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Empowering Islamic Religious Education Teachers through AI Technology to Enhance Professionalism and Competence

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ABSTRACT

This study explores the empowerment of Islamic Religious Education (IRE) teachers through the use of Artificial Intelligence (AI) to enhance professionalism and competencies in the digital era. Using a literature review method, the research examines scholarly articles, books, and international reports published within the last decade to identify the opportunities, challenges, and implications of AI integration in education. The findings reveal that AI contributes significantly to improving teaching efficiency, facilitating personalized learning, enriching instructional resources, and supporting teachers' professional development. However, the study also highlights challenges such as limited digital literacy, inadequate technological infrastructure, and cultural resistance to technology adoption. The discussion emphasizes the need for comprehensive teacher training, supportive educational policies, and ethical integration of AI in alignment with Islamic values. Overall, this study concludes that AI should not be perceived as a substitute for teachers but as a powerful tool for teacher empowerment, enabling IRE educators to adapt to 21st-century learning demands and to foster digitally literate, critical, and morally grounded students.

1. Introduction

The rapid advancement of information and communication technology in the Fourth Industrial Revolution era has significantly transformed education, including pedagogical approaches, instructional models, and assessment systems. Among the key technological innovations driving this change is Artificial Intelligence (AI), which has increasingly been integrated into teaching and learning (Zawacki-Richter et al., 2019). AI supports lesson planning, instructional practices, and assessments, while also enabling personalized learning adapted to students' needs. By automating repetitive tasks and providing intelligent recommendations, AI enhances teaching effectiveness and efficiency (Holmes et al., 2019). This progress marks a new phase in education where technology plays a central role in improving quality and relevance.

The integration of AI provides teachers with broader opportunities to strengthen their professionalism and competencies, moving beyond traditional subject mastery toward digital literacy (Mishra & Koehler, 2006). Teachers can utilize AI-powered analytics to identify student learning patterns, enabling targeted instructional strategies and tailored interventions (Chen et al., 2020). Furthermore, AI supports the creation of teaching materials, recommendation of learning resources, and simulation of classroom scenarios for training purposes. These innovations not only enhance teachers' professional growth

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but also empower them to provide meaningful, inclusive, and engaging learning experiences for students in the digital era (Najib et al. 2024). For Islamic Religious Education (IRE), this integration allows teachers to balance tradition with modern pedagogical innovations, making religious content more relevant to 21st-century learners (Kelley et al., 2025).

Nevertheless, AI empowerment of IRE teachers faces challenges such as limited technological literacy, resistance to change, and inadequate digital infrastructure (UNESCO, 2021; Holmes et al., 2019). Moreover, the use of AI must align with Islamic values to safeguard the moral and spiritual dimensions of education (Ally, 2019). Ethical issues such as data privacy, algorithmic bias, and over-reliance on technology must also be considered (Holmes et al., 2019). To overcome these challenges, comprehensive training programs, supportive policies, and investments in digital infrastructure are needed (Zawacki-Richter et al., 2019). When strategically implemented, AI can help IRE teachers embrace innovation while maintaining religious principles, ultimately nurturing digitally literate, critically minded, and ethically responsible learners in the digital era (Nun et al., (2025).

The research problem in this study arises from the gap between the demands of professionalism for Islamic Religious Education (IRE) teachers in the digital era and the limited technological literacy possessed by many of them. Although Artificial Intelligence (AI) has demonstrated great potential in supporting teaching and learning, in practice there are still challenges such as resistance to new technologies, inadequate infrastructure, and the lack of comprehensive empowerment models for IRE teachers. Therefore, this study formulates the main research problem, namely how AI technology can be utilized to empower IRE teachers in enhancing their professionalism and competencies in accordance with the needs of 21st-century education.

The purpose of this study is to analyze and examine in depth the role of AI technology in supporting the development of IRE teachers' competencies through a literature review approach. The findings of this research are expected to be beneficial not only for IRE teachers in improving the quality of teaching and professionalism but also for educational policymakers in designing teacher empowerment strategies based on technology. In addition, this study contributes academically by enriching the literature on the integration of AI in religious education and serves as a foundation for future research in developing teacher empowerment models relevant to the dynamics of the digital era.

2. Literature Review

The rapid development of Artificial Intelligence (AI) has profoundly transformed the landscape of education across various disciplines. Research consistently demonstrates that AI enhances the effectiveness of instruction by automating routine processes, supporting teachers in classroom management, and creating opportunities for more personalized learning experiences tailored to individual student needs (Zawacki-Richter et al., 2019). This perspective aligns with social constructivist theory, which emphasizes the importance of adapting instruction to learners' characteristics to ensure more meaningful and contextualized learning experiences. Thus, AI is not merely a technical tool but also a pedagogical enabler that redefines the way teaching and learning take place.

