PERCEIVED EFFECTIVENESS OF ARTIFICIAL INTELLIGENCE TOOLS IN ENHANCING UNDERGRADUATE STUDENTS' RESEARCH AND ACADEMIC WRITING SKILLS

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ABSTRACT

The use of artificial intelligence (AI) tools has emerged significantly in higher education landscape, as the undergraduate students have to employ them in their research and academic writing tasks. As such this study aims to investigate the undergraduate students' perceptions on the potential of using AI tools to support them in conducting research and writing papers. The respondents were selected among the students taking a Research Methodology course in the Kulliyyah of Education, International Islamic University Malaysia (IIUM) in semester 1, 2025/2026 via a mixed method survey study among 39 undergraduates. The instrument used consisted of demographic items, 35 Likert-scale items and one open-ended section. An instrument with the reliability of Cronbach's alpha of .971 was adapted. The descriptive statistics and mean scores were used for analyzing quantitative data. The results showed that mean score for all items are reflecting on some degree of knowledge of among students in relation to the efficacy and efficiency of AI tools for supporting effective research, improving writing quality, idea generation, referencing support, and enhancing self-confidence. Among perceived benefits of using AI tools in research are ideas development, speed of literature research, improved review time, shorter proofread time, and quicker draft writing. But the mean scores were relatively less for plagiarism avoidance, trust in AI recommendation, and the perceived accuracy of grammar and spelling support, indicating that the students continued to be more cautious about AI as part of their use from an ethical and reliability perspective. The study overall suggests that AI tools are useful supports for undergraduate research and writing, as the institutional guidance, AI literacy, and ethical use are vital and needed.

Keywords: Artificial intelligence, academic writing, undergraduate research, AI-assisted learning, higher education, educational technology

INTRODUCTION

Artificial intelligence (AI) has spread widely as teaching and learning tools among higher education institutions and shapes how students search for information, form ideas, structure assignments, revise language, and complete research-related work. Apps like ChatGPT, Grammarly, QuillBot, and Gemini are being increasingly utilized by students as supportive

tools in academic writing and research. As highlighted by the researchers, higher education's use of AI is widening, especially in terms of personalised learning, support for writing, giving feedback, assistance with knowledge, as well as more (Zawacki-Richter et al., 2019; Kasneci et al., 2023). The proliferation of these tools has provided more students with opportunities to better deal with academic work and also to raise questions about the pedagogy and ethics regarding them. Within the space of academic writing, such AI tools are commonly appreciated for their ability to facilitate brainstorming, summarising, paraphrasing, grammar correction, drafting, and editing. These functions appeal most to undergraduate students, for whom developing their academic voice, scholarly confidence, and research competence is still a developmental process.

Therefore, AI tools could potentially act as practical help to reduce the burden on writing as well as for the research in a more efficient way. Simultaneously, the rise of AI in academic work has led to some concerns around academic honesty and factual accuracy, fabricated references, overuse, and transparency across AI-supported writing tools (Perkins, 2023; Cotton et al., 2024). Such concerns require considering not only whether AI is used at the research level, but also how students themselves think of the effectiveness of AI in actual academic settings of study. Such an issue plays a particular part in research methodology coursework, when students are required to search for literature, identify gaps, synthesise sources, develop arguments, and present research ideas to the academic community in proper academic manners. In those environments, AI might work as helpful academic support, or as a shortcut for less critical engagement, depending on how it is deployed. So how students view whether AI is effective at research and academic writing is important for informed responsible pedagogical integration into higher education.

PROBLEM STATEMENT

While AI tools are gaining further ground in university higher education, discussion of their application in research and academic writing is too often generic and not fully targeted. Much of the literature often combines issues involving students, teachers, policy (in relation to policy making), ethics, and institutional readiness to engage in a single conversation. Although they are all necessary, however, too much scope can disrupt conceptual clarity and make it challenging to identify the main construct being studied.

