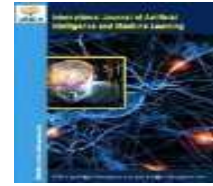




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Generative Artificial Intelligence Use, Perceived Usefulness, Perceived Ease of Use, and Ethical Awareness Among College Students

Antoniette Z. Lacerna^{*1}, Madelyn E. Menor²

^{1,2} St. Paul University Quezon City

¹E-mail: azlacerna@spuc.edu.ph

Abstract

Various forms of generative AI (GenAI) continue to permeate students' academic lives, but whether they prove valuable in the long run depends on how helpful students find these tools and on their responsible use. This research aimed to investigate the extent to which college students are incorporating GenAI into their academic work, as well as their perceived usefulness, ease of use, and ethical awareness regarding responsible academic use. Guided by the Technology Acceptance Model (TAM), which explains how users come to accept and adopt a technology, the study employed a descriptive–correlational design with 169 college students at a higher education institution in the Philippines during academic year 2025–2026. It explores six academic activities and ethical awareness, and uses three items each to assess perceived usefulness (PU) and perceived ease of use (PEOU). Overall, students on average occasionally used GenAI ($M = 2.64$, $SD = 0.72$). They were also generally in agreement regarding the utility ($M = 2.76$, $SD = 0.77$) and ease of use ($M = 2.85$, $SD = 0.73$), as well as having relatively positive ethical awareness of GenAI ($M = 3.26$, $SD = 0.73$). The correlational relationship between perceived usefulness and frequency of use was strongly positive ($r = 0.742$, $p < .001$) and moderately correlated with perceived ease of use ($r = 0.581$, $p < .001$). The association with ethical awareness was weaker but still significant ($r = 0.315$, $p < .001$). These findings suggest that students tend to view GenAI positively and use it mainly as an academic support tool, while ethical awareness should be strengthened through explicit guidance rather than assumed to develop simply through greater exposure to technology.

Keywords: generative artificial intelligence; Technology Acceptance Model; perceived usefulness; perceived ease of use; ethical awareness

1. Introduction

Generative Artificial Intelligence (GenAI) has become increasingly prevalent in higher education and is now widely used by students for a variety of academic purposes. From completing assignments and preparing course reports to exploring research topics and clarifying complex concepts, GenAI has emerged as a readily accessible academic support tool. It can assist students in generating research ideas, organizing fragmented thoughts into coherent arguments, simplifying difficult theoretical concepts, and refining written outputs to improve clarity, structure, and overall presentation. Through these capabilities, GenAI has the potential to enhance learning efficiency and support academic productivity.

Despite these advantages, the widespread accessibility of GenAI has also raised significant concerns within academic communities. Because these tools are readily available, require minimal technical expertise, and can be used at little or no cost, questions have emerged regarding their impact on academic integrity and student learning. Critics argue that GenAI may produce inaccurate or misleading information, encourage excessive dependence on automated systems, and diminish opportunities for independent critical thinking. More importantly, there are concerns that academic outputs generated with substantial AI assistance may not accurately reflect a student's actual knowledge, skills, or level of mastery of the subject matter. As a result, the growing integration of GenAI in education has prompted ongoing discussions about its ethical use and its implications for authentic learning and assessment.

For generative artificial intelligence to deliver value in education, it relies not only on its inherent capabilities, but more critically on students' attitudes toward it. No matter how powerful the technical performance of the technology itself is, it cannot truly fulfill its purpose if the students who use it do not accept it or are unwilling to actively adopt it. The Technology Acceptance Model (TAM), proposed by Davis in 1989, is specifically developed to analyze people's willingness to accept new technologies. This model identifies two key factors that influence whether people will use a new technology: first, perceived usefulness, which refers to the belief that using the technology can improve one's academic performance and yield better results than not using it; second, perceived ease of use, which means that operating the technology requires little effort and can be mastered easily and

effortlessly. When applied to educational scenarios, as long as a learning support tool is perceived by students as practical and convenient to use, they will be much more willing to actively utilize it. However, finding GenAI useful and easy to use does not, by itself, resolve the ethical questions surrounding its academic use. Students may value the convenience of these tools while still needing to determine whether a particular use is permitted, whether AI-generated information is accurate and reliable, and how much of the final work should reflect their own independent contribution. Previous research has raised concerns about academic integrity, including plagiarism and inappropriate assistance (Cotton et al., 2024), as well as the potential for generative AI to produce inaccurate or misleading information (Monteith et al., 2024) and outputs that reflect systematic biases (Zhou et al., 2024). For this reason, ethical awareness is treated in the present study as a complementary construct rather than as part of the TAM framework itself.

