Islamic Religious Education Teachers in the Age of AI: Pedagogical Transformation and the Development of Digital Competencies

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Abstract

The development of generative artificial intelligence (AI) is transforming how teachers design, deliver, and evaluate learning. In Islamic Religious Education (IRE), these changes cannot be understood merely as a matter of technological efficiency, as learning is also closely tied to the validity of religious knowledge, the cultivation of moral character, and the exemplary role of educators. This study aims to analyze the forms of pedagogical transformation offered by AI in PAI instruction, as well as the digital competencies teachers need to use it responsibly. The study employs a descriptive qualitative approach through a literature review. Sources were selected from scientific journal articles discussing AI in education, teacher competencies, TPACK, AI literacy, ChatGPT, AI ethics, and Islamic education. Data were analyzed thematically by grouping the findings into four themes: (1) the pedagogical opportunities of AI, (2) the development of teachers' digital competencies, (3) the validation and ethics of AI use, and (4) changes in the role of PAI teachers. The results of the study indicate that AI can assist teachers in developing instructional materials, diversifying learning activities, providing initial feedback, and personalizing learning. However, these benefits depend on teachers' ability to select tools, design activities, evaluate AI outputs, and ensure that the material aligns with reliable religious sources. From a TPACK perspective, teachers' competencies in the AI era need to be expanded to include AI literacy and ethical considerations. Islamic Education teachers do not lose their role; rather, their role shifts from being the center of information delivery to becoming learning designers, knowledge curators, information verifiers, and ethical mentors. These findings indicate that digital transformation in Islamic Education should be directed toward the use of AI that strengthens pedagogical quality without diminishing the humanistic, spiritual, and exemplary dimensions of teachers.

Keywords: *Islamic Religious Education; artificial intelligence; AI literacy; TPACK; teachers' digital competencies; digital pedagogy; AI ethics*

Introduction

Artificial intelligence (AI) has evolved from a relatively specialized technology into an integral part of daily educational activities. AI systems are now used to provide learning recommendations, generate text, assist in material development, offer feedback, and support learning analysis. A systematic review indicates that AI research in education is advancing

rapidly and encompasses a wide range of functions; however, issues regarding teacher readiness, ethics, and the role of humans in decision-making remain critical concerns (Zawacki-Richter dkk. 2019). In the context of generative AI, these changes become increasingly evident as teachers and students can interact with systems that generate answers in the form of language that appears convincing.

These changes open opportunities for education to shift from using technology as a medium for delivering content toward technology that supports the instructional design process. ChatGPT, for example, can be used as an initial partner to brainstorm activity ideas, create variations of questions, simplify explanations, or provide examples that are then reviewed by the teacher. Several studies have found that generative AI can expand pedagogical options, but its benefits are always accompanied by risks such as misinformation, user dependency, bias, issues of academic integrity, and a reduction in critical thinking if the technology is used without adequate guidance (Kasneci dkk. 2023).

In Islamic Religious Education (IRE), these issues take on a more specific dimension. IRE curriculum not only requires mastery of concepts but also involves values, attitudes, religious practices, ethics, and how students interpret religious teachings in their daily lives. Therefore, information generated by AI should be treated as material to be critically examined, not as a standalone religious authority. Studies on ChatGPT in PAI instruction in Indonesia indicate its potential to support learning but also underscore the need for guidance, verification, and ethical consideration in its use (Suhendi dkk. 2024)

The Technological Pedagogical Content Knowledge (TPACK) framework provides a relevant foundation for addressing these needs. TPACK emphasizes that effective technology use is not determined by technological proficiency alone, but by the ability to integrate technological, pedagogical, and content knowledge (Mishra dan Koehler 2006). When the technology used is generative and capable of generating decisions or recommendations, teachers also need an understanding of the system's limitations and its ethical implications. Celik (2023) expands on this idea through Intelligent-TPACK by positioning ethical knowledge as a crucial component of teachers' ability to integrate AI.

