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Students' Perceptions of the Use of Artificial Intelligence (AI) in Academic Writing

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ABSTRACT

In today's world, artificial intelligence (AI) is widely integrated into many aspects of daily life, including the education sector. It has increasingly become a necessity as it helps to ease human tasks and improve efficiency. In the academic context, AI tools are now being used to support learning and teaching activities, particularly in academic writing. Given this growing relevance, this paper aims to examine students' perceptions of the impact, usage, knowledge, and overall perception toward the use of AI in academic writing. By employing a quantitative research approach, 349 responses were obtained through simple random sampling techniques and the data were analysed using SPSS v29. The results revealed that the majority of students have a positive attitude and perceptions on the use of AI in academic writing. Other than that, it was also discovered that there is no significant difference between male and female students. The findings of this study hold implications not only for students but also for curriculum integration. As AI-assisted writing becomes more prevalent, higher education institutions must consider embedding responsible AI literacy into academic writing courses to familiarise students with the technology. Educators are also required for continuous professional development and upskilling to integrate AI responsibly into teaching and assessment practices. Addressing these issues can promote ethical, balanced, and pedagogically sound use of AI in academic contexts.

Keywords: artificial intelligence, AI, academic writing, perceptions, impact, knowledge

INTRODUCTION

In recent years, artificial intelligence (AI) tools have become a common tool embedded in the teaching and learning process. ChatGPT, QuillBot, Grammarly and Jasper AI are examples of the tools that are invented for language generation and writing assistance. ChatGPT and Grammarly are the most used AIs by students to support their academic writing to generate ideas, correct grammar, draft an outline for an essay and paraphrase. Other than that, ChatGPT, QuillBot and Grammarly are also facilitating the writing process by helping students in generating content, brainstorming ideas, paraphrasing texts as well as correcting grammatical errors (Farrokhnia et al., 2023). Artificial intelligence (AI) has taken a great precedence in the world of 21st century learning and is gaining traction. Academic writing is one of the domains that is facing a fundamental shift in how it is acquired, with the creation of artificial assistants. These automated assistants claim to aid students to learn complex writing structures which could be challenging especially for second language learners. Khalifa and Albadawy (2024) perceived AI tools as an amazing help in enriching research productivity and refine work competency. This shows AI may assist students in the process of writing academically. This new academic learning experience seems to align with today's digital generations which are also called the Gen-Z or

digital natives. These Gen-Z can be seen to be very immersed with the whole new learning experience as Zulfa et al. (2023) mentioned that the digital natives were comfortable and natural when using technology. Vázquez-Parra et al. (2024) emphasised the critical dependency on the acceptance and view of students, in determining the effectiveness of these technologies. Thus, the purpose of this study was to further delve into the perceptions of today's learners towards the impact, usage and their knowledge on AI for academic writing.

While these technologies provide convenience and efficiency, their use in academic settings raises significant concerns. The concern raised was in terms of the originality of their work, as well as academic integrity. It is also worrying about students' dependency on AI for intellectual tasks. Jarrah et al. (2023) also highlighted in their study that the ethical concern is that using ChatGPT in academic writing may indirectly promote plagiarism. In response to these increasing trends, educational institutions are also grappling to adapt policies and practices. However, there are limited understanding of how students perceive and engage with these tools. Rehman et al. (2025) stressed on challenges of acquiring academic writing skills among second language students with language barriers. Chan and Hu (2023) together with Sinarman and Susyla (2024) highlighted that it is important to understand students' perceptions towards the use of AI in academic writing as the insights would be useful in developing suitable and appropriate policies related to AI. This is because if students view AI tools as beneficial learning aids, they may use them responsibly in order to improve their writing skills. Nonetheless, it may encourage overreliance and undermine critical thinking and authentic learning. This may be due to a few factors such as trust, ethical awareness and familiarity with AI technology that can influence students' attitudes and behaviours. Without precise knowledge of the experiences and perceptions of students using AI, educators may find it hard to provide appropriate guidance on the responsibilities of using AI in academic contexts. Hence, this study would like to investigate students' perceptions towards the use, impact and the knowledge of artificial intelligence (AI) used in academic writing.

