The Challenges of Using Artificial Intelligence in Academic Writing

Rizqi Akbarani[1], Firdaus Ditya Pamungkas[2]
[1]Institut Agama Islam Negeri Ponorogo, Indonesia
[2]Soerjo University, Indonesia

ARTICLE INFO	ABSTRACT
Keywords: Artificial intelligence; academic writing; lecturers.	Artificial Intelligence (AI) has witnessed remarkable growth and advancements in recent years, revolutionizing various industries and domains. One area where artificial intelligence has made significant strides is academic writing. Academic writing plays a crucial role in the dissemination of knowledge and scholarly communication. Furthermore, lecturers are demanded to make good quality writing in academic. Therefore, this study explored the challenges of artificial intelligence towards academic writing The challenges here refer to lecturers' perception of artificial intelligence towards academic writing. This study used descriptive qualitative method with online questionnaire. The participants were 10 lecturers in Indonesia. The finding and result showed that Artificial Intelligence is needed in teaching academic writing and it can help lecturers in teaching academic writing. Artificial Intelligence also has positive impact in teaching academic writing but sometimes Artificial Intelligence can give negative impact if it is not utilized correctly and not at the appropriate timing.

Corresponding Author:
Rizqi Akbarani
Email: rizqiakbarani@iainponorogo.ac.id

INTRODUCTION

Writing holds a position of great influence as one of the most powerful means of communication. It allows individuals to express their thoughts, ideas, and emotions in a clear and structured manner. Writing serves multiple purposes, including communication, interpretation of information, documentation of experiences, self-expression, and fostering meaningful learning processes.[1] However, mastering the art of writing requires more than just putting pen to paper or fingers to keyboard. It involves understanding the principles of composition, developing strong analytical and critical thinking skills, and employing various techniques to engage and captivate the reader.

Currently, the authors bear full responsibility for academic writing, encompassing both the production process and the resulting outcome.[2] Academic writing plays a crucial role in higher education, as it is the primary mode of communication for students and scholars across various disciplines. However, the growth of Artificial Intelligence (AI) in recent years has made significant strides is academic writing. AI is a broad term used to encompass automated devices capable of imitating human intelligence processes, including learning, reasoning, and self-correction (Popenici and Kerr).[3] One of the primary objectives of AI is to create automated devices capable of analysing the environment and performing tasks in a manner like humans.[4]

In recent years, artificial intelligence (AI) has emerged as a powerful tool that can assist writers in various ways. AI technologies, such as machine learning and natural language processing, have the potential to enhance the quality of academic writing, improve language proficiency, and streamline the writing process.[5] Meanwhile, AI technology can serve as an additional tool for learning writing to speed up the process, provided it is utilized correctly and at the appropriate timing.[6] Furthermore, writing researchers and educators have designed

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[1] Santi Pratiwi Tri Utami et al., "Utilization of Artificial Intelligence Technology in an Academic Writing Class: How Do Indonesian Students Perceive?," *Contemporary Educational Technology* 15, no. 4 (2023): ep450, https://doi.org/10.30935/cedtech/13419.

[2] Nicolaus Wilder et al., "Who Is Responsible for Integrity in the Age of Artificial Intelligence? An Analysis Using the Example of Academic Writing," *European Conference on Academic Integrity and Plagiarism*, no. June (2021): 1–193.

[3] Nabi Nazari, Muhammad Salman, and Roy Setiawan, "Heliyon Application of Arti Fi Cial Intelligence Powered Digital Writing Assistant in Higher Education : Randomized Controlled Trial," *Heliyon* 7, no. December 2020 (2021): e07014, https://doi.org/10.1016/j.heliyon.2021.e07014.

[4] Nazari, Salman, and Setiawan.

[5] Nazari, Salman, and Setiawan.

