ESL Undergraduates' Attitudes and Practices in AI-Assisted Academic Writing: A Mixed-Methods Survey

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ABSTRACT

This study explored how ESL undergraduates use and perceive artificial intelligence (AI) tools in academic writing. Using a quantitative-dominant mixed-methods cross-sectional survey design, 31 responses were collected from students at Universiti Teknologi MARA (UiTM) Kedah. To align the analysis with the study scope, 28 undergraduate responses were retained for the main analysis, while three non-target responses (two postgraduate and one diploma) were excluded. Descriptive statistics were used to analyse the closed-ended items, while open-ended responses were examined thematically. The findings show that AI use was common: 60.7% of respondents reported using AI tools often, 35.7% sometimes, and 3.6% always. ChatGPT was used by all respondents (100.0%), followed by QuillBot (85.7%) and Grammarly (32.1%). Students mainly used AI for generating ideas or outlines (82.1%), correcting grammar and spelling (75.0%), and rephrasing sentences (67.9%). Perceptions were generally positive, with respondents agreeing that AI improves writing quality (M = 4.25), supports better writing skills (M = 4.18), saves time (M = 3.86), and increases confidence in writing (M = 4.07). Nevertheless, qualitative responses revealed concerns about inaccurate information, plagiarism, overdependence, and reduced critical thinking. Overall, students viewed AI as a supportive tool rather than a replacement for their own effort. The study suggests that AI can be integrated productively into ESL writing instruction when accompanied by clear ethical guidelines, disclosure practices, and AI literacy training.

Keywords: Artificial intelligence; ESL undergraduates; academic writing; AI-assisted writing; student perceptions; educational technology

INTRODUCTION

In today's increasingly interconnected world, English language proficiency is crucial for global communication, access to information, and success in academic and professional settings. For English as a Second Language (ESL) learners, mastering English opens up many personal, academic, and professional opportunities. However, traditional language instruction often struggles to engage learners fully and to develop their linguistic, academic, and creative skills effectively. In response to these challenges, educators around the world are increasingly exploring innovative approaches to ESL instruction. One important development is the growing use of artificial intelligence (AI) tools such as ChatGPT and Grammarly in education (e.g., Imran & Almusharraf, 2023, 2024; Lange & Costley, 2020). Among their many applications, AI tools designed to support academic writing have gained considerable attention. These tools are particularly useful for undergraduate students who are still developing their writing abilities, as they provide features such as grammar correction, language refinement, and content support. As a result, AI-assisted writing has the potential to improve the quality of students' work while also making the writing process more efficient.

In recent years, AI-assisted writing has gained widespread attention in higher education because of its potential to enhance students' productivity and confidence. By providing instant feedback and suggestions, AI tools can help learners develop their writing more efficiently. However, alongside these benefits, concerns have emerged regarding students' overreliance on AI, reduced critical engagement, and issues related to academic integrity. The ease of access to AI-generated content raises questions about originality, authorship, and the extent to which students remain actively engaged in their own learning processes.

For ESL undergraduates, the integration of AI tools presents both opportunities and challenges. On the one hand, AI can function as a supportive learning aid that scaffolds writing development. On the other hand, excessive dependence on AI may hinder the development of essential writing skills and learner autonomy. As such, understanding how students actually use AI tools, as well as their perceptions and concerns, is crucial for informing effective pedagogical practices.

A growing body of research has examined the perceptions of both students and instructors regarding the use of AI tools in higher education (e.g., Almaraz-López et al., 2023; Chan & Hu, 2023; Dempere et al., 2023), as well as in language education specifically (e.g., Irwin, 2024; Widianingtyas et al., 2023; Zimotti et al., 2024). However, comparatively limited attention has been given to the use of AI tools in academic writing classes in higher education. This area deserves further investigation, as academic writing is often considered a challenging task for university students (e.g., Dunn, 2021; Lin & Morrison, 2021). At the same time, the increasing availability of AI tools offers significant potential to support students throughout their academic writing development (e.g., Nazari et al., 2021; Nguyen et al., 2024).

Although previous studies have explored the role of AI in education, there remains a need for more context-specific research focusing on ESL learners' experiences with AI-assisted academic writing. In particular, limited attention has been given to students' patterns of AI usage, their motivations for using such tools, and their attitudes toward the implications of AI for their learning and writing practices.

Therefore, this study aims to explore ESL undergraduates' use of AI tools in academic writing, focusing on their usage patterns, perceived benefits, and concerns. By examining both quantitative and qualitative responses, this study seeks to provide insights into how AI can be integrated responsibly and effectively into ESL writing instruction.

