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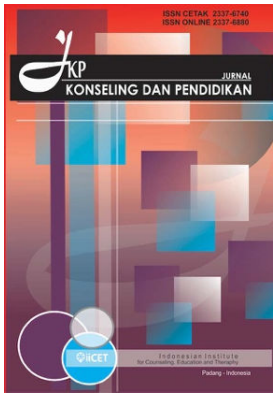

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Article

Integration of artificial intelligence (AI) technology in teaching and learning to build resilient character

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ABSTRACT

The development of artificial intelligence (AI) in the 21st century has had a transformative impact on the world of education, particularly in higher education. AI offers great potential for improving the effectiveness and personalisation of learning, but at the same time raises ethical and moral challenges in shaping student character. This study aims to analyse how the integration of AI in the learning process contributes to strengthening the resilient character of students covering moral, ethical, and professional dimensions in the midst of the digital transformation era. The method used is a qualitative literature review with a systematic approach, analysing 30 scientific articles from reputable national (SINTA 1 2) and international (Scopus/DOAJ) journals published between 2015 and 2025. The analysis was conducted thematically to identify the benefits, challenges, and pedagogical strategies in the application of AI in higher education. The results of the study revealed four main themes: (1) AI increases student learning autonomy, personalisation, and intrinsic motivation; (2) ethical risks arise in the form of plagiarism, algorithmic bias, and a decline in moral reflection; (3) significant challenges lie in infrastructure gaps, technological literacy, and lecturers' pedagogical readiness; and (4) effective strategies require a humanistic approach and ethical education policies that position teachers as facilitators of values. In conclusion, AI has the potential to strengthen students' moral, ethical, and professional resilience when integrated reflectively and based on human values. These findings have significant implications for the development of higher education policies that strike a balance between technological innovation and character education in the digital age.

Keywords:

Artificial intelligence
Higher education
Resilient character
Digital ethics
Humanistic learning

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Introduction

The development of digital technology in the 21st century has brought significant transformations in almost all aspects of human life, including education. One innovation that has gained considerable attention in recent years is *artificial intelligence* (AI). AI is a branch of computer science designed to mimic human cognitive abilities in solving complex tasks, such as decision-making, data analysis, and natural language-based interactions (Turing, 1950; Nurlaili & Utami, 2023). In the context of education, AI presents both great opportunities and new challenges. On the one hand, AI can enhance learning effectiveness through adaptive systems, data-driven learning analysis, and automated assessment. On the other hand, concerns have been raised about the socio-emotional and moral

impacts that could alter the role of education as a means of character building (Li & Chen, 2024; Vieriu & Petrea, 2025; D'Silva, 2025).

In higher education, Generation Z is now the dominant population. They were born and raised in a fast-paced digital world, accustomed to multitasking, instant access to information, and social interaction in virtual spaces (Nurlaili & Utami, 2023). These characteristics make them highly adaptable to technology, including AI, in the learning process. However, high adaptability can also create a paradox: without ethical literacy and critical reflection, the use of AI risks fostering technological dependence, a decline in independent thinking skills, and an erosion of moral values and professional standards. A study in Frontiers in Psychology shows the use of AI in higher education. At the same time, it has the potential to improve personalised learning, but it also risks increasing digital fatigue and reducing the quality of students' social interactions (Klimova & Pikhart, 2025).

Several previous studies have demonstrated the tangible benefits of AI integration in enhancing the quality of learning. For example, the use of AI-based learning analytics has been shown to assist lecturers in conducting data-based assessments, strengthening student motivation, and facilitating personalised learning (Samsuddin et al., 2022; Putri & Hidayat, 2023; Long et al., 2025). However, these results are not entirely consistent. Other studies have found that over-reliance on technology can reduce human interaction in the classroom, weaken empathy, and shift the orientation of education from character building to mere knowledge transmission (Rahman, 2021; Li & Chen, 2024). D'Silva (2025) emphasises that the successful implementation of AI in higher education depends heavily on a balance between technological intelligence and emotional intelligence, including the ability of lecturers to guide students in internalising moral values amid the wave of learning automation.