[6] Alberto Sola-leyva and Andres Salumets, "Artificial Intelligence in Scientific Writing: A Friend or a Foe?," *Reproductive Biomedicine Online (RBMO)* 47, no. 1 (2023): 3–9, https://doi.org/10.1016/j.rbmo.2023.04.009.

and implemented a range of AI-enabled tools, including intelligent writing assistants, educational chatbots, and automated writing evaluation systems to improve students' writing skills and enhance their learning experience.[7]

The previous study of this research is the research from Utami, et.al in 2023 entitled *Utilization of Artificial Intelligence Technology in an Academic Writing Class: How Do Indonesian Students Perceive?* The primary objective of this research is to assess the perception, obstacles, and recommendations for optimizing the use of AI in teaching academic writing in Indonesian. The research focused on a case study of three senior high schools in Central Java, Indonesia, and employs a combination of quantitative and qualitative data. Data collection involved questionnaires presented with a Likert scale and in-depth interviews conducted through mobile instant messaging. The findings indicate that AI-based learning tools are beneficial for students in conducting academic research, particularly during the planning phase and drafting process. Although these tools offer accessibility and flexibility, they do not cover all the necessities required by students during the writing process. Students express their interest in using AI technology in academic writing classes to make the learning process more engaging and less monotonous. Despite the implementation of AI in academic writing classes, the tools have not significantly improved the quality of students' academic papers across all indicators.[8]

The other previous study is the research entitled *Application of Artificial Intelligence Powered Digital Writing Assistant in Higher Education: Randomized Controlled Trial.* This research was conducted in 2021 to assess the effectiveness of a group-based Artificial Intelligence (AI) powered writing tool for English second postgraduate students in the context of English academic writing. Students were randomly assigned to either the AI-equipped group or the non-equipped AI (NEAI) group. The results of the parametric test, using analysis of covariance, revealed that post-intervention, students in the AI intervention group demonstrated statistically significant improvement in behavioural engagement scores compared to the NEAI group. These findings indicate that AI-powered writing tools can be an effective means of promoting learning behaviour and fostering positive attitudes toward technology through formative feedback and assessment for non-native postgraduate

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[7] David James Woo et al., "Exploring AI-Generated Text in Student Writing : How Does AI Help ? Exploring AI-Generated Text in Student Writing : How Does AI Help ?," *Cornell University Research Expenditures*, 2022.

[8] Utami et al., "Utilization of Artificial Intelligence Technology in an Academic Writing Class: How Do Indonesian Students Perceive?"

students in English academic writing.[9]

Based on the previous studies, the researcher has similar concept to explore how artificial intelligence (AI) gives significant impact towards writing. However, the researcher focused on the challenges of using artificial intelligence towards academic writing, especially in higher education for lecturers because lecturers are demanded to make good quality writing in academic. The challenges here refer to lecturers' perception towards artificial intelligence in academic writing.

RESEARCH METHOD

This research used a descriptive qualitative method. According to Privitera&Delzell as cited in Fitria,[10] Qualitative research is typically not directed by a hypothesis, thereby emphasizing the absence of the use of statistical tools in qualitative research. Qualitative methods place greater emphasis on observing phenomena and analysing the significance of these phenomena. In this research, researcher describes the challenges of using Artificial Intelligent especially in academic writing.

The populations of this research are the lecturers in Indonesia where the populations are divided into 10 lecturers as subjects of this research. Researchers used non probability technique sampling with convenience sampling approach. According to Sugiyono as cited in Akbarani stated that non probability sampling is a sampling technique that does not provide equal opportunities for each element or member of the population to be selected as a sample. Meanwhile, convenience sampling is a sampling technique that is carried out by chance meeting with researchers that can be used as a sample.[11]

This research used questionnaire to collect the data. A questionnaire is a set of inquiries directed at individuals to gather statistically valuable information on a specific topic.[12] Researchers used Google Form to make the questionnaire where there are 5 questions that was delivered by WhatsApp message. Researchers used this technique to facilitate the process of selecting answers from a wide sample to increase the validity of the data. The subjects of

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[9] Nazari, Salman, and Setiawan, "Heliyon Application of Arti Fi Cial Intelligence Powered Digital Writing Assistant in Higher Education : Randomized Controlled Trial."

