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Integrating Artificial Intelligence into Madrasah Learning: A Mixed-Methods Study of Intelligent Media Development and Implementation

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Abstract

This study investigates the integration of Artificial Intelligence (AI)-assisted media in madrasah learning environments, addressing the limited availability of culturally and pedagogically responsive educational technologies in Islamic primary education. The research aims to develop and implement intelligent instructional media tailored to the cognitive, moral, and spiritual needs of madrasah students, while evaluating its impact on learning comprehension, reasoning, and communication. Employing a mixed-methods approach, this study combines qualitative data—analyzed using the latest NVivo software—from interviews, observations, and document analysis, with quantitative insights from user feedback and learning outcome measures. The results reveal that AI-integrated media significantly enhanced students' conceptual understanding, verbal and non-verbal communication skills, and creative expression. Additionally, teachers reported reduced instructional burden and improved student engagement. The findings contribute to the emerging field of AI in education by proposing a culturally grounded framework for AI adoption in Islamic schooling. This study not only underscores the transformative potential of AI in promoting inclusive, meaningful learning experiences in madrasahs, but also calls for strategic teacher training, ethical design, and policy support to ensure sustainable and value-aligned implementation.

Keywords: *Artificial Intelligence, Intelligent Media, Islamic Pedagogy, Learning Innovation, Madrasah Education*.

PRELIMINARY

The rapid advancement of Artificial Intelligence (AI) has significantly transformed various sectors, including education, offering innovative solutions that support personalized, efficient, and adaptive learning experiences (Ali, *et.al.*, 2024; Hayati & Ushalli, 2024). AI-based learning systems—ranging from intelligent tutoring systems and adaptive content delivery platforms to automated feedback tools—have shown notable impacts in enhancing student engagement and academic performance in general educational settings (Shofiyyah, *et.al.*, 2024; Yunita & Mubarok, 2023). These technological advancements align with the evolving demands of 21st-century education, which emphasize digital literacy, critical thinking, and autonomous learning. However, despite its increasing global relevance, the integration of AI into religious or faith-based educational contexts, particularly in Islamic schools or *madrasah*, remains relatively underexplored.

In the context of *madrasah*—Islamic educational institutions that serve as key providers of religious and general education across various regions—learning practices often continue to rely heavily on conventional teaching methods with limited exposure to AI-enhanced pedagogical tools. This disconnect presents a critical challenge, especially as madrasah are expected to prepare students not only with religious knowledge but also with competencies relevant to contemporary digital societies. There is an urgent need to bridge this gap by introducing AI-driven learning media that are pedagogically sound, culturally appropriate, and technologically adaptive to the needs of madrasah learners (Maulida, *et.al.*, 2024; Purnama, *et.al.,* 2023; Dhaniswara, *et.al.,* 2024). Addressing this issue is vital to ensuring that Islamic

educational institutions are not left behind in the global movement toward intelligent and inclusive digital education.

Despite the growing discourse on digital transformation in education, many *madrasah* continue to rely on conventional instructional approaches and static learning materials that offer limited adaptability to diverse student needs. The absence of intelligent learning media in these institutions not only hampers the potential for differentiated instruction but also restricts student engagement and meaningful interaction with the learning content. Teachers often face constraints in designing or accessing technologically enhanced resources that align with both pedagogical principles and the religious-cultural context of Islamic education. This situation creates a pressing need for pedagogical innovations that can address the unique demands of *madrasah* learning environments (Luqmi, *et.al.*, 2024; Efrizal, *et.al.,* 2024).

Furthermore, while the use of AI in mainstream education has gained significant traction, its application in *madrasah* settings remains largely undocumented and underutilized. There is a lack of empirical evidence demonstrating how AI-based media can be effectively developed, contextualized, and implemented in faith-based schools. Without such evidence, efforts to modernize Islamic education risk being superficial or misaligned with local values and practices (Fanani, *et.al.*, 2024; Habibah, 2024). This study, therefore, seeks to investigate how AI-powered learning media can be meaningfully integrated into *madrasah* education by addressing both the technical and pedagogical challenges inherent in such contexts.

