The Role of Artificial Intellegence (AI) in Learning Evaluation Management

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ABSTRACT

Digital transformation in educational management demands a more adaptive, accurate, and data-driven evaluation system. Artificial Intelligence (AI) holds great potential to transform learning evaluation from a mere academic assessment to a strategic tool for institutional decision-making. This article aims to explore the role of AI in educational evaluation and managerial strategies required for its adaptive and contextual adoption. Using a qualitative literature review approach from accredited journal sources, the study finds that AI has been implemented in various forms such as computerized adaptive testing, NLP-based essay scoring, student character monitoring, and predictive decision-support systems. However, structural barriers such as limited infrastructure, low digital competence, and lack of technical regulation hinder widespread adoption. Effective managerial strategies must include digital leadership, structured implementation roadmaps, data literacy, ethical governance, and locally participatory approaches. The article concludes that AI integration in learning evaluation must be guided by the Technology Acceptance Model (TAM) and Data-Driven Decision Making (DDDM) frameworks to truly enhance education quality.

ABSTRAK:

Integrasi Artificial Intelligence (AI) dalam manajemen evaluasi pembelajaran memiliki potensi besar untuk mendorong reformasi sistem pendidikan menuju arah yang lebih adaptif, akuntabel, dan berbasis data. Namun, keberhasilan transformasi ini sangat bergantung pada strategi manajerial yang tidak hanya

bersifat teknis, tetapi juga memperhatikan konteks sosial, kultural, dan struktural tiap satuan pendidikan. Hambatan utama yang diidentifikasi meliputi keterbatasan infrastruktur, rendahnya literasi digital pendidik, resistensi budaya organisasi, hingga absennya kebijakan teknis nasional yang mendukung pemanfaatan AI secara sistemik. Oleh karena itu, strategi manajerial yang diperlukan harus mencakup kepemimpinan digital, roadmap implementasi yang terstruktur, pelatihan literasi data, tata kelola etis, dan pelibatan komunitas lokal dalam penyesuaian teknologi. Pendekatan ini, jika dijalankan berdasarkan prinsip Technology Acceptance Model (TAM) dan Data-Driven Decision Making (DDDM), diyakini mampu menciptakan ekosistem evaluasi pendidikan yang tidak hanya efektif secara teknis, tetapi juga relevan secara sosial dan berkelanjutan dalam jangka panjang.

INTRODUCTION

The rapid advancement of digital technology in the era of the Industrial Revolution 4.0 and Society 5.0 has triggered a fundamental transformation in the global education system. This transformation occurs not only in the teaching and learning process but also extends to aspects of educational management, one of which is learning evaluation. Traditionally, evaluation has been carried out administratively and conventionally, emphasizing written tests and simple observations as the main tools to assess student learning achievement (Fuadiy, 2021). However, along with the demands of the times, this paradigm has shifted. Evaluation is no longer positioned merely as a measure of learning outcomes but rather as a strategic component in the education management system that serves to support decision-making, quality control, and continuous improvement.

In the context of modern education management, evaluation is expected to provide diagnostic information that not only covers students academic achievements but also reveals strengths, weaknesses, and potential that can be developed. Ideally, evaluation results become the basis for academic policy formulation, adaptive learning design, and accountable quality assurance. However, many educational institutionsin Indonesia still rely on manual, fragmented, and summative evaluation systems that are not yet integrated into institutional decision-making processes, creating a gap between the ideal

concept of evaluation and empirical practices in the field (Nadya Putri Mtd et al., 2023).

Artificial Intelligence (AI) emerges as a disruptive technology with considerable potential to address this gap in learning evaluation. AI enables the automation of assessment processes, the provision of real-time feedback, and the analysis of large volumes of learning data through techniques such as learning analytics and Natural Language Processing (Holmes et al., 2019). Recent studies show that AI-based evaluation can improve assessment accuracy, offer more detailed profiles of students' learning progress, and provide timely information for teachers and school leaders to design targeted pedagogical and managerial interventions (Solihat et al., 2024).

Nevertheless, the utilization of AI in learning evaluation in Indonesia remains relatively limited and uneven. Several edutech companies such as Ruangguru, Zenius, and Quipper have begun integrating AI features into student assessments. However, the application of AI in managerial functions such as institutional evaluation, data-driven decision-making, and education policy reflection has not yet become part of systemic practice in many educational institutions. These barriers are caused by limitations in human resources in terms of digital competence, a lack of supporting infrastructure, and the absence of clear technical regulations regarding the use of AI technology for learning evaluation (Mardiana & Emmiyati, 2024).

