

Opportunities, Challenges and Implications of ChatGPT in the Self-Directed Learning Process on the Critical Thinking Skills of Management Students

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ABSTRACT

This study aims to explore the use of ChatGPT in higher education, particularly in supporting self-directed learning and the development of students' critical thinking skills. Using a qualitative approach, data were collected through in-depth interviews with students and lecturers from various academic programs. The findings reveal that ChatGPT offers convenience in accessing information, constructing arguments, and building initial academic understanding. However, excessive use without proper guidance may lead to a decline in cognitive reflection, dependency on instant answers, and risks of academic dishonesty. Students generally feel assisted in independent exploration but still need support in evaluating the validity and accuracy of AI-generated responses. Lecturers, on the other hand, emphasize the importance of digital literacy and ethical awareness in using such technology. The study recommends integrating AI-based tools into learning strategies, strengthening AI literacy, and establishing institutional policies to ensure responsible use. With appropriate implementation, ChatGPT can serve as an effective tool to enhance learning quality and student autonomy in the digital era

INTRODUCTION

The development of artificial intelligence (AI) technology has brought significant changes in various aspects of life, including education. One notable AI innovation is ChatGPT (Generative Pre-trained Transformer), a generative language model capable of producing high-quality, interactive text. In higher education, ChatGPT offers numerous opportunities to support students' self-directed learning. However, its use also raises challenges and implications for the development of students' critical thinking. Self-directed learning is an educational approach that emphasizes the ability of students to actively manage their own learning process, including planning, implementing, and evaluating learning without fully depending on instructors or institutions. With the emergence of technologies like ChatGPT, self-directed learning is undergoing a significant transformation. Students can now access information anytime and anywhere, interact with chatbots to understand complex concepts, and receive instant feedback on their tasks offering greater flexibility and efficiency in learning.

According to Sok and Heng (2024), ChatGPT can function as a virtual tutor that helps students answer questions, clarify learning materials, and suggest additional resources. This may enhance motivation and accelerate comprehension. Additionally, ChatGPT promotes personalized learning by adapting content to individual needs, preferences, and learning pace. However, its use also invites concerns. One major challenge is the potential for overreliance on technology, which may reduce students' initiative to think independently. When students prefer instant answers from AI over searching and deeply understanding information, their critical thinking development may be hindered. Melisa et al. (2025) argue that passive interaction with AI could diminish students' capacity to critically evaluate and synthesize information.

Moreover, the reliability and accuracy of information generated by ChatGPT is a concern. Despite its sophistication, ChatGPT may provide inaccurate or contextually irrelevant responses. Students lacking adequate information literacy skills risk accepting incorrect information and using it to support academic arguments or decisions. This indicates the necessity of using ChatGPT alongside critical verification and evaluation skills. Another challenge concerns academic integrity and ethics. Students may easily misuse ChatGPT to complete assignments instantly without engaging in deep thinking, which increases the risk of plagiarism and academic dishonesty. Yusop (2025) emphasizes the importance of institutional regulations and guidance to prevent AI from undermining educational goals.

Critical thinking is a core competency in higher education that includes the ability to analyze arguments, evaluate evidence, and draw logical conclusions. In the context of ChatGPT use, its implications on reasoning are complex. On one hand, ChatGPT can serve as a useful tool to support students in constructing arguments, understanding multiple perspectives, and generating new ideas. On the other hand, improper use can lead students to lose opportunities to actively develop their reasoning by overly relying on AI. According to Krause, Dalvi, and Zaidi (2025), instructors' roles in the AI era

extend beyond delivering content—they must act as facilitators who guide students in using technology wisely and reflectively. Educators should design learning activities that encourage students to question, evaluate, and engage with AI-generated information rather than accepting it passively.

Another implication is the need for AI literacy in higher education curricula. Students must be equipped with an understanding of how tools like ChatGPT work, their advantages and limitations, and how to use them ethically. AI literacy involves not only technical skills but also critical awareness of the social and epistemological impacts of AI in education. With sufficient literacy, students can use ChatGPT to support rather than replace critical thinking processes. Additionally, it's crucial to integrate evaluative approaches when using ChatGPT. Students should be taught not only how to use this tool but also how to evaluate the accuracy, relevance, and bias of its outputs. ChatGPT can become a reflective learning tool, allowing students to compare their own ideas with AI responses, thus fostering a critical dialogue between human and machine.