RESEARCH GAP, OBJECTIVES, AND QUESTIONS

Although a growing body of research has examined the use of artificial intelligence (AI) in higher education and language learning, much of the existing literature tends to focus on general perceptions of AI tools or their effectiveness in controlled or experimental settings. While these studies provide valuable insights into the potential benefits of AI-assisted learning, they often overlook how students naturally engage with AI tools in real academic contexts, particularly in academic writing tasks. In addition, limited attention has been given specifically to English as a Second Language (ESL) undergraduates, who may rely more heavily on AI tools to support their language development and writing performance. Existing studies also tend to emphasise either performance outcomes or general attitudes, with less focus on the combined examination of students' actual usage patterns, purposes of use, perceptions, and concerns within a single framework.

Furthermore, issues such as students' reliance on AI, its impact on writing confidence and independence, and concerns related to academic integrity remain underexplored, especially in the context of everyday academic writing practices. As AI tools become increasingly accessible, it is essential to better understand not only how frequently students use these tools, but also how they perceive their role in the writing process and the potential implications for their learning.

Therefore, this study seeks to address these gaps by providing a comprehensive examination of ESL undergraduates' use of AI tools in academic writing, focusing on their usage patterns, purposes, perceptions, and concerns.

Research Objectives:

This study aims to:

1. 1. examine the frequency and patterns of AI tool use among ESL undergraduates in academic writing, including the tools used and the proportion of assignment work generated or edited by AI;

2. 2. identify the main purposes for which ESL undergraduates use AI tools in academic writing;

3. 3. investigate ESL undergraduates' perceptions of the effects of AI tools on writing quality, time efficiency, writing confidence, learning of writing skills, critical thinking, and reliance on AI;

4. 4. examine students' attitudes toward the acceptability of AI use and the acknowledgement of AI assistance

in writing assignments; and

5. 5. explore students' reported benefits, challenges, and suggestions regarding the use of AI tools in academic writing.

Research Questions

1. How frequently do ESL undergraduates use AI tools in academic writing, and what patterns of use are evident in the tools they use and the proportion of work generated or edited by AI?

2. For what purposes do ESL undergraduates use AI tools in academic writing?

3. How do ESL undergraduates perceive the effects of AI tools on writing quality, time efficiency, writing confidence, learning of writing skills, critical thinking, and reliance on AI?

4. What are students' attitudes toward the acceptability of AI use and the acknowledgement of AI assistance in writing assignments?

5. What benefits, challenges, and suggestions do students report regarding the use of AI tools in academic writing?

LITERATURE REVIEW

AI in Academic Writing

The integration of artificial intelligence (AI) into academic writing has rapidly transformed how students approach writing tasks in higher education. AI-powered tools such as ChatGPT, Grammarly, and QuillBot provide immediate feedback on grammar, coherence, and structure, enabling students to produce more polished written work efficiently (Nazari et al., 2021; Nguyen et al., 2024). Recent studies indicate that AI tools can significantly enhance writing performance by offering real-time assistance and personalised feedback. For instance, AI-assisted writing systems have been shown to improve language accuracy, organisation, and overall writing quality among English as a Foreign Language (EFL) learners (Nguyen et al., 2024; Widianingtyas et al., 2023). In ESL contexts, AI tools are particularly beneficial because they help learners overcome linguistic barriers and develop confidence in expressing ideas in English. Research suggests that AI integration can support writing development when combined with appropriate instructional strategies, allowing learners to engage more effectively in the writing process (Irwin, 2024; Zimotti et al., 2024).

AI-driven writing tools have also gained considerable attention for their capacity to support students in essay composition, particularly through grammar correction, stylistic suggestions, and automated content generation. While some studies report improvements in students' writing proficiency and self-efficacy, these findings should be interpreted with caution because such tools may also shift the focus from skill development to output optimisation. Although immediate feedback provided by AI can enhance writing efficiency, it may simultaneously reduce opportunities for deeper cognitive engagement in the writing process.

Moreover, the effectiveness of AI tools remains limited by their inability to fully capture contextual nuance and disciplinary specificity. Some scholars argue that current AI systems still struggle with context-sensitive interpretation, which raises concerns about the reliability of AI-generated suggestions across diverse academic domains. This limitation suggests that AI tools, while useful, cannot yet function as fully autonomous writing support systems.

The increasing reliance on AI in academic writing also raises important pedagogical questions regarding the evolving role of educators. Although AI can assist in providing feedback, it cannot replace the instructional role of teachers in fostering critical thinking, creativity, and independent learning. Overdependence on AI may risk diminishing students' active engagement in the writing process, potentially undermining the development of essential academic skills.

