



INTEGRATION OF DIGITAL ETHICS AND ARTIFICIAL INTELLIGENCE IN ISLAMIC RELIGIOUS EDUCATION: CONTEXTUAL CURRICULUM DEVELOPMENT FOR THE SOCIETY 5.0 ERA

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ABSTRACT

This study examines the integration of digital ethics and artificial intelligence (AI) into the Islamic Religious Education (PAI) curriculum as a strategic response to the challenges of the Society 5.0 era. The ongoing transformation in education driven by digitalization and automation requires a PAI curriculum that not only emphasizes spiritual values but also equips students with Islamic digital literacy and applied ethical understanding of AI. The main objective of this research is to develop and validate an integrative, context-based, and sustainability-oriented PAI curriculum model grounded in digital ethics. Employing a qualitative approach with a research and development (R&D) design, the study involved teachers, lecturers, and students from various Islamic educational institutions across Indonesia. Data were collected through in-depth interviews, focus group discussions, and curriculum document analysis, then analyzed using the Miles and Huberman interactive model and validated through expert judgment. The findings indicate that the integration of digital ethics into PAI learning remains limited, while teachers and students express a strong need for AI-based curriculum guidance. The developed curriculum model emphasizes three core components: (1) key competencies encompassing Islamic digital literacy, AI ethics comprehension, and the internalization of Islamic values in technology use; (2) a learning structure that connects religious teachings with daily digital practices; and (3) innovative pedagogical strategies through project-based learning, digital storytelling, and critical digital literacy. Field trials demonstrated increased ethical awareness and digital competence among students, along with positive teacher responses toward the curriculum's relevance and sustainability. A longitudinal evaluation is recommended to assess the long-term impact of curriculum implementation on the development of Islamic digital character and institutional readiness to adapt technology-based learning sustainably.

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1. INTRODUCTION

The rapid development of digital technology over the past decade has created both significant opportunities and complex challenges for the field of education. The emergence of the Society 5.0 era, which emphasizes the synergy between technological innovation and human values, has transformed the educational paradigm from a mere transfer of knowledge to the cultivation of an adaptive, creative, and ethically grounded generation capable of navigating technological disruption (De Villiers, 2024). Within the context of Islamic Religious Education (PAI), these challenges are even more intricate, as the discipline must not only integrate technological innovation but also maintain its core mandate in fostering students' morality, spirituality, and character.

Alongside the increasing utilization of Artificial Intelligence (AI) in education, issues related to digital ethics have become increasingly salient, including concerns about privacy, data security, misinformation, misuse of digital footprints, and the potential dehumanization of teachers' roles (Gartner & Krašna, 2023). Recent studies indicate that AI can enhance learning quality through personalization and automation (Pandya, 2024). However, ethical challenges in its use remain a major concern, particularly in the context of religious education where spirituality and human values occupy a central position.

Previous studies on Islamic education and AI have produced varied findings. Rahman and Afandi (2024) found that Islamic education students perceive AI positively in learning but express concern about the diminishing role of teachers as spiritual mentors. Other studies highlight the importance of adaptive curricula to address the demands of Society 5.0 (Agung & Kumala, 2022) and emphasize ethical leadership in shaping student character amid digital dilemmas (Mahbubi, 2024). Research on digital citizenship education in schools also underlines the urgency of internalizing digital ethics from an early age to enable students to become critical and responsible digital citizens (Wulandari, Winarno, & Hidayat, 2021).

Nevertheless, a significant research gap remains. While studies on integrating digital ethics and AI into education have begun to emerge, specific focus on Islamic Religious Education is still limited. Few studies have comprehensively constructed a curriculum framework that systematically combines digital literacy, AI ethics, and Islamic values in a contextual learning system. This gap serves as the foundation for the present study, which seeks to offer a new conceptual framework that simultaneously fulfills students' spiritual needs and aligns with the global demands of digital transformation.

Accordingly, this study seeks to answer the following research question: How can digital ethics and AI be integrated contextually into the Islamic Religious Education curriculum for the Society 5.0 era? The primary objective is to develop an integrative PAI curriculum framework grounded in digital ethics and responsive to AI utilization. Specifically, the study aims to produce a framework that (1) contextualizes the challenges of Society 5.0, (2) integrates digital literacy and AI ethics with Islamic values, and (3) provides a pedagogical reference for educators to implement AI-based learning methods that remain humanistic and character-oriented.