Literature review shows that there are four types of gaps in research relevant to this topic. First, very few studies discuss in depth the use of AI in institutional evaluation management, indicating a knowledge gap. Second, most prior research originates from developed countries, which does not represent the reality of developing countries such as Indonesia that face different structural and cultural challenges, highlighting a population gap. Third, there is an empirical gap between the idealized benefits of AI in learning evaluation and its actual implementation at the institutional level. Fourth, there is a theoretical gap due to the limited number of studies that employ a conceptual framework combining technology adoption perspectives with data utilization for strategic managerial decision-making.

To explore this issue, this study employs two main theoretical frameworks. The first is the Technology Acceptance Model (TAM) is used to understand how perceived usefulness and perceived ease of use influence teachers' and school leaders' acceptance of AI-based evaluation systems by

Davis (1989). In this context, educators' and institutional leaders' perceptions of the benefits and ease of use of AI are key to identifying the extent to which this technology can be accepted in the learning evaluation system (Pratama et al., 2022). In addition, the Data-Driven Decision Making (DDDM) perspective is used to analyse how AI-generated data are collected, processed, and utilised to support institutional decisions and continuous quality improvement (Kaspi & Venkatraman, 2023). Together, these frameworks provide an analytical lens for examining how AI is positioned within learning evaluation management and what conditions are needed to ensure that AI contributes meaningfully to quality enhancement.

Based on this background and theoretical mapping, this study aims to analyze the implementation of AI in learning evaluation management in Indonesian educational institutions. The main focus of the research is to explore the forms of AI implementation in evaluation systems, identify managerial and institutional challenges in adopting this technology, and formulate relevant strategies to optimize systemic and sustainable AI integration. Therefore, this study formulates three main questions: what forms of AI implementation exist in learning evaluation management, what obstacles are faced by educational institutions in the integration process, and what managerial strategies are needed to encourage adaptive, contextual, and quality-oriented AI adoption.

By combining a conceptual approach with empirical exploration, this study is expected to provide theoretical contributions to the development of discourse on digital transformation in education management, as well as practical recommendations that can be utilized by policymakers and stakeholders in formulating an educational evaluation system that is more responsive, accountable, and equitable in the digital era.

METHODS

This study employs a qualitative approach with a literature review method to explore the contribution of Artificial Intelligence (AI) in learning evaluation management. The literature review method was carried out by examining various relevant written sources, such as scientific journals, academic books, research reports, and articles discussing the integration of AI into educational evaluation processes (Adlini et al., 2022).

The data collection process was conducted through systematic searches in several national and international scientific databases, such as Google Scholar,

DOAJ, and accredited journal portals in SINTA (Science and Technology Index). The keywords used in the literature search included "Artificial Intelligence," "AI in education," "AI-based assessment," "learning evaluation management," "data-driven decision-making," and "technology acceptance model." The selected articles were limited to the 2019–2025 range to ensure relevance to the latest developments in the application of AI technology in education, particularly in evaluation systems.

The literature selection was conducted based on predetermined inclusion and exclusion criteria to ensure analytical rigor and methodological consistency. The inclusion criteria comprised scientific articles published in nationally accredited or reputable international journals that specifically discussed the application of Artificial Intelligence (AI) in learning evaluation or educational management, incorporated theoretical frameworks such as the *Technology Acceptance Model* (TAM) or *Data-Driven Decision Making* (DDDM), and were available in full-text format. Conversely, opinion-based papers, studies unrelated to learning evaluation, or those inaccessible in full text were excluded from the analysis. To ensure the validity and reliability of the selected articles, each publication underwent a quality appraisal process based on three key parameters: (1) methodological soundness, evaluated through the clarity of research design, data collection, and analytical procedures; (2) theoretical relevance, assessed through the alignment between the applied theoretical framework and the educational context of AI implementation; and (3) source credibility, verified through citation counts, journal reputation, and indexing in reputable academic databases such as Google Scholar and DOAJ. Only studies meeting these criteria were retained to strengthen the credibility and reliability of the synthesis.

The validated literature was then analyzed using a thematic synthesis approach. Each article was critically reviewed to extract essential information regarding the forms of AI application in learning evaluation, the structural and cultural barriers encountered, and the managerial strategies proposed to optimize implementation. The results of this process were synthesized into a cohesive narrative that identified three overarching themes aligned with the study's objectives: the transformation of AI-based evaluation functions, institutional readiness for technological adoption, and the importance of ethical governance in the integration of intelligent systems. This systematic selection and synthesis process ensured that the conclusions drawn were both

conceptually grounded and empirically supported, thereby enhancing the overall rigor and reliability of the literature review.

