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ARTIFICIAL INTELLIGENCE INTEGRATION STRATEGIES IN ISLAMIC RELIGIOUS EDUCATION: A SYSTEMATIC LITERATURE REVIEW

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Kata Kunci:	ABSTRAK
Kecerdasan Buatan; Pendidikan Agama Islam; Pembelajaran Berbantuan AI; Teknologi Pendidikan; Pembelajaran yang Dipersonalisasi	Kecerdasan Buatan (Artificial Intelligence/AI) telah mentransformasi praktik pendidikan, termasuk Pendidikan Agama Islam (PAI). Penelitian ini bertujuan untuk menelaah secara sistematis penelitian mengenai integrasi AI dalam PAI dengan berfokus pada pembelajaran personal dan adaptif, efektivitas dan interaktivitas pembelajaran, asesmen, peran pendidik, serta pertimbangan etika dan nilai humanistik. Penelitian menggunakan pendekatan Systematic Literature Review (SLR) dengan kerangka PRISMA. Studi yang relevan diidentifikasi melalui pencarian berdasarkan kata kunci serta kriteria inklusi dan eksklusi yang telah ditetapkan, kemudian melalui proses penyaringan, penilaian kualitas, ekstraksi data, dan sintesis tematik. Hasil kajian mengidentifikasi lima dimensi integrasi AI, yaitu personalisasi dan pembelajaran adaptif; peningkatan efektivitas dan interaktivitas pembelajaran; optimalisasi asesmen dan proses administratif; transformasi peran dan kompetensi pendidik; serta pemeliharaan nilai etika dan humanistik. Hasil kajian menunjukkan bahwa AI dapat mendukung pembelajaran responsif, sumber belajar, asesmen yang efisien, dan dukungan pembelajaran terdiferensiasi. Namun, integrasi yang efektif memerlukan pengawasan manusia, verifikasi konten keislaman, penggunaan data yang bertanggung jawab, dan pengembangan kompetensi pendidik.

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Keywords:	ABSTRACTS
Artificial Intelligence; Islamic Religious Education; AI-assisted Learning; Educational Technology; Personalized Learning	Artificial Intelligence (AI) is transforming educational practices, including Islamic Religious Education (IRE/PAI). This study aims to systematically review research on AI integration in IRE, focusing on personalized and adaptive learning, learning effectiveness and interactivity, assessment practices, educator roles, and ethical and humanistic considerations. A Systematic Literature Review (SLR) approach was employed using the PRISMA framework. Relevant studies were identified through searching based on predefined keywords and inclusion and exclusion criteria, followed by screening, quality assessment, data extraction, and thematic synthesis. The findings identify five dimensions of AI integration: personalized and adaptive learning; enhanced learning effectiveness and interactivity; optimization of assessment and administrative processes; transformation of lecturer roles and professional competence; and preservation of ethical and humanistic values. The review indicates that AI can support responsive learning, resources, efficient assessment, and differentiated learning support. However, effective integration requires human supervision, verification of religious content, responsible data use, and educator competence development.

A. INTRODUCTION

The rapid advancement of technology and the emergence of interconnected digital systems have generated unprecedented innovations that reshape various aspects of human life, including education. In the context of the Fourth Industrial Revolution (Industry 4.0), technological development has primarily focused on automation and efficiency in production processes, whereas Society 5.0 emphasizes a human-centered approach that integrates technological advancements to enhance human well-being and problem-solving capacities (Zahara et al., 2023). This paradigm shift necessitates a transformation in educational practices to ensure that learning processes remain relevant, adaptive, and responsive to contemporary challenges. Education, as defined by Hamalik (2001), is a systematic process aimed at influencing learners to adapt effectively within their social environments, particularly in overcoming unfavorable conditions. In the Indonesian context, the objectives of national education, which are grounded in Pancasila, align closely with the goals of Islamic Religious Education (Pendidikan Agama Islam/PAI), particularly in fostering faith, piety, and moral integrity.

Despite its strategic role, the effectiveness of PAI learning remains relatively low, influenced by multiple factors, with educators playing a central role in determining the success of instructional processes. While educational policies and curricula provide structural guidance, the actual implementation of learning strategies in the classroom significantly determines educational outcomes. A persistent issue in education is the inadequacy of instructional methods and strategies, which often fail to accommodate diverse learner needs. Consequently, both students and university learners frequently encounter difficulties in comprehending instructional materials, leading to misinterpretations and suboptimal learning outcomes. This issue does not solely reflect deficiencies on the part of educators or learners; rather, it highlights the urgent need for innovative pedagogical approaches that can enhance understanding, critical thinking, and competency development.

One promising solution lies in the integration of Artificial Intelligence (AI) in educational practices. AI, as a branch of computer science, focuses on the development

of intelligent systems capable of simulating human cognitive processes such as learning, reasoning, problem-solving, and decision-making (Mulianingsih et al., 2020). According to Mandailina et al. (2024), AI enables machines to perform tasks comparable to human capabilities, while Barr et al. (1981) define AI as the design of intelligent computer systems that exhibit human-like thinking processes. Similarly, Rich and Knight (1991) conceptualize AI as the study of how computers can perform tasks that are currently executed more effectively by humans. Fundamentally, AI systems rely on two essential components: a knowledge base, which contains structured information and relationships, and an inference engine, which enables the system to draw conclusions based on available data and prior experiences (Tjahyanti, 2022). These capabilities position AI as a transformative tool in education, particularly in supporting adaptive and personalized learning environments.