The study consequently brings together four measurable areas: frequency of GenAI use for academic activities, perceived usefulness, perceived ease of use, and ethical awareness. The descriptive-correlational design allows the study to describe these areas and examine how they are related. It does not, however, allow the relationships to be interpreted as causal effects, and the study does not test a complete predictive TAM pathway because behavioral intention was not measured.

2. Literature Review

2.1. Generative AI Use in Higher Education

In higher education, generative artificial intelligence (GenAI) has emerged as a potential tool for learning, academic support, and information-related activities. Lo (2023) highlights the importance of information literacy in the use of AI language models and proposes the CLEAR framework to help students interact with, evaluate, and create AI-generated content more effectively. Similarly, Kasneci et al. (2023) describe opportunities for large language models to support learning through explanations, feedback, research and writing assistance, summarization, and other learning activities. These applications are closely related to the academic uses examined in the present study, particularly writing support, summarization, idea generation, concept explanation, and language improvement.

The benefits of GenAI, however, are not automatic. They will not naturally be delivered to users. If students rely on it excessively, they will not only be exposed to inaccurate content but also have their critical thinking skills fail to develop properly—that is, their ability to independently distinguish right from wrong in content and work out problems on their own will stagnate and cannot be cultivated. Monteith et al. (2024) highlight the potential of artificial intelligence to contribute to misinformation through inaccurate or misleading outputs. Similarly, Hwang and Jeong (2025) experimentally demonstrated that forewarning individuals about AI hallucination reduced their acceptance of AI-generated misinformation. From this perspective, generative AI should only be used to assist learning and cannot replace students' independent judgment or the effort they put in.

2.2. Technology Acceptance

The Technology Acceptance Model (TAM), proposed by Davis in 1989, is a classic model used to explain why people accept a new technology. This model only uses two core criteria to judge people's acceptance level: the first is perceived usefulness, and the second is perceived ease of use. The former refers to the extent to which a person believes that using a certain technology can help them perform tasks better. The latter refers to the extent to which a person is convinced that using this technology requires little effort.

Since its proposal, this model has been adopted in numerous studies. Recently, many studies have applied TAM to two new directions: one is AI-assisted education scenarios, and the other is the usage of ChatGPT, specifically to measure the acceptance of these two types of new scenarios and tools among different groups. For example, a 2024 study by Dahri et al. used an extended TAM framework that expanded the scope of the original model to explore whether pre-service teachers would accept using AI-powered ChatGPT as a tool to support metacognitive self-regulated learning. Another study released in the same year, a 2024 study by Zhao et al., analyzed various relevant factors influencing college students' acceptance of ChatGPT in higher education scenarios. The recent studies either used an extended model framework or examined a wide array of influencing factors. In contrast, the present study adopts a more focused approach, centering closely on the two core concepts of TAM, perceived usefulness and perceived ease of use, to specifically test the unique associations between these two factors and students' self-reported usage of generative artificial intelligence.

2.3. Perceived Usefulness of GenAI

When students use generative artificial intelligence in academic settings, their perception of how easy and effective the tool is to use is closely tied to the practical benefits they gain from it. In other words, whether this AI is considered valuable in students' eyes depends entirely on its ability to deliver tangible benefits. If AI can help them complete all the academic tasks required by their schools, fully understand the knowledge taught in class, organize scattered information clearly, and improve the efficiency with which they complete these tasks, students will perceive this generative AI as usable.

To translate the abstract notion of "students perceive generative AI as useful" into a researchable dimension, the researchers broke "perceived usefulness" into three dimensions for investigation: productivity, learning and comprehension, and efficiency. The settings across these three dimensions largely align with how generative AI is applied in educational scenarios described in prior academic literature. Previous studies have shown that tools such as large language models can support users in research writing, content summarization, knowledge explanation, problem-solving, and personalized learning (Kasneci et al., 2023).

