

Artificial Intelligence in Islamic Education Management: Opportunities and Challenges for Learning Management in an Islamic Boarding School

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ABSTRACT

This study highlights the need for digital transformation in Islamic boarding schools and the challenges of implementing Artificial Intelligence (AI) in learning management. This study aims to analyze the implementation of AI at Hidayatul Mubtadiin Islamic Boarding School in South Lampung, focusing on its opportunities, challenges, and the readiness of human resources and institutions. A qualitative case study design was employed, with data collected through interviews, observations, and documentation involving Islamic boarding school leaders, teachers, education staff, and students. The findings show that AI is utilized in preparing learning tools, developing teaching materials, designing assessments, accessing learning resources, and managing educational administration, offering benefits in work efficiency, information access, learning innovation, and digital literacy. However, challenges include limited digital competence, information validity, technological dependency, and the absence of specific AI-use policies. Human resources and institutional readiness are relatively adequate, supported by leadership commitment, openness to innovation, and basic digital infrastructure. This study contributes by emphasizing the importance of strengthening digital competence, institutional governance, and the integration of Islamic educational values to ensure responsible and effective AI implementation in Islamic boarding schools.

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1. INTRODUCTION

The development of digital technology has driven major transformations in various sectors of life, including education. One technological innovation currently developing rapidly is Artificial Intelligence (AI), which is beginning to be integrated into various educational activities, from academic administration and learning management to evaluation of learning outcomes and data-driven decision-making. In Indonesia, the use of AI in education continues to increase in line with the digital transformation policy promoted by the government through school digitization programs and strengthening technological literacy. However, the level of AI adoption and implementation in Islamic educational institutions, particularly Islamic boarding schools, still shows significant

variation. Some Islamic boarding schools have begun utilizing digital technology to support learning, while others still face various limitations related to infrastructure, human resource competency, and institutional readiness. This situation indicates that the implementation of Artificial Intelligence in Islamic education management remains a challenge and an opportunity that requires in-depth study.

Artificial Intelligence (AI) in Islamic education management depends not only on the availability of technology but also on human resource readiness, institutional support, digital infrastructure, governance, and the integration of Islamic educational values. Therefore, this study conceptualizes AI implementation as an integrated process consisting of several key components: human resource digital competence, institutional readiness and leadership support, technological infrastructure, AI governance and policies, and alignment with Islamic educational values. These components interact to support the effective and responsible use of AI in learning management. This conceptual structure provides a foundation for understanding how AI can improve learning efficiency, innovation, and digital literacy while addressing challenges such as limited competence, information validity, technological dependency, and ethical considerations.

Theoretically, the success of implementing Artificial Intelligence in educational institutions is influenced by various factors, particularly leadership, technological innovation, organizational culture, and human resource readiness. The diffusion of innovation theory proposed by Soegiarto explains that the adoption of new technology in an organization is influenced by the level of individual acceptance and the organization's ability to manage change [1]. Similarly, Sholihah assert that the use of AI can increase learning effectiveness through personalized materials, learning data analysis, and the automation of administrative tasks [2]. The results of a systematic study conducted by Fuad also show that Artificial Intelligence has the potential to improve the quality of educational services and the efficiency of institutional management [3]. Furthermore, Huda & Suwahyu emphasize that the success of implementing AI in education is largely determined by the digital competence of educators and the organization's readiness to integrate technology into the learning process [4].

Several previous studies have examined the use of digital technology and Artificial Intelligence (AI) in education, but there is still room for further research in the context of Islamic education management. Research Arisanti suggests that AI has the potential to improve learning effectiveness through personalized materials and academic decision-making support [5]. However, this research focuses more on general education and has not yet examined its implementation in Islamic educational institutions. Research Taruklimbong found that AI can improve the efficiency of learning evaluation and data-driven educational services [6]. However, they have not yet analyzed the leadership and organizational culture factors that influence the success of AI implementation. Research Alfiannur concludes that AI can support adaptive learning and increase student engagement, but has not yet linked this to the Islamic values that are the main characteristics of Islamic boarding school education [7]. Furthermore, research Aksenta explains that digital transformation contributes to improving the quality of Islamic education. However, their study still focuses on digitalization in general and does not specifically discuss the use of Artificial Intelligence in learning management [8]. Meanwhile, research Ratnawati revealed that the digitalization of Islamic boarding schools can increase the effectiveness of administration and educational services, but has not yet identified the opportunities and challenges of implementing AI as part of Islamic education management [9].

