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Undergraduate students' perceptions on utilizing Deepseek AI as a tool in writing journal articles

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ABSTRACT

In the ever-evolving digital era, artificial intelligence technologies such as DeepSeek AI are widely used by academics as a solution to writing challenges, especially among students who still develop their academic writing skills. This study aimed to deeply understand undergraduate students' perceptions of the advantages and disadvantages of using DeepSeek AI as a tool in the process of writing scientific journal articles. This study used a qualitative approach with a case study design involving ten students from various educational majors who had used DeepSeek AI in the process of writing scientific journals. 10 participants were selected through purposive sampling based on specific criteria, including prior experience using DeepSeek AI in academic writing. Data were collected through a questionnaire with a Likert scale and semi-structured interviews to capture perceptions in more depth. The results showed that most students felt real benefits from using DeepSeek AI, especially in helping to generate initial ideas when experiencing writer's block, structuring writing more systematically, and improving technical aspects such as grammar and scientific writing style. This study emphasized the importance of using technology wisely in the context of higher education, as well as the need to strengthen information literacy and critical thinking skills in the digital era. Thus, DeepSeek AI is potential to be an effective tool in supporting the learning process, as long as it is used in a balanced manner and does not replace the important role of humans in thinking and writing scientifically.

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INTRODUCTION

In the history of educational technology, many events of technological innovation were imagined as the end of traditional education, as a result of a somewhat irrational euphoria and infatuation with technology (Alghazi et al., 2020). Since the 20th century, radio, television, computers, the internet, mobile technology, social media and virtual and extended reality had been heralded as revolutionizing learning and teaching. However, based on the long history of Education Technology, there was often not adequate consideration of how educators implemented and students interacted with these resources (Rudolph et al., 2023). Therefore, it was very natural to worry that advances in technology might pose a threat or even help to the world of education. So far, developing technology had a significant positive impact not only on the education sector, but also on the health, economic, administrative and even socialization sectors which greatly influenced the habits of society (Jones et al., 2022). For instance, AI was increasingly used in materials engineering due to advances in high-performance computing, which allowed testing deep learning models with large parameters (Schepers et al., 2022).

In China, a chatbot application called DeepSeek, an artificial intelligence (AI) was released in November 2023 by Liang Wenfeng. It offered advanced thinking capabilities in areas such as arithmetic and programming, rivaling other driving models. This has caused DeepSeek's popularity to skyrocket by encouraging the development of open-source superintelligent AI, which had a major impact on the world of technology. It also introduced fair, transparent, and flexible access to AI, thereby fostering cooperation and opportunities for cross-country communities to participate (Sallam et al., 2025). In its development, the presence of DeepSeek has also weakened the dominance of US technology companies and can accelerated the shift of AI development centers to Asia, especially China. DeepSeek is a natural language processing technology that is capable in responding to human questions in text form. The relationship between words or sentences is coherent and the accuracy is quite good and is able to remember previous conversations. Even by utilizing the right prompt technique, a scientific article or even a book can be produced in a short time (Setiawan & Luthfiyani, 2023). DeepSeek can be used to produce responsive text based on user input(Gao et al., 2025). For example, users can provide sentences in the form of questions and DeepSeek will produce responsive text according to what is needed based on the understanding and knowledge gained during training.

The development of AI technology has had a significant impact in various fields, including education (Bit et al., 2024). One of the latest innovations in the field of AI was DeepSeek AI, a tool designed to facilitate the writing process, including writing scientific journals. DeepSeek AI offered a variety of advanced features such as automatic text drafting, grammar correction, and even suggestions to improve writing quality. However, despite its advantages, the use of this tool also raised a number of

concerns, especially regarding the authenticity of writing, excessive dependence on technology, and its impact on students' critical thinking abilities(Sallam et al., 2025).

