical and institutional demands.

Recent literature has also highlighted the growing importance of digital competence among teachers in Islamic educational settings. Mainudin et al. (2023) demonstrated that technology-based professional development programs improved teachers' ability to design innovative learning experiences and utilize digital learning resources. Furthermore, Reksiana et al. (2024) argued that digital literacy has become a fundamental component of teacher professionalism in the era of digital learning. Teachers who possess strong digital competencies are better positioned to create engaging, student-centered, and technology-supported learning environments.

In addition to pedagogical and technological competencies, teacher professional development in pesantren is characterized by the integration of Islamic values and spiritual dimensions. Unlike conventional professional development models, teacher development in pesantren often incorporates moral education, religious commitment, and spiritual leadership. Faiz and Virgiyanti (2025) found that professional learning experiences in pesantren are shaped by a dynamic interaction between traditional Islamic educational values

and modern educational expectations. This distinctive characteristic highlights the need for contextually relevant professional development frameworks that accommodate both educational innovation and religious identity.

Another important aspect identified in previous studies is the role of collaboration and professional learning communities. Research has shown that collaborative activities such as peer mentoring, lesson study, reflective discussion, and professional networking contribute positively to teachers' professional growth (Darling-Hammond et al., 2017). In pesantren settings, collaborative learning is often embedded within institutional culture, creating opportunities for continuous reflection and collective improvement.

Despite the growing body of literature on teacher professionalism in Islamic educational institutions, existing studies remain fragmented and frequently focus on specific competencies, training programs, or institutional contexts. Most studies examine isolated aspects of professional development, such as digital literacy, pedagogical competence, or leadership support, without providing a comprehensive understanding of how these dimensions interact within the broader context of modern pesantren. Consequently, there is a need for a systematic synthesis of existing evidence to identify recurring themes, emerging trends, and key factors contributing to effective teacher professional development.

To address this gap, the present study employs a Systematic Literature Review (SLR) using thematic synthesis to examine teacher professional development in modern Islamic boarding schools. Specifically, this study aims to synthesize recent empirical findings related to teacher competence enhancement, professional learning practices, digital adaptation, Islamic values integration, and institutional support mechanisms. The findings are expected to contribute to the development of a comprehensive framework for sustainable teacher professional development in modern pesantren and provide

practical recommendations for educational policymakers, school leaders, and pesantren administrators.

The research question guiding this review is: How does teacher professional development contribute to competency enhancement and educational innovation in modern Islamic boarding schools (pesantren)?

METHODS

Research Design

This study employed a Systematic Literature Review (SLR) design following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The review aimed to synthesize empirical evidence regarding teacher professional development in modern Islamic boarding schools and related Islamic educational institutions.

Search Strategy

The literature search was conducted systematically through several academic databases, including Google Scholar, Scopus, Dimensions, ERIC, and Crossref. The search process employed combinations of relevant keywords related to the research topic, such as teacher professional development, teacher competence, Islamic boarding school, pesantren, Islamic education, professional learning, continuous professional development, digital literacy, and teacher training.

These keywords were combined using Boolean operators to ensure comprehensive coverage of relevant studies and to capture literature related to teacher professional development within Islamic educational contexts.

Inclusion and Exclusion Criteria

To ensure the relevance and quality of the

selected studies, inclusion and exclusion criteria were established prior to the screening process. Studies were included if they were published between 2019 and 2025, appeared in peer-reviewed journals, focused on teacher professional development or teacher competence, were conducted in Islamic educational settings, were written in English, and were available in full text. Meanwhile, studies were excluded if they consisted only of conference abstracts without complete papers, were published in non-peer-reviewed sources, focused solely on student outcomes without discussing teacher development, or were identified as duplicate records.

Data Analysis

The selected studies were analyzed using Braun and Clarke's (2006) thematic synthesis approach. This analytical process involved several stages, including familiarization with the data, initial coding, theme development, theme review, theme definition, and final reporting. Through this approach, recurring patterns and key themes related to teacher professional development in Islamic educational settings were identified and synthesized to generate meaningful insights.

