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Artificial Intelligence Readiness in Educational Management

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ABSTRACT

The development of Artificial Intelligence (AI) has driven significant transformation in educational systems, particularly in educational management, which requires organizational readiness and adaptive leadership to respond to digital change. However, the implementation of AI in Indonesia still faces several challenges, including low levels of digital literacy, limited technological infrastructure, and the lack of optimal leadership strategies in education. This study aims to analyze the level of AI Readiness in educational management and to examine leadership strategies and organizational readiness of schools in responding to AI-based educational transformation. This research employs a Systematic Literature Review (SLR) approach by analyzing relevant scholarly literature from reputable international journals and credible academic sources. The findings indicate that organizational readiness is influenced by several key factors, including human resource competencies, technological infrastructure, digital leadership, organizational culture, and policy support. In addition, digital leadership plays a crucial role in fostering innovation and strengthening sustainable organizational readiness. This study contributes by proposing an integrative conceptual model that combines AI Readiness, Digital Leadership, and Organizational Readiness as a strategic framework for developing AI-based educational management. The findings are expected to provide valuable insights for policymakers and educational practitioners in designing more adaptive and sustainable digital transformation strategies in Indonesia.

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INTRODUCTION

The development of Artificial Intelligence (AI) has become a major driver of global digital transformation, significantly impacting various sectors, including education. The integration of AI in educational systems is not limited to teaching and learning processes but also extends to educational management aspects such as data analysis, evidence-based decision-making, administrative efficiency, and the improvement of educational service quality. Globally, educational institutions have begun adopting AI to enhance institutional management effectiveness and accelerate technology-driven educational innovation (Holmes, 2020). In Indonesia, digital transformation in education has

become a national strategic agenda; however, the implementation of AI in educational management still faces several limitations, particularly in terms of organizational readiness and human resource capacity (Wang et al., 2023). This indicates that although AI holds substantial potential for improving educational management, the readiness of educational institutions to adopt such technologies remains suboptimal.

The gap between the potential of AI technology and its readiness for implementation in educational management represents a critical issue that requires in-depth examination. Several studies indicate that low digital literacy, limited technological infrastructure, and insufficient digital leadership strategies are key factors hindering the adoption of AI in educational organizations ((Bond et al., 2021)). Moreover, the lack of institutional policies supporting systematic AI integration has resulted in fragmented and unsustainable implementation (Https://www.oecd.org/, 2021). In the Indonesian context, this gap is further complicated by disparities in readiness levels across regions and educational institutions, contributing to uneven quality in educational management This condition highlights both academic and practical urgency to comprehensively examine organizational readiness in schools and leadership strategies capable of effectively driving digital transformation(Nasir & Luwihta, 2025).

To address these issues, this study adopts a conceptual framework that integrates Artificial Intelligence Readiness, Digital Leadership, and Organizational Readiness. The concept of AI Readiness is employed to assess institutional preparedness in adopting AI technologies, encompassing dimensions such as human resources, infrastructure, organizational culture, and institutional policies(Alsheibani et al., 2018). Meanwhile, Digital Leadership theory emphasizes the critical role of leaders in driving digital transformation through technological innovation, enhancement of digital competencies, and the development of adaptive organizational cultures. In addition, Organizational Readiness provides a framework for understanding the internal capacity of organizations to manage change and implement technological innovations sustainably. The integration of these three perspectives offers a comprehensive lens for analyzing school readiness in facing AI-driven educational management transformation(Alsheibani et al., 2018).

Based on the background and identified research gaps, the primary objective of this study is to analyze the level of Artificial Intelligence Readiness in educational management and to examine leadership strategies and organizational readiness of schools in Indonesia in responding to AI-based educational transformation. Specifically, this study aims to address the following research questions: (1) What is the level of AI Readiness among schools in implementing AI in educational management in Indonesia? (2) How do educational leadership strategies support AI-based management transformation? (3) What factors influence organizational readiness in implementing AI within educational systems? (4) What are the challenges and opportunities of AI implementation in educational management in Indonesia?

and (5) What strategic model can be developed to support effective and sustainable AI-based educational management in Indonesian schools? A Systematic Literature Review (SLR) approach is employed to identify, evaluate, and synthesize relevant scholarly literature in order to provide a comprehensive understanding of the research issues

This study offers significant scholarly contributions to the development of technology-based educational management, particularly in the context of Artificial Intelligence. Unlike previous studies that primarily focus on AI in learning processes, this research adopts a more integrative approach by examining organizational readiness and leadership strategies as key determinants in AI implementation within educational management this study proposes a conceptual strategic model for AI-based educational management that can serve as a practical framework for educational institutions in Indonesia to systematically and sustainably navigate digital transformation(Dwivedi et al., 2021).Accordingly, this study contributes not only to theoretical advancement but also to practical implications for policy development and educational strategy in the era of Artificial Intelligence.

