

The Use of AI in Academic Writing A Case Study on Its Effect on Research Quality in Iraq

Huda Fadel Abbas

Al-Iraqia University Media College

استخدام الذكاء الاصطناعي في الكتابة الأكاديمية: دراسة حالة حول تأثيره على جودة البحث في العراق

هدى فاضل عباس

الجامعة العراقية كلية الإعلام

Abstract

The purpose of this study is to investigate how the use of artificial intelligence, specifically big language models, affects academic writing quality. Using a mixed-methods strategy that incorporates both quantitative and qualitative data, the study took a case study approach. Twenty people made up the sample, comprising Iraqi University students and early-career researchers. Semi-structured interviews, surveys, and examination of writing samples before and after the usage of AI techniques were used to gather data. The findings showed that artificial intelligence greatly increased participants' productivity in content creation while also enhancing text organisation, linguistic quality, and clarity. However, the study also showed that some individuals' greater dependence on artificial intelligence resulted in a decline in originality and analytical depth. Further issues with the precision and dependability of data produced by AI were noted. According to the study's findings, the influence of artificial intelligence varies depending on how it is applied; it can be a useful tool when used to support researchers, but it may degrade the quality of information if it takes the role of research and analytical abilities. The report advises researchers to develop their critical thinking and verification skills in addition to using artificial intelligence in a balanced manner. **Key Words:** Writing, Academic Writing, Artificial Language, English as a Foreign Language, Research.

المخلص

الغرض من هذه الدراسة هو البحث في كيفية تأثير استخدام الذكاء الاصطناعي، وبشكل خاص النماذج اللغوية الكبيرة، على جودة الكتابة الأكاديمية. استخدمت الدراسة منهجاً مختلطاً يجمع بين البيانات الكمية والنوعية، واتبعت أسلوب دراسة الحالة. تألفت عينة البحث من عشرين شخصاً، شملت طلاباً من الجامعات العراقية وباحثين في بداية مسيرتهم الأكاديمية. تم جمع البيانات من خلال مقابلات شبه منظمّة، واستبيانات، وفحص عينات من الكتابة قبل وبعد استخدام تقنيات الذكاء الاصطناعي. أظهرت النتائج أن الذكاء الاصطناعي زاد بشكل كبير من إنتاجية المشاركين في توليد المحتوى، كما حسن تنظيم النص وجودته اللغوية ووضوحه. ومع ذلك، كشفت الدراسة أن اعتماد بعض الأفراد المتزايد على الذكاء الاصطناعي أدى إلى تراجع في الأصالة والعمق التحليلي. كما تم تسجيل مشكلات أخرى تتعلق بدقة وموثوقية البيانات التي ينتجها الذكاء الاصطناعي. وتشير نتائج الدراسة إلى أن تأثير الذكاء الاصطناعي يختلف باختلاف طريقة استخدامه؛ فهو يمكن أن يكون أداة مفيدة عند استخدامه لدعم الباحثين، لكنّه قد يضعف جودة المعلومات إذا حل محل مهارات البحث والتحليل. ويوصي التقرير بأن يطور الباحثون مهارات التفكير النقدي والتحقق، وأن يستخدموا الذكاء الاصطناعي بطريقة متوازنة. **الكلمات المفتاحية:** الكتابة، الكتابة الأكاديمية، اللغة الاصطناعية، اللغة الإنجليزية كلغة أجنبية، البحث.

Introduction:

AI program is a new technology that enters the field of education. These educational programs were created by researchers specifically to help pupils improve their writing skills in core areas, claim Teng and Wang (2023). Cheong et al. (2023) state that utilizing and improper language and style, failing to properly cite and reference borrowed ideas, and incorrectly organizing and structuring academic works are some typical problems with academic writing. Academic integrity, which includes producing original and plagiarism-free projects as well as honing practical research, critical thinking, and idea integration skills, is given extra weight in academic