LITERATURE REVIEW

Artificial Intelligence in Academic Writing

Artificial intelligence (AI) is fundamentally reshaping the education sector by introducing advanced technologies that enhance learning experiences, personalise instruction, and streamline administrative operations (Kamalov et al., 2023). AI's integration into education spans from early computer-based systems to sophisticated web-based platforms, intelligent tutoring systems, and even humanoid robots and chatbots that can independently or collaboratively perform instructional routines (Ahmad et al., 2021).

AI unlocks new potentials in the field of education. One of AI's key contributions to education is personalised learning—allowing educators and practitioners to tailor lessons to students' individual learning needs, preferences and styles (Khairuddin et al., 2024; Murtaza et al., 2022) that are moving beyond to a student-centred approach. It also enables real-time feedback, helping learners overcome challenges and build confidence (Khairuddin et al., 2024; Prakash et al., 2024) and assisting students refine their understanding while enabling educators to track progress more efficiently. By creating a seamless and adaptive learning experience, AI keeps students

engaged and motivated, fostering a more effective and enjoyable learning journey. Another example of AI-driven learning is Kahoot! AI, which utilises AI to develop interactive quizzes and gamified activities. It helps to promote teamwork or collaborative learning as well as enhances students' motivation (Lashari et al., 2023). By tailoring quizzes to each student's preference and ability, it ensures an immersive and dynamic educational experience. This method empowers educators to facilitate students' collaboration and shared learning experiences (Özdemir, 2024).

Academic writing is a structured product with a formal and critical tone used in the composition. It is distinguished from other forms of writing in terms of its formality, accuracy and reference to credible sources and arguments (Bhandari & Bhandari, 2025). Due to its complexity, some students may find it difficult and challenging to master this type of writing (Baharudin et al., 2024). According to Guo and Zaini (2024), some students struggle include developing coherent arguments, integrating various resources and maintaining a formal tone throughout the writing. They added that writing literature review and synthesising and citing information from various sources may be cognitively challenging and time consuming for some students. In line with Guo and Zaini (2024), Kanglong and Afzaal (2020) stated that many students struggled to master fundamental academic writing skills which include connecting ideas, developing sentences, using suitable vocabulary and sending clear messages clearly in writing. Thus, as academic writing may be demanding for students to produce, educators may need to find a way to assist students in writing academically with the integration of artificial intelligence (AI).

Other studies also support the positive influence of AI in academic writing. For instance, Tian et al. (2022) and Sarı and Han (2024) found that automated writing evaluation and AI-based feedback tools promoted self-regulated learning strategies among EFL learners, enhancing their ability to revise drafts independently. Similarly, Dizon and Gayed (2021) reported that students using Grammarly, an AI writing assistant, showed improved accuracy in grammar and vocabulary usage compared to those receiving only teacher feedback. More recent research by Dizon and Gold (2023) and Sarı and Han (2024) emphasised that AI integration not only improved students' writing quality but also reduced writing anxiety, particularly among second language learners. Furthermore, Fitria (2022) highlighted how tools such as QuillBot supported paraphrasing skills and helped students avoid unintentional plagiarism in academic assignments. Considering the benefits of AI tools, it is not a surprise that they have become students' reliable companions in creating academic writing pieces.

Nonetheless, the growing reliance towards AI has raised some concerns in the academic world. Jarrah et al.'s (2023) study highlighted the ethical concern of ChatGPT encouraging plagiarism indirectly when used in academic writing. On top of that, Guleria et al. (2023) found that there could be some inaccuracies, particularly in critical fields like medical science in ChatGPT's output, where precision is highly regarded. They added that this could be due to the vast datasets available which may include both accurate and false information. In line with this, Lee (2025) warns that over-reliance on generative AI tools can diminish critical thinking and originality, while Darwin et al. (2024) similarly caution about a decline in deeper thinking when AI use becomes dominant. Thus, this highlights that despite the various advantages AI may bring for education, there is still a need for more research to be done to ensure that AI can be used in a more responsible and effective manner.