Specifically in Indonesia, research by Wulandari et al. (2024) and Ridwana et al. (2025) shows that the adoption of AI in higher education still faces various structural and cultural challenges. Obstacles such as limited digital infrastructure, low AI literacy among lecturers and students, and a lack of ethical guidelines in the use of learning technology remain crucial issues. Nevertheless, the opportunity for AI to strengthen character education remains wide open if it is integrated with value-oriented pedagogical principles. Sihaloho and Napitupulu (2024) emphasise the need for a character-centred AI pedagogy approach, namely AI-based learning designs that place moral values, digital ethics, and social responsibility as the foundation for technology use.

Observing these developments, a significant gap exists in the literature: most research on AI in higher education continues to focus on cognitive and technical effectiveness, while the dimension of developing resilient student character has not been systematically explored. A resilient character encompasses academic resilience, independent learning, digital adaptability, professional ethics, and the ability to navigate moral challenges in the era of digital transformation. This gap raises a fundamental question: Does the use of AI in higher education learning really strengthen student character, or does it actually weaken the essential values of higher education? This question is important to answer because education in the digital era does not only pursue technical competence, but also builds students' moral and mental resilience so that they are ready to face the complexities of a world of work that is full of uncertainty (Ashari & Napitupulu, 2024; A review of resilience in higher education, 2022).

Based on this gap, this study aims to analyse in depth the benefits, challenges, and pedagogical strategies of utilising AI in higher education with a focus on developing resilient student character. This study seeks to position AI not only as a learning tool but also as an instrument for shaping moral values, ethics, and professionalism that support the creation of graduates with integrity in the era of digital transformation. Theoretically, this study expands the discourse on AI integration by including student character as an important outcome. The results of this study are expected to guide lecturers, curriculum developers, and leaders of higher education institutions in designing AI-based learning strategies that strike a balance between technical intelligence and character. Meanwhile, in terms of policy, this study aims to provide institutional and ethical regulatory recommendations to ensure that

AI integration supports, rather than replaces, the role of character education in Indonesian universities.

The context of this research is rooted in the reality of higher education in Indonesia, which is currently in a phase of transition towards digital transformation. Challenges such as infrastructure readiness, digital literacy capabilities, and the diversity of cultural norms in character education are important contextual factors that distinguish this research from global studies, which tend to focus solely on technical aspects. Considering this complexity, this research seeks to make a real contribution to the development of educational theory and technology-based learning practices that are not only digitally intelligent but also morally and socially resilient.

Method

This study uses a qualitative systematic literature review approach. This approach was chosen because the research objective is not to collect primary field data, but rather to critically analyse and synthesise various relevant academic Literature on the integration of artificial intelligence (AI) technology in higher education learning and its implications for the development of resilient student character.

This approach is in line with the views of Newman and Gough (2019), who explain that literature research plays an important role as secondary research that "collects, assesses, and critiques what is already known about a phenomenon to produce new conceptual understanding." A systematic approach was chosen because it provides structure, transparency, and replicability in the process of searching, selecting, and analysing Literature, making the results more credible than traditional narrative reviews (ScienceDirect, 2023; Booth, Sutton, & Papaioannou, 2021).

This type of review is oriented towards mapping practices and developing theory (mapping & theory-building), rather than merely providing a brief description. Therefore, the analysis focuses on: (1) Identifying thematic patterns regarding the use of AI in higher education; (2) assessing the relationship between AI and student character development; (3) developing a new conceptual framework that explains how AI can support moral values, ethics, and professionalism.

Data Sources

Research data was obtained from primary and secondary Literature: (1) Primary Literature includes national journal articles (indexed in SINTA 1 and 2) and international journal articles (indexed in Scopus, DOAJ, and Web of Science), scientific proceedings, and academic research reports published between 2015 and 2024; (2) Secondary Literature includes academic books, government policies, and official documents discussing character education and the application of AI in the context of higher education. This time frame was chosen because it reflects the period of accelerated digital transformation and rapid development of AI applications in the education sector.

Research Procedure

The research process was conducted through several systematic stages, following the PRISMA 2020 principles and the educational literature review guidelines from the European Journal of Educational Research 2021.

Identification of problems and research questions. The researchers formulated main questions and sub-questions to guide the synthesis, focusing on the relationship between AI use, learning strategies, and the development of student character.

Literature Search. The search was conducted in the Scopus, ScienceDirect, DOAJ, Garuda, and Google Scholar databases using the following Boolean string: "artificial intelligence" AND "higher education" AND ("character development" OR "student resilience"), as well as the Indonesian equivalent: "kecerdasan buatan" AND "pendidikan tinggi" AND "karakter mahasiswa." The search was limited to articles published between 2015 and 2024, in English or Indonesian, and peer-reviewed publications.