[10] Tira Nur Fitria, "Artifical Intelligence (AI) Techology in OpenAI ChatGPT Application: A Review of ChatGPT in Writing English Essay," *Journal of English Language Teaching* 6, no. 1 (2023): 44–28, https://journal.unnes.ac.id/sju/index.php/elt/article/view/64069.

[11] R Akbarani, "Persepsi Mahasiswa Terhadap Pentingnya Pembelajaran Bahasa Inggris Di Jurusan Komunikasi Dan Penyiaran Islam IAIN Ponogoro," *The 1st Conference on Strengthening Islamic Studies in the Digital Era (FICOSIS)* 1, no. 2 (2021): 117–30.

[12] Siddegowda Roopa and M S Rani, "Questionnaire Designing for a Survey," *Journal of Indian Orthodontic Society* 46, no. 4 (2012): 273–77.

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this research are asked to answer used Likert scale five point: Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), Strongly Disagree (SD).

The data obtained from the questionnaire is presented in tabular form to explore the impact of artificial intelligence towards academic writing. The method of analysing data in this research is by using three steps of qualitative including data reduction, data display, and conclusion. In the reduction stage, the researcher collected all information from questionnaire. At the display stage, the researcher presents data in the form of pictures or narrative text to make it easy to understand. Next, the researcher looks for the meaning of the data collected by looking for relationships, similarities, or differences to conclude answers to existing problems.

RESULT AND DISCUSSION

The result of this research was described in questionnaire about the challenges of using Artificial Intelligence in academic writing. To facilitate analysis the questionnaire, researchers described every item question in every variable. There are five questions in the form of statement in the questionnaire. The first question is "I think Artificial Intelligence is needed in teaching academic writing." The second question is "Artificial Intelligence have positive impact for teaching academic writing." The third question is "Artificial Intelligence has negative impact in teaching academic writing." The fourth question is "I use Artificial Intelligence to help in teaching academic writing." The last question is "I use product of Artificial Intelligence in academic writing like Chat GPT, Grammarly, Plagiarism checker, Quillbot, others." The questionnaire results were described as follows:

Table 1. Lecturer perceptions about Artificial Intelligence is needed in teaching academic writing

Categorize	Frequency	Percentage (%)
Strongly Agree	1	10%
Agree	6	60%
Neutral	2	20%
Disagree	1	10%
Strongly Disagree	0	0%

From the table about "I think Artificial Intelligence is needed in teaching academic writing can be seen 1 respondent or 10% is strongly agree about statements that Artificial Intelligence is needed in teaching academic writing, 6 respondents or 60% are agree, 2

respondents or 20% are neutral, 1 respondent or 10% disagree, and none respondents or 0% strongly disagree with those statements. Based on the table 1, it can be concluded that the most lecturers agree that Artificial Intelligence is needed in teaching academic writing. This is appropriate with Nazari statement that Artificial Intelligence such as machine learning and natural language processing, have the potential to enhance the quality of academic writing, improve language proficiency, and streamline the writing process[13].

Table 2. Lecturers' perception about Artificial Intelligence has positive impact for teaching academic writing

Categorize	Frequency	Percentage (%)
Strongly Agree	1	10%
Agree	7	70%
Neutral	2	20%
Disagree	0	0%
Strongly Disagree	0	0%

From the table about "Artificial Intelligence has positive impact for teaching academic writing" can be seen 1 respondent or 10% is strongly agree, 7 respondents or 70% are agree, 2 respondents or 20% are neutral, and none respondents or 0% disagree or strongly disagree with statement about Artificial Intelligence has positive impact for teaching academic writing. Based on the table 2, it can be concluded that the most lecturers agree that Artificial Intelligence has positive impact for teaching academic writing. This is appropriate with Sola-levya statement that Artificial Intelligence can be an additional tool for learning writing to speed up the process.[14]

Table 3. Lecturers' perception about Artificial Intelligence has negative impact for teaching academic writing.

