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Generative AI Usage, Trust, Verification Practices, and Ethical Awareness in Higher Education

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Abstract

This study investigates generative AI usage, trust, verification practices, and ethical awareness among higher education students in Thailand. A quantitative survey of undergraduate and master's students examined how AI is integrated into academic work. Data were analyzed using descriptive statistics and inferential tests, including chi-square and Fisher's exact test. The results show that ChatGPT was used by all respondents (100%), with Gemini as the second most used tool (91.0%). Most participants reported frequent use (62.7%), primarily for idea generation (82.1%) and text production (65.7%). Despite extensive use, trust remained moderate, with the majority of respondents perceiving AI outputs as only sometimes reliable and unbiased (55.2%). Verification was common, with 74.6% of participants reporting that they always or frequently check AI-generated content. Ethical awareness was also high, with 91.0% recognizing the importance of ethical considerations, particularly regarding copyright, privacy, and misinformation. The findings suggest that students combine AI use with critical evaluation rather than relying on it uncritically. This study contributes empirical evidence to discussions on responsible AI integration and the development of AI literacy in higher education.

Keywords: Generative AI, Trust, AI Ethics, Higher Education

INTRODUCTION

Generative AI (GenAI) has rapidly reshaped learning practices in higher education (Dai et al., 2026; Lu, 2025). Students increasingly use these systems to generate ideas, draft assignments, conduct research, and support problem solving (Hadinejad et al., 2025). The technology offers significant advantages by improving productivity and reducing cognitive load (Barus et al., 2025). In addition, GenAI can function as a virtual tutor, providing immediate feedback, clarifying complex concepts, and assisting learners who face some challenges (Zhang & Sun, 2025).

Despite these benefits in efficiency and accessibility, the rapid expansion of GenAI has generated growing concerns. One major issue is AI hallucination, in which systems produce convincing but inaccurate or fabricated information, thereby threatening academic reliability (Torres, 2025). Scholars

have also identified risks related to academic integrity, unintended plagiarism, algorithmic bias, and the possible erosion of skills resulting from uncritical dependence on automated support (Alamasi et al., 2026).

Existing discussions tend to emphasize technological development or institutional regulation. However, this study investigates patterns of generative AI use, trust calibration, verification behavior, and ethical awareness in higher education in Thailand. The study is guided by the following research questions:

RQ1: What are the patterns of generative AI usage among higher education students?
RQ2: How do students perceive and calibrate their trust in generative AI outputs?
RQ3: To what extent do students verify the outputs generated by AI tools?
RQ4: What is the level of students' ethical awareness regarding the use of generative AI?

The findings offer practical guidance for institutions seeking to design AI literacy frameworks and curricula that encourage responsible and sustainable engagement with AI technologies.

LITERATURE REVIEW

The rapid emergence of generative artificial intelligence has stimulated extensive discussion regarding its role in higher education (Dai et al., 2026). Scholars have examined both the opportunities and risks associated with AI-supported learning, particularly in relation to productivity, knowledge construction, and academic integrity (Torres, 2025; Wang et al., 2026). While AI tools enhance efficiency and creativity, they also introduce challenges concerning reliability, bias, and ethical responsibility (Contreras & Jaimes, 2024).

AI Literacy has emerged as a key concept for understanding how individuals effectively engage with AI technologies. It is conceptualized as a multidimensional set of competencies encompassing the knowledge, skills, and attitudes required to understand, evaluate, and use AI systems responsibly (Yue Yim, 2024). Foundational frameworks indicate that AI literacy extends beyond technical operation to include critical evaluation of AI-generated outputs and awareness of their broader societal and ethical implications (Long & Magerko, 2020; Ng et al., 2021; Yan et al., 2026).

Prior research on students' interaction with generative AI can be grouped into three key themes: patterns of educational use, trust and verification behavior, and ethical awareness.

Generative AI Use in Academic Activities

A growing body of research indicates that students adopt generative AI primarily to support writing and idea development (Hadinejad et al., 2025). Common applications include drafting assignments, brainstorming project concepts, summarizing materials, and improving language quality (Hadinejad et al., 2025; Pan et al., 2025). AI systems are frequently perceived as convenient assistants that help reduce time pressure and cognitive load by facilitating information retrieval and creative problem-solving (Dai et al., 2026).