The novelty of this research lies in its contextual approach, where the PAI curriculum is not merely viewed as a means of internalizing spiritual values, but also as a platform for

cultivating Islamic digital citizenship. Hence, this study contributes to the enrichment of Islamic education literature in the Society 5.0 era by offering a new conceptual framework that systematically integrates digital ethics and AI.

The practical implementation of the integrative curriculum framework based on digital ethics and AI is realized through instructional designs that connect core competencies with authentic digital experiences encountered by learners. In the subject of Akhlak (Ethics), for instance, teachers apply case-based learning by using examples of hoaxes or misinformation circulating on social media as the starting point for classroom discussion. Students are encouraged to critically analyze such information using Islamic principles of *tabayyun* (verification) and honesty as components of Islamic digital literacy, and then to verify information through cross-checking various digital sources. This process aligns with the concept of critical digital literacy, which emphasizes the ability to assess information reliability in digital spaces (Wulandari et al., 2021).

In Fiqh classes, teachers integrate discussions about AI ethics—particularly concerning copyright, data privacy, and algorithmic bias—linking them to Islamic values of trustworthiness (*amanah*), responsibility, and justice. This approach aligns with Gartner and Krašna's (2023) assertion of the growing need to understand AI ethics within education. Furthermore, project-based learning strategies are implemented through digital storytelling projects, where students produce multimedia narratives about ethical behavior in digital spaces based on selected Qur'anic verses or Hadiths. These projects enable students to develop technical skills such as digital content production, AI-supported applications, and digital footprint management, while simultaneously internalizing Islamic ethical values (Pandya, 2024; De Villiers, 2024). Such implementation demonstrates that Islamic Religious Education can be effectively contextualized within the challenges of Society 5.0 through structured integration of digital ethics and AI, resulting in a more participatory, relevant, and character-oriented learning process.

Practically, the integrative curriculum framework based on digital ethics and AI developed in this study is expected to yield tangible benefits for educators, learners, and Islamic educational institutions. For educators, it serves as a pedagogical guide to connect Islamic values with digital phenomena contextually, enabling them to teach with more reflective, innovative, and relevant approaches suited to the digital generation (Alqahtani, 2022; Holmes et al., 2021). For students, the curriculum strengthens Islamic digital literacy, understanding of AI ethics, and critical thinking skills necessary to navigate the complexity of modern technology (Wulandari et al., 2021; Floridi & Cowls, 2021). For Islamic educational institutions, it provides a strategic framework for cultivating adaptive, humanistic, and value-driven school cultures in line with the vision of Society 5.0, which positions technology as a means of human empowerment (De Villiers, 2024; Luckin, 2024). Therefore, this study contributes not only theoretically to the discourse on integrating digital ethics and AI into Islamic Religious Education, but also practically by offering an applicable, sustainable, and future-oriented curriculum model relevant to 21st-century learning needs.

Grounded in this foundation, the study is expected to contribute both theoretically to the development of digital-based Islamic Religious Education and practically to the

formulation of Islamic educational policies that are more relevant, humanistic, and adaptive to the digital era's challenges.

2. RESEARCH METHODS

The research employed a qualitative approach with a research and development (R&D) design oriented toward curriculum development. The study was conducted in several Islamic secondary schools and higher education institutions in Indonesia, involving Islamic Religious Education (PAI) teachers, lecturers, and students as participants. Data were collected through in-depth interviews, focus group discussions (FGDs), and an analysis of existing curriculum documents. The data analysis followed the interactive model of Miles and Huberman, which consists of three main components: data reduction, data display, and conclusion drawing or verification (Miles, Huberman, & Saldana, 2014). The results of the analysis were subsequently validated through expert judgment by curriculum and Islamic education specialists to ensure that the proposed curriculum framework aligns with the pedagogical needs and technological demands of the Society 5.0 era.