From an ethical standpoint, the integration of AI into academic writing introduces complex challenges related to authorship, originality, and academic integrity. Scholars have highlighted concerns surrounding plagiarism detection and the potential misuse of AI-generated content. These issues underscore the need for clear institutional guidelines and increased student awareness regarding the responsible use of AI tools. Without such measures, the growing accessibility of AI technologies may blur the boundaries between assistance and academic misconduct.

Students' Use of AI in Writing

Studies have shown that students use AI tools for multiple purposes, including idea generation, drafting, paraphrasing, and language editing (Chan & Hu, 2023; Dempere et al., 2023). In a study exploring ESL students' use of ChatGPT, participants utilised the tool for content development, understanding writing conventions, and improving coherence (Chan & Hu, 2023). Similarly, research indicates that AI tools are frequently used to support revision processes, particularly in improving grammar, vocabulary, and clarity (Nguyen et al., 2024). These findings highlight that AI is often integrated into different stages of writing, especially during drafting and editing.

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However, usage patterns vary depending on students' proficiency levels and familiarity with AI tools. Some learners use AI strategically to support their writing, while others rely heavily on AI-generated content, raising concerns about dependency and reduced engagement in the writing process (Dempere et al., 2023; Almaraz-López et al., 2023).

Perceptions, Benefits, and Challenges of AI-Assisted Writing

Students generally perceive AI tools positively because of their ability to improve writing efficiency, reduce cognitive load, and enhance confidence (Chan & Hu, 2023; Irwin, 2024). AI-assisted feedback has also been found to increase students' engagement and motivation by reducing frustration during the writing process (Nguyen et al., 2024).

Despite these benefits, several challenges have been identified. One major concern is overreliance on AI, which may hinder the development of critical thinking and independent writing skills (Almaraz-López et al., 2023). Additionally, issues related to academic integrity and originality remain significant, as AI tools can generate complete texts with minimal student input (Dempere et al., 2023).

Furthermore, some studies suggest that excessive dependence on AI may affect students' cognitive engagement and originality in writing, emphasising the need for responsible and guided use of AI tools in educational settings (Zimotti et al., 2024).

METHODOLOGY

This study employed a quantitative-dominant mixed-methods cross-sectional survey design to examine ESL undergraduates' attitudes and practices in AI-assisted academic writing. Data were collected at a single point in time through an online questionnaire distributed via Google Forms to students associated with the Academy of Language Studies, Universiti Teknologi MARA (UiTM) Kedah. A total of 31 responses were collected. However, because the stated scope of the study was ESL undergraduates, only the 28 undergraduate responses were retained for the main analysis, while two postgraduate responses and one diploma response were excluded as outside the target group.

Research Design

A cross-sectional survey design was used to collect self-reported data on students' use of AI tools in academic

writing. The study was quantitative-dominant because most items were closed-ended and analysed descriptively. However, it also incorporated a qualitative component through three open-ended questions, allowing deeper insight into students' perceived benefits, concerns, and suggestions regarding AI use in academic writing. This design was considered appropriate because it allowed the study to capture both measurable trends and explanatory comments within a specific educational context.

Participants

The participants in this study were students associated with the Academy of Language Studies, Universiti Teknologi MARA (UiTM) Kedah. Participants were recruited through convenience sampling, as they were readily accessible and relevant to the study context. A total of 31 responses were obtained; however, because the study focused specifically on ESL undergraduates, only the 28 undergraduate responses were retained for the main analysis. Two postgraduate responses and one diploma response were excluded as outside the scope of this version of the study.

Although the final analytic sample was relatively small, its adequacy should be understood in relation to the descriptive and context-specific aims of the study rather than against a single universal numerical standard. Sample size justification depends on the study's inferential goals and practical constraints, and smaller samples may still be informative when the purpose is to generate preliminary evidence rather than broad population estimates. Because this study used a convenience sample drawn from a specific accessible subgroup, the findings are best interpreted as applying primarily to that subgroup, with limited external generalisability. At the same time, the retained respondents formed a relatively homogeneous group within one institutional context, which supports the value of the sample for producing focused, preliminary insights into ESL undergraduates' AI-assisted writing practices. Accordingly, the findings should be interpreted as reflecting the experiences of one accessible undergraduate group within a single institutional setting (Lakens, 2022; Andrade, 2021; Jager et al., 2017). This narrow scope was appropriate for the exploratory purpose of the study, but it also limits the generalisability of the results to wider ESL populations.