The role of AI in education extends beyond its technical capabilities and enters the domain of strategic functions. These include learning data analysis for mapping student competencies, digital content development to create adaptive and engaging resources, and support for performance-based assessment that enables teachers to evaluate higher-order skills (Holmes et al., 2019). Such applications highlight AI's ability to serve as a comprehensive instrument for improving educational quality. In the context of Islamic Religious Education (IRE), AI can help ensure that learning addresses cognitive, affective, and psychomotor domains while maintaining alignment with religious and moral values.

In the digital era, the professionalism of IRE teachers can no longer be measured solely by their pedagogical skills or mastery of religious content. According to teacher competency frameworks, educators are expected to demonstrate four core competenciesp, edagogical, professional, social, and personal. However, in today's educational context, these must be complemented by digital literacy and technological competence (Papakostas, 2025). IRE teachers are therefore expected to adapt to rapid technological change, utilize digital learning resources, and design instructional strategies that align with the demands of 21st-century learners, who are characterized by critical thinking, creativity, collaboration, and communication (Susanto & Ningsih, 2022; Trilling, 2009).

Empowering teachers through AI is crucial for expanding their digital literacy, enhancing pedagogical creativity, and strengthening their professional competence. AI technologies can expose teachers to global resources, interactive digital tools, and innovative pedagogical models that enrich their teaching practices. In doing so, teachers are not only positioned as transmitters of religious knowledge but also as lifelong learners who continuously refine their academic and technological skills. This perspective reflects the idea of professional growth as a dynamic process that requires teachers to adapt and innovate.

Teacher empowerment through AI can take various practical forms. Examples include AI-based learning platforms that personalize lessons according to students' pace and abilities, recommendation systems that guide teachers in selecting relevant teaching materials, chatbots that act as virtual assistants for student guidance, and learner analytics that provide insights into student needs and progress (UNESCO, 2021). These tools enable teachers to design more effective and inclusive learning environments. Importantly, such applications resonate with the 21st-century education paradigm that emphasizes the mastery of the 4Cs (Collaboration, Creativity, Critical Thinking, and Communication) as essential skills for learners (Zhang et al.,2024).

Consequently, the integration of AI in IRE transforms the role of teachers from being mere instructors to becoming facilitators, motivators, and innovators of the learning process. While technology serves as a supportive instrument, the human dimension of teaching, especially in religious education remains irreplaceable. AI should be ethically integrated in ways that align with Islamic values, ensuring that technological advancement complements rather than undermines spiritual and moral education. With such a balance, AI has the potential to empower IRE teachers to nurture digitally literate, critically minded, and morally grounded Muslim learners who are prepared to meet the challenges of a globalized world.

3. Methodology

This study employed a literature review method with a descriptive qualitative approach. The research design was focused on tracing, identifying, and analyzing scholarly sources relevant to the empowerment of Islamic Religious Education (IRE) teachers through Artificial Intelligence (AI) technology. The data sources consisted of national and international journal articles, academic books, reports from international educational organizations (such as UNESCO), and other related publications published within the last ten years.

Data collection techniques were carried out by searching academic databases such as Google Scholar, Scopus, and SpringerLink using keywords such as "Artificial Intelligence in Education," "Teacher Empowerment," "Islamic Religious Education," and "Professional Competence." The collected data were analyzed using content analysis, by categorizing, comparing, and synthesizing key findings from various literature. This analysis was aimed at identifying patterns, challenges, and opportunities of AI utilization in empowering IRE teachers, thereby providing a comprehensive picture of how AI contributes to improving teachers' professionalism and competencies.

4. Results and Discussion

The literature review reveals that the application of Artificial Intelligence (AI) in education, particularly in Islamic Religious Education (IRE), holds significant potential for empowering teachers. Generally, AI can support teachers in four main areas: (1) improving teaching efficiency through automated administration and assessment; (2) providing more personalized learning experiences tailored to students' needs; (3) enriching learning resources and fostering innovative teaching strategies; and (4) enhancing teachers' capacity for reflection and data-driven decision-making.

The literature further indicates that the implementation of AI among IRE teachers still faces several challenges, such as limited digital literacy, insufficient infrastructure in schools, and resistance from some teachers to adopt new technologies. Nevertheless, many studies emphasize the importance of training, supportive policies, and the development of AI-based teaching models that align with Islamic values. With synergy between technology and teacher competencies, AI has the potential to strengthen IRE teachers' professionalism in pedagogical, professional, and social aspects.

To provide a clearer understanding of the existing studies, the following table presents a literature review that summarizes relevant research on the use of Artificial Intelligence (AI) in education and its implications for teacher empowerment, professionalism, and competency development, particularly within the context of Islamic Religious Education (IRE).