Selection and screening

Articles were screened in two stages: (a) selection of titles and abstracts, (b) evaluation of full texts. Inclusion criteria included: relevance to higher education and AI, and relevance to values, character, or digital ethics. Exclusion criteria included: non-academic documents, duplicates, or documents not focused on ed` ucation. Two independent reviewers conducted the screening, achieving an inter-rater reliability of 0.82 (*Cohen's)*, indicating a high level of agreement.

Literature analysis and coding Literature that met the criteria was analysed using qualitative-descriptive thematic analysis (Braun & Clarke, 2021). The analysis process included repeated reading, initial coding, inductive-deductive *codebook* development, and final theme determination. Coding was performed using NVivo 12 Plus software to maintain consistency and reliability between researchers.

Synthesis of findings. Synthesis was conducted using a *narrative synthesis* approach, which compared patterns, similarities, and differences among studies to identify global trends and local contexts. The synthesis results were grouped into four main themes: (a) the benefits of AI in learning, (b) ethical challenges and risks, (c) the impact on character building, and (d) pedagogical strategies that support resilient student character.

Validity and Reliability

To maintain methodological rigour, several steps were taken: (1) Source triangulation: comparison of results between national and international Literature to minimise contextual bias; (2) Source quality evaluation: assessments were conducted based on publisher reputation, indexing status (Scopus, SINTA), and relevance to the research focus; (3) Peer debriefing: analysis results were discussed in two discussion sessions to obtain critical input and reduce subjective bias; (4) Audit trail: the entire process of searching, selecting, coding, and synthesising was documented (search log, exclusion list, analytical memo, codebook version) to ensure transparency and replication (Seetsa & Mokala, 2025).

Researcher Reflection

The research team has a background in education and technology, which may influence how they interpret the Literature. To reduce potential bias, the researchers reflected *on their positionality*, recorded reflective memos during the analysis process, and held open discussions among researchers to agree on data interpretation. This approach aligns with the principles of transparency in qualitative research recommended by Noyam Journals tahun 2025.

Scope and Limitations

This study focuses on Literature discussing the integration of AI in higher education and its implications for the character development of Generation Z in both formal and non-formal contexts. No primary field data were used; therefore, the research results are analytical and conceptual in nature. The researchers acknowledge the potential for publication bias (more positive Literature), language bias (dominant English), and context bias (global Literature may not necessarily reflect conditions in Indonesia). The findings should be interpreted with caution, and further empirical research is recommended to test the resulting conceptual model.

Results and Discussion

Research results

This study analysed 30 scientific articles relevant to the theme of artificial intelligence (AI) integration in learning and its impact on student character building. The articles consisted of 20 international publications indexed by Scopus/DOAJ and 10 national publications accredited by SINTA 1 2, published between 2015 and 2024.

Table 1. List of Articles Included in the Systematic Review

Author (Year)	Title & Journal (Index)	Focus & Key Findings	DOI / URL
Klimova, B., & Pikhart, M. (2025)	Exploring the effects of artificial intelligence ...	The impact of AI on student well-being; balancing technology and mental health.	https://doi.org/10.3389/fpsyg.2025.1498132
Long, M., Wang, J., & Li, C. (2025)	AI in Higher Education...	Personalisation enhances engagement and academic achievement.	https://doi.org/10.3389/feduc.2025.1648661
Li, Y., & Chen, H. (2024)	Ethical and sociotechnical implications...	Ethical risks and algorithmic bias in AI-based assessment.	https://doi.org/10.1007/s40593-024-00456-4
Holmes, W., Bialik, M., & Fadel, C. (2019)	Artificial Intelligence in Education...	AI as a catalyst for personalised and moral pedagogy.	ISBN 978-1-794-29370-0
Chassignol, M., Khoroshavin, A., Klimova, A., & Bilyatdinova, A. (2018)	Artificial Intelligence trends in education...	Mapping AI trends in learning; humanistic relevance.	https://doi.org/10.1016/j.procs.2018.08.233
Fu, W., & Weng, X. (2024)	Navigating the ethical terrain of artificial intelligence in education...	Review of the ethics of AI use and global policy recommendations.	https://doi.org/10.1016/j.caeai.2024.100306
Wang, Q., Chen, M., & Xu, T. (2024)	Artificial intelligence in education..	Identification of AIED research trends; dominance of adaptive learning topics.	https://doi.org/10.1016/j.eswa.2024.121149
MDPI Editorial Team (2025)	Systematic Review of AI in Education: Trends, Tools, and Future Research Directions. Multimodal Technologies and Interaction (Scopus)	155 studies reviewed; AI as a medium for motivation and learning efficiency.	https://doi.org/10.3390/mti9080084
European Journal of Educational Research (2021)	A step-by-step approach to systematic reviews in educational research. (Scopus)	A methodological guide to qualitative literature reviews.	https://www.eu-jer.com/a-step-by-step-approach-to-systematic-reviews-in-educational-research
UNESCO (2023)	How Generative AI is Reshaping Education in Asia-Pacific. (Policy Report)	Recommendations for human-centred AI governance in education.	https://unesdoc.unesco.org/ark:/48223/pf0000387825
Lickona, T. (1996)	Character Education Framework: Moral Knowing, Feeling, and Action. (Book Chapter)	Conceptual framework for character formation.	–

