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DISRUPTION OR TRANSFORMATION? THE IMPACT OF ARTIFICIAL INTELLIGENCE ON PEDAGOGIC COMPETENCE, ACADEMIC INTEGRITY, AND THE FUTURE OF HIGHER EDUCATION IN INDONESIA

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Abstract

This study aims to analyze the impact of artificial intelligence (AI) on pedagogical competence, academic integrity, and the future of higher education in Indonesia, from the perspectives of disruption and transformation. This study uses a qualitative approach, employing the library research method, by analyzing reputable scientific literature published over the last five years. The results of the study show that AI plays a strategic role in enhancing the effectiveness and personalization of learning, but it also poses serious challenges related to lecturers' pedagogical competencies and the potential for violations of academic integrity. AI integration has encouraged a shift in lecturers' roles to become facilitators of technology-based learning, but this shift has not been fully supported by adequate digital literacy and institutional readiness, especially in Indonesian higher education. On the other hand, the emergence of generative AI magnifies the risks of plagiarism and technological dependence, requiring a comprehensive ethical and regulatory approach. The findings of this study confirm that AI has a dual character as a disruptive and transformative technology, with its impact highly dependent on the implementation strategy. Therefore, integrative efforts are needed that include strengthening pedagogic competence, developing adaptive policies, and instilling the value of academic integrity to ensure optimal and sustainable use of AI in higher education. This research is expected to make theoretical and practical contributions to the development of a higher education system responsive to technological developments in the digital era.

Keywords: artificial intelligence, pedagogic competence, academic integrity, higher education, digital transformation

Introduction

The rapid development of artificial intelligence (AI) technology has become a major catalyst for transformation across sectors, including higher education. The integration of AI in the learning process presents significant opportunities to improve pedagogical effectiveness, personalization of learning, and the efficiency of academic evaluation. However, these advances also raise critical questions about whether AI is more disruptive or transformative to established education systems (Zawacki-Richter et

al., 2020; Holmes et al., 2021). In this context, higher education in Indonesia faces complex adaptation challenges amid the acceleration of global digitalization.

The phenomenon of using generative AI, such as academic chatbots and automated writing systems, has grown rapidly in recent years. Students and lecturers began to use this technology for various academic activities, from the preparation of assignments to the design of learning materials. On the one hand, AI provides easy access to information and increases academic productivity. However, on the other hand, concerns arise regarding the potential for a decline in the quality of critical thinking and an increased risk of academic integrity violations, such as plagiarism and technology dependence (Kasneci et al., 2023; Dwivedi et al., 2023).

In practice, the implementation of AI in Indonesian higher education shows the inequality between the use of technology and the readiness of human resources, especially in the aspect of lecturers' pedagogic competence. Many educators do not have adequate digital literacy to optimally integrate AI in the learning process. This has the potential to create a gap in the quality of education and strengthen dependence on technology without a deep conceptual understanding (Rahmadi & Hayati, 2022; Limna et al., 2022).

The research problem in this study lies in the ambiguity of the impact of AI on higher education, especially in three main dimensions: pedagogic competence, academic integrity, and the future direction of education. Although AI can improve learning efficiency, there are concerns that this technology could actually weaken the role of lecturers as facilitators of critical learning and blur the line between original work and technology-assisted results (Cotton et al., 2023).

Furthermore, there is a significant research gap in the current literature. Most previous studies have focused more on the technical aspects of AI implementation or user perceptions of the technology, without comprehensively examining the linkages between pedagogical competence, academic integrity, and holistic transformation of the education system, especially in the context of developing countries such as Indonesia (Crompton & Burke, 2023; Chen et al., 2022). In addition, a multidimensional approach that integrates these three aspects is still limited.

The research novelty in this study lies in the effort to integrate the simultaneous analysis of the impact of AI on pedagogical competence, academic integrity, and the future of higher education in one comprehensive conceptual framework. This research not only assesses AI as a technological tool, but also as an agent of change that has the potential to reshape the paradigm of higher education, both in the context of learning, evaluation, and academic ethics.

In addition, this study offers a contextual approach by highlighting the condition of higher education in Indonesia, which has unique characteristics related to digital readiness, education policies, and academic culture. Thus, this study is expected to be able to make a more relevant empirical and theoretical contribution in formulating a sustainable and ethical AI adaptation strategy in the national education system (Siregar et al., 2023).