Based on these various studies, there is a research gap in the form of limited studies that specifically analyze the implementation of Artificial Intelligence from the perspective of Islamic education management in Islamic boarding schools, especially those that integrate aspects of opportunities, challenges, learning governance, human resources, and Islamic values comprehensively. Therefore, this study has differences and novelty because it not only examines the use of AI as a learning technology, but also analyzes its implementation in Islamic education management by identifying opportunities and challenges in learning management at the Hidayatul Mubtadiin Islamic Boarding School in South Lampung as an Islamic boarding school-based educational institution that has its own characteristics, organizational culture, and Islamic values.

Furthermore, strengthening policies and theoretical discourse regarding the implementation of Artificial Intelligence (AI) in education can be referenced in various digital transformation policies

for education issued by the Indonesian government, including the direction of educational digitalization policies that emphasize the use of technology to improve the quality of learning, the effectiveness of educational management, and strengthening the digital competencies of educators and students. From an educational management perspective, the use of AI can be explained through the Technology Acceptance Model (TAM) theory developed by Afriyadi which emphasizes that the success of technology adoption is influenced by perceived usefulness and perceived ease of use [10]. This theory explains that the implementation of AI in learning management requires individual and organizational readiness for the technology to be accepted and utilized optimally.

In the context of learning, the constructivist theory proposed by Vygotsky explains that the learning process will be more effective if students are actively involved in constructing their knowledge through meaningful interactions and learning experiences [11]. The presence of Artificial Intelligence enables the creation of more personalized, adaptive learning that is tailored to the individual needs of students by providing materials, feedback, and evaluations tailored to the characteristics of each student. Therefore, AI is not only understood as a technological tool, but also as an instrument that supports pedagogical transformation in realizing more effective and student-centered learning. From the perspective of Islamic education, the use of AI must still pay attention to the moral values, ethics, and goals of Islamic education so that technology functions as a supporting tool, not a substitute for the role of teachers as educators, guides, and role models for students.

From a human resource perspective, the learning organization theory proposed by Bandura explains that organizations that are able to adapt to change are those that continuously learn, develop the capacity of their members, and are open to innovation. In the context of AI implementation in Islamic boarding schools, the digital competence of teachers, educational staff, and institutional administrators is a critical factor in determining the success of digital transformation [12]. The greater the human resource's ability to understand and utilize technology, the greater the chance of successful AI implementation in supporting learning management. Therefore, this study not only analyzes the technical use of AI technology but also places it within the framework of Islamic education management that integrates aspects of leadership, organizational culture, human resource development, and Islamic values as the main foundation of learning management.

Although various theories and research findings demonstrate the benefits of Artificial Intelligence for improving the quality of education, there is a gap between the conceptual ideal and the reality of its implementation in Islamic boarding schools. Most previous studies have focused on the use of AI in public schools and universities, while research examining AI implementation from an Islamic education management perspective is relatively limited. Furthermore, there is limited research comprehensively exploring the opportunities and challenges of implementing AI in learning management in Islamic boarding schools, which have distinct characteristics, organizational cultures, and Islamic values. It remains unclear how AI is integrated into the education management process, the extent to which its use supports learning effectiveness, and the challenges faced in its implementation. Therefore, a study of the implementation of Artificial Intelligence in Islamic education management is crucial.

Based on the background described, this study aims to gain a deep understanding of the implementation of Artificial Intelligence (AI) in Islamic education management at the Hidayatul Mubtadiin Islamic Boarding School in South Lampung. Specifically, this study is directed at analyzing the various opportunities offered by AI in improving the effectiveness of learning management, identifying challenges faced in the implementation process, and assessing the readiness of human resources and institutions in supporting AI-based digital transformation. Through the integration of theoretical studies and empirical findings, this study is expected to produce an AI implementation model that is contextual, applicable, and appropriate to the characteristics of Islamic boarding school education, thereby contributing to the development of Islamic education management that is adaptive to technological developments without neglecting the spiritual, moral, and cultural values of Islamic boarding schools.