At the same time, scholars caution that excessive reliance may limit independent thinking if learners accept outputs without reflection (Mohd Daud, 2026). Understanding real usage patterns is therefore essential for evaluating whether AI complements or replaces students' own efforts (Lin & Sohail, 2026).

Trust, Reliance, and Verification

Trust Calibration Theory provides a useful framework for understanding how users adjust their level of trust in AI systems in relation to actual system performance. Effective human–AI collaboration requires the avoidance of both overtrust (relying on AI beyond its true capabilities) and undertrust (rejecting AI despite its reliability), both of which can lead to safety risks or diminished productivity (Schmid & Wiesche, 2023).

Trust is a central factor in determining how individuals interact with automated systems (Kumar & Vavekanand, 2025). Rather than expressing absolute confidence or rejection, users typically demonstrate conditional trust based on task demands and perceived system competence. Effective human–AI collaboration requires appropriate calibration. Users are expected to rely on AI when it performs well while remaining cautious about possible errors (Pan et al., 2025).

Verification practices provide observable evidence of how trust operates in real situations. When students cross-check information, consult other sources, or revise AI outputs, they demonstrate critical engagement rather than blind acceptance (Contreras & Jaimes, 2024). Conversely, low levels of verification may signal overreliance (Lee et al., 2025). Examining both trust perceptions and validation behavior together therefore offers a more comprehensive understanding of responsible AI use.

Ethical Awareness in AI-Assisted Learning

Ethical considerations have become a dominant theme in debates about generative AI. Frequently discussed risks include copyright infringement, algorithmic bias, misinformation, and privacy violations (Contreras & Jaimes, 2024). Educational institutions increasingly promote guidelines intended to foster responsible engagement with AI technologies (Torres, 2025).

However, awareness differs across individuals. Understanding which risks students recognize provides insight into their readiness to operate in complex digital environments where AI-generated content is becoming more influential (Hadinejad et al., 2025; Torres, 2025).

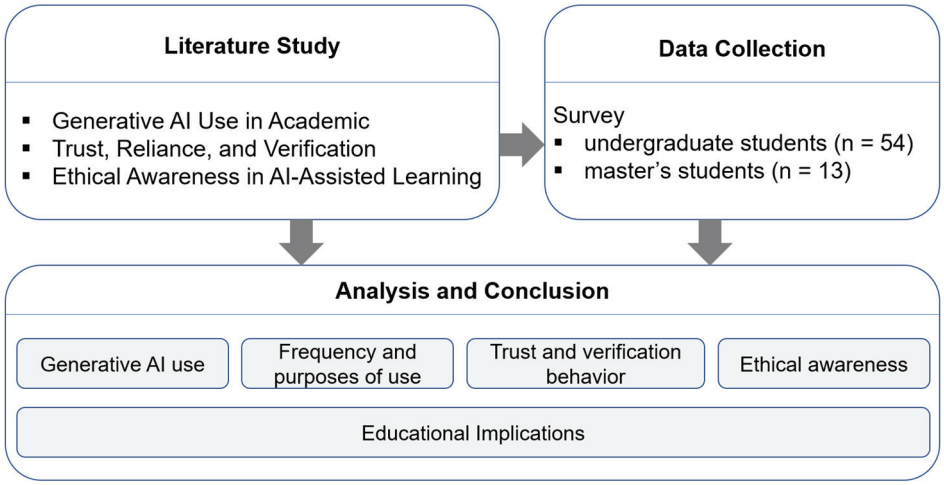
RESEARCH METHODOLOGY

The research process consists of three phases: literature review, data collection, and analysis and conclusion, as illustrated in Figure 1.

The literature review focuses on three major areas: generative AI use in academic contexts, trust and verification behavior, and ethical awareness in AI-assisted learning. For the data collection phase, a quantitative survey was employed to examine how students use and evaluate generative AI in their academic work.

The participants included 67 students from a higher education institution, comprising undergraduate students (n = 54) and master's students (n = 13). The questionnaire addressed four principal dimensions: (1) generative AI use, (2) frequency and purposes of use, (3) trust and verification behavior, and (4) ethical awareness.