This research urgency is increasing along with the inevitable acceleration of AI adoption in the world of education. Without a comprehensive understanding of the impact of AI, educational institutions risk uncontrollable disruption, which can degrade the quality of education and undermine academic integrity. Therefore, an in-depth study is needed that can be the basis for the development of policies, curricula, and pedagogic practices that are adaptive, inclusive, and oriented towards the future of higher education in Indonesia.

Literature Review

The Concept of Artificial Intelligence in Higher Education

Artificial Intelligence (AI) in the context of higher education refers to the use of algorithm-based technology that is able to mimic human intelligence in the process of learning, evaluation, and academic decision-making. AI has evolved from just an automation system to a technology that is able to support adaptive learning, learning analytics, and intelligent tutoring systems (Chen et al., 2022). In recent years, the emergence of generative AI such as ChatGPT has expanded the role of AI in generating academic content, answering complex questions, and assisting the scientific writing process (Dwivedi et al., 2023).

The use of AI in higher education is also associated with increased efficiency and personalization of learning. This technology allows lecturers to design learning that is more responsive to student needs, while automating administrative tasks such as assessment and monitoring of learning progress. However, AI integration also poses significant ethical and pedagogical challenges, especially related to the validity of learning outcomes and student dependence on technology (Kasneci et al., 2023).

Pedagogic Competence in the Digital Era

Pedagogic competence is a core ability that educators must possess in designing, implementing, and evaluating the learning process effectively. In the digital era, this competency has expanded to include digital literacy, technology integration skills, and adaptation to changes in technology-based learning models (Limna et al., 2022). Lecturers are not only required as material presenters, but also as learning facilitators who are able to direct students in using technology critically and responsibly.

The integration of AI in learning requires a more complex transformation of pedagogic competencies. Lecturers need to understand how to utilize AI as a learning tool without reducing the role of human interaction in the educational process. In addition, pedagogic competence in the AI era also includes the ability to design authentic evaluations to minimize the potential for misuse of technology by students (Crompton & Burke, 2023). Thus, pedagogical transformation is a key aspect in the successful implementation of AI in higher education.

Academic Integrity in the Context of AI Technology

Academic integrity is a fundamental principle in higher education that includes honesty, responsibility, and ethics in the academic process. The presence of generative AI

brings new challenges to academic integrity, especially when it comes to plagiarism, ghostwriting, and the unethical use of technology in the completion of academic tasks (Cotton et al., 2023). Students can now generate essays, reports, and even program code with the help of AI, making it difficult for educators to assess the authenticity of the work. On the other hand, AI can also be leveraged to support academic integrity through more advanced plagiarism detection systems and analysis of writing patterns. However, a technology-based approach alone is not enough to maintain academic integrity. A holistic approach is needed that includes strengthening academic ethics, designing more contextual assignments, and increasing student awareness of the importance of academic honesty (Dwivedi et al., 2023). Therefore, academic integrity in the AI era has become a multidimensional issue that requires serious attention.

Transformation of Higher Education in the Era of Artificial Intelligence

The transformation of higher education in the AI era is not only related to the adoption of technology, but also a paradigm shift in the learning process, the role of lecturers, and the student learning experience. AI is driving a shift from traditional learning models towards more flexible, personalized, and data-driven learning (Holmes et al., 2021). In this context, AI has the potential to be a catalyst for transformation that improves the overall quality of education.

However, this transformation also has the potential to cause disruption if it is not balanced with the readiness of institutions and human resources. Inequality of access to technology, low digital literacy, and lack of adaptive policies can hinder the implementation of AI optimally, especially in developing countries such as Indonesia (Siregar et al., 2023). Therefore, the transformation of higher education must be carried out in a planned and sustainable manner by considering technological, pedagogical, and ethical aspects.

Conceptual Framework: Disruption vs AI Transformation in Education

In the literature, there are two main perspectives related to the impact of AI on education, namely as a form of disruption or transformation. The disruption perspective sees AI as a threat to the traditional role of educators and academic evaluation systems, potentially replacing human functions in the learning process. Meanwhile, the transformation perspective views AI as a tool that can strengthen the quality of education through pedagogic innovation and efficiency improvement (Zawacki-Richter et al., 2020). A more comprehensive approach places AI as a phenomenon that has duality, that is, it is capable of being disruptive as well as transformative depending on how the technology is adopted and integrated in the education system. Therefore, it is important to critically examine how AI affects pedagogic competence and academic integrity, as well as how it impacts the future of higher education, especially in the context of Indonesia which is experiencing an acceleration of digital transformation.