Instrumentation

Data were collected using a self-administered online questionnaire developed to address the study's research objectives. The questionnaire included four main parts. First, it collected demographic and contextual information, including name, student ID, course or subject, level of study, and awareness of AI tools for writing assistance. Second, it included items on the frequency and patterns of AI use, such as the tools used, the main purposes of use, and the approximate percentage of writing assignments generated or edited by AI tools. Third, it contained Likert-scale items examining students' perceptions of the effects of AI tools on writing quality, time efficiency, writing confidence, learning of writing skills, critical thinking, and reliance on AI. Finally, it included items on the perceived acceptability of AI use and acknowledgement of AI assistance, as well as three open-ended questions asking respondents to describe the benefits, challenges, and suggestions related to AI use in academic writing.

To improve content validity, the questionnaire items were developed directly from the study's research objectives and recurring constructs identified in the literature, including AI usage patterns, writing support functions, perceived benefits, dependence, and ethical concerns. In addition, the inclusion of both closed-ended and open-ended items allowed the instrument to capture not only broad response patterns but also participants' own explanations and concerns, thereby strengthening the interpretive value of the data. Because this study was exploratory and based on a small, context-specific sample, the instrument was intended primarily to generate descriptive and preliminary evidence rather than precise psychometric measurement.

With regard to reliability, the questionnaire used a consistent response structure for the Likert-scale items and standardised administration through a single online form. However, the study did not include a formal pilot test or internal consistency analysis such as Cronbach's alpha. This should be recognised as a limitation, and future research should strengthen the instrument by conducting pilot testing and reporting reliability coefficients for the perception scale.

Data Collection Procedure

The questionnaire was distributed online through Google Forms. Participation was voluntary, and respondents were informed of the purpose of the study. Because the form collected names and student IDs, the study should be described as confidential rather than fully anonymous. Identifying information was not used in the analysis or reporting of findings.

Data Analysis

Closed-ended responses were analysed using descriptive statistics, including frequencies, percentages, and mean scores, to identify trends in students' usage and perceptions of AI tools. Open-ended responses were analysed thematically to identify recurring benefits, concerns, and suggestions. The qualitative component was intended to complement the descriptive survey findings by providing additional insight into how students understood and experienced AI-assisted writing in practice.

FINDINGS

The findings are summarised in Tables 1–6. Overall, AI tools were widely used among the undergraduate respondents, especially for idea generation, grammar correction, and rephrasing. Students generally perceived AI positively in relation to writing quality, writing confidence, and learning support, although concerns about reduced critical thinking, misinformation, plagiarism, and overreliance remained. Most respondents considered AI use acceptable only with proper acknowledgment, but actual acknowledgment practices were inconsistent.

Frequency and Patterns of AI Tool Use (RQ1)

The findings show that AI tools were widely used among the undergraduate respondents in this study. All 28 undergraduate participants indicated that they were aware of AI tools for writing assistance. In terms of usage frequency, 17 students (60.7%) reported that they often used AI tools in completing writing assignments, 10 students (35.7%) reported using them sometimes, and 1 student (3.6%) reported always using them. These results suggest that AI has become a regular part of the academic writing practices of many ESL undergraduates.

The pattern of tool usage further indicates that students relied on a small number of commonly available platforms. ChatGPT was used by all respondents (100.0%), followed by QuillBot (85.7%) and Grammarly (32.1%). A smaller number of students (21.4%) also indicated using other AI-related tools. This pattern suggests that students were especially drawn to tools that support idea generation, paraphrasing, and language editing.

With regard to the extent of AI involvement in writing assignments, most students reported a moderate level of AI-assisted input rather than complete dependence. Fourteen students (50.0%) stated that approximately 26–50% of their writing assignments were generated or edited by AI tools, while 8 students (28.6%) estimated the proportion at 1–25%, and 6 students (21.4%) reported 51–75%. No undergraduate respondent indicated that 76–100% of their writing assignments were generated or edited by AI. Overall, these findings suggest that AI was commonly integrated into students' writing processes, but usually as a support mechanism rather than a full substitute for student writing. Table 1 shows the frequency and patterns of AI tool use.