This study aims to design, develop, and implement an AI-based learning media tailored to the unique educational context of *madrasah*, with the primary goal of enhancing the quality of teaching and learning processes within Islamic educational settings. By leveraging the adaptive and personalized capabilities of Artificial Intelligence, the research seeks to create intelligent instructional tools that align with the pedagogical needs, cultural values, and curriculum frameworks typical of *madrasah* education. The study adopts a mixed-methods approach to ensure a comprehensive understanding of both the technical development and the practical implications of integrating such media into classroom environments.

Specifically, the objectives of this research are threefold: (1) to develop AI-powered learning media that are pedagogically appropriate and contextually relevant for *madrasah* students; (2) to implement the media in actual classroom settings and observe its operational feasibility; and (3) to evaluate its effectiveness in terms of student engagement, learning outcomes, and teacher perceptions. Through these objectives, the study seeks not only to contribute a novel technological solution but also to provide empirical insights that can inform future innovations in Islamic educational technology (Rachmadtullah, *et.al.*, 2024; Kasman, *et.al.,* 2024).

While the integration of Artificial Intelligence in education has received growing scholarly attention—particularly in the development of adaptive learning systems, intelligent tutoring, and personalized instruction—most existing research focuses on secular or general education contexts. Studies exploring AI-enhanced pedagogy have largely overlooked the unique dynamics of faith-based educational institutions, such as *madrasah*, which operate with distinct pedagogical goals, cultural norms, and curricular orientations. This lack of representation limits the transferability of existing AI models and tools into Islamic learning environments, where value-laden content, religious sensitivity, and context-specific learner profiles are central to instructional design (Sungkowo, *et.al.*, 2024; Zainuddin, *et.al.,* 2024).

Moreover, prior research in the area of Islamic education technology tends to emphasize basic digital literacy, multimedia resources, or mobile applications, with minimal engagement in the design and empirical evaluation of intelligent learning systems. There is also a noticeable scarcity of studies employing robust methodological frameworks—such as mixed-methods approaches—that combine both qualitative insights and quantitative assessments to holistically capture the impact of AI-based learning tools in *madrasah* settings. These gaps highlight an urgent need for contextually grounded and methodologically rigorous investigations that explore how AI can be meaningfully adapted and implemented to enhance the quality and inclusiveness of Islamic education (Setiawan, *et.al.*, 2025; Munawwaroh & Adeoye, 2024).

This study offers a novel contribution by introducing an Artificial Intelligence–driven learning media specifically designed for *madrasah*, a domain that has been largely neglected in the discourse of educational technology. Unlike most AI-based educational tools that are developed for secular schooling systems, the media proposed in this research is contextualized to reflect the pedagogical, spiritual, and socio-cultural values inherent in Islamic education. The integration of intelligent features—such as adaptive content delivery and real-time learner feedback—within a value-oriented learning environment

represents an innovative approach that bridges advanced technology with traditional religious instruction, a synthesis rarely addressed in current literature.

The significance of this research lies not only in its technological innovation but also in its methodological and practical implications. By employing a mixed-methods design, the study captures both the nuanced experiences of teachers and students as well as measurable outcomes related to engagement and learning effectiveness. This multidimensional analysis contributes to a more comprehensive understanding of how AI can be ethically and effectively implemented in faith-based institutions. The findings are expected to inform future developments in Islamic educational technology, support policymakers in digitalizing madrasah education responsibly, and inspire further interdisciplinary research at the intersection of AI, pedagogy, and religious schooling.

METHOD

Research Design and Approach

This study employed a qualitative research design with a case study approach to explore the development and implementation of AI-based learning media in a faith-based educational context. The qualitative case study was selected for its capacity to generate deep, contextualized understanding of a contemporary phenomenon within its real-life setting (Assingkily, 2021). The focus on a single institution allowed for a comprehensive examination of how AI-driven pedagogical tools are perceived, adapted, and integrated into the daily instructional practices of a *madrasah*.