However, the development of AI in education has changed substantially following the emergence of generative artificial intelligence (GenAI) and large language models (LLMs), particularly since the introduction of ChatGPT. Unlike earlier AI applications that primarily focused on automation, intelligent tutoring, and data-driven personalization, GenAI and LLM-based systems can generate text, explanations, questions, learning materials, feedback, and other educational content through natural-language interaction. Kasneci et al. (2023) highlight the potential of LLMs to support personalized learning, content generation, student engagement, and instructional assistance, while also emphasizing challenges related to accuracy, bias, critical evaluation, and human oversight. Similarly, Tlili et al. (2023) demonstrate that ChatGPT has created new opportunities for teaching and learning while simultaneously raising concerns regarding academic integrity, misinformation, and the changing role of educators. Consequently, contemporary discussions of AI in education need to move beyond traditional AI applications toward the responsible and pedagogically meaningful integration of GenAI and LLM-based technologies.

Recent studies have demonstrated the significant potential of AI in education. Zahara et al. (2023) found that AI implementation facilitates administrative processes, such as grading and assessment, while also promoting more interactive and engaging learning experiences. Similarly, Mulianingsih et al. (2020) highlighted that AI contributes to the development of students' values and character by enhancing critical thinking and providing new perspectives in learning. However, existing studies tend to focus broadly on AI in education without specifically addressing its strategic application within Islamic Religious Education. This gap indicates the need for more focused research that examines how AI can be effectively utilized to address the unique characteristics and objectives of PAI learning.

In addition, the integration of AI in education is not without controversy. Some scholars argue that excessive reliance on AI may reduce the humanistic aspects of education, particularly in value-based disciplines such as PAI, which emphasize moral and spiritual development (Hidayat & Khalika, 2019). Others, however, contend that AI can complement human instruction by providing data-driven insights and personalized learning pathways, thereby enhancing both cognitive and affective learning outcomes (Marchlewska et al., 2019; Miller & Josephs, 2009, p. 12). These differing perspectives highlight the importance of developing a balanced and context-sensitive approach to AI integration in PAI.

The emergence of GenAI also highlights the importance of AI literacy as a prerequisite for responsible AI-supported learning. AI literacy involves not only the ability to operate AI tools but also the capacity to understand their basic principles, evaluate AI-generated information critically, recognize limitations and potential biases, and use AI responsibly. Recent research on GenAI literacy emphasizes competencies related to understanding GenAI, applying AI tools, evaluating generated outputs, and making ethical decisions regarding their use. These competencies are particularly important in educational contexts because AI-generated information may contain inaccuracies, bias, or misleading content that requires human verification. In addition, ethical considerations have become increasingly central to AI integration in education, particularly regarding privacy, academic integrity, fairness, transparency, bias, and human oversight (UNESCO, 2023; [recent 2024–2025 AI ethics sources]). Therefore, AI integration in PAI requires not only technological competence but also AI literacy and ethical awareness to ensure that the use of AI remains consistent with the moral and human-centered objectives of religious education.

Research over the past decade indicates that the utilization of Artificial Intelligence (AI) in Indonesian education is evolving in areas such as personalization, adaptive learning, learning effectiveness, and the transformation of the educator's role. Sihalo and Napitupulu (2024) demonstrate that AI has the potential to enhance learning efficiency and effectiveness while providing more personalized feedback. Widodo et al. (2024) state that AI can support personalization by tailoring instruction to the specific needs and characteristics of learners. In the context of Islamic Religious Education (PAI), Humaeroh (2023) highlights opportunities for using AI in Islamic religious instruction, while studies on the transformation of PAI through AI suggest that the technology can enhance learning experiences and student interaction. However, existing research tends to address AI in general terms or focus on specific applications, such as personalization, instructional media, or learning effectiveness. Although recent studies have increasingly examined ChatGPT, GenAI, LLMs, AI literacy, and ethical issues in education, limited research has examined how these developments can be integrated into a comprehensive AI utilization strategy for PAI. In particular, there remains insufficient research explaining how AI can simultaneously support personalized and adaptive learning, improve pedagogical quality, strengthen AI literacy and ethical awareness, and optimize administrative processes within a coherent theoretical framework. From a TPACK perspective, this gap concerns not only whether AI can be used in PAI but also how technological capabilities can be meaningfully connected with pedagogical strategies and PAI content. Therefore, an integrated TPACK-based analysis is needed to explain the strategic utilization of AI in PAI while maintaining the educator's central role in the learning process.

To provide a coherent theoretical foundation for examining AI integration in PAI, this study adopts the Technological Pedagogical Content Knowledge (TPACK) framework as its principal theoretical perspective. TPACK explains effective technology integration through the interaction of technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK), as well as their integrated forms, including technological pedagogical knowledge (TPK), technological content knowledge (TCK), pedagogical content knowledge (PCK), and technological pedagogical content knowledge (TPACK). The framework is particularly relevant to PAI because the meaningful use of AI cannot be separated from teachers' technological

competence, pedagogical strategies, and understanding of Islamic Religious Education content. In the context of GenAI, recent research also indicates that teachers' technological knowledge needs to be integrated with pedagogical and disciplinary knowledge to support meaningful and responsible AI implementation. Thus, TPACK provides a suitable theoretical lens for analyzing how AI capabilities can be aligned with pedagogical objectives and the distinctive content and values of PAI.

This study aims to identify and analyze strategies for utilizing Artificial Intelligence (AI) in Islamic Religious Education (PAI) through the Technological Pedagogical Content Knowledge (TPACK) perspective, specifically regarding the personalization of student learning experiences, enhancement of instructional quality, development of responsible AI literacy, and optimization of administrative processes. The study also examines how AI technologies can be integrated with pedagogical practices and PAI content without diminishing the central role of educators. The urgency of this research stems from the need for PAI instruction to adapt to AI technological advancements while simultaneously accommodating the diverse abilities, learning styles, and backgrounds of students. AI integration is essential for creating a learning environment that is more adaptive, interactive, and student-centered, while also assisting educators with assessment and grade processing. Thus, this study is significant for outlining AI applications that support the effectiveness of PAI instruction without diminishing the role of the educator.