In practice, various studies have shown mixed outcomes regarding the impact of ChatGPT on critical thinking. Some indicate improved analytical skills when ChatGPT is used reflectively, while others show a decline in reasoning quality due to passive usage (Melisa et al., 2025; Yusop, 2025). Therefore, the integration of ChatGPT into learning requires carefully crafted strategies to avoid counterproductive effects. Educational institutions should establish clear policies on AI use in teaching and learning. Training for both faculty and students is essential to ensure pedagogically and ethically sound use of ChatGPT. Collaboration between educators, technologists, and education researchers is critical to ensure that this technology strengthens rather than weakens higher education.

In the long run, ChatGPT has the potential to support more autonomous, reflective, and critical learners. However, this can only be achieved through strategic use of the technology, alongside strengthening students' critical thinking skills and academic ethics. Without a comprehensive approach, the risks of educational distortion may outweigh the benefits. Hence, it is vital to continuously conduct critical evaluations of ChatGPT's impact, particularly on self-directed learning and students' reasoning. This research aims to examine in-depth the opportunities, challenges, and implications of using ChatGPT in self-directed learning at universities and to formulate pedagogical strategies that maximize its benefits while minimizing its drawbacks. The results of this study are expected to offer valuable insights for education policymakers, faculty members, and students in managing AI technology wisely and productively.

LITERATURE REVIEW

The advancement of artificial intelligence (AI) has led to the emergence of various technologies that significantly impact the education sector, one of which is ChatGPT (Generative Pre-trained Transformer). ChatGPT is a generative language model designed to understand and generate coherent,

interactive text. In higher education, ChatGPT has been widely used by students to support self-directed learning processes, such as answering questions, explaining academic concepts, and drafting assignments. This technology has enormous potential in facilitating more flexible and personalized student engagement, yet it also presents serious challenges to the development of critical thinking skills if not used wisely.

The concept of self-directed learning emphasizes students' active role in planning, implementing, and evaluating their own learning processes without absolute dependence on lecturers or institutions. Candy (1991) explained that self-directed learning refers to one's ability to actively manage learning strategies through control over goals, materials, methods, and evaluation. Digital technologies such as ChatGPT can strengthen this dimension by providing instant access to information and additional learning resources. However, effective self-directed learning is not merely about accessing information but also about critically evaluating, analyzing, and synthesizing knowledge.

In this context, critical thinking becomes a key competency to be developed in higher education. According to Ennis (1993), critical thinking involves the ability to analyze arguments, evaluate evidence, identify biases, and construct logical, reflective conclusions. Garrison et al. (2001), through the Community of Inquiry framework, place critical thinking as the outcome of interaction between cognitive presence, social presence, and teaching presence in online learning environments. When students interact with ChatGPT, critical thinking skills are essential to ensure they are not passive recipients of information but active evaluators of the validity and logic of AI-generated responses.

Recent literature highlights that ChatGPT can serve as a scaffolding tool to support students' inquiry and reflection, when used within a proper pedagogical framework. Kasneci et al. (2023) showed that active use of ChatGPT—for instance, for discussion or answer evaluation—can enhance students' argumentative and reasoning quality. This aligns with the principles of inquiry-based learning and cognitive apprenticeship, in which learning is directed toward exploration, reflection, and independent analysis. Rogoff (1990) described scaffolding as initial support that can be gradually removed as learners become more competent. In this case, ChatGPT can act as digital scaffolding that is phased out as students grow more critical and autonomous.

However, the use of ChatGPT may also pose significant challenges to the development of critical thinking. A study by Melisa et al. (2025) found that passive interaction with AI such as accepting answers without verification—may reduce students' evaluative capacity. This is dangerous, as it fosters a habit of instant thinking without deep analytical processes. A report by MIT (2023) even observed a significant decrease in brain activity when participants overly relied on AI to complete cognitive tasks. This phenomenon is known as metacognitive laziness, where individuals show a reduced initiative to reflect, critique, and compare information independently.