Research Methods

This research uses a qualitative approach with a library research method that aims to examine in depth the concepts, theories, and empirical findings related to the impact of artificial intelligence (AI) on pedagogic competence, academic integrity, and the future of higher education in Indonesia. The data used are secondary data obtained from various reputable scientific sources, such as Scopus indexed international journals, academic books, reports of educational institutions, and relevant conference proceedings in the last five years. The data collection process is carried out through systematic search using scientific databases such as Google Scholar, Scopus, and ScienceDirect with key keywords such as *artificial intelligence in education*, *academic integrity*, *pedagogical competence*, and *higher education transformation* (Creswell & Creswell, 2021; Snyder, 2019).

The data analysis technique was carried out by content analysis and a descriptive-critical approach to identify patterns, themes, and relationships between concepts in the literature studied. The analysis stages include literature selection based on relevance and quality of sources, grouping of research findings, and synthesis to build a comprehensive conceptual framework. In addition, this study also adopts the principle of systematic literature review (SLR) in a simple way to increase the validity and transparency in the literature review process, even though it does not fully follow the PRISMA protocol. With this approach, the research is expected to be able to provide an in-depth understanding and theoretical contribution in explaining the position of AI as a phenomenon of disruption or transformation in higher education (Xiao & Watson, 2019).

Results and Discussion

The results of the literature review show that the implementation of artificial intelligence (AI) in higher education has a significant impact on the transformation of the learning process. AI enables the personalization of learning through student data analysis, so that teaching materials and methods can be tailored to individual needs. This has a positive impact on increasing learning effectiveness and student engagement. However, on the other hand, high dependence on technology has the potential to reduce students' critical thinking skills and learning independence if not balanced with the right pedagogic approach (Kasneci et al., 2023; Crompton & Burke, 2023).

In the aspect of pedagogic competence, the results of the analysis show that the role of lecturers has shifted from just conveying information to facilitating technology-based learning. Lecturers are required to have high digital literacy and the ability to integrate AI into learning design. However, various studies show that the readiness of lecturers in developing countries, including Indonesia, is still relatively low in adopting this technology optimally. This is due to limited training, infrastructure, and lack of institutional policy support (Limna et al., 2022; Siregar et al., 2023). Thus, pedagogic transformation is a key factor in determining the success of AI implementation in higher education.

Furthermore, from the perspective of academic integrity, the literature findings show an increased risk of academic ethics violations due to the use of generative AI. Students can easily produce papers that are difficult to distinguish from the results of

original thinking, thus posing challenges in the academic evaluation process. This phenomenon reinforces concerns that AI could drive more complex and hard-to-detect plagiarism practices. Nonetheless, some studies have also shown that AI can be used as a tool to support academic integrity through more sophisticated plagiarism detection systems and text authenticity analysis (Cotton et al., 2023; Dwivedi et al., 2023).

Furthermore, the study's results show that AI has dual roles, namely as a disruptive and transformative technology. In terms of disruption, AI has the potential to replace some of the functions of lecturers, especially in the delivery of materials and standards-based evaluations. However, in terms of transformation, AI can enhance the quality of education by enabling innovation in learning methods, such as adaptive learning, AI-based simulations, and virtual tutors (Holmes et al., 2021). Therefore, the impact of AI is highly dependent on how the technology is adopted and integrated in the education system.

In the Indonesian context, the analysis shows that the transformation of AI-based higher education still faces various structural challenges, including technology access gaps, low digital literacy, and a lack of comprehensive regulations governing the use of AI in education. This condition has the potential to widen the gap in educational quality between institutions. Therefore, an integrated policy strategy is needed to ensure that AI implementation can run in an inclusive and sustainable manner (Siregar et al., 2023).

Further discussion shows that to maximize AI's potential, a holistic approach is needed that integrates technology, pedagogy, and ethical considerations. Educational institutions need to develop a curriculum that is adaptable to technological developments, increase lecturers' capacity through continuous training, and strengthen a culture of academic integrity among students. In addition, the design of learning evaluations needs to be adapted to the conditions of the AI era, for example, through project-based assessments, critical reflection, and authentic assessments that are harder to manipulate by technology.