3. RESULTS AND DISCUSSION

Based on the qualitative research findings derived from the research and development (R&D) design conducted in Islamic secondary schools and higher education institutions across Indonesia, the study involved Islamic Religious Education (PAI) teachers, lecturers, and students as participants. Data were collected through in-depth interviews, focus group discussions, and analysis of existing curriculum documents. Data analysis followed the interactive model of Miles and Huberman, which includes data reduction, data display, and conclusion drawing, and the results were validated through expert judgment.

Although the integrative curriculum model based on digital ethics and artificial intelligence (AI) demonstrated positive outcomes in limited trials, its implementation across various levels of Islamic education faces several systemic challenges that must be anticipated. At the secondary school level, the limited digital competence of some teachers and disparities in technological infrastructure represent major obstacles to applying AI-based modules and digital storytelling approaches. Teachers in traditional madrasahs or pesantrens, for instance, often reported difficulties in accessing digital platforms due to inadequate facilities and insufficient training. One teacher stated, "We are enthusiastic about this new curriculum, but in our madrasah the internet connection is still unstable, and not all teachers understand how to use AI ethically." (Interview, PAI Teacher 5). Meanwhile, at the level of Islamic higher education, the main challenges concern the harmonization between academic policies, institutional curriculum readiness, and the diverse perspectives of lecturers regarding the integration of AI with Islamic values (Mahbubi, 2024; Effendi & Fahyuni, 2024).

To ensure the sustainability and scalability of implementation, adaptive and multi-tiered policy strategies are required. First, the government—through the Ministry of Religious Affairs and the Ministry of Education—can develop a national policy framework on Islamic digital ethics and the pedagogical use of AI in Islamic Religious Education, similar to

the AI in Education Roadmap proposed by the OECD (2023). Second, educational institutions should establish Digital Ethics Learning Communities that connect teachers, lecturers, and curriculum developers to share best practices and pedagogical innovations. Third, continuous professional development for teachers through digital pedagogy upskilling programs should be prioritized to ensure that the integration of digital ethics and AI moves beyond the experimental stage and becomes a permanent component of the national curriculum (Fullan, 2020; Luckin, 2024; Sancar & Yıldırım, 2022).

This multi-level strategy enables the curriculum model developed in this study to be adapted across various institutional contexts—from community-based madrasahs to state Islamic universities—thereby generating a systemic impact on strengthening Islamic digital literacy at the national level.

1. The Condition of Digital Ethics Integration in Islamic Religious Education (PAI) Learning

The analysis revealed that the integration of digital ethics into Islamic Religious Education (PAI) learning remains limited. Although students interact daily with digital media, teachers lack a clear curriculum framework that connects Islamic teachings with contemporary digital challenges such as misinformation, data privacy, and ethical social media behavior.

This condition is reflected in the interviews with teachers and students:

“The PAI materials we have been teaching so far are still focused on fiqh, ethics, and Islamic history. Regarding digital issues, we do not yet have clear guidelines on how to integrate them into classroom learning.” (Interview, PAI Teacher 1)

“We often learn about digital ethics and social media behavior outside the classroom, for example through online communities or internet content, rather than in PAI courses.” (Interview, PAI Student 1)

Interpretation of these statements indicates a clear gap between current PAI teaching practices and students’ real-life needs in the digital era. Classroom observations further confirmed this finding, showing that teachers often struggle when students attempt to relate religious topics to real cases found on social media. In conclusion, these findings emphasize that current PAI instruction has not yet fully accommodated the dimension of digital ethics. Therefore, a new and more responsive curriculum is required—one that aligns Islamic moral education with the ethical challenges of digital society in the Society 5.0 era.

2. The Need for an AI-Integrated Curriculum in Islamic Religious Education (PAI)

The findings indicate a genuine need among both teachers and students for a curriculum that can accommodate the development of artificial intelligence (AI) in Islamic Religious Education (PAI) learning. Teachers recognize AI’s potential to support personalized learning; however, they also express concerns that it might diminish their role as moral and

spiritual mentors. Meanwhile, students seek clear guidance to ensure that their use of AI tools remains aligned with Islamic values.

This is reflected in the following interview excerpts:

“AI can indeed assist students in learning, but without ethical control, they might become more dependent on technology than on their teachers.”