On the other hand, the use of ChatGPT also requires AI literacy as a new competence in the 21st-century education ecosystem. AI literacy involves not only technical skills in using AI tools, but also ethical and reflective capacities to understand their potentials and risks. Laupichler et al. (2022) define AI literacy as "the ability to interact consciously and critically with AI systems, including understanding how they work, their limitations, and their social and epistemological impacts." In this context, students need to be equipped not only with technical skills to operate ChatGPT, but also with critical thinking to evaluate the accuracy, truth, and bias of AI-generated content. Syairofi (2024) emphasized that strong AI literacy helps students avoid plagiarism and maintain academic integrity in using ChatGPT.

The role of educators is crucial in directing the ethical and productive use of ChatGPT. Krause, Dalvi, and Zaidi (2025) stated that educators in the AI era are not merely content deliverers but also facilitators and moral guides who lead students to use technology reflectively. Instructors should design tasks that require students not just to accept ChatGPT's answers, but to analyze, critique, and compare information from multiple sources. For instance, Times Higher Education (2024) recommends strategies such as "AI debates," where students are asked to assess arguments generated by ChatGPT from two perspectives and synthesize a logical conclusion as a critical thinking exercise.

The use of ChatGPT in education must also be considered within ethical and academic integrity frameworks. Although highly sophisticated, ChatGPT remains a predictive system that may not always provide accurate or relevant information. Yusop (2025) suggested that higher education institutions should establish clear policies regarding AI use, including boundaries, ethics, and academic guidelines to ensure its application does not deviate from educational purposes. Without adequate regulation, students may misuse ChatGPT for plagiarism or as a shortcut for assignments – contradicting academic values that emphasize reasoning and originality.

Based on the theoretical exposition above, it can be concluded that ChatGPT has great potential in supporting self-directed learning and strengthening students' critical thinking, provided it is used within a proper pedagogical framework, supported by adequate AI literacy, and supervised by strict ethical guidelines. The integration of self-directed learning theory, critical thinking, and AI-based technologies like ChatGPT becomes a crucial theoretical foundation to examine this phenomenon in depth. Therefore, this theoretical basis not only provides a conceptual framework for the research but also serves as a guide in designing adaptive learning strategies in response to technological advancement, without neglecting the humanistic and reflective essence of education.

METHODOLOGY

This study used a qualitative approach with a descriptive-exploratory design. This approach was chosen to gain an in-depth understanding of the experiences, perceptions, and reflections of students and lecturers in using ChatGPT as part of the self-directed learning process. A qualitative method

allows researchers to explore complex phenomena in natural contexts and to interpret social interactions, values, and cognitive processes that cannot be reduced to numerical data or statistical variables (Creswell & Poth, 2018). Through this approach, the researcher seeks to uncover how the opportunities and challenges of using ChatGPT impact students' critical thinking skills, as well as the emerging needs for AI literacy and appropriate educational policies.

The study was conducted in several private universities under the jurisdiction of LLDIKTI Region III Jakarta, which have been introduced to or are actively using artificial intelligence technology, particularly ChatGPT, in academic settings. These institutions were selected based on their contextual relevance to the topic under investigation. The research period was scheduled to take place between October and December 2025.

The subjects of this study consisted of students and lecturers. Student informants were those who had actively used ChatGPT in their self-directed learning processes, such as for understanding course materials, completing assignments, or engaging in virtual discussions. Lecturers included in the study were those who demonstrated openness toward the integration of AI technology in learning activities. Informants were selected using purposive sampling, a technique where participants are chosen based on specific criteria deemed relevant and capable of providing rich insights related to the focus of the research (Patton, 2015). It is estimated that 10 to 15 students and 3 to 5 lecturers would be involved, with data collection continuing until data saturation is reached—when interviews no longer yield significantly new information.