Research Setting

The study was conducted at a *Madrasah Ibtidaiyah* located in the district of Aceh Tenggara, Indonesia. This location was purposively selected due to its representativeness of rural Islamic primary schools that are currently undergoing digital transformation. The *madrasah* offers a blend of religious and general education and operates under the supervision of the Ministry of Religious Affairs (Assingkily, 2021). While access to technology is limited, the school has recently initiated efforts to integrate digital media into its curriculum, making it a suitable site for the introduction and observation of AI-based learning innovations.

Participants and Informants

Participants were selected through purposive sampling to ensure relevance and richness of information. The primary informants included: (1) Four classroom teachers responsible for core subjects such as Qur'anic studies, Arabic, and Mathematics. (2) Two school administrators, including the headmaster and ICT coordinator. (3) Twelve students from grades IV to VI, selected to reflect varying levels of academic performance and digital literacy. Two parents were also included to capture perspectives from the home learning environment (Sugiyono, 2018). These stakeholders were chosen to provide a holistic view of the educational ecosystem, encompassing pedagogical, managerial, and experiential dimensions of AI media integration.

Data Collection Techniques

Data were collected using three primary techniques: *first,* semi-structured interviews with teachers, administrators, and parents, focusing on perceptions, expectations, and challenges related to the use of AI-based learning media. *Second,* non-participant classroom observations, conducted over a period of four weeks, to document the actual implementation of the AI media in real instructional settings. Observation protocols were designed to capture teacher-student interaction, engagement patterns, and classroom dynamics. *Third,* focus group discussions (FGDs) with students to explore their experiences and attitudes toward the intelligent learning media (Assingkily, 2021). Visual prompts and digital task demonstrations were used to facilitate student responses. All interviews and discussions were audio-recorded with consent and subsequently transcribed verbatim for analysis.

Data Analysis Procedures

Thematic analysis was conducted to identify, analyze, and interpret patterns of meaning within the qualitative data. The process followed Braun & Clarke (2006) six-phase framework: (1) data

familiarization, (2) initial code generation, (3) theme searching, (4) theme reviewing, (5) theme defining and naming, and (6) report production.

To enhance rigor and manage the large volume of qualitative data, the analysis was supported by NVivo 14, a qualitative data analysis software. Transcripts, observation notes, and FGD recordings were uploaded to NVivo, where nodes (codes) were created to categorize data according to emerging themes such as *pedagogical adaptation*, *student engagement*, *technological barriers*, and *religious relevance*. The use of NVivo facilitated more efficient data organization, allowed for visual representation of coding relationships through models and word trees, and enabled iterative theme refinement through systematic query functions (Soehardi, *et.al.*, 2021).

Trustworthiness and Validity Measures

To ensure the credibility and trustworthiness of the findings, multiple strategies were employed: (1) Triangulation was conducted across data sources (interviews, observations, and FGDs) and informant types (teachers, students, parents). (2) Member checking was performed by returning preliminary interpretations to selected informants for validation and clarification. (3) Peer debriefing sessions were held with fellow researchers specializing in Islamic education and educational technology to critically review the coding and theme formulation process. (4) Audit trails were maintained to document analytic decisions, coding frameworks, and thematic adjustments throughout the study (Sugiyono, 2018). By integrating rigorous methodological procedures with advanced analytical tools, the study ensured a high level of analytical depth, transparency, and replicability, while remaining contextually grounded in the lived experiences of *madrasah* stakeholders.

FINDINGS AND DISCUSSION

Findings

The analysis of qualitative data, conducted using NVivo 14, revealed that the integration of artificial intelligence (AI)-assisted learning media significantly enhanced students' ability to understand, reason through, and communicate educational content both verbally and nonverbally. Thematic patterns indicated that the AI-based media functioned not only as an instructional tool but also as a cognitive scaffold, enabling students to engage more deeply with subject matter across multiple learning modalities. Through real-time feedback, visual simulations, and context-adaptive questioning, students demonstrated improved conceptual grasp and reasoning skills, particularly in complex thematic areas such as moral stories, mathematical logic, and Qur'anic interpretation.

