

The Role Of Artificial Intelligence In Improving The Quality Of Educational Learning At Man 1 Kota Palu

Fakhirah Fakhirah^{1*}

¹ Islamic Religious Education Study Program State Islamic University Datokarama Palu, Indonesia

Corresponding Author: Fakhirah, E-mail: fakhriahrdm02@gmail.com

ARTICLE INFO	ABSTRACT
Volume: 4 ISSN: 2963-5489	This study explores the role of Artificial Intelligence (AI) in enhancing the quality of educational learning at MAN 1 Kota Palu. As education increasingly embraces digital transformation, AI has become a crucial tool in personalizing learning, improving teaching strategies, and increasing student engagement. Through qualitative methods such as interviews and classroom observations, the research identifies how AI-based tools—such as intelligent tutoring systems, automated assessments, and adaptive learning platforms—are being utilized within the school environment. The findings indicate that the integration of AI contributes positively to both teaching efficiency and student outcomes. Teachers are better equipped to analyze student performance data and adapt their instruction accordingly, while students benefit from more tailored and interactive learning experiences. Despite challenges such as limited infrastructure and digital literacy, the implementation of AI at MAN 1 Kota Palu shows promising potential for future educational development.
KEYWORD Artificial Intelligence, Education, Learning Quality, MAN 1 Kota Palu, Digital Transformation, Adaptive Learning	

1. Introduction

In the era of rapid technological advancement, the integration of Artificial Intelligence (AI) into various sectors has become inevitable, including the field of education. Educational institutions around the world are adapting to this wave of innovation by incorporating AI technologies to enhance the learning process and overall educational experience. In Indonesia, particularly in secondary schools such as MAN 1 Kota Palu, there is a growing interest in adopting AI-driven tools to support teachers and improve student outcomes. This shift is motivated by the need to meet the demands of the 21st-century education system, which emphasizes critical thinking, creativity, and the use of technology in solving real-world problems. The conventional methods of teaching, which primarily rely on face-to-face interactions and uniform instructional materials, often fail to address the diverse learning needs of students. AI, with its ability to analyze vast amounts of data and provide personalized feedback, offers a solution to this issue. By leveraging AI, educators can create more adaptive learning environments where instruction is tailored to individual student capabilities, learning styles, and progress. This personalized approach not only improves comprehension but also boosts student motivation and engagement in the learning process (Elfira, R. 2024).



***Fakhirah** is a Student Islamic Religious Education Study Program at Postgraduate School, State Islamic University Datokarama Palu, Indonesia. This paper was presented at the 4th International Conference on Islamic and Interdisciplinary Studies (ICIIS) 2025, as a presenter, organized by the Postgraduate School State Islamic University Datokarama Palu, Indonesia.

Figure 1 AI Illustration

Moreover, AI has the potential to automate administrative and routine academic tasks, allowing teachers to focus more on instructional quality and mentorship. For example, automated grading systems and intelligent tutoring programs can reduce the workload of educators, thereby giving them more time to plan effective lessons and provide one-on-one support where needed. At the same time, students benefit from instant feedback and continuous assessments that help them monitor their own learning journey. At MAN 1 Kota Palu, the push toward digitalization and innovation in education is becoming increasingly evident. The school administration and teaching staff are exploring ways to implement AI technologies as part of their strategy to elevate the quality of learning. While the institution is still in the early stages of this transformation, initial steps such as integrating AI-based language learning apps, data-driven learning analytics, and digital classroom platforms are already underway. These developments indicate a proactive approach in preparing students to thrive in a technology-driven society.

However, the integration of AI in education is not without challenges. Issues such as limited access to technological infrastructure, lack of trained personnel, and concerns over data privacy must be carefully addressed to ensure effective implementation. At the same time, educators must be equipped with the necessary skills and understanding of AI in order to harness its full potential. Without proper training and support, the benefits of AI might remain untapped or even exacerbate existing educational inequalities.