The literature on AI literacy also indicates that AI competence is not merely the ability to run applications. AI literacy encompasses an understanding of how AI works and its limitations, the ability to use technology appropriately, the ability to evaluate outcomes, and awareness of its social and ethical implications (Sperling dkk. 2024) Research on teacher competencies even indicates that teachers' readiness must be developed through a combination of technological knowledge, pedagogy, content, instructional design, and ethics (Kim dan Kwon 2023)

In Islamic education, these needs intersect with the requirement to uphold the authority of religious sources and the moral orientation of learning. Studies in Indonesia indicate that AI is increasingly being used to assist in the development of instructional materials, instructional design, and the creation of Islamic Education (PAI) activities; however, such integration must remain under the pedagogical control of teachers (Ahyani dkk. 2025) In fact, research on AI governance in madrasahs identifies ethical policies, human oversight, and educator capacity building as crucial components of generative AI integration (Novita dkk. 2024)

Based on these issues, this study aims to answer two questions. First, how does AI transform pedagogical practices in PAI instruction? Second, what digital and ethical

competencies do PAI teachers need to ensure that AI can be used effectively without compromising the goals of Islamic education? This study aims to map the pedagogical opportunities offered by AI, identify the competencies required of teachers, and articulate the implications of AI use for changes in the role of PAI teachers.

The broader literature reinforces this pattern. Human-centered AI studies prioritize human agency, privacy, and learning context as key considerations in the use of AI systems (Alfredo dkk. 2024) A meta-review of research on AI in education also indicates that this field is evolving rapidly and still requires a research agenda more oriented toward pedagogical contexts (Mustafa dkk. 2024). In elementary and secondary education, the development of AI literacy is linked to contextual learning experiences, an understanding of how AI works, and the ability to reflect on its ethical implications (Su dan Yang 2022; Wang dkk. 2024) Findings in Islamic education are also beginning to show that AI can be used to support students' critical thinking and literacy if its use is purposefully designed (Fakhridana dkk. 2026).

Methods

Research Design

This study employs a descriptive qualitative approach using a literature review method. This approach was chosen because the focus of the research is not to measure the effectiveness of a specific AI application but rather to understand patterns in published research findings regarding the use of AI in education, teacher competencies, TPACK, AI literacy, AI ethics, and Islamic education. The literature review is positioned as an analytical process to identify relationships among concepts, similarities and differences in research findings, and conceptual areas that still require further development.

Participants

Since the study does not directly involve respondents, the units of analysis consist of scholarly documents. The documents considered are journal articles discussing AI in education, teacher competencies, TPACK or AI-TPACK, AI literacy, generative AI/ChatGPT, AI ethics, and their application in Islamic education or PAI. Sources were prioritized from reputable scientific journals and openly available articles so that the search and verification processes could be replicated.

Research Procedures

The research procedure was conducted in four stages. First, the researcher identified keywords related to artificial intelligence in education, generative AI, ChatGPT, teacher AI literacy, TPACK, AI-TPACK, Islamic education, and Islamic Religious Education. Second, search results were screened based on the relevance of the titles and abstracts. Third, relevant articles were read thoroughly, and information regarding their objectives, methods, context, findings, and implications was recorded. Fourth, findings from various articles were compared and grouped to identify themes that addressed the research questions.

Data Collection Technique(s)

Data were collected through systematic documentation and recording of journal articles. Inclusion criteria included: (1) articles discussing AI or generative AI in an

educational context; (2) articles related to teachers, pedagogy, competencies, AI literacy, TPACK, ethics, or Islamic education; (3) articles published in scholarly journals; and (4) articles with verifiable bibliographic information. Literature that only discusses the technical development of AI without any connection to education or educator competencies is not the primary focus.

Data Analysis Technique

Data were analyzed thematically. The analysis stages included repeated reading, coding of main ideas, grouping of codes, cross-source comparison, and theme development. The final themes include the pedagogical opportunities of AI, teachers' digital competencies and AI literacy, information validation and ethics, and the repositioning of the role of Islamic Education (PAI) teachers. To ensure the accuracy of interpretations, conclusions were drawn only from recurring patterns or arguments supported by more than one source.