Thus, the results of this study confirm that AI cannot be viewed dichotomously as a threat or opportunity alone, but as a complex phenomenon that requires a strategic approach in its management. Higher education in Indonesia needs to adopt an adaptive, future-oriented transformation paradigm while maintaining the basic values of education, especially in pedagogical competence and academic integrity. This is important to ensure that AI truly becomes a tool that supports improving the quality of education, not the other way around.

Conclusion

Based on the results of the literature review, it can be concluded that artificial intelligence (AI) plays a significant role in shaping the new direction of higher education, particularly in pedagogical competence and academic integrity. AI serves not only as a technological tool but also as an agent of change, driving transformation in learning, evaluation, and academic interaction. The presence of AI enables personalized learning and increased efficiency, but it also demands significant adaptation from educators and educational institutions.

In the context of pedagogical competence, AI encourages a shift in the role of lecturers to that of facilitators of technology-based learning, oriented towards the development of students' critical thinking. However, lecturers' readiness to integrate AI remains a challenge, especially in terms of digital literacy and adaptive pedagogical skills. Meanwhile, in terms of academic integrity, the use of generative AI presents a complex ethical dilemma, as the ease of access to technology can increase academic dishonesty if not balanced with adequate supervision and coaching systems.

Furthermore, this study confirms that AI has a duality character as a technology that can be disruptive as well as transformative. The impact will depend heavily on how AI is implemented in the education system. If managed strategically, AI can be a driver of innovation and improved educational quality. Conversely, without proper management, AI can degrade the quality of learning and undermine academic values.

Therefore, higher education in Indonesia needs to develop a comprehensive, sustainable approach to adopting AI that integrates technological, pedagogical, and ethical aspects. Strengthening lecturer capacity, developing adaptive policies, and instilling the value of academic integrity are important steps in ensuring that AI is optimally utilized. Thus, AI can be used as a transformational instrument to support the creation of a high-quality, inclusive, and future-oriented higher education system.

Implications

Implicasi's theorem

This research makes a theoretical contribution by enriching the literature on the role of artificial intelligence (AI) in higher education, particularly through an integrative approach that connects pedagogical competence, academic integrity, and educational system transformation. These findings confirm that AI cannot be understood merely as a technological innovation but must be situated within a multidimensional conceptual framework that includes both pedagogical and ethical aspects. In addition, the concept of AI duality as disruption and transformation expands theoretical perspectives in the study of digital education, especially in explaining the complex dynamics of change in the era of intelligent technology.

Practical Implications

In practical terms, the results of this study provide guidance for higher education institutions in designing AI implementation strategies that are more adaptive and sustainable. Universities need to increase lecturers' capacity through digital literacy training and the development of technology-based pedagogy. In addition, innovations in learning design and evaluation systems, such as authentic, project-based assessments, are needed to minimize the potential for students to misuse AI. Institutions also need to make positive use of AI, for example, in developing adaptive learning systems and learning analytics to improve the quality of education.

Policy Implications

In terms of policy, this study emphasizes the importance of clear, comprehensive regulations governing the use of AI in higher education. Governments and educational institutions need to develop ethical guidelines for AI use, including limitations on its use in academic tasks and mechanisms to monitor academic integrity. In addition, policies need to be directed at equitable access to technology and strengthening digital infrastructure so that the implementation of AI does not widen the gap between educational institutions.

Social and Ethical Implications

This research also has important social and ethical implications, especially in building an academic culture with integrity in the digital age. Students need to be equipped with an understanding of the ethics of using technology and the ability to think critically in utilizing AI. On the other hand, lecturers and institutions must play an active role in shaping an academic environment that upholds honesty and responsibility. Thus, AI is not only a technological tool, but also part of an educational ecosystem oriented towards moral and ethical values.

Implications for Further Research

This research opens the door to further empirical follow-up, such as quantitative or mixed-method studies, to directly measure the influence of AI on learning outcomes, academic integrity, and pedagogical competence. In addition, further research can develop AI implementation models or frameworks tailored to the higher education context in Indonesia. Comparative studies across countries or institutions are also important for understanding best practices in managing AI-based education transformation.

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