2. METHOD

This research uses a qualitative approach with a case study design conducted at the Hidayatul Mubtadiin Islamic Boarding School in South Lampung. This approach was chosen to gain a deep, holistic, and contextual understanding of the implementation of Artificial Intelligence (AI) in Islamic education management, particularly regarding the opportunities and challenges of learning management in the Islamic boarding school environment. The research is based on a constructivist paradigm with a descriptive-analytical research type that aims to explore various forms of AI utilization in the learning process, identify supporting and inhibiting factors for its implementation, and analyze its impact on the effectiveness of learning management. The research data sources consist of primary and supporting informants selected using a purposive sampling technique, including Islamic boarding school leaders, madrasah principals, teachers, education staff, and students involved in the utilization of digital technology and AI in learning activities.

Data collection was conducted through in-depth interviews, participant observation, and documentation studies. Interviews were used to obtain information regarding experiences, perceptions, opportunities, and challenges of implementing AI in learning management, while observations were conducted to directly observe the practice of using AI-based technology in learning activities and education management. Documentation was used to supplement the data through various institutional documents, digitalization programs, learning tools, and policies related to technology utilization in Islamic boarding schools. Data analysis was conducted interactively through the stages of data reduction, data presentation, and conclusion drawing or verification. To ensure data validity, the study employed source triangulation, technical triangulation, and member checking techniques. The results of the analysis were then used to formulate a comprehensive overview of the opportunities and challenges of implementing Artificial Intelligence (AI) in Islamic education management and its implications for learning management at the Hidayatul Mubtadiin Islamic Boarding School in South Lampung.

3. RESULTS AND DISCUSSION

This research is based on the academic awareness that the successful implementation of Artificial Intelligence (AI) in Islamic education management is determined not only by technological sophistication, but also by the readiness of human resources, leadership support, organizational culture, and the institution's ability to integrate technology with Islamic educational values. Amidst the increasingly rapid development of digital transformation, Islamic boarding schools are required to be able to adapt to technological developments to improve the quality of learning management without neglecting the characteristics and values of Islamic boarding schools. Therefore, the presentation of this research data is compiled based on field findings at the Hidayatul Mubtadiin Islamic Boarding School in South Lampung, with reference to the research objectives, namely to analyze the implementation of Artificial Intelligence (AI) in Islamic education management and identify opportunities and challenges that arise in learning management. Data presentation focuses on the form of AI utilization in learning, the readiness of human resources and infrastructure, the opportunities presented by AI technology, and various challenges faced in the implementation process. The data obtained not only describes empirical conditions but is also analyzed to identify supporting and inhibiting factors and formulate a relevant and sustainable AI implementation model to support learning management in the Islamic boarding school environment.

3.1 Implementation of Artificial Intelligence (AI) in Islamic Education Management

Based on observations, in-depth interviews, and documentation studies at the Hidayatul Mubtadiin Islamic Boarding School in South Lampung, this study found that the implementation of Artificial Intelligence (AI) in Islamic education management is beginning to develop as part of digital transformation efforts in learning management. The use of AI is not only used as a means of supporting information retrieval and the preparation of teaching materials, but is also utilized to assist in lesson planning, development of learning media, evaluation of learning outcomes, and increasing the effectiveness of academic administration. The presence of AI technology provides opportunities for teachers and institutional administrators to improve the quality of learning services more quickly, adaptively, and efficiently. However, the implementation of AI in the Islamic boarding school

environment is still carried out by considering Islamic values, ethical use of technology, and the central role of teachers as educators and mentors of students.

The research results show that the implementation of AI in learning management is influenced by several important factors, namely human resource readiness, digital infrastructure availability, institutional policy support, and teacher and student technological literacy. On the one hand, AI opens up opportunities to improve learning effectiveness through personalized materials, easy access to learning resources, and efficient educational administration. On the other hand, various challenges remain, such as limited digital competence among some teachers, potential dependency on technology, the validity of AI-generated information, and the need for usage guidelines that align with Islamic educational values. These findings indicate that the success of AI implementation is determined not only by the technology used, but also by the organization's readiness to manage change and integrate technology into the Islamic boarding school education system on an ongoing basis.

Table 1. Implementation of Artificial Intelligence (AI) in Learning Management

Aspect	Research Findings
Utilization of AI in Learning	Used for compiling teaching materials, searching for references, creating learning media, compiling questions, and developing learning materials.
Utilization of AI in Educational Administration	Assisting with document management, report preparation, academic data processing, and learning administration.
AI Implementation Opportunities	Improve teacher work efficiency, accelerate access to information, support learning innovation, increase creativity, and expand students' learning resources.
AI Implementation Challenges	Teacher digital literacy gap, limitations of technological infrastructure, validity of AI information, and potential technology dependency.
HR Readiness	Some teachers have utilized AI in learning, but still require ongoing training and mentoring.
Institutional Support	There is support for the use of digital technology, but there is no specific policy regarding the use of AI in learning.
Integration of Islamic Values	The use of AI remains under the supervision of teachers and is adjusted to the principles of ethics, morals, and goals of Islamic education.
Implications for Learning Management	Improving the effectiveness of planning, implementation, and evaluation of learning and supporting the digital transformation of Islamic boarding school education.