Results

The analyzed literature indicates that AI is most consistently positioned as a tool that expands teachers' pedagogical options. Its use includes developing lesson ideas, creating examples, formulating questions, simplifying explanations, providing initial feedback, and designing variations of learning activities. A general review of AI in education reveals that AI technology has been used in personalized learning, tutoring systems, assessment, and support for teacher activities (Wang dkk. 2024; Zawacki-Richter dkk. 2019). In the context of generative AI, the ability to generate text makes the technology easier to use for instructional preparation tasks, although the results still require human review (Lo 2023). In the context of PAI, these opportunities are evident in AI's ability provides alternative explanations and helps teachers design more diverse activities. Research (Suhendi dkk. 2024) shows that ChatGPT has the potential to be used in Islamic Education (PAI) instructional design, while Mulya et al. (2025) indicate that PAI students view ChatGPT as a tool that can support the learning process when its use remains within the framework of Islamic educational values. Other findings indicate that AI can be utilized to encourage activities that demand critical thinking, rather than merely the search for quick answers (Salim dan Habibi 2025)

However, the pattern of findings also reveals that the pedagogical benefits of AI do not automatically arise simply because the technology exists. AI becomes meaningful when teachers define learning objectives, select task types, manage students' interactions with AI, and provide opportunities for verification and reflection. Thus, the pedagogical transformation observed is not a transfer of control from teachers to AI, but rather a shift in how teachers manage learning resources.

The literature indicates that teacher competencies in the AI era encompass a broader scope than merely the ability to use applications. Sperling et al. (2024) demonstrate that teachers' AI literacy encompasses the dimensions of knowledge, practice, and professional judgment. Lintner (2024) also notes that AI literacy instruments are evolving to capture capabilities that go beyond the purely technical. Almatrafi et al. (2024) emphasize that AI literacy must be understood as the ability that enables users to understand, use, evaluate, and interact with AI responsibly.

These findings align with the research by Kim and Kwon (2023), which identified

teachers' AI competencies through the TPACK framework. Teachers' needs extend beyond technological knowledge to include the ability to design learning experiences, manage learning environments, understand content, and consider ethical issues. Ning et al. (2024) demonstrate that the elements of AI-TPACK are interconnected, so competency development is ineffective if it only provides application training in isolation.

In Islamic Education (PAI) instruction, these competencies must be supplemented with the ability to interpret religious contexts. Teachers must be able to assess whether AI-generated answers align with learning objectives, Islamic terminology, the sources used, and students' level of understanding. Therefore, the digital competencies of Islamic Education teachers can be defined as a combination of technical skills, pedagogical skills, mastery of Islamic Education content, AI literacy, and ethical judgment. This framework aligns teacher professional development more closely with real-world classroom needs.

One of the most important findings is the need to validate AI outputs. Generative models can produce well-structured answers that are not always correct. Lo (2023) identifies the risk of misinformation or fabricated information as one of the main issues with using ChatGPT in education. Kasneci et al. (2023) also highlight accuracy, bias, privacy, and human accountability as issues that need to be managed. At the school level, Akgun and Greenhow (2022) emphasize that the use of AI must take into account equity, privacy, transparency, and the impact on students.

In Islamic Education (PAI), issues of validity have more sensitive consequences because AI responses may touch on verses, hadiths, laws, history, or religious interpretations. Therefore, teachers need to establish the habit of verifying sources before AI-generated material is used in the classroom. A study on the integration of ChatGPT into Islamic Education in Indonesia indicates that technology can aid learning, but unsupervised use may foster dependency and undermine critical thinking (Suhendi dkk. 2024).

Findings on madrasah governance also indicate that AI ethics cannot be left solely to individual teachers' discretion. Novita et al. (2024) highlight the importance of a governance framework regulating the use of generative AI within the madrasah environment. Thus, information validation, transparency in AI use, data protection, and academic integrity must become integral parts of the school's culture.

The literature indicates a shift in the teacher's role from an information provider to a designer of learning experiences and a guide for technology use. Zawacki-Richter et al. (2019) have shown that the development of AI in education must pay greater attention to the educator's role. In the context of generative AI, this shift becomes even more evident because students can obtain answers directly from the system. Teachers, therefore, play an increasingly important role in formulating meaningful questions, assessing the quality of answers, and helping students understand the reasoning behind an answer.

In Islamic Education (PAI), this repositioning does not imply a reduction in the teacher's authority. On the contrary, as information becomes increasingly accessible, the teacher's pedagogical authority shifts toward curation and validation. Islamic Education teachers need to serve as critical filters who help students distinguish between informative answers and accountable answers. This role also includes fostering the habit of tabayyun, using credible sources, and engaging in moral reflection on the use of technology.