Picture 1: Research Process



Descriptive statistics, including frequencies and percentages, were used to summarize and compare usage patterns of generative AI use between undergraduate and graduate students. In addition, inferential statistical analyses were conducted to examine associations between categorical variables. Specifically, chi-square tests of independence were employed to assess differences between degree levels and key variables, including verification behavior and perceptions of ethical importance. When the assumptions of the chi-square test were violated due to small expected cell counts, alternative approaches were applied. Monte Carlo simulation (10,000 samples) was used to obtain more reliable p-values for larger contingency tables, while Fisher's exact test was applied for 2×2 tables. A significance level of .05 was adopted for all statistical tests.

RESULTS

Generative AI use

Table 1 presents the distribution of generative AI tools adopted by students. ChatGPT was used by all respondents (100%) across both undergraduate and graduate groups, confirming its dominant position in academic contexts. Gemini ranked second, with particularly high usage among undergraduates (94.4%) compared with graduates (76.9%).

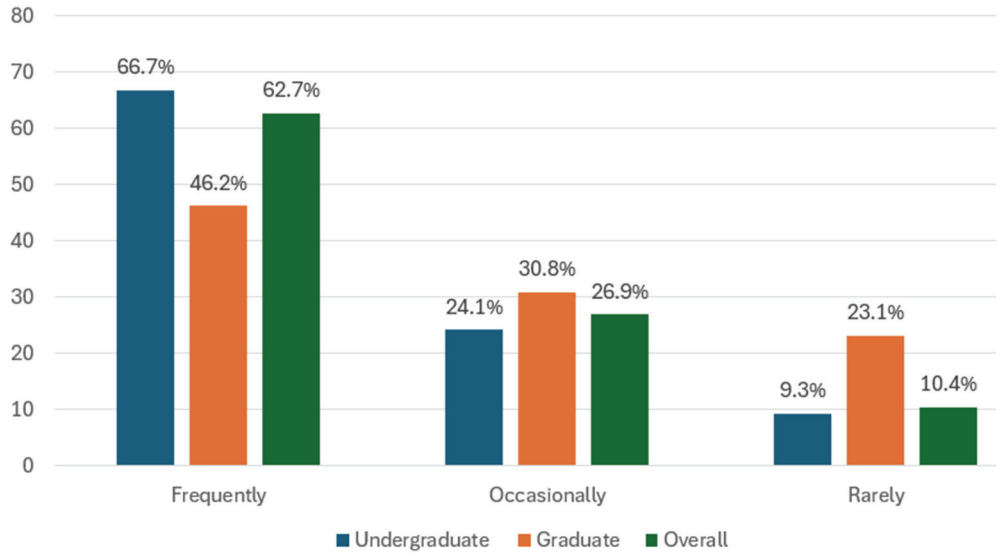
Table 1: AI Tools Used

Tool	Undergraduate n (%)	Graduate n (%)	Overall n (%)
ChatGPT	54 (100.0)	13 (100.0)	67 (100.0)
Gemini	51 (94.4)	10 (76.9)	61 (91.0)
Claude	15 (27.8)	3 (23.1)	18 (26.9)
DALL-E / image gen	6 (11.1)	2 (15.4)	8 (11.9)
Perplexity	1 (1.9)	1 (7.7)	2 (3.0)
Microsoft Copilot	0 (0)	3 (23.1)	3 (4.5)
Grammarly / similar	0 (0)	2 (15.4)	2 (3.0)
Other tools	3 (5.6)	1 (7.7)	4 (6.0)

Frequency and purposes of use

As shown in Picture 2, frequent use of generative AI was common, with 62.7% of the total sample selecting this option. Undergraduates demonstrated heavier reliance, with two-thirds reporting frequent use, whereas graduate students more often reported occasional or rare engagement.

Picture 2: Frequency of Use



For purpose of use, Table 2 indicates that brainstorming and idea generation represented the most prominent purposes (82.1%), followed by generating text (65.7%). Undergraduates consistently reported higher engagement in exploratory and creative functions, including developing project ideas and enhancing content. In contrast, graduate students showed relatively stronger use in formal academic production. A notable example is report drafting, where graduate usage (69.2%) exceeded that of undergraduates (51.9%). The pattern reflects differences in academic demands between the two levels of study.

