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Submission date: 02-Jun-2024 06:28PM (UTC+0530)

Submission ID: 2377753182

File name: ary...nunggu_submte_edit_dulu.docx (127.4K)

Word count: 4961

Character count: 29750

Unlocking the Future: EFL Students' Insights on ChatGPT and AI Technologies for Academic Writing

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Article Info

Article history:

Received junith, 2024

Revisedth, 2024

Acceptedth, 2024

Keyword:

EFL Students perception

ChatGPT-App

AI Technologies

Academic Writing

ABSTRACT

Recently, the widely used and fiercely debated ChatGPT has attracted the interest of researchers, professors, lecturers, and administrators. Additionally, EFL learners require AI feedback on scientific writing to improve their writing abilities. This quantitative study investigated the perceptions and challenges Indonesian EFL learners face in a university English program using ChatGPT tools. This study investigated undergraduate students' viewpoints on using AI-powered ChatGPT tools in English academic writing, focusing on the main goal, results, and feedback to improve their second language writing skills. Data were collected from (n=80) students using questionnaires and semi-structured interviews to analyze their impressions. A survey was administered to EFL undergraduates studying in the English Language Education Study Program at Mataram State Islamic University, Indonesia. Writing ability was assessed online using Google Forms. However, students reported the advantages and difficulty of using ChatGPT for academic writing. These results demonstrate that AI-enabled digital tools can enhance student performance in EFL, academic writing, and other disciplines. The benefits and drawbacks of artificial intelligence must be studied and evaluated, and its implications for academic writing must be developed

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DOI: <http://dx.doi.org/10.24014/ijaidm.v7i2.26455>

1. INTRODUCTION

Recently, artificial intelligence (AI) has substantially advanced education and altered the way individuals think. The English as a Foreign Language (EFL) community and scholars have shown significant interest in AI. AI has emerged as a valuable instructional and learning resource [1]–[3] Artificial intelligence

Journal homepage: <http://ejournal.uin-suska.ac.id/index.php/IJAIDM/index>

(AI) significantly impacts second language (L2) acquisition and academic writing development [4]. [5] proposed that using AI-powered tools, such as Word Tune, might significantly enhance the writing skills of non-native English speakers. AI-driven ChatGPT technologies designed for academic writing may improve language acquisition and teaching. Studies have indicated that AI enhances EFL learners' language understanding, offers spoken language feedback and grade assignments, and has a beneficial effect on English language education. [3], [6]. However, AI-powered tools help Indonesian students at Mataram State Islamic University, NTB-Mandalika, write end-of-semester projects, cultivate creativity, and ensure the timely completion of thesis papers.

Two primary research inquiries drove this study. These inquiries explored students' perspectives and inclinations regarding AI chatbots in higher education. To achieve this, the author put together the following research questions (RQs):

RQ1: What are Indonesian EFL learners' perceptions of AI-ChatGPT-Apps in academic writing?

RQ2: What challenges do EFL learners face when using AI chatbot apps for academic writing?

According to a study on the implementation of chatbots in EFL writing, students created a learning community with Argumate, using various mediating tools to support their interactions. However, students' requirement for additional scaffolding beyond what Argumate provided presented obstacles to their cooperative efforts. [7]. The significance of security and privacy considerations, among others, in influencing students' choice to use AI chatbots to answer questions about library references, admissions, courses, and academics cannot be overstated. Additionally, it is crucial to understand students' perspectives on using AI chatbots in academic writing and how they perceive their usefulness in this context. Furthermore, AI chatbots in education offer immediate support, function as virtual instructional tools, and personalize the learning process. Nevertheless, obstacles include dependability, ethical implications, and user acceptance. Chatbots improve efficiency in academic writing, offer criticism, and assist in identifying plagiarism. Ensuring successful implementation in educational contexts requires careful consideration of both advantages and potential issues. The second question focused on the challenges faced by EFL learners in using AI chatbot apps for academic writing. To enhance the writing skills and confidence of EFL learners, deliberate techniques are necessary, despite the valuable assistance provided by AI chatbots. Given the current challenges, exploring strategies for effectively incorporating AI chatbots into the educational system while resolving the concerns above is critical.