B. METHOD

This study employed a Systematic Literature Review (SLR) using the PRISMA framework to identify and synthesize research on the integration of Artificial Intelligence (AI) in Islamic Religious Education (IRE/PAI). The review focused on five dimensions: personalized and adaptive learning, learning effectiveness and interactivity, assessment and administrative processes, educator roles and competence, and ethical and humanistic considerations.

Literature Search

The literature search was conducted using combinations of the keywords “Artificial Intelligence” OR “AI” OR “ChatGPT” OR “Generative AI” AND “Islamic Religious Education” OR “Islamic Education” OR “PAI”. Additional terms, including “personalized learning,” “adaptive learning,” “AI assessment,” “AI literacy,” “educator competence,” and “AI ethics,” were used to identify studies addressing specific dimensions of AI integration.

The search was limited to publications relevant to educational applications of AI and the context of Islamic Religious Education. The literature analyzed in the manuscript primarily covers publications from 2021–2025, while earlier publications were retained only when they provided relevant conceptual or theoretical foundations.

Selection Criteria

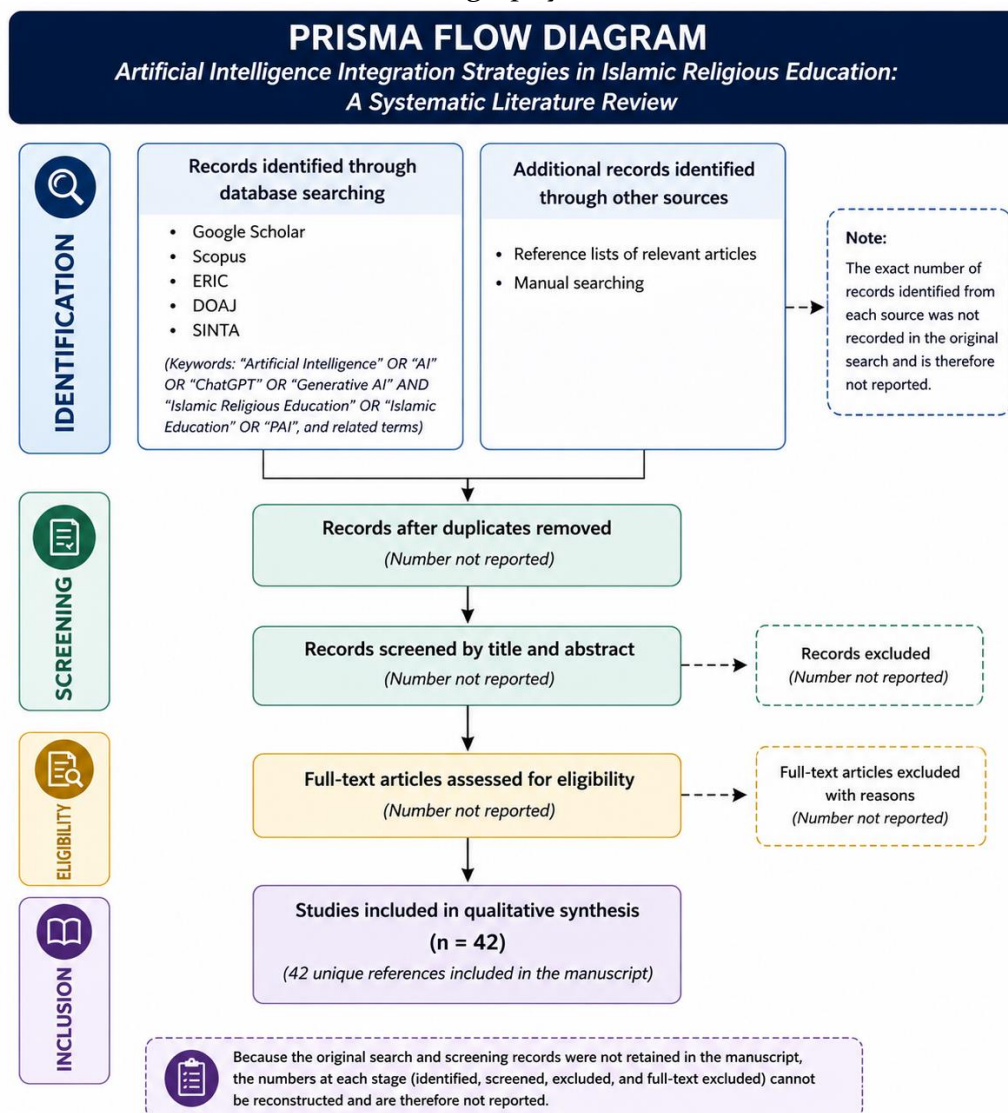
Studies were included when they: (1) discussed the use or integration of AI in education; (2) addressed Islamic Religious Education, Islamic education, PAI, or an educational issue directly relevant to AI integration in PAI; (3) discussed at least one of the five dimensions examined in this review; and (4) provided sufficient information for analysis.

Studies were excluded when they were unrelated to educational applications of AI, did not address the research focus, or did not provide sufficient information for thematic analysis.

Study Selection

Study selection followed four PRISMA stages: identification, screening, eligibility, and inclusion. Retrieved records were first checked for duplication. Titles and abstracts were then screened according to the selection criteria. Potentially relevant studies were assessed based on their full text, and studies that did not satisfy the eligibility criteria were excluded. The remaining studies were included in the qualitative synthesis.

