Digital Literacy and Digital Ethics of University Students in the Era of Artificial Intelligence: A Study at Universitas Islam Ahmad Dahlan Sinjai

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Abstract

This study aims to describe the current state of digital literacy, digital ethics, and the utilization of Artificial Intelligence (AI) by students of Universitas Islam Ahmad Dahlan Sinjai. Amid the rapid development of AI technologies such as ChatGPT, Copilot, and similar tools, students are required not only to be proficient in accessing digital information but also to understand the ethical implications of using such technologies. This research employs a descriptive qualitative approach through in-depth interviews and observations involving 11 students from three faculties. The findings reveal that most students have utilized AI for academic tasks; however, their level of digital literacy varies, particularly in critical and ethical aspects. The study also found instances of digital ethical violations such as AI-based plagiarism and academic data manipulation. These findings emphasize the urgent need to strengthen digital literacy and ethics education within the university environment.

Keywords: *Digital Literacy, Digital Ethics, Artificial Intelligence, Students, Higher Education*

1. Introduction

The development of Artificial Intelligence (AI) technology has brought significant changes to the world of education, especially in higher education (Ahmad dkk., 2023; Mytra dkk., 2021) AI tools such as ChatGPT (Albadarin dkk., 2024; Montenegro-Rueda dkk., 2023) Copilot (Cirett-Galán dkk., 2024; Shihab & Others, 2025), and MidJourney (Adetayo, 2024), offer ease of obtaining information and completing academic assignments (Chan et al., 2022; Dwivedi et al., 2023). However, the use of AI that is not balanced with digital literacy and ethical awareness has the potential to lead to academic problems such as plagiarism and data manipulation (Smith dkk., 2024)

Digital literacy includes not only technical ability to access information, but also a critical and ethical understanding of the information generated by digital technology (Buckingham, 2007; Ng, 2012) Meanwhile, digital ethics includes moral principles in the use of information technology, including academic integrity and respect for intellectual property rights (Tan, 2023; UNESCO, 2023).

In the current era of digital transformation, students as the digital native generation are required to not only be passive users of technology, but also have the ability to manage, evaluate, and utilize information wisely. Mastery of technology without adequate digital literacy can actually give rise to new challenges, one of which is the misuse of technology in the academic process.

The development of increasingly sophisticated AI, such as the ability for AI to generate text, images, and data analysis automatically, makes it easier for students to complete academic work (Naznin dkk., 2025; Tambun & others, 2025) Although AI such as ChatGPT facilitates academic access and efficiency, over-reliance on this technology can weaken students' critical thinking skills and intellectual independence (Rahyuni et al., 2025). In addition, experimental studies have also shown that generative AI can trap students in design fixation, resulting in ideas that are less varied and less original

(Wadinambiarachchi et al., 2024). Reliance on AI without an understanding of critical digital literacy can have a negative impact on the quality of students' academic output, and can even damage academic integrity itself.

In the context of higher education, universities have a major responsibility to prepare students for the complex challenges of the digital era. One of the primary strategies is to strengthen digital literacy programs that emphasize not only the technical but also the critical and ethical dimensions of technology use. Recent studies emphasize that digital literacy should include the ability to critically evaluate information, recognize bias, and understand the social implications of technological tools (Gander & Harris, 2024; Laupichler & others, 2025). Universities are thus required to redesign their curricula to ensure that students can navigate emerging technologies such as artificial intelligence (AI), data analytics, and automation while maintaining a sense of ethical responsibility.

Furthermore, the integration of AI literacy into higher education has become a crucial component of 21st-century learning. According to the Canadian Journal of Learning and Technology (Canadian Journal of Learning and Technology, 2023), AI literacy is not merely about understanding how AI works, but also about fostering the ability to make ethical judgments in its application. This is in line with the Cornell University (2024) initiative on "Ethical AI for Teaching and Learning," which highlights that ethical awareness should be embedded in the instructional design process. Students who develop AI literacy through reflective and project-based learning are more likely to exhibit responsible use of digital tools and a deeper understanding of fairness, transparency, and accountability in AI-based systems (FATE in Artificial Intelligence, 2023).

At the same time, the cultivation of digital and AI literacy must go hand in hand with digital ethics education. Ethical and critical engagement with technology prepares students to address issues of misinformation, data privacy, and algorithmic bias that increasingly affect academic integrity (Digital Literacy and AI Literacy in Teacher Training, 2024). Integrating these competencies ensures that graduates are not only technologically capable but also socially and morally aware. As higher education institutions continue to evolve, embedding critical and ethical AI perspectives into the curriculum becomes essential for preparing students to contribute meaningfully to a rapidly transforming digital society (Gander & Harris, 2024; Laupichler & others, 2025).