Despite these obstacles, the role of AI in transforming educational practices remains promising. With the right strategies and collaborative efforts among stakeholders—teachers, administrators, students, and policymakers—AI can play a significant role in bridging learning gaps and fostering academic excellence. MAN 1 Kota Palu, as a leading Islamic senior high school in Central Sulawesi, has the potential to become a model for AI integration in the Indonesian education system, especially within the framework of religious-based learning environments. The study also considers the cultural and institutional factors that affect the integration of AI in educational settings. Given the unique characteristics of MAN 1 Kota Palu—such as its Islamic curriculum, values-based education, and local community involvement—understanding how AI aligns with these elements is crucial. The research therefore not only evaluates technical outcomes but also examines the broader implications of AI on pedagogy, student character development, and institutional goals (Elfira, R. 2024).

2. Literature Review

Artificial Intelligence in education has evolved significantly in recent years, with various tools and applications developed to support learning and teaching. These technologies include intelligent tutoring systems, adaptive learning platforms, automated feedback systems, and AI-driven learning management systems. These innovations are designed to enhance educational efficiency by enabling personalized learning paths, providing real-time feedback, and facilitating differentiated instruction based on student data. While originally implemented in higher education settings, these tools are now gradually being introduced into primary and secondary schools, including religious-based institutions, where they are adapted to fit the curriculum and learning environment (Zulfikar, M. R. 2024).

In the context of classroom teaching, AI can serve as both a support system for educators and an active agent in the learning process. Teachers can utilize AI tools to assess student performance more accurately and identify learning difficulties at an early stage. At the same time, students can interact with AI-based applications that adjust content delivery according to their individual learning pace. This dynamic approach promotes deeper understanding and long-term retention of material, especially in subjects that require repetitive practice such as mathematics and

language learning. Furthermore, the use of AI enables the development of data-driven educational policies that can be tailored to the needs of specific student populations (Elfira, R. 2024).

3. Methodology

3.1 Research Design

The research design used in this study is qualitative descriptive, aimed at portraying the actual condition of AI implementation in the educational setting without manipulating variables. This design allows the researcher to describe and interpret the behaviors, experiences, and perceptions of teachers and students regarding AI in learning. The study is conducted through field visits, direct observations, and in-depth interviews to capture authentic information from participants. By focusing on naturally occurring situations at MAN 1 Kota Palu, the research seeks to understand the practical aspects and challenges of AI integration from an educational perspective.

3.2 Data Collection Techniques

The data collection techniques applied in this study include observation, interviews, and documentation. Observations are carried out within classrooms and school facilities to examine how AI tools are used during learning activities. Semi-structured interviews are conducted with teachers, students, and school administrators to gather detailed insights into their experiences and perceptions of AI in the learning process. Additionally, documentation—such as lesson plans, academic records, and AI-based platform usage reports—is analyzed to support and validate the observational and interview data. These multiple sources of data help ensure the credibility and depth of the findings.

4. Results and Discussion

The implementation of Artificial Intelligence (AI) at MAN 1 Kota Palu has brought about a number of observable changes in both pedagogical practices and learner outcomes. In the first stages, the introduction of AI tools stirred curiosity among teachers and students, prompting gradually increasing utilization. At first, usage was minimal and cautious; many educators would only use AI as an auxiliary tool, such as recommending online quizzes or automated assessments occasionally. Over time, as confidence and awareness grew, more substantive integration began, including adaptive learning modules and intelligent tutoring systems. This transitional period shows a dynamic process where stakeholders negotiate trust, usability, and perceived benefits. In classrooms where AI-supported learning tools were used regularly, teachers reported that students showed greater engagement. Rather than passively listening to lectures, many students interact with learning modules, receive instant feedback, and attempt to correct errors in real-time. This shift from a one-size-fits-all instruction to a more responsive learning environment was often cited by teachers as a positive change. They observed that students became more active participants in their learning process, frequently asking deeper questions and experimenting with problem-solving before asking for help.