writing courses (Teng & Wang, 2023). While academic courses do help increase knowledge in many different areas, scholars agree that academic writing is challenging for students and novice writers alike (Cheong et al., 2023). To get over these problems, more and more people are looking at writing technologies to find other ways to get academic writing help. In addition to that, a new technology that is making its way into classrooms is writing assistance powered by artificial intelligence (AI). Intelligent writing tools often employ Natural Language Processing (NLP), which has been taught on massive human-created text collections (Ginting & Barella, 2022). More and more academic research suggests that AI-driven writing aides can help students improve their writing abilities, as well as boost their confidence and productivity. By modifying the sentence structure or substituting words with synonyms, AI programs such as QuillBot, AI Writer, and Typeset can rephrase original phrases or sentences. Wordtune is a translation service that helps people whose first language is not English. The work of Nazari et al. (2021) asserts that while translating from one language to another. The use of ChatGPT, Trink AI, and Writesonic can assist students save time and effort while creating text-based material (Bhatia, 2023). Grammarly, Jasper, and Consensus are just a few examples of the AI tools that can improve users' writing (Teng & Wang, 2023). When students compare their own work to that of the program's experts, they may even find opportunities to excel academically. Taking responsibility of one's own education, competently assessing written materials, and excelling in one's chosen career path are all aspects of this (Conijn et al., 2023). Concerns about being too reliant on technology have been raised in response to the advent of AI writing helpers, raising the possibility that these crucial skills would be stunted. There has to be an investigation into how much artificial intelligence (AI) tools can supplement, rather than replace, human instructors' efforts to teach academic writing (Teng et al., 2022). Hence, this study aims to present a case study on the use of artificial intelligence in academic writing, focusing on its direct effect on the quality of scientific research.

1.1 Research Objectives

This study aims to:

1. Analyze the impact of using artificial intelligence on the quality of academic writing.
2. Identify the advantages and disadvantages of relying on artificial intelligence during the preparation of research.
3. Examine the extent to which artificial intelligence affects researchers' analytical and critical thinking skills.

1.2 Research Questions

The study seeks to answer the following questions:

1. What is the impact of using artificial intelligence tools on the quality of academic research?
2. What positive aspects does artificial intelligence contribute to students' and researchers' writing?
3. What risks and drawbacks are associated with relying on artificial intelligence in academic writing?

2. Literature Review

Academic writing courses have been impacted by AI writing tools since their inception in 2007, and scholars and practitioners have attempted to construct a theoretical framework to understand this impact (Zhai & Ma, 2022). It wasn't until 2007 in North Carolina that StatSheet debuted as the first fully automated web-based sports authoring tool. Narrative Science's WordSmith and Quill followed in 2009, Grammarly's writing assistant came next (Wu et al., 2022). According to scholars, evaluating the use of AI in academic writing courses requires considering it from multiple theoretical angles in order to determine its consequences, effectiveness, and impact. This is because many AI tools have been developed and used in recent times (Teng et al., 2022).

As a result of its effects on students' social, cognitive, and instructional presence in virtual classrooms, the CoI paradigm sheds light on the role of artificial intelligence in composition classes. Tools developed by artificial intelligence (AI) improve online academic writing classes in many ways, including student engagement, instructor effectiveness, and the development of a feeling of community. An analysis of Grammarly driven by AI found that, "can augment tutoring in higher education by achieving a maximum accuracy of 58% in student assessment data," referring to tools such as Jasper, QuillBot, and Grammarly. The use of AI writing tools has been demonstrated to improve students' writing, particularly in terms of "content and organization, as perceived by English as a Foreign Language (EFL) teachers," as stated by Widiati et al. (2023) on page 349. Grammarly, Sudowrite, Chibi, and ChatGPT are just a few examples of the AI programs that have been shown to improve students' academic writing and group work, according to these studies.

2.1 Academic Writing

Academic writing classes are essential for college students, say the sources, because they prepare them to present their work at conferences and publish in peer-reviewed publications (Teng & Wang, 2023). According

to Alston et al. (2022), academic writing procedures often fail to include typical Black, Indigenous, and People of Color (BIPOC) viewpoints and experiences. Educational strategies are being developed to support emerging BIPOC scholars in their journey of self-discovery and academic writer development, all while empowering them (Hussain & English, 2023). Students in academic writing courses value blended peer review methods highly because they are adaptable to different learning styles (Wilby, 2022).

2.2 Artificial Intelligence and Academic Writing

The use of computers and other technology to mimic human intelligence and cognitive abilities is what artificial intelligence (AI) in university-level academic writing courses is all about, says Leoste et al. (2021). Artificial intelligence (AI) is becoming crucial for enhancing academic writing programs in light of the challenges students encounter. Wordtune, Grammarly, and Google Translate are just a few examples of popular AI-powered writing tools. This material is helpful for the students. improve their grammar, paraphrasing, and writing, and conquer cognitive hurdles. Productivity and workflow can be enhanced with the help of these technologies by automating certain writing tasks. However, before using AI-driven writing aid, researchers and educators should thoroughly assess the ethical implications and set clear standards. Students' research and writing skills can be improved when these tools are used in academic writing classes.