Universitas Islam Ahmad Dahlan as one of the higher education institutions in South Sulawesi, is also inseparable from the phenomenon of the use of AI by students. Based on initial observations, many students have started to use AI in doing academic assignments, but most of them do not have an adequate understanding of digital literacy and the ethics of its use. This condition raises concerns about potential violations of academic ethics such as plagiarism, data manipulation, and the dissemination of invalid information.

Seeing this phenomenon, this research is relevant to be carried out as a form of contribution in understanding the extent to which students have utilized AI technology, the level of digital literacy they have, and the potential for digital ethical violations that arise. The results of this research are expected to be a reference for the campus in formulating policies or programs that can increase digital literacy and ethical awareness among students.

2. Method

This research is a descriptive qualitative research, which aims to understand in depth the phenomenon of the use of artificial intelligence (AI) by students in the context of digital literacy and digital ethics. This approach was chosen because it is suitable for exploring the meaning, views, and subjective experiences of students in interacting with AI technology in academic activities.

Qualitative research does not focus on quantitative measurement, but rather on the excavation of individual meanings, values, and perspectives in specific social and cultural contexts. In this case, students as the digital generation are the center of attention to analyze how they interpret the use of AI, the extent to which they understand their ethical responsibilities, and how Islamic values can guide their digital practices.

The methods used include in-depth interviews, focus group discussions (FGDs), participatory observations, and documentation, which allow researchers to obtain rich and in-depth data. The results of this research are expected to contribute to the development of campus policies in fostering the digital character of capable and ethical students in the AI era.

Here is a data analysis flowchart for qualitative research. The process starts from:

1. **Data Collection** – through interviews, observations, and documents.
2. **Data Reduction** – the sorting and selection of relevant information.
3. **Data Presentation** – organized in the form of narratives, tables, or diagrams.
4. **Thematic Analysis** – done by coding and grouping themes.
5. **Conclusion Drawing and Verification** – to validly answer the research focus.
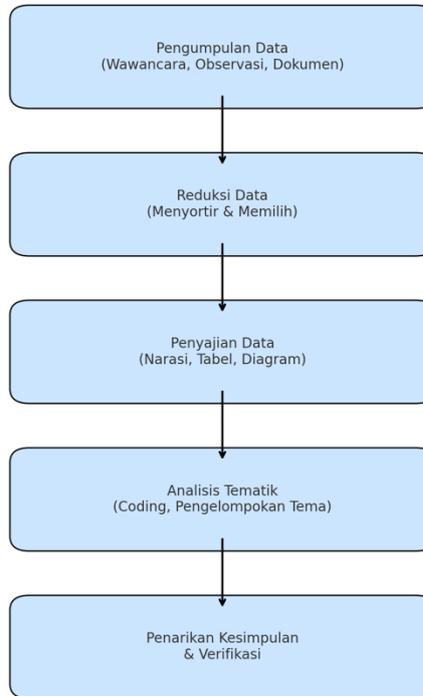

Figure **1**. Research Data Analysis Flow

3. Results and Discussion

This research reveals that the use of AI by students at Universitas Islam Ahmad Dahlan is quite massive, with AI being used as the main tool in completing academic tasks. These findings are in line with the results of research by Dwivedi et al. (2023) and Chan et al. (2022) who stated that AI is increasingly being used in the context of education to facilitate access and the learning process.

The level of digital literacy of students in the medium category shows that even though students have technical skills in using AI, they are still not optimal in applying critical thinking and ethical awareness in utilizing technology. This reinforces the theory of Ng (2012) and Buckingham (2007) that digital literacy is not only about technical skills, but also about a critical and ethical understanding of digital information.

The forms of digital ethics violations found, such as AI-based plagiarism and data manipulation, are in line with the concerns raised by Smith et al. (2024) regarding the risk of AI misuse in academia. Students tend to utilize AI without heeding the principles of academic integrity, as affirmed by UNESCO (2023) and Tan (2023) in the importance of digital ethics education.

Overall, the results of this study support the theories and references used previously, and at the same time provide empirical evidence that strengthening digital literacy and digital ethics programs is needed in the higher education environment, especially in the face of the accelerating development of AI technology.