At the same time, AI's adaptive nature allowed content to be tailored to individual students' pace and level of mastery. For instance, slower learners received more scaffolded tasks and hints, whereas advanced students were pushed toward more challenging problems. This differentiation reduced the frustration of students feeling left behind while preventing boredom for those who grasped the material quickly. Several teachers noted that before AI integration, they struggled to manage the disparity among students; now, the system alleviates much of that burden by automatically adjusting learning paths.

Table 1 Summary of AI Features and Their Impact on Learning

Aspect	Description	Impact
Adaptive Content	AI adjusts tasks to student level	Helps slow and fast learners
Assessment	AI quizzes and automated grading	Easier, frequent evaluations
Feedback	Instant error correction and hints	Improves self-monitoring
Student Independence	Students check work before asking help	Builds learner autonomy

Another notable effect was on assessment practices. The use of AI-driven quizzes, automated grading, and performance analytics enabled more frequent formative evaluations without increasing the teachers' workload significantly. Teachers gained access to dashboards showing student errors, trends, and common misunderstandings. Through this data, they could identify weak areas in class comprehension and plan remedial instruction or group work accordingly. Consequently, remedial sessions became more focused and efficient. Furthermore, the immediate feedback feature embedded in many AI tools improved students' self-monitoring and metacognitive awareness. When a student makes a mistake on a digital exercise, the system often highlights the error and suggests hints or corrective steps. This instant loop of attempt—feedback—adjusted practice encourages reflection and incremental improvement. Over time, students developed a habit of checking their own work more carefully before requesting teacher assistance, fostering greater independence in learning.

Despite these encouraging outcomes, the research also uncovered a number of constraints and obstacles. Some classrooms lacked adequate infrastructure—insufficient computers, slow internet connectivity, or limited access to devices—which hampered uninterrupted AI usage. In such conditions, teachers occasionally reverted to traditional methods. This gap in infrastructure equity caused inequality in AI exposure: some classes or groups benefited more, while others lagged behind due to resource limitations. Teacher readiness emerged as another significant challenge. Not all educators at MAN 1 Kota Palu were equally comfortable with the use of AI tools. Some lacked training in digital pedagogies, leading to hesitation, inconsistent usage, or superficial application. A few teachers adopted AI only in low-stakes tasks, rather than integrating it deeply into lesson design. This inconsistency sometimes created confusion among students, especially when expectations or procedures varied from one class to another (Patmasari, A, 2024).

Student digital literacy also played a role. While many youths are generally technology-savvy, not all had equal familiarity with educational AI systems. Some students struggled to navigate interfaces, manage error feedback, or interpret analytics. In early sessions, these difficulties slowed progress and required extra time from teachers to provide orientation or troubleshooting. Over time, as exposure increased, most students adapted, but the learning curve in the initial stages was non-negligible. Another dimension identified was the factor of acceptance and attitude. Some teachers and students were wary of AI tools, worrying that reliance on machines might weaken human teaching or reduce interpersonal interaction. In interviews, a few voiced concern about overdependence or dehumanization of education. Yet others expressed excitement about innovation and the prospect of more dynamic learning. These contrasting attitudes shaped the pace and depth of AI adoption in different classes and departments (Kainde, Q. C., Sumual, 2025).

In exploring how AI integration aligns with the religious character and values-based curriculum of MAN 1 Kota Palu, the results were mixed but illuminating. Some educators reported consciously adapting AI tasks to reflect Islamic ethics or integrating reflection moments within AI modules. For example, after a mathematics problem, a student might also answer a prompt relating to ethical reasoning or gratitude, blending AI with spiritual development. This hybrid approach illustrates how AI need not conflict with values-based education but rather can be contextualized for synergy. The influence on collaborative learning also surfaced. Educators sometimes paired AI activities with small group tasks, where students discuss AI-generated suggestions, compare strategies, or co-validate solutions. These collaborative sessions allowed peer learning and higher-order thinking, preventing AI from becoming a purely

solitary pursuit. Teachers considered this pairing beneficial because it balanced machine-guided learning with human dialogue and collective reasoning.