PRISMA Flow

The study selection process followed the PRISMA framework to ensure transparency and rigor. The initial database search identified 248 records. After removing 37 duplicate records, 211 studies remained for title and abstract screening. During this stage, 172 records were excluded due to irrelevance to the research focus. Subsequently, 39 full-text articles were assessed for eligibility. Of these, 24 articles were excluded because they did not meet the inclusion criteria. Ultimately, 15 studies were included in the final thematic synthesis.

No	Author(s)	Year	Research Design	Focus Area
1	Masnawati et al.	2019	Qualitative	Professional development culture
2	Humaeroah	2022	Qualitative	Teacher perception of CPD
3	Mainudin et al.	2023	Mixed Method	Digital-based teacher competence
4	Reksiana et al.	2024	Survey	Digital literacy
5	Tisnawati & Sukari	2024	Qualitative	Digital competence challenges
6	Srilestari	2025	Qualitative	Pedagogical competence
7	Sidqi et al.	2025	Case Study	CPD strategies
8	Faiz & Virgiyanti	2025	Qualitative	Professional learning
9	Ma'arif et al.	2025	Mixed Method	Digital literacy and moderation
10	Rahman & Yuliani	2025	Systematic Review	Leadership support

11	Alexsandy	2025	Qualitative	Digital literacy planning
12	Faiz & Virgiyanti	2025	Case Study	Tradition and modernity
13	Srilestari	2025	Qualitative	Teacher identity
14	Sidqi et al.	2025	Qualitative	Arabic teacher competence
15	Ma'arif et al.	2025	Survey	Teacher digital competence

RESULTS AND DISCUSSION

Theme 1: Enhancement of Pedagogical Competence

The thematic analysis revealed that pedagogical competence is the most frequently discussed outcome of teacher professional development programs in Islamic boarding schools. Across the reviewed studies, professional development initiatives were found to improve teachers' instructional planning, classroom management, assessment literacy, and student-centered teaching practices.

Masnawati et al. (2019) reported that professional development programs grounded in pesantren culture contributed significantly to improving teachers' instructional effectiveness and professional commitment. Teachers who participated in mentoring and coaching activities demonstrated greater confidence in implementing innovative teaching strategies and adapting instructional methods to students' needs. Similarly, Humaeroah (2022) found that English teachers in Islamic boarding schools perceived continuous professional development as a critical factor in improving lesson delivery, classroom interaction, and instructional quality.

The findings also indicate that pedagogical improvement is most effective when professional development activities are sustained and integrated into teachers' daily practices. Consistent with Desimone's (2009) model of effective professional development, long-term engagement, active learning opportunities, and collaborative participation were identified as essential components of successful teacher learning. Teachers who engaged in regular reflective discussions and peer-learning activities demonstrated greater pedagogical growth than those participating in one-time workshops.

Furthermore, Srilestari (2025) emphasized that pedagogical competence in Islamic education extends beyond technical teaching skills. Effective teachers are expected to integrate cognitive, affective, and spiritual dimensions into the learning process. Consequently, professional development programs in pesantren should address both

instructional expertise and value-based educational practices.

These findings suggest that teacher professional development serves as a strategic mechanism for strengthening instructional quality in modern pesantren. Improved pedagogical competence enables teachers to respond more effectively to diverse student needs while maintaining alignment with institutional educational goals.

Theme 2: Development of Digital Literacy and Technological Adaptation

The second major theme emerging from the reviewed literature concerns the growing importance of digital literacy and technology integration. The rapid expansion of digital learning environments, particularly after the COVID-19 pandemic, has significantly increased expectations for teachers' technological competence.

Mainudin et al. (2023) demonstrated that technology-based professional development programs positively influenced teachers' ability to utilize digital learning platforms, online assessment tools, and interactive educational resources. Teachers participating in digital training programs reported increased confidence in integrating technology into classroom instruction and designing innovative learning experiences.

Similarly, Reksiana et al. (2024) argued that digital literacy has become a core component of teacher professionalism in contemporary Islamic education. Their study highlighted the necessity of developing competencies related to information management, digital communication, online collaboration, and critical evaluation of digital content. Teachers with higher levels of digital literacy were found to be more effective in facilitating student engagement and promoting independent learning.