METHODOLOGY

This study employed a quantitative descriptive research design in order to examine students' perceptions towards the integration of artificial intelligence (AI) in academic writing. There are more than 1000 students who were the population of this study. In order to select the respondents, a random sampling technique was employed. Based on the sample size determination table by Krejcie and Morgan (1970), that much population requires the number of responses to be between 278 and 384 respondents. The responses obtained were 352 responses which was considered as sufficient for this research. However, there were three (3) data that were deleted as it did not represent the selected public university.

To obtain the data, a set of questionnaires was adopted from Malik et al. (2023) and the questionnaire was divided into five sections which are demographic information, students' knowledge of AI in academic essay writing, the extent of AI use, the impact of AI on essay writing and students' views on how AI should collaborate with human writers in the future. A 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) was used as Joshi et al. (2015) explained that Likert scale is suitable to be used to examine attitude and feeling in real and hypothetical situations. The questionnaire shows a good internal consistency for the total scale (44 items; $\alpha = .98$). The questionnaire was also valid as it was adopted from a scholarly published journal article.

The questionnaire was disseminated through the class lecturer via class WhatsApp. Each response took only around 15-20 minutes per participant, and they were given two weeks to complete the survey. However, the researchers had to extend another two more weeks to give students more time to respond to the questionnaire. At the same time, the researchers assured the respondents that the responses are anonymous and the respondents voluntarily answered the questionnaire. All collected data were analysed and tabulated using SPSS v29, focusing on mean, standard deviations and t-test to present the findings.

RESULTS AND DISCUSSION

Results

This section explains the results obtained and elaborates the discussions based on the results.

Table 1. Students' Knowledge on AI

	Mean	Std. Deviation
I am aware that AI-powered writing tools for academic essays exist.	4.36	.671
In my essay writing, I employed AI- powered grammar and spelling checkers.	4.00	.769
I am familiar with AI-based plagiarism detection techniques that I may use to ensure the originality of my academic work.	4.11	.768
I have utilized AI methods for content summaries to comprehend challenging research publications.	4.01	.758

I am familiar with AI-generated citation and reference tools that I use to prepare my academic work.	3.96	.828
I have made use of AI-driven language translation technologies to access academic information written in languages other than my own.	3.89	.828
I'm aware of AI writing helpers that provide context-specific word and phrase suggestions to improve essay writing.	4.09	.730
I've used AI-generated essay outlines to efficiently arrange my ideas before writing.	3.96	.836
I am aware of AI-powered services that recommend research topics and sources for essay preparation.	3.99	.775
I am confident in my knowledge of AI-powered writing tools for academic essay writing.	3.84	.844
KNOWLEDGE	4.02	.60988

Table 1 shows the mean and standard deviation of students on artificial intelligence (AI). Based on Table 1, the highest mean score obtained is (M=4.36, SD= .671) which represented that students were aware of the existence of AI-powered writing tools for academic essays. The lowest mean score obtained is (M=3.84, SD= .844) which depicts that students somewhat agree that they have confidence in their knowledge of AI-powered writing tools for academic essay writing. The majority of students somewhat agreed that they were familiar with the AI-generated citation and reference (M=3.96, SD=.828), using AI-driven language translation technologies (M=3.96, SD=.828), , using AI-generated essay outlines (M=3.96, SD=.836), aware of AI-powered services that recommend research topics and sources (M=3.99, SD=.775). Other than that, the majority of students agree that they employed AI- powered grammar and spelling checkers (M=4.00, SD= .769) and used AI to comprehend challenging research publications (M4.01, SD= .758). They also agreed that they were aware and familiar with AI-based plagiarism detection techniques and AI provide suggestions to improve essay writing with the mean score of 4.11 (SD=.768) and 4.09 (SD=.730) respectively. Overall, the majority of students agreed that they have knowledge on AI (M=4.02, SD= .609).