This article seeks not only to summarize previous findings but also to construct a broader and more contextual perspective on the challenges and opportunities of implementing Artificial Intelligence (AI) in learning evaluation within the Indonesian education system. The resulting synthesis is expected to provide both significant conceptual contributions and practical insights for policymakers and educational practitioners in developing a more adaptive, accountable, and data-driven evaluation system. Furthermore, this study emphasizes the importance of ethical considerations, recognizing that discussions involving student data and AI-driven decision-making inherently raise moral and social implications. Therefore, this review does not merely highlight the technological dimension but also positions ethical awareness as an integral component in the development of a fair, responsible, and human-centered educational evaluation framework.

FINDINGS AND DISCUSSION
The Role of Artificial Intelligence (AI)

Artificial Intelligence (AI) is a branch of computer science that aims to create intelligent systems capable of mimicking human thinking and decision-making processes. In the context of education, AI holds great potential to revolutionize the way teaching and evaluation are conducted, particularly in improving efficiency, personalization, and assessment accuracy. AI functions not only as a technical tool but also as a cognitive entity capable of understanding, adapting to, and dynamically responding to learners' needs (Rifky, 2024). In today's digital era, AI has become a key pillar in supporting data-driven educational transformation that is responsive to learner diversity.

The application of AI in learning evaluation management demonstrates progressive and multidimensional developments. A synthesis of seven SINTA-accredited journal articles shows that AI is no longer used solely at the classroom level, but has begun to support evaluation at the institutional and policy levels. One prominent example is Computerized Adaptive Testing (CAT), which uses AI algorithms to adjust the difficulty of test items in real time according to students' response patterns, enabling more precise measurement of ability while optimising test length and reducing teachers' workload in

managing assessment processes that have traditionally been manual and subjective (Samsudin et al., 2019).

One of the most fundamental applications of AI is the automation of learning assessments and real-time feedback. A journal published by Universitas Terbuka highlights that preservice teachers have begun to develop and use AI-based evaluative applications to assess students' work quickly and measurably (Siswanto et al., 2024). This automation includes analyzing multiple-choice responses, evaluating text-based assignments through NLP algorithms, and scoring based on systematically programmed rubrics. Such practices reduce teachers' administrative burden and enhance their focus on strengthening pedagogical aspects.

A second form of application is the use of AI in data-driven decision-making at the managerial level. AI-based evaluation systems can be utilised by principals and management teams to monitor grade trends, identify learning gaps across classes, and project academic achievement based on historical data (Hidayah, 2025). The analyses generated by these systems support the formulation of follow-up plans and intervention strategies, so that evaluation results function not merely as records of student performance but as inputs for an adaptive, evidence-based institutional decision-making ecosystem.

Furthermore, the *Panrita Abdi* journal reports that early childhood education teachers trained in using AI for evaluating young children show that AI can detect cognitive and affective behaviors through sensors or automated observation applications. This expands evaluation functions to aspects of character and socio-emotional development, which were previously difficult to measure objectively. Teachers are trained to interpret and follow up on narrative reports generated by the application, which include individualized recommendations (Reba et al., 2025). Thus, AI strengthens both personalized learning and continuous monitoring of child development.

Another study, published in *IRJE*, highlights AI's role in building adaptive assessment systems. Such systems can adjust question difficulty in real time based on student performance, thereby capturing students' actual abilities more accurately. The evaluation results are not only stored but also analyzed to identify common learning difficulties, serving as a basis for instructional planning. This creates an integrative system linking assessment outcomes with instructional policy decisions at the school level (Adiman et al., 2024).

In Islamic institutional contexts, as examined by RIGGS, the implementation of AI in Islamic education evaluation reveals interesting forms of integration. AI is used not only for cognitive assessment but also to map students' religious behavior by analyzing prayer attendance, participation in religious activities, and consistency in Qur'an memorization. The system is integrated with a cloud-based school management dashboard, allowing principals to holistically and spiritually monitor student development. This shows AI's expansion from an academic tool to an instrument for character and values assessment (Kobandaha et al., 2025).

Moreover, studies show that AI supports not only evaluation effectiveness but also accelerates educational administration processes such as grade reporting, student grouping based on performance, and the distribution of learning materials tailored to students' needs. This reflects a paradigm shift: AI-based evaluation can serve as an internal quality control tool while simultaneously providing primary data sources for formulating educational management policies. However, these studies also note technical competency gaps among educators and insufficient digital infrastructure as key challenges, which must be addressed through continuous training programs and strong institutional support.