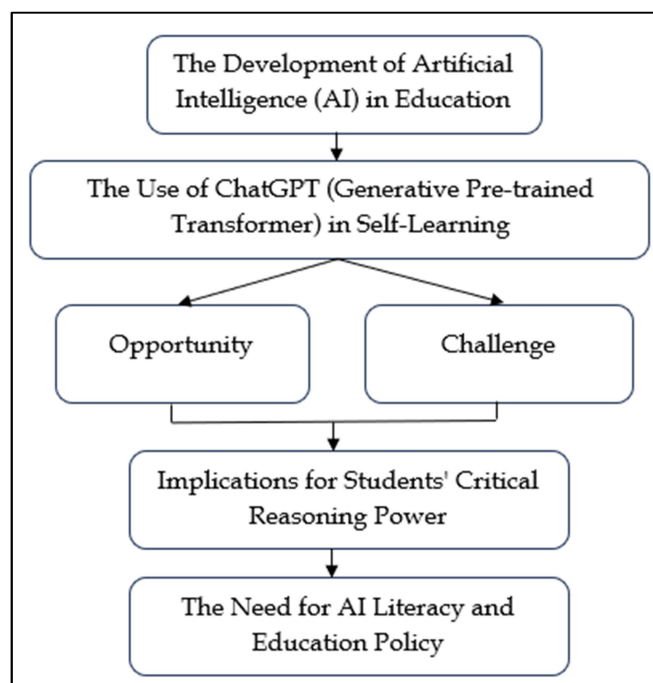


Figure 1. Research Framework

The main focus of this research is to explore the use of ChatGPT in self-directed learning, particularly in identifying the opportunities and challenges

that arise from students' interactions with the technology. In addition, the study examines how the use of ChatGPT affects students' critical thinking skills and how these dynamics generate a growing need for AI literacy and adaptive educational policies in response to technological developments. In this context, ChatGPT is positioned as a scaffolding tool in self-directed learning that has the potential to either strengthen or weaken students' reflective capacity, depending on how it is utilized (Kasneci et al., 2023; Rogoff, 1990).

Table 1. Variables and Indicators

Variable	Indicator
Utilization of ChatGPT	Self-regulation in self-directed learning (Candy, 1991)
	Autonomy in learning control (Knowles, 1980)
	Use of technology as scaffolding (Rogoff, 1990)
Opportunities of ChatGPT Use	Cognitive efficiency and accessibility (Kasneci et al., 2023)
	Metacognitive strengthening through self-exploration (Zimmerman, 2002)
Challenges of ChatGPT Use	Risk of metacognitive laziness (Melisa et al., 2025)
	Loss of learning control (Ryan & Deci, 2000)
	Academic Plagiarism (Howard, 1999)
Critical Thinking Skills	Analytical and inferential reasoning (Ennis, 1993)
	Reflective thinking and synthesis (Brookfield, 2012)
	Argument construction (Garrison et al., 2001; Facione, 2015)
AI Literacy	AI literacy framework: technical, ethical, and epistemic dimensions (Laupichler et al., 2022)
	Digital literacy and source evaluation (Hobbs, 2010; Sari & Alfiyan, 2023; Sari et al., 2024)

The primary data collection technique used in this study is in-depth interviews with a semi-structured approach. This method allows informants the flexibility to openly share their experiences and perspectives, while still referring to an interview guide developed based on the theoretical framework. In addition, the researcher also conducted limited observations of students' interactions with ChatGPT and documented the application usage outcomes, such as screenshots, reflective notes, or generated assignments. This technique was employed to enhance the credibility of the findings through data triangulation (Miles, Huberman, & Saldaña, 2014).

The main instrument in this research is the researcher themselves, acting as a human instrument who directly collects, interprets, and analyzes the data. The researcher was equipped with an interview guide designed to explore aspects such as motivation for using ChatGPT, perceived effectiveness and risks, impacts on thinking patterns, and views on ethics and policy needs. This

direct involvement enabled reflective and responsive interactions with the dynamics of the field (Lincoln & Guba, 1985).

Data analysis in this study employed the interactive model by Miles, Huberman, and Saldaña (2014), consisting of three main stages: data reduction, data display, and conclusion drawing or verification. Data reduction was carried out through initial coding and the sorting of relevant information from the interview transcripts. The reduced data was then presented in the form of matrices, thematic narratives, or concept maps to help identify patterns and relationships among categories. The final stage involved drawing inductive conclusions, based on field findings and validated through source triangulation.