To use generative AI properly, it is not enough to only recognize its utility; students must learn to examine every piece of content generated by AI with a critical eye. They cannot take all generated content at face value, and they must also develop the information literacy necessary to interact appropriately with this type of system (Lo, 2023).

2.4. Perceived Ease of Use of GenAI

Perceived ease of use is people's perception of whether a tool is easy to use and to get started with. This subjective feeling is a core factor driving people's willingness to adopt a new technology. Generative artificial intelligence, which is often referred to as GenAI, has a natural-language interactive interface that can lower the barrier to using this technology (Kasneci et al., 2023). In the context of the current study, the definition of this "perceived ease of use" has been restricted to the perceptions of the student group who find GenAI simple to learn and that its daily operation presents no difficulties. People are often more willing to use technologies they feel are easy to get started with, a conclusion drawn from Davis's 1989 study. However, being simple to use does not mean that the content it produces is necessarily accurate. Even for tools that have no operational threshold, the information they produce still needs to be critically evaluated, a claim supported by research from Lo (2023) and Monteith et al. (2024).

2.5 Ethical Awareness and Responsible Academic Use

The ethical awareness mentioned in this study must first have its definition clarified. It refers to students' ability to identify the guiding principles to follow when using generative AI. The items address academic integrity, the appropriateness of submitting AI-generated work without modification, institutional expectations, students' confidence in avoiding violations, and their ability to verify and modify AI-generated content. It must also be made clear that the ethical cognition measured here is only students' self-perceived ability to meet these requirements, which is a separate matter from whether they will actually act in accordance with these ethical norms when using AI in practice.

Academic integrity remains the core issue to this day, and addressing it still relies on relevant institutions, such as schools, to provide clear guidance (Cotton et al., 2024). Meanwhile, AI-generated content has two inherent flaws that mean it cannot be used directly without modification. First, it carries the risk of "hallucination," which means it may fabricate non-existent content out of thin air, a problem that has been mentioned in numerous studies (Hwang & Jeong, 2025; Monteith et al., 2024). Second, the content exhibits inherent systemic biases, a point also noted in research (Zhou et al., 2024). For this reason, anyone who obtains output content from AI must evaluate it item by item with a critical eye and cannot just accept it as it is. Even if users set aside ethical requirements, the core requirements are the same from the perspective of broader AI literacy; one must be able to reasonably evaluate AI and use it correctly (Long & Magerko, 2020).

Taken together, these perspectives provide a basis for examining students' ethical awareness of responsible GenAI use alongside their perceptions of usefulness and ease of use.

Research Gap

At present, most research on generative AI conducted in colleges and universities focuses on only three areas: whether people accept this tool, what benefits it can bring, and how some people might misuse it. Very few studies have conducted a combined analysis of these three issues at the same time. These three issues are: the actual situation of students using generative AI in their academic work, their views on the TAM dimensions, that is, whether it is easy to use and whether it is useful to them, and their ethical awareness when using AI. The present study addresses this gap within a higher education institutional setting by considering these domains together. Importantly, it does so without assuming that more frequent use produces greater ethical awareness or that favorable perceptions necessarily result in responsible behavior.

3. Theoretical and Conceptual Framework

This study is anchored on the Technology Acceptance Model (TAM) as its theoretical framework and employs a descriptive-correlational research design. It examines the statistical relationships among four key variables: perceived usefulness, perceived ease of use, GenAI usage frequency, and ethical awareness. Consistent with a descriptive-correlational approach, the analysis focuses on identifying and describing associations among these variables. While TAM provides the conceptual foundation for the study, the research design does not test a causal or predictive TAM pathway, nor does it establish temporal order or cause-and-effect relationships among the constructs.

4. Research Questions

This study sought to determine the reported frequency of students' use of generative artificial intelligence (GenAI) for academic tasks, as well as their level of perceived usefulness and perceived ease of use of GenAI for academic work. It also examined the level of students' ethical awareness regarding the responsible use of GenAI in academic settings. Finally, the study investigated the relationships among the frequency of GenAI use, perceived usefulness, perceived ease of use, and ethical awareness.

5. Method

5.1. Research Design

A quantitative descriptive-correlational design was used. The descriptive component summarizes students' reported GenAI use and their perceptions of usefulness, ease of use, and ethical awareness. The correlational component examines Pearson product-moment correlations among the composite scores. This design is appropriate for identifying patterns and associations, but it does not provide a basis for making causal claims.