As prospective academia, undergraduate students were required to be able to produce quality journal article writing (Rahman, 2024). The process of writing a scientific journal not only required a deep understanding of the topic being discussed, but also skills in compiling arguments systematically and critically (Jeremy et al., 2024). The writing activity can increase students' productivity since it needs other supporting abilities like reading, thinking, expanding the knowledge, and comparing one information with another to find accurate and appropriate information. However, it would be difficult to achieve if the students did not put in the effort to hone their skills (Arima Azwati et al., 2022). Online platforms can support process writing by providing tools for collaboration, feedback, and easy revisions, which aligns with the findings that students benefited from structured online instruction and collaborative interactions during writing projects (Sugiarni et al., 2025). In this context, DeepSeek AI appeared as a tool that could help students overcome technical challenges in writing. However, in-depth investigation is required to understand the student perceptions regarding the use of this tool (Kerimbayev et al., 2024).

Although the use of AI in academic writing was growing, research on undergraduate students' perceptions of the advantages and disadvantages of using DeepSeek AI as a tool in writing journal articles was still missing. Most existing studies focused more on the general use of AI, such as ChatGPT or Grammarly, in improving academic writing skills (Johnston et al., 2025). These studies suggested that AI could assist the technical writing process, but also raised ethical concerns, such as over-reliance on technology and reduced critical thinking skills. In addition, reliance on AI can reduce critical thinking and creativity in developing writing ideas. Therefore, AI should be used as a supporting tool that complements the teacher's role, not as the main solution or replacement for human writing skills (Fathimatuzahro & Rizkiyah, 2025). However, there was still a gap in the literature that specifically addressed students' perceptions of the use of DeepSeek AI, especially in the context of writing scientific journal articles that had more stringent academic standards.

Unlike ChatGPT, which had been widely studied in the context of education in general, the use of DeepSeek AI was still rarely explored, especially in the context of higher education in Indonesia. In addition, previous studies tended to focus more on the final results and technical features, while not many had studied in depth how students perceived the benefits and disadvantages of using DeepSeek AI in complex academic tasks such as writing scientific journals. In fact, student perceptions were very important because they could influence the level of acceptance, how it was used, and its impact on the development of independent academic skills.

Apart from that, there was still debate regarding the extent to which AI could help or hinder the development of critical thinking skills and originality in writing (Hz et al., 2023). Some research showed that AI could improve efficiency and accuracy in writing (Brown et al., 2020), but there were also concerns about over-reliance on technology and the potential for unintentional plagiarism. Therefore, it was important to explore undergraduate students' direct experiences in using Deepseek AI, so as to provide deeper insight into the benefits and challenges faced in its use (Lintner & Tomáš, 2024).

This research was important to fill this gap by analyzing undergraduate students' perceptions of the advantages and disadvantages of DeepSeek AI in writing journal articles. It was hoped that the results of this research could provide recommendations for students and AI technology developers in increasing the effectiveness of using AI in the academic world. This research aimed to explore undergraduate students' perceptions of the advantages and disadvantages of using DeepSeek AI as a tool in writing scientific journals. By understanding this perception, it was hoped that a clearer picture could be obtained about the extent to which AI technology could be integrated into the academic learning process without sacrificing the quality and integrity of scientific writing. In addition, it was hoped that the results of this research could provide recommendations for the development of AI tools that were more appropriate to students' academic needs.

RESEARCH METHODOLOGY

This research used a qualitative approach with a case study design to understand undergraduate students' perceptions of the use of DeepSeek AI in writing journal articles. The study began with the main question of how undergraduate students perceived the advantages and disadvantages of using DeepSeek AI as a tool to assist in writing scientific journal articles. This question was important to answer in order to understand the extent to which students accepted and utilized artificial intelligence technology in the academic process, as well as how they assessed its impact on the quality and originality of their writing. This approach was chosen because it allowed researchers to gain a deep understanding of students' experiences, views, and feelings regarding the use of AI technology (Baxter & Jack, 2008). It aimed to explore undergraduate students' perceptions regarding the advantages and disadvantages of using DeepSeek AI as an aid in writing scientific journals. As AI technology continued to develop, it was important to understand how students utilized these tools and the challenges they faced.