The validity of the data was ensured by applying the four trustworthiness criteria proposed by Lincoln and Guba (1985): credibility, transferability, dependability, and confirmability. Credibility was maintained through data triangulation and member checking with informants. Transferability was achieved by providing thick, contextual descriptions. Dependability and confirmability were ensured through thorough documentation of the analysis process and a transparent, systematic audit trail.

Ethical considerations were also a central concern in this study. All informants were given full information about the research objectives and procedures and were asked to sign an informed consent form prior to the interview. Participant confidentiality was strictly maintained, and all collected data was used solely for academic purposes. The study upheld the principles of respect for participants' rights and scientific integrity throughout all stages of its implementation.

RESULTS

To gain an in-depth understanding of the use of ChatGPT in self-directed learning and its implications for students' critical thinking abilities, the researcher conducted in-depth interviews with nine students and three lecturers from private universities in Jakarta. The interviews were analyzed using a thematic approach, referring to theoretical indicators drawn from a range of academic literature. Each variable in this study was broken down into complex indicators based on theories of self-directed learning, metacognition, digital literacy, and critical thinking frameworks. This approach was intended to ensure that the findings were not merely descriptive but also carried strong conceptual depth. The following table presents a summary of the interview results based on the identified variables and indicators, categorized from two perspectives: students as direct users of ChatGPT, and lecturers as facilitators who observe students' behavior in the context of AI technology integration in learning.

Table 2. Interview Summary

Variable	Indicator	Interview Summary	
		Student Perspective	Lecturer Perspective
Utilization of ChatGPT	Self-regulation in self-directed learning (Candy, 1991)	Students feel they have greater control over their learning process as they can choose when and what to study through ChatGPT. They use it as a "study buddy" when struggling with course material.	Lecturers observe that some students show increased independence, but others become too reliant on ChatGPT, hindering optimal self-regulation.
	Autonomy in learning control (Knowles, 1980)	Students say ChatGPT helps them learn without always needing to ask lecturers. However, some admit they don't know whether the answers are accurate.	Lecturers note that active learners use ChatGPT as a supplement, while passive students use it as a shortcut without exercising learning control.
	Use of technology as scaffolding (Rogoff, 1990)	Students find ChatGPT helpful in developing ideas or initial arguments, but struggle to go further without guidance.	Lecturers agree ChatGPT can serve as effective digital scaffolding, but only if students know when to "let go" and think independently.
Opportunities of ChatGPT Use	Cognitive efficiency and accessibility (Kasneci et al., 2023)	Students appreciate ChatGPT's quick responses, especially when facing complex tasks under time pressure. The unlimited access boosts their confidence in self-learning.	Lecturers acknowledge that students find information faster. However, they stress the importance of validating content, as efficiency doesn't guarantee accuracy.
	Metacognitive strengthening through self-exploration (Zimmerman, 2002)	Some students use ChatGPT to explore follow-up questions and compare results with other sources, showing	Lecturers note that only a small number of students engage in critical reflection. Most still accept AI responses literally

		metacognitive maturity.	without re-evaluating them.
Challenges of ChatGPT Use	Risk of metacognitive laziness (Melisa et al., 2025)	Students admit they often accept answers without checking. This reduces their habit of reading books or original sources.	Lecturers observe a decline in analytical ability and a worrying trend of copy-paste behavior—signs of metacognitive laziness.
	Loss of learning control (Ryan & Deci, 2000)	Some students realize they no longer construct their own arguments as they're used to pre-packaged narratives from ChatGPT.	Lecturers state that students lose thinking autonomy, relying too much on AI and no longer trusting their own cognitive abilities.
	Academic Plagiarism (Howard, 1999)	Some students admit copying ChatGPT outputs directly into assignments when under time pressure, despite knowing it's unethical.	Lecturers find it difficult to distinguish original work from AI-generated content and emphasize the need for stricter internal policies and training.
Critical Thinking Skills	Analytical and inferential reasoning (Ennis, 1993)	Reflective students compare ChatGPT answers with academic sources and question their accuracy.	Lecturers observe that students who actively use ChatGPT are more trained in evaluating arguments and assumptions.
	Reflective thinking and synthesis (Brookfield, 2012)	Students using ChatGPT for discussion find it helpful in understanding opposing viewpoints on an issue.	Lecturers say reflective tasks encourage students to use ChatGPT as a thinking tool rather than just an answer provider.
	Argument construction (Garrison et al., 2001; Facione, 2015)	Students can structure arguments better with ChatGPT's help in drafting outlines, but not all can develop logical	Lecturers stress that ChatGPT can help build argumentative skills if guided with tasks that push deeper exploration of responses.