The manuscript contains 42 unique references. However, because the original search and screening records are not reported in the manuscript, the exact number of records identified from each source, records excluded during screening, and full-text exclusions cannot be reconstructed solely from the reference list. Therefore, these values are not inferred from the bibliography.



Data Extraction and Synthesis

Data were extracted from the selected literature based on author, publication year, research focus, AI application, research findings, and relevance to the five review

dimensions. The extracted findings were compared across studies and grouped into common themes.

Thematic synthesis was then conducted by identifying recurring findings, similarities, differences, opportunities, and challenges concerning AI integration in Islamic Religious Education. The synthesis resulted in five main themes: (1) AI-based personalization and adaptive learning; (2) learning effectiveness and interactivity; (3) optimization of assessment and administrative processes; (4) transformation of educator roles and professional competence; and (5) ethical considerations and humanistic values.

C. RESULT AND DISCUSSION

1. AI-Based Personalization in Islamic Religious Education Learning

The findings of this systematic literature review indicate that the integration of Artificial Intelligence (AI) in Islamic Religious Education (IRE) increasingly supports the development of personalized and adaptive learning environments. AI enables learning activities to respond to differences in students' learning needs, levels of understanding, learning pace, and access to learning resources. In IRE, this strategy is particularly relevant because students possess different levels of prior religious knowledge and different abilities to understand and apply Islamic concepts. Therefore, AI integration provides an opportunity to shift IRE from a predominantly uniform instructional approach toward a more responsive and learner-centered learning environment (Alfiannur et al., 2025; Rifah et al., 2024; Yuhana, 2024).

Personalization can be implemented by providing learning materials, explanations, exercises, and learning assistance according to students' individual needs. Rather than providing identical instructional materials to all students, AI can assist educators in identifying differences in students' learning progress and subsequently providing more appropriate learning resources. This approach is supported by studies showing that AI can facilitate personalization by analyzing students' learning needs and providing learning experiences that are more flexible and responsive. Anandal et al. (2024), for example, reported that AI can make Islamic Religious Education more accessible and allow learning activities to be adjusted to students' needs. Similarly, Rifah et al. (2024) found that AI offers opportunities to develop more student-centered and personalized Islamic education, while Yuhana (2024) identified personalization as one of the important benefits of AI utilization in Islamic education.

The adaptive dimension of AI integration is reflected in the ability of AI-supported learning systems to adjust instructional assistance according to students' learning progress. Clarisya et al. (2025) specifically demonstrate that AI-based adaptive learning can be implemented in Islamic Religious Education to provide learning experiences that respond to differences in students' abilities. Such an approach allows students who experience difficulties to receive additional explanations or learning resources, while students with higher levels of understanding can be directed toward more challenging activities. This finding is reinforced by Suwahyu (2025), who argues that AI can support adaptive PAI learning through personalized materials, automated feedback, and accessibility features that accommodate learner diversity.

The reviewed literature also indicates that personalization is closely associated with the provision of immediate feedback. AI can assist students in identifying errors, reviewing learning materials, and obtaining additional explanations during the learning

process. In PAI, this capability can be applied to activities such as understanding Islamic concepts, answering questions, practicing religious terminology, and reviewing learning materials. Alfayumi et al. (2025) found that AI utilization in PAI can make learning more directed, measurable, and relevant to students' needs while supporting personalization in the delivery of religious materials. Likewise, Alfiannur et al. (2025) explain that AI can provide feedback that is relevant to students' learning needs and contribute to a more effective learning experience.

Personalization through AI does not necessarily mean that each student must have different learning objectives. Instead, AI can provide different learning pathways for students to achieve common instructional objectives. For example, in learning Islamic ethics (*akhlak*), all students may be expected to understand and demonstrate particular ethical values, but the examples, explanations, exercises, and feedback provided to them may differ according to their level of understanding. In this sense, AI functions as a mechanism for differentiating the learning process while maintaining common learning outcomes. This perspective is consistent with research on AI in Islamic education, which identifies personalization, differentiated learning support, and flexible access to learning resources as important opportunities for improving the learning experience (Anandal et al., 2024; Bastomi et al., 2024; Pratama & Muhammad, 2025).

The potential of AI for personalized learning is also evident in its ability to expand students' access to Islamic learning resources. AI-supported platforms can provide explanations, summaries, questions, and other learning materials that students can access beyond the conventional classroom setting. In this respect, AI may support more flexible learning by allowing students to review material according to their own pace and learning needs. Alfyn et al. (2025) explain that the combination of mobile learning, virtual learning environments, and AI can provide more flexible and interactive learning experiences in PAI. Similarly, Rinaldi et al. (2025) identify adaptive learning and curriculum personalization as important potential applications of AI in Islamic education.

The findings also suggest that personalized learning can contribute to students' engagement because learning materials and learning support become more relevant to their individual conditions. Anandal et al. (2024) found that AI-supported Islamic education can make learning more interactive, improve students' understanding of Islamic concepts, and support motivation. Yuhana (2024) likewise identifies increased student engagement as one of the potential effects of AI utilization in Islamic education. However, these findings suggest that the effectiveness of personalization depends on how AI is integrated into instructional design rather than on the mere availability of AI technology.

Overall, the synthesis of the reviewed studies indicates that AI-enabled personalized and adaptive learning in IRE can be understood through four interconnected processes: (1) identifying students' individual learning needs, (2) differentiating learning materials and learning activities, (3) providing adaptive feedback and learning support, and (4) allowing students to access learning resources according to their learning pace. These processes position AI as a pedagogical instrument for accommodating learner diversity rather than as a replacement for the educator (Alfayumi et al., 2025; Clarisya et al., 2025; Suwahyu, 2025). Thus, the strategic integration of AI in IRE is most meaningful when its personalization and adaptive capabilities are directed toward helping students achieve common Islamic Religious

Education learning objectives through learning pathways that are responsive to individual needs.