Table 2. Students' Usage of AI

	Mean	Std. Deviation
I examine and enhance my works using AI- powered grammar and spelling checkers	3.92	.800
I use AI-based plagiarism detection technologies to assure the originality of my academic writing	3.97	.844
AI-generated content summaries assist me in understanding difficult research articles for inclusion in my writings	4.06	.750
AI technologies help me generate citations and references in a variety of formats automatically	3.88	.892
I utilize language translation AI to access academic literature written in languages other than my native language	3.85	.867
AI-powered writing helpers provide context-specific word and phrase suggestions to help me improve my essay writing.	4.02	.789

AI-powered systems suggest research subjects and suitable sources to help me prepare my essay.	3.95	.820
Artificial Intelligence (AI) tools assist me in tailoring the style and tone of my essays to certain academic criteria.	3.91	.851
I utilize AI-generated essay outlines to successfully arrange my ideas before writing.	3.92	.844
AI-powered time management tools assist me in keeping track of my essay writing work and meeting deadlines.	3.77	.911
USAGE	3.93	.68047

Table 2 portrays the usage of AI among students. The highest mean score obtained is 4.06 (SD= .750) which illustrated that AI-generated content summaries helped students to understand challenging research articles. The majority of students also agreed that AI-powered writing helpers provide clearer context for students to write better (M=4.02, SD= .789). The lowest mean score obtained is 3.77 (SD= .911) which represents students somewhat agreed that they use AI to keep track of their writing and deadlines. The majority of students stated that they were somewhat agreed that they used AI to examine their grammar and spelling (M=3.92, SD= .800), check the plagiarism (M=3.97, SD= .844), generate citations and references (M=3.88, SD=.892), translate the articles written in foreign languages (M=3.85, SD=.867), suggest suitable articles based on topics (M=3.95, SD= .820), assist in academic language and tone (M=3.91, SD= .851) and to outline the articles (M=3.92, SD= .844). In general, the majority of students somewhat agreed that they were using AI in their academic writing with the mean score of 3.93 (SD=. 680).

Table 3. Impact of AI

	Mean	Std. Deviation
Using AI technologies in my essay writing has enhanced my general writing ability.	3.90	.777
AI-powered grammar and spelling checks have assisted me in identifying and correcting writing errors, which has contributed to my writing ability growth.	4.06	.720
AI-based plagiarism detection systems have raised my understanding of academic integrity and the value of uniqueness in writing.	4.00	.779
AI-generated content summarizing has improved my capacity to extract essential ideas from difficult research articles, which has improved my writing comprehension.	3.99	.733
Using AI writing aids has increased the clarity and coherence of my works, favorably improving my writing style.	3.96	.755
AI-generated essay outlines have helped me arrange my ideas more efficiently and enhance the organization of my work.	3.99	.745
The use of AI tools in my essay writing has forced me to critically assess and critique my own work, which has resulted in increased self-editing abilities.	3.93	.777
Artificial intelligence-based language translation technologies have introduced me to a wide range of academic information, extending my viewpoint and writing repertoire.	3.95	.750

AI technologies that provide context-specific word and phrase choices have helped me broaden my vocabulary and enhance the quality of my writing.	4.03	.733
I feel that employing AI technologies has improved my writing abilities and greatly impacted my academic essay writing.	3.99	.741
IMPACT	3.98	.61870

Table 3 demonstrates the impact of AI on students' academic writing. The highest mean score obtained is 4.06 (SD= .720) which represents students agreeing AI helped them to reduce their grammar and spelling errors. The lowest mean score obtained is 3.90 (SD= .777) which depicts AI enhanced students' general writing ability. There are three items obtained the same mean scores which are 3.99 (SD= .733), 3.99 (SD= .745) and 3.99 (SD= .741) where students were somewhat agreed that AI helped to summarise the difficult content from research articles, organise the ideas in the academic writing and improve students' writing ability respectively. The majority of students agreed that AI assists in detecting the level of plagiarism and in providing suitable and appropriate words and phrases to enhance the content of students' academic writing. Moreover, the majority of students somewhat agreed that AI increased the clarity and coherence of the students' ideas, helped to be more critical in assessing the content of the academic writing and widened the vocabulary by using the AI-based language translation tools. All in all, students somewhat agreed that AI gave impacts to their academic writing (M=3.98, SD= .618).