Table 1. Frequency and patterns of AI tool use (RQ1)

Indicator	Category	n	%
Awareness of AI tools for writing assistance	Yes	28	100.0
Frequency of AI use in writing assignments	Always	1	3.6
	Often	17	60.7
	Sometimes	10	35.7

Approximate proportion of assignments generated or edited by AI	1–25%	8	28.6
	26–50%	14	50.0
	51–75%	6	21.4
	76–100%	0	0.0

AI tools used by respondents (RQ1)

Table 2 shows that respondents relied mainly on a small number of commonly used AI tools. ChatGPT was used by all 28 respondents (100.0%), followed by QuillBot (24 respondents, 85.7%) and Grammarly (9 respondents, 32.1%). A smaller number of students also reported using other AI-related tools (6 respondents, 21.4%). This pattern suggests that students preferred tools that support idea generation, paraphrasing, and language editing.

Table 2. AI tools used by respondents (RQ1)

AI tool	n	%
ChatGPT	28	100.0
QuillBot	24	85.7
Grammarly	9	32.1
Other	6	21.4

Purposes of AI Tool Use (RQ2)

The results indicate that students used AI tools for several related writing purposes. The most frequently reported purpose was generating ideas or outlines, selected by 23 students (82.1%). This was followed by correcting grammar and spelling (21 students, 75.0%), rephrasing sentences (19 students, 67.9%), and translating text (17 students, 60.7%). In addition, 13 students (46.4%) reported using AI to improve vocabulary, while only 2 students (7.1%) selected writing entire paragraphs.

These findings suggest that students primarily used AI tools to support the early and middle stages of writing, especially brainstorming, revising, and language refinement. The low percentage for generating entire paragraphs indicates that, within this sample, AI was used more often to assist and improve student writing than to fully produce it. Table 3 shows the main purposes of AI tool use in academic writing.

Table 3. Main purposes of AI tool use in academic writing (RQ2)

Purpose	n	%
Generating ideas or outlines	23	82.1
Correcting grammar and spelling	21	75.0
Rephrasing sentences	19	67.9
Translating text	17	60.7
Improving vocabulary	13	46.4
Writing entire paragraphs	2	7.1

Perceived Effects of AI Tools on Writing and Learning (RQ3)

Students generally expressed positive perceptions of the effects of AI tools on their writing. On the item stating that AI tools help improve writing quality, 26 students (92.9%) either agreed or strongly agreed, with a mean score of 4.25 on a five-point Likert scale. Similarly, 26 students (92.9%) agreed or strongly agreed that AI tools help them learn better writing skills, producing a mean score of 4.18. The item on writing confidence also received strong support, with 25 students (89.3%) agreeing or strongly agreeing that using AI made them more confident in their writing (mean = 4.07).

Students were also generally positive about the role of AI in helping them complete tasks more efficiently, although responses on this item were slightly more varied. Seventeen students (60.7%) agreed or strongly agreed that AI tools saved time when completing assignments, 10 students (35.7%) were neutral, and 1 student (3.6%) disagreed. The mean score for this item was 3.86.

In contrast, the findings on critical thinking and dependence were more mixed. Thirteen students (46.4%)

agreed or strongly agreed that AI tools reduce the need for their own critical thinking, while 11 students (39.3%) were neutral and 4 students (14.3%) disagreed, resulting in a mean score of 3.39. For the statement "I rely heavily on AI tools to complete my work," only 7 students (25.0%) agreed or strongly agreed, 11 students (39.3%) were neutral, and 10 students (35.7%) disagreed, with a mean score of 2.93. This suggests that although students largely viewed AI as useful and confidence-building, they were less united in seeing themselves as heavily dependent on it. Table 4 shows the perceived effects of AI tools on writing and learning.

Table 4. Perceived effects of AI tools on writing and learning (RQ3)

Statement	Disagree n (%)	Neutral n (%)	Agree n (%)	Mean
AI tools help improve the quality of my writing	0 (0.0)	2 (7.1)	26 (92.9)	4.25
AI tools save me time when completing assignments	1 (3.6)	10 (35.7)	17 (60.7)	3.86
Using AI makes me more confident in my writing	1 (3.6)	2 (7.1)	25 (89.3)	4.07
AI tools reduce the need for my own critical thinking	4 (14.3)	11 (39.3)	13 (46.4)	3.39
AI tools help me learn better writing skills	0 (0.0)	2 (7.1)	26 (92.9)	4.18
I rely heavily on AI tools to complete my work	10 (35.7)	11 (39.3)	7 (25.0)	2.93

Attitudes toward Acceptability and Acknowledgement of AI Use (RQ4)

Students generally accepted the use of AI tools in academic writing, but their acceptance was conditional. Nineteen students (67.9%) stated that using AI tools for writing assignments was acceptable with proper acknowledgment, while 8 students (28.6%) believed AI use was only acceptable for minor edits. Only 1 student (3.6%) regarded AI use as completely acceptable. These findings indicate that most respondents did not reject AI outright, but preferred its use to remain bounded by ethical and academic expectations.