In line with these findings, an article by Kareena Raudah Febrianti in the *Jurnal Inovasi Pendidikan dan Teknologi Informasi* reinforces AI's role as a lever for data-driven decision-making at the managerial level of education. This research emphasizes the implementation of AI in monitoring and evaluating education policies based on measurable performance indicators. AI is used to generate analytical reports from indicators such as attendance, learning completion rates, student participation in online learning, and interaction data on digital platforms. These data are processed to produce automated recommendations that institutional leaders can use to formulate intervention strategies, resource allocation, and curriculum adjustments (Febrianti et al., 2025).

This approach expands evaluation from merely measuring learning outcomes to functioning as a contextual, AI-driven decision-support system. Consequently, AI is no longer confined to the classroom but has become part of predictive and real-time education quality monitoring and control mechanisms. Furthermore, the article stresses the urgency of strengthening data literacy among all education stakeholders to avoid algorithmic bias or purely

administrative use of AI-generated evaluations. The importance of algorithm transparency and data validity is also emphasized, ensuring that developed systems hold both scientific legitimacy and public ethical responsibility.

By integrating findings from these various articles into the main discussion, it becomes evident that AI implementation in learning evaluation management is neither singular nor linear. Instead, AI addresses multiple spectrums of educational needs: from micro-level requirements such as student assessment personalization in classrooms to macro-level functions like institutional decision-making and strategic education policy formulation. AI serves not only as a technical tool but also as an epistemological medium for transforming how educational institutions understand, assess, and improve learning quality.

However, the success of such implementation depends heavily on institutional readiness to address human resource challenges, technological infrastructure, and visionary, participatory policy support. Without comprehensive implementation strategies, AI's potential as a driver of evaluation reform may be hindered by cultural resistance, limited digital competence, and fragmented academic information systems. Therefore, transformative approaches that are integrative and participatory must underpin both national and institutional strategies to ensure ethical and sustainable AI use in education evaluation management.

To enhance conceptual clarity and demonstrate the multidimensional role of Artificial Intelligence (AI) in learning evaluation management, a conceptual synthesis is presented in the following table. The table organizes findings from various studies into six key dimensions, illustrating how AI functions across pedagogical and managerial contexts. Each dimension reflects a specific aspect of AI integration from automated assessments to ethical governance along with its corresponding impact, challenges, and ethical considerations. This structured overview aims to provide a clearer understanding of how AI operates not merely as a technical tool but as an epistemological and ethical agent within educational evaluation systems.

Table 1. Dimensions and Roles of AI Implementation in Learning Evaluation Management

No	AI Implementation Dimension	Form of Implementation	Managerial or Pedagogical Focus	Impact on Evaluation	Ethical Challenges and Considerations
1	Automated Assessment and Real-Time Feedback	Computerized Adaptive Testing (CAT), NLP-based essay scoring	Pedagogical	Improves objectivity and efficiency in student assessment (Samsudin et al., 2019; Siswanto et al., 2024)	Algorithmic bias and reduced human role as ethical evaluator
2	Data-Driven Decision Making	Analysis of score trends, identification of learning gaps, prediction of academic achievement (Hidayah, 2025; Febrianti et al.)	Managerial	Supports evidence-based evaluative policy formulation using longitudinal data	Limited teacher data literacy and lack of algorithmic transparency
3	Character and Socio-Emotional Development Evaluation	AI applications for detecting affective and cognitive behavior in early childhood (Reba et al., 2025)	Pedagogical	Expands evaluation function to non-cognitive domains more objectively	Risk of privacy violations and oversimplification of human behavior into data
4	Evaluation of Values and Religiosity in Islamic Education	Analysis of prayer attendance, memorization, and participation in religious activities (Kobandaha et al., 2025)	Managerial and spiritual	Provides holistic monitoring of student character	Potential conflict with Islamic values of justice, trustworthiness, and ethical leadership (imāmah)
5	Academic Administration and Reporting Management	Automation of grade reports, student grouping, and digital material distribution (Adiman et al., 2024)	Managerial	Increases efficiency in reporting and improves school management quality	Technology dependency without infrastructure and human resource readiness

6	AI Governance and Ethical Framework Strengthening	Algorithm audits, ethical policies, digital literacy training, and *maqāṣid al-syarī'ah* approach	Managerial and policy	Ensures fairness, transparency, and public benefit in AI use	Requires institutional synergy, national regulation, and visionary digital leadership

Barriers to AI Integration in Educational Institutions

A number of studies highlight that structural and institutional constraints, such as limited internet bandwidth, outdated hardware, fragmented academic information systems, and insufficient budget allocations, continue to hinder the integration of AI-based evaluation into everyday school operations (Yahya et al., 2024). In many cases, AI initiatives are implemented only as short-term projects or pilots without adequate plans for maintenance and scaling, so they fail to generate a sustainable transformation in educational evaluation (Atho, 2024).