Table 4. Students' Perceptions on AI

	Mean	Std. Deviation
I contend that AI should be employed as a writing helper to assist human authors during the essay writing process.	3.86	.859
AI should be used to discover probable grammatical and spelling problems, with human authors making the ultimate choice on fixes.	4.03	.752
I like AI to supply content recommendations and ideas, while human authors keep creative control over the essay's direction and reasoning.	3.97	.785
AI should assist human authors by suggesting research topics and suitable sources, but human writers should still undertake critical analysis and synthesis.	4.00	.808
I contend that AI-generated outlines can be useful, but human authors should be free to adapt and expand on them to fit their writing style.	4.09	.746
Artificial intelligence (AI) should be employed for content summarizing and synthesis, supporting human authors in reducing complicated material into brief and comprehensible paragraphs.	3.90	.818
I involve artificial intelligence to assist in correct citation and referencing, but human authors must guarantee the authenticity and appropriateness of the sources mentioned.	4.02	.789
While AI may assist with language translation, human authors should verify the translated content to guarantee context and correctness.	4.09	.762
AI should be used to discover possible areas for improvement during the editing process, while human authors give the final tweaks and improvements.	4.05	.777

I believe that AI and human authors should work in tandem to maximize AI efficiency while keeping human originality and critical thinking in essay writing.	4.04	.801
PERCEPTIONS	4.00	.65262

Table 4 illustrates the students' perceptions on AI in academic writing. The majority of students agreed that AI should be used to check grammar and spelling problems M(4.03, SD= .752), AI should assist students in searching for suitable research topics (M=4.00, SD= .808), AI was useful depending on how the students would utilise it (M=4.09, SD= .746), AI should be used to check citation and reference (M=4.02, SD= .789), AI should be used to translate the research articles written in foreign languages (M=4.09, SD= .762), AI helped in editing process of the academic writing (M=4.05, SD= .777), and AI could enhance students' level of critical thinking (M=4.04, SD= .801). Furthermore, the majority of students somewhat agreed that AI should be used to assist human in writing process (M=3.86, SD= .859), AI should provide ideas and suggestions to the students when writing academic papers (M=3.97, SD= .785) and AI should employed to summarise and synthesise ideas from different sources (M=3.90, SD= .818). Generally, students agreed that AI was beneficial to them when used in academic writing (M=4.00, SD=.652).

Table 5. Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Knowledge	Male	99	4.0020	.70116	.07047
	Female	250	4.0260	.57113	.03612

Table 6. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Significance One-Sided p
Knowledge	Equal variances assumed	3.863	.050	-.331	347	.371
	Equal variances not assumed			-.303	152.129	.381

An independent sample t-test was conducted to examine if there is no significant mean difference in the level of knowledge between male and female students. Table 6 demonstrates that there is a significant difference between gender in terms of knowledge between male and female students (-.331(347) = -.303, $p<0.05$). This shows female students have more knowledge of AI compared to male students.

Discussion

Answering the research question which is to identify students' perceptions on the use of artificial intelligence (AI) in academic writing, the results show that students possess knowledge about artificial intelligence (AI) but often lack confidence in that knowledge. This aligns with findings by Chong et al. (2022), who demonstrated that an individual's confidence in AI significantly influences whether they accept or reject AI-based decisions. However, students are aware of the availability of AI tools that can be used in their academic writing as Demirel (2024) mentioned that AI can be an alternative in helping students to write their academic writing. However, the hesitancy to realise the knowledge can potentially be attributed to the lack of familiarity with the correct use of AI tools. Moreover, the lack of confidence is potentially contributed by the increasingly strict AI-related regulations in students' writing assignments among higher education institutions.