The author decided to study by using DeepSeek AI to act as an academic who would write a scientific article on the topic of DeepSeek AI itself. In order to achieve the desired writing results, the writer followed Akin's advice by creating an effective

prompt, where the prompt needed clarity, focus, and relevance. Therefore, users were advised to avoid entering prompts that were overloaded with information, used unclear jargon or terms, were too open, and did not include clear instructions or limitations (Akin et al. (2022).

Setting and Participants

The research participants were undergraduate students from various faculties of education at a university in North Sumatera who had used DeepSeek AI or similar tools in writing scientific journals. Participants were 10 undergraduate students selected using purposive sampling. Purposive sampling was used because researchers selected participants deliberately based on certain criteria that were relevant to the research objectives. Based on the following criteria: having used DeepSeek AI to write or edit journal articles, and being active in academic activities involving writing journal articles.

Technique of Collecting Data

This research used a survey method with a questionnaire with participants to explore their perceptions about the advantages and disadvantages of DeepSeek AI. According to Creswell (2014), the questionnaire was developed based on relevant literature and designed using a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). It included items focusing on key aspects such as idea generation, writing efficiency, grammar improvement, and concerns regarding accuracy and dependence on AI. For the Likert scale, out of 10 participants, only 3 people chose very often, so these 3 people were the ones I chose to interview to get more information. Additionally, interview is used to see insights from students regarding their experience using this application. According to Hamed Taherdoost (2022) interviews are conducted face to face, phone or online. The interviews used in this study were semi-structured, conducted individually and using a conversational method. Each respondent (a total of three people) was interviewed once individually, resulting in a total of three interview sessions. Each session lasted approximately 20 to 30 minutes. The semi-structured format allowed participants to express their perceptions freely, allowing the researcher to probe further if necessary to clarify or expand on key answers and prepared questions, while still providing a brief overview for the interviewer to explore the answers further. To gain insight into students' experiences using Deepseek AI to write journal articles, the interviews focused on their real-world uses, benefits, challenges, and perceptions.

Technique of Data Analysis

Questionnaire data were analyzed using content analysis to determine the percentage of students who agreed or disagreed with each statement. Content analysis is a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use (Krippendorff, 2004). These responses

were grouped into themes, such as writing efficiency, improving writing quality, and concerns about over-reliance on AI. Questionnaires have been distributed to undergraduate students who have used Deepseek AI in writing journal articles. Interview data were analyzed using thematic analysis. Thematic analysis provides a flexible and useful research tool, which can potentially provide a rich and detailed, yet complex account of data (Nowell et al., 2017). The researcher identified key themes from the participants' responses, such as the usefulness of DeepSeek AI in generating initial ideas, organizing journal structures, and correcting grammar. These themes were supported by direct quotations from participants, and cross-referenced with questionnaire data for validation.

RESULTS

This study aimed to explore undergraduate students' perceptions of the advantages and disadvantages of using DeepSeek AI as a tool in writing journal articles. The data were collected from a questionnaire distributed to 10 students and followed up by in-depth interviews with 3 selected participants who most frequently used DeepSeek AI. The findings are categorized into two main areas are perceived advantages and perceived disadvantages.

Students' perception on advantages of using DeepSeek AI

Table 1. Advantages of Using DeepSeek AI in Writing Journal Articles

No	Item	SA	A	N	D	SD
1.	Deepseek AI helps me generate new ideas in writing journal articles.	30%	60%	10%	0%	0%
2.	Deepseek AI improves my efficiency in composing journal articles.	20%	70%	10%	0%	0%
3.	Deepseek AI helps me in tidying up the grammar and structure of academic writing.	30%	50%	10%	10%	0%
4.	I feel the quality of my writing has improved with the help of Deepseek AI.	20%	40%	30%	10%	0%
5.	Deepseek AI helps me understand the format and writing style of journal articles better.	20%	30%	50%	0%	0%

Based on the results of the questionnaire distributed to ten students, the majority of respondents stated that the use of DeepSeek AI provides many benefits in the process

of writing scientific journal articles. Most students feel that DeepSeek AI helps them generate new ideas, where 90% of respondents agree or strongly agree with the statement. In addition, 90% of respondents also admit that this application is able to increase efficiency in compiling articles, because they can complete writing faster and more systematically. DeepSeek AI's ability to help improve grammar and writing structure is also recognized by 80% of respondents, who feel that this feature is very helpful in compiling better academic writing.