In light of this deficiency the present study aims to investigate the students’ perceived effectiveness of AI tools in research and academic writing during a Research Methodology course under pre-level undergraduate students only. Prior research has emphasized the educational value of AI including increasing efficiency, providing feedback, and enhancing writing abilities in higher education (Zawacki-Richter et al., 2019; Kasneci et al., 2023). In writing academia, AI is often used to help paraphrase, proofread, summarise, generate ideas and facilitate initial draft development. Nevertheless, the literature highlights issues related to inaccuracy, plagiarism, over-reliance, and academic integrity (Perkins, 2023; Cotton et al., 2024). Thereby indicating that it is not a question of AI being useful, but whether students believe AI is useful in terms of the true way in which research and academic writing are completed.

In order to address this issue, the study focuses on the paradigm of perceived AI effectiveness through five connected dimensions, which are research efficiency, writing quality enhancement, concept development, reference support, and academic confidence which

represent the main construct. By adopting a more focused conceptual approach, the study goes beyond a general analysis of AI's function in higher education and establishes a framework for a thorough examination of AI's application in real-world academic writing practice.

RESEARCH OBJECTIVES

This study was conducted to investigate the following objectives:

1- To identify the types of AI tools currently used by undergraduate students for research and academic writing purposes.

2- To examine undergraduate students' perceptions of the effectiveness of AI tools in enhancing their research and academic writing tasks through five related dimensions: *research efficiency, writing quality enhancement, idea development, reference support, and academic confidence.*

3- To examine whether there is a significant difference in AI familiarity according to gender among undergraduate students in a Research Methodology course.

METHODOLOGY

This research adopted a descriptive quantitative survey design to explore the undergraduate students' views of the efficacy of artificial intelligence (AI) tools in underpinning research and academic writing. A survey design was employed since it allows researchers to systematically gather learners' self-reported experiences and perceptions in authentic learning environments (Creswell & Creswell, 2018). For the survey, the sample of the respondents has been taken from all 39 undergraduate students in 2 sections that participated in the course on Research Methodology, of the Bachelor of Teaching Arabic as a Second Language in Kulliyyah of Education, International Islamic University Malaysia (IIUM) in semester 1, 2025/2026. All participants had prior experience using AI tools such as ChatGPT, Grammarly, QuillBot, and Gemini during their course learning. The sample size is acceptable for exploratory research, as studies suggest that a minimum of approximately 30 participants is sufficient for pilot or preliminary investigations (Johanson & Brooks, 2010; Bujang et al., 2024).

The Artificial Intelligence and Academic Writing Questionnaire (AI-AWQ) survey by Khojasteh et al. (2025) and a 40-item survey proposed by Monika et al. (2023) to investigate the impact of AI tools on academic writing tasks were adapted to administer the data via an online questionnaire using the Google Forms platform. Three components made up the study's questionnaire: (i) demographic data; (ii) 35 Likert-scale items that measured perceived efficacy in various aspects of academic writing and research; and (iii) open-ended questions that captured students' opinions on the employment of AI.

In addition, the study's internal consistency was assessed using a reliability analysis; the Cronbach's alpha value was 0.97, indicating high internal consistency. This demonstrated the instrument's reliability in examining undergraduates' perceptions of AI's efficacy in research and academic writing, as determined by five related dimensions: research efficiency, writing quality enhancement, idea development, reference support, and academic confidence, as shown in Figure 1.