Artificial Intelligence (AI) Readiness is a concept that has evolved from studies on technological readiness and digital transformation, emphasizing an organization's capability to effectively adopt and integrate AI-based technologies. This concept originates from theories of organizational readiness for technological change, which encompass dimensions such as human resources, infrastructure, organizational culture, and policy support (Alsheibani et al., 2018). In the context of education, AI Readiness serves as a critical indicator in assessing the extent to which educational institutions are capable of integrating AI into complex educational management systems(Chatterjee et al., 2023). In addition, Digital Leadership theory highlights the strategic role of leaders in driving digital transformation through innovation, technological adaptation, and the enhancement of digital competencies among human (Kane et al., 2015). Meanwhile, Organizational Readiness refers to the psychological and structural preparedness of organizations to face change and implement innovations sustainably These three concepts form an integrated theoretical foundation for understanding school readiness in responding to AI-based educational management transformation.

Previous studies have extensively examined the implementation of AI in education from various perspectives. Research indicates that AI has significant potential to enhance educational management efficiency through the automation of administrative processes, data-driven decision-making, and learning analytics. Other studies highlight that AI implementation can also improve the quality of educational services through adaptive systems and personalized learning approaches(Chen et al., 2020). However, several studies emphasize that the success of AI implementation largely depends on organizational readiness and the digital competencies of educators .In the context of educational management, research by Bond et al. (2021) reveals limitations in the strategic

integration of digital technologies within educational institutions, particularly in relation to leadership and organizational culture(Bond et al., 2021). These findings indicate that AI implementation in education is not merely a technical issue but also requires comprehensive organizational readiness.

Despite the growing body of research on AI in education, significant research gaps remain, particularly in the integration of AI Readiness, Digital Leadership, and Organizational Readiness within the context of educational management(Huda, 2022). Most studies still focus primarily on AI applications in learning processes, while managerial aspects and organizational readiness have not been thoroughly explored . Furthermore, studies examining organizational readiness in educational contexts within developing countries, including Indonesia, are still limited. Another gap lies in the lack of conceptual models that holistically integrate various factors influencing AI implementation in educational management (Dwivedi et al., 2021). These gaps highlight the need for research that adopts a more systematic and integrative approach.

In response to these gaps, this article positions itself as a systematic study that not only maps existing research but also develops a conceptual model integrating AI Readiness, Digital Leadership, and Organizational Readiness within the context of educational management in Indonesia. Unlike previous studies that tend to be fragmented, this research adopts an integrative approach to comprehensively understand the relationships among key variables. In addition, this study provides contextual contributions by examining AI implementation within the Indonesian educational system, which is characterized by unique socio-cultural and infrastructural conditions(Rifah et al., 2024).Therefore, this article not only expands the scope of AI research in education but also contributes to the development of strategic models relevant to practical needs.

Recent trends in AI-related educational research indicate a significant increase in both theoretical and methodological advancements. Contemporary studies tend to adopt multidisciplinary approaches that integrate perspectives from technology, management, and education(Crompton & Burke, 2023) Methodologically, the use of Systematic Literature Review (SLR) has become increasingly prominent in identifying research trends, patterns, and gaps in a comprehensive manner(Kitchenham et al., 2009) . Additionally, empirical studies employing mixed methods approaches are gaining traction to validate conceptual models within real-world contexts (Alam, 2021). These trends demonstrate that AI research in education is evolving toward more integrative and evidence-based approaches.

Based on the synthesis of the reviewed literature, it can be observed that the implementation of AI in educational management requires a comprehensive approach that encompasses technological readiness, leadership capacity, and organizational preparedness. The integration of AI Readiness, Digital Leadership, and Organizational Readiness provides a relevant conceptual framework for analyzing school readiness in responding to AI-driven digital

transformation. This synthesis serves as the foundation for this study to employ a Systematic Literature Review (SLR) approach in identifying, evaluating, and synthesizing prior research, as well as in developing a conceptual model that can serve as a strategic framework for implementing AI in educational management.