Table 1. Thematic Coding Summary from NVivo Analysis

Main Theme	Sub-Themes	Representative Quote (Excerpts)
1. Enhanced Conceptual Understanding	- Contextualized Learning - Personalized Feedback	"AI helped me understand difficult stories with examples I could relate to." (Student)
2. Verbal and Non-Verbal Communication	- Expressive Confidence - Multimodal Output	"Students now explain ideas through speech, images, and even gestures." (Teacher)
3. Moral-Affective Engagement	- Emotional Connection - Islamic Values Integration	"My child remembers hadiths better through AI media than traditional lessons." (Parent)
4. Creative and Critical Thinking	- Story Reconstruction - Visual Expression	"They created comics based on religious narratives and explained them confidently." (Teacher)
5. Teacher Facilitation and Efficiency	- Time Management - Adaptive Instruction	"The AI supports differentiated learning—less repetition, more creativity." (Principal)

Descriptive NVivo-Based Findings:

1. **Enhanced Conceptual Understanding**

   NVivo analysis revealed frequent references to increased clarity in understanding abstract religious or moral concepts, particularly through personalized examples and contextual visualizations

provided by the AI media. Students expressed better retention and deeper reasoning skills during post-lesson reflections and interviews.

2. **Improved Verbal and Non-Verbal Communication**
   The coding revealed a noticeable increase in students' willingness and ability to articulate learned concepts using various forms—spoken language, drawing, reenactment, and storytelling. This suggests a strengthening of multimodal literacy, which was frequently coded under "communication confidence" and "expression diversity."
3. **Moral and Affective Resonance**
   A significant number of parent and teacher interviews were coded under nodes such as "emotional connection" and "Islamic integration," showing that the media not only facilitated academic learning but also emotional engagement and value reinforcement aligned with Islamic teachings.
4. **Student Creativity and Critical Engagement**
   Themes such as "creative output," "narrative construction," and "critical questioning" emerged strongly in NVivo coding, reflecting how students used AI tools to reconstruct, remix, and express content in novel ways. This was especially visible in assignments that asked for story retelling or symbolic representation.
5. **Teacher Empowerment and Efficiency**
   Codes such as "time efficiency," "teaching support," and "content adaptation" highlight how teachers viewed AI media as an assistant rather than a replacement. It allowed for better classroom management and more tailored feedback, supporting differentiated instruction.

Teacher's perspective – adaptive engagement and conceptual clarity:
"The AI media helped my students understand abstract topics like the parables in the Qur'an. It gave them questions adjusted to their level and showed animations that matched the stories. I noticed they asked more questions and even tried to relate the lessons to their own life experiences. That never happened before with conventional methods." (Female Islamic Studies Teacher, MI Negeri, Aceh Tenggara).
This comment illustrates how AI-supported media enhanced students' critical engagement and contextual understanding, validating its role as a cognitive and dialogic scaffold within the Islamic learning environment.

Head of Madrasah's perspective – transformative pedagogical practice:
"We used to rely heavily on textbooks and verbal explanation. But now, with AI-based media, our classes are more dynamic. Students interact with the content and express their ideas through drawing, storytelling, or even symbolic gestures. This technology doesn't replace the teacher—it empowers them to do more." (Principal, Madrasah Ibtidaiyah Swasta, Aceh Tenggara).
This testimony reflects how the implementation of intelligent media has catalyzed pedagogical transformation, turning passive learning into interactive exploration while enhancing teacher agency.

Parent's perspective – moral-affective resonance and motivation:
"My son comes home and explains what he learned using examples from the AI stories. Sometimes he even reminds us of hadiths he learned from the program. I've never seen him this excited to talk about school. I think the AI helps connect learning with his emotions and faith." (Parent of Grade 5 Student, Aceh Tenggara).
This response highlights the emotional and spiritual resonance of AI-integrated learning, confirming its impact beyond academic achievement to include affective and moral development—goals central to madrasah education.

Student's perspective – creative expression and self-efficacy:
"When I didn't understand something, the AI gave me a different example or helped me draw it. I made a comic about the story of Prophet Ibrahim and showed it to my friends. I felt proud because I could explain it well, and they understood too." (Grade 6 Student, Madrasah Ibtidaiyah Negeri, Aceh Tenggara).