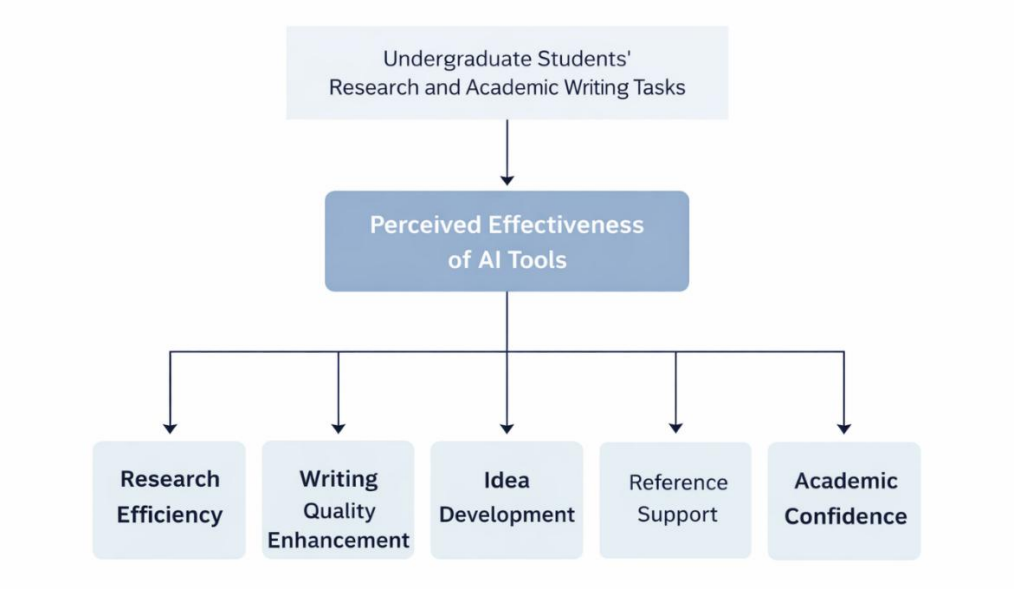

Figure 1: Conceptual Framework

RESULTS AND FINDINGS

DEMOGRAPHIC BACKGROUND

As shown in Table 1, most of the respondents were female (82.1%), while male students contributed 17.9% from the respondents. This distribution reflects the gender composition of students enrolled in the Research Methodology course and provides context for interpreting subsequent findings.

Table 1: Sex of Respondent

Item	Frequency (N)	Percentage (%)
Male	7	17.9
Female	32	82.1
Total	39	100.0

The respondents' year of study was shown in Table 2. The results show that the majority of respondents (n = 39; 100%) were in Year 3 of their study. On the other hand, only one respondent each from Years 2 (2.6%) and 4 (2.6%) and none from Year 1 (0%).

This distribution implies that the data mainly represent the viewpoints of undergraduate students in the middle of their programs, who are usually more exposed to academic writing assignments and research-related coursework. As a result, the results are especially pertinent to comprehending the use of AI tools in Research Methodology courses, where students actively participate in academic writing and research tasks.

Table 2: Age of Respondent

Year of Study	Frequency (N)	Percentage (%)
Year 1	0	0
Year 2	1	2.6
Year 3	37	94.8
Year 4	1	2.6
Total	39	100.0

The Table 3 presents the distribution of respondents based on their years of experience using artificial intelligence (AI) tools in academic writing. The findings indicate that most of the students have moderate exposure to the use of AI tools. The largest group of responders (n = 21; 53.8%) stated that they had used AI in academic writing for one to two years. 15 respondents (38.5%) who said they had used AI products for more than two years came next. On the other hand, fewer students (n = 4; 10.3%) reported having less than a year of experience. Overall, the distribution indicates that the majority of respondents had consistent and significant exposure to AI tools for academic writing rather than being inexperienced users. This degree of experience bolsters the validity of their opinions about the advantages, difficulties, and efficacy of AI-assisted writing and research as documented in this study.

Table 3: Years of using AI in academic writing

Item	Frequency (N)	Percentage (%)
Less than 1 year	4	10.3
Between 1 – 2 years	21	53.8
More than 2 years	15	38.5
Total	39	100.0

Table 4 illustrates respondents' self-reported familiarity with AI-related technologies. Most students indicated a moderate level of familiarity, with 26 respondents (66.7%) selecting this category. This suggests that most participants possess a functional understanding of AI tools sufficient for regular academic use. Additionally, a significant percentage of respondents (n = 13; 33.3%) described themselves as novices, showing developing proficiency and continuous learning in the application of AI technology. Just three students (7.7%) claimed having advanced familiarity with AI-related technology, while two respondents (5.1%) said they had never used them before. With comparatively few responders at the extremes of minimal exposure or advanced skill, the distribution generally shows a cohort that is reasonably familiar with AI. According to this profile, the results mainly reflect the opinions of students who use AI tools practically rather than expertly, which is relevant when looking at AI adoption in academic writing contexts for undergraduates.