Despite the lack of confidence, the descriptive analysis results show that students somewhat agree that AI is useful for them to write academic papers in terms of spelling, grammar, clarity and coherence, citations, references and plagiarism checking. This result is in line with Khalifa and Albadawy (2024) as they uncovered that AI enhanced ethical compliance, editing, idea generation, literature data management, synthesis, and content structuring. Other than that, using AI also impacted the works that students produce in their academic writing where they could summarise and synthesise the difficult contents from research articles, think critically when assessing their works and also help in widening the students' range of vocabulary. Nonetheless, the AI is not replacing the human brain as AI lacks creativity, originality and the power of argumentation (Aljuaid, 2024). On top of that, students perceived AI as a useful tool in assisting them to write better in their academic writing such as editing and writing process and searching for ideas and topics. This means students have a positive attitude towards the use of AI in academic writing (Chan & Hu, 2023).

Lastly, it was discovered that there is no difference between male and female students in terms of the knowledge of AI. This finding diverges from some prior studies. For example, Møgelvang et al. (2024) reported that male students engaged more frequently with generative AI chatbots than females, while Otis et al. (2024) found that women were adopting AI tools at lower rates than men, often due to ethical concerns and fear of judgment. In contrast, Asio and Sardina (2025) found no significant gender difference in AI self-efficacy or anxiety, suggesting that gender effects may vary depending on the educational context and population. One potential reason for the current finding could be sample characteristics. For instance, it is possible that the female students in this study were disproportionately enrolled in academic disciplines where AI tools are more frequently integrated into writing practices, or that male students' higher levels of AI-related anxiety, as noted in previous research (Asio & Sardina, 2025), may have affected their confidence in reporting knowledge. However, because this study did not directly measure discipline or anxiety, such explanations remain tentative and point to a need for further research.

CONCLUSION AND RECOMMENDATION

This current research was conducted to identify students' general perceptions on artificial intelligence (AI), the use of AI, the impact and students' knowledge on AI. It was found that the

majority of students have a positive attitude towards using and impact of AI in their academic writing. Based on the results, it can be concluded that higher education institutions should start introducing the use of AI in the academic setting. This is due to the positive acceptance of students towards the use of AI in their writing. However, at the same time, the authorities who are responsible for introducing AI in academic settings need to also consider the ethical concerns that may arise. Hence, all stakeholders (universities, faculties, lecturers, curriculum developers, students) need to be a responsible user when employing AI in their daily life especially when completing their assessments or assignments. Beyond gender-related findings, this study also raises important considerations about the ethical implications of students' growing reliance on AI in academic writing. While AI tools were perceived as beneficial for improving grammar, coherence, and citation accuracy, prior research has cautioned that excessive dependence on such tools may undermine critical thinking, creativity, and originality (Darwin et al., 2024; Lee, 2025). Over-reliance risks encouraging surface-level learning and may reduce students' ability to construct arguments independently.

For educators, this underscores the importance of guiding students toward responsible AI use. Practical interventions could include embedding AI literacy modules into writing courses, where students learn not only how to use AI tools but also when to use them. Assignments could be redesigned to integrate critical reflection components, ensuring students demonstrate their own reasoning alongside AI-assisted outputs. Additionally, professional development programs for lecturers would be valuable in equipping educators with strategies to integrate AI responsibly into the curriculum, balancing innovation with academic integrity. Other than that, as for future research, it is recommended to look deeper on this issue, the use of AI by using qualitative methods by interviewing and observing students in academic writing classes while they are using the AI. Moreover, future research can also consider conducting the same research but with a different population such as lecturers or the management of higher education. Thus, it is hoped that this current research could provide an insight on the issue of AI in academic settings.

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Declaration of Generative AI and AI-assisted Technologies in the Writing Process

This manuscript was not developed with the assistance of any Generative AI and AI-assisted technologies in the writing process.

Conflict of Interest

The authors have no conflicts of interest to declare.

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The authors confirm contribution to the paper as follows: Introduction: SHAF & DIB. Literature Review: SYA & FAI. Methodology: AZR. Results and Discussion: ZUE. Conclucion: NADT. All authors reviewed and approved the final version of the manuscript.