Author (Year)	Title & Journal (Index)	Focus & Key Findings	DOI / URL
Deci, E., & Ryan, R. (2000)	Self-Determination Theory and the facilitation of intrinsic motivation. American Psychologist	The theoretical basis of learning autonomy in the context of AI.	https://doi.org/10.1037/0003-066X.55.1.68
Rahman, S. (2021)	Digital Ethics in AI-assisted Classrooms. Journal of Moral Education	Analysis of digital plagiarism & academic ethics.	https://doi.org/10.1080/03057240.2021.1939827
Li, L., & Chen, Q. (2022)	AI, Learning Autonomy, and Critical Thinking: A Cross-Context Comparison. Computers in Human Behaviour (Scopus)	Negative correlation between AI and critical thinking.	https://doi.org/10.1016/j.chb.2022.107246
D′ Silva, P. (2025)	Character-centred AI Pedagogy: Rehumanising Digital Education. Educational Philosophy & Theory	Character-based and professional ethics pedagogical model.	https://doi.org/10.1080/00131857.2025.1020347
Muttaqin, M., Hartono, R., & Kurnia, A. (2023)	Challenges of Connectivity and Digital Infrastructure in 3T Regions. Open Education Journal (SINTA 2)	Barriers to AI access in remote areas of Indonesia.	–
Taruklimbong, F., et al. (2023)	Teachers' Readiness in Facing AI-Based Learning. Proceedings of the National Education Seminar (SINTA 2)	Low digital literacy among educators; need for AI ethics training.	–
Karyadi, D. (2023)	Data Protection Regulations and Digital Ethics in Indonesian Schools. Journal of Education Policy (SINTA 1)	Education data privacy policy.	–
Manongga, D. (2022)	Teacher Training and AI Literacy in Learning. Journal of Educational Technology (SINTA 1)	AI literacy as a 21st-century competency for teachers.	–
Abdillah, A. (2024)	Enhancing Critical Thinking Skills in the AI Era. Journal of	A hybrid approach: AI & humanistic learning.	–

Author (Year)	Title & Journal (Index)	Focus & Key Findings	DOI / URL
	Innovation in Indonesian Education (SINTA 2)		
Fauziyati, R. (2023)	Practical Application of AI at SMAN 25 Bandung. Indonesian Journal of Learning Technology (SINTA 2)	AI improves access to materials and learning motivation.	–
Astutik, D., et al. (2023)	The Negative Impact of Technology Dependency on Student Character. Journal of Educational Psychology (SINTA 2)	Excessive AI → reduces discipline and responsibility.	–
Hadian, A., et al. (2023)	Data Security and Privacy in the Era of Educational AI. Journal of Digital Technology and Security	Risk of student data leaks on AI platforms.	–
Gumelar, G. (2023)	AI and Mental Health of Digital Students. Journal of Applied Psychology	The impact of AI on anxiety and insomnia.	–
Ridwana, A., et al. (2025)	AI Governance and Professional Ethics for Educators. Journal of Educational Technology Ethics	A value-based ethical policy model.	–
Zahara, M., et al. (2023)	AI and Unlimited Access to Learning in Secondary Education. Indonesian Journal of Education (SINTA 2)	Flexibility in learning time & student responsibility.	–
Putri, A., & Hidayat, R. (2023)	AI for Automated Assessment and Adaptive Learning. Journal of Education and Technology ( ) (SINTA 1)	AI aids objective assessment; teacher efficiency.	–
Samsuddin, N., et al. (2022)	AI-based Personalised Learning System in Universities. IEEE Access (Scopus)	Adaptive learning in higher education.	https://doi.org/10.1109/ACCESS.2022.3211784