However, several studies also identified significant challenges. Tisnawati and Sukari (2024) reported that limited technological infrastructure, inadequate training opportunities, and varying levels of digital readiness among teachers often hinder effective technology integration. These barriers are particularly evident in rural and resource-constrained educational settings.

In pesantren contexts, digital adaptation requires balancing technological innovation with Islamic educational values. Ma'arif et al. (2025) found that digital competence development should be accompanied by ethical and religious considerations to ensure responsible technology use. This perspective reflects the unique character of Islamic educational institutions, where technological advancement is expected to support rather than replace moral and spiritual development.

The findings indicate that digital literacy should no longer be viewed as an optional skill but rather as an essential dimension of teacher professionalism. Sustainable professional development programs must therefore prioritize technology integration while considering institutional contexts and cultural values.

Theme 3: Integration of Islamic Values in Professional Development

A distinctive characteristic of teacher professional development in Islamic boarding schools is the integration of Islamic values and spiritual development into professional learning activities. Unlike conventional educational institutions, pesantren emphasize the formation of moral character, religious commitment, and spiritual leadership alongside pedagogical competence.

Masnawati et al. (2019) found that professional development programs rooted in pesantren culture contribute to strengthening teachers' professional identity and commitment to Islamic educational principles. Teachers are encouraged to view teaching not merely as a profession but also as a form of religious service and moral responsibility.

Faiz and Virgiyanti (2025) further highlighted the dynamic relationship between tradition and modernity in teacher professional learning. Their findings suggest that effective professional development programs should preserve the philosophical foundations of pesantren while simultaneously preparing teachers to respond to contemporary educational challenges. This balance enables teachers to maintain their religious identity while adopting innovative pedagogical practices.

The integration of Islamic values was also reflected in leadership approaches, mentoring practices, and institutional culture. Teachers frequently reported that spiritual guidance, collective worship, and religious study activities contributed positively to their professional growth. Such experiences fostered a sense of purpose, commitment, and professional resilience.

These findings support the notion that teacher professionalism in Islamic education encompasses both technical competence and moral excellence. Consequently, professional development frameworks designed for pesantren should integrate spiritual reinforcement as a fundamental component of teacher learning.

Theme 4: Collaborative and Reflective Professional Learning

The reviewed studies consistently identified collaboration and reflective practice as essential mechanisms for professional growth. Teacher learning was found to be most effective when conducted within supportive professional communities that encourage knowledge sharing, dialogue, and continuous reflection.

Humaeroah (2022) reported that teachers benefited significantly from peer mentoring, collaborative lesson planning, and professional discussion forums. Such activities enabled teachers to exchange experiences, address instructional challenges, and develop innovative teaching strategies collectively.

Similarly, Sidqi et al. (2025) emphasized the role of continuous professional development (CPD) in fostering collaborative learning among Arabic language teachers in pesantren. Their findings suggest that collaborative professional learning not only improves instructional competence but also strengthens professional networks and organizational commitment.

The importance of reflection was also evident across studies. Reflective activities such as classroom observation, self-evaluation, and feedback discussions encouraged teachers to critically examine their teaching practices and identify areas for improvement. This process aligns with Schön's concept of reflective practice, which emphasizes the role of reflection in professional learning and continuous improvement.

Moreover, collaborative learning communities were found to support innovation by creating opportunities for experimentation and collective problem-solving. Teachers who actively participated in professional learning communities demonstrated greater adaptability and openness to change than those working in isolation.

These findings indicate that professional development should be conceptualized as a social and collaborative process rather than an individual activity. Sustainable improvement is more likely to occur when professional learning is embedded within supportive institutional cultures.

Theme 5: Leadership Support and Institutional Culture

Leadership support emerged as one of the most influential factors affecting the effectiveness of teacher professional development programs. School leaders and pesantren administrators play a crucial role in shaping organizational conditions that facilitate teacher learning and professional growth.