Categorize	Frequency	Percentage (%)
Strongly Agree	0	0%
Agree	3	30%
Neutral	2	20%
Disagree	5	50%
Strongly Disagree	0	0%

From the table about "Artificial Intelligence has negative impact for teaching academic writing" can be seen 0 respondent or 0% is strongly agree, 3 respondents or 30%

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[13] Nazari, Salman, and Setiawan, "Heliyon Application of Arti Fi Cial Intelligence Powered Digital Writing Assistant in Higher Education : Randomized Controlled Trial."

[14] Sola-leyva and Salumets, "Artificial Intelligence in Scientific Writing: A Friend or a Foe?"

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are agree, 2 respondents or 20% are neutral, 5 respondents or 50% are disagree, and none respondents or 0% strongly disagree with statement about Artificial Intelligence has negative impact for teaching academic writing. Based on the table 3, it can be concluded that the most lecturers disagree that Artificial Intelligence has negative impact for teaching academic writing. This is appropriate with Sola-levya statement that Artificial intelligence can be an additional tool for learning writing to speed up the process, provided it is utilized correctly and at the appropriate timing.[15] It means that if we use Artificial Intelligence correctly so it will not give negative impact in our teaching and learning.

Table 4. Lecturers' perception about Artificial Intelligence can help in teaching academic writing.

Categorize	Frequency	Percentage (%)
Strongly Agree	0	0%
Agree	9	90%
Neutral	1	10%
Disagree	0	0%
Strongly Disagree	0	0%

From the table about "Artificial Intelligence can help in teaching academic writing" can be seen 0 respondent or 0% is strongly agree, 9 respondents or 90% are agree, 1 respondent or 10% are neutral, and none respondents or 0% disagree or strongly disagree with statement about Artificial Intelligence can help in teaching academic writing. Based on the table 4, it can be concluded that the most lecturers agree that Artificial Intelligence can help in teaching academic writing. According to David that writing educators or lecturers have designed and implemented Artificial Intelligence tools, including intelligent writing assistants and automated writing evaluation systems to improve students' writing skills and enhance their learning experience[16]. It means that Artificial Intelligence can help lecturers and also students in teaching and learning academic writing.

Table 5. Lecturers use product of Artificial Intelligence in teaching academic writing

Categorize	Frequency	Percentage (%)
Chat GPT	2	20%
Grammarly	9	90%
Plagiarism Checker	7	70%
Quillbot	5	50%
Others	0	0%

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[15] Sola-leyva and Salumets.

[16] Woo et al., "Exploring AI-Generated Text in Student Writing : How Does AI Help ? Exploring AI-Generated Text in Student Writing : How Does AI Help ?"

Based on the table above, lecturers use some products of Artificial Intelligence in teaching academic writing. 2 respondents or 20% use Chat GPT, 9 respondents or 90% use Grammarly, 7 respondents or 70% use Plagiarism Checker, 5 respondents or 50% use Quillbot, and 0 respondent or 0% use others. It means that Grammarly is popular tools of Artificial Intelligence that was usually used by lecturers in teaching academic writing. It is a proven that Artificial Intelligent is very needed and can help teacher in teaching academic writing. Besides, Artificial intelligence in writing assistants can help automated writing evaluation systems to improve students' writing skills and enhance their learning experience.[17]

CONCLUSION

From the findings and discussion above, it can be concluded that the challenges of using artificial intelligence in academic writing based on lecturer perception are Artificial Intelligence is needed in teaching academic writing and it can help lecturers in teaching academic writing. Artificial Intelligence also has positive impact in teaching academic writing but sometimes Artificial Intelligence can give negative impact if it is not utilized correctly and not at the appropriate timing. There are many Artificial Intelligence products that were used by lecturers in teaching academic writing such as Chat GPT, Grammarly, Plagiarism Checker, and Quillbot. Grammarly is popular tools of Artificial Intelligence that was usually used by lecturers in teaching academic writing. The limitation from given data and the main Artificial Intelligence that was used in this research can give any inaccuracies in the data will be reflected in the results. In the future study, the researchers hopes that others researchers can find the challenges of using Artificial Intelligence in academic writing based on students' perceptions especially students in university because students in university is required to be able to write academic writing.

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[17] Woo et al.

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