(Interview, PAI Teacher 2)

“I often use AI applications to find study materials, but sometimes I feel uncertain about how to ensure that the information aligns with Islamic values.”

(Interview, PAI Student 2)

These data reveal the dilemma experienced by both teachers and students. Classroom observations further confirmed that most students show great enthusiasm for using AI applications to complete assignments, yet they lack full awareness of the ethical implications of such use. In conclusion, this study finds that both teachers and students urgently require a PAI curriculum that is not only adaptive to the rapid advancement of AI but also equips them with the ethical and spiritual competencies necessary to utilize it responsibly.

3. The Developed Framework of the Integrative Islamic Religious Education (PAI) Curriculum

This definition emerged from the analysis of R&D data, which resulted in the design of an Islamic Religious Education (PAI) curriculum grounded in Islamic digital literacy. The curriculum emphasizes core competencies that encompass Islamic digital literacy, an understanding of AI ethics, and the reinforcement of Islamic values related to technology. Its learning structure integrates religious teachings with students' everyday digital practices. The pedagogical strategies developed include project-based learning, digital storytelling, and critical digital literacy.

Interviews with teachers and lecturers reinforced the relevance of the developed curriculum:

“With this new framework, we can more easily connect religious values with students' digital behavior. For instance, when discussing the concept of amanah (trustworthiness), it can be directly related to the responsibility of maintaining data privacy.” (Interview, PAI Teacher 3)

“The project-based learning model encourages students to think more critically, as they learn to evaluate digital information while reflecting on it through Islamic values.” (Interview, PAI Lecturer 1)

Interpretation of these findings indicates that the proposed curriculum framework successfully bridges the gap between normative PAI instruction and students' practical

needs in the digital era. Classroom observations during the trial implementation also revealed increased student participation when religious materials were directly linked to their digital experiences. In conclusion, the developed curriculum framework is applicative, relevant, and contextually responsive to the challenges of the Society 5.0 era.

4. Validation and Pilot Testing of the Curriculum

This subsection is derived from the validation phase conducted through expert judgment and limited pilot testing in selected Islamic schools and higher education institutions. The process demonstrated positive responses from both teachers and students. Teachers reported that the new curriculum framework provided valuable pedagogical guidance, while students showed noticeable improvement in ethical awareness and Islamic digital literacy.

These findings are supported by the following interview excerpts:

"Students have become more sensitive to digital ethics issues after the trial implementation of this curriculum. They are now more cautious when engaging with digital content." (Interview, PAI Teacher 4)

"I used to take images from the internet without much thought, but after learning through this curriculum, I realized that such actions are unethical both legally and religiously." (Interview, Student 1)

Interpretation of these statements indicates that the new curriculum successfully enhanced students' Islamic digital literacy and ethical consciousness. Classroom observations further revealed that discussions on digital ethics became more engaging, with students actively relating real-world online cases to Islamic teachings. In conclusion, the results of the validation and pilot testing demonstrate that this integrative curriculum effectively improves the quality of Islamic Religious Education (PAI) instruction while strengthening digital ethical awareness among both teachers and students. Below is a visual representation of the Integrative PAI Curriculum Model Based on Digital Ethics and Artificial Intelligence, illustrating the relationship among Core Competencies, Learning Structure, and Pedagogical Strategies.