The following is **a summary table of the results of interviews and observations** based on research findings on *Digital Literacy and Digital Ethics of Students in the AI Era*:

Table 1. Summary of Results of Wawanara and Observation

Aspects	Indicator	Interview Findings	Observational Findings	Additional Details

Digital Literacy	Technical capabilities	Most are able to use the internet, AI tools, LMS	Active students using ChatGPT, Google, Canva AI	Dominated by technical literacy, not yet critical
	Evaluative ability	Only some check the source of information	No re-verification of students during presentation	Students from Tadris Mathematics and KPI are more critical
	Critical literacy	Not all students are able to distinguish between valid and non-valid information	Copy-paste without revision from AI found	Appearing passive in the discussion process
Digital Ethics	Plagiarism awareness	Many consider "edit from ChatGPT" to be a violation	Students submit an AI result assignment without significant modifications	Perception of academic ethics is still weak
	Ethics of using AI	Not yet understanding the ethical limits of AI use	High reliance on AI tools	Ethical guidelines for the use of AI are needed
Utilization of AI	Intended use	Used as a quick tool for tasks	Students rely on AI when compiling papers or reports	Few develop AI results independently
	Impact on critical thinking	Many don't reframe arguments	Lack of critical discussion of AI answers	There is a potential for a decrease in analytical thinking skills
Academic Integrity	Understanding of integrity	Still understood narrowly (cheating in class)	AI is considered not a cheating tool when used with 'editing'	Law students are more aware of academic value
	Proposed improvements	Students want an AI guide or code of ethics	No personal initiative to limit oneself	Need structured education from lecturers and institutions

The following condition of students' digital literacy is shown in the following graph:
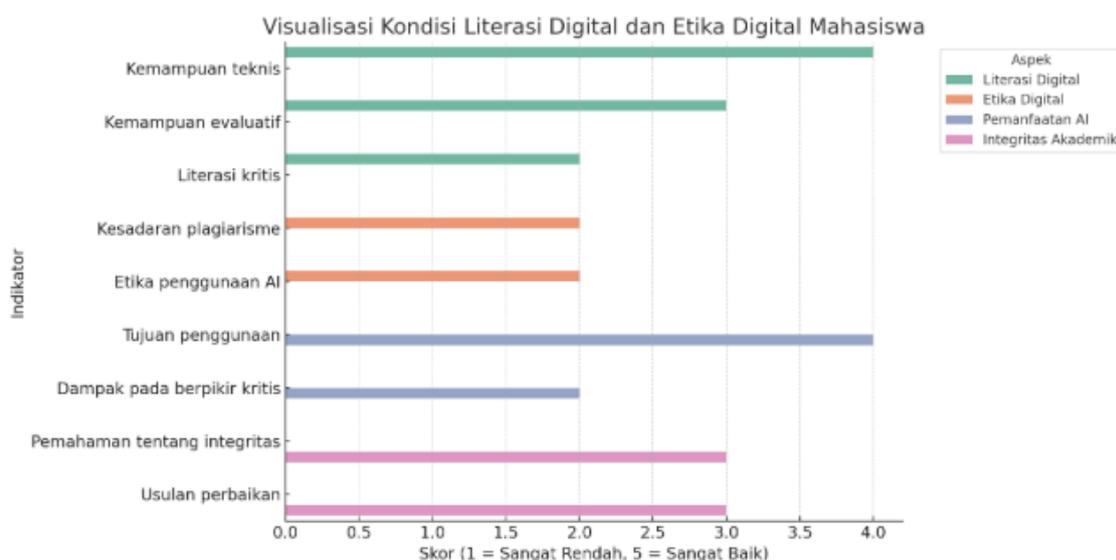

figure 2. Visualization of Digital Literacy Conditions and Student Digital Ethics

The visualization graph above illustrates the current state of digital literacy and digital ethics of Universitas Islam Ahmad Dahlan students from three faculties: Tarbiyah and Teacher Training, Ushuluddin and Islamic Communication, and Economics and Islamic Law.

In terms of digital literacy, most students show good abilities in technical aspects such as the use of learning software and access to information through the internet. However, the ability to think critically about digital information and ethical use is still relatively low, especially in filtering hoax information and maintaining the originality of scientific works.

Meanwhile, students' digital ethics are at a moderate level. College students are generally aware of the importance of maintaining data privacy and avoiding plagiarism, but practice in the field shows that there is still misuse of AI in completing tasks without adequate ethical understanding.

