ARTIFICIAL INTELLIGENCE POWERED TOOLS IN ENGLISH ACADEMIC WRITING: STUDENT PERCEPTIONS

**Zahraniarni[1], Teguh Noorzauhar[2], Agistin Henryani[3],
Ridwan Fauzi Syukur[4], Anit Pranita Devi[5]**

[12345]English Literature Study Program, Faculty of Humanities, Universitas Sebelas April
Email: zahraniarni30@gmail.com, iamnoorzauhar@gmail.com,
agistinhenryani@gmail.com, ridwanfsyukur@gmail.com, anit.pranita.d@gmail.com

Keywords:	**Abstract**
AI-Powered Tools, Scientific Writing, Students' Perception	*One significant development of technology over the past few years is Artificial Intelligence (AI), which aims to facilitate and help people, especially students in the digital era. The main purpose of this study is to explore students' perceptions in Sumedang Regency regarding AI-powered tools in writing scientific papers in English and to analyze the advantages and disadvantages of using these AI-powered tools. This research uses phenomenological research with data collection instruments through questionnaires, interviews, and focus group discussions (FGD). The results of the study showed that the majority of Sumedang Regency students had positive perceptions of the use of AI-powered tools. Several advantages of AI-powered tools from the study results are helping to spark ideas, making the writing process effective, helping with grammar, vocabulary, and translation, and making it easier to find references. However, there are several disadvantages of AI-powered tools revealed from this study, including inaccurate information, plagiarism, a sense of dependency, and decreased writing skills. From the results of this study, it can be concluded that although AI-powered tools provide many positive benefits in academic writing, excessive use can also cause negative impacts that cannot be underestimated, so limitations are needed to avoid negative impacts that may arise.*

INTRODUCTION

In the era of digitalization, technology is developing rapidly and has a significant impact on life. One of these technologies is Artificial Intelligence (AI), which is an innovation of the Industrial Revolution 4.0. Artificial Intelligence (AI) has become one of the most remarkable technologies today. The implementation of AI offers solutions to meet societal needs (Pakpahan, 2021). Due to its wide scope, AI technology can be used

in various fields; one of them is education. AI-powered tools, which refer to tools driven by artificial intelligence, have been widely used among Indonesian students, especially university students, to support them in academic writing tasks such as scientific papers.

It is important to note that, according to research on the AI industry, Indonesia is one of the countries with the highest number of AI users (Sarkar, 2023), including the use of AI-powered tools like Google Translate, Grammarly, and DeepL for foreign language translation, grammar checking, paraphrasing, and other functions. Various perceptions have emerged regarding the use of AI-powered tools in helping students complete academic writing tasks such as essays, papers, articles, and even theses. For example, Giglio & da Costa (2023) conducted a systematic review on the use of AI-powered tools in English academic writing and found that AI helps non-native English learners improve their writing quality.

However, despite its benefits, AI-powered tools also have drawbacks. Kim & Han (2021) pointed out that one of the weaknesses of AI-powered translation tools like Google Translate is the inaccuracy of translations. Moreover, overreliance on AI-powered writing tools may hinder students' ability to learn the English language and writing skills. Additionally, AI translators often face limitations in their features, especially in producing natural translations. Given both the advantages and disadvantages of using AI-powered tools, understanding how students perceive their use is crucial. This is important to identify both the potential and risks associated with the use of AI in English academic writing. Furthermore, students can learn to be more critical and wiser in using AI in their learning process.

Previous studies have explored the use of AI-powered tools. First, Arly et al. discussed the implementation of AI-powered tools in communication class learning. Second, a study by Sumakul et al. (2022) investigated student perceptions regarding the use of AI in English classes. Then, Nazari et al. (2021) examined the impact of AI use in postgraduate EFL (English as a Foreign Language) classrooms.

From these studies, research that explores perceptions of AI-powered tools remains very limited. One such study that focused on student perceptions of AI-powered tools in writing classes was conducted by Phan (2023) in Vietnam and by Sumakul et al. (2022) in the Indonesian context. However, research on student perceptions of the use of AI-powered tools in English academic writing in Indonesia, especially in Sumedang Regency, has not been conducted.