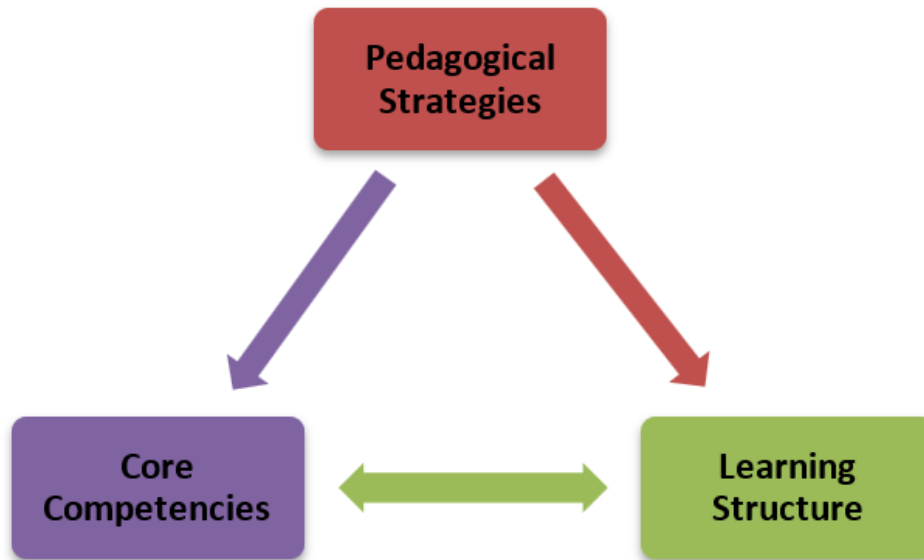


Figure 1. Integrative Islamic Religious Education (PAI) Learning Model Based on Digital Ethics and Artificial Intelligence

The curriculum model developed in this study consists of three main components: Core Competencies, Learning Structure, and Pedagogical Strategies. These three elements are interrelated and form a comprehensive framework designed to address the challenges of digital ethics and the use of Artificial Intelligence (AI) in Islamic Religious Education (PAI) within the Society 5.0 era.

To present the integrative PAI curriculum based on digital ethics and AI in greater detail and in a more systematic manner, the author provides a structured development plan in the form of a table. This table outlines the essential dimensions of core competencies, learning structure, pedagogical strategies, and evaluation mechanisms, making the framework clearer and easier to interpret.

Table 1. Integrative Islamic Religious Education (PAI) Curriculum Design Based on Digital Ethics and Artificial Intelligence

Components	Curriculum Design Description	Implementation Examples	References
Core Competencies	1. Islamic Digital Literacy (wise, trustworthy, and responsible in the digital world) 2. Understanding AI Ethics (awareness of the risks and benefits of AI)	- Students are able to distinguish between true and false information. - Explain the ethics of using AI from an Islamic perspective.	Panagiotou et al., 2023; Rahman & Afandi, 2024

	3. Internalization of Islamic values in technology (trustworthy, honest, and fair)		
Learning Structure	1. Core Islamic Education (Aqidah, Akhlak, Fiqh, SKI, Qur'an and Hadith) subjects with Digital Ethics and AI Literacy modules. 2. Additional modules: Digital Fiqh and Islamic AI Ethics. 3. Interdisciplinary project: Integrating Islamic Education with digital issues.	• Fiqh study on copyright and data privacy • Class discussion: Algorithmic bias and justice in Islam • Digital storytelling project on media ethics sosial	De Villiers, 2024; Alqahtani, 2022
Learning strategies	1. Project-Based Learning (PBL): Students work on a project on Islamic digital ethics 2. Digital Storytelling: A multimedia narrative about AI ethics 3. Critical Digital Literacy: A critical discussion based on a real-life case	• Students create an educational video about hoaxes • Case presentation on the ethics of using AI in education • Class debate: "Can AI replace the role of teachers?"	Pandya, 2024; Panagiotou et al., 2023
Evaluation & Assessment	Holistic assessment: 1. Cognitive: understanding digital ethics and AI 2. Affective: students' attitudes when using technology 3. Psychomotor: Islamic digital products	• Written tests & quizzes • Observation of attitudes in discussions • Digital storytelling project portfolio	Rahman & Afandi, 2024; Effendi & Fahyuni, 2024

The core competencies formulated in this curriculum include Islamic digital literacy, defined as the ability to understand, use, and critically evaluate digital information based on Islamic values. The next competency is AI ethics literacy, which refers to the ability to assess and utilize artificial intelligence responsibly in accordance with moral and spiritual principles. Finally, the reinforcement of Islamic values related to technology emphasizes the importance of amanah (trustworthiness), honesty, and responsibility in digital life. These competencies

were designed to address the needs of teachers and students in navigating the complexities of digital ethics (Gartner & Krašna, 2023).

The learning structure developed in this model is oriented toward integrating religious values with students' daily digital practices. For example, lessons on noble character (akhlāq al-karīmah) are connected to discussions on social media ethics, while the concept of amanah is explained through the responsibility of maintaining data privacy. This structure ensures that learning does not remain at a merely normative level but engages directly with the digital realities experienced by students every day (De Villiers, 2024; Rahman & Afandi, 2024).