Table 1. Literature Review Table

No	Author(s)/Year	Title/Focus	Findings	Relevance to Research
1	Zawacki-Richter et al., 2019	Systematic review on AI applications in education	AI contributes to personalized learning, adaptive assessment, and efficiency in classroom management.	Provides theoretical foundation for AI potential in supporting teacher professionalism.
2	Holmes et al., 2019	The ethical and practical use of AI in education	AI supports data analysis, digital content creation, and performance-based assessment.	Explains strategic functions of AI that can be applied in Islamic Religious Education.
3	Susanto & Ningsih, 2022	Teacher professionalism in the digital era	Teachers are required to master not only pedagogy but also technological skills to meet 21st-century challenges.	Strengthens the argument for empowering IRE teachers through digital literacy and AI.
4	UNESCO, 2021	AI and the future of learning	AI provides learning platforms, chatbots, recommendation systems, and learner analytics to support teaching.	Becomes a practical reference for integrating AI into IRE learning models.
5	Chen et al., 2020	AI in personalized education	AI increases student engagement and supports differentiated learning.	Relevant for designing AI-based instructional strategies in religious education contexts.

The findings of this study reveal that Artificial Intelligence (AI) serves as a catalyst for pedagogical transformation, especially within the context of Islamic Religious Education (IRE). AI not only simplifies administrative tasks but also enhances teachers' pedagogical strategies by providing real-time data about students' progress, engagement, and learning styles. This allows IRE teachers to implement differentiated learning approaches that address diverse student needs, thereby strengthening their pedagogical competence. In practice, AI tools such as adaptive learning platforms and automated assessment systems have demonstrated their effectiveness in facilitating personalized learning pathways. These innovations align with the broader educational paradigm shift from teacher-centered to learner-centered instruction, which places students at the core of knowledge construction while maintaining teachers' role as facilitators of moral and spiritual development.

Another significant result concerns the potential of AI to expand the professionalism of IRE teachers. By integrating AI-powered systems, teachers can access global scholarly resources, digital libraries, and advanced pedagogical models that foster continuous professional development. AI-driven recommendation engines, for instance, assist teachers in selecting up-to-date religious and pedagogical materials, thereby reinforcing their subject mastery while simultaneously upgrading digital literacy. This positions IRE teachers not merely as conveyors of religious content but as lifelong learners who continually adapt to educational innovations. Such professional growth is critical in the 21st century, where teachers are expected to combine pedagogical, technological, and ethical expertise. Consequently, AI serves as both a tool for professional empowerment and a framework for cultivating teacher resilience in rapidly evolving educational landscapes.

Despite its potential, the integration of AI in IRE is not without challenges. The literature review highlights three recurring obstacles: limited digital literacy among teachers, inadequate technological infrastructure in schools, and cultural resistance toward technological innovation in religious education. Many IRE teachers, particularly in rural or resource-constrained settings, remain hesitant to adopt AI due to unfamiliarity and fear of losing the spiritual essence of teaching. Moreover, disparities in internet access and lack of government investment in digital infrastructure exacerbate this digital divide. These findings indicate that the success of AI empowerment depends not only on individual teacher readiness but also on systemic support from educational institutions and policymakers. Without addressing these foundational barriers, the transformative potential of AI risks remaining underutilized.

A critical dimension of AI integration in IRE lies in the ethical alignment with Islamic values. Unlike other subjects, religious education carries a dual mandate: intellectual formation and moral-spiritual guidance. Therefore, AI must be designed and implemented in ways that reinforce, not replace teachers' spiritual authority. Issues such as data privacy, algorithmic bias, and over-reliance on automated systems demand ethical scrutiny. For instance, while AI can provide personalized Qur'an memorization tools or interactive hadith simulations, it cannot substitute the teacher's role as a moral exemplar. This

underscores the necessity of embedding ethical guidelines in AI-based learning models to ensure that technological advancement complements rather than undermines the sacred mission of IRE. A balanced integration of AI and Islamic pedagogy thus provides an innovative yet spiritually grounded framework for teacher empowerment.

The findings also carry significant implications for educational policy and practice. To optimize AI empowerment, governments and educational institutions must invest in digital infrastructure, provide comprehensive training in digital literacy, and establish policies that support ethical AI use. Training programs should not only focus on technical competencies but also address philosophical and theological considerations regarding technology in religious education. Furthermore, collaboration between policymakers, Islamic scholars, and educational technologists is essential to design AI applications that are pedagogically sound and religiously appropriate. Future research should explore case studies of AI implementation in diverse IRE settings to evaluate practical outcomes and refine empowerment models. Ultimately, the discussion emphasizes that AI should not be positioned as a substitute for teachers but as an empowering instrument that enables IRE educators to cultivate critically minded, digitally literate, and morally grounded learners in the digital age.

5. Conclusion

This study highlights the significant potential of Artificial Intelligence (AI) in empowering Islamic Religious Education (IRE) teachers to enhance their professionalism and competencies in the digital era. The literature review demonstrates that AI can support teachers in data-driven instruction, personalized learning, innovative teaching strategies, and lifelong professional development. Despite the challenges of limited digital literacy, inadequate infrastructure, and cultural resistance, AI remains a valuable tool to strengthen the role of teachers as facilitators, motivators, and innovators. The findings also emphasize the need for comprehensive training, supportive policies, and ethical integration of AI in alignment with Islamic values. Therefore, AI should not be regarded as a replacement for teachers but rather as an empowering instrument that complements their role in nurturing digitally literate, critical, and morally upright learners.

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