Source: Hidayatul Mubtadiin Islamic Boarding School, South Lampung, 2026

The table shows that Artificial Intelligence (AI) has significant potential to support learning management at the Hidayatul Mubtadiin Islamic Boarding School in South Lampung. However, optimizing AI implementation requires strengthening teachers' digital competencies, improving technological infrastructure, and developing institutional policies capable of guiding the use of AI effectively, responsibly, and in alignment with Islamic educational values.

3.2 Opportunities for Implementing Artificial Intelligence (AI) in Learning Management

Based on interviews, observations, and documentation studies, this study found that Artificial Intelligence (AI) offers various opportunities to support learning management at the Hidayatul Mubtadiin Islamic Boarding School in South Lampung. The use of AI helps teachers develop learning materials, develop more engaging learning media, develop evaluation instruments, and obtain learning references quickly and diversely. Furthermore, AI also opens up opportunities for more flexible, innovative, and adaptive learning to meet the needs of students. In terms of educational management, AI contributes to increased efficiency in academic administration, educational data management, and accelerated information-based decision-making. The existence of

this technology is one of the instruments that can support the digital transformation of Islamic boarding schools in facing the demands of 21st-century education.

Research findings indicate that the opportunities for AI implementation are not only felt by teachers, but also by students and institutional administrators. For teachers, AI can reduce administrative burdens, allowing them to focus more on the learning process. For students, AI expands access to learning resources and enriches their independent learning experiences. Meanwhile, for institutions, AI serves as a means to improve the quality of educational services and strengthen institutional competitiveness in the digital age. However, leveraging these opportunities requires proper management to ensure optimal use of the technology and remain aligned with the goals of Islamic education.

Table 2. Opportunities for Implementing Artificial Intelligence (AI) in Learning Management

Opportunity Aspect	Research Findings	Benefits Obtained
Learning Planning Efficiency	AI helps in the preparation of modules, lesson plans, teaching materials, and evaluation instruments.	Save time and increase teacher productivity.
Learning Media Innovation	AI is used to create visual materials, presentations, and interactive content.	Learning becomes more interesting and varied.
Access Learning Resources	Teachers and students obtain learning references quickly and widely.	Enriching insights and learning materials.
Personalized Learning	AI helps adapt materials to the needs and abilities of students.	Learning is more effective and tailored to the needs of students.
Academic Administration Efficiency	AI supports the management of educational data, reports, and documents.	Improving the effectiveness of educational governance.
Strengthening Digital Literacy	The use of AI encourages teachers and students to develop digital competencies.	Increasing readiness to face the digital era.
Decision-making	AI helps provide information and data quickly.	Supporting more informed and data-driven policies.
Digital Transformation of Islamic Boarding Schools	AI is becoming part of the modernization of learning systems and institutional management.	Improving the quality of Islamic boarding school education services.

Source: Hidayatul Muhtadiin Islamic Boarding School, South Lampung, 2026

The table above shows that Artificial Intelligence (AI) offers significant potential for improving the quality of learning management at the Hidayatul Muhtadiin Islamic Boarding School in South Lampung. These opportunities encompass academic, administrative, and institutional development aspects, which, overall, can support the realization of more effective, innovative, and adaptive Islamic education management to technological developments.

3.3 Challenges of Implementing Artificial Intelligence (AI) in Learning Management

Based on interviews, observations, and documentation studies, this study found that although Artificial Intelligence (AI) offers various opportunities for learning management at the Hidayatul Muhtadiin Islamic Boarding School in South Lampung, its implementation also faces several challenges. These challenges stem from aspects of human resources, technological infrastructure, institutional governance, and ethical aspects of technology use. Some teachers have utilized AI to support learning, but their level of understanding and skills in using it still vary. This condition has resulted in the use of AI not being optimal and equitable throughout the learning process. Furthermore, limited internet access and supporting devices in some learning units also hinder the sustainable implementation of technology.