			reasoning well.		
AI Literacy	AI literacy framework: technical, ethical, and epistemic dimensions (Laupichler et al., 2022)	Most students don't understand how ChatGPT works, including its limitations and biases. Their technical and ethical literacy is still low.	Lecturers see urgency in integrating AI into curricula because many students treat ChatGPT as "absolute knowledge."		
	Digital literacy and source evaluation (Hobbs, 2010; Sari & Alfiyan, 2023; Sari et al., 2024)	Students rarely cross-check information. They use ChatGPT like Google, without assessing accuracy or references.	Lecturers are concerned by students' weak ability to evaluate the credibility of AI-generated information, which threatens academic thinking quality.		

DISCUSSION

This study reveals the dynamics of ChatGPT usage in the context of student self-directed learning, highlighting the tension between the optimization of technological potential and the accompanying ethical-pedagogical challenges. In terms of utilization, ChatGPT has triggered a transformation in the learning process, especially for students with strong self-regulation. These students use ChatGPT as a supportive agent to comprehend difficult materials, develop ideas, and reinforce understanding through independent questioning. This aligns with Candy's (1991) concept of self-directed learning, which emphasizes internal control over the learning process. Students who are aware of their learning goals are able to strategically integrate technology into their learning journey.

Moreover, ChatGPT serves as a form of digital scaffolding that provides initial support in structuring arguments or ideas (Rogoff, 1990). However, interview results show that this scaffolding does not automatically foster intellectual autonomy, as not all students know when to "let go" and think independently. Lecturers observed that learning does not occur merely when students receive answers, but when they critically weigh, synthesize, and evaluate the information. This illustrates how the use of technology must remain embedded within a pedagogical context (Salmon, 2000).

Regarding the opportunities of ChatGPT usage, most students acknowledged its benefits in terms of time efficiency and easy access. ChatGPT is positioned as a virtual assistant that is always available. This is consistent with Kasneci et al. (2023), who note that generative AI enhances flexibility and independence in learning, especially in the fast-paced higher education environment. However, such efficiency will only produce a positive impact if students engage in metacognitive reflection on the information they receive

(Zimmerman, 2002). Students who demonstrate exploratory behavior and question ChatGPT's responses tend to have more mature critical thinking skills. They do not merely accept the answers but compare them with other sources, build logical connections, and formulate new syntheses.

On the other hand, in terms of challenges, this study finds strong indications of metacognitive laziness among many students. They tend to use ChatGPT as a shortcut rather than a reflective tool. This suggests that advanced technology does not always equate to improved thinking ability. As Melisa et al. (2025) argue, overreliance on AI may erode reflective thinking habits, particularly if not accompanied by metacognitive training. This also reflects a loss of agency (Ryan & Deci, 2000), where students surrender control of the learning process to machines. In the long term, this may negatively impact students' analytical skills and cognitive resilience in dealing with complex problems.

Even more concerning, the findings also show that ChatGPT usage has become a new avenue for academic plagiarism. Under time pressure, students tend to copy AI-generated responses without revising or reprocessing them. In this context, plagiarism no longer comes from other people's work, but from an automated system that technically lacks intellectual ownership, yet still ethically violates academic integrity (Howard, 1999; Dwivedi et al., 2023). This indicates that academic integrity is not only tested by citation skills, but also by the ability to produce original thought amid technological convenience.

