



Students' Challenges and Solutions of Using AI-based Tools for Academic Writing

Ribka Anastasia Nugroho¹, Anis Trisusana²

^{1,2} Universitas Negeri Surabaya

DOI: <https://doi.org/10.47134/jpbi.v2i2.1435>

*Correspondence: Ribka

Anastasia Nugroho

Email:

ribka20anastasia@gmail.com

Received: 11-01-2025

Accepted: 20-01-2025

Published: 29-01-2025



Copyright: © 2025 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

Abstract: The use of AI in the education field has become common, especially in academic writing. However, students faced many of the challenges in using AI for academic writing. This study aims to discover the students' challenges and solutions in using AI-based tools for academic writing. The research method used was a descriptive qualitative design. The research instruments were structured questionnaires and semi-structured Interviews. An investigation of students' challenges and solutions of using AI-based tools for academic writing revealed some findings. Every students using different AI in each of the writing stages for their academic writing such as ChatGPT, Quillbot, Grammarly, etc. Moreover, the students' challenges in using AI for academic writing were divided into 3 categories: ethical consideration, bias and inaccuracy results, and limited features. Meanwhile, the students' solutions in using AI for academic writing were divided into four categories: double-check result from AI, Train algorithm, purchasing the premium version, and human role to keep the originality. The researcher suggested that the topics of the students strategy in using AI for academic writing is spotlighted in the further studies.

Keywords: Academic Writing, AI-based Tools, Challenges, Solutions

Introduction

Writing is one of the important things in communicating with each other. Moreover, writing is one of the skills that should be mastered by the students who study in the English department. Among the four components, writing has become a crucial element in the core study of English. Besides speaking, reading, and listening, writing has its own complexity (Maulida, Rahman, Handrianto, & Rasool, 2022). However, the students whose mother language is not English have a bigger obstacle in mastering writing skills because they are unfamiliar with using English in their daily communication. In other words, students whose English is their second or even foreign language are having difficulties in academic writing because they fail to understand the academic writing components (Qasem & Zayid, 2019).

In this new era, AI helps students overcome difficulties in academic writing activities. There are a variety of digital platforms that have been designed to help them enhance their learning activity. Artificial Intelligence has helped students in writing by

providing them with instant feedback and improving their writing immediately (Marzuki, Widiati, Rusdin, Darwin, & Indrawati, 2023). There are a lot of AI-based applications that can be writing assistants for students, such as Grammarly, Chat GPT, Quill bot, Google Translate, and Consensuses, etc. In addition, there are other applications that can be used to help students in every stage of writing such as Turnitin, Mendeley, Consensus, Google Translation, etc.

AI-based applications are such a helpful tool that can help students by providing them with natural suggestions and text generation (Alharbi, 2023), yet all applicants that we call robots have limitations in their capacity to work. Fitria (2021) stated in her research that the results produced by the application show more unsatisfying answers than when the users do the paraphrasing manually. Moreover, dishonesty and plagiarism can be a challenge for the student who is using AI-based applications in developing their academic writing (Cotton et al, 2024).

Aligning with the problem occurs about the challenges that faced by the students in using AI for academic writing, this study discusses the students' solution to overcoming the challenges of using AI- based tools for academic writing. Students and educators need to know the right way to use technologies nowadays in writing because it can help them make writing activities easier. Therefore, to find the solution to overcoming the challenges of AI-based tools for academic writing needs the answer from experienced students who use AI for their academic writing.

Methodology

This study uses the Qualitative research method as the research method with a descriptive qualitative design in collecting the data because it suits the research need whereas the experience of people is the key to answering the research question. It is specified by Lester et al. (2020), qualitative is an approach that is usually used by researchers to develop a comprehensive and complex understanding of a particular phenomenon. There is also a statement by Tomaszewski, Zarestky, & Gonzalez (2020) that descriptive qualitative can be carried out using oral history with a group of people that have similar experiences, or with just a single participant, as in a biographical study or autoethnography. The researcher used a convenience sampling method to facilitate accessing the 30 subjects from English education majors in the cohorts 2022 and 2023 to find the answers of AI tools used for each of the writing stages. The second sampling method is purposive sampling. The researcher took 10 qualified subjects filtered from those who had taken the questionnaire and met the requirements to discover the challenges and solutions in using AI for academic writing.