Besides technical factors, another emerging challenge is the need to monitor the use of AI to prevent technological dependency, the spread of inaccurate information, and the decline of critical thinking skills and creativity in Islamic boarding school students. In the context of Islamic education, the use of AI must also consider ethical, moral, and Islamic values, ensuring that technology remains a learning tool, not a substitute for teachers as educators, mentors, and role models. Therefore, the implementation of AI requires clear policies, strengthening digital competencies, and ongoing evaluation mechanisms to optimize the benefits of technology without neglecting the primary goals of Islamic boarding school education.

Table 3. Challenges of Implementing Artificial Intelligence (AI) in Learning Management

Challenge Aspects	Research Findings	Impact on Learning
Teacher Digital Competence	Teachers' abilities in utilizing AI still vary.	The use of AI is not yet optimal and not evenly distributed.
AI Literacy for Santri Students	Some students do not yet understand the wise and effective use of AI.	The risks of inappropriate use of AI in the learning process.
Technology Infrastructure	The availability of devices and the quality of the internet network are still limited in some conditions.	Hindering access and maximum utilization of AI.
Validity of AI Information	AI-generated information is not always accurate and requires verification.	Potentially causes misunderstanding of the material.
Technology Dependence	Excessive use of AI can reduce learning independence.	Reduces students' analytical and critical thinking skills.
Policies and Regulations	There are no specific guidelines for the use of AI in Islamic boarding schools.	Causing differences in practices and standards of AI use.
Islamic Ethics and Values	The use of AI needs to be adjusted to the norms, morals, and goals of Islamic education.	Requires intensive teacher supervision and guidance.
Data Security and Privacy	The use of AI platforms has the potential to pose security risks to user data.	Needs better and more secure data management.

Source: Hidayatul Mubtadiin Islamic Boarding School, South Lampung, 2026

The table shows that the challenges of implementing Artificial Intelligence (AI) at the Hidayatul Mubtadiin Islamic Boarding School in South Lampung are not only technological, but also involve human resource readiness, institutional governance, and the integration of Islamic educational values. Therefore, successful AI implementation requires a comprehensive strategy that includes improving digital competency, providing adequate infrastructure, developing AI policies, and strengthening oversight to ensure the technology is utilized effectively, responsibly, and in accordance with the characteristics of Islamic boarding school education.

3.4 Human Resources and Institutional Readiness in AI Implementation

Based on interviews, observations, and documentation studies, this study indicates that human resource and institutional readiness are crucial factors in supporting the implementation of Artificial Intelligence (AI) at the Hidayatul Mubtadiin Islamic Boarding School in South Lampung. From a human resource perspective, most teachers and educational staff have demonstrated a positive attitude toward the use of digital technology in learning. Teachers have begun utilizing various AI platforms to assist in the development of teaching materials, the development of evaluation instruments, and the search for academic references. However, the level of mastery of AI technology varies, necessitating ongoing training and mentoring to improve the digital competence of all educators. Meanwhile, students also demonstrated high enthusiasm for the use of digital technology,

although they still require guidance on digital literacy, ethical use of AI, and critical thinking skills in verifying information obtained.

From an institutional perspective, Hidayatul Muhtadiin Islamic Boarding School has demonstrated its commitment to supporting digital transformation through the provision of technological facilities, the use of digital learning media, and support for teacher learning innovations. However, AI implementation still requires strengthening policies, operational standards, and strategic planning to ensure systematic and sustainable use of technology. Research findings indicate that the success of AI-based digital transformation is determined not only by the availability of technology but also by the organization's readiness to build a digital culture, improve human resource competency, and create governance that integrates technology with the goals and values of Islamic education.

Table 4. Human Resources and Institutional Readiness in AI Implementation

Aspect	Condition of Readiness	Research Findings
Teacher Competence	Just ready	Teachers have utilized AI for material development, teaching tools, and learning evaluation, but still need to improve their technical competencies.
Competence of Educational Personnel	Just ready	Starting to utilize digital technology in educational administration, but not yet optimal in the use of AI.
Digital Literacy for Islamic Students	Under development	Students have a high interest in digital technology, but still need guidance in using AI wisely.
Attitudes towards Technological Innovation	Ready	Teachers and institutional administrators demonstrated openness to the use of AI in learning.
Technology Infrastructure	Quite adequate	Internet access, computer devices, and digital media to support learning are available, although they still require development.
Support from Islamic Boarding School Leaders	Tall	The leadership supports the use of technology as part of improving the quality of education.
AI Usage Policy	Not optimal	There are no specific guidelines regarding the use of AI in learning and educational administration.
Organizational Digital Culture	Under development	A culture of technology utilization is starting to form, but it has not yet been fully integrated into the institutional system.
Integration of Islamic Values	Ready	The use of AI is directed to remain in line with moral values, ethics, and the goals of Islamic education.

