

Navigating Ai-Assisted Academic Writing: Malaysian University Students' Perceptions of Use, Learning, Academic Integrity and Institutional Guidance

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ABSTRACT

Artificial intelligence (AI) tools are increasingly embedded in university writing and learning, yet frequent use does not necessarily indicate uncritical acceptance or measurable learning gains. This study examines how 41 students at a Malaysian higher education institution perceive AI use in academic writing and learning, focusing on use frequency, self-reported reliance, perceived usefulness, perceived influence on critical thinking, academic integrity, and institutional guidance. A convergent mixed-methods questionnaire design combined closed-ended items with open-ended responses. Quantitative data were analysed descriptively using frequencies and percentages, while open-ended responses were analysed thematically and integrated with the quantitative patterns during interpretation. Most respondents reported regular AI use (65.9%) and positive attitudes toward AI (75.6%), while 87.8% perceived AI as improving the quality of their academic work. Although 80.5% perceived AI as supporting critical thinking, qualitative responses also described a trade-off between efficiency and depth of learning. Academic-integrity concerns were substantial, with 63.4% reporting that they were very concerned, while 75.6% supported clearer institutional guidelines. The integrated findings indicate a use-with-awareness pattern: students value AI as a support for writing and idea generation while recognising risks of superficial engagement, authorship ambiguity, and over-reliance. The study does not establish actual effects on critical thinking or academic-integrity behaviour. It highlights the need for explicit AI literacy, transparent assessment expectations, and institutional guidance that distinguishes legitimate assistance from substitution of students' intellectual work.

Keywords: Artificial Intelligence, Academic Writing, Higher Education, Student Perceptions, Academic Integrity



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1 INTRODUCTION

Artificial intelligence (AI) has become embedded in higher education through tools that support brainstorming, summarising, language refinement, information retrieval, and draft development. The recent expansion of generative AI and AI-enabled writing assistants has intensified this shift by making sophisticated textual support immediately available to students. Reviews of AI in higher education describe substantial potential for personalised support and efficiency, while also emphasising unresolved questions about ethics, pedagogy, and the quality of learning (Zawacki-Richter et al., 2019; Bond et al., 2024).

Academic writing is a particularly important context because writing is both a product and a learning process. AI tools can help students organise ideas, improve language accuracy, and revise text, which may be especially valuable for students writing in an additional language (Godwin-Jones, 2022). Malaysian evidence also shows that students can perceive ChatGPT positively as a language-learning and writing support tool. For example, Abd Rahim et al. (2023) reported generally favourable perceptions among UiTM students regarding ChatGPT for language learning and writing. However, perceived usefulness does not by itself establish deeper learning or legitimate academic practice.

The central educational tension therefore concerns how students distinguish assistance from substitution. Students may use AI frequently and still recognise risks associated with plagiarism, authorship, unreliable information, and reduced cognitive engagement. International evidence similarly shows that students differentiate between assistive uses of generative AI and uses that replace substantial intellectual work (Johnston et al., 2024). Academic-integrity concerns have consequently shifted from a narrow focus on detecting misconduct toward broader questions of transparency, attribution, assessment design, and responsible use (Cotton et al., 2024; Karkoulian et al., 2025).

A further concern is the relationship between AI use and critical thinking. AI can provide alternative explanations, feedback, and prompts that students perceive as helpful for thinking. At the same time, rapid generation of ideas and prose can reduce opportunities for reading, evaluating evidence, constructing arguments, and reflecting independently when students use the technology passively. This study therefore treats critical thinking as a perceived learning dimension rather than an objectively measured outcome. Any statements about improvement or reduction refer to students' self-reported perceptions, not demonstrated changes in critical-thinking performance.

Within Malaysian higher education, student perspectives are particularly relevant because institutional policies and classroom expectations are still developing alongside rapidly changing AI capabilities. Understanding how students use AI, how much they report relying on it, what benefits and risks they perceive, and what forms of institutional guidance they prefer can inform policies that are educationally meaningful rather than merely restrictive. The present study therefore examines AI-assisted academic writing and learning as a broad practice. It does not investigate a specific article-analysis task.

The study aims to describe patterns of AI use and self-reported reliance, examine students' perceptions of AI support for academic writing and thinking, explore academic-integrity concerns, and identify preferences for institutional guidance. By integrating quantitative patterns with open-ended responses, the study seeks to clarify the tension between efficiency, learning depth, ethical responsibility, and regulation from the students' perspective.

1.1 Research Objectives

- To describe students' patterns of AI use and self-reported reliance in academic writing and learning.
- To examine students' perceptions of the usefulness of AI for academic writing and its perceived influence on critical thinking.
- To explore students' concerns regarding academic integrity, authorship, and responsible AI use.
- To identify students' preferences regarding institutional guidance and regulation of AI in academic settings.