Therefore, a study on student perceptions in Sumedang Regency regarding the use of AI-powered tools in English academic writing is important to conduct. This research, titled "Artificial Intelligence Powered Tools in English Academic Writing: Student Perceptions," aligns with the main goals of the Merdeka Curriculum, one of which is to prepare students to face technological challenges wisely in the era of the Industrial Revolution 4.0. The results of this study are expected to serve as a reference, especially for educators and learners, on how AI can be used wisely and effectively.

In addition, this study can contribute to achieving the Higher Education Performance Indicator (IKU) number 2, which is students' involvement in activities or achievements beyond their study program, including participation in research activities. Furthermore, this research is also expected to make a substantial contribution to the nation in facing the challenges of the Industrial Revolution 4.0. This study has two specific objectives: to explore higher education students' perceptions in Sumedang Regency regarding the use of AI-powered tools in English academic writing and to analyze the

advantages and disadvantages of using AI-powered tools in English academic writing as experienced by students in Sumedang Regency.

LITERATURE REVIEW
AI-Powered Tools

Artificial Intelligence (AI) is a general term that refers to automated systems capable of performing human-like intelligence processes such as learning, reasoning, and correction (Popenici & Kerr, 2017). AI-powered tools are tools based on artificial intelligence designed to help make human tasks and work easier. In the digital era, AI-powered tools continue to develop across various fields, including education. It was predicted in the future that the use of AI in learning would increase significantly (Alexander et al., 2019). Besides being easily accessible, these tools are very helpful in the learning process. AI-powered tools commonly found online can serve various functions, such as automatic translation, grammar checking, paraphrasing, and plagiarism detection. Among the many AI-powered tools used to assist in academic writing, especially in English are ChatGPT, Quillbot, DeepL, Paraphrasing Tool, and Grammarly.

The Use of AI in English Academic Writing

In university, students are often assigned to write academic papers such as essays, reports, journal articles, and final theses. These papers may be written in either Indonesian or English. As students who learn English as a foreign language (EFL), they are now supported by various AI-powered tools like Google Translate and DeepL to help with translation in the writing process. In addition, the use of AI-powered tools not only helps simplify the writing process but also aids students in learning grammar and new vocabulary.

Also, before writing academic papers such as reports, articles, and theses, students need to collect references relevant to the topic. Examples of AI-powered tools that can help in finding these references include ResearchRabbit and Elicit. These tools are very useful for identifying relevant references based on article content, authors, or citations, and they can also generate reference lists quickly, which is something that usually takes a lot of time (Giglio & da Costa, 2023). Despite these benefits, it cannot be denied that AI-powered tools also have performance limitations. Therefore, students cannot rely entirely on AI-powered tools during the learning process.

Student Perceptions of AI-Powered Tools

The use of AI-powered tools may lead to various perceptions from students, including positive, negative, or neutral views. Perception, according to (Asrori, 2020), is the process of interpreting information received from the environment through the five senses: sight, hearing, awareness, and feeling. Student perception here refers to students' responses after using AI-powered tools in the process of writing English academic papers, including the benefits they experience and the limitations or challenges they face in using them.

State of the Art

Before this study, several research studies had already explored perceptions of using AI-powered tools. Phan (2023) examined the perceptions of 100 students at Vietnam National University toward the application of AI technology in writing classes.

The findings showed that students had a positive attitude toward the role of AI-based applications in their writing learning. Furthermore, a study by Giglio & da Costa (2023) found that using AI-powered tools in English academic writing helps non-native English researchers improve their writing quality. Additionally, Arly et al. (2023) conducted a study on the use of AI-powered tools in classroom learning for communication majors. The results showed that AI-powered tools were quite helpful in reducing student workload and improving time efficiency for assignments. Students could easily access and find relevant data and information from available sources. Meanwhile, Nazari et al. (2021) studied the impact of AI usage in postgraduate classrooms within the EFL context.