Generating new ideas

One of the main findings from the interviews was that DeepSeek AI acted as an idea stimulus for students. Many participants stated that one of the biggest difficulties in writing scientific journals was getting started, especially in exploring topics and forming initial ideas. With DeepSeek AI, this process became easier because AI could provide inspiration in the form of keywords, main ideas, or opening paragraphs. One participant said that

> *"AI provided a very helpful initial* verview *to start writing when I didn't know where to start writing." (P1-Interview).*

This theme shows that AI can function as a writing assistant that is able to encourage the creative thinking process at the exploratory stage. In other words, AI is not only a technical tool, but also an ideational scaffold that sparks students' initial creativity.
Students felt that DeepSeek AI helped them in finding and developing initial ideas in writing journals. One student said:

> *"DeepSeek AI provides a very helpful overview to start writing when I don't know where to start.", (P1-Interview).*

> *"Deepseek AI can be useful for academic writing as it helps with writing, summarizing, and finding references. However, its accuracy and relevance should still be checked, as AI is not always 100% reliable.", (P2-Interview).*

> *"With this ai we can easier to building our writing, and also can give us the idea for writing", (P3-Interview)*

AI is considered capable of providing stimulus in the form of keywords, main ideas, or opening paragraphs that can then be further developed by students themselves. Students consider DeepSeek AI as a tool that triggers initial ideas in journal writing. When they experience writer's block, DeepSeek provides initial stimulus in the form of keywords, topics, or opening paragraphs that make it easier to get started. This shows that DeepSeek can function as an effective creativity driver, not only as a

technical tool, but as an initial partner in exploring writing ideas. With DeepSeek AI, the process becomes easier because AI can provide inspiration in the form of keywords, main ideas, or opening paragraphs. One participant said that AI "provides a very helpful initial overview to start writing when I don't know where to start writing." This theme shows that AI can function as a writing assistant that is able to encourage the creative thinking process at the exploratory stage. In other words, AI is not only a technical tool, but also an ideational scaffold that sparks students' initial creativity.

Efficiently structuring writing

Students also appreciated the role of DeepSeek AI in helping them structure their writing systematically and logically. Many of them said that AI was able to quickly create a writing outline, including organizing chapters, subheadings, and argumentation flow. This made the writing process more efficient and reduced the time usually spent just designing the writing structure. For example, one student said, "DeepSeek AI helped me create a neat outline, so I just had to develop each point." This theme shows that AI facilitates students in understanding academic structures and speeds up the content creation process. This efficiency allows students to focus more on the substance without being too burdened by technical matters.

Students said that DeepSeek AI was very helpful in structuring systematic writing. They found it easier to create article outlines such as the introduction, literature review, methodology, and conclusion.

> *"DeepSeek AI helps me create a neat outline, so I just have to develop each point.", (P1-Interview).*

> *"Previously, it took me a long time to create a journal article outline. However, after using DeepSeek AI, I can structure the article faster and more systematically. This AI helps in designing sections such as the introduction, methodology, and conclusion so that I can focus more on the content of the writing.", (P2-Interview).*

> *" I usually get confused when it comes to organizing journal sections, but with AI, everything is clearer and more focused.", (P3-Interview)*

This speeds up the writing process and provides significant time efficiency. The interview revealed that DeepSeek AI is very useful in compiling journal structures more quickly and systematically. Students who often have difficulty designing writing outlines can be helped by the AI feature that is able to organize chapters and sub-chapters in scientific articles. This shows that AI can increase students' efficiency in writing, so that they can focus more on the content of the writing rather than on the technical aspects of compiling the structure. They said that AI is able to create writing

outlines quickly, including organizing chapters, subheadings, and argumentation flows. This makes the writing process more efficient and reduces the time usually spent just designing the writing structure. For example, one student said, "DeepSeek AI helps me compile a neat outline, so I just have to develop each point." This theme shows that AI facilitates students in understanding academic structures and speeds up the content compilation process. This efficiency allows students to focus more on the substance without being too burdened by technical matters.