1.2 Research Questions

- RQ1 What patterns of AI use and self-reported reliance do students report in academic writing and learning?
- RQ2 How do students perceive the usefulness of AI for academic writing and its influence on their critical-thinking processes?
- RQ3 What concerns do students report regarding academic integrity and responsible AI use?
- RQ4 What forms of institutional guidance and regulation do students prefer for AI use in academic settings?

2 LITERATURE REVIEW

2.1 Artificial Intelligence in Higher Education and Academic Writing

AI in higher education has developed from earlier applications in tutoring, prediction, feedback, and adaptive systems toward generative tools that can participate directly in text production. Zawacki-Richter et al. (2019) identified a broad range of AI applications in higher education, while Bond et al. (2024) showed that the field has expanded rapidly but still requires stronger ethical and methodological rigour. Generative AI intensifies these concerns because students can now obtain fluent text, summaries, explanations, and revisions within seconds.

In academic writing, AI assistance can operate at different levels. It may support brainstorming, organisation, grammar, vocabulary, revision, or feedback without replacing the writer's authorship. Godwin-Jones (2022) argues that intelligent writing assistance can support language development when learners remain actively involved in evaluating and revising output. The educational value of AI therefore depends less on whether a tool is used than on what cognitive and authorship functions are retained by the student.

2.2 Student Perceptions, Use, and Technology Acceptance

Student-perception studies consistently report strong interest in AI because of speed, accessibility, and perceived usefulness. Strzelecki (2024), drawing on technology-acceptance perspectives, found that students' adoption of ChatGPT was associated with behavioural intention and performance-related expectations. Johnston et al. (2024) likewise showed that students' views of generative AI were nuanced: many recognised educational benefits but also wanted clearer boundaries for acceptable use.

The Malaysian context shows a similar pattern of positive acceptance. Abd Rahim et al. (2023), in an Ideology Journal study of 181 UiTM students, reported favourable perceptions of ChatGPT as a language-learning tool and perceived benefits for writing. The present study extends this line of inquiry by examining not only general acceptance but also self-reported reliance, perceptions of critical thinking, academic-integrity concerns, and institutional regulation within the same sample.

2.3 AI, Academic Integrity, and Institutional Governance

Generative AI complicates conventional assumptions about authorship and originality because students can submit text that has been substantially generated or transformed by an automated system. Cotton et al. (2024) argue that higher education must respond through assessment redesign, guidance, and academic-integrity education rather than relying solely on detection. Karkoulou et al. (2025) similarly found that students and faculty viewed ChatGPT as simultaneously useful and potentially threatening to academic integrity.

The issue is not simply whether students use AI but whether they understand what forms of assistance are permitted, when disclosure is expected, and which parts of assessed work must remain

demonstrably their own. Johnston et al. (2024) found that students wanted explicit guidance on legitimate and illegitimate uses. Institutional ambiguity can therefore create both misconduct risks and uncertainty among students who may wish to use AI responsibly.

2.4 AI, Critical Thinking, and Self-Regulated Learning

Critical thinking and self-regulation are frequently invoked in debates about AI-assisted learning. Zimmerman (2002) conceptualises self-regulated learning as involving active planning, monitoring, strategy use, and evaluation. AI may support these processes when students use it to obtain feedback, compare alternatives, or test their reasoning. Conversely, it may weaken active engagement when students outsource idea generation, argument construction, or evaluation without scrutiny.

This distinction is important because perceptions of improved thinking are not equivalent to measured improvements in critical-thinking ability. Chiu (2024) argues that future research on generative AI should examine how educational design shapes learning processes rather than assuming either benefit or harm. The present study therefore interprets students' responses as perceptions of cognitive support and possible risk, while avoiding causal claims about actual critical-thinking development.

2.5 Interpretive Framework: TAM and Self-Regulated Learning

This study uses the Technology Acceptance Model (TAM) and Self-Regulated Learning (SRL) as interpretive lenses rather than as tested explanatory models. TAM proposes that perceived usefulness and perceived ease of use shape technology acceptance (Davis, 1989). In the present study, TAM is used cautiously to interpret reported use, general attitudes, and perceived usefulness. The questionnaire did not administer a validated TAM scale, did not comprehensively measure perceived ease of use or behavioural intention, and did not test structural relationships among TAM constructs.

SRL is used to interpret students' descriptions of AI as cognitive support and their concerns about independent thinking, editing, and learning depth (Zimmerman, 2002). However, the questionnaire did not administer a validated SRL scale or directly measure planning, monitoring, and evaluation as a complete construct. Academic integrity and institutional-policy preferences are treated as separate analytic domains. This positioning prevents the frameworks from being presented as empirically tested when they function only as interpretive resources for the descriptive and thematic findings. Figure 1 shows the interpretive framework of the study.