The instruments used in this study are questionnaires and interviews to collect the data. Furthermore, thematic analysis is used for analyzing the data. (Mezmir, 2020) state that the data collection of the qualitative method is known as its unorganized and large volume of material. Additionally, the internal content of the material is complex and detailed. Therefore, using the thematic analysis with the steps of data organizing and

preparation, data transcribing, familiarizing the data, data memoing, coding, categorizing the data, and transparency of the analytic process.

Result and Discussion

This study discovered that the subjects as the representative of English education students use AI for writing. The AIs used for academic writing are ChatGPT, Grammarly, Quillbot, Google Scholar, and Turnitin. This study discovered that each of the AI can help students in different writing stages.

Table 1. The AIs That Students Use for Generate Ideas in Academic Writing

AI Tools	Frequency
Only ChatGPT	21
ChatGPT and other Chatbox AI (perplexity, Co-pilot, etc.)	7
Do not use any of AI	2
Total	30

From the table above, most of the subjects use ChatGPT for generating ideas in academic writing. other than that The subjects are using other chat-box AI that has the same function as ChatGPT such as Co-pilot, Perplexity, and Gemini. This chat-box model of AI can help the students in brainstorming to make the topic of writing.

Table 2. The AIs That Students Use for Find Related Literature in Academic Writing

AI Tools	Frequency
Only Google Scholar	7
Google Scholar, Scopus	5
Google Scholar, Sci-hub	2
Google Scholar, Consensus	1
Google Scholar, Scopus, Sci-hub	5
Google Scholar, Sci-hub, Consensus	9
Scopus, Consensus	1
Total	30

According to the table above, students used Google Scholar to help them find credible and related literature reviews as references for their academic writing. other AIs that help the subjects find the related literature for their academic writing are Schi-hub, Scopus, and Consensus. This kind of AI helps the students by providing them with articles they need for their academic writing.

Table 3. The AIs That Students Use to Enhance Quality in Academic Writing

AI Tools	Frequency
Only Google Translate	1
Only Deep L	3
Only Quillbot	5
Quillbot, Deep L	3
Quillbot, Google Translate	6
Quillbot, Google Translate, Deep L	9
Only Grammarly	1
Not use AI	1
Google Translate, Deep L	1
Total	30

The table shows that in the drafting stages, Most of the subjects use Google Translate to enhance their writing, moreover, Quill bot and Deep L are also used by the students to enhance their writing quality. This kind of AI help the students enhance their writing by providing them with instant feedback and paraphrasing tools to make better quality sentences for their academic writing.

Table 4. The AIs That Students Use to Organize in Academic Writing

AI Tools	Frequency
Only Mendeley	6
Only Google docs	5
Google Docs and Mendeley	17
Microsoft Words	1
Do not use any of the AI	1
Total	30

In table four, Mendeley and Google Docs are the AIs that are used by most subjects for organizing their academic writing. Mendelay and Google are the AIs that its features can save the students' progress on drafting their academic writing, moreover, Mendeley can help the students to arrange and save the bibliography.

Table 5. The AIs That Students Use to Edit in Academic Writing

AI Tools	Frequency
Only Grammarly	24
Only Microsoft words	1
Only Quillbot	1
Quill bot, Grammarly	1
Only ChatGPT	1

AI Tools	Frequency
Do not use any AI	2
Total	30

The results show that most of the subjects use Grammarly as a tool to edit their academic writing. However, there are also other AIs that can be used as edit tools for academic writing such as Quill bot and Microsoft Word. These kind of AI that has feature to detect grammar error, false punctuation such as Grammarly, Quill bot, etc can help the students in revising stage.