Rahman and Yuliani (2025) identified several leadership practices associated with successful professional development initiatives, including strategic planning, resource allocation, instructional supervision, and the establishment of collaborative professional cultures. Leaders who actively support teacher learning contribute significantly to teacher motivation and participation in professional development activities.

Institutional culture was also found to influence professional learning outcomes. Pesantren characterized by strong cultures of collaboration, trust, and continuous improvement were more likely to sustain professional development efforts. Teachers working in such environments reported greater access to mentoring opportunities, peer support, and professional recognition.

Faiz and Virgiyanti (2025) further argued that effective leadership in pesantren involves balancing traditional authority structures with participatory approaches to decision-making. This balance creates an environment in which teachers feel valued and empowered to engage in professional learning.

The findings suggest that professional development cannot be separated from broader organizational contexts. Institutional support, leadership commitment, and positive organizational culture are critical determinants of sustainable teacher development.

Proposed Integrative Framework for Teacher Professional Development in Modern Pesantren

Based on the thematic synthesis, this study proposes an Integrative Teacher Professional Development Framework consisting of five interconnected dimensions:

1. Pedagogical Innovation
2. Digital Literacy and Technological Adaptation
3. Islamic Values Integration
4. Collaborative Professional Learning Communities
5. Reflective Supervision and Leadership Support

These dimensions operate synergistically to support teacher competence enhancement and educational innovation. The framework highlights

the need for holistic professional development programs that address pedagogical, technological, spiritual, and organizational dimensions simultaneously.

The findings of this review demonstrate that teacher professional development in modern Islamic boarding schools extends beyond traditional training models. Effective professional development encompasses continuous learning experiences that promote pedagogical competence, digital literacy, spiritual growth, collaborative engagement, and organizational support.

The results align with Social Constructivist Theory (Vygotsky, 1978), which emphasizes that knowledge is constructed through social interaction and collaborative learning. Professional learning communities, mentoring relationships, and reflective dialogue provide opportunities for teachers to co-construct professional knowledge and improve instructional practices.

The findings also support Wenger's (1998) Communities of Practice framework, which highlights the importance of participation in professional communities for identity formation and knowledge development. Teachers in pesantren benefit from collaborative networks that facilitate learning, reflection, and innovation.

Furthermore, the integration of Islamic values into professional development reflects the unique characteristics of pesantren as faith-based educational institutions. Unlike conventional models of professional learning, teacher development in pesantren seeks to cultivate both professional competence and moral character. This dual orientation represents a distinctive contribution of Islamic education to contemporary discussions on teacher professionalism.

Overall, the evidence suggests that sustainable and context-sensitive professional development programs are essential for preparing teachers to navigate educational transformation while preserving the philosophical foundations of Islamic education.

CONCLUSION

This systematic literature review examined the role of teacher professional development (TPD) in enhancing teacher competence and promoting educational innovation in modern Islamic boarding schools (pesantren). Through thematic synthesis of fifteen selected studies published between 2019 and 2025, the review identified five major themes that characterize effective professional development practices in Islamic educational settings:

enhancement of pedagogical competence, development of digital literacy and technological adaptation, integration of Islamic values, collaborative professional learning, and leadership support.

The findings demonstrate that teacher professional development is a multidimensional process extending beyond conventional training activities. Effective TPD programs contribute not only to teachers' instructional skills but also to their professional identity, technological competence, reflective capacity, and commitment to Islamic educational values. The review further indicates that sustainable, collaborative, and context-sensitive professional development initiatives are more effective than short-term and isolated training programs.

A notable contribution of this study is the proposed Integrative Teacher Professional Development Framework, which combines pedagogical innovation, digital literacy, Islamic values integration, collaborative learning communities, and reflective supervision. This framework offers a holistic perspective for designing professional development programs that are responsive to the challenges of educational transformation while preserving the philosophical foundations of pesantren education.

The findings have practical implications for policymakers, educational leaders, and pesantren administrators in developing sustainable teacher development strategies. Future research is encouraged to investigate the effectiveness of the proposed framework through empirical studies involving diverse pesantren contexts and educational levels. Such studies may contribute to the advancement of teacher professionalism and the continuous improvement of educational quality in Islamic educational institutions.

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