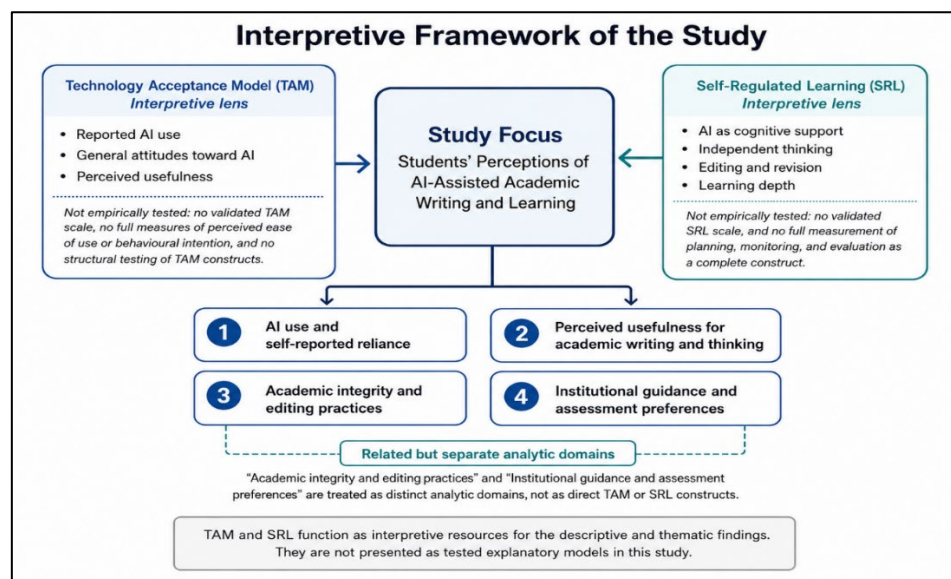


Figure 1 Interpretive Framework of the Study

Figure 1 presents the study's interpretive framework, showing how the Technology Acceptance Model (TAM) and Self-Regulated Learning (SRL) are used to interpret students' perceptions of AI-assisted academic writing and learning. TAM informs the interpretation of AI use, general attitudes, and perceived usefulness, while SRL helps explain perceptions related to cognitive support, independent thinking, editing, and learning depth. The four analytical domains examined in the study are AI use and self-reported reliance, perceived usefulness for academic writing and thinking, academic integrity and editing practices, and institutional guidance and assessment preferences. Importantly, TAM and SRL are used only as interpretive lenses and are not empirically tested as complete explanatory models in this study.

2.6 Research Gap

Research on generative AI in higher education has expanded rapidly, but several gaps remain relevant to the Malaysian context. First, many studies focus on adoption or general attitudes without examining how frequent use coexists with concerns about academic integrity and learning depth. Second, studies sometimes use terms such as use, reliance, and dependence interchangeably even though they represent different levels of engagement. Use refers to whether and how often a tool is used. Reliance refers here to students' self-reported frequency of depending on AI assistance for academic tasks. Dependence implies a stronger behavioural or psychological condition that was not measured in this study.

Third, discussions of AI and critical thinking often move too quickly from perception to impact. A questionnaire asking whether students believe AI improves or reduces their thinking cannot establish actual changes in critical-thinking skill. Fourth, students' preferences regarding institutional guidance are increasingly important as universities move from prohibition-versus-permission debates toward explicit rules for disclosure, authorship, acceptable assistance, and assessment design. The present study addresses these gaps by integrating descriptive survey results with open-ended responses on the perceived benefits, learning tensions, ethical concerns, and regulatory expectations surrounding AI-assisted academic writing and learning.

3 METHODOLOGY

3.1 Research Design

This study employed a convergent mixed-methods questionnaire design to examine students' perceptions of AI-assisted academic writing and learning. Closed-ended and open-ended responses were collected through the same questionnaire. The quantitative strand described patterns of use, self-reported reliance, perceived usefulness, perceived influence on thinking, academic-integrity concerns, and policy preferences. The qualitative strand provided short-form explanations of how students experienced the benefits and risks of AI. The two strands were analysed separately and then compared during interpretation to identify convergence, complementarity, and divergence (Creswell & Plano Clark, 2018).

3.2 Participants and Recruitment

Participants were 41 students from a Malaysian higher education institution. Purposive recruitment was used because the study sought responses from students engaged in academic writing who had prior experience with AI tools such as ChatGPT, Grammarly, or QuillBot (Etikan et al., 2016). The questionnaire was distributed during an academic writing course and participation was voluntary. The sample was treated as a bounded exploratory cohort rather than as statistically representative of Malaysian university students. No interview-saturation criterion was used to justify the sample because the qualitative material consisted of open-ended questionnaire responses rather than interview data.

3.3 Instrument Development, Validation and Reliability

Data were collected using a structured questionnaire developed for this study. The instrument comprised demographic questions, closed-ended items, and open-ended prompts. The closed-ended items addressed four descriptive domains: (a) AI use and self-reported reliance, (b) perceived usefulness of AI for academic writing and its perceived influence on thinking, (c) academic-integrity concerns and editing practices, and (d) preferences regarding institutional guidance and assessment. The open-ended prompts invited participants to elaborate on the perceived benefits and limitations of AI, ethical concerns, acceptable boundaries of AI use, and expectations regarding university guidance.