Based on these studies, no research has specifically focused on higher education institution students' perceptions of AI-powered tools in English academic writing in Indonesia, particularly in Sumedang Regency. As stated in the research background, Indonesia is ranked as the third-largest user of AI-powered tools in the world. One of the groups that frequently uses them is highere education institution students, and Sumedang is one of the regencies with the highest number of higher education institutions in West Java. Therefore, this study holds an essential position in contributing positively to discussions on the role of AI-powered tools in the field of education.

RESEARCH METHOD

The main data source in this research is university students in Sumedang Regency who have received assignments to write academic papers in English during their studies. The data collection techniques used in this research include questionnaires, semi-structured interviews, and focus group discussions (FGD). The use of questionnaires aims to gather structured data about students' perceptions of AI-powered tools and to reach a larger number of respondents efficiently. Then, semi-structured interviews and FGDs are conducted to explore perceptions in more depth, obtain direct and more detailed information, and elaborate on the data obtained from the questionnaires (Ricci et al., 2019).

The data collected through questionnaires, interviews, and focus group discussions were analyzed through five stages (Bingham, 2023): data organization, data sorting, data understanding, data interpretation, and data discussion. The collected data is managed and grouped by determining categories, then sorted based on data relevant to the main objectives of the research. In addition to identifying students' views and attitudes towards the use of AI-powered tools, the sorting process also explores the strengths and weaknesses experienced by students in using these tools. Next, the data is identified and understood based on emerging ideas, then interpreted and discussed by linking them with relevant theories.

In the final stage of the research, conclusions are drawn based on the discussion of the data. These conclusions provide a deeper understanding of the perceptions of students in Sumedang Regency regarding the use of AI-powered tools in English academic writing and identify the advantages and disadvantages experienced by students. Moreover, this research also examines the implications of the findings, which can provide valuable insights for the development and use of AI-powered tools in academic settings.

FINDINGS AND DISCUSSION

Based on the analysis of the data collected from the questionnaires, interviews, and focus group discussions, several important findings emerged regarding the

perceptions of students in Sumedang Regency about the use of AI-powered tools, as well as the advantages and disadvantages of using AI tools in English academic writing.

Students' Perceptions of Using AI-Powered Tools

The research findings show that the majority of students (98%) have used AI-powered tools in the process of writing academic papers. The most commonly used AI tool by the respondents is ChatGPT. Furthermore, most of the questionnaire respondents have a positive view of using AI-powered tools in writing academic papers in English. They recognize that this technology can assist their writing process and improve the overall quality of their academic work. The following table presents the data on students' perceptions based on the questionnaire results.

Table 1. Students' Perception

Students' perception	Responses	Percentation
Very Positive	18	20,2%
Positive	65	73,1%
Negative	6	6,7%
Total	**89**	**100%**

From the table above, it can be seen that the majority of respondents have a positive view of using AI in academic writing, with 73.1% of respondents expressing a positive view and 20.2% having a very positive view. Only 6.7% of respondents have a negative view. This positive attitude is closely related to the effectiveness of writing academic papers in English with the help of AI-powered tools.

More specifically, 88% of respondents believe that writing academic papers in English becomes more effective when supported by AI-powered tools. Many students stated that these AI-based tools are very helpful in providing ideas for writing academic papers.

In addition, AI-powered tools are also considered to improve time efficiency in completing academic writing, allowing students to finish their work more quickly and effectively. This is also reflected in a statement from one of the interview respondents who said, *"Maybe the advantage of using AI is that it can save time in the writing process."* This is in line with the statement from Giglio & da Costa (2023) that AI-powered tools are very useful for the time-consuming process of writing academic papers.

Furthermore, students also acknowledged the benefits of AI-powered tools in helping improve their writing structure, correct grammar, and provide suggestions for revisions that can enhance the quality of their writing. Overall, the findings of this study show a positive attitude among students toward the use of AI-powered tools, which have great potential to improve the quality and efficiency of English academic writing among them.