Grammar and writing structure correction

Another technical aspect that is highly appreciated by students is DeepSeek AI's ability to correct grammar, spelling, and sentences according to academic rules. Some students admitted that their common obstacle was the limited use of formal language and complex scientific sentence structures. With AI, they felt helped in constructing more effective sentences, avoiding grammatical errors, and adjusting the writing style to scientific writing standards. One respondent stated, "My grammar is often messy, but AI helps me make it more professional." This theme emphasizes the function of AI as a language enhancer that supports improving the quality of writing from a linguistic perspective.

The grammar correction feature of DeepSeek AI is one of the advantages that is most felt to be beneficial. Students admitted to having problems with academic grammar, and AI helped construct sentences that were more in accordance with scientific writing style.

> *"My grammar is often messy, but AI helps me make it more professional.", (P1-Interview).*
>
> *"Deepseek can help us in composing writing and improving grammar and writing structure.", (P2-Interview).*
>
> *"DeepSeek AI is very helpful in improving my grammar and making my sentences more formal. It is suitable for academic style. But I still double check because sometimes the results are stiff and not in accordance with my intention.", (P3-Interview)*

Another technical aspect that students highly appreciate is DeepSeek AI's ability to correct grammar, spelling, and sentences according to academic rules. Some students admitted that their common obstacle was the limited use of formal language and complex scientific sentence structures. With AI, they felt helped in constructing more effective sentences, avoiding grammatical errors, and adjusting the language style to scientific writing standards. One respondent stated, "My grammar is often messy, but AI helps me make it more professional." This theme emphasizes the function of AI as

a language enhancer that supports improving the quality of writing from a linguistic perspective.

Students' perception on disadvantages of using DeepSeek AI

Table 2. Disadvantages of Using DeepSeek AI in Writing Journal Articles

1.	I feel too dependent on Deepseek AI in writing journal articles.	30%	20%	30%	20%	0%
2.	Deepseek AI produces less accurate or relevant information in journal article writing.	30%	30%	30%	10%	0%
3.	I feel my creativity is reduced because I rely too much on Deepseek AI in the writing process.	10%	30%	10%	50%	0%
4.	I'm concerned that using Deepseek AI may cause plagiarism issues in my journal articles.	30%	40%	0%	30%	0%
5.	Using Deepseek AI made me less able to develop my academic writing skills independently.	20%	40%	0%	40%	0%

SA= Strongly Agree; A= Agree; N= Neutral; D= Disagree; SD= Strongly Disagree

However, although most respondents acknowledge the technical advantages of DeepSeek AI, there are concerns about the accuracy of the information produced. As many as 30% of students strongly agree and another 30% agree that DeepSeek AI sometimes produces information that is less accurate or relevant, while another 30% choose neutral. This shows that despite the benefits, students are still aware of the limitations of the content produced by AI. In addition, around 60% of respondents also stated that the use of DeepSeek AI could reduce their ability to develop writing skills independently, indicating concerns about dependence on technology. Thus, although students' general attitudes towards DeepSeek AI tend to be positive, they still want wise and balanced use so as not to interfere with the natural process of developing academic skills.

Doubts about the accuracy of AI-generated information

Despite the obvious technical benefits of AI, students also voiced doubts about the accuracy and relevance of the information generated by DeepSeek AI. In some cases, students noted that AI provided information that was too general, unspecific, or even out of context with the journal topic they were working on. One student

expressed, “The information from AI is sometimes too shallow and does not fit the scientific approach I want.” This concern suggests that students still need to have good information literacy skills to filter and verify the content generated by AI. This theme is particularly important in the context of higher education because it emphasizes that AI cannot completely replace critical reasoning and in-depth scientific literature review.