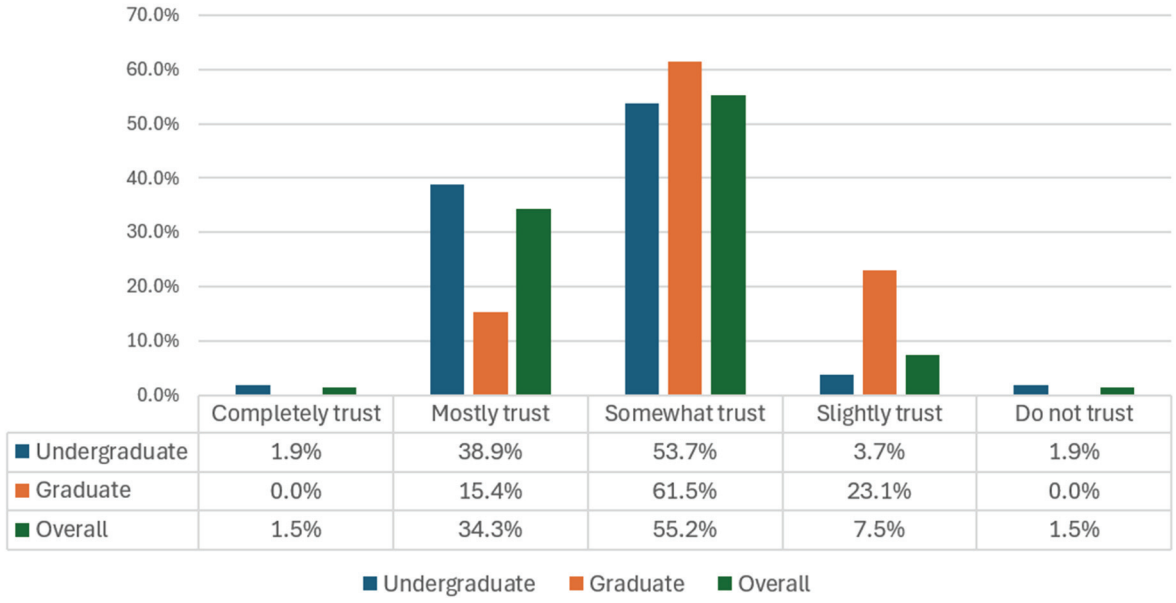
Table 2: Purpose of Use

Purpose	Undergraduate n (%)	Graduate n (%)	Overall n (%)
Idea generation / brainstorming	45 (83.3)	10 (76.9)	55 (82.1)
Generating text	36 (66.7)	8 (61.5)	44 (65.7)
Creating visuals	26 (48.1)	4 (30.8)	30 (44.8)
Enhancing content	29 (53.7)	4 (30.8)	33 (49.3)
Project ideas	33 (61.1)	5 (38.5)	38 (56.7)
Drafting reports	28 (51.9)	9 (69.2)	37 (55.2)
Quiz / answers	21 (38.9)	6 (46.2)	27 (40.3)
Proofreading	24 (44.4)	5 (38.5)	29 (43.3)
Conducting research	22 (40.7)	6 (46.2)	28 (41.8)

Trust and verification behavior

The data in Picture 3 demonstrate moderate rather than absolute trust. Very few participants expressed complete trust or complete distrust. Graduate students appeared more cautious, with a larger proportion indicating lower trust levels such as “slightly trust.”

Picture 3: Trust in Accuracy



As shown in Table 3 (Reliable & Unbiased), most respondents perceived AI-generated content as only sometimes reliable and unbiased, accounting for 55.2% of the total sample. A smaller proportion believed that AI is reliable most of the time (28.4%), while very few participants expressed absolute confidence, with only 4.5% selecting "yes, always."

Table 3: Reliable & Unbiased

Response	Undergraduate n (%)	Graduate n (%)	Overall n (%)
Yes, always	2 (3.7)	1 (7.7)	3 (4.5)
Yes, most of the time	16 (29.6)	3 (23.1)	19 (28.4)
Sometimes	31 (57.4)	6 (46.2)	37 (55.2)
Rarely	3 (5.6)	0 (0.0)	3 (4.5)
Never	2 (3.7)	3 (23.1)	5 (7.5)

Table 4 reveals encouraging patterns of critical engagement. More than three quarters of participants reported that they always or frequently verify AI outputs.