Advantages and Disadvantages in using AI-Powered Tools

Table 2. AI-Powered Tools Advantages

No.	Advantages
1	Helps in developing and generating ideas
2	Effective and efficient
3	Helps with grammar, vocabulary, and translation
4	Makes it easier to find references

From the table above, it can be seen that there are four (4) types of strengths in using AI-powered tools for writing academic papers in English. The first strength, which was most frequently mentioned by questionnaire respondents, is that AI can help in developing or generating ideas for writing academic papers. This is supported by the interview results, where the majority of respondents stated that AI has the advantage of generating ideas in writing. This was also confirmed in an interview, where one respondent stated:

"To be honest, there are many advantages, because first; our ideas are not limited, but sometimes we get stuck trying to find ideas on a certain topic. So, we just type the topic into AI and the results come out right away…"

These findings are in line with the research results by Khalifa & Albadawy (2024), who stated that AI can help generate ideas and organize content, which is very useful for students who struggle to find ideas in writing. Furthermore, another advantage of AI-powered tools in academic writing is improving the efficiency and effectiveness of writing academic texts in English. This advantage was expressed by two FGD participants, as follows:

"AI is very helpful in making the English academic writing process more effective because AI can be used especially as a reference or guide to develop ideas."

"…AI can also speed up the process of writing academic texts and make the writing more efficient."

From these statements, we can see that this effectiveness and efficiency is still related to the previous advantage, which is AI helping in finding ideas for writing. The finding related to the effectiveness of academic writing was also revealed by Akgun and Greenhow (2022), who stated that AI helps students use their time more effectively when working on academic writing, especially under tight deadlines.

Another advantage is that AI helps students with grammar, vocabulary, and translation. Since this study focuses on the role of AI in writing academic texts in English, respondents also felt the advantage of AI in terms of English academic writing, especially in ensuring correct grammar, proper vocabulary use, and translating English language sources.

Table 3. AI-Powered Tools Disadvantages

No.	Disadvantages
1	The information provided is limited, invalid, or irrelevant
2	Risk of Plagiarism
3	Dependency on AI
4	Decrease writing skills

From the interview results, 33% of students reported that the information generated by AI is sometimes not valid or not relevant to the topic they are writing about. This is in line with the statement by Masrichah (2023), who mentioned that there needs to be a confirmation process regarding the validity of this data. In fact, the validity and relevance of information are key in writing academic papers.

In addition, 33% of students expressed concerns about the potential for plagiarism when using AI-powered tools. These AI tools can produce texts that are very similar to the original sources. Furthermore, another weakness is the sense of dependence on AI-powered tools due to frequent use, which may further reduce students' writing skills and abilities. This concern was also expressed by one interview respondent:

"I'm worried because we might become dependent and lazy to think, especially in academic writing. So, relying too much on AI can limit our skills, make them less effective, or even disappear in the process of writing academic papers."

This is in line with the statement from previous research that inaccuracies in AI-generated information can raise concerns about over-dependence on digital tools and their impact on academic integrity (Zhao et al., 2023). This issue was also discussed during the FGD and was mentioned by a lecturer who highlighted the issue of integrity and academic ethics when using AI.

CONCLUSION

Based on various student perceptions in Sumedang Regency regarding the use of AI-powered tools in English academic writing, the research findings and data analysis show that most students agree that AI gives a positive impact, although there are some concerns, especially regarding the possible negative effects. They agree that this technology has helped them during the writing process in terms of writing quality, efficiency, and effectiveness, especially as a tool for generating ideas. Among the negative impacts of excessive AI use found in this research are dependence, lower writing quality, inaccuracy of information, and the threat to academic integrity. Referring to a statement from one lecturer participating in the FGD, AI is a supporting tool, not the main tool in academic writing. Therefore, although many benefits are felt from using AI, users of AI-powered tools need to apply wisdom to limit their use, so that the benefits can outweigh the risks.

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