Despite the perceived technical benefits of AI, some students expressed concerns about the accuracy and relevance of the content generated. AI sometimes provides information that is too general, uncontextual, or even out of context with the required scientific approach.

> *"Information from AI is sometimes too shallow and does not fit the scientific approach I want.", (P1-Interview).*
>
> *"AI is smart, but not necessarily accurate. I consider it as an initial reference only, not a primary source.", (P2-Interview).*
>
> *"Information from DeepSeek AI is often too general and sometimes doesn’t match the topic of my journal. I still have to find references myself. So, I use AI only as an initial aid, not a primary source.", (P3-Interview)*

Students recognized the importance of verifying and double-checking the results provided by AI. While the technical benefits of AI were well-received, students also voiced doubts about the accuracy and relevance of the information generated by DeepSeek AI. In some cases, students mentioned that AI provided information that was too general, not specific, or even not contextual to the journal topic they were working on. One student said, "The information from AI is sometimes too shallow and does not match the scientific approach I want." These concerns indicate that students still need to have good information literacy skills to filter and verify the content generated by AI. This theme is especially important in the context of higher education because it emphasizes that AI cannot completely replace the process of critical reasoning and in-depth scientific literature review.

Dependence on technology

The most prominent theme as a warning for students is the risk of dependence on AI, which investors can reduce the ability to think independently and write original. Several students said that using AI too often makes them "lulled", because all processes become automatic, so they rarely hone their writing skills independently. One student said, "I'm afraid I'll become lazy thinking that everything is provided by

AI." This concern reflects the need to regulate the use of technology wisely so as not to erode basic writing skills, critical thinking, and creativity. This theme is also an important reflection in the discourse on the ethics of using educational technology, namely how to build a balance between utilizing technology and maintaining students' cognitive abilities.

The students' biggest concern is the potential for dependence on AI. They feel that excessive use can reduce the ability to think independently and be creative.

> *"Honestly, since using AI I have become lazy to think. Everything feels instant. This is actually good but also makes me afraid of becoming too dependent.", (P1-Interview).*
>
> *"I am worried that my writing ability will decline over time because I am assisted by AI too often. I am trying to start limiting its use.", (P2-Interview).*
>
> *"It was very helpful at first, but over time I felt too dependent. Even for opening sentences I became lazy to think for myself. Now I'm starting to limit its use so that I can still write independently.", (P3-Interview)*

Students emphasized the importance of balanced use so that AI does not replace writing and critical thinking skills that should still be developed independently. Although DeepSeek AI offers many conveniences, some students are concerned about the risk of dependence on this technology. The most prominent theme as a warning from students is the risk of dependence on AI, which is feared to reduce the ability to think independently and write originals. Several students said that using AI too often makes them "lulled", because all processes become automatic, so they rarely hone their writing skills independently. One student said, "I'm afraid I'll become lazy thinking that everything is provided by AI." This concern reflects the need to regulate the use of technology wisely so as not to erode basic writing skills, critical thinking, and creativity. This theme is also an important reflection in the discourse on the ethics of using educational technology, namely how to build a balance between utilizing technology and maintaining students' cognitive abilities.

DISCUSSION

One of the results of this study indicate that the utilization of DeepSeek AI in writing scientific journals has a significant positive influence on students' writing process, especially in technical aspects such as generating initial ideas, structuring writing, and improving grammar and academic style. This finding strengthens the arguments of previous studies such as (Johnston et al., 2025) who examined the benefits of using

AI such as ChatGPT and Grammarly in improving the efficiency and quality of academic writing. However, the main difference from this study lies in its focus on DeepSeek AI, a relatively new platform that has not been widely studied in depth, especially in the context of higher education in Indonesia.

In general, students welcomed the presence of DeepSeek AI because it was able to help them with various technical aspects of writing, such as generating initial ideas, structuring writing, and improving grammar and style of scientific writing. Most students felt that it was helpful in increasing the efficiency of the writing process. This finding is consistent with the claim expressed in the introduction that AI, if utilized properly, can be an effective solution to technical challenges in academic writing (Guo & Zaini, 2024).