Meanwhile, students' critical thinking abilities vary greatly. Those with strong reflective literacy use ChatGPT as a dialectical discussion tool, verifying information and strengthening arguments through critical dialogue. This supports the Community of Inquiry framework developed by Garrison, Anderson, and Archer (2001), in which cognitive presence is a key element in shaping critical thinking through text-based interaction. Students trained in critical thinking treat ChatGPT not as an unquestionable authority, but as a thinking partner that can be challenged and evaluated. In contrast, students with weak critical thinking skills tend to accept raw information without evaluation. This highlights the importance of integrating critical thinking training into digital learning, as advocated by Facione (2015) and Brookfield (2012).

In terms of AI literacy, both students and lecturers showed significant limitations. Most students do not understand how ChatGPT works, its limitations, or how to detect bias in its responses. This reveals low epistemic AI literacy, as described by Laupichler et al. (2022), which involves technical, ethical, and epistemological understanding when interacting with AI. This lack of awareness puts students at risk of misinformation and increases the potential for technology misuse. The absence of explicit AI literacy instruction in curricula or institutional policies exacerbates this issue. Even lecturers have yet to receive standardized guidelines for handling AI disruption in learning.

The absence of institutional policies also reflects a gap between rapid technological development and institutional readiness. According to Yusop (2025), higher education policy must respond to the emergence of AI with

adaptive regulations that still uphold academic values. In this regard, lecturers play a central role as moral guides and facilitators of critical thinking, as emphasized by Krause, Dalvi, and Zaidi (2025). Without clear policy support, lecturers face difficulties in designing learning that ethically and productively integrates AI. While some have taken the initiative to design reflection-based and AI-debate assignments, such efforts remain sporadic and not yet institutionalized.

Overall, these findings affirm that ChatGPT as a learning tool must be positioned within a reflective and critical pedagogical framework. Technology cannot replace education grounded in values, interaction, and reflection. Without conceptual and ethical understanding of the technology, and without supportive institutional policy, the great potential of ChatGPT could become a double-edged sword that undermines learning quality and academic integrity. Therefore, a synergy between strengthening AI literacy, enhancing reflective learning, and reformulating institutional policies is needed to ensure that ChatGPT truly becomes an empowering tool—not a diminishing force—in higher education.

CONCLUSIONS AND RECOMMENDATIONS

This study concludes that the utilization of ChatGPT in higher education offers both substantial opportunities and critical challenges. On the one hand, ChatGPT serves as a scaffolding tool that enhances self-directed learning, particularly for students with strong self-regulation and metacognitive awareness. It facilitates cognitive efficiency, provides accessible support for inquiry, and supports reflective academic engagement. On the other hand, improper and passive use of ChatGPT may lead to metacognitive laziness, dependency, diminished agency in learning, and ethical issues such as academic plagiarism.

The findings also indicate that critical thinking skills are not inherently improved through the use of ChatGPT. Rather, they are shaped by students' ability to critically engage, evaluate information, and construct logical arguments, skills that must be nurtured through pedagogical design and institutional support. Additionally, students' limited AI literacy and lack of awareness regarding the epistemic limitations of generative AI reveal the urgent need for formal AI literacy programs in higher education curricula. Recommendations arising from this study include: 1) Integrating AI literacy into academic programs to ensure students understand the technical, ethical, and epistemic dimensions of tools like ChatGP; 2) Developing reflective pedagogical strategies, such as AI-assisted debates or inquiry-based assignments, that promote analytical reasoning rather than passive consumption of AI-generated content; 3) Establishing institutional policies to regulate ethical AI use, prevent misuse, and guide both students and faculty in navigating AI integration in teaching and learning; and 4) Providing training for educators to reposition their roles as facilitators of critical engagement and digital ethics in the era of AI-enhanced education..

FURTHER STUDY

This study, while offering insightful findings, is subject to several limitations. First, the research was conducted with a limited sample of students and lecturers from private universities in Jakarta, which may not represent diverse academic cultures or institutional policies. Second, the research focused primarily on perception and behavior through qualitative methods, without quantitatively measuring actual gains in critical thinking or academic performance. Future research is encouraged to explore the measurable effects of ChatGPT usage on students' critical thinking performance, conduct cross-disciplinary comparisons to account for variations in AI literacy, investigate the long-term cognitive and ethical impacts of AI in education, and design balanced pedagogical models that integrate human mentorship with AI assistance.

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