2. Enhancing Learning Effectiveness and Interactivity through AI Integration

The findings of this systematic literature review indicate that Artificial Intelligence (AI) integration has the potential to improve the effectiveness and interactivity of Islamic Religious Education (IRE) learning. The reviewed studies show that AI is increasingly used as a learning resource, interactive learning medium, and learning assistant that enables students to access information and learning materials more efficiently. In this context, AI contributes to transforming IRE learning from a predominantly information-delivery process into a more interactive learning experience (Muchlis, 2025; Tanjung & Suteki, 2024).

One important contribution of AI is its ability to make learning materials more accessible and varied. AI applications can support the presentation of Islamic Religious Education materials through text, images, audio, video, and interactive responses. These features provide students with alternative ways to understand learning materials and can make abstract religious concepts more concrete. Susanti and Amin (2025) found that various AI applications can be utilized as learning media and sources in PAI, including applications that support the creation and presentation of learning materials. Similarly, Munir and Majid (2024) explain that AI can enrich Islamic Religious Education learning through interactive media, visualizations, and digital learning resources.

The effectiveness of AI-supported learning is also associated with the availability of immediate responses during learning activities. Students can use AI applications to ask questions, request explanations, summarize materials, and explore particular topics without having to wait for the next classroom session. This characteristic can support more continuous learning and provide students with opportunities to clarify their understanding independently. Baiquni et al. (2025), for example, examined the use of ChatGPT among Islamic Education students and emphasized its potential to support learning productivity through faster access to information and academic assistance. Similarly, Sulaeman et al. (2024) found that AI can provide assistance and feedback that support students in completing academic learning tasks.

AI also has the potential to increase the interactivity of IRE learning. Unlike conventional digital learning resources that primarily provide information in one direction, conversational AI allows students to interact directly with learning systems through questions and responses. This interaction can encourage students to become more active participants in the learning process. Auwalayah et al. (2025) reported that AI use in PAI learning can increase the efficiency and interactivity of learning activities, particularly in assignments and evaluation. Likewise, Adiyono et al. (2025) found that AI-optimized digital learning media can support student learning outcomes by presenting learning materials in a more engaging form.

The interactive potential of AI is particularly evident in the use of multimedia-based learning. AI can assist educators in producing or optimizing videos, presentations, and other digital learning materials that can make religious concepts more understandable and engaging. A quantitative study by Adiyono et al. (2025) demonstrated that AI-optimized YouTube videos could be used in Islamic Religious Education learning and examined their contribution to student learning outcomes. This finding suggests that

AI integration does not have to be limited to text-based applications such as chatbots; it can also be incorporated into multimedia learning environments to strengthen students' engagement with instructional content.

Furthermore, AI can support learning effectiveness through more efficient assessment and feedback processes. AI-based systems can assist educators in analyzing student responses, identifying learning difficulties, and providing preliminary feedback. Fauzi et al. (2025) found that AI integration in PAI assessment can increase efficiency and objectivity while enabling automated assessment, learning-data analysis, and adaptive feedback. Although their study focused specifically on assessment, the finding is relevant to learning effectiveness because timely feedback enables students to identify weaknesses and improve their understanding during the learning process.

The reviewed literature also indicates that AI can support students' independent engagement with learning materials. Students can access AI-supported resources outside formal classroom sessions and use them to review materials or obtain additional explanations. However, the relationship between AI use and learning effectiveness should not be interpreted as automatically positive. Naenggola et al. (2024), for example, found no significant effect of ChatGPT use on the academic achievement of Islamic Education students in their quantitative study. The finding indicates that the availability of AI does not by itself guarantee improved learning outcomes. The effectiveness of AI depends on students' patterns of use, the quality of interaction with the technology, and the way AI is incorporated into the learning process.

This finding is important for understanding AI integration in IRE. AI should not simply be introduced as an additional digital tool; rather, its use needs to be connected with clearly designed learning activities. Students should be encouraged to use AI to formulate questions, compare explanations, develop ideas, and obtain feedback rather than merely copy generated answers. Almunadi and Zulfatmi (2024), in their analysis of ChatGPT responses to PAI materials, demonstrate that AI can provide useful explanations of Islamic concepts, but its responses still need to be examined in relation to the substance and validity of Islamic knowledge. Therefore, interactivity becomes educationally meaningful when AI is used to stimulate students' engagement with learning content rather than to replace the learning process itself.

Overall, the synthesis of the reviewed literature indicates that AI can enhance IRE learning effectiveness and interactivity through four main mechanisms: (1) diversifying and improving access to learning media, (2) facilitating immediate interaction and information access, (3) supporting multimedia-based and engaging learning experiences, and (4) accelerating assessment and feedback processes. At the same time, the evidence shows that AI does not automatically produce better learning outcomes. Its contribution depends on how effectively AI is integrated into pedagogical activities and how actively students engage with the learning process. Thus, the strategic integration of AI in IRE should focus on using technological capabilities to strengthen meaningful interaction between students, learning materials, and educators rather than merely increasing the quantity of digital resources.

3. Optimization of Administrative Processes and Assessment Practices

The findings of this systematic literature review indicate that Artificial Intelligence (AI) contributes to the optimization of assessment practices in Islamic Religious Education (IRE), particularly through automated assessment, data processing, feedback

generation, and the development of assessment instruments. The reviewed literature shows that AI can reduce the time required for repetitive assessment activities while providing educators with more systematic information about students' learning performance. Consequently, AI can function as a supporting technology that improves assessment efficiency while allowing teachers and lecturers to devote greater attention to interpreting learning results and providing pedagogical assistance (Sofyan & Salito, 2024; Fauzi et al., 2025).