The rest of this paper is organized as follows: The investigation examined learners' perspectives and opinions regarding the effectiveness of ChatGPT in generating ideas, as well as the potential consequences for enhancing personalized language support and promoting lifelong learning in higher education. The study "Indonesian EFL Learners' Perceptions of AI-ChatGPT-Apps Technologies for Academic Writing" is based on a theoretical framework that underpins the research. Is introduced [8]. The study, conducted at three high schools in Central Java, utilized a case study design that combined quantitative (Likert scale questionnaires) and qualitative methods (mobile messaging interviews). This research aimed to explore viewpoints, obstacles, and recommendations for enhancing the use of artificial intelligence (AI) in teaching Indonesian academic writing, without analyzing AI's role of AI in ensuring authenticity and accuracy. The research demonstrated that AI-based resources were helpful in the planning and drafting stages of academic writing and identifying research topics. However, these tools had a limited impact on the overall quality of the paper despite the students' interest. This study identified obstacles, such as a need for editing features for Indonesian texts. Research has recommended enhancing the editing features and promoting AI literacy to overcome these obstacles.

Additional research may be necessary to assess the ability of these technologies to confirm the genuineness and accuracy of the articles. This study aims to explore the viewpoints of Indonesian English as a Foreign Language (EFL) learners regarding the use of messaging apps with artificial intelligence (AI) for academic writing. This study aims to investigate the impact of these tools on the writing process, identify possible advantages and obstacles, and suggest ways to improve their effectiveness in an EFL classroom setting in Indonesia.

Until now, three review articles have discussed specific aspects of AI-generated misinformation, but none have supplied a comprehensive overview of the topic. Salah et al [7] explain the potential threat of AI-generated misinformation, but it primarily focuses on the use of generative AI tools like ChatGPT in social psychology research and the challenges and opportunities that come with this technology. Adadi et al [8] explain a systematic umbrella review and foresight analysis on the role of AI in handling the challenges posed by the COVID-19 pandemic. Bahroun et al [9] give a comprehensive review of the ethical implications, responsible use, data privacy safeguards, biases, and academic integrity when exploring the

2. RESEARCH METHOD

IJAIDM, Vol. 7, No. 2, September 2024: 241 – 254

This research project employed a quantitative research methodology. To gather data, two distinct online questionnaires were developed and distributed through Google Forms to student and instructor participants. The questionnaires were first pre-tested at four different universities with volunteer students and instructors. Following the implementation of recommended improvements, the questionnaires were then administered to the target population.

2.1. Participant

In the study, a group of participating students who had completed academic writing in the previous semester were included eighty respondents. A total of n = 80 participants who have completed the final project of lectures in the final semester 9 in the form of a thesis in the undergraduate English Language Education study program. UIN Mataram University -Indonesia

2.2 Online Questionnaires

The online survey for student participants consisted of 14 items, all of which are outlined below. The survey aims to gauge participants' experiences with ChatGPT in writing scientific papers, including their opinions on the ease of use, impact on creativity, and the effectiveness of ChatGPT's suggestions for improving the quality of scholarly writing. Additionally, the survey aimed to assess the impact of ChatGPT on the organization of content, writing speed, adaptability to different writing styles, understanding of academic writing guidelines, and overall quality of scientific work produced. The survey also sought to understand participants' preferences compared to traditional scientific paper writing methods and any suggestions they may have for further development of ChatGPT in support of scientific writing. Finally, the survey aimed to gather participants' expectations regarding the future development and use of ChatGPT in writing technical papers.

2.3 Procedures

Participants who finished writing a thesis were given 10–15 minutes to answer all questions online using Google Forms. SPSS 24.0 was used to examine each question to ascertain its specific statistical outcomes. Each of the 11 items represents a distinct.

3. RESULTS AND ANALYSIS

The subsequent sections will showcase and delve into the principal discoveries that emerged from the examination of the data amassed through the two questionnaires. RQ1: What are Indonesian EFL learners' perceptions of AI-ChatGPT-Apps technologies for academic writing? RQ2: 2. What are the challenges faced by EFL learners in using AI-chatbots apps for academic writing?

3.1. Student's responded

Responses of EFL Student Participants 'ChatGPT' Tool for Academic Writing, in Percentages1.

Table 1.