The closed-ended items employed different categorical and ordered response formats according to the construct being examined. For example, frequency of AI use was reported as regular or occasional, self-reported reliance was categorised as always, frequently, or sometimes, while other items used evaluative response categories such as positive/neutral or levels of agreement. Because the questionnaire assessed several related but conceptually distinct aspects of AI use and perception, the items were analysed primarily at the individual-item level. No composite score was calculated for AI attitudes, reliance, Technology Acceptance Model (TAM) constructs, Self-Regulated Learning (SRL), or academic integrity.

Prior to the main data collection, the questionnaire underwent expert content review by two senior lecturers in TESOL. The experts assessed the relevance, clarity, appropriateness, and alignment of the questionnaire items with the research objectives and research questions. Their feedback informed revisions to the wording and organisation of the instrument before pilot testing.

A pilot study was subsequently conducted with 30 students who had characteristics similar to those of the target population and who were not included in the main study sample. The pilot study was used to assess the clarity and comprehensibility of the questionnaire items, the suitability of the response formats, and the overall usability of the instrument. Reliability analysis of the pilot data yielded an overall Cronbach's alpha coefficient of $\alpha = .85$, indicating good internal consistency. However, because the questionnaire comprised conceptually distinct domains and different response formats, this coefficient is interpreted only as an overall indicator of internal consistency for the items included in the reliability analysis. It should not be taken as evidence that the questionnaire represents a single unidimensional scale.

3.4 Data Collection, Ethics, and Data Protection

The questionnaire was administered to students during the academic writing course. Participation in the study was voluntary. Before data collection, participants were informed about the purpose of the study, the voluntary nature of their participation, and their right to decline participation without penalty. Verbal informed consent was obtained from all participants before they completed the questionnaire.

Permission to conduct the study was obtained from the PJI Research Management Unit under the Dana Kecemerlangan Akademik. This permission provided institutional authorisation for the research to be carried out. As the available documentation relates to institutional permission rather than approval from a formally designated research ethics committee, the study does not describe this permission as formal ethical approval.

The questionnaire responses were used solely for research purposes. Participants' responses were treated confidentially throughout the data analysis and reporting process. The findings are presented in aggregated form to minimise the possibility of identifying individual participants.

3.5 Data Analysis and Mixed-Methods Integration

Closed-ended responses were analysed using frequencies and percentages. Because the study was exploratory, the sample was small and purposively recruited, and the response formats were primarily categorical, no inferential tests or causal estimates were used. Quantitative findings are therefore reported as descriptive patterns within this cohort.

Open-ended responses were analysed thematically following Braun and Clarke's (2006) six-phase approach. The responses were read repeatedly to establish familiarity with the data, after which meaningful segments were assigned initial semantic codes. Coding was conducted manually by the author and co-author. Related codes were then grouped into candidate themes, which were reviewed against the complete set of responses. The authors discussed the coding and thematic groupings and refined the themes through consensus before finalising the theme names and selecting illustrative excerpts. The analysis focused on recurring patterns across the short-written responses and did not rely on interview-saturation claims.

After the two strands were analysed, findings were integrated through a joint display. Quantitative patterns were compared with qualitative themes to identify where the strands converged, where the qualitative data added explanatory depth, and where they diverged. This integration was particularly important for interpreting the apparent contrast between students' positive perceptions of AI and their concerns about learning depth and academic integrity.

4 RESULTS AND DISCUSSION

4.1 Participant Profile

Table 1 presents the demographic profile of the 41 participants. Most were aged 22–25 years (73.2%) and most were undergraduates (87.8%). Female participants constituted 80.5% of the sample. Field-of-study data were available for 40 participants; one respondent did not provide a field-of-study response in the summary record. This correction resolves the previous mismatch between the reported sample size and the field-of-study total.

Table 1 Demographic Profile of Respondents

Category	Subcategory	Frequency (N = 41)	Percentage (%)
Age group	18–21	11	26.8
	22–25	30	73.2
Gender	Female	33	80.5
	Male	7	17.1
	Prefer not to say	1	2.4
Academic level	Undergraduate	36	87.8
	Postgraduate	3	7.3
	Diploma	2	4.9
Field of study	Humanities & Social Sciences	24	58.5
	Administrative Science & Policy	10	24.4
	Business & Management	6	14.6
	Not reported	1	2.4

4.2 Patterns of AI Use and Self-Reported Reliance

All participants reported prior use of AI tools. Twenty-seven students (65.9%) described their use as regular and 14 (34.1%) as occasional. For the separate reliance item, 6 students (14.6%) selected always, 21 (51.2%) frequently, and 14 (34.1%) sometimes. These categories indicate how often students reported depending on AI assistance for academic tasks; they should not be interpreted as evidence of behavioural or psychological dependence.