One important contribution of AI is the automation of assessment activities. AI-supported applications can assist educators in developing questions, analyzing student responses, processing scores, and generating preliminary feedback. Research on AI-supported assessment conducted before the recent emergence of generative AI had already demonstrated the potential of intelligent technologies to automate aspects of educational assessment and provide more immediate information about student performance. For example, Supriadi (2025) emphasizes that the application of artificial intelligence in education can support the efficiency of evaluation and provide technological assistance in managing learning outcomes. This potential has become increasingly relevant with the development of generative AI applications that can process natural-language responses and assist educators in assessment activities.

In the context of Islamic Religious Education, AI-based assessment can be used to facilitate the evaluation of students' understanding of Islamic concepts. Sofyan and Salito (2024) found that AI-supported assessment can accelerate the correction process, facilitate data analysis, and provide more personalized feedback. Similarly, Fauzi et al. (2025) reported that AI integration in PAI evaluation provides opportunities for automated assessment, learning-data analysis, and adaptive feedback. These findings indicate that AI can reduce the administrative burden associated with repetitive assessment tasks and allow educators to focus more on interpreting results and planning follow-up instruction.

AI also supports the development and management of assessment instruments. Generative AI can assist educators in formulating questions, developing answer keys, preparing rubrics, and organizing assessment materials according to predetermined learning objectives. Legi et al. (2024) demonstrate the potential of generative AI for rubric-based automated grading, particularly in facilitating the systematic application of assessment criteria. This capability can be particularly useful for educators who need to prepare multiple forms of assessment while maintaining consistency between learning objectives, instructional materials, and evaluation criteria.

Another important contribution concerns the acceleration of formative feedback. Conventional assessment practices may require considerable time before students receive information about their performance. AI-supported assessment can shorten this interval by generating preliminary feedback shortly after students complete learning activities. Earlier research on AI in education also emphasizes the potential of intelligent systems to provide timely feedback and support continuous assessment. Zawacki-Richter et al. (2019), for example, identified assessment and evaluation as one of the major application areas of AI in higher education. More recent Indonesian studies demonstrate how this potential can be applied specifically to PAI through automated and personalized feedback (Sofyan & Salito, 2024; Fauzi et al., 2025).

The use of AI can also support the analysis of student learning data. Assessment results that are processed systematically can help educators identify patterns of

achievement, common errors, and areas of learning difficulty. This information can subsequently be used to determine remedial activities, enrichment, or modifications to instructional strategies. Research by Sutrisno et al. (2025) indicates that AI-based educational systems can support data-driven learning processes by utilizing learner information to provide more targeted educational assistance. Within IRE, such functionality can help educators identify which Islamic concepts require further explanation and which students require additional learning support.

The optimization of assessment through AI also has implications for efficiency and consistency. Automated systems can apply predetermined criteria repeatedly and process large amounts of assessment data within a relatively short period. This can reduce the workload associated with manual scoring and administrative documentation. However, the efficiency offered by AI should not be equated automatically with greater validity. The quality of AI-based assessment depends on the quality of the assessment criteria, input data, system design, and human supervision. Research on AI-supported assessment in Indonesian education has therefore emphasized the importance of teacher involvement in validating AI-generated assessment results (Fauzi et al., 2025; Sari & Avianty, 2023).

This limitation is particularly significant in IRE because assessment encompasses more than students' cognitive achievement. Islamic Religious Education also seeks to develop attitudes, character, moral conduct, and religious values. These dimensions are difficult to capture through automated scoring alone. Consequently, AI is more appropriate for supporting the assessment of measurable cognitive and procedural aspects, whereas affective and spiritual development requires complementary qualitative approaches such as observation, reflection, portfolios, performance assessment, and direct interaction between educators and students. This distinction reinforces the need for a complementary rather than substitutive relationship between AI-based assessment and professional educational judgment.

The literature also suggests that AI-supported assessment should remain under human supervision. AI-generated scores, feedback, or recommendations should be reviewed by educators before they are used as the basis for important educational decisions. This is particularly important in IRE because the interpretation of students' responses may involve religious concepts that require contextual understanding. Therefore, the educator remains responsible for determining whether AI-generated assessments accurately represent students' achievement and whether the assessment criteria are consistent with the intended objectives of Islamic Religious Education.

Overall, the synthesis of the reviewed literature indicates that AI contributes to the optimization of IRE assessment through four interconnected functions: (1) automating repetitive assessment activities, (2) accelerating the processing and analysis of learning data, (3) providing timely formative feedback, and (4) supporting the development and management of assessment instruments. The evidence from studies published between 2021 and 2025 suggests that the role of AI has gradually expanded from general intelligent educational support toward more specific applications in assessment and evaluation. Nevertheless, AI should remain a supporting mechanism rather than an autonomous assessment authority. The most appropriate strategy for IRE is therefore a human-supervised AI assessment model, in which AI performs computational and administrative functions while educators retain responsibility for interpreting results,

validating assessment decisions, and evaluating students' broader cognitive, moral, and spiritual development.

4. Transformation of Lecturer Roles and Professional Competence

An important finding emerging from this systematic literature review is the transformation of lecturer roles and professional competence in AI-integrated Islamic Religious Education (IRE). The reviewed literature indicates that the presence of Artificial Intelligence (AI) does not eliminate the role of lecturers but changes the nature of their responsibilities. Lecturers increasingly function not only as providers of religious knowledge but also as facilitators who guide students in using digital resources, evaluating AI-generated information, and connecting technological learning activities with the objectives of Islamic Religious Education. This transformation requires lecturers to develop competencies that combine pedagogical knowledge with technological understanding (Mambu et al., 2023; Boentolo, 2024).