In addition, limited human resource competence represents another crucial obstacle. Teachers often depend on a small number of technical operators to manage AI-based evaluation systems, while opportunities for continuous professional development in AI, machine learning, and big data analytics remain very limited (Helmi, 2025). This dependence, combined with anxiety about mastering new technologies, threatens the sustainability of AI integration and reinforces educators' resistance to adopting AI-based evaluation in their daily practice (Hantoro et al., 2024).

Cultural and religious values also play a decisive role in shaping AI integration. Many educators and institutional leaders perceive AI as an external force that may threaten the moral foundations of education, particularly within Islamic contexts. Rhendica and Kukuh Budianto (2024) note that such concerns involve data privacy issues, algorithmic bias, and fears that technology may replace human roles in evaluation and character formation. In Islamic education management, ethical values such as *'adl* (justice), *ṣidq* (transparency), and *amanah* (moral trust) are crucial principles that remain underexplored in AI system design.

Research published in *Manageria: Journal of Islamic Educational Management* affirms that religious and institutional ethics remain central to Islamic education governance. Sahidin (2020), in his article *"Manajemen Mutu Berbasis Religi di SD Mutiara Parahyangan Bandung"*, asserts that Islamic education systems are grounded in spiritual and moral values as the foundation of institutional quality. Similarly, Badrudin et al. (2022) emphasize that integrating moral and spiritual principles in *pesantren* governance sustains public trust in Islamic educational institutions. In this regard, employing AI

without a religious-ethical framework risks creating perceptions that technology neglects the spiritual and social dimensions of education.

Beyond ethical and cultural concerns, regulatory gaps also hinder effective AI adoption. Kamza and Yusrizal (2024), highlight that the absence of explicit national and institutional policies governing AI in educational evaluation has resulted in schools merely following digitalization trends without clear technical guidelines or ethical standards. Consequently, many institutions proceed cautiously or delay implementation due to a lack of legal protection and data security measures. Hanapi (2025) adds that the misalignment between technological development and educational policy generates disparities between innovation and human readiness, particularly given the limited teacher training, outdated curricula, and rigid institutional structures.

From an Islamic educational perspective, the use of opaque and potentially biased AI systems contradicts the principles of *ʿadl* (justice) and *amanah* (accountability). Idowu et al. (2024) caution that algorithmic bias in digital evaluations can produce inequities among learners, while OECD (2024) and UNESCO (2021) stress the need for transparency and accountability in AI-based decision-making (Gutiérrez & Gillwald, 2024). Accordingly, it is essential to frame technology within Islamic ethical values. Habib (2025) as well as Kannike and Fahm (2025) propose a *maqāṣid al-sharīʿah*-based ethical framework that emphasizes justice, public welfare, and the preservation of human dignity as guiding principles for AI governance.

To mitigate concerns regarding AI implementation that may conflict with Islamic educational values, institutions should adopt several strategic measures. Regular algorithmic audits and bias testing are necessary to ensure fairness in evaluation, while the use of *explainable AI (XAI)* enhances transparency and accountability. Furthermore, maintaining a *human-in-the-loop* mechanism ensures that critical decisions remain under the control of educators as an expression of moral responsibility. Developing AI ethics policies rooted in *maqāṣid al-sharīʿah* and enhancing digital and ethical literacy among educators are also key to fostering awareness that AI serves as an assistive tool rather than a replacement for human moral judgment.

In conclusion, the integration of AI into educational evaluation management must be comprehensive and grounded in Islamic ethical principles. Without a systemic approach that harmonizes technical innovation with moral and spiritual integrity, the risk of implementation failure extends beyond technological inefficiency potentially undermining the realization of a just, transparent, and value-driven educational reform.

Adaptive Management for AI Integration in Learning Evaluation

In response to various challenges in AI integration within learning evaluation, several studies propose managerial strategies that include enhancing teacher capacity through training, strengthening school-level data literacy, and building cross-sector collaboration among government, industry, and academia. These initiatives aim to develop AI systems that are not only technologically advanced but also relevant and contextual to Indonesia's educational needs.