Source: Hidayatul Muhtadiin Islamic Boarding School, South Lampung, 2026

The table shows that the Hidayatul Muhtadiin Islamic Boarding School in South Lampung is quite well prepared to support Artificial Intelligence (AI)-based digital transformation. Its main strengths lie in leadership support, teachers' openness to innovation, and the burgeoning digital culture within the school. However, strengthening human resource competencies, developing AI policies, and developing technological infrastructure are still needed to ensure optimal, targeted, and sustainable digital transformation, in keeping with the characteristics of Islamic boarding school education.

Discussion

The research results show that the implementation of Artificial Intelligence (AI) in Islamic education management at the Hidayatul Mubtadiin Islamic Boarding School in South Lampung has become part of the digital transformation effort to improve the effectiveness of learning management. This finding aligns with the Technology Acceptance Model (TAM) theory proposed by Santi [13], which explains that technology acceptance is influenced by perceptions of usefulness and ease of use. Teachers' use of AI in developing learning tools, developing teaching materials, creating evaluation instruments, and managing educational administration indicates that the technology is seen as capable of increasing work efficiency and productivity. These findings also support research Suciyaningtyas [14] which states that Artificial Intelligence has great potential in improving the quality of learning through the automation of administrative tasks and the provision of broader learning resources. In line with this, research Ulimaz [15] found that AI can help improve the effectiveness of the learning process through data analysis support and the development of more adaptive learning. However, this research differs in that it was conducted in the context of Islamic boarding school education, which focuses not only on the effectiveness of technology but also on the integration of Islamic values into every aspect of its use.

Regarding AI implementation opportunities, research findings indicate that this technology offers significant benefits in improving the efficiency of learning planning, expanding access to learning resources, supporting innovation in learning media, and strengthening the digital literacy of teachers and students. These findings align with the diffusion of innovation theory Imroah [16], which explains that an innovation will be more easily accepted if it provides a tangible relative advantage for its users. The presence of AI allows teachers to quickly obtain learning references, organize materials more effectively, and create more engaging learning for students. The results of this study align with research Rochmawati [17], which concluded that the use of AI can improve the quality of educational services and the efficiency of learning management. Syaifuddin [18], also shows that digital transformation in Islamic educational institutions contributes to improving the quality of educational services and access to learning resources. However, compared to previous research that focused more on the technical benefits of technology, this study demonstrates that opportunities for AI implementation in Islamic boarding schools also include strengthening the quality of learning management while remaining grounded in Islamic moral and spiritual values.

Despite offering various opportunities, the results of this study indicate that AI implementation also faces a number of challenges related to teachers' digital competence, students' technological literacy, infrastructure limitations, the validity of AI-generated information, and ethical aspects of technology use. These findings align with the concept of a learning organization proposed by Ortenblad [19], which emphasizes that an organization's success in facing change depends heavily on the ability of its human resources to continuously learn and adapt. The challenge of the digital competency gap demonstrates that digital transformation cannot rely solely on the availability of technology but also requires continuous user capacity building. This finding aligns with research Sigit et. al [20] which confirms that educators' digital competence is a key factor in the successful implementation of AI in educational management. Mubarak [21] also found that the digitalization of Islamic educational institutions still faces obstacles in terms of human resource readiness and organizational culture. However, this study expands on previous findings by identifying specific challenges in Islamic boarding schools (pesantren), namely the need to maintain a balance between technology utilization and the preservation of Islamic boarding school values, which place teachers at the center of character development and the spirituality of students.

In terms of human resource and institutional readiness, the research results indicate that the Hidayatul Mubtadiin Islamic Boarding School is quite well prepared to support AI-based digital transformation. This readiness is evident in the support of the boarding school leadership, teachers' openness to technological innovation, the availability of basic digital infrastructure, and the development of a culture of technology utilization in learning. These findings are relevant to the theory. Deszca [22] Organizational readiness for change explains that the success of organizational transformation is greatly influenced by individual and institutional readiness to accept change. The results of this study align with research Sari [23], which states that digital transformation in Islamic

educational institutions requires leadership support, an adaptive organizational culture, and strengthening human resource competencies. Muzakky [24], also shows that institutional readiness is a critical factor in determining the success of technological innovation in Islamic boarding schools. However, unlike previous research, which generally focused on the digitalization of education in general, this study specifically examines the readiness of human resources and institutions to support the implementation of Artificial Intelligence as part of Islamic education management.