The pedagogical strategies employed in this curriculum emphasize active student participation. Among them are Project-Based Learning, where students develop problem-oriented projects on digital ethics from an Islamic perspective; Digital Storytelling, which enables students to express religious values through creative, media-based narratives; and Critical Digital Literacy, which equips students with the ability to evaluate the reliability of digital information while reflecting upon it through Islamic teachings. These strategies align with the Education 5.0 paradigm, which promotes collaboration, creativity, and the ethical use of technology (Pandya, 2024).

Together, these three components complement one another: the core competencies serve as the value foundation, the learning structure provides the framework for application, and the pedagogical strategies function as active instruments of implementation. Findings from the pilot testing demonstrate that the combination of these elements not only enhanced students' Islamic digital literacy but also strengthened teachers' roles as moral mentors amid the rapid advancement of AI. Therefore, this integrative curriculum model can serve as a reference for developing PAI that is responsive to the ethical and technological challenges of the Society 5.0 era.

The research findings discussed earlier reveal that the integration of digital ethics in Islamic Religious Education remains very limited. This confirms the urgent need for a curriculum that not only emphasizes the normative dimensions of Islamic teachings but also provides practical guidance for addressing the ethical challenges of artificial intelligence (AI) in the Society 5.0 era. Accordingly, this discussion focuses on addressing the main research question: How can digital ethics and AI be contextually integrated into the PAI curriculum?

Further analysis indicates that the integrative curriculum model based on digital ethics and AI developed in this study is conceptually aligned with the national Kurikulum Merdeka framework and the vision of the Profil Pelajar Pancasila. The national curriculum emphasizes character development, digital literacy, and learner autonomy, which are substantively consistent with the core competencies of the integrative PAI model—namely Islamic digital literacy, AI ethics, and the internalization of Islamic values in technological contexts. However, the distinction lies in the model's explicit inclusion of spiritual and ethical dimensions, which bridge moral principles with practical digital skills. As one PAI lecturer explained: *"The national curriculum allows freedom in learning but does not explicitly guide students in Islamic digital ethics. This model fills that gap with a more contextual approach."* (Interview, PAI Lecturer 3)

From an educational policy perspective, this model can function as a supplementary framework that reinforces the moral and religious dimensions of the Kurikulum Merdeka, making it applicable in both madrasahs and general schools offering Islamic Religious Education. To ensure long-term relevance, this study also proposes an evaluative continuum consisting of three phases: **Formative evaluation**, conducted during the pilot and adaptation phases of curriculum implementation; **Summative evaluation**, measuring improvements in students' awareness of Islamic digital ethics and reflective learning capacity; and **Longitudinal evaluation**, assessing long-term changes in students' digital behavior and ethical attitudes within one to three years after implementation.

This continuous evaluative approach aligns with the views of Tondeur et al. (2021) and Luckin (2024), who emphasize that the effectiveness of technology-based curricula should be measured not only by short-term outcomes but also by long-term transformations in students' values and learning habits. Consequently, the inclusion of comparative and longitudinal evaluation ensures that the proposed curriculum model is not only theoretically innovative but also possesses significant sustainability potential within the context of national Islamic education.

The core findings of this study highlight two key issues: first, the digital literacy gap among teachers and students; and second, the need for a curriculum framework that accommodates AI ethics. The analysis shows that both learners and educators lack a systematic curriculum guide linking Islamic values to everyday digital practices. This aligns with the theory of technological ethics, which underscores the need for a moral compass in the use of AI. As Gartner and Krašna (2023) assert, digital ethics education must progress in parallel with technological implementation to ensure that students develop critical and responsible behavior.

Compared to previous studies, these findings offer a clear distinction. Pandya (2024) discussed opportunities and challenges of AI ethics within Education 5.0, but focused primarily on global contexts without addressing the specific needs of Islamic education. Conversely, Rahman and Afandi (2024) found that PAI students hold positive perceptions of AI in learning but identified the lack of clear curriculum guidance. This study fills that gap by introducing an integrative curriculum model that emphasizes Islamic digital literacy, AI ethics comprehension, and the reinforcement of Islamic values in technology use. It also expands upon De Villiers' (2024) assertion that curricula in the Society 5.0 era should integrate humanism and technology—by contextualizing these principles within an explicitly Islamic framework.