No	Statements	Responses (%)				
		SA	A	N	D	SD
1	How was your first experience using ChatGPT in writing scientific papers?	15	31	33	3	3
2	Your creativity in generating ideas for scientific papers can be impacted by using ChatGPT.	14	43	21	4	3
3	ChatGPT is designed to enhance the quality of writing by offering scientific language and grammar advice. To what extent is it effective in this regard?	16	36	28	1	4
4	Could you use ChatGPT to assist in organizing the content of your scientific paper?	11	46	20	4	4
5	Using ChatGPT speeds you up writing scientific papers.	10	44	25	2	4
6	The versatility of ChatGPT allows it to be utilized in a variety of ways when writing scientific papers.	16	41	23	2	3
7	Using ChatGPT improved my understanding of academic writing guidelines.	10	40	27	5	3
8	The use of ChatGPT negatively impacted the overall quality of my scientific work.	10	39	31	2	3
9	Using ChatGPT helped me understand the applicable scientific writing	10	32	34	6	3

10	standards	12	41	26	3	3
	ChatGPT is effective in providing feedback on my scientific papers					

EFL students typically hold a positive perception of ChatGPT when it comes to academic writing. They emphasize the utility of this tool in enhancing idea generation, organizing content, and boosting writing quality. It is often believed that it aids in understanding writing principles and standards. Nevertheless, there are students who exhibit apathy or disagreement regarding the impact of this on the caliber of their scientific work. The researcher shown clearly below:

1. What were your original thoughts about using ChatGPT to write scientific papers?

The data reflects EFL students' reactions to using ChatGPT to write scientific articles for the first time. Notably, 15% strongly agreed and 31% agreed that their first encounter with ChatGPT was positive, indicating a substantial proportion of favorable experiences. A notable 33% remained neutral, suggesting that the sizable group was neither strongly positive nor negative about their initial use. In contrast, 3% disagreed and another 3% strongly disagreed, indicating a minor fraction with negative sentiments towards ChatGPT for scientific writing. Overall, most participants had either positive or neutral perspectives on their first encounters, emphasizing the potential utility of the ChatGPT in this academic context.

2. Your creativity in generating ideas for scientific papers can be impacted by using ChatGPT?

The findings suggest that a notable proportion of EFL (English as a Foreign Language) student participants, particularly those who strongly agree (14%) and agree (43%), believe that using ChatGPT has a favourable impact on their creativity in devising ideas for scientific papers. This implies that these participants collectively recognized the beneficial role of ChatGPT in enhancing their creative thinking in academic writing. However, 21% remained neutral on this issue, indicating a significant portion with neither a strong positive nor a negative stance. In contrast, 4% disagree and 3% strongly disagree, indicating a minor proportion with a negative outlook on ChatGPT's influence on creativity. Overall, the data imply a mostly positive connection between ChatGPT usage and the improvement of creative thinking in scientific paper development, despite some variation in the level of agreement among the participants.

3. ChatGPT is designed to enhance the quality of writing by offering scientific language and grammar advice. To what extent is it effective in this regard?

The data indicate that a considerable number of EFL student participants found ChatGPT's influence on the quality of their writing to be positive, with 16% strongly agreeing and 36% agreeing. This suggests a general agreement that ChatGPT significantly improves the overall quality of scientific language and grammar in academic writing. Additionally, 28% of participants had a neutral stance on this issue, suggesting a group with no strong opinion. Only 1% disagreed and 4% strongly disagreed, indicating a small minority with a negative view of ChatGPT's writing improvement capabilities. Overall, the data suggest that the majority of participants see ChatGPT as a useful tool for enhancing the standards of scientific language and grammar in academic writing.

4. Could you use ChatGPT to assist in organizing the content of your scientific paper?

The results indicate that a significant proportion of EFL students, with 11% strongly agreeing and 46% agreeing, find ChatGPT useful in organizing content for their scientific papers. This suggests a prevailing positive sentiment towards ChatGPT's contribution to the structure and arrangement of academic writing. However, 20% were neutral on this matter, indicating a considerable group with neither a strong positive nor a negative view. On the other hand, 4% disagree and 4% strongly disagree, indicating a small minority with a negative outlook on ChatGPT's effectiveness in organizing content. In summary, the data suggests that most participants view ChatGPT as a helpful tool for content organization in their scientific papers, although some variation exists in their level of agreement.