Table 6. The AIs That Students Use to check plagiarism in Academic Writing

AI Tools	Frequency
Only Turnitin	26
Turnitin, Grammarly	1
Turnitin, GPTZero	1
Do not use any AI	2
Total	30

The result of this study shows that students need AI to check the plagiarism in their academic writing. The AI used by the students to check their plagiarism is Turnitin. Moreover, there is a student who uses GPTZero to help check the plagiarism. These both of AI has the same function that can help students detect plagiarism in their writing.

Beside of the usefulness of its works, AI also has its limitations in helping students with their academic writing. This study discovers the students' challenges in using AI for academic writing. The chosen students have different answers to the challenges and solutions of using AI for academic writing. The answers are divided and analyzed below:

Ethical Considerations

Student 1, excerpt 4

Unfortunately yes, when I first know the ChatGPT, Quill Bot, and other AIs. I use them to replace me in doing my academic writing. I copied all the answers, and when the lecturer checked my writing, my percentage of plagiarism showed, that it was high, if I am not mistaken it was 86%

Student 26, excerpt 46

Yes. Since AI is operated for taking most writings that are displayed on the internet, the percentage of plagiarism is considered high. Sentences that are given to us are often already used everywhere

Students agree that ethical considerations play a role as one of the challenges in using AI for academic writing. They state that the reason for the high percentage of plagiarism is the unwise way of using AI. Copied results from AI without any modification to make academic writing involves in the plagiarism practice.

Bias and Inaccuracy Results

Student 12, excerpt 24

Yes, bias and inaccuracies are challenges because AI may rely on outdated or incomplete data, so cross-referencing with reliable sources is necessary to ensure validity

Student 6, excerpt 10

Yes. For example, the AI feature to check grammar mistakes in my writing is quite helpful, but its accuracy is not guaranteed, because sometimes I find the answer is not suitable and incorrect, so I have to do double-checking

According to the students' answers, AIs often give the students unneeded answers, furthermore, biased information comes from the AI because there are no references that support the Answer. In conclusion, Bias and inaccuracy take a role as one of the challenges in using AI for academic writing.

Limited Features

Student 12, excerpt 23

Yes, limited features can be a challenge, as some AI tools lack advanced citation capabilities, proper formatting, or a nuanced understanding of academic standards, requiring manual adjustments.

Student 28, excerpt 58

Yes, the limited features lead to limited knowledge and a lack of creativity. I can say a normal version of AI serves us with less complex abilities that make the suboptimal output. Thus, AI cannot innovate a concept or produce new ideas and paraphrases that are beyond their basic data.

Limited features are one of the challenges faced by the students in using AI for academic writing. From the results, students stated that AI tends to give uncreative and less knowledgeable answers. In addition, limited features of AI caused less of help the students in academic writing.

The challenges that are faced by the students such as ethical considerations, bias and inaccurate results, and limited features led the students to have solutions to

overcome it. The students' solutions to overcome the challenges in using AI for academic writing will be listed below:

Double-check Results

Student 1, excerpt 5, excerpt 7

...., also I always check my final draft in Turnitin

Since the AI that I use often answers without any citation, I search the literature to support the answer by myself. Not only that, I also double-checked the answer to make sure the answer is fit to my needs.

Student 30, excerpt 70

For sure, I find the research that supports the answer.

Students said that double-checking the result is one of the solutions to make sure the answers gained from the AIs suit their needs. moreover, they also added some of the guaranteed citations to support their modified sentences adapted from the AIs' answers.

Train Algorithm

Student 7, excerpt 20

I usually keep trying to make a different but same question. I need to try other words and some details to make the AIs understand my needed answer.

Student 28, excerpt 62, excerpt 59

Providing clear instructions helps me create better answers from AI because it tailors experiences based on its individual preferences.

...., I have to carefully select data and algorithms to minimize bias.

Training algorithm is one of the solutions that is stated by the students to overcome the challenges of using AI for academic writing. Students stated that giving clear and specific instructions will make the AIs give the expected answer. Moreover, Training the AI algorithm will help the students to meet their needed answers because AI recorded information that are given by the user.