Table 4: Verification Behavior

Behavior	Undergraduate n (%)	Graduate n (%)	Overall n (%)
Always	18 (33.3)	6 (46.2)	24 (35.8)
Frequently	24 (44.4)	2 (15.4)	26 (38.8)
Occasionally/Rarely	12 (22.2)	5 (38.5)	17 (25.4)

A chi-square test of independence was conducted to examine the association between degree level and verification behavior. Due to small expected cell counts, a Monte Carlo simulation (10,000 samples) was applied. The results indicated that there was no statistically significant association between degree level and verification behavior, $\chi^2(2, N = 67) = 3.85$, $p = .166$.

Consistent with this finding, Fisher's exact test with Monte Carlo estimation also showed no significant relationship ($p = .130$).

Ethical awareness

From Table 5, the majority of both undergraduate (92.6%) and graduate students (84.6%) reported that considering ethics is important when using AI. Only a small proportion of respondents selected "not sure" or "no," with slightly higher uncertainty observed among graduate students.

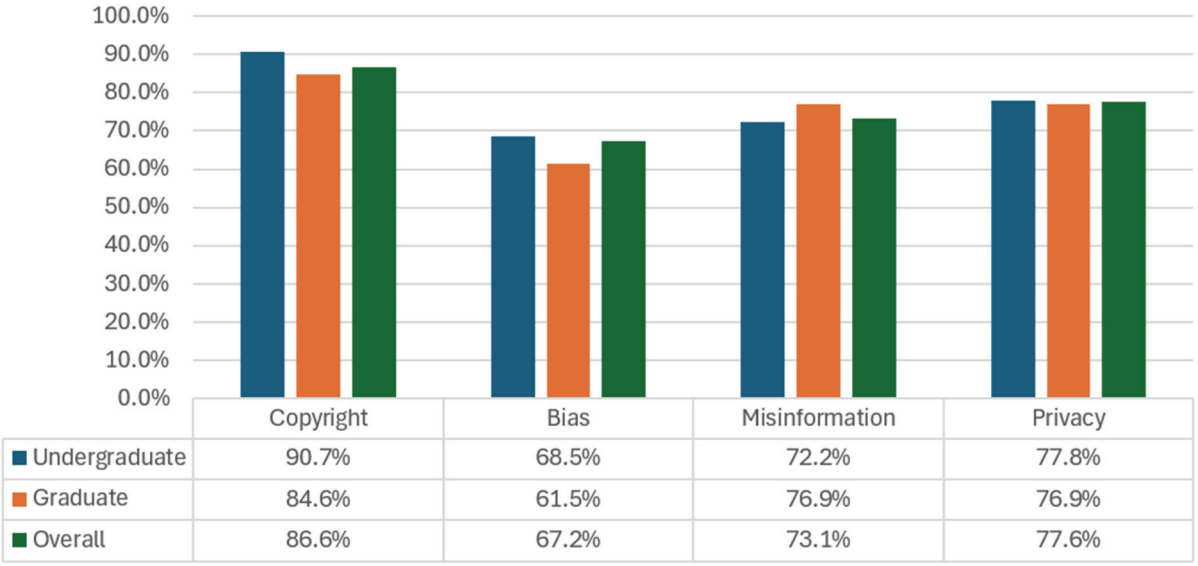
Table 5: Ethics Important

Response	Undergraduate n (%)	Graduate n (%)	Overall n (%)
Yes	50 (92.6)	11 (84.6)	61 (91.0)
Not sure/No	4 (7.4)	2 (15.4)	6 (9.0)

A chi-square test of independence was conducted to examine the association between degree level and perceptions of the importance of ethics in AI use. The results indicated no statistically significant association between the two variables, $\chi^2(1, N = 67) = 0.82$, $p = .366$.

Given that 50% of the cells had expected counts less than 5, Fisher's exact test was also examined. The results remained non-significant ($p = .329$), confirming the robustness of the finding.