5. Using ChatGPT speeds you up writing scientific papers?

The results indicate that a substantial proportion of EFL student participants, with 10% firmly agreeing and 44% agreeing, consider ChatGPT a useful tool for accelerating their writing of scientific papers. This suggests a prevalent belief among the participants that ChatGPT positively affects the efficiency and speed of their academic writing. However, 25% remained neutral on this issue, indicating a substantial subgroup with no clear stance. Conversely, only 2% disagree, and an additional 4% strongly disagree, suggesting a relatively small group with a negative viewpoint regarding ChatGPT's effectiveness in hastening the writing of scientific papers. In summary, the data suggest that a substantial majority of the participants perceive ChatGPT as a tool that enhances the speed of their scientific paper writing, although there is some diversity in the level of agreement among participants.

6. The versatility of ChatGPT allows it to be utilized in a variety of ways when writing scientific

papers?

The results indicate that a significant proportion of EFL students, with 11% strongly agreeing and 46% agreeing, find ChatGPT useful in organizing content for their scientific papers. This suggests a prevailing positive sentiment towards ChatGPT's contribution to the structure and arrangement of academic writing. However, 20% were neutral on this matter, indicating a considerable group with neither a strong positive nor a negative view. On the other hand, 4% disagree and 4% strongly disagree, indicating a small minority with a negative outlook on ChatGPT's effectiveness in organizing content. In summary, the data suggests that most participants view ChatGPT as a helpful tool for content organization in their scientific papers, although some variation exists in their level of agreement.

7. Using ChatGPT improved my understanding of academic writing guidelines?

The findings indicate that a substantial proportion of EFL student participants, with 10% strongly agreeing and 40% agreeing, believe that ChatGPT has improved their understanding of academic writing guidelines. This shows a common perception among the participants that ChatGPT has a positive impact on their comprehension of the principles and guidelines related to academic writing. However, 27% of the participants were neutral on this issue, suggesting a significant group with no strong positive or negative stance. On the other hand, 5% disagree and 3% strongly disagree, indicating that a relatively small number of participants had a negative view of ChatGPT's influence on their understanding of academic writing guidelines. In conclusion, the data suggest that a large majority of participants perceived ChatGPT as a useful tool for enhancing their understanding of academic writing guidelines, although there was some variation in the level of agreement among participants.

8. The use of ChatGPT negatively impacted the overall quality of my scientific work?

The findings suggest that a substantial proportion of EFL students believe that ChatGPT has a positive impact on the quality of their scientific work. Specifically, 10% strongly agree and 39% agree, whereas only 2% disagree and 3% strongly disagree. This indicates a significant sentiment among the participants that ChatGPT contributes positively to the quality of their academic output. However, 31% of the participants remained neutral on this aspect, suggesting a noteworthy subgroup with neither a strong positive nor negative stance. In summary, the data imply that a substantial majority of the participants believe that ChatGPT positively affects the overall quality of their scientific work, although there is some diversity in the extent of agreement among participants.

9. Using ChatGPT helped me understand the applicable scientific writing standards?

The study's data revealed that a significant proportion of EFL student participants, with 10% firmly agreeing and 32% agreeing, confirmed that utilising ChatGPT has enhanced their comprehension of scientific writing standards applicable to their field. This suggests widespread recognition among participants that ChatGPT serves as a valuable tool for clarifying and improving their understanding of academic writing standards. However, 34% are neutral on this issue, indicating a notable subgroup with no strong positive or negative stance. On the other hand, 6% disagree, and an additional 3% strongly disagree, indicating a small but significant group with a negative view of ChatGPT's usefulness in comprehending scientific writing standards. In conclusion, the data suggest that the majority of participants perceived ChatGPT as an effective tool in aiding their understanding and adherence to scientific writing standards, although there was some variability in the level of agreement among participants.

10. ChatGPT is effective in providing feedback on my scientific papers?

The findings indicate that a substantial proportion of EFL student participants, with 12% strongly agreeing and 41% agreeing, perceived ChatGPT as effective in offering feedback on their scientific papers. This suggests that the ChatGPT is viewed as a valuable tool for receiving constructive feedback on academic writing by a significant number of participants. However, 26% remained neutral on this matter, indicating a notable subgroup with neither a strong positive nor a negative stance. On the other hand, only 3% expressed disagreement, and an additional 3% strongly disagreed, suggesting a relatively small number of participants with a negative viewpoint on the efficacy of ChatGPT in offering feedback on their scientific papers. In conclusion, the data imply that a substantial majority of participants found ChatGPT effective in providing feedback on their scientific papers, although there was some variability in the level of agreement among participants.