However, students' actual acknowledgement practices were less consistent. Only 3 students (10.7%) reported that they always cite or acknowledge the use of AI tools in their assignments. Most respondents, 21 students (75.0%), selected "sometimes," while 4 students (14.3%) chose "not applicable." This reveals a noticeable gap between students' endorsement of acknowledgement in principle and their actual reporting practices. Table 5 shows attitudes toward the acceptability and acknowledgement of AI use.

Table 5. Attitudes toward acceptability and acknowledgment of AI use (RQ4)

Indicator	Category	n	%
Perceived acceptability of AI use in writing assignments	Acceptable with proper acknowledgment	19	67.9
	Only acceptable for minor edits	8	28.6
	Completely acceptable	1	3.6
Self-reported acknowledgment of AI use in assignments	Always	3	10.7
	Sometimes	21	75.0
	Not applicable	4	14.3

Reported Benefits, Challenges, and Suggestions (RQ5)

The open-ended responses provided further insight into students' experiences with AI-assisted writing. Three broad themes emerged from the reported benefits. First, students frequently described AI as helping them improve grammar, vocabulary, sentence construction, and clarity of expression. Second, many respondents highlighted the role of AI in generating ideas, expanding knowledge, and helping them see broader perspectives when beginning or developing assignments. Third, some students linked AI use to greater confidence and convenience, especially when they were uncertain about wording or language accuracy.

The reported challenges reflected a more cautious side of students' experiences. A major concern was the accuracy and reliability of AI-generated information, with several students stating that AI sometimes produced misleading, inaccurate, or overly complicated responses. Other respondents raised concerns about plagiarism, similarity detection, and Turnitin-related issues, while some expressed worry about becoming overly reliant on AI and using less of their own critical thinking. A smaller number also mentioned practical constraints such as limited access to premium features, file-upload restrictions, internet problems, or difficulty in writing effective prompts.

Students' suggestions for instructors and the university centred mainly on the need for clearer guidance and ethical regulation. Many respondents proposed that the university or instructors should provide explicit guidelines on how AI may be used appropriately in academic writing. Some also recommended seminars, talks, or instruction on fact-checking, prompt writing, and responsible use. At the same time, several students appeared to support the continued use of AI for limited purposes such as idea generation, grammar checking, and paraphrasing, provided that its use remains monitored and controlled. Table 6 presents a summary of the qualitative themes from the open-ended responses.

Table 6. Summary of qualitative themes from open-ended responses (RQ5)

Domain	Theme	Summary of responses
Benefits	Language support and writing quality	Students reported improvements in grammar, vocabulary, sentence construction, paraphrasing, and overall clarity of writing.
Benefits	Idea generation and knowledge expansion	Respondents said AI helped them generate ideas, understand topics better, and see broader perspectives when writing.
Benefits	Confidence and	Some students felt more confident and found writing easier or

	convenience	faster when using AI tools.
Challenges	Accuracy and reliability	Students noted that AI sometimes gave inaccurate, misleading, irrelevant, or overly complex information.
Challenges	Plagiarism, Turnitin, and similarity concerns	Some responses mentioned plagiarism, high similarity, AI detection, and concerns about originality and authorship.
Challenges	Overreliance and reduced critical thinking	Several respondents worried that frequent AI use could reduce their own thinking and make them too dependent on the tool.
Challenges	Technical and access issues	A few students mentioned premium limits, upload restrictions, internet problems, and difficulty writing effective prompts.
Suggestions	Clear guidelines and ethical rules	Students wanted explicit guidance on acceptable AI use, acknowledgment, plagiarism, and fact-checking.
Suggestions	Training and awareness	Respondents suggested seminars, talks, or instruction on responsible AI use and effective prompting.
Suggestions	Limited and monitored use	Several recommended allowing AI mainly for idea generation, grammar support, or paraphrasing, with instructor monitoring.

The qualitative findings support the quantitative results by showing that students viewed AI as helpful but not risk-free. While they appreciated its support for idea development and language improvement, they also expressed concerns about misinformation, plagiarism, and dependence. Their suggestions consistently pointed to the need for clearer guidance and more responsible use of AI in academic writing.

DISCUSSION

The findings of this study confirm that AI tools have become an important part of ESL undergraduates' academic writing practices. The results show that respondents used AI regularly, but generally in a moderate and selective way rather than as a full substitute for their own work. This is evident in the finding that most students reported AI contributing to only part of their writing process, while none indicated that nearly all of their assignments were generated or edited by AI. This suggests that, in this context, AI was generally integrated as a supporting resource within the writing process rather than as a replacement for student authorship. This pattern is consistent with previous studies which found that students commonly use AI for assistance during drafting, revision, and language improvement rather than for complete text production (Chan & Hu, 2023; Dempere et al., 2023; Nguyen et al., 2024).