Table 2 Patterns of AI Use and Self-Reported Reliance

Variable	Category	Frequency	Percentage (%)
AI use frequency	Regular	27	65.9
	Occasional	14	34.1
Self-reported AI reliance	Always	6	14.6
	Frequently	21	51.2
	Sometimes	14	34.1

Note. AI use frequency and self-reported reliance are distinct indicators. The study did not measure dependence as a clinical, behavioural, or psychological construct.

The frequency data suggest that AI had become a routine component of academic work for many participants. A TAM-informed reading is that regular use is compatible with perceived usefulness and acceptance, but the present study did not test the full TAM. High reported reliance also requires caution: frequent assistance may reflect convenience, language support, or task demands rather than loss of independent capacity. The qualitative findings are therefore needed to interpret what students believed this reliance meant for learning.

4.3 Perceived Usefulness for Academic Writing and Thinking

Students were generally favourable toward AI. Thirty-one participants (75.6%) reported a positive attitude, and 36 (87.8%) agreed or strongly agreed that AI improved the quality of their academic work. On the critical-thinking item, 33 students (80.5%) perceived AI as improving their critical thinking, 5 (12.2%) were neutral, and 3 (7.3%) perceived a reduction. These responses represent perceived influence, not objectively measured changes in critical-thinking skill.

Table 3 Student Perceptions of AI Support for Academic Writing and Thinking

Indicator	Response	Frequency	Percentage (%)
Attitude toward AI	Positive	31	75.6
	Neutral	10	24.4
Perceived improvement in academic-work quality	Agree/strongly agree	36	87.8
	Neutral	5	12.2
Perceived influence on critical thinking	Improves	33	80.5
	Neutral	5	12.2
	Reduces	3	7.3

At face value, these results suggest strong perceived benefits. However, the critical-thinking response requires especially careful interpretation. Students may associate faster access to explanations, idea generation, and comparison of alternatives with improved thinking, while still outsourcing parts of the cognitive process. The qualitative theme of efficiency versus depth complicates the quantitative optimism and shows why perception data should not be reported as evidence of actual cognitive impact.

4.4 Academic Integrity, Editing Practices, and Institutional Guidance

Academic-integrity concern remained high despite frequent AI use. Twenty-six participants (63.4%) reported being very concerned and 12 (29.3%) somewhat concerned. The summary record did not preserve the label for the remaining three responses, so they are reported conservatively as other/not reported rather than being assigned an unverified category. Most participants (65.9%) reported making substantial edits to AI-generated content. In addition, 75.6% agreed or strongly agreed that institutional guidelines were needed, and 56.1% selected human-only grading as their preferred grading approach.

Table 4 Academic Integrity, Editing Practices, and Institutional Guidance

Variable	Category	Frequency	Percentage (%)
Concern about academic integrity	Very concerned	26	63.4
	Somewhat concerned	12	29.3
	Other/not reported	3	7.3
Modification of AI-generated content	Substantial edits	27	65.9
	Minor edits	11	26.8
	Minimal changes	3	7.3
Need for institutional AI guidelines	Agree/strongly agree	31	75.6
	Other responses	10	24.4
Preference for grading	Human only	23	56.1
	Other responses	18	43.9

Note. Where the original summary did not retain the labels for all response categories, unlabelled residual responses are reported as ‘other/not reported’ rather than inferred.

These findings point to a use-with-awareness pattern rather than a simple contradiction. Students can value AI while recognising ethical risks. Substantial editing may indicate active engagement and a desire to retain authorship, although the item does not show whether edits were substantive, cosmetic, or sufficient to meet academic-integrity expectations. Similarly, support for guidelines suggests that students perceive uncertainty about acceptable practice. The preference for human grading is also notable because it reveals an asymmetry: students may accept AI as a learning aid while continuing to place greater trust in human judgement for consequential assessment.

4.5 Qualitative Findings

The open-ended questionnaire responses were analysed thematically to provide a more detailed understanding of how students perceived the use of artificial intelligence in academic writing and learning. The qualitative analysis complemented the descriptive quantitative findings by allowing participants to express perceived benefits, concerns, ethical considerations, and expectations regarding institutional guidance in their own words.

The responses were analysed manually by the author and co-author following Braun and Clarke's (2006) six-phase approach to thematic analysis. Both researchers first familiarised themselves with the written responses through repeated reading. Meaningful segments of text were then assigned initial semantic codes based on their explicit content. Related codes were grouped into candidate themes, which were subsequently reviewed against the complete set of responses. The researchers discussed the coding and thematic groupings and refined the themes through consensus before finalising the theme names and selecting representative excerpts. Because the qualitative data consisted of relatively short written responses rather than interview transcripts, the analysis focused on recurring patterns across participants' responses rather than claims of data saturation.