5.2. Participants and Setting

The participants comprised 169 college students enrolled at a higher education institution in the Philippines during the academic year 2025-2026. This sample represented 50% of the University's total college student population during the study period.

5.3. Research Instrument

A structured questionnaire was used and organized into three substantive sections. The first section consisted of six items asking how frequently students used GenAI for academic activities such as writing essays or reports, summarizing academic readings, generating ideas, assisting with research tasks, understanding difficult concepts, and improving grammar or language.

The second section contained six TAM-related items divided into two distinct constructs. Three items measured perceived usefulness in terms of productivity, learning and understanding, and efficiency. The other three measured perceived ease of use through ease of learning and use, ease of obtaining needed information, and the amount of effort required.

The third section consisted of six items addressing ethical awareness and responsible academic use. The revised structure deliberately keeps perceived usefulness and perceived ease of use as separate constructs rather than combining the six TAM items into one undifferentiated scale. Behavioral intention was not included, instead, frequency of GenAI use was examined as the behavioral measure of students' actual reported use.

5.4. Reliability and Measurement Structure

For the main sample, internal consistency was examined separately for each construct using the available inter-item correlation matrices. Because the analysis was based on inter-item Pearson correlations, the coefficients reported below are standardized Cronbach's alpha estimates. These estimates should be distinguished from raw-score Cronbach's alpha, which is calculated from the original item variances and covariances. The standardized alpha coefficients are presented as supplementary evidence of internal consistency and should not be interpreted as evidence of factorial validity. (Hayes & Coutts, 2020)

Construct	Items	M	SD	Verbal Interpretation	Standardized α
Frequency of GenAI Use	6	2.64	0.72	Sometimes	0.903
Perceived Usefulness	3	2.76	0.77	Agree	0.900
Perceived Ease of Use	3	2.85	0.73	Agree	0.830
Ethical Awareness	6	3.26	0.73	Agree	0.923

Note: M, SD, and VI are based on the N=169 main-sample composite scores. Standardized α values were estimated from the N = 169 inter-item correlation matrix and are reported separately for Frequency of GenAI Use, Perceived Usefulness, Perceived Ease of Use, and Ethical Awareness

A preliminary pilot test involving 30 respondents was conducted during instrument development. Both Cronbach's alpha and McDonald's omega were examined. The frequency of GenAI Use scale showed good internal consistency ($\alpha=.818$; $\omega=.831$). The six-item TAM section, consisting of the three perceived usefulness items and three perceived ease of use items, showed good internal consistency as a combined section ($\alpha=.802$, $\omega=.822$). Ethical Awareness also demonstrated good internal consistency ($\alpha=.810$; $\omega=.838$). These pilot results are presented as preliminary evidence from the pre-test and are not used as a substitute for the construct level reliability evidence from the main sample.

Scale Section	Items	Interpretation	Cronbach's α	McDonald's ω
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Frequency of GenAI Use	6	Good	.818	.831
Combined six-item TAM section (PU + PEOU)	6	Good	.802	.822
Ethical Awareness	6	Good	.810	.838

Note: The pilot coefficients were obtained from the 30-respondent pre-test. The six-item TAM section was analyzed as a combined section in the available reliability output; the three PU items and three PEOU items remain separate constructs in the main study.

5.5. Data Analysis

For the main analysis, a composite score was derived from each construct's mean (i.e., Frequency of Use: 6 items; Perceived Use: 3 items; Perceived Ease of Use: 3 items; Ethical Awareness: 6 items). Data were described using means and standard deviations. Then Pearson's product-moment correlation was calculated to investigate the relationships among those four composite variables. The statistical significance level was assessed at the 05 level; all correlations between constructs were statistically significant at $p < .001$. Correlations were interpreted as relationships between variables rather than evidence of causation or prediction.