Table 4: AI Related Technology Familiarity

Item	Frequency (N)	Percentage (%)
None	2	5.1
Beginner	13	33.3
Moderate	26	66.7
Advanced	3	7.7
Total	39	100.0

The Table 5 summarises the AI tools currently employed by undergraduate students for academic writing and research tasks. The results show that ChatGPT was by far the most widely used tool, with 37 respondents (94.9%) reporting its use. This suggests that jobs like idea development, drafting, and content clarification heavily rely on generative AI. QuillBot (n = 23; 59.0%) and Gemini AI (n = 21; 53.8%) were the second most popular tools, indicating that students favor tools that facilitate content refinement, summarization, and paraphrase

Additionally, 17 respondents (43.6%) utilized Grammarly, demonstrating its importance for language accuracy and grammatical checks. In contrast, more specialised research-oriented tools such as Perplexity AI (n = 4; 10.3%), SciSpace (n = 2; 5.1%), Elicit (n = 1; 2.6%), and Jenni AI (n = 1; 2.6%) were used by a relatively small proportion of students. Furthermore, 6 respondents (15.4%) reported using other AI tools, suggesting some diversity in tool selection beyond mainstream applications.

Overall, the results show that while the adoption of sophisticated, research-specific AI applications is still low among undergraduates, students mostly rely on general-purpose generative AI and writing-support tools. This pattern emphasizes how crucial it is to help students use AI tools in a way that is more efficient, moral, and consistent with academic research procedures.

Table 5: AI tools currently used

Item	Frequency (N)	Percentage (%)
Grammarly	17	43.6
ChatGPT	37	94.9
Quillbot	23	59
Scispace	2	5.1
Elicit	1	2.6
Jenni.AI	1	2.6
Perplexity.AI	4	10.3
Gemini.AI	21	53.8
Others	6	15.4

The replies in the "Others" category were diverse and ill-defined, suggesting that respondents' awareness and comprehension of AI applications varied. A significant percentage of students (n = 17; 43.6%) indicated that they did not use any further AI tools beyond those specifically mentioned in the survey by either leaving the response blank or using symbols (such as "-–"). This pattern shows a heavy reliance on popular AI products like Gemini, Grammarly, and ChatGPT with little investigation of other platforms.

AI Canva was the most often mentioned tool among respondents who mentioned extra resources (n = 4; 10.3%). It is mainly utilized for producing academic posters, presentations, and visual materials rather than for primary research or writing assignments. Other tools that were cited infrequently (n = 1; 2.6% each) included Microsoft Copilot, Copilot, Meta AI (via WhatsApp), and NotebookLM. These tools were mostly used for document organization, idea generating, content authoring, and summarization.

Duplicate entries like "Copilot" and "Microsoft Copilot" indicate that students' comprehension of AI tool branding and classification may be inconsistent. Furthermore, a number of respondents specifically said "no" or "nothing" (n = 2; 5.1%), which confirms that many students did not use AI tools other than those that were often utilized. Additionally, a tiny percentage of replies reiterated previously mentioned tools (such as Gemini), suggesting overlap between established and open-ended categories.

Overall, the "Others" responses show that undergraduate students' use of AI is still mostly focused on productivity-oriented and general-purpose technologies, with little uptake of specialized research-focused AI platforms. Increased AI literacy, more precise categorization

of AI tools, and directed exposure to research-focused applications in undergraduate research methods courses are all suggested by this finding.