METHOD

This study employs a Systematic Literature Review (SLR) approach as the primary research strategy to examine Artificial Intelligence Readiness in educational management, as well as to analyze leadership strategies and organizational readiness of schools in responding to AI-driven educational transformation. The SLR approach is selected because it enables researchers to systematically identify, evaluate, and synthesize findings from prior studies relevant to the research topic(Page et al., 2021). Moreover, SLR provides a transparent and replicable methodological framework for reviewing scholarly literature, thereby producing comprehensive and evidence-based findings.

The data used in this study consist of secondary data derived from various scholarly sources relevant to the research topic. These data are obtained from reputable international journals indexed in Scopus and Web of Science, including databases such as ScienceDirect, SpringerLink, and Taylor & Francis, as well as accredited national journals indexed by SINTA through the Garuda Kemdikbud portal. Additionally, data are sourced from official documents of international organizations such as UNESCO and OECD, which address digital transformation in education and the implementation of AI in the education sector . The literature reviewed includes journal articles, conference proceedings, academic books, and policy reports related to AI Readiness, digital leadership, and organizational readiness in education.

Data collection in this study is conducted through a systematic literature search process using key terms such as "Artificial Intelligence Readiness in Education," "Digital Leadership," "Educational Management," "Organizational Readiness," and "Artificial Intelligence in Schools." The search process is performed using academic databases such as Google Scholar, ScienceDirect, SpringerLink, and Scopus, employing Boolean operators to enhance the precision of search results Subsequently, the literature selection process follows several stages, including identification, screening, eligibility, and inclusion, based on the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure the quality and relevance of the selected studies (Page et al., 2021)

Inclusion and exclusion criteria are applied to filter relevant literature. The inclusion criteria include: (1) studies discussing Artificial Intelligence, AI

Readiness, digital leadership, and organizational readiness within the educational context; (2) publications within the 2020–2026 period; (3) articles published in reputable or indexed journals; (4) open-access articles available in full text; and (5) studies relevant to educational management. The exclusion criteria include: (1) studies not directly related to the research topic; (2) non-scholarly publications such as opinion pieces, blogs, or popular articles; (3) studies with low methodological quality; and (4) literature not published in English or Indonesian. This selection process is intended to ensure the validity and reliability of the data analyzed.

The unit of analysis in this study consists of concepts, findings, and patterns identified within the selected literature. The analysis focuses on key variables, including Artificial Intelligence Readiness, Digital Leadership, Organizational Readiness, and factors influencing AI implementation in educational management. Each study is analyzed based on its contribution to conceptual development, identification of key factors, and relevance to the Indonesian educational context. This unit of analysis enables the researcher to understand relationships among concepts and to identify emerging research trends in AI in education (Snyder, 2019).

Data analysis in this study employs content analysis and thematic analysis approaches. Content analysis is used to categorize and classify information extracted from the literature in order to identify key concepts, research variables, and relationships among variables(Krippendorff, 2018). Furthermore, thematic analysis is applied to identify recurring themes within the literature, such as digital leadership, human resource readiness, technological infrastructure, organizational culture, and challenges in AI implementation in educational management (Braun & Clarke, 2021). The results of the analysis are then synthesized narratively to generate a comprehensive understanding and to develop a conceptual model for AI-based educational management that is both relevant and sustainable.

RESULT AND DISCUSSION

Result

The results of this study are derived from a Systematic Literature Review (SLR) of scholarly works related to Artificial Intelligence (AI) Readiness in educational management, digital leadership, and organizational readiness in schools. Based on the literature search conducted through academic databases such as Scopus, ScienceDirect, SpringerLink, and Google Scholar, a set of studies meeting the inclusion criteria within the 2020–2026 publication period was identified. The characteristics of the publications indicate that the majority of

studies originate from reputable international journals, with a primary focus on educational technology, educational management, and information systems in education. These studies generally employ quantitative, qualitative, and mixed methods approaches to examine the implementation of AI in education (Chen et al., 2020).

The publication trends reveal a significant increase in research on AI in education, particularly since 2020, in line with the acceleration of global digital transformation. The literature indicates that the most frequently studied topics include AI applications in adaptive learning, learning analytics, and data-driven educational management systems(Bond et al., 2021). Furthermore, research on AI Readiness has begun to emerge as a focal area, emphasizing institutional preparedness in systematically adopting AI technologies(Alsheibani et al., 2018). These findings demonstrate a shift in research focus from purely technological implementation toward organizational readiness and managerial strategies in addressing digital transformation.