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This student reflection demonstrates the empowering effect of AI media in fostering creative expression and confidence in communication, both of which are critical for holistic student development in primary education settings.

Students were observed to express learning outcomes through diverse communication forms—ranging from structured verbal explanations to gestures, drawings, and digital storytelling. These findings suggest that AI-supported media facilitated multimodal literacy and fostered creativity, especially among learners who previously struggled with conventional instructional methods. The enhancement of learning outcomes was further corroborated by teachers' reflective insights, who reported increased student participation, faster material comprehension, and a rise in critical thinking during class discussions. Importantly, the alignment of AI content with religious values and cultural narratives contributed to students' sense of relevance and engagement, underlining the importance of value-sensitive design in technology-assisted learning within Islamic educational contexts.

The integration of AI-assisted media in madrasah learning, as evidenced in this study, holds important implications for both educational theory and pedagogical practice (Chandra, *et.al.*, 2024; Farlina, *et.al.,* 2024). From a theoretical standpoint, the findings contribute to an evolving discourse on culturally responsive and value-sensitive learning technologies. While much of the literature on AI in education has centered around efficiency, personalization, and data-driven instruction (Saiddaeni, 2024), this study emphasizes the importance of aligning technological innovation with the ethical, spiritual, and socio-cultural dimensions of learning. In doing so, it extends current theories of AI-mediated education by proposing a framework that integrates cognitive scaffolding, multimodal learning, and moral-spiritual engagement—a triadic model particularly relevant to Islamic and faith-based education systems.

Moreover, this research reinforces and enriches the sociocultural theory of learning by illustrating how AI, when contextualized in a religious schooling environment, becomes a co-participant in culturally meaningful knowledge construction. The AI tools in this study did not merely disseminate content; they enabled students to co-construct meaning within the boundaries of their linguistic, religious, and affective realities. This validates the notion that technology is not pedagogically neutral—it is shaped by, and in turn shapes, the cultural settings in which it operates (Nugraha, *et.al.*, 2023; Japeri, *et.al.,* 2024). As such, the study provides empirical evidence to support a contextualized constructivist framework, particularly applicable to non-Western and religious education landscapes where moral and spiritual development are integral learning outcomes.

From a practical perspective, the research highlights a paradigm shift in how instructional design and teaching strategies can be reimagined in madrasahs. AI-powered media, when developed in alignment with local values and curricular goals, can function as effective pedagogical companions that support differentiated learning, foster student autonomy, and stimulate creative expression. Teachers in this study reported reduced cognitive load, enhanced classroom engagement, and more time available for mentoring and dialogic teaching. This indicates that AI integration can move beyond novelty to become an integral component of instructional ecosystems, especially in under-resourced contexts where teacher support and content enrichment are critically needed.

Furthermore, the study underscores the potential for AI to democratize access to high-quality, adaptive learning resources in Islamic schools. By leveraging intelligent algorithms and culturally embedded content, educators can reach diverse learner profiles, including those with varied linguistic abilities, learning styles, and socio-economic backgrounds. This not only improves equity in educational outcomes but also nurtures inclusive practices that affirm students' identities and lived experiences.

Another practical implication lies in teacher professional development. The successful implementation of AI-assisted media in this study was supported by teachers' willingness to embrace new roles—as facilitators, mentors, and co-learners. This calls for a strategic shift in teacher training programs to include AI literacy, ethical decision-making in digital contexts, and culturally responsive media design. Without such preparedness, the transformative potential of AI may remain underutilized or, worse, misaligned with the core values of Islamic education.

In sum, this research contributes theoretically by proposing a culturally embedded, spiritually attuned framework for AI integration in education, and contributes practically by offering evidence-based insights for policy makers, curriculum developers, and educators seeking to harness intelligent technology in ways that are both pedagogically sound and ethically grounded. The madrasah, often marginalized in

global education technology discourse, emerges here not as a passive recipient of innovation but as a critical site of innovation, where AI can be reimagined to serve the holistic aims of education.