Empirical findings in Indonesia support this direction. Research on AI-Enhanced TPACK in Islamic education shows that AI can support conceptual processes and learning

representations when activities remain designed and guided by educators (Ahyani dkk. 2025) Research on ChatGPT in Islamic Education also indicates that AI is more appropriately used as a support for the learning process rather than as a substitute for teachers (Ahyani dkk. 2025; Ariibah dan Asyari 2025)

The practical implications of these research findings are the need for a shift in the orientation of teacher training. Training that merely teaches how to create prompts or use specific applications will quickly lose its relevance as platforms evolve. Professional development programs need to build competencies that are more resilient to technological change, namely understanding the basic principles of AI, evaluating AI outputs, designing learning activities, maintaining academic integrity, and making ethical decisions. Studies on AI literacy in teacher education emphasize the need to develop practical knowledge and professional judgment simultaneously (Sperling dkk. 2024).

For PAI teachers, such a program can be structured in several layers. The first layer is basic literacy regarding the capabilities and limitations of AI. The second layer is AI-TPACK, which is the ability to connect AI with PAI learning objectives, methods, and content. The third layer is verification literacy, including the verification of religious sources and the identification of questionable information. The fourth layer is ethics, which covers privacy, academic integrity, fairness, transparency, and accountability in the use of AI. Such a model is better suited to teachers' needs than platform-specific training.

At the institutional level, schools and madrasahs need to provide guidelines for AI use. These guidelines can specify when AI may be used, the types of assignments requiring disclosure of AI use, how to verify sources, the protection of student data, and procedures to follow when AI outputs contain errors. This approach aligns with the need for generative AI governance that positions humans as the final decision-makers (Novita dkk. 2024)

Discussion

The research findings support the view that AI is better positioned as an enhancer of teachers' pedagogical capacity rather than as a substitute for teachers. This finding aligns with studies by Lo (2023), Kasneci et al. (2023), and Tlili et al. (2023), which show that generative AI can assist in developing instructional materials, activity ideas, and learning support, but still has limitations regarding accuracy and contextual reasoning. Thus, the pedagogical value of AI does not lie in its ability to generate answers as quickly as possible, but rather in how teachers transform the technology's output into meaningful learning experiences.

In Islamic Education (PAI), these limitations become even more pronounced. Religious education aims not only to produce cognitively correct answers but also to foster attitudes, habits, and moral orientation. AI can explain concepts or provide examples, but it cannot replace the educational relationship that allows teachers to assess students' needs, set a good example, and connect the material to their lives. This finding reinforces the results of Indonesian research that positions ChatGPT as a learning assistant requiring teacher guidance (Suhendi dkk. 2024)

Research findings indicate that TPACK remains relevant but needs to be reinterpreted in the context of generative AI. TPACK originally described the integrated combination of technology, pedagogy, and content (Mishra and Koehler 2006). When technology is capable of generating content and recommendations, teachers must not only know how to use the

technology but also understand how it produces outputs and how its limitations influence pedagogical decisions. Mishra et al. (2023) demonstrate that the generative, opaque, and unstable nature of GenAI demands adjustments to TPACK knowledge, while Celik (2023) shows that technological and pedagogical knowledge must be complemented by the ability to ethically evaluate AI decisions.

These findings align with those of Ning et al. (2024) and Kim and Kwon (2023), who demonstrate the interrelationships among the knowledge elements within AI-TPACK. For PAI teachers, this framework must be interpreted contextually: technological knowledge encompasses the ability to use AI; pedagogical knowledge encompasses the ability to design activities and assessments; content knowledge encompasses mastery of PAI; while ethical judgment guides teachers to ensure that the use of AI does not conflict with educational goals and Islamic values. Thus, AI-TPACK is not merely an additional term, but a way to clarify the competencies needed when technology begins to play a role in producing learning materials.

The issue of "hallucination" demonstrates that AI literacy must include the ability to question technological outputs when supporting evidence is insufficient. In general education, this issue relates to the accuracy of information. In Islamic Education (PAI), the consequences can be more serious because errors in quotations of verses, hadiths, or legal explanations may be accepted by students as religious knowledge. Therefore, the findings of this study expand the discussion of AI literacy by positioning the validation of religious sources as part of teachers' professional competencies.