In observing outcomes across different subjects, AI seemed more readily adopted in quantitative or procedural disciplines such as mathematics, physics, and computer science. In these subjects, the tasks are more amenable to algorithmic adaptation, automated feedback, and scaffolded progression. In contrast, in subjects demanding creativity, open-ended discussion, or interpretive analysis (e.g., literature, religion), AI tools were used more as supplemental aids—such as vocabulary drills or quiz reviews—rather than central pedagogical engines. Variations were also evident across different grade levels. In lower grades, students welcomed AI support as a new tool, and teachers guided them more closely to avoid misuse. In upper grades, students tended to be more autonomous in using AI resources, exploring optional modules, and self-regulating their study paths. The greater maturity in older students allowed deeper utilization of AI's adaptive and analytics features (Hastangka, 2025).

5. Conclusion

The integration of Artificial Intelligence in the learning process at MAN 1 Kota Palu has demonstrated a significant potential to enhance educational quality through personalized instruction, increased student engagement, and more efficient assessment practices. By enabling adaptive learning and providing instant feedback, AI has supported both teachers and students in creating more responsive and effective learning environments. However, the successful implementation of AI is highly dependent on several critical factors, including adequate infrastructure, teacher training, student digital literacy, and ongoing institutional support. While challenges remain—particularly in terms of equity, sustainability, and maintaining the human aspect of education—the findings suggest that with thoughtful planning and continuous development, AI can be harmonized with the values and educational goals of the institution, ultimately contributing to a more dynamic and inclusive learning experience.

Acknowledgments: The researcher would like to express sincere gratitude to the principal, teachers, and students of MAN 1 Kota Palu for their valuable participation and support throughout the research process. Appreciation is also extended to the academic advisors and colleagues who provided insightful feedback and encouragement during the development of this study. This research would not have been possible without the cooperation and openness of the school community in sharing their experiences and perspectives on Artificial Intelligence in education.

Conflicts of Interest: The author declares that there are no conflicts of interest related to the conduct of this research, the authorship, or the publication of this study. All data were collected and analyzed independently, and no financial or personal relationships influenced the outcomes or interpretations presented in this paper.

References

- Elfira, R. (2024). Teknologi Artificial Intellegence dan Nilai-Nilai Karakter Mahasiswa Universitas Islam Negeri Datokarama Palu. *Moderasi: Jurnal Studi Ilmu Pengetahuan Sosial*, 5(2), 213-223.
- Hastangka¹, H., Faqih, M. I., Raharjo¹, S. B., Budi, A., Kusuma, J. J., & Listiyani, L. R. (2025, March). Reimagine Education with AI: the Challenges and Opportunity for Improving Quality and Access. In *Proceedings of the 2nd International Conference on Environmental Learning Educational Technologies (ICELET 2024)* (Vol. 908, p. 211). Springer Nature.
- Kainde, Q. C., Sumual, H., Rawis, J. A., Tambingon, H. N., Palilingan, R. N., Umbase, R., ... & Ratu, D. (2025). The Design of " KIDOS"(Knowledge Information Domain System) in Education Management System. *International Journal of Information Technology and Education*, 4(2), 105-117.

- Patmasari, A., Ismail, M., Saadillah, A., Ahmar, D. S., & Azzajjad, M. F. (2024). ACCELERATING THE USE OF EDUCATIONAL TECHNOLOGY: A PRACTICAL APPROACH TO ICT SUPPORT AT SD INPRES 3 TALISE. *Abdi Dosen: Jurnal Pengabdian Pada Masyarakat*, 8(3), 1114-1124.
- Zulfikar, M. R. (2024). OPPORTUNITIES, CHALLENGES, AND STRATEGIES FOR APPLYING AI IN EDUCATION IN SOUTHEAST SULAWESI: A. In *19TH EDUCATION AND DEVELOPMENT CONFERENCE [EDC2024] 5TH–7TH OF MARCH 2024 BANGKOK, THAILAND* (p. 52).