Part B: Survey on Examining the Effectiveness of Artificial Intelligence Tools in Enhancing Undergraduate Students' Research and Academic Writing Skills

Using a four-point Likert scale (Strongly Disagree to Strongly Agree), Part B of the survey assessed undergraduate students' opinions of how well AI technologies help academic writing and research. Descriptive statistics were employed in accordance with the quantitative survey methodology to analyze response distributions across 35 items that measured important aspects of AI-assisted writing and research as represented by five related dimensions: academic confidence, idea development, research efficiency, writing quality enhancement, and reference support.

Table 1 : Research Efficiency

No.	Item	Mean	SD	Interpretation
1	AI tools have improved my efficiency in conducting literature reviews in research projects/works.	3.44	0.6804	High
2	Using AI tools has increased the accuracy of my research findings.	3.33	0.6623	High
3	AI tools have helped in generating better research data and findings.	3.44	0.5980	High
4	AI tools have facilitated the identification of relevant research information and sources.	3.41	0.5946	High
5	Using AI tools has expedited the process of data analysis in my academic writing.	3.31	0.6551	High
6	AI tools have reduced errors in my research writing.	3.21	0.7671	High
7	AI tools have enhanced the overall quality of my research output.	3.31	0.6551	High
8	AI tools have reduced the time required for proofreading and editing.	3.44	0.5523	High
9	AI tools have improved my ability to present complex data effectively.	3.31	0.6941	High
10	AI tools have increased the speed of initial draft creation in my research projects/works.	3.44	0.5980	High

According to Table 1, all of the research efficiency measures had high mean values, suggesting that students thought AI technologies were very useful for increasing productivity, expediting workflow, and assisting with research-related chores. This supports the article's conclusion that AI tools were particularly helpful for developing drafts, proofreading, and conducting literature reviews.

Table 2 : Writing Quality Enhancement

No.	Item	Mean	SD	Interpretation
1	AI tools like Grammarly and QuillBot have enhanced the organization and structure of my research projects/works.	3.41	0.5946	High
2	AI tools have improved the quality of my academic writing skills.	3.36	0.6277	High
3	AI tools have increased the creativity in my research writing skills.	3.28	0.6468	High
4	I believe AI tools have positively impacted my research writing skills	3.41	0.4983	High
5	AI tools have improved the clarity and coherence of my research projects/works.	3.36	0.5374	High
6	AI tools have helped in paraphrasing and summarizing research content effectively.	3.41	0.6373	High
7	AI tools have helped in generating insightful visual representations of data.	3.39	0.5901	High
8	AI tools have helped in enhancing the readability of my research projects/works.	3.31	0.6136	High
9	I trust the accuracy of grammar and spelling features in AI tools.	3.18	0.7905	High
10	AI tools have facilitated better communication of my research findings.	3.41	0.5486	High
11	AI tools have contributed to improving the overall academic quality of my research projects/works.	3.28	0.7236	High

According to Table 2, students thought AI tools were very good at improving academic writing, particularly in terms of organization, clarity, paraphrasing, readability, and idea communication. This supports the assertion made in the paper that students reported gains in readability, organization, coherence, clarity, and overall writing quality.

Table 3 : Idea Development

No.	Item	Mean	SD	Interpretation
1	AI tools have aided in identifying potential research gaps.	3.44	0.5024	High
2	Using AI tools has expanded the scope of my research ideas.	3.49	0.5064	High
3	AI tools have facilitated the integration of diverse research perspectives.	3.36	0.6277	High
4	I find AI tools helpful in suggesting relevant keywords for my research.	3.44	0.5980	High
5	AI tools have contributed to increasing the impact of my research.	3.41	0.5946	High

6	I believe AI tools have positively influenced my decision-making in research.	3.44	0.5523	High

Table 3 shows that every item in this construct received a high rating, indicating that AI tools were viewed not only as writing aids but also as tools that promote higher-order thinking, expand the area of study, and stimulate idea generation. Notably, broadening the breadth of my study ideas yielded the greatest overall mean score (M = 3.487, SD = 0.5064). This validates the article's view that AI tools are more than just language-support aids; they are tools that facilitate study.