In the context of digital education transformation, AI integration in evaluation management requires managerial strategies that go beyond technical solutions strategies that are adaptive, contextual, and quality-oriented. Based on findings from various SINTA-accredited education journals, these strategies encompass several critical dimensions, ranging from digital leadership, infrastructure readiness, and ethical data governance to collaborative stakeholder engagement.

First, one key strategy is the importance of digital leadership. Studies in *Obsesi: Jurnal Pendidikan* stress that principals and education leaders play a strategic role in directing the vision of technology integration. This leadership is not limited to administrative decision-making but also serves as a catalyst for cultural change in schools. Principals are expected to understand AI's basic principles and to build a digital ecosystem enabling teachers and staff to use the technology systematically and measurably in evaluation (Bakar & Aspin, 2025).

Second, managerial strategies need to be designed in the form of structured, phased implementation roadmaps. As described in the *IOTA Journal*, many institutions fail to adopt AI because they lack clear roadmaps outlining stages, objectives, and success indicators. Such roadmaps should include readiness assessments, digital infrastructure strengthening, HR training, and AI impact evaluations. Setting milestones and short- to medium-term targets is crucial to maintaining the sustainability of digital transformation, ensuring that processes do not stall at pilot project stages (Alamsyah & Neal, 2025).

Third, improving educators' data and AI literacy is equally important. This includes the ability to understand how algorithms work, interpret AI-generated evaluation results, and analyze data ethically and pedagogically. An article in *Al-Ishlah: Jurnal Pendidikan* highlights the need for systematic training that goes beyond application use, cultivating teachers' critical and reflective thinking about system bias and AI limitations. Such strategies prevent "symbolic adoption," where technology is used superficially without fundamentally transforming evaluation practices (Haetami, 2025).

Additionally, adaptive AI integration depends heavily on strong data governance and ethical frameworks. This is emphasized in *Manajemen Kreatif* journal, which underscores the importance of developing school-level internal policies concerning data

privacy, algorithm audits, and accountability for evaluation results. Since AI-based evaluation systems store student data and generate decisions that may affect their futures, managerial guidelines ensuring fairness, security, and transparency are essential. Adaptive strategies should encourage the development of Standard Operating Procedures (SOPs) for AI use, including authorization protocols, data storage, and system error mitigation (Kodir, 2025).

Finally, contextual managerial strategies also require local adaptation. Not all educational institutions share the same geographic, cultural, and socioeconomic conditions. As described in *Jurnal Islamic Education*, hybrid approaches combining technology with local wisdom have proven more successful in ensuring AI acceptance within schools. Managerial strategies should provide space for community-based innovation, where teachers, students, and parents are involved in tailoring technology to local needs (Bima, 2024).

Thus, managerial strategies to encourage AI adoption in evaluation management cannot be one-dimensional. A holistic approach is required, combining visionary leadership, infrastructure readiness, techno-pedagogical competence, strong data policies, and contextual adaptation. All these must be accompanied by internal monitoring and evaluation systems based on the principles of Data-Driven Decision Making (DDDM) and the Technology Acceptance Model (TAM), ensuring that digital transformation processes are not only implemented but also have a tangible impact on education quality (Kaspi & Venkatraman, 2023).

CONCLUSION

The integration of Artificial Intelligence (AI) in learning evaluation management holds significant potential to drive educational system reform toward a more adaptive, accountable, and data-driven direction. However, the success of this transformation largely depends on managerial strategies that go beyond technical aspects and take into account the social, cultural, and structural contexts of each educational institution. The main barriers identified include limited infrastructure, low levels of digital literacy among educators, organizational cultural resistance, and the absence of national technical policies to support the systemic adoption of AI. Therefore, the required managerial strategies must encompass digital leadership, a structured implementation roadmap, data literacy training, ethical governance, and the involvement of local communities in adapting technology. If carried out based on the principles of the Technology Acceptance Model (TAM) and Data-Driven Decision Making

(DDDM), this approach is believed to foster an educational evaluation ecosystem that is not only technically effective but also socially relevant and sustainable in the long term.

This study has several limitations, particularly in the scope of literature reviewed, which is confined to nationally accredited journals and may not fully represent the international context of AI implementation in learning evaluation. Moreover, the literature review approach used in this research does not allow for empirical verification of the effectiveness of AI applications in educational institutions. Therefore, future studies are recommended to conduct field investigations or cross-country comparative analyses to deepen the understanding of managerial strategies, institutional readiness, and ethical implications of AI integration in educational evaluation management.