Comprehensively, the results of this study indicate that the implementation of Artificial Intelligence in Islamic education management is a process involving the interaction of technology, human resources, organizational culture, and Islamic values. Previous research tends to discuss AI from the perspective of learning technology or digital transformation in general, while this study presents a more comprehensive perspective by integrating an analysis of opportunities, challenges, and human resource and institutional readiness in the context of Islamic boarding school education. Thus, this study enriches the scientific body of Islamic education management by developing an AI implementation model that is not only oriented towards technological effectiveness but also considers aspects of ethics, spirituality, and the unique characteristics of Islamic boarding school education as the main foundation for managing learning in the digital era.

Theoretically, this study confirms that the successful implementation of Artificial Intelligence (AI) in Islamic education management is determined by the integration of human resource readiness, institutional support, effective technology utilization, and the integration of Islamic values into the learning management process. The research findings indicate that AI has significant potential to improve the efficiency of learning planning, expand access to learning resources, support pedagogical innovation, and strengthen the effectiveness of educational administration. Empirically, the research results prove that Islamic educational institutions that are open to technological innovation and able to manage it wisely have a greater opportunity to improve the quality of educational services and adapt to the demands of digital transformation. Thus, this study not only strengthens the theoretical construction regarding the implementation of technology in education but also offers a conceptual understanding of the AI utilization model that aligns with the principles of Islamic education management and the characteristics of Islamic boarding schools.

While this research generally confirms various theories regarding digital transformation and the adoption of educational technology, several important findings warrant further consideration. First, the success of AI implementation is not solely determined by the availability of technology, but rather by the readiness of human resources, organizational culture, and the support of institutional leadership. Second, the use of AI in learning cannot completely replace the role of teachers, as the educational process in Islamic boarding schools is oriented not only toward knowledge transfer but also toward moral development, role modeling, and the strengthening of spiritual values. Third, although AI offers various conveniences, uncontrolled use has the potential to lead to technological dependency, a decline in critical thinking skills, and the emergence of ethical and information validity issues. Therefore, the implementation of AI in Islamic boarding schools must be carried out selectively, proportionally, and remain within the framework of Islamic educational values.

The novelty of this research lies in the development of an Artificial Intelligence (AI) implementation model in Islamic education management that integrates three main dimensions: the opportunities for utilizing AI in learning management, the implementation challenges faced by Islamic boarding schools, and the readiness of human resources and institutions to support digital transformation. While previous research generally discussed AI from the perspective of learning technology or partial digitalization of education, this study offers a more comprehensive conceptual synthesis by placing Islamic values as the primary foundation for technology utilization. Thus, this study provides a new theoretical contribution in the form of a value-based AI implementation model that combines technological innovation, institutional governance, human resource strengthening, and the internalization of Islamic values to support learning management in Islamic boarding schools.

4. CONCLUSION

The results of the study indicate that the implementation of Artificial Intelligence (AI) in Islamic education management at the Hidayatul Mubtadiin Islamic Boarding School in South Lampung has been utilized to support the preparation of learning tools, the development of teaching

materials, learning evaluation, the search for learning resources, and the management of educational administration. The use of AI provides opportunities in the form of increased work efficiency, easier access to information, learning innovation, and strengthening digital literacy. However, its implementation still faces challenges such as limited digital competence of some teachers, the validity of information generated by AI, the potential for technological dependency, and the absence of specific guidelines for the use of AI in the Islamic boarding school environment. The results also indicate that the readiness of human resources and institutions is quite good, characterized by leadership support, openness to innovation, and the availability of basic digital infrastructure. Thus, it can be concluded that the success of AI implementation depends not only on technology, but also on the readiness of human resources, institutional support, and the ability to integrate technology with Islamic educational values. Therefore, this study recommends improving the digital competence of teachers and students, formulating clear AI usage policies, strengthening technological infrastructure, and developing an AI utilization system that remains oriented towards Islamic values so that digital transformation in Islamic boarding schools can take place effectively and sustainably.

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