2.3 Past Studies

According to Kasneci et al. (2023) indicate that artificial intelligence helps improve academic writing style and text organization, contributing to enhanced language quality and clarity. In addition to that studies have been done on the impact of artificial Intelligence on the critical thinking as a study that has been done by Xu (2023) found that excessive reliance on artificial intelligence may lead to a decline in students' critical analytical skills due to their dependence on ready-generated texts. For the challenges related to accuracy and reliability, Shen et al. (2023) reported that language models may produce inaccurate information or fabricated references, posing a risk to the quality of academic research. Furthermore, studies have conducted on the ethical considerations and academic integrity as Cotton et al. (2023) emphasized that uncontrolled use of artificial intelligence may increase issues of plagiarism and reduce originality in academic writing.

3. Methodology

3.1 Type of Study

The research adopted a case study approach using a mixed-methods design that combines both quantitative and qualitative analysis.

3.2 Study Population and Sample

The study included 20 participants from Al-Iraqia University, consisting of:

1. 15 undergraduate students
2. 5 early-career researchers

3.3 Data Collection Tools

1. A questionnaire to measure participants' perceptions of the impact of artificial intelligence.
2. Analysis of writing samples before and after using AI tools.
3. Semi-structured interviews to obtain qualitative data.

3.4 Criteria for Evaluating Research Quality

1. Scientific accuracy
2. Organization
3. Clarity
4. Originality
5. Analytical strength.

4. Findings and Discussions

To answer the first research question (What is the impact of using artificial intelligence tools on the quality of academic research?). The findings showed in table 1 below that artificial intelligence helped most participants improve organization and language, while the level of originality and analytical depth decreased for some of them. **Table 1 The Impact of Using Artificial Intelligence on The Quality of Academic Writing.**

<i>Evaluation Criterion</i>	<i>Before Use</i>	<i>After Use</i>	<i>Improvement Rate</i>
Clarity	2.8 / 5	4.3 / 5	53%
Organization	3.0 / 5	4.5 / 5	50%
Accuracy	3.2 / 5	3.8 / 5	19%
Originality	4.1 / 5	3.2 / 5	-22%

Critical Thinking	3.7 / 5	3.0 / 5	-19%
-------------------	---------	---------	------

To answer the second and third research question (What positive aspects does artificial intelligence contribute to students' and researchers' writing and what risks and drawbacks are associated with relying on artificial intelligence in academic writing?). The findings showed that the main points and subpoints on the pros and cons of AI are replacing more traditional academic subjects. There were discussions on the pros and cons of using artificial intelligence (AI) tools in writing instruction, as well as the benefits of using traditional writing classes and the potential problems of AI tools in general. There are a number of benefits to taking a traditional academic writing class, including the following: increasing students' capacity for critical thinking and research (Langum & Sullivan, 2020), as well as their confidence, potential, and ability to express themselves (Bailey & Nunan, 2023; Chien, 2023; Tardy et al., 2021). Furthermore, Algerafi et al. (2023) noted that automation and efficiency have been enhanced. Possible benefits of AI technologies include instantaneous feedback (Almaiah et al., 2023) and the ability for more students to have access to writing aid. In 2020, Makarius and colleagues published... Thirdly, there may be some negative aspects of AI writing tools, such as reduced analytical thinking and creativity (Livberber & Ayvaz, 2023), less original thought and analysis (Lin et al., 2022), and ethical violations like plagiarism (Almaiah et al., 2022). Fourth, a combination of AI and traditional tools has the potential to alleviate writer's block (Rohde et al., 2023), boost efficiency and feedback (Malik et al., 2023), and generate innovative ideas for preliminary research (Bearman et al., 2023) by providing students with access to a variety of knowledge resources and allowing for personalized instruction. Fifth, there are a lot of drawbacks to relying fully on AI tools.

Conclusion

Whether or not artificial intelligence tools are displacing academic writing courses at universities was the focus of the systematic review. Even if AI can automate certain basic writing tasks, the results suggest that these classes are still very important for students' development as thinkers, researchers, and communicators.