Four themes were identified: AI as cognitive support, efficiency versus depth of learning, ethical awareness and academic responsibility, and desire for institutional guidance. Table 5 summarises the themes, their analytical focus, and illustrative excerpts.

Table 5 Themes from Open-Ended Student Responses

Theme	Analytical focus	Illustrative participant excerpt
AI as cognitive support	Students described AI as assisting with idea generation, organisation, and aspects of academic writing.	"AI helps me generate ideas."
Efficiency versus depth of learning	Students valued the speed and convenience provided by AI but questioned whether easier task completion necessarily resulted in deeper understanding.	"AI makes assignments easier but not necessarily deeper."
Ethical awareness and academic responsibility	Students recognised concerns related to plagiarism, authorship, inappropriate use, and individual responsibility when using AI-generated content.	"AI raises integrity issues."
Desire for institutional guidance	Students expressed a preference for clearer institutional guidance regarding acceptable AI use rather than either unrestricted use or complete prohibition.	"Universities should set guidelines."

Note. The excerpts are drawn from participants' written responses to the open-ended questionnaire items. Because the responses were generally brief, the quotations are concise and are used to illustrate recurring patterns identified in the thematic analysis.

4.5.1 AI as Cognitive Support

The first theme reflects students' perceptions of AI as a form of academic support. Participants described AI as useful for generating ideas, organising information, and assisting with aspects of academic writing. One participant summarised this function concisely: "AI helps me generate ideas."

These responses suggest that students did not view AI solely as a mechanism for producing completed academic work. Instead, some participants appeared to use it as an initial source of support when planning, organising, or developing their writing. Such uses may help students overcome difficulties associated with starting an assignment, structuring ideas, or locating possible directions for further exploration.

Importantly, the findings should not be interpreted as evidence that AI objectively improved students' cognitive performance. The data represent students' perceptions of how AI supported their academic work. From an interpretive perspective, these perceptions are broadly consistent with the Technology Acceptance Model (Davis, 1989), particularly the concept of perceived usefulness. Students appeared more willing to incorporate AI into their academic practices when they regarded it as useful for making writing-related tasks more manageable.

The theme also has relevance to Self-Regulated Learning (SRL). AI may function as one of several resources that students select when attempting to manage an academic task. However, the present study did not directly measure planning, monitoring, or self-regulatory performance. SRL is therefore used here as an interpretive lens rather than as a framework that was empirically tested.

Students described AI as useful for idea generation and organisation, consistent with the quantitative finding that 87.8% perceived improved academic-work quality. The comment “AI helps me generate ideas” positions AI as a scaffold rather than necessarily a substitute for authorship. This interpretation aligns with writing-support literature that emphasises the value of AI when learners remain responsible for evaluating and revising output (Godwin-Jones, 2022). However, the data cannot establish whether students critically evaluated AI suggestions in each instance.

4.5.2 Efficiency Versus Depth of Learning

The second theme reveals a more critical dimension of students’ experiences. Participants valued AI because it could make academic work faster and easier, but some also questioned whether greater efficiency necessarily led to deeper learning. This tension was captured by one participant who stated, “AI makes assignments easier but not necessarily deeper.”

This observation is important because it differentiates task completion from meaningful learning. Students may perceive AI as useful because it reduces the time required to generate ideas, organise information, or produce text. At the same time, some participants recognised that convenience could potentially reduce the amount of intellectual engagement involved in completing academic work.

The qualitative findings therefore complicate the quantitative result indicating that many participants perceived AI as beneficial to their thinking. Rather than demonstrating that AI enhances or reduces critical-thinking ability, the combined findings suggest that students themselves hold ambivalent perceptions. They may experience AI as helpful for generating alternatives, clarifying ideas, or supporting a writing task while simultaneously recognising that excessive reliance could reduce opportunities for independent analysis and reflection.

This distinction is particularly important for academic writing because the educational value of writing lies not only in the final written product but also in the processes of reading, evaluating evidence, developing an argument, revising ideas, and making disciplinary judgments. From an SRL perspective, the relevant issue is therefore not simply whether students use AI, but whether they continue to monitor, evaluate, and take responsibility for their own learning while using it.

4.5.3 Ethical Awareness and Academic Responsibility

The third theme concerns students’ awareness of ethical issues associated with AI-assisted academic work. Participants recognised potential concerns involving plagiarism, authorship, misuse of AI-generated material, and individual responsibility. One participant expressed this concern directly: “AI raises integrity issues.”

The responses suggest that students did not regard AI use as ethically neutral. Rather, they appeared aware that the legitimacy of AI-assisted work depends partly on how the technology is used. Using AI to generate ideas, refine language, or provide preliminary support may be perceived differently from submitting AI-generated material with little or no personal contribution.