The analysis of methodological patterns shows that most studies employ quantitative approaches to measure technological readiness and digital competencies through survey instruments and statistical analysis . On the other hand, qualitative studies are used to explore perceptions, experiences, and challenges in AI implementation within educational environments through interviews and case studies. Mixed methods approaches are also identified in several studies that combine statistical analysis with thematic exploration to provide a more comprehensive understanding(Alam, 2021). This diversity of methodological approaches indicates that AI research in education is inherently multidimensional and requires varied analytical perspectives.

Based on thematic analysis of the reviewed literature, several key themes consistently emerge in studies of AI in educational management. The first theme is human resource readiness, which includes digital literacy, technological competence, and educators' preparedness to adopt. The second theme is technological infrastructure, encompassing the availability of devices, internet connectivity, and supporting systems necessary for AI implementation (OECD, 2021). The third theme is digital leadership, which emphasizes the role of leaders in fostering innovation, building a digital culture, and managing organizational change. The fourth theme is organizational culture, which relates to institutional values, attitudes, and readiness to embrace technological change). The fifth theme is policy and regulation, which includes governmental and institutional support for AI implementation in the education sector (UNESCO, 2021).

In addition to these primary themes, the literature synthesis also identifies various challenges in implementing AI in educational management. The most prominent challenges include limited digital literacy among educators, resistance to change, budget constraints, and the absence of comprehensive policies supporting AI integration(Dwivedi et al., 2021). Conversely, the literature also highlights significant opportunities in leveraging AI to enhance educational management efficiency, such as administrative automation, data-driven decision-making, and improved quality of educational services(Holmes, 2020). These findings indicate that AI implementation in education involves a complex interplay between challenges and opportunities.

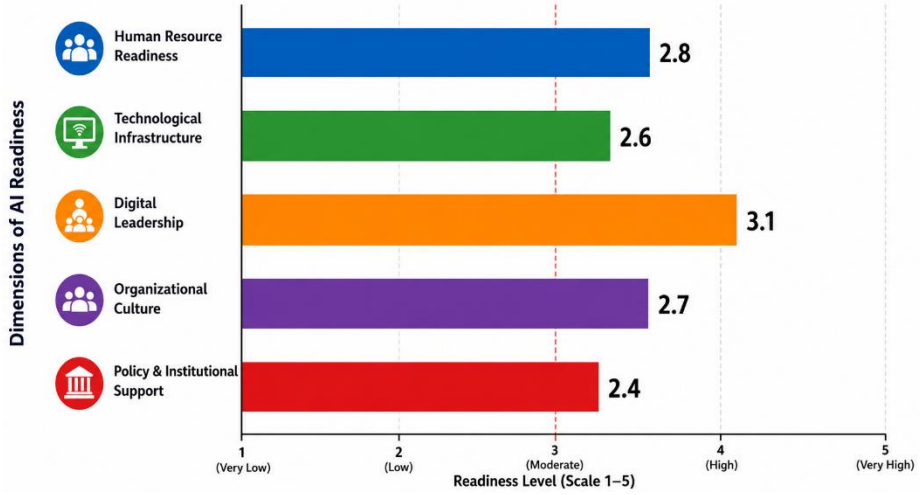

Figure 1 : AI Readness In Educational Management

The results further reveal an emerging trend toward the integration of AI Readiness, Digital Leadership, and Organizational Readiness in recent studies. Several studies indicate that successful AI implementation in educational organizations is strongly influenced by the synergy between technological readiness, adaptive leadership, and an innovation-oriented organizational culture Additionally, other studies emphasize that strategic approaches to AI-based educational management require conceptual frameworks capable of systematically integrating these factors(Crompton & Burke, 2023) . These findings provide a foundation for the development of the conceptual model proposed in this study, which will be further elaborated in the subsequent section.

Discussion

The findings of this study indicate that the level of Artificial Intelligence Readiness in educational management is influenced by several key factors, including human resource readiness, technological infrastructure, digital

leadership, organizational culture, and institutional policy support. These findings are directly aligned with the research objective, which focuses on analyzing school organizational readiness and leadership strategies in responding to AI-driven educational transformation. Specifically, the results reveal that organizational readiness in Indonesian schools remains at an early to intermediate stage in integrating AI into educational management systems. This reinforces the research problem, which highlights structural and strategic unpreparedness in the comprehensive implementation of AI technologies. Furthermore, these findings suggest that digital transformation in the education sector has not yet been fully implemented in a systematic and sustainable manner within the global context(Selwyn, 2024).