This position aligns with Lo's (2023) findings regarding the potential for misinformation and with Kasneci et al.'s (2023) discussion on the need for human oversight. In the context of Islamic education, studies by Rifah et al. (2024), Suhendi et al. (2024), and Novita et al. (2024) demonstrate that the use of AI requires alignment with the values, governance, and objectives of Islamic education. Thus, Islamic education teachers can be viewed not merely as technology users but as guardians of the epistemic quality of learning.

When students can access religious information through search engines and chatbots, teachers are no longer the sole gateway to knowledge. This shift should not be interpreted as a loss of teacher authority. Rather, authority may shift from the possession of information toward the ability to curate, verify, explain, and set an example. In an information-rich environment, students need educators who can help them determine which information is trustworthy and how that information can be applied in their lives.

The role of setting a good example is a key reason why PAI teachers continue to fulfill a function that AI cannot easily replace. Technology can generate explanations about honesty, responsibility, or tolerance, but it cannot replace the experience of students observing teachers put those values into practice in their daily interactions. Therefore, digital transformation should not lead to a reduction in human relationships, but rather to a more appropriate division of labor: AI assists with informational tasks, while teachers retain their pedagogical, moral, and relational roles.

Theoretically, this study shows that discussions of TPACK in Islamic Education (PAI) must take into account the nature of generative AI. The integration of technology should not be evaluated solely based on whether teachers are able to use digital tools, but rather on whether teachers are able to connect technology to learning objectives and make responsible decisions. The Intelligent-TPACK and AI literacy perspectives provide a strong foundation

for expanding these competencies (Celik 2023; Ning dkk. 2024; Wang dkk. 2024)

In practical terms, schools and madrasahs need to develop realistic policies. A total ban on AI is ill-suited to current learning conditions, while unrestricted freedom without guidelines risks fostering dependency and misuse. A more balanced approach is to regulate AI use based on learning objectives, transparency, verification, and accountability. Teachers can use AI for preliminary work, but the final decisions regarding content, assessment, and the suitability of resources remain with humans. Indonesian research findings on madrasah governance and AI integration support this approach based on oversight and capacity building (Mustafa dkk. 2024; Novita dkk. 2024).

This study has limitations because it is based on a literature review. The findings describe emerging patterns in the literature but cannot yet replace empirical evidence regarding PAI teachers' classroom experiences. Furthermore, AI technology is evolving rapidly, so some findings regarding the capabilities or limitations of specific platforms may change. Another limitation is that not all studies on AI use the same terminology, frameworks, and indicators; therefore, the synthesis was conducted at the thematic level rather than through statistical comparisons.

Future research could test the AI-TPACK model for PAI teachers through a survey measuring technological knowledge, pedagogy, content knowledge, AI literacy, and ethical judgment. Case studies or classroom observations are also needed to examine how teachers verify AI outputs and how students respond to the use of AI. Experimental research could focus on specific instructional designs to determine when AI truly enhances critical thinking, religious understanding, and independent learning.

Conclusion

This study demonstrates that artificial intelligence has the potential to transform PAI pedagogy, particularly in the areas of instructional planning, instructional material development, activity variation, and learning support. However, this transformation does not equate to the replacement of teachers. The value of AI depends heavily on teachers' ability to guide the use of technology in alignment with learning objectives and to critically evaluate the generated outputs.

The competencies of PAI teachers in the AI era must go beyond technical skills. Teachers require a combination of technological knowledge, pedagogy, PAI content, AI literacy, information verification skills, and ethical considerations. Within this framework, AI-TPACK can serve as a perspective for understanding the competencies of teachers capable of integrating AI without losing sight of pedagogical direction and Islamic educational values.

The practical implications of this research are the need for continuous professional development for teachers as well as guidelines for the use of AI in schools and madrasahs. The use of AI should be guided by the principles of "human-in-the-loop," transparency, source verification, data protection, academic integrity, and character building. PAI teachers continue to hold a crucial role as learning designers, knowledge curators, critical filters, and role models of values. Future research should test these conceptual findings through empirical studies at various educational levels to provide a stronger understanding of the effectiveness of AI-TPACK in PAI instruction.

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