6. Results and Discussions

Table 1. Generative Artificial Intelligence Use

Indicator	M	SD	Interpretation
Writing essays or reports	2.45	0.82	Rarely
Summarizing academic readings	2.77	0.86	Sometimes
Generating ideas for assignments	2.56	0.87	Sometimes
Assisting with research tasks	2.43	0.88	Rarely
Understanding difficult academic concepts	2.89	0.95	Sometimes
Improving grammar or language	2.72	0.89	Sometimes
Overall	2.64	0.72	Sometimes

The overall mean of 2.64 (SD = 0.72) indicates that students used GenAI sometimes for academic purposes. The pattern across individual activities is informative. When it comes to specific usage scenarios, students most frequently use GenAI for three purposes. First, to understand the knowledge points in their courses, with a corresponding mean score of 2.89; second, to organize and condense various reading materials assigned by instructors, with a corresponding mean score of 2.77; third, to correct grammatical errors in their own written work, with a corresponding mean score of 2.72. Conversely, the two least frequently used scenarios are executing research-related tasks ($M = 2.43$) and writing complete academic papers ($M = 2.45$). Together, these usage-frequency data suggest that, for students, GenAI serves as a learning tool rather than a substitute for completing core academic tasks on their behalf. This conclusion is consistent with the findings of existing research literature (Kasneci et al., 2023; Lo, 2023).

Table 2. Perceived Usefulness and Perceived Ease of Use

Indicator	M	SD	Interpretation
PU1. Improves productivity in completing school requirements.	2.69	0.85	Agree
PU2. Enhances learning and understanding of course materials.	2.87	0.87	Agree
PU3.Helps complete academic tasks more efficiently.	2.71	0.82	Agree
PEOU1. Easy to learn and use.	2.99	0.81	Agree
PUOU2. Easy to obtain needed information	2.75	0.88	Agree
PEOU3. Requires little effort.	2.82	0.85	Agree
PU composite	2.76	0.77	Agree
PEOU composite	2.85	0.73	Agree

Students generally viewed GenAI favorably on both TAM dimensions. Perceived usefulness had a composite mean of 2.76 (SD = 0.77), while perceived ease of use had a slightly higher composite mean of 2.85 (SD = 0.73). All six items received an Agree interpretation.

Within the "perceived usefulness" dimension of the survey, the highest score students gave to any descriptive statement was for GenAI helping students deepen their learning and better understand the course materials, with

a mean of 2.87, followed by "helping complete their academic tasks more efficiently ($M=2.71$) and improving their productivity with a mean score of 2.69.

As to the "ease of use" dimension, the highest-scoring statement rated by the students was GenAI being easy to learn and use, with a mean score of 2.99, followed by using it does not take much effort, with a mean score of 2.82, and that information can easily be obtained from it when needed, with a mean score of 2.75.

The findings are consistent with the core premise of the Technology Acceptance Model (TAM), citing that if users perceive a technology as practically useful and not difficult to use, most will hold a positive attitude toward it.

All the mean scores collected in this study fall within the "Agree" range, representing an overall positive evaluation. Likewise, the results of this study are also consistent with recent research in the field of AI-assisted learning by Dahri et.al (2024) and Zhao et.al (2024), which has reported positive user feedback on such tools.

It must be noted that the findings of this present study describe students' perceptions rather than objectively measure improvements in academic performance. Likewise, ease of use reflects usability from the students' point of view. It does not mean that AI-generated information is necessarily accurate, reliable, or appropriate for academic submission.

Table 3. Ethical Awareness

Indicator	M	SD	Interpretation
EA1. Responsible AI use is important for academic integrity.	3.28	0.85	Agree
EA2. Submitting AI-generated work without modification is unethical.	3.39	0.84	Agree
EA3. Teachers expect responsible AI use	3.28	0.89	Agree
EA4. The university promotes responsible and ethical AI use.	3.17	0.86	Agree
EA5. I feel capable of using AI without violating academic integrity	3.24	0.84	Agree
EA6. I can verify and modify AI-generated content so it is my own work.	3.19	0.89	Agree
Overall	3.26	0.73	Agree

The overall ethical-awareness score was positive ($M = 3.26$, $SD = 0.73$). Students were generally in favor of academic integrity and responsible use of GenAI, recognizing that institutions would expect this, as it is not appropriate to submit AI-generated work without modifications. They also said they were comfortable using AI-written text, verifying it, and even adjusting it to be more morally acceptable.