The transformation of lecturer roles is closely related to the increasing availability of AI-generated learning resources. AI can assist students in obtaining explanations, generating ideas, summarizing materials, and completing various learning tasks. Consequently, lecturers are no longer the sole source of information in the classroom. Their role shifts toward designing meaningful learning experiences, selecting appropriate AI applications, monitoring students' use of technology, and providing contextual clarification. In the context of Islamic Religious Education, this role is particularly important because religious knowledge requires appropriate interpretation and contextualization. Lecturers therefore need to guide students in distinguishing between useful AI-generated information and information that requires further verification (Mambu et al., 2023; Boentolo, 2024).

The reviewed studies further demonstrate that AI integration requires lecturers to develop technological and digital competencies. Fitriah et al. (2024) explain that the integration of AI in education requires educators to understand not only how AI tools operate but also how they can be incorporated into appropriate pedagogical activities. Similarly, Mambu et al. (2023) emphasize that the emergence of ChatGPT creates new demands for educators to adapt their teaching practices and develop digital competencies. Thus, professional competence in an AI-integrated learning environment increasingly involves the ability to select, use, evaluate, and pedagogically integrate AI technologies.

In IRE, technological competence needs to be accompanied by strong pedagogical and disciplinary competence. Lecturers must be able to determine whether AI-generated learning materials are consistent with the learning objectives and the substance of Islamic teachings. The use of AI therefore requires lecturers to act as pedagogical mediators who connect technological capabilities with appropriate religious content. This is important because AI-generated responses may be linguistically convincing while still requiring contextual and substantive verification. Mambu et al. (2023) demonstrate that ChatGPT can provide useful educational support but also has limitations that require users to exercise critical judgment. Consequently, lecturers' expertise remains essential in determining the reliability and educational appropriateness of AI-generated content.

Another dimension of lecturer transformation concerns the development of continuous professional learning. The rapid development of generative AI means that lecturers cannot rely solely on existing technological knowledge. They need

opportunities to continuously develop their AI-related competencies through training, workshops, professional communities, and independent learning. In the Indonesian higher education context, research on AI literacy among educators indicates that professional development needs to address practical use as well as pedagogical and ethical considerations. Thus, professional development should not be limited to technical training on how to operate AI applications but should also address how AI can be integrated into learning design and assessment practices (Boentolo, 2024).

The transformation of lecturer roles also involves a shift from direct knowledge transmission toward mentoring and learning facilitation. When students can obtain information independently through AI systems, the lecturer's value increasingly lies in helping students interpret, contextualize, and apply information. In IRE, this shift is particularly significant because learning outcomes include not only knowledge acquisition but also the development of attitudes, values, and religious understanding. AI may facilitate access to information, but lecturers remain important in guiding discussion, encouraging reflection, and connecting Islamic teachings with students' real-life contexts.

The reviewed literature also suggests that lecturers need to develop competencies in managing human-AI interaction. Rather than rejecting AI or allowing unrestricted dependence on it, lecturers need to establish appropriate boundaries for its use. They can determine which learning activities may benefit from AI assistance and which activities require direct student engagement without AI-generated answers. This approach positions lecturers as designers of learning environments in which AI is used strategically according to pedagogical purposes. Such a role requires professional judgment because the effectiveness of AI depends substantially on the instructional context in which it is used (Mambu et al., 2023; Boentolo, 2024).

Furthermore, lecturer competence in AI-integrated IRE includes the ability to maintain the distinctive objectives of Islamic education. Technological innovation should not cause IRE to become merely a process of obtaining information through digital tools. Lecturers remain responsible for ensuring that learning activities promote understanding, reflection, ethical behavior, and the internalization of Islamic values. Therefore, AI should be incorporated into IRE within a framework in which technological innovation strengthens rather than displaces the human and pedagogical dimensions of religious education.

Overall, the synthesis indicates that AI integration transforms lecturer roles in IRE along three interconnected dimensions: (1) from information provider to learning facilitator and mentor, (2) from conventional teaching competence toward integrated pedagogical and technological competence, and (3) from direct knowledge transmission toward the mediation and evaluation of AI-supported learning. This transformation does not reduce the importance of lecturers; instead, it increases the need for professional judgment, digital competence, and pedagogical expertise. Accordingly, successful AI integration in IRE requires continuous professional development that enables lecturers to use AI strategically while maintaining the educational, ethical, and religious objectives of Islamic Religious Education.

5. Ethical Considerations and Humanistic Values in AI Utilization

The final finding of this systematic literature review concerns the ethical considerations and humanistic values associated with the use of Artificial Intelligence (AI) in Islamic Religious Education (IRE). Although AI provides opportunities to

improve access to information, learning efficiency, and instructional innovation, the reviewed literature indicates that its implementation also creates challenges related to excessive dependence on technology, the reliability of AI-generated information, reduced human interaction, privacy, and the preservation of educational values. These challenges are particularly important in IRE because the objectives of religious education extend beyond the acquisition of knowledge to include moral development, social responsibility, and the formation of students' character (Mukaromah & Ilyas, 2024; Salsabila & Rohiem, 2024).

One of the main ethical concerns is the possibility of excessive student dependence on AI-generated information. The ease with which students can obtain answers may reduce their willingness to independently explore religious sources and critically examine information. In the context of Islamic Religious Education, this issue is particularly significant because not every AI-generated response can automatically be regarded as an authoritative explanation of Islamic teachings. Research examining ChatGPT responses to Islamic Religious Education materials demonstrates that AI can provide useful explanations but still requires verification and critical evaluation by educators and students (Almunadi & Zulfatmi, 2024). Therefore, AI should function as an auxiliary learning resource rather than as an independent source of religious authority.