REFERENCES

Adiman, M. F., Baharuddin, B., Ikhlas, A., Safarudin, M. S., & Syahputra, M. (2024). Pengembangan Aplikasi Berbasis Artificial Intelligence (AI) Mengubah Paradigma Teknologi Informasi. *Indonesian Research Journal on Education*, *4*(4), 3084–3094. https://doi.org/10.31004/irje.v4i4.1553

Adlini, M. N., Dinda, A. H., Yulinda, S., Chotimah, O., & Merliyana, S. J. (2022). Metode Penelitian Kualitatif Studi Pustaka. *Edumaspul: Jurnal Pendidikan*, *6*(1), 974–980. https://doi.org/10.33487/Edumaspul.V6i1.3394

Alamsyah, N., & Neal, D. (2025). *Conceptualizing Artificial Intelligence In The Indonesian Education Systems And Reciprocity With AI-Based Curriculum.*

Atho, A. (2024). *Integration Of AI Tools In Islamic Education Curriculum Development Management: Challenges And Opportunities*. *1*, 117–132.

Badrudin, A. E., Gustini, N., & Munawaroh, D. (2022). Quality Of Santri In Modern Islamic Boarding Schools: Quality Of Academic Services And Learning Management. *MANAGERIA: Jurnal Manajemen Pendidikan Islam*, *7*(2), 187–200. https://doi.org/10.14421/Manageria.2022.72-12

Bakar, A. & Aspin. (2025). Peran Kepemimpinan Berbasis AI dalam Meningkatkan Pembelajaran Sains pada Siswa Kelas Rendah: Studi Kasus di SDN 2 Lebo. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, *9*(2), 623–634. https://doi.org/10.31004/obsesi.v9i2.6940

Bima, U. M. (2024). *Integrasi Etnopedagogi Dan Artificial Intelligence: Pendekatan Inovatif Dalam Pembelajaran Bahasa Indonesia Berbasis Kearifan Lokal*. *2*(1), 1–15.

Febrianti, K. R., Azizah, N., & Rusadi, F. (2025). Pemanfaatan Kecerdasan Buatan (AI) dalam Membantu Kinerja Pembelajaran. *Jurnal Inovasi Pendidikan Dan Teknologi Informasi*, *6*(1), 210–226. https://doi.org/10.52060/jipti.v6i1.2883

Gutiérrez, J. D., & Gillwald, A. (2024). *Algorithmic Transparency In The Public Sector: A State-Of-The-Art Report Of Algorithmic Transparency Instruments*.

Habib, Z. (2025). Ethics Of Artificial Intelligence In Maqāṣid Al-Sharī'a's Perspective. *KARSA Journal Of Social And Islamic Culture*, *33*(1), 105–134.

Haetami. (2025). AI-Driven Educational Transformation in Indonesia: From Learning Personalization to Institutional Management. *Al-Ishlah: Jurnal Pendidikan*, *17*, 1819–1832. https://doi.org/10.35445/alishlah.v17i2.7448

Hanapi, K. (2025). *Inovasi Pembelajaran SMK Sultan Hasanuddin Gowal: Pelatihan Media Pembelajaran Berbasis Quizziz AI*. *8*(1), 51–60.

Hantoro, R. R., Yamin, M., & Rosadi, K. I. (2024). Competency-Based Analysis Of Human Resource Development Among Educators At Salafiyah Islamic Boarding Schools. *MANAGERIA: Jurnal Manajemen Pendidikan Islam*, *9*(2), 195–212. https://doi.org/10.14421/Manageria.2024.92-06

Helmi, D. (2025). Pelatihan Peningkatan Kompetensi Guru melalui Integrasi AI dalam Pembelajaran di SMP Negeri 1 Kota Ambon. *Pandawa : Pusat Publikasi Hasil Pengabdian Masyarakat*, *3*(3), 28–36. https://doi.org/10.61132/pandawa.v3i3.1925

Hidayah, T. (2025). *Optimalisasi Manajemen Sekolah Melalui Pemanfaatan Artificial Dalam Administrasi Pendidikan*. *8*(2023), 1330–1337.

Holmes, W., Maya, B., & Fadel, C. (2019). Artificial Intelligence In Education: Promises And Implications For Teaching. *Journal Of Computer Assisted Learning*, *14*(4), 251–259.