In summary, this study offers both theoretical and practical contributions. Theoretically, it reinforces the relevance of digital ethics and value-based education within Islamic contexts. Practically, it demonstrates how curriculum implementation can be operationalized through innovative learning strategies such as project-based learning, digital storytelling, and critical digital literacy. Therefore, the findings are significant in addressing the central research question: the integration of digital ethics and AI within the PAI curriculum not only strengthens spiritual formation but also equips students with the critical competencies required to face global challenges in the Society 5.0 era.

4. CONCLUSION

This study affirms that the integration of digital ethics and artificial intelligence (AI) into the Islamic Religious Education (PAI) curriculum is an urgent necessity in the era of Society 5.0. The findings indicate that current PAI curricula remain limited in providing systematic guidance on Islamic digital literacy and AI ethics. This condition creates a gap between global demands for ethical digital literacy and the prevailing religious education practices, which tend to be normative and insufficiently adaptive to the dynamics of digital technology. Therefore, this study introduces a new approach to curriculum design that bridges Islamic values with the realities of contemporary digital culture.

The curriculum framework developed through a research and development (R&D) approach comprises three key components: (1) core competencies emphasizing Islamic digital literacy, AI ethics comprehension, and the internalization of Islamic values in technology use; (2) learning structures that integrate religious values with students' daily digital practices; and (3) innovative pedagogical strategies such as project-based learning, digital storytelling, and critical digital literacy. The results of expert validation and field trials revealed positive responses from both teachers and students, reflected in increased digital ethical awareness, critical thinking skills, and the ability to use technology responsibly in accordance with Islamic principles.

Theoretically, this study strengthens the framework of digital ethics and AI-based pedagogy by introducing an Islamic contextual dimension that has been largely underexplored in educational literature. Practically, the proposed curriculum model provides an applicable framework adaptable to various levels of Islamic education—ranging from madrasahs and general schools to Islamic higher education institutions—as a response to the ongoing transformation of education in the Society 5.0 era. This approach repositions the PAI curriculum not only as a means of spiritual value internalization but also as a platform for shaping Islamic digital citizenship—learners who are ethical, critical, and responsible in their engagement with technology.

Nonetheless, opportunities remain for further methodological refinement and broader evaluation to strengthen the generalizability of the findings. The R&D approach proved effective in developing and testing the initial model; however, subsequent research is recommended to expand its application across diverse types of Islamic educational institutions, both formal and non-formal. The use of mixed methods is also suggested to enhance external validity through quantitative measurement of students' perceptions, digital literacy, and ethical behavior (Creswell & Plano Clark, 2018; Johnson & Onwuegbuzie, 2021). Furthermore, longitudinal evaluations should be developed to assess the long-term impact of the curriculum on the formation of Islamic digital character and the pedagogical transformation of teachers (Luckin, 2024; Tondeur et al., 2021).

Overall, this study emphasizes that the successful integration of digital ethics and AI within the PAI curriculum depends on three critical factors: institutional policy support, human resource readiness, and equitable digital infrastructure. Sustaining curriculum implementation requires adaptive policies and continuous capacity-building for teachers, enabling them to navigate technological changes and socio-religious challenges effectively.

(Fullan, 2020; Sancar & Yildirim, 2022). At the same time, disparities in technological access across madrasahs and Islamic schools remain a major barrier that must be addressed through coordinated national policies and digital education programs (OECD, 2023).

In conclusion, this research provides significant contributions both conceptually and practically. Conceptually, it enriches the theory of modern Islamic curriculum development by integrating digital ethics and artificial intelligence as new dimensions of value-based education. Practically, the study offers an applicable, relevant, and sustainable curriculum model suitable for diverse educational contexts. Future research is encouraged to examine the model's broader and deeper effectiveness while informing the formulation of national policies that strengthen the integration of Islamic digital ethics within Indonesia's education system. In this regard, the study underscores a vision of Islamic education that is humanistic, adaptive, and oriented toward the moral and spiritual sustainability of humankind amid the technological advancements of the Society 5.0 era.

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