Another ethical issue concerns the potential reduction of human interaction in the learning process. IRE is not limited to the transfer of religious information; it also involves dialogue, exemplary behavior, interpersonal relationships, and guidance in applying Islamic values. Excessive reliance on AI may reduce opportunities for direct interaction between educators and students if technological systems are used as substitutes for human communication. Salsabila & Rohiem (2024) emphasize that AI integration in Islamic education needs to remain oriented toward human values and should not eliminate the central role of educators. Human interaction remains necessary because moral and religious development requires contextual understanding, empathy, and direct guidance that cannot be completely delegated to an AI system.

The preservation of humanistic values is therefore an important consideration in AI-integrated IRE. Values such as empathy, tolerance, responsibility, respect, and cooperation need to remain embedded in learning activities. AI can facilitate access to information and provide technological assistance, but the development of these values depends substantially on students' interactions with educators and peers. In this regard, AI should be positioned as a tool that supports human-centered learning rather than replacing interpersonal educational relationships. Research on AI implementation in Islamic education indicates that technological innovation needs to be balanced with character development and the fundamental objectives of Islamic education (Mukaromah & Ilyas, 2024).

The ethical dimension also concerns the accuracy and contextual appropriateness of religious information generated by AI. Generative AI systems produce responses based on patterns in their training data and may provide information that is incomplete, decontextualized, or inconsistent with particular Islamic interpretations. Almunadi and Zulfatmi (2024), through an analysis of ChatGPT responses to PAI materials, demonstrate the importance of examining AI-generated religious explanations rather than accepting them without verification. Consequently, educators have an important role in directing students toward authoritative Islamic sources and helping them

evaluate AI-generated responses in accordance with the learning objectives and appropriate religious references.

Privacy and responsible use of student data represent another important ethical consideration. AI-supported learning environments may involve the collection and processing of information related to students' learning activities, performance, and interactions. Without appropriate safeguards, the use of such information may create risks related to privacy and data security. Consequently, AI integration in IRE should be accompanied by clear principles concerning responsible data use, transparency, and protection of students' personal information. These principles are important to ensure that technological efficiency does not come at the expense of students' rights and dignity.

The reviewed literature also indicates that ethical AI utilization requires educators to establish clear boundaries concerning how students use AI in learning activities. Students need to understand which forms of AI assistance are acceptable and which forms may undermine academic integrity and independent learning. In IRE, this can involve requiring students to identify the sources underlying AI-generated answers, compare AI responses with Qur'anic verses, Hadith, and established scholarly references, and explain their own reasoning rather than simply reproducing AI-generated content. Such practices can transform ethical concerns into opportunities for developing responsible digital learning habits.

Furthermore, the humanistic orientation of IRE requires AI integration to remain connected to the broader objective of developing students as morally responsible individuals. The use of AI should therefore not be evaluated solely according to its ability to accelerate learning or improve academic performance. Its educational value should also be considered in terms of whether it strengthens students' responsibility, reflection, social awareness, and ability to apply Islamic teachings in real-life contexts. In this sense, humanistic values provide an important criterion for determining whether AI integration genuinely contributes to the objectives of Islamic Religious Education.

Overall, the synthesis of the reviewed literature demonstrates that ethical AI utilization in IRE requires a balance between technological innovation and human-centered education. The principal challenges include dependence on AI-generated information, potential reduction of interpersonal interaction, reliability of religious content, privacy concerns, and the risk of weakening students' independent engagement with religious knowledge. Therefore, AI should be integrated within a framework that prioritizes human interaction, responsible use of technology, verification of religious information, and the development of moral and social values. The strategic use of AI in IRE should ultimately strengthen, rather than replace, the humanistic and character-forming dimensions of Islamic Religious Education.

CONCLUSION

This systematic literature review concludes that Artificial Intelligence (AI) integration in Islamic Religious Education (IRE) has generated important transformations in learning strategies, instructional processes, assessment, lecturer roles, and educational values. The reviewed literature identifies five interconnected dimensions: AI-supported personalized and adaptive learning, enhanced learning effectiveness and interactivity, optimization of administrative and assessment practices, transformation of lecturer roles and professional competence, and the preservation of

ethical and humanistic values. These findings indicate that AI can support more responsive learning, facilitate interactive access to religious learning resources, improve assessment efficiency, and strengthen lecturers' capacity to provide differentiated learning support. Theoretically, the findings contribute to the development of a human-centered framework for AI integration in IRE, in which technological capabilities are aligned with pedagogical objectives and the distinctive purposes of Islamic education. Practically, institutions should provide AI-related professional development for lecturers, establish guidelines for responsible AI use, and integrate AI into curriculum and assessment design without compromising human interaction, religious authenticity, and character formation.

Despite these contributions, this review has several limitations. The synthesis depends on the scope, methodological quality, and availability of previously published studies, while the rapid development of generative AI means that evidence in this field changes continuously. In addition, the limited number of empirical studies specifically examining AI in IRE makes it difficult to generalize findings across educational levels, institutional contexts, and Islamic educational traditions. Future research should therefore conduct longitudinal and comparative studies to examine the sustained effects of AI integration on students' cognitive, affective, and religious learning outcomes. Further empirical research is also needed to investigate how AI can support Qur'anic and Hadith learning, Islamic ethics, formative assessment, and differentiated instruction. In addition, future studies should develop validated frameworks for evaluating AI-generated religious content, lecturer AI competence, and the balance between technological innovation and humanistic values. Such research would strengthen the evidence base for responsible and contextually appropriate AI integration in Islamic Religious Education.

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