In general, this graph indicates the need to increase the understanding of digital literacy and ethics in a balanced manner.

1. Student Digital Literacy Level

   Students from the Tadris Mathematics, KPI, and Sharia Economics study programs have good technical skills in using digital devices and learning platforms. However, students from PBA, BPI, and IAT tend to still have difficulty evaluating information and assessing the validity of digital sources.

   Analysis: Students from study programs who are often exposed to digital-based assignments show higher digital literacy, but most of them are still at the functional level. The critical and ethical aspects of digital literacy are still not optimal.

2. Understanding and Practice of Digital Ethics

   Students from PAI, Islamic Law, and KPI study programs are more aware of the importance of academic integrity, while students from PGMI and TBI tend to use AI (such as ChatGPT and Grammarly) without mentioning sources.

   Analysis: The factor of habituation and strengthening the value of academic honesty appears to be stronger in sharia-based study programs and Islamic law. But in general, there is still a gap in the understanding of digital ethics and intellectual property rights.

3. Utilization of AI in the Learning Process

   All students admit that AI helps speed up assignments. However, some of them rely on AI without an independent thought process, especially in study programs with high essay assignment workloads such as KPI, BPI, and TBI.

   Analysis: AI is used as a very dominant tool, but it also poses a risk of dependency. Students do not fully understand the ethical limits in their use, such as use without attribution.

4. The Relationship between Digital Literacy and Digital Ethics

   From the results of triangulation, students with critical digital literacy (for example, from the Mathematics and Sharia Economics Department) are more aware of the ethics of using AI, while students with low digital literacy are more likely to show practices that tend to be unethical, such as copy-pasting AI results without revision.

   Analysis: There is a link between good digital literacy skills and more responsible digital ethical practices. This shows the need to integrate these two aspects in the curriculum of each study program, especially in technology-based learning.

The findings obtained based on the formulation of the problem are described as follows:

1. What is the form of use of artificial intelligence (AI) technology by students in academic activities at universities?

   The results of observations and interviews show that AI has been widely used by students in academic activities, such as compiling papers, answering quizzes, translating texts, and analyzing numerical data through tools such as ChatGPT, Google Gemini, Grammarly, and Copilot. Most students admit that AI helps them in saving time, improving the quality of writing, and expanding their understanding of concepts, especially in the exact field and foreign languages. This finding is in line with the theories of Dwivedi et al. (2023) and Chan et al. (2022) who state that AI provides significant benefits in accelerating the learning process and facilitating access to knowledge. However, these findings also warn of potential abuse, which is described in the third point.

2. What is the level of digital literacy of students in understanding and managing information generated by AI technology?

   Based on graphs and field data, students' digital literacy levels are diverse:

a. Students in technology-based and education-based study programs (e.g. *Mathematics* and *English Education*) tend to have higher digital literacy, especially in accessing and evaluating information from AI.

b. On the other hand, students from Islamic backgrounds (e.g. *Qur'an and Hadith Science*, *Islamic Law*, *BPI)* tend to have medium to low digital literacy, and are not optimal in critically filtering AI information.

These findings support the concept of digital literacy according to Eshet-Alkalai and Ng (Eshet-Alkalai, 2004; Ng, 2012) which emphasizes the importance of technical, cognitive, and ethical skills in managing digital information. In addition, these findings confirm that technical skills alone are not enough, without critical literacy and an ethical understanding of the use of AI.

3. What are the forms of digital ethical violations that arise from the use of AI in the student academic environment?

The findings of the study show that there are several forms of digital ethics violations committed by students due to the irresponsible use of AI, including:

a. Academic plagiarism: Raw copying answers or writings from AI without modification or reference.

b. Falsification of assignment/thesis data: Using AI to create fictitious citations or data.

c. Reliance on AI: Using AI to answer exam questions directly without understanding the material.

This reinforces the findings of UNESCO (2023) and (Howard et al., 2023) which state that digital ethics should be emphasized in the higher education environment, especially in the face of rapid technological developments. This research is also in line with Tan (2023) who highlights the risks of AI to academic integrity if it is not accompanied by ethical literacy.

Research Suitability with Theory and Reference

Overall, the results of the study support and strengthen the theories used, particularly in terms of:

a. The important role of digital literacy in shaping student attitudes and behaviors in the digital era.

b. The need for digital ethics education as a moral filter in the use of AI.

c. There is a need for regulation, guidance, and advanced literacy to ensure that AI is a tool, not a substitute for thinking.