This qualitative theme is consistent with the quantitative findings showing relatively high concern about academic integrity despite frequent AI use. The coexistence of frequent use and ethical concern should not automatically be interpreted as behavioural dependence or academic misconduct. Instead, it points to what may be described as a use-with-awareness pattern. Students appeared willing to use AI

while simultaneously recognising the need for boundaries, authorship responsibility, and appropriate academic conduct.

This finding also highlights the importance of distinguishing AI use, self-reported reliance, and dependence. The questionnaire measured how frequently students used AI and how much they reported relying on it. It did not establish psychological or behavioural dependence. Consequently, references to “dependence” should be avoided unless supported by appropriate measurement.

The findings instead suggest that students are negotiating an emerging ethical environment in which the distinction between acceptable assistance and inappropriate substitution of student work may not always be clear. This is consistent with research showing that students often support AI assistance while wanting clearer rules for disclosure and acceptable use (Johnston et al., 2024; Karkoulou et al., 2025).

4.5.4 Desire for Institutional Guidance

The fourth theme concerns participants' expectations of their universities. Students expressed a preference for clearer institutional rules and guidance regarding appropriate AI use. One participant stated simply, “Universities should set guidelines.”

This response suggests that students may not favour either unrestricted AI use or complete prohibition. Instead, they appear to seek clearer boundaries regarding when AI may be used, what forms of assistance are acceptable, when disclosure is required, and which uses may constitute academic misconduct.

The call for institutional guidance is especially significant because responsibility for ethical AI use cannot reasonably be placed entirely on individual students when expectations remain unclear or vary across lecturers, courses, and assessment types. Clear institutional policies could therefore help reduce ambiguity while supporting more consistent academic practice.

Such guidance may include explicit statements about acceptable and unacceptable AI-assisted practices, requirements for disclosure, expectations regarding authorship, appropriate use of AI-generated information, verification of AI outputs, and the circumstances in which AI tools may or may not be used in assessment. Institutional guidance could also be accompanied by AI-literacy initiatives that help students understand both the capabilities and limitations of generative AI.

The qualitative responses therefore indicate that students may view regulation not simply as restriction but as a form of academic support. Clear expectations could enable students to use AI with greater confidence while preserving responsibility for the intellectual content of their work.

4.5.5 Summary of the Qualitative Findings

Taken together, the four themes reveal a nuanced student perspective on AI-assisted academic work. Participants generally recognised the usefulness of AI for generating ideas, organising information, and increasing efficiency. At the same time, they expressed reservations about whether easier task completion necessarily produces deeper learning. Their responses also demonstrated awareness of academic-integrity concerns and a preference for clearer institutional guidance.

The qualitative findings therefore do not support a simple interpretation of students as either enthusiastic adopters or opponents of AI. Instead, participants appeared to negotiate competing considerations of usefulness, efficiency, learning depth, ethical responsibility, and institutional expectations. AI was perceived as potentially valuable when used as support, but concerns emerged when its use appeared to replace rather than assist students' own intellectual engagement.

This tension provides an important basis for integrating the qualitative and quantitative findings. While the quantitative results demonstrate high levels of AI use and generally favourable perceptions of its usefulness, the qualitative responses reveal greater caution concerning learning depth, academic responsibility, and the boundaries of acceptable use. Together, these findings suggest that students' engagement with AI is better characterised as conditional and reflective rather than uniformly positive or negative.

4.6 Integration of Quantitative and Qualitative Findings

Table 6 integrates the two data strands. The strongest convergences concern perceived usefulness, academic-integrity awareness, and demand for institutional guidance. The most important divergence concerns critical thinking: the quantitative item was strongly positive, whereas qualitative responses cautioned that efficient task completion may not produce deeper learning. This divergence is substantive rather than problematic because it reveals that students distinguish perceived assistance from the quality of cognitive engagement.

Table 6 Mixed-Methods Joint Display

Domain	Quantitative pattern	Qualitative evidence	Integrated interpretation
Perceived usefulness	75.6% positive attitude; 87.8% perceived improved work quality.	AI described as supporting ideas and organisation.	Strong convergence: AI is valued as an academic support tool, especially for efficiency and writing.
Critical thinking / learning depth	80.5% perceived AI as improving critical thinking.	Students also warned that tasks could become "easier but not necessarily deeper."	Divergence: perceived cognitive support coexists with concern about superficial engagement. No actual critical-thinking effect can be inferred.
Academic integrity	63.4% very concerned; 29.3% somewhat concerned.	Students mentioned plagiarism, authorship, and misuse.	Convergence: frequent AI use coexists with ethical awareness rather than simple disregard for integrity.
Institutional guidance	75.6% supported AI guidelines; 56.1% preferred human-only grading.	Students asked universities to set clear rules.	Convergence: students favour structured governance and retain trust in human evaluative judgement.