The findings also show that students mainly used AI tools for idea generation, grammar correction, rephrasing, translation, and vocabulary improvement. These purposes indicate that AI was particularly valuable in supporting both content development and linguistic refinement. This is especially relevant in an ESL context, where students often need support not only with expressing ideas, but also with achieving grammatical accuracy and appropriate academic language. The prominence of idea generation and grammar correction in the present study closely reflects findings in the literature review, which reports that students frequently use AI tools for brainstorming, revision, paraphrasing, and language editing (Chan & Hu, 2023; Nguyen et al., 2024). The very low proportion of students who reported using AI to write entire paragraphs also reinforces the argument that students in this study primarily saw AI as a writing aid rather than a content replacement tool.

Another important finding is that students generally perceived AI positively in relation to writing quality, learning support, and writing confidence. Most respondents agreed that AI tools improved the quality of their writing, helped them learn better writing skills, and increased their confidence. These results support earlier

research suggesting that AI-assisted writing can reduce difficulty, provide immediate support, and increase motivation and engagement in writing tasks (Irwin, 2024; Nguyen et al., 2024). In the ESL context, such support may be especially meaningful because students may experience uncertainty when generating ideas, organizing content, or expressing themselves accurately in English. Therefore, the positive perceptions found in this study suggest that AI has pedagogical value when used to scaffold writing development rather than replace the writing process itself.

At the same time, the findings also reveal important tensions in students' experiences with AI-assisted writing. Although many respondents viewed AI as helpful, responses were more mixed for the items related to critical thinking and reliance. A noticeable proportion of students agreed that AI reduces the need for their own critical thinking, yet fewer agreed that they rely heavily on AI to complete their work. This suggests that students may recognise the cognitive risks associated with AI use even when they do not explicitly describe themselves as dependent users. This finding aligns with concerns raised in previous studies that excessive reliance on AI may weaken critical engagement, reduce independent problem-solving, and shift attention away from deeper learning processes (Almaraz-López et al., 2023; Zimotti et al., 2024). Thus, the present findings support the view that AI can be both enabling and potentially limiting, depending on how it is used.

The study also highlights an important ethical issue: students' acceptance of AI use was conditional, and their actual acknowledgement practices were inconsistent. Most respondents considered AI acceptable only when properly acknowledged, while another substantial group believed it should be limited to minor edits. However, only a small number reported always acknowledging their use of AI tools in assignments. This gap between belief and practice is significant. It suggests that students may generally understand that ethical boundaries matter, but they may not yet have clear or consistent knowledge of how those boundaries should be applied in actual academic work. This finding supports concerns raised in the literature regarding authorship, originality, plagiarism, and academic integrity in AI-assisted writing. It also strengthens the argument that institutions need explicit and practical guidelines, not only general warnings, about acceptable AI use in coursework.

The qualitative responses further reinforce the quantitative findings. Students described AI as useful for improving grammar, vocabulary, clarity, and idea development, which confirms its role as a supportive tool in writing. At the same time, they raised concerns about inaccurate information, plagiarism, overreliance, and the possible weakening of their own writing abilities. Importantly, the students did not generally call for AI to be banned. Instead, their suggestions focused on the need for clearer institutional guidance, training, and monitored use. This suggests that students themselves recognise the dual nature of AI: it can enhance writing and learning, but only when used critically and responsibly. In this sense, the present study supports the position taken in the literature review that AI should not be treated simply as either beneficial or harmful, but rather as a pedagogical tool whose value depends on the guidance, boundaries, and learning practices surrounding its use (Su et al., 2022; Irwin, 2024).

At the same time, these findings should be interpreted with caution. The study was based on a small convenience sample drawn from a single institutional context, and the data relied primarily on students' self-reported responses. As a result, the findings provide a useful picture of attitudes and practices within this specific group, but they do not allow strong claims about wider ESL undergraduate populations. In addition, self-reported data may not always reflect actual writing behaviour, since students may underreport or overreport the extent of their AI use. The results therefore point to important trends and concerns, but they should be understood as preliminary rather than definitive.