These findings support the description of the respondents as having favorable self-reported ethical awareness. However, the distinction between awareness and behavior is important. Agreement with ethical statements does not demonstrate that students consistently follow those principles in actual academic situations. Responsible GenAI use involves practical decisions such as checking sources, verifying outputs, acknowledging AI assistance when appropriate, and recognizing when AI use is not permitted. These behaviors were not directly observed in the present study.

Table 4. Relationships Among the Study Variables

Variable 1	M ₁	SD ₁	Interpretation	Variable 2	M ₂	SD ₂	Interpretation	Pearson's r	p
Frequency	2.64	0.72	Sometimes	Usefulness	2.76	0.77	Agree	0.742	< .001
Frequency	2.64	0.72	Sometimes	Ease	2.85	0.73	Agree	0.581	< .001
Frequency	2.64	0.72	Sometimes	Ethics	3.26	0.73	Agree	0.315	< .001
Usefulness	2.76	0.77	Agree	Ease	2.85	0.73	Agree	0.661	< .001
Usefulness	2.76	0.77	Agree	Ethics	3.26	0.73	Agree	0.409	< .001
Ease of use	2.85	0.73	Agree	Ethics	3.26	0.73	Agree	0.556	< .001

The use of GenAI was most strongly correlated with perceived usefulness ($r = 0.742$, $p < .001$). Perceived ease of use had a positive relationship with both perceived usefulness ($r = 0.661$, $p < .001$) and frequency of use ($r = 0.581$, $p < .001$).

These patterns are compatible with the logic of TAM. Students who use GenAI more often may have more opportunities to experience its practical benefits and become familiar with how it works, which may be reflected in more favorable ratings of its usefulness and usability. However, because the data were collected at one point in time, the direction of these relationships cannot be established.

Ethical awareness is positively correlated with frequency of use ($r = 0.315$, $p < .001$) though weaker than TAM constructs along with perceived usefulness ($r = 0.409$, $p < .001$) and perceived ease of use ($r = 0.556$, $p < .001$). This indicates that positive perceptions of GenAI and ethical awareness coexist, while causality has not been established.

It is important not to interpret these findings as evidence that more frequent GenAI use leads to greater ethical awareness, or that perceived usefulness and ease of use lead students to use GenAI more often. The relationships may be influenced by shared experiences, institutional context, prior familiarity with technology, or other factors that were not examined in this study. Future research could investigate the directional relationships proposed by TAM using longitudinal designs or structural equation modeling. It could also examine whether ethical awareness functions as a complement to or a moderator of technology-use processes.

7. Conclusions

This study examined GenAI use, perceived usefulness, perceived ease of use, and ethical awareness among 169 college students. Students reported using GenAI sometimes for academic purposes, with the most common use being support for understanding difficult academic concepts. Research-related use and direct assistance with essay or report writing were less frequent. Students also viewed GenAI favorably in terms of usefulness ($M = 2.76$) and ease of use ($M = 2.85$), reflecting the relevance of the core TAM constructs in the study. Ethical awareness was likewise favorable ($M = 3.26$).

At the construct level, frequency of use was positively associated with perceived usefulness ($r = 0.742$), perceived ease of use ($r = 0.581$), and ethical awareness ($r = 0.315$), with all relationships significant at $p < .00$. Overall, the findings indicate that students' use of GenAI, positive perceptions of the technology, and ethical awareness are related within the sample. They should not, however, be interpreted as evidence of causal relationships.

8. Implications and Recommendations

The findings of this study indicate that GenAI literacy content must be incorporated into instruction. It is not enough to merely mention GenAI in passing. This content must be truly integrated into daily academic teaching so that all students can gain practical knowledge of GenAI enabling them to use GenAI effectively, responsibly, and ethically.

Students must receive tangible, hands-on operational guidance. They must learn to write prompts that enable GenAI to produce valid content, be able to verify whether AI-generated content conforms to facts, assess the quality of outputs, and recognize the limitations of AI itself—for example, it may carry inherent biases and fabricate content out of thin air. These guidelines must not be empty theoretical principles that exist only on paper; they must be implemented in every specific usage scenario, so that students not only know how to open the GenAI page but also use every step correctly.