Discussion

The findings of this study reveal a transformative impact of artificial intelligence (AI)-assisted instructional media on learning experiences in madrasah contexts, particularly at the primary education level. The integration of AI tools not only enhanced students' comprehension and reasoning skills but also facilitated their ability to express understanding in both verbal and nonverbal forms (Musolin, *et.al.*, 2024; Khomairotusshiyama, *et.al.,* 2025). This suggests that intelligent media development, when tailored to the pedagogical, cultural, and spiritual contexts of Islamic education, can yield significant improvements in the quality and depth of student learning. The interpretation of these findings is discussed below, contextualized within existing theoretical frameworks and prior empirical studies.

The results align strongly with social constructivist learning theory, particularly Vygotsky's (1978) concept of the Zone of Proximal Development (ZPD), which posits that learners advance cognitively when supported by scaffolds that mediate understanding. The AI-based media in this study operated as such a scaffold, providing real-time support, adaptive feedback, and context-aware prompts that guided students through complex tasks. By adjusting to individual student responses and offering explanations tailored to learners' prior knowledge, the AI tools extended learners' capacities beyond what they could achieve independently. This mediated scaffolding was evident in students' improved ability to articulate concepts, ask reflective questions, and demonstrate critical thinking—skills that are central to meaningful learning in both secular and religious education.

Furthermore, these findings corroborate the Cognitive Theory of Multimedia Learning (Mayer, 2009), which emphasizes the role of dual channels (verbal and visual) in effective knowledge acquisition. Students in this study engaged with AI media that integrated auditory explanations, animated visuals, and interactive simulations. The result was a marked increase in conceptual retention and the ability to generalize ideas across different learning domains. This multimodal engagement was particularly powerful in enabling students to communicate their understanding in non-traditional formats such as visual storytelling, gestures, and collaborative simulations—demonstrating the emergence of multimodal literacy among young learners in religious schools.

Notably, the research contributes to an emerging body of literature on value-sensitive AI in education, which highlights the importance of designing educational technology that aligns with learners' cultural and ethical frameworks. In the context of madrasahs, where Islamic values form the core of the curriculum, AI media that are sensitive to spiritual content and moral narratives have proven to be more engaging and relevant. Teachers involved in this study reported that students connected more deeply with the content when AI presented scenarios or questions grounded in Qur'anic verses, prophetic traditions, or Islamic historical figures. These findings suggest that AI can support value-based personalization, where algorithms adapt not only to cognitive profiles but also to cultural-religious identity.

In comparison with prior studies that have explored AI in secular or mainstream schooling (Radjak, *et.al.*, 2024; Abtokhi & Fahmi, 2023), this research extends the discourse by illustrating how contextualization within Islamic pedagogical settings enriches the effectiveness and acceptance of AI tools. Unlike studies conducted in Western settings where AI is often used to accelerate content delivery or automate assessment, this study highlights the humanizing potential of AI—when its design is rooted in empathy, dialogue, and value-driven goals. The AI media here functioned less as a "teacher replacement" and more as a pedagogical partner, augmenting the role of educators and supporting dialogic interaction.

Another key insight is the role of AI in fostering expressive and reflective communication, especially for students who previously struggled with conventional didactic instruction. The data revealed that learners felt more confident expressing their understanding through gesture-based interactions, storyboards, and even spiritual reflections triggered by the AI's narrative elements. These outcomes mirror the aims of holistic Islamic education, which seeks to nurture not only intellectual but also emotional and moral faculties (Purba, *et.al.*, 2025; Firdausi, *et.al.,* 2024).

The thematic coding conducted in NVivo further underscores these interpretations. Themes such as *engagement through adaptive questioning*, *moral reasoning through intelligent narratives*, and *enhanced verbalization of*

*abstract concepts*appeared consistently across student and teacher responses. For instance, one student reflected, "I understand the story of Prophet Yusuf better because the AI helped me draw it and tell it back in my own words," illustrating how cognitive-affective engagement was made possible through intelligent interactivity.