Purchase Premium Version of AI

Student 1, excerpt 6

Limited feature is really a big deal for me, therefore I got to pay for the premium version of some of the AI to help me organize and check my mistakes in my academic writing

Student 25, excerpt 41

Since mostly the limited features were in the area of the journal characters or a locked journal, I tended to pay the full version of AI to help me open access and read journals with more characters.

Another solution stated by the students is to purchase the full version or the premium version of AI. The premium version AI will give the students a better experience by allowing students to use the advanced features. the advanced features of AI will help better such as opening the full article and giving advanced feedback to the students' academic writing.

Human-role

Student 24, excerpt 33

I am trying to keep this mindset where AI is just my assistant/pair buddy in my work. So, most of the time, I am using AI to generate ideas and checking plagiarism. That is how I maintain the originality of my work.

Student 26, excerpt 47

To keep it original, we can try to rephrase some of the words and sentences, or add more vocabularies of our own. We need to improve our writing with our own intelligence while using AI as a tool to help.

The students' writing ability is playing an important thing in making the academic writing to make sure that it is their work. The solution given by the students to keep the originality of their work while still using AI is to use the AI wisely. In other words, the combination of their writing ability with using AI as a tool in making academic writing will avoid them from having issues of plagiarism in their works.

In addition, the findings of this study are aligned with the previous study, such as the kind of AI tools that is used by the students for each of the writing stages is aligned with the study conducted by Zulfa (2023). Furthermore, the limited feature as the challenges in using AI are also in line with Fitria's (2021) statement, also bias and inaccuracy result as challenges are also stated by Ngo (2023). All the findings in this study such as AI tools that are used by the students in their academic writing, the challenges in using AI for academic writing, and the solutions to overcome the challenges are in line with the previous study.

Conclusion

Discovering Students' challenges and solutions of using AI in academic writing exposed various findings. The advantages that students gain from using AI is such a saving time, enhanced, writing quality, and personal learning. This study found that the AIs that is used by English Education students are such as ChatGPT, Grammarly, Quill bot, Turnitin, and many other AIs in academic writing can help them write in pre-writing, drafting, and revising. The finding of this can be a reference for the students who are confused about choosing the suited AI for each of the writing stages. Furthermore, the findings about students' challenges in using AI such as ethical consideration, bias and inaccuracy results, and limited features can be information for the other research that brings up the topic of the strategy in using AI for academic writing. The last finding of this research which talks about the students' solutions such as double-check results, train algorithm, purchase premium version of AI, and human-role to keep the originality that can overcome the challenges in using AI can be a suggestion for the educators to introduce the AI to their students to make a better quality of writing.

References

- Alharbi, W. (2023). AI in the Foreign Language Classroom: A Pedagogical Overview of Automated Writing Assistance Tools. *Education Research International*, 1-15.
- Alkamel, M.A.A. (2024). Utilizing an adaptable artificial intelligence writing tool (ChatGPT) to enhance academic writing skills among Yemeni university EFL students. *Social Sciences and Humanities Open*, 10, ISSN 2590-2911, <https://doi.org/10.1016/j.ssaho.2024.101095>
- Assad, A. (2024). Exploring the use of ChatGPT among media students in Egypt: Opportunities and challenges. *Online Journal of Communication and Media Technologies*, 14(2), ISSN 1986-3497, <https://doi.org/10.30935/ojcmmt/14416>
- Cotton, D. R., Cotton, P. A., & Shipway, J. R. (2024). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. *Innovations in Education and Teaching International*, (61) 2, 228–239
- Folmeg, M. (2024). Towards identifying the components of students' AI literacy: An exploratory study based on Hungarian higher education students' perceptions. *Journal of University Teaching and Learning Practice*, 21(6), ISSN 1449-9789, <https://doi.org/10.53761/wzyrwj33>
- Hakam, H.T. (2024). Human-Written vs AI-Generated Texts in Orthopedic Academic Literature: Comparative Qualitative Analysis. *JMIR Formative Research*, 8, ISSN 2561-326X, <https://doi.org/10.2196/52164>
- Inam, M. (2024). A review of top cardiology and cardiovascular medicine journal guidelines regarding the use of generative artificial intelligence tools in scientific writing. *Current*