Table 4 : Reference Support

No.	Item	Mean	SD	Interpretation
1	I feel more confident in citing sources accurately due to AI tools like ChatGPT and Gemini.	3.23	0.7420	High
2	I feel more confident in citing sources accurately due to AI tools.	3.26	0.6774	High
3	AI tools have helped in managing references and citations effectively.	3.26	0.5946	High
4	AI tools have helped in avoiding plagiarism in my academic projects/works.	3.10	0.8824	High

According to Table 4, all of the categories were remained in the high range, indicating that students generally thought AI technologies were helpful for assistance with citations and references. This construct, however, displayed somewhat lower means than some of the other constructs, particularly for preventing plagiarism (M = 3.103, SD = 0.8824), suggesting a more cautious approach to the ethical implications and dependability of AI support in referencing. This is consistent with the article's finding that topics pertaining to plagiarism and trust earned relatively lower endorsement.

Table 5 : Academic Confidence

No.	Item	Mean	SD	Interpretation
1	I find AI tools user-friendly and easy to navigate during research.	3.44	0.5980	High
2	I feel more confident in conducting statistical analyses with AI-powered tools.	3.36	0.6277	High
3	AI tools have made collaboration with members of research projects more efficient.	3.31	0.6136	High
4	I trust the suggestions and recommendations provided by AI tools.	3.18	0.7564	High

Table 5 shows that students had a high degree of academic confidence while utilizing AI technologies, especially when it came to navigating tools, performing statistical analysis, and working together more effectively. The article's topic of growing critical knowledge regarding AI trustworthiness is supported by the somewhat lower mean for trusting AI suggestions and recommendations (M = 3.179, SD = 0.7564), which indicates that students remained somewhat wary.

Table 6 : Overall Results based on Main Constructs

No.	Item	Number of Items	Mean Range	Overall Interpretation
1	Research Efficiency	10	3.21 – 3.44	High
2	Writing Quality Enhancement	11	3.18 – 3.41	High
3	Idea Development	6	3.36 – 3.49	High
4	Reference Support	4	3.10 – 3.26	High
5	Academic Confidence	4	3.18 – 3.44	High

According to the descriptive statistics, all five constructs had high mean values, suggesting that undergraduate students thought AI tools were very useful for improving their research and academic writing abilities. Idea development stood out among the constructs, with the highest individual item mean being "Using AI tools has expanded the scope of my research ideas" (M = 3.487, SD = 0.5064). Research efficiency and writing quality improvement also regularly demonstrated high levels, indicating that AI tools were thought to be beneficial for increasing the effectiveness of literature reviews, cutting down on proofreading time, boosting organization and clarity, and speeding up draft creation. These patterns align with the conclusions and debate presented in the article. At the same time, they had the relatively lowest mean scores, particularly for avoiding plagiarism (M = 3.103, SD = 0.8824) and trusting AI suggestions (M = 3.179, SD = 0.7564), even though reference support and academic confidence remained high overall. This shows that although students were largely in favor of the use of AI, they still had concerns about ethical use, trust, and the reliability of recommendations made by AI. The article's conclusion that students saw AI technologies as very helpful while also acknowledging the need for institutional support, ethical direction, and AI literacy is closely reflected in this repeated interpretation.

Part C: Association Between Gender and AI Familiarity

A chi-square test of independence was used to see whether gender differences existed in AI familiarity.

Table 6: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.222[a]	3	.528
Likelihood Ratio	2.078	3	.556
Linear-by-Linear Association	.050	1	.823
N of Valid Cases	39		

Table 6 shows that there was no statistically significant correlation between gender and AI acquaintance level ($\chi^2(3, N = 39) = 2.22$, $p = .528$). The observed differences were not statistically significant, despite the fact that female students made up the majority of respondents in the majority of familiarity categories. This implies that among the current sample, gender did not significantly affect AI familiarity. However, because a significant percentage of cells had predicted counts below 5, suggesting that the chi-square test's assumptions were not entirely met, the result should be regarded cautiously.