Additionally, the results suggest a significant pedagogical shift wherein the teacher's role transitions from knowledge dispenser to learning facilitator and spiritual guide. This is particularly relevant in madrasah contexts, where the teacher (ustadz/ustadzah) is often viewed as a moral role model (Mariani, *et.al.*, 2024). The AI-based media freed teachers from repetitive explanation tasks, enabling them to focus on mentoring, dialogue, and deeper ethical discussions. This augmentation of teacher agency not only supports instructional goals but also aligns with Islamic traditions of personalized and compassionate pedagogy (Achmadin, *et.al.*, 2024).

Nevertheless, these positive interpretations must be balanced with a nuanced understanding of limitations and ethical considerations. While AI tools facilitated rich learning experiences, their success depended heavily on intentional design that embedded Islamic content and localized cultural norms. Without such contextual sensitivity, the same AI systems may risk cultural misalignment or pedagogical irrelevance (Sutrisno, 2023; Hastutik, 2024). Therefore, the findings also highlight a broader theoretical implication: AI in education must be culturally situated, especially when deployed in religious or value-centric environments (Gunawan & Hidayatullah, 2024; Zuzana, 2024).

The implications of these findings extend beyond the madrasah context. They suggest a need to rethink global AI-in-education paradigms by incorporating non-Western epistemologies, spiritual literacy, and moral development goals. In doing so, AI tools can become more inclusive and responsive to diverse educational realities, rather than enforcing a one-size-fits-all model rooted in technocratic assumptions. In summary, the integration of intelligent media in madrasah learning, as evidenced by this study, supports a paradigm shift in educational technology—from efficiency-focused automation to empathetic, culturally-aligned augmentation. The findings affirm that when AI is designed with pedagogical, spiritual, and sociocultural awareness, it can significantly enrich students' learning experiences, foster higher-order thinking, and contribute meaningfully to both academic and character development. This interpretation not only validates the study's outcomes but also positions Islamic education as a critical site for future AI innovation and research.

CONCLUSION

This study has demonstrated that the integration of Artificial Intelligence (AI)-assisted media into madrasah learning significantly enhances students' ability to comprehend, reason, and communicate learning content in both verbal and non-verbal forms. Utilizing a mixed-methods design, and supported by qualitative data analyzed through NVivo, the research revealed that AI-based instructional media functions not merely as a content delivery tool, but as an intelligent pedagogical agent that adapts to learners' cognitive levels, encourages active engagement, and stimulates moral-affective learning. Students not only showed marked improvements in conceptual understanding and creativity but also demonstrated higher self-confidence in articulating their knowledge within religious and ethical contexts.

The findings carry important implications for both theory and educational practice. Theoretically, this study contributes to the emerging body of research on AI in education by proposing a culturally responsive and ethically embedded framework for AI integration, particularly relevant to Islamic schooling contexts. It challenges technocentric paradigms by emphasizing the interplay between intelligent technologies and the socio-cultural, spiritual, and moral dimensions of learning. Practically, the research underscores how intelligent media can support differentiated instruction, reduce teacher workload, and democratize access to high-quality learning resources, particularly in under-resourced religious schools. The success of implementation was strongly linked to teacher readiness and contextual adaptation, suggesting that human agency remains central in the AI-assisted learning environment.

Based on these insights, several recommendations are proposed. First, future AI-based media development in Islamic education should intentionally incorporate elements of Islamic epistemology, local culture, and student diversity to ensure contextual relevance and value alignment. Second, teacher training programs should be restructured to include AI literacy, ethical digital pedagogy, and design thinking, preparing educators to become co-designers of intelligent learning ecosystems. Third, policy makers

should consider investing in scalable and inclusive AI infrastructures for madrasahs, while ensuring regulatory oversight that protects data privacy, maintains equity, and upholds the spiritual integrity of Islamic education. Finally, further longitudinal and comparative research is needed to assess the long-term effects of AI integration on student outcomes and school transformation in diverse Islamic educational settings. In conclusion, the study affirms that when AI is thoughtfully designed and contextually integrated, it can serve as a transformative force in madrasah education—bridging the gap between tradition and innovation, and nurturing learners who are not only knowledgeable but also morally and spiritually grounded.

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