References

- Algerafi, M. A. M., Zhou, Y., Alfadda, H., & Wijaya, T. T. (2023). Understanding the factors influencing higher education students' intention to adopt artificial intelligence-based robots. *IEEE Access: Practical Innovations, Open Solutions*, 11, 99752–99764. <https://doi.org/10.1109/access.2023.3314499>.
- Alston, C., Mirghassemi, F., & Gist, C. D. (2022). A course in academic writing as a vehicle for personal growth and transformation. *Multicultural Perspectives*, 24(3), 138–146. <https://doi.org/10.1080/15210960.2022.2127396>.
- Akgun, S., & Greenhow, C. (2022). Artificial Intelligence in Education: Addressing ethical challenges in K-12 settings. *AI and Ethics*, 2(3), 431–440. <https://doi.org/10.1007/s43681-021-00096-7>.
- Ali, Z. (2020). Artificial Intelligence (AI): A review of its uses in language teaching and learning. *IOP Conference Series. Materials Science and Engineering*, 769(1), 012043. <https://doi.org/10.1088/1757-899x/769/1/012043>
- Bhatia, P. (2023). ChatGPT for academic writing: A game changer or a disruptive tool? *Journal of Anaesthesiology, Clinical Pharmacology*, 39(1), 1-12. https://doi.org/10.4103/joacp.joacp_84_23.
- Conijn, R., Kahr, P., & Snijders, C. (2023). The effects of explanations in automated essay scoring systems on student trust and motivation. *Journal of Learning Analytics*, 10(1), 37–53. <https://doi.org/10.18608/jla.2023.7801>.
- Cheong, C. M., Luo, N., Zhu, X., Lu, Q., & Wei, W. (2023). Self-assessment complements peer assessment for undergraduate students in an academic writing task. *Assessment and Evaluation in Higher Education*, 48(1), 135–148.
- Hussain, S. A., & English, L. (2023). Introduction to academic writing course (MBBS). *Advances in Politics and Economics*, 6(1), 27-53.
- Ginting, D., & Barella, Y. (2022). Academic writing centers and teaching academic writing at colleges: A literature review. *Journal of Education and Learning (EduLearn)*, 16(3), 350–356. <https://doi.org/10.11591/edulearn.v16i3.20473>.
- Leoste, J. et al. (2021). Perceptions about the future of integrating emerging technologies into higher education—the case of robotics with artificial intelligence. *Computers*, 10(9), 110- 121. <https://doi.org/10.3390/computers10090110>

- Marghany, M. M. (2023). Using artificial intelligence-based instruction to develop EFL higher education students' essay writing skills. *CDELT Occasional Papers in the Development of English Education*, 82(1), 219–240. <https://doi.org/10.21608/opde.2023.313623>,
- Perkins, M. (2023). Academic integrity considerations of AI Large Language Models in the post- pandemic era: ChatGPT and beyond. *Journal of University Teaching & Learning Practice*, 20(2), 3-16. <https://doi.org/10.53761/1.20.02.07>
- Schillings, M., Roebertsen, H., Savelberg, H., & Dolmans, D. (2023). A review of educational dialogue strategies to improve academic writing skills. *Active Learning in Higher Education*, 24(2), 95–108. <https://doi.org/10.1177/1469787418810663>
- Teng, M. F., Qin, C., & Wang, C. (2022). Validation of metacognitive academic writing strategies and the predictive effects on academic writing performance in a foreign language context. *Metacognition and Learning*, 17(1), 167–190. <https://doi.org/10.1007/s11409-021-09278-4>
- Teng, M. F., & Wang, C. (2023). Assessing academic writing self-efficacy belief and writing performance in a foreign language context. *Foreign Language Annals*, 56(1), 144–169. <https://doi.org/10.1111/flan.12638>.
- Widiati, U., Rusdin, D., Indrawati, I., , M., & Govender, N. (2023). The impact of AI writing tools on the content and organization of students' writing: EFL teachers' perspective. *Cogent Education*, 10(5), 343-351. <https://doi.org/10.1080/2331186X.2023.2236469>.
- Wilby, J. (2022). Motivation, self-regulation, and writing achievement on a university foundation program: A program evaluation study. *Language Teaching Research*, 26(5), 1010–1033. <https://doi.org/10.1177/1362168820917323>
- Wu, W., Zhang, B., Li, S., & Liu, H. (2022). Exploring factors of the willingness to accept AI- assisted learning environments: An empirical investigation based on the UTAUT model and perceived risk theory. *Frontiers in Psychology*, 13(3), 78-81. <https://doi.org/10.3389/fpsyg.2022.870777>.
- Zhai, N., & Ma, X. (2022). Automated writing evaluation (AWE) feedback: a systematic investigation of college students' acceptance. *Computer Assisted Language Learning*, 35(9), 2817–2842. <https://doi.org/10.1080/09588221.2021.1897019>.