From a theoretical perspective, the findings are consistent with the concept of Artificial Intelligence Readiness, which emphasizes that successful AI adoption depends on multidimensional organizational preparedness, including technological, human, and policy-related aspects(Ben Youssef et al., 2021) . Moreover, the role of digital leadership identified in this study supports Digital Leadership theory, which asserts that leaders play a central role in driving innovation, fostering digital culture, and directing organizational transformation strategies. In terms of Organizational Readiness, the findings demonstrate that readiness is not solely determined by resource availability but also by psychological preparedness and organizational commitment to change(Vakola, 2014). Thus, the integration of these three theoretical perspectives provides a comprehensive framework for understanding the dynamics of organizational readiness in educational institutions facing AI-based transformation.

When compared to previous studies, these findings are consistent with research emphasizing the importance of organizational readiness in digital technology implementation. Chatterjee et al. (2021) highlight that technological readiness and organizational culture are critical factors in successful digital transformation (Haenlein & Kaplan, 2021). However, this study also differs from several prior studies that primarily focus on technological aspects without adequately considering leadership and organizational culture as integral components (George et al., 2014). In the educational context, this research extends previous findings by incorporating the managerial dimension of educational institutions, which has been relatively underexplored in AI studies that predominantly focus on learning processes. Therefore, this study provides a more holistic perspective on AI implementation in education.

The primary scholarly contribution of this study lies in the development of a conceptual model that integrates Artificial Intelligence Readiness, Digital

Leadership, and Organizational Readiness within the context of educational management. This model offers a strategic framework for analyzing and enhancing school readiness in addressing AI-driven digital transformation. Furthermore, this study contributes to the literature by expanding the scope of AI research in education beyond learning applications to include organizational and managerial dimensions . This contribution is particularly important given the increasing need for integrative approaches in managing digital transformation in the education sector.

Despite its contributions, this study has several limitations that should be acknowledged. First, the use of a Systematic Literature Review (SLR) approach relies on the availability and quality of existing literature, which may not fully reflect empirical conditions in real-world settings. Second, limitations in the scope of literature, including publication period and language constraints, may affect the comprehensiveness of the analysis. Third, the conceptual model developed in this study has not yet been empirically tested, indicating the need for further research to examine its validity and reliability in practical contexts (Paul & Criado, 2020).

The implications of this study encompass both theoretical and practical dimensions. Theoretically, it provides a robust conceptual foundation for understanding organizational readiness in adopting AI within educational management. Practically, the findings offer guidance for educational leaders, school administrators, and policymakers in designing effective and sustainable digital transformation strategies. In addition, this study opens avenues for future research to empirically test the proposed conceptual model using quantitative or mixed methods approaches to gain deeper insights into the implementation of AI in educational management(Verhoef et al., 2021)

CONCLUSION

This study demonstrates that the level of Artificial Intelligence Readiness in educational management in Indonesia remains in a developmental stage, characterized by suboptimal human resource readiness, limited technological infrastructure, and the lack of integrated institutional policies and strategies supporting systematic AI implementation. The findings also reveal that digital leadership plays a strategic role in driving AI-based transformation in educational management, particularly in fostering adaptive organizational cultures, enhancing digital literacy, and directing change in a structured manner. Furthermore, organizational readiness in schools is influenced by the interaction of internal factors, such as human resource competencies and organizational culture, as well as external factors, including policy support and technological advancement. Therefore, the implementation of AI in educational management

requires a comprehensive and integrated approach. The primary contribution of this study lies in strengthening the conceptual framework that integrates Artificial Intelligence Readiness, Digital Leadership, and Organizational Readiness within the context of educational management. This article offers a more holistic perspective in understanding the preparedness of educational organizations in responding to AI-driven digital transformation, not only from a technological standpoint but also from leadership and organizational dimensions. In addition, this study proposes a strategic conceptual model that can serve as a reference for developing policies and practices in AI-based educational management that are more adaptive, effective, and sustainable within school environments. The implications of this study highlight the need to enhance human resource capacity through the development of digital literacy and technological competencies, as well as to strengthen educational leadership that is responsive to digital transformation. Moreover, integrated policy support and sustained investment in technological infrastructure are essential to ensure the effective implementation of AI in educational management. Future research is encouraged to empirically examine the proposed conceptual model within real-world educational settings, employing quantitative or mixed methods approaches to provide deeper insights into the effectiveness of AI-based educational management strategies in Indonesia.

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