Picture 4: Ethical Awareness



As shown in Picture 4, for ethical awareness, students showed high awareness across multiple risk dimensions. Copyright was the most recognized concern (86.6%), followed by privacy (77.6%) and misinformation (73.1%). Awareness levels were relatively similar between undergraduate and graduate respondents.

DISCUSSION

The findings indicate that generative AI has become an integral part of students' academic activities, particularly for idea generation and content creation. This finding is consistent with prior studies that

report students primarily use generative AI for brainstorming, structuring assignments, and refining arguments (Hadinejad et al., 2025). From an AI literacy perspective, students are actively engaging with AI in ways that extend beyond basic use, incorporating it into higher-order learning processes, which is consistent with the study of Ge and Shin (2026).

Regarding trust and verification behavior, students demonstrated moderate levels of trust in AI outputs, with most respondents perceiving them as conditionally reliable rather than consistently accurate. This pattern is consistent with Lin and Sohail (2026), who suggest that students tend to maintain a balanced level of trust rather than relying blindly on AI, particularly when they are aware of limitations such as hallucinations and inaccuracies. The widespread practice of verification further supports this interpretation, as students frequently check and refine AI-generated content. This finding is also in line with Lee et al. (2025), who showed that users engage in adaptive protective behaviors, such as information verification and source triangulation, when confronted with perceived algorithmic risks.

Ethical awareness was also remarkably high, with most students recognizing issues such as copyright, privacy, and misinformation. This result is consistent with Yan et al. (2026), who emphasize the growing importance of ethical awareness in AI-supported learning environments.

Overall, the findings address the research questions as follows: students demonstrate frequent use of generative AI, particularly for idea generation and content creation (RQ1); they exhibit moderate and calibrated trust in AI outputs (RQ2); they actively engage in verification practices (RQ3); and they show a high level of ethical awareness regarding AI use (RQ4).

EDUCATIONAL IMPLICATIONS

The findings suggest several implications for teaching and learning practices.

First, since AI is already embedded in students' workflows, prohibitive approaches are unlikely to be effective. Instead, educators should focus on guided and transparent use. Teaching strategies may include demonstrating how to formulate prompts, compare outputs with scholarly sources, and identify potential hallucinations or bias.

Second, the high rate of verification behavior provides a strong foundation for cultivating deeper evaluative skills. Instructors can design assignments that require students to critique AI-generated responses, justify acceptance or rejection, and document validation processes.

Third, while no statistically significant differences were found between undergraduate and graduate students, some variation in usage patterns was observed. This suggests that AI pedagogy may still benefit from being sensitive to academic level. Undergraduate instruction may prioritize foundational critical thinking and responsible experimentation, while graduate-level education can emphasize methodological rigor, citation practices, and integration with academic research standards.

Ultimately, AI literacy should be treated not only as technical competence but as a combination of analytical, ethical, and reflective capabilities.

LIMITATIONS

This study has some limitations. First, the sample size was relatively small (n = 67), with a limited number of graduate students, which may affect generalizability. Second, the use of self-reported data may introduce response bias. Future research should include larger samples and more robust measures.

CONCLUSION

This study provides insight into how students navigate the integration of generative AI in academic settings. The findings indicate that generative AI is increasingly integrated into students' learning practices, where it supports productivity as well as idea development and knowledge construction. Students appear to engage with AI in a measured and reflective manner. Rather than demonstrating blind reliance, they exhibit a balanced approach characterized by conditional trust and frequent verification. This behavior suggests an emerging capacity to critically assess AI outputs and adjust reliance based on perceived reliability. The findings also emphasize the significance of ethical awareness as a core component of responsible AI use. Students' recognition of risks such as copyright, privacy, and misinformation indicates a level of readiness to operate in increasingly AI-mediated environments.

Although no statistically significant differences were found between academic levels, variations in usage patterns point to the importance of context-sensitive educational approaches. Future research should further explore these relationships using larger and more diverse samples, as well as alternative research approaches, to deepen understanding of how students develop competencies for responsible AI use.

DECLARATION OF GENERATIVE AI

During the preparation of this work, the author used ChatGPT and Gemini to check grammar and improve the readability of the manuscript. The author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

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