DISCUSSIONS

The study's results are interpreted in the context of the five constructs—research efficiency, writing quality enhancement, idea development, reference support, and academic confidence—that underpin undergraduate students' perceptions of the usefulness of AI tools in academic writing and research.

a) AI Tools as Effective Supports for Research and Academic Writing

According to the results, undergraduate students thought AI technologies were very useful for helping with academic writing and research. The continuously high mean scores imply that AI is no longer merely an auxiliary tool but rather a significant academic help. This is consistent with earlier research demonstrating how AI is increasingly supporting academic tasks, learning, and feedback in higher education (Kasneci et al., 2023; Zawacki-Richter et al., 2019).

b) Research Efficiency and Workflow Enhancement

Students stated that the effectiveness of literature reviews, source identification, proofreading, and draft preparation were all enhanced by AI technologies. These results imply that AI facilitates more efficient academic workflow and lessens time demands. This confirms previous research (Kasneci et al., 2023; Zawacki-Richter et al., 2019) that described AI as a productivity-boosting tool in higher education.

c) Writing Quality Enhancement

Additionally, the study discovered that AI tools were thought to enhance writing quality, especially with regard to readability, organization, coherence, clarity, and paraphrasing. This implies that pupils can improve and bolster their academic works with the aid of AI. Studies on writing assistance, paraphrase, and grammar correction have revealed similar advantages (Cotton et al., 2024; Monika et al., 2023).

d) Idea Development and Higher-Order Research Thinking

The results demonstrate that by assisting students in identifying research gaps, suggesting keywords, integrating views, and expanding research ideas, AI technologies helped idea development. This suggests that AI is viewed as a tool that facilitates higher-order research thought in addition to being a writing assistance. This is in line with research showing how AI may help with academic support and idea generation (Du & Daniel, 2024; Kasneci et al., 2023).

e) Reference Support and Citation Assistance

In reference-related tasks like finding sources, organizing references, and assisting with citation writing, AI technologies were also viewed favorably. The comparatively lower averages in this construct, however, indicate that students were a little wary about depending entirely on AI to

ensure citation accuracy. Given worries about fake citations and errors in AI-generated references, this makes sense (Cotton et al., 2024; Perkins, 2023).

f) Academic Confidence and User Readiness

Students expressed great confidence in their ability to use AI tools for general academic activities, data presentation, statistical analysis, and teamwork. This implies that students are becoming more at ease incorporating AI into their coursework. These results are consistent with earlier studies that demonstrate how perceived utility and usability affect technology adoption (Khojasteh et al., 2025; Ng et al., 2023).

g) Trust, Reliability, and Ethical Reservations

While opinions were largely favorable, lower mean scores for plagiarism avoidance, grammar accuracy, and trust in AI recommendations warrant some caution. Students seem to understand that if AI outputs are employed without verification, they could be unreliable or unethical. This echoes broader issues raised by the literature on ethical AI use and academic integrity (Cotton et al., 2024; Perkins, 2023).

CONCLUSION

The findings of this study demonstrate that undergraduate students generally perceive AI tools as highly effective instruments for supporting research and academic writing. Students identified significant benefits in research efficiency, writing quality enhancement, and idea development. However, they maintained a more cautious stance regarding issues of trust, plagiarism, and data reliability. Interestingly, the chi-square analysis revealed no statistically significant association between gender and AI familiarity, indicating that familiarity with these tools was uniform across genders within the sample.

Overall, while AI tools are viewed as valuable academic assets, these findings underscore a critical need for ethical guidance, institutional support, and human oversight. Consequently, AI must be integrated into higher education in a guided and pedagogically meaningful manner. Lecturers play a pivotal role in this landscape by modeling responsible AI use, teaching essential verification skills, and ensuring that technology supports rather than replaces critical thinking. Ultimately, AI should be positioned as a complementary academic resource that enhances research and writing, rather than a substitute for student engagement, academic integrity, or genuine scholarly effort.

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