Colleges and universities must also introduce clear academic integrity regulations and use specific examples from various disciplines to distinguish between two scenarios: one is schoolwork that may be completed with AI assistance, and the other is the inappropriate practice of directly letting AI substitute for one's own effort. It is not enough to only give students vague requirements and say "use AI cautiously"; the rules must be written clearly and plainly. When formulating rules, it is also not allowed to apply the same standards broadly across all disciplines; specific examples for each discipline must be provided to draw a clear boundary between what is permitted and what is prohibited. Everyone can clearly see at a glance which operations are reasonable uses of AI as a helping hand to advance one's own learning tasks, and which are violations that directly treat AI's output as one's own academic achievement, completely letting AI complete the task on one's behalf.

9. Limitations

This study has several limitations, each of which tangibly affects the persuasiveness and scope of application of the research findings, which can be specifically divided into four points.

First, all research participants were recruited from a single institution, and participants from other types of institutions were not included. The results obtained in this way cannot be generalized to more diverse scenarios.

Second, all data collected on the ethical use of AI were based on self-reports from the study's participants, rather than on observations and recordings by researchers. Such data may hide two problems at the same time: one is recall bias, as participants may not clearly remember the specific details of their past use; the other is social

desirability bias, as participants may unconsciously only state behaviors that conform to mainstream moral requirements and conceal real behaviors that do not meet norms.

Third, the analysis employed a correlational research design, which can only detect associations between variables. It cannot make causal inferences about the observed associations, cannot clarify which is the cause and which is the effect, and even less can it assert that one factor will lead to another outcome.

Finally, the study did not include any direct behavioral measures to verify the participants' statements. All derived conclusions are limited to the content self-reported by the participants, specifically including their stated use of generative AI, their relevant views on this technology, and their level of understanding of related ethical requirements. These conclusions cannot be extended to real-world behavior.

References

1. Cotton, D.R.E., Cotton, P.A., & Shipway. (2024). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. *Innovations in Education and Teaching International*, 61(2), 228-239. <https://doi.org/10.1080/14703297.2023.2190148>
2. Dahri, N.A., Yahaya, N., Al-Rahmi, W.M., Aldraiweesh, A., Alturki, U., Almutairy, S., Shutaleva, A., & Soomro, R.B. (2024). Extended TAM-based acceptance of AI-powered ChatGPT for supporting metacognitive self-regulated learning education: A mixed-methods study. *Heliyon*, 10(8), e29317. <https://doi.org/10.1016/j.heliyon.2024.e29317>
3. Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. <https://doi.org/10.2307/249008>
4. Hayes, A. F., & Coutts, J. J. (2020). Use Omega Rather than Cronbach's Alpha for Estimating Reliability. But.... *Communication Methods and Measures*, 14(1), 1-24. <https://doi.org/10.1080/19312458.2020.1718629>
5. Hwang, Y., & Jeong, S.-H. (2025). Generative Artificial Intelligence and Misinformation Acceptance: An Experimental Test of the Effect of Forewarning About Artificial Intelligence Hallucination. *Cyberpsychology, Behavior, and Social Networking*, 28(4), 284-289. <https://doi.org/10.1089/cyber.2024.0407>
6. Kasneci, E., Sebler, K., Kuchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Gunnemann, S., Hullermeier, D., Krushche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeffeer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274. <https://doi.org/10.1016/j.lindif.2023.102274>
7. Lo, L. S. (2023). The CLEAR path: A framework for enhancing information literacy through prompt engineering. *The Journal of Academic Librarianship*, 49(4), 102720. <https://doi.org/10.1016/j.acalib.2023.102720>
8. Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (pp.1-16). Association for Computing Machinery. <https://doi.org/10.1145/3313831.3376727>
9. Monteith, S., Glenn, T., Geddes, J. R., Whybrow, P. C., Achtyes, E., & Bauer, M. (2024). Artificial intelligence and increasing misinformation. *The British Journal of Psychiatry*, 224(2), 33-35. doi:10.1192/bjp.2023.136
10. Zhao, Y., Li, Y., Xiao, Y., Chang, H., & Liu, B. (2024). Factors Influencing the Acceptance of ChatGPT in Higher Education: An Integrated Model With PLS-SEM and fsQCA Approach. *Sage Open*, 14(4). <https://doi.org/10.1177/21582440241289835>
11. Zhou, M., Abhishek, V., Derdenger, T. P., Kim, J., & Srinivasan, K. (2024). Bias in generative AI [Preprint]. arXiv. <https://doi.org/10.48550/arXiv.2403.02726>