However, this study also provides additional new perspectives, namely that study programs or scientific disciplines affect digital literacy and student ethics, something that has not been explained explicitly in previous theories.

4. Conclusion

Based on the results of research on Digital Literacy and Digital Ethics of Students in the Era of Artificial Intelligence (AI) at Universitas Islam Ahmad Dahlan, it can be concluded as follows:

1. Utilization of AI Technology by Students

Students actively utilize artificial intelligence (AI) technology in academic activities, especially in assignment preparation, document translation, reference search, and academic discussions. AI is used as a tool to simplify the learning process and complete academic obligations. However, most of the use of AI is still practical and has not been balanced with a deep understanding of the potential, limitations, and ethical impact of the technology.

2. Student Digital Literacy Level

The level of digital literacy of students of Universitas Islam Ahmad Dahlan Sinjai is moderate. Students demonstrate adequate technical ability in accessing and using digital technologies, including AI. However, the ability to think critically, evaluate information, and awareness of digital ethical aspects is still relatively low to moderate. This shows that there is still a gap between technical capabilities and digital literacy capabilities that are critical and ethical.

3. Digital Ethics Violations in the Use of AI

In the use of AI, several forms of digital ethics violations were found among students, such as AI-based plagiarism, manipulation of academic data, and excessive reliance on AI without an

independent evaluation process. This phenomenon shows the urgency of increasing awareness of digital ethics so that students can use technology responsibly and in accordance with the principles of academic integrity.

4.1. Implikasi Penelitian

The results of this study provide important implications for educational institutions, especially Universitas Islam Ahmad Dahlan, including:

a. The importance of comprehensive integration of digital literacy programs in the curriculum not only emphasizes the technical aspect, but also the critical, creative, and ethical aspects in the use of digital technology.

b. There is a need for education and socialization related to digital ethics and the dangers of AI abuse in academic activities to minimize violations of academic integrity.

c. The need to develop campus policies related to the use of AI, including ethical guidelines for the use of AI in the academic environment, as a preventive form against digital ethical deviations.

4.2. Research Limitations

This research has several limitations that need to be considered, including:

a. The research subject is limited to students at Universitas Islam Ahmad Dahlan, so the research results cannot be generalized to other universities.

b. Data collection relies more on interview and observation techniques, so there is still a possibility of perception or interpretation bias.

c. This research has not delved deeper into the factors that affect the level of digital literacy and digital ethical awareness of students.

4.3. Suggestion

Based on the results of the research and existing limitations, the author provides some suggestions as follows:

For Educational Institutions

a. It is necessary to organize digital literacy and digital ethics training on an ongoing basis, especially those relevant to the development of AI.

b. Campuses need to develop regulations and ethical guidelines for the use of AI to prevent the misuse of technology in the academic world.

For Students

a. Students are expected to increase their self-awareness of the importance of digital literacy, which is not only technical, but also includes critical, creative, and ethical aspects.

b. Students need to be more selective and responsible in utilizing AI technology, while maintaining academic integrity.

For the Next Researcher

a. It is recommended to conduct follow-up research with a wider scope, both in terms of the number of participants and the educational institutions studied.

b. Further research can examine the psychological, social, and cultural factors that affect the level of digital literacy and digital ethical behavior of students in the AI era.

REFERENCES

Adetayo, A. (2024). Reimagining learning through AI art: The promise of DALL-E and MidJourney for education and libraries. *Library Hi Tech News*. https://ouci.dntb.gov.ua/en/works/7WvVo6P9/

Ahmad, A., Rahman, N. A., & Sulaiman, N. (2023). *Project-based learning and ethical reflection in digital education*. *18*(2), 55–67.

Albadarin, F., Al-Azawei, A., Alzahrani, A., & Gayed, M. (2024). A systematic literature review of empirical research on ChatGPT in education. *Discover Education*, *3*(60). https://doi.org/10.1007/s44217-024-00138-2

Buckingham, D. (2007). Digital media literacies: Rethinking media education in the age of the internet. *Research in Comparative and International Education*, *2*(1), 43–55. https://doi.org/10.2304/rcie.2007.2.1.43

Canadian Journal of Learning and Technology. (2023). Ethical and critical issues of artificial intelligence in education. *Canadian Journal of Learning and Technology*.