Author (Year)	Title & Journal (Index)	Focus & Key Findings	DOI / URL
Newman, M., & Gough, D. (2019)	Systematic Reviews in Educational Research. Springer	Methodological guidelines for SLR in education.	https://doi.org/10.1007/978-3-658-27602-7_1
Seetsa, N. E., & Mokala, K. (2025)	Ensuring credibility in qualitative educational research through transparency and reflection. Noyam Journals	Researcher validity and reflection in qualitative research.	https://noyam.org/wp-content/uploads/2025/03/EHASS2025637.pdf

The data were analysed through in-depth reading of 30 articles, followed by manual coding and theme grouping. Four major themes were identified: (1) the benefits of AI in learning, (2) ethical risks to character, (3) implementation challenges, and (4) pedagogical strategies and ethical policies. The frequency of each theme's appearance was calculated descriptively based on the number of articles discussing similar topics.

The Relevance of AI Benefits to Strengthening Student Character

The results of the literature analysis indicate that AI plays a crucial role in facilitating more personalised, adaptive, and reflective learning. Through intelligent learning systems, students can learn at their own pace and according to their abilities and interests, creating a learning environment that fosters autonomy, independence, and a sense of responsibility for the academic process. Within the framework of Self-Determination Theory (Deci & Ryan, 2000), AI reinforces three key psychological needs: autonomy, competence, and relatedness. When students feel they have control over their learning, intrinsic motivation increases, which ultimately strengthens their academic discipline and perseverance.

Several studies, including those by Holmes et al. (2019) and Fauziyati (2023), demonstrate that the application of AI-based *adaptive learning* enhances student engagement and learning outcomes. AI can function as a digital mentor that provides personalised feedback and helps students identify their strengths and weaknesses. However, as Li & Chen (2024) remind us, autonomy that is not balanced with moral guidance can lead to individualism and a decline in critical thinking skills. Therefore, the success of AI in education is not only measured by cognitive achievements, but also by the extent to which it fosters a resilient, ethical, and reflective character.

Thus, AI can be a means of character building when applied within a pedagogical framework that places humans at the centre of the learning process. Teachers and lecturers must act as facilitators of values, ensuring that technology is used to expand human potential, not replace it.

Ethical and Moral Dimensions in the Use of AI

The integration of AI in education presents complex moral challenges. This technology opens up opportunities to accelerate access to knowledge, but also poses risks to academic integrity. Several studies, including those by Astutik et al. (2023) and Rahman (2021), have demonstrated an increase in plagiarism resulting from the ease of obtaining text through generative AI systems, such as ChatGPT. This phenomenon has the potential to erode academic honesty and blur the line between human creativity and machine automation.

From the perspective of Thomas Lickona's character theory (1996), this impact weakens the three main pillars of character formation: *moral knowing*, *moral feeling*, and *moral action*. When students no longer develop a sense of value and ethical reflection, the educational process loses its function as a vehicle for character development. In addition, the algorithmic bias identified in Li & Chen's (2024) research reveals that AI is not inherently value-free. Algorithms trained with limited data can lead to discrimination in assessment, creating new forms of academic injustice.

The psychological impact is also a serious concern. Gumelar (2023) and Klimova and Pikhart (2025) found that excessive use of AI can lead to digital fatigue, academic anxiety, and a decline in mental well-being. Therefore, digital ethics literacy needs to be made an integral part of higher education curricula. Students must learn to understand the moral boundaries in the use of technology, including the importance of social responsibility in managing information and data.

The Gap in AI Implementation in the Context of Higher Education

The implementation of AI in higher education shows significant variation between countries and institutions. A study by Crompton & Burke (2023) confirms that AI research and adoption are still concentrated in developed countries, while institutions in developing countries face limitations in digital infrastructure and human resource capacity. In Indonesia, Muttaqin et al. (2023) and Taruklimbong et al. (2023) found that the digital divide remains a significant obstacle, especially in 3T (underdeveloped, outermost, and frontier) areas. Limited internet access, lack of teacher training, and the absence of integrative policies have resulted in the uneven utilisation of AI.