3.2 Answering RQ1, RQ2

Based on the EFL Students' Perception for Academic Writing Exploring the perspectives of EFL students on academic writing uncovers enlightening details. By examining responses 1–10, a thorough comprehension arises, providing valuable information about their mindsets and encounters in this essential area.

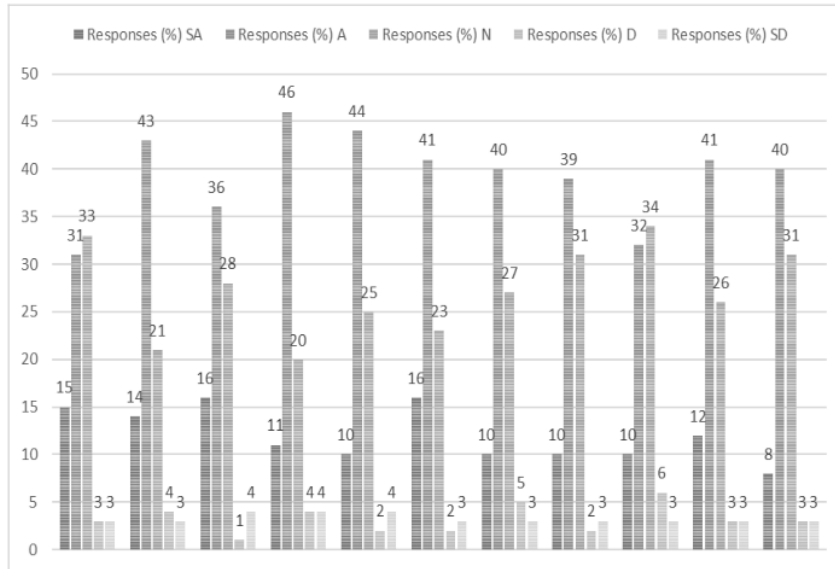


Figure 2. Frequency of EFL Students' Perception for Academic Writing

The table displayed above depicts the frequency of respondents providing Linkert scale answers to questions 1 to 10, allowing for a clear and detailed view of the results.

3.2.1 The other findings students' challenges faced by EFL learners in using AI-chatbots apps for academic writing?

Interview results Together with students who have used ChatGPT to write theses and scientific articles, researchers randomly took 6 people, 3 women and 3 men, with the first question.

"What are the particular difficulties that English as a Foreign Language (EFL) learners face when utilizing artificial intelligence (AI) chatbot applications for academic writing responsibilities?"

EFL learners sometimes need help comprehending complex language structures and sophisticated academic vocabulary. AI chatbot applications may find it challenging to comprehend and produce content with the necessary level of complexity, which can limit their capacity to offer useful support in academic writing activities. The other answer Providing tailored feedback to cater to individual learners needs continues to pose a significant challenge. Although AI chatbots offer generic recommendations, these suggestions may not address particular weaknesses or areas for improvement, thereby limiting their ability to help EFL students overcome personalized obstacles in academic writing.

The second themes.

"What is the consensus among EFL learners concerning the efficacy of AI chatbots in aiding them in their scholastic writing difficulties?"

Diverse viewpoints exist among EFL learners regarding the efficacy of AI chatbots in resolving the challenges associated with academic writing. While some appreciate the immediate feedback and guidance offered by AI chatbots for grammar correction and basic writing conventions, others raise concerns about their inability to understand nuanced languages and cultural contexts. In addition, AI chatbots are limited in their ability to provide in-depth feedback on complex academic concepts. In conclusion, while AI chatbots can provide quick assistance, EFL students have a nuanced perspective, recognizing their benefits and

acknowledging the need for improvement in addressing more advanced and context-specific writing challenges.

The third themes.

“What specific aspects or traits of AI chatbot software hinder English as a Foreign Language (EFL) students when it comes to academic writing in particular contexts”.

What is the perception? Interviews with English as a Foreign Language (EFL) students pointed to particular drawbacks of AI chatbot software that hinder their academic writing experiences. One significant issue is the software's inability to understand contextual subtleties, especially in specialised writing, where precise vocabulary is essential. Another challenge is AI's lack of adaptability to diverse cultural contexts, which can result in an inability to accurately comprehend or address cultural intricacies present in academic writing. Moreover, the limited scope of AI chatbots to provide detailed feedback on complex writing skills, such as argumentation and critical analysis, restricts EFL learners from receiving comprehensive assistance in academic settings. of EFL learners on the effectiveness of AI chatbots in overcoming challenges in their academic writing?