Problems in Cardiology, 49(3), ISSN 0146-2806,
<https://doi.org/10.1016/j.cpcardiol.2024.102387>

- Khalifa, M. (2024). Using artificial intelligence in academic writing and research: An essential productivity tool. *Computer Methods and Programs in Biomedicine Update*, 5, ISSN 2666-9900, <https://doi.org/10.1016/j.cmpbup.2024.100145>
- Kong, S.C. (2024). A pedagogical design for self-regulated learning in academic writing using text-based generative artificial intelligence tools: 6-P pedagogy of plan, prompt, preview, produce, peer-review, portfolio-tracking. *Research and Practice in Technology Enhanced Learning*, 19, ISSN 1793-7078, <https://doi.org/10.58459/rptel.2024.19030>
- Lester, J. N., Cho, Y., & Lochmiller, C. R. (2020). Learning to Do Qualitative. *Human Resource Development Review*, 94–106.
- Liu, J.Q.J. (2024). The great detectives: humans versus AI detectors in catching large language model-generated medical writing. *International Journal for Educational Integrity*, 20(1), ISSN 1833-2595, <https://doi.org/10.1007/s40979-024-00155-6>
- Marzuki, Widiati, U., Rusdin, D., Darwin, & Indrawati, I. (2023). The impact of AI writing tools on the content and organization of students' writing: EFL teachers' perspective. *Cogent Education*, 1-17.
- Maulida, D. S., Rahman, M. A., Handrianto, C., & Rasool, S. (2022). A Review of the Blended Learning as the Model in Improving Students'. *Abjadia : International Journal of Education*, 59-72.
- Mezmir, E. A. (2020). Qualitative Data Analysis: An Overview of Data Reduction, *Data.Research on Humanities and Social Sciences*, 15-27.
- N.T., F. (2021). "Grammarly" as AI-powered English Writing Assistant: Students' Alternative for English Writing. *Journal Of English Language Literature and Teaching*, 65-78.
- Ngo, T. T. (2023). The Perception by University Students of the Use of ChatGPT in Education. *International Journal of emerging technologies in Learning*, 4-18.
- Ou, A.W. (2024). Academic communication with AI-powered language tools in higher education: From a post-humanist perspective. *System*, 121, ISSN 0346-251X, <https://doi.org/10.1016/j.system.2024.103225>
- Pividori, M. (2024). A publishing infrastructure for Artificial Intelligence (AI)-assisted academic authoring. *Journal of the American Medical Informatics Association*, 31(9), 2103-2113, ISSN 1067-5027, <https://doi.org/10.1093/jamia/ocae139>
- Qasem, F. A., & Zayid, E. I. (2019). The Challenges and problems faced by students in the Early Stage of Writing Research Projects in L2, University of Bisha, Saudi Arabia. *European Journal of Special Education Research*, 37-47.

-
- Smerdon, D. (2024). AI in essay-based assessment: Student adoption, usage, and performance. *Computers and Education: Artificial Intelligence*, 7, ISSN 2666-920X, <https://doi.org/10.1016/j.caeai.2024.100288>
- Sysoyev, P.V. (2024). Method of teaching students' foreign language creative writing based on evaluative feedback from artificial intelligence. *Perspektivy Nauki i Obrazovania*, 67(1), 115-135, ISSN 2307-2334, <https://doi.org/10.32744/pse.2024.1.6>
- Tomaszewski, L. E., Zarestky, J., & Gonzalez, E. (2020). Planning Qualitative Research: Design and Decision Making for New Researchers. *International Journal of Qualitative Methods*, 1-7
- Zou, M. (2024). The impact of ChatGPT on L2 writing and expected responses: Voice from doctoral students. *Education and Information Technologies*, 29(11), 13201-13219, ISSN 1360-2357, <https://doi.org/10.1007/s10639-023-12397-x>
- Zulfa, S. (2023). Tech-assisted LearningMedia Used In Students' English Academic Writing. <https://repository.uinjkt.ac.id/dspace/bitstream/123456789/72463/1/A4%20Thesis%20Siti%20Zulfa.pdf>, 1-142.