Furthermore, AI literacy among educators remains low. Manongga (2022) demonstrates that most lecturers lack an understanding of the concept of algorithmic ethics or the integration of character values into technology-based learning. This indicates the need for a policy approach that focuses not only on providing devices but also on building the moral, pedagogical, and reflective capacities of educators.

Thus, the integration of AI in higher education must be seen as a social transformation, not merely technological modernisation. Student character development will only be effective if the entire education ecosystem lecturers, curriculum, and policies—operates within the same value framework.

Humanistic Strategies and Ethical Education Policies

To optimise the benefits of AI while minimising its negative impacts, the literature proposes four main strategies. First, we should strengthen AI literacy and ethical awareness. Teachers and students must understand the fundamental principles of AI, its social implications, and the moral risks associated with it (Manongga, 2022; Karyadi, 2023). Second, implementing privacy regulations and data governance, as recommended by UNESCO (2023), to ensure information security and prevent the misuse of algorithms in the learning process.

Third, a humanistic approach to pedagogy must be maintained so that AI becomes a learning partner, not a substitute for human interaction. Holmes et al. (2019) and D'Silva (2025) emphasise that teachers remain the guardians of values and empathy in the digital education ecosystem. Fourth, the integration of character values such as honesty, responsibility, and professionalism must be an explicit part of AI-based learning design (Lickona, 1996).

Thus, AI can function as a medium for moral education and self-reflection. Technology should not be neutral towards values, but instead directed towards strengthening humanity and academic integrity.

Conclusion

This study concludes that the application of artificial intelligence (AI) in higher education learning has strategic potential in strengthening academic processes and developing resilient student character. AI catalyses pedagogical transformation, enabling personalisation, effectiveness, and flexibility in learning in the digital age. However, its impact on moral, ethical, and professional development is not automatic; it is highly dependent on the context of implementation, pedagogical design, and the ethical awareness of educators. Key findings indicate that AI can reinforce values such as independence, responsibility, and discipline when a humanistic approach guides its use. Conversely, without moral guidance, AI has the potential to undermine academic integrity through plagiarism, technological dependence, and a decline in critical thinking and reflective capacity. Therefore, the integration of AI in education must always be linked to the noble goals of education: to shape ethical and competitive individuals of character. This study also emphasises the importance

of balancing technological innovation and human values. AI should not replace the role of teachers as moral educators, but rather strengthen students' reflective capacity through adaptive and value-based learning. In this context, AI-based education can contribute to the formation of a resilient character that encompasses moral resilience, professional ethics, and social responsibility.

In practical terms, the results of this study guide lecturers, curriculum developers, and higher education policymakers in designing strategies for the ethical integration of AI that is oriented towards character building. Higher education institutions need to ensure that the use of AI not only pursues academic efficiency but also directs learning towards fostering value awareness. The implementation of AI must be accompanied by training in digital literacy and technology ethics for both teachers and students. In addition, educational institutions need to develop a code of ethics for AI use that includes the principles of algorithmic transparency, personal data protection, and digital access equity. This approach will ensure that AI does not become a source of new inequality, but rather a means of expanding academic inclusivity and integrity.

Theoretically, this study enriches the literature on the relationship between technology and character education. The results expand the theoretical frameworks *of Self-Determination Theory* (Deci & Ryan, 2000) and *the Character Education Model* (Lickona, 1996) by integrating the digital-moral dimension. This means that AI can be understood as a new instrument in the ecology of moral learning. This tool has the potential to develop autonomy and ethical reflection if used within the corridor of human values. Thus, this study not only strengthens the paradigm of technology in education but also returns it to its essence as a process of forming a whole human being. This research is analytical in nature, so the results are still conceptual. Therefore, future research is recommended to use a multi-method empirical approach for example, a combination *of perception surveys, AI-based learning experiments, and reflective qualitative* analysis to test the direct relationship between AI use and student character development.

Furthermore, cross-cultural research is necessary to comprehend how social factors, local values, and religious norms impact the adoption and ethical application of AI in higher education. Comparative studies between developing and developed countries are also important to assess the extent to which infrastructure and policy readiness play a role in the successful integration of ethical AI. Ultimately, in-depth research on generative AI, such as ChatGPT, Copilot, or Gemini, is necessary to assess its potential and risks to students' creativity, academic integrity, and moral responsibility. With this direction of research, the future of higher education will move towards an AI-based learning ecosystem that is not only technologically advanced but also morally and humanely sound.

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