Overall, the discussion of these findings suggests that AI-assisted writing among ESL undergraduates is best understood as a developing educational practice that offers real support but also introduces meaningful pedagogical and ethical challenges. The results do not suggest that students are replacing themselves with AI. Rather, they show that students are already incorporating AI into their writing routines in selective and practical ways. The key issue, therefore, is not whether AI should be present in academic writing, but how educators and institutions can ensure that its use strengthens rather than weakens students' writing development, ethical awareness, and independent thinking.

CONCLUSION

This study examined ESL undergraduates' use of AI tools in academic writing, focusing on their frequency and patterns of use, purposes for use, perceived effects, attitudes toward acceptability and acknowledgement, and reported benefits and challenges. The findings show that AI tools were widely used among the respondents and were generally viewed positively, especially in relation to idea generation, grammar support, writing quality, confidence, and learning support. At the same time, the results also indicate that students were aware of important concerns surrounding critical thinking, overreliance, misinformation, plagiarism, and academic integrity.

A key conclusion of the study is that AI was not generally perceived as a replacement for students' own effort, but rather as a supportive tool within the writing process. Most respondents appeared to use AI in a partial and selective manner, especially for brainstorming, revising, and language improvement, rather than for fully generating assignments. This suggests that AI can play a constructive role in ESL academic writing when it is used to scaffold learning and not to substitute authorship or independent thought.

The findings of this study suggest that AI can support ESL academic writing in meaningful ways, particularly in idea generation, language improvement, and writing confidence. However, the results also show that its educational value depends on how it is used and how clearly students are guided in using it. AI should therefore be approached not as a substitute for student thinking and authorship, but as a support tool that requires ethical awareness, critical engagement, and appropriate pedagogical guidance. Given the study's context-specific scope and reliance on self-reported survey data, these conclusions should be understood as preliminary. Nevertheless, they provide useful direction for future research and for the responsible integration of AI into ESL writing instruction.

However, the study also reveals that responsible use cannot be assumed. Although many students believed AI should be acknowledged properly, actual disclosure practices were inconsistent. In addition, the mixed responses regarding critical thinking and dependence suggest that the educational effects of AI are not entirely straightforward. These findings highlight the need for stronger pedagogical and institutional responses so that students are guided not only in how to use AI effectively, but also in how to use it ethically and critically.

Implications

The findings of this study carry several implications for teaching and policy. First, educators should incorporate AI literacy into academic writing instruction so that students can learn how to use AI tools critically, responsibly, and transparently. Second, institutions should provide clearer guidelines on acceptable AI use, especially in relation to acknowledgement, authorship, and plagiarism. Third, writing instruction should continue to emphasise critical thinking, originality, and student ownership of ideas so that AI remains a support tool rather than a substitute for learning.

Limitations and Future Research

This study has several limitations that should be acknowledged. First, the analytic sample was relatively small, consisting of only 28 undergraduate respondents. Although this was sufficient for a preliminary exploratory study, the sample size limits the extent to which the findings can be generalised to broader ESL student populations. Second, the study was conducted within a single institutional context, namely UiTM Kedah. As a result, the findings reflect the experiences of one specific group of students and may not fully represent AI-assisted writing practices in other universities, disciplines, or educational settings.

Third, the study relied heavily on self-reported data, which may introduce response bias. Students may not always estimate accurately how often they use AI tools, how much of their assignments are generated or edited by AI, or how consistently they acknowledge such use in actual coursework. Consequently, the findings should be interpreted as students' reported attitudes and practices rather than direct measures of actual writing behaviour. Fourth, although the questionnaire was designed in alignment with the study's objectives and relevant literature, the study did not report formal pilot testing or statistical evidence of reliability such as internal consistency coefficients. This limits the strength of claims that can be made about the precision of the

measurement instrument.

Future research could address these limitations in several ways. Studies involving larger and more diverse samples across multiple institutions would allow stronger comparison and improve the broader applicability of findings. In addition, longitudinal designs could provide deeper insight into how AI use develops over time and how it influences writing development, confidence, and independence across a longer learning period. Experimental or quasi-experimental studies could also help determine whether and how AI-assisted writing support affects writing quality, critical thinking, and learner autonomy more directly.

It would also be beneficial for future studies to triangulate self-reported responses with additional sources of evidence, such as writing samples, classroom tasks, revision histories, or AI usage logs, in order to obtain a more accurate picture of students' actual writing practices. Furthermore, richer qualitative methods such as interviews or focus groups could provide more detailed insight into students' motivations, ethical concerns, and decision-making processes when using AI tools in academic writing. Finally, future research should strengthen the survey instrument by conducting pilot testing and reporting formal validity and reliability evidence, which would improve confidence in the measurement of students' perceptions and practices.

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