4.7 Critical Discussion

The principal contribution of this study is not evidence that AI improves or harms students' critical thinking. Instead, it is the identification of a perceptual tension between usefulness, reliance, learning depth, ethical awareness, and institutional uncertainty. Students in this cohort were frequent users and generally positive about AI, but their open-ended responses indicate that they did not equate convenience with deeper learning. This distinction is important because studies based only on acceptance measures may overstate educational benefit when they do not examine how students evaluate the learning process itself.

A second contribution is the distinction between use, reliance, and dependence. The study documents regular use and self-reported reliance, but it does not measure dependence as a behavioural or psychological condition. Labelling frequent users as dependent would therefore exceed the evidence. A more defensible interpretation is that AI has become normalised as an academic support resource for this group, while the extent to which that support displaces independent effort remains an open empirical question.

Third, the integrity findings suggest normative uncertainty rather than a simple ethics-versus-use contradiction. Students can be concerned about plagiarism and authorship while continuing to use AI

because the technology is useful and because institutional boundaries may be unclear. Editing AI output is potentially a sign of agency, but editing alone does not establish ethical authorship. Universities therefore need to define what kinds of transformation, disclosure, attribution, and human contribution are expected in different assessment contexts.

Finally, the preference for institutional guidelines and human grading indicates that students do not necessarily want AI to replace academic judgement. Their position is closer to regulated assistance: AI can support learning, but human educators remain important for setting standards, interpreting quality, and ensuring fairness. This supports a pedagogical response centred on AI literacy, explicit assessment design, and transparent expectations rather than blanket prohibition or uncritical adoption.

CONCLUSION

This study examined how 41 students at a Malaysian higher education institution perceived AI use in academic writing and learning. The findings show high levels of use, positive attitudes, and strong perceived usefulness. At the same time, students expressed substantial concern about academic integrity and a clear preference for institutional guidance. The qualitative data add an important qualification to the quantitative optimism: students valued efficiency and cognitive support but also recognised that easier task completion may not produce deeper learning.

The study therefore supports a use-with-awareness interpretation. Students did not present AI as either wholly beneficial or inherently unethical. Instead, they described a tool that can assist writing and idea generation while also creating risks of superficial engagement, over-reliance, and blurred authorship. Because the evidence is self-reported and cross-sectional, the study cannot establish actual effects on critical-thinking skill, writing performance, or academic-integrity behaviour.

For practice, the findings suggest that universities should clarify acceptable AI use at task and assessment level, teach students how to evaluate and revise AI output, require appropriate transparency or disclosure where relevant, and design assignments that make students' reasoning and authorship visible. The goal is not to eliminate AI from academic writing but to ensure that technological assistance does not replace the intellectual processes that assessment is intended to develop.

IMPLICATIONS

Higher education institutions can respond to these perceptions by embedding AI literacy within academic writing instruction, including verification of AI-generated information, authorship responsibility, prompt transparency where required, and critical revision practices. Lecturers can also design process-oriented assessments that include planning notes, source evaluation, drafts, reflections, or oral explanation so that students demonstrate how they used AI rather than only presenting a final product. Institutional policies should distinguish low-risk assistive uses, such as language editing, from uses that substitute for core assessed thinking or writing.

LIMITATIONS AND FUTURE RESEARCH

Several limitations bound the interpretation of the findings. First, the study relied entirely on self-reported perceptions and behaviours. It did not directly measure critical-thinking performance, writing quality, plagiarism, or actual academic-integrity violations. Second, the sample comprised 41 purposively recruited students from one institution, which limits transferability and does not support population-level generalisation. Third, the cross-sectional design captures perceptions at one point in a rapidly changing technological environment and cannot establish causal relationships or change over time.

Fourth, although the questionnaire underwent expert content review by two senior TESOL lecturers and pilot testing with 30 students, the study did not undertake a formal content-validity index, construct

validation, or subscale-level psychometric analysis. The overall Cronbach's alpha obtained from the pilot data ($\alpha = .85$) provides evidence of internal consistency for the items included in that analysis, but because the questionnaire comprised conceptually distinct domains and different response formats, it should not be interpreted as evidence that the instrument represents a single unidimensional scale. Fifth, the open-ended responses were brief survey comments rather than interview data, which limited depth and precluded the use of interview-saturation logic. Sixth, the study grouped several AI tools within a broad category even though tools such as ChatGPT, Grammarly, and QuillBot differ in function and level of generativity.

Future research should employ validated multi-item measures, larger multi-institutional samples, and designs that distinguish AI tool type and task purpose. Longitudinal and experimental studies could examine whether patterns of AI use are associated with changes in writing quality or critical-thinking performance. Interviews, focus groups, or learning diaries could also provide richer evidence about how students decide when AI assistance becomes over-reliance and how they interpret institutional rules.

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AUTHOR CONTRIBUTIONS

Both authors contributed to the preparation and revision of this manuscript.

CONFLICT OF INTEREST

The authors declare no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

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