Idowu, J. A., Koshiyama, A. S., & Treleaven, P. (2024). Investigating Algorithmic Bias In Student Progress Monitoring. *Computers and Education: Artificial Intelligence*, 7, 100267. https://doi.org/10.1016/j.caeai.2024.100267

Kamza, M., & Yusrizal, M. (2024). *Disrupsi Dunia Pendidikan Di Era Artificial Intelligence*.

Kannike, U. M. M., & Fahm, A. O. (2025). Exploring The Ethical Governance Of Artificial Intelligence From An Islamic Ethical Perspective. *Jurnal Fiqh*, *22*(1), 134–161. https://doi.org/10.22452/Fiqh.Vol22no1.5

Kaspi, S., & Venkatraman, S. (2023). Data-Driven Decision-Making (DDDM) For Higher Education Assessments: A Case Study. *Systems*, *11*(6). https://doi.org/10.3390/systems11060306

Kobandaha, F., Annas, A. N., Maliki, P. L., & Gamar, N. (2025). Manajemen Pendidikan Islam Berbasis Artificial Intelligences Di Era Digital: Sebuah Tinjauan Literatur. *Journal of Artificial Intelligence and Digital Business (RIGGS)*, *4*(1), 576–582.

Kodir, A. (2025). *Peran Artificial Intelligence (AI) Dalam Meningkatkan Layanan Pendidikan Di SMP/MTS*.

Mardiana, M., & Emmiyati, E. (2024). Implementasi Kurikulum Merdeka Dalam Pembelajaran: Evaluasi Dan Pembaruan. *Jurnal Review Pendidikan Dasar*, *10*(2), 121–127. https://doi.org/10.26740/jrpd.v10n2.p121-127

Nadya Putri Mtd, Butarbutar, M. I., Sinulingga, S. A. B., Marpaung, J. R., & Harahap, R. M. (2023). Pentingnya Evaluasi Dalam Pembelajaran Dan Akibat Memanipulasinya. *Dewantara: Jurnal Pendidikan Sosial Humaniora*, *2*(1), 249–261. https://doi.org/10.30640/dewantara.v2i1.722

Pratama, A., Wulandari, S. Z., & Indyastuti, D. L. (2022). Analisis Technology Acceptance Model (TAM) Pada Penggunaan Aplikasi PLN Daily. *INOBIS: Jurnal Inovasi Bisnis Dan Manajemen Indonesia*, *5*(3), 355–368. https://doi.org/10.31842/jurnalinobis.v5i3.235

Reba, A., Hilapok, F., Studi, P., Paud, P. G., & Cenderawasih, U. (2025). *Pelatihan Penggunaan Artificial Intelligence Dalam Menyusun Bahan Pembelajaran Bagi Guru PAUD Di Kabupaten Jayapura*. *9*(1), 99–109.

Rifky, S. (2024). Dampak Penggunaan Artificial Intelligence Bagi Pendidikan Tinggi. *Indonesian Journal Of Multidisciplinary On Social And Technology*, *2*(1), 37–42. https://doi.org/10.31004/ijmst.v2i1.287

Sahidin, I. (2020). Manajemen Mutu Berbasis Religi Di SD Mutiara Parahyangan Bandung. *MANAGERIA: Jurnal Manajemen Pendidikan Islam*, *5*(1), 75–94. https://doi.org/10.14421/Manageria.2020.51-05

Samsudin, M. A., Somchut, T., & Ismail, M. E. (2019). Evaluating Computerized Adaptive Testing Efficiency in Measuring Students' Performance in Science TIMSS. *Jurnal Pendidikan IPA Indonesia*, *8*(4), 547–560. https://doi.org/10.15294/jpii.v8i4.19417

Siswanto, R., Kusmawan, U., Sukmayadi, D., & Abidin, A. A. (2024). *Pemanfaatan Artificial Intelligence Dalam Perencanaan, Pelaksanaan, Dan Evaluasi Pembelajaran Oleh Mahasiswa*. *6*(2), 143–158.

Solihat, A. N., Dahlan, D., Kusnendi, K., & Susetyo, B. (2024). Artificial Intelligence (AI)-Based Learning Media: Definition, Bibliometric, Classification, And Issues For Enhancing Creative Thinking In Education. *ASEAN Journal Of Science And Engineering*, *4*(3), 349–382.

Yahya, S. N., Aurelia, A., Rahmatillah, F., Waruwu, S. Y., & Amelia, N. (2024). *Pemanfaatan AI Sebagai Media Pembelajaran Dalam Pendidikan Ekonomi*. *7*(6), 823–830.