Chan, K., Wong, C., & Lee, H. (2022). Teaching AI literacy with ethical reflection: A case study in higher education. *Journal of Educational Computing Research*, *60*(6), 1462–1480. https://doi.org/10.1177/07356331221111605

Cirett-Galán, Ma. T., Murillo-Morales, C., Cordero-Moreno, H., & de la Cruz, M. Á. (2024). Assessing the Use of GitHub Copilot on Students of Engineering of Information Systems. *International Journal of Software Engineering and Knowledge Engineering*, *34*(11). https://investigadores.unison.mx/en/publications/assessing-the-use-of-github-copilot-on-students-of-engineering-of-2

Digital Literacy and AI Literacy in Teacher Training. (2024). Digital literacy and AI literacy in teacher training. *Frontiers in Education*.

Dwivedi, Y. K., Hughes, D. L., Ismagilova, E., Aarts, G., & Coombs, C. (2023). Generative AI for education: Opportunities, challenges, and policy recommendations. *International Journal of Information Management*, *71*, 102652. https://doi.org/10.1016/j.ijinfomgt.2023.102652

Eshet-Alkalai, Y. (2004). Digital literacy: A conceptual framework for survival skills in the digital era. *Journal of Educational Multimedia and Hypermedia*, *13*(1), 93–106.

FATE in Artificial Intelligence. (2023). Fairness, accountability, transparency, and ethics in artificial intelligence in higher education. *Higher Education Review*.

Gander, T., & Harris, G. (2024). Understanding AI literacy for higher education students: Implications for assessment. *Higher Education Symposium*.

Howard, A., Whitaker, S., & Ramanujam, R. (2023). AI and academic integrity: Student use and institutional responses. *Journal of Ethics in Education*, *19*(2), 45–58.

Laupichler, K. & others. (2025). Navigating the landscape of AI literacy education: Insights from a scoping review. *Humanities & Social Sciences Communications*.

Montenegro-Rueda, M., Fernández-Cerero, J., & López-Meneses, E. (2023). Impact of the Implementation of ChatGPT in Education: A Systematic Review. *Computers*, *12*(8), 153. https://doi.org/10.3390/computers12080153

Mytra, P., Wardawaty, W., Akmal, A., Kusnadi, K., & Rahmatullah, R. (2021, September 27). *Society 5.0 in Education: Higher Order Thinking Skills*. Proceedings of the 2nd Borobudur International Symposium on Humanities and Social Sciences, BIS-HSS 2020, 18 November 2020, Magelang, Central Java, Indonesia. https://eudl.eu/doi/10.4108/eai.18-11-2020.2311812

Naznin, K., Al Mahmud, A., Nguyen, M. T., & Chua, C. (2025). ChatGPT Integration in Higher Education for Personalized Learning, Academic Writing, and Coding Tasks: A Systematic Review. *Computers*, *14*(2), 53. https://doi.org/10.3390/computers14020053

Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & Education*, *59*(3), 1065–1078.

Rahyuni, M., Ashadi, A., Triastuti, A., Hidayati, S., Salido, A., Ero, P. E. L., Marlini, C., Zefrin, Z., & Fuad, Z. A. (2025). Critical Thinking in the Age of AI: A Systematic Review of AI's Effects on Higher Education. *Educational Process: International Journal*, *14*(?). https://doi.org/10.22521/edupij.2025.14.31

Shihab, H. & Others. (2025). The Effects of GitHub Copilot on Computing Students' Programming Effectiveness: An Experimental Study. *arXiv preprint*. https://arxiv.org/abs/2506.10051

Smith, L., Andrews, B., & Tan, W. (2024). The impact of AI assistance on mathematical problem-solving skills. *Journal of Mathematics Education*, *12*(1), 14–29.

Tambun, R. D. T. & others. (2025). Does ChatGPT enhance student learning? A systematic review and meta-analysis of experimental studies. *Computers & Education*, *227*, 105224. https://doi.org/10.1016/j.compedu.2024.105224

Tan, K. (2023). AI, plagiarism, and the evolving landscape of academic integrity. *Journal of Higher Education Policy*, *29*(2), 131–146.

UNESCO. (2023). *Guidelines for the ethical use of artificial intelligence in education*. UNESCO Publishing.

Wadinambiarachchi, S., Kelly, R. M., Pareek, S., Zhou, Q., & Velloso, E. (2024). The Effects of Generative AI on Design Fixation and Divergent Thinking. *arXiv preprint*. https://arxiv.org/abs/2403.11164