4. DISCUSSION

In this section, research findings are discussed related to the issues raised by the research question, which include EFL Indonesian students' perceptions of AI-ChatGPT-Apps technology for academic writing, then What are the challenges faced by EFL students in using AI-chatbots applications for academic writing?

4.1 RQ 1: Students' perceptions of AI-ChatGPT-Apps technology for academic writing

Based on the study results, students' opinions about incorporating AI-ChatGPT-Apps technology in academic writing and discussions differ. Some individuals contend that integrating ChatGPT into educational procedures and evaluations can be advantageous because it enables students to critically evaluate information and acquire essential skills (Archibald, M. M., & Clark, 2023). Although ChatGPT-generated text has raised concerns regarding its potential impact on academic integrity, it is unclear whether it can be detected using plagiarism software (Abdulah, A. F., & Hung, 2023). Please note that while ChatGPT possesses certain limitations, including its inability to adequately convey human emotions and its reliance on data rather than intuition and clinical acumen, it remains a valuable tool for text generation (Park & Kim, 2023). It is necessary to weigh the advantages, problems, and social implications of integrating AI-ChatGPT-Apps technology into academic discussions and writing.

4.2 RQ2: Students' challenges faced by EFL students in using AI-chatbots applications for academic writing

Language models such as ChatGPT may enhance academic discussions and writing for students learning English as a Foreign Language (EFL). These tools can help students generate original text, provide conversation cues, and simplify complex instructions, all of which can be beneficial for their academic success (Daskaliuk & Zimba, 2023). EFL students often encounter difficulties when using AI chatbots for academic purposes. One such challenge is that they may become overly dependent on chatbots for prescriptive responses, leading to impersonal and fewer therapeutic interactions, which could result in deskilling (Lee, 2023). In addition, utilizing AI chatbots may pose the risk of unreliable or biased information as they occasionally produce inaccurate or misleading content (Scerri, A., & Morin, 2023). EFL learners must assess the drawbacks and potential hazards of using AI chatbots in academic writing and discussions while acknowledging the advantages they provide as a valuable resource. (Gómez-Camacho et al., 2023).

4. CONCLUSION

This study provides notable insights into the use of ChatGPT tools in EFL writing teaching and learning in the Indonesian context. A significant advantage of these technologies is that they can minimize repetitive writing and administrative tasks by condensing extensive patient information into summaries or generating brief case summaries and care plans [9]. Technology provides a useful resource for Indonesian EFL students to enhance their academic writing abilities and tackle the obstacles of speaking English in an ESL setting [10]. While using AI-ChatGPT-Apps, it is important to acknowledge the possible risks and limitations, including the possibility of receiving biased or inaccurate information, and the need for adequate security measures to safeguard confidential and sensitive data.

The survey found that most English as a Foreign Language (EFL) learners positively viewed the ChatGPT, citing its impact on creativity, writing quality, organization, and understanding of academic standards. However, some limitations were identified, such as complex language and generic feedback.

AI-Generated Misinformation: A Literature... (Fatimah et al)

Opinions on AI chatbots were mixed, with appreciation for their speedy assistance but concerns about their ability to understand nuanced language and cultural contexts. EFL students typically expressed favorable opinions of ChatGPT, citing its influence on creativity, writing quality, organization, and comprehension of academic standards[11]. Although certain limitations were uncovered, including the use of complex language and the provision of generic feedback, the overall quality of the writing was insignificant[12]. Opinions regarding AI chatbots were diverse, with users appreciating their prompt assistance while simultaneously grappling with their limited capacity to comprehend intricate language and cultural subtleties[13].

Finally, Indonesian EFL learners are often optimistic about artificial intelligence (AI). ChatGPT Apps offers scholastic writing technology, as they recognize the benefits of these tools in fostering creativity, improving writing quality, and simplifying content organization. However, challenges arise when using AI chatbots, such as the limitations experienced by EFL learners with intricate language and the need for more customized feedback. The opinions on the overall usefulness of AI chatbots in addressing academic writing difficulties among learners are varied.

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BIBLIOGRAPHY OF AUTHORS



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engineering and mechatronics. With undergraduate and graduate degrees in electrical engineering from UPI and ITB, he brings deep technical knowledge to his teaching.

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