One of the most prominent findings is the role of DeepSeek AI in triggering initial writing ideas. Students consider AI as a very useful initial stimulus when experiencing a writer's block. This shows that AI does not only function as a technical tool, but can also act as an ideational partner that helps increase students' creativity in the early exploration stage of writing. This phenomenon supports the argument in the introduction that AI can encourage the development of critical and creative thinking skills, two of the six important competencies of the 21st century according to (Leest & Wolbers, 2020).

However, the results of the study also showed that students were concerned about the accuracy and relevance of the content generated by AI. Some students felt that the information generated by DeepSeek AI was sometimes too general and did not match the scientific context needed in journal writing. This confirms that although AI can speed up the writing process, the quality of the content still requires critical engagement and information literacy from users. This finding is in line with previous studies (Brown et al., 2020) which highlighted the need for verification and selection of AI output to maintain the quality and authenticity of scientific writing.

Another aspect that deserves attention is the concern about dependence on technology. Students realize that excessive use of AI can reduce their ability to write independently and weaken their critical thinking. This concern illustrates the ethical dilemma in the use of educational technology, namely how to create a balance between the convenience offered by technology and the strengthening of cognitive abilities and basic skills that should still be developed by students independently.

DeepSeek AI is positioned as a potential tool in supporting the development of these competencies, especially in terms of critical thinking and creativity, especially at the stage of exploring ideas in scientific writing. However, at the same time, this study also emphasizes the importance of information literacy and academic ethics, because AI still has limitations in content accuracy and the potential to blur the boundaries between originality and automation (Celik, 2023).

Furthermore, this study also confirms the views of Rudolph et al. (2023) who remind that euphoria towards technology is often not accompanied by careful consideration of implementation and user interaction in the world of education. Therefore, although AI offers efficiency and convenience, its use needs to be guided by wise pedagogical policies (Liu & Xiao, 2024) so as not to damage the essence of the learning process itself. Thus, the results of this study are an important contribution to the literature on the use of AI in higher education, by highlighting the balance between the benefits of technology and the need to maintain academic integrity and authentic writing skills.

From the results of this study, it can be concluded that DeepSeek AI has great potential to support the learning process of students, especially in improving the quality of scientific journal writing. However, the use of this technology must be done wisely, while maintaining the principles of originality, individual skill development, and information literacy. Thus, technology can be maximized as a tool, not as a substitute for human thinking processes. The implications of these findings also emphasize the importance of technological literacy among students, so that they are not only passive users, but are able to criticize and utilize AI strategically to support their academic achievements.

Overall, this discussion confirms that the integration of AI technology such as DeepSeek in higher education needs to be done with a comprehensive pedagogical approach. No matter how good the technology is, it cannot replace the essential role of the learning process that involves deep understanding, critical analysis, and creativity (Hamann, 2019). Therefore, the role of lecturers, curriculum, and institutional policies is very important in directing the use of AI that is ethical, balanced, and oriented towards the development of student competencies holistically.

CONCLUSION

Based on the results of the research that has been conducted, it can be said that using DeepSeek AI for writing scientific journal articles by undergraduate students has both positive and negative effects. On the positive side, DeepSeek AI is a helpful tool that makes the academic writing process easier. It helps students come up with ideas, organize their writing in a clear and logical way, and improve grammar and the style of their writing. This is especially helpful for students who often struggle with starting or working on scientific writing. Using DeepSeek AI saves time and makes it easier to create drafts. It also helps students be more creative at first and better understand how to structure scientific writing.

On the other hand, the study also found several worries and problems that students face when using DeepSeek AI. One main concern is that the information generated by AI may not be accurate or relevant. Sometimes, the output is too general, not specific to the context, or doesn't match the scientific standards the students want.

This shows that even though AI can help with technical aspects, students still need good information literacy and the ability to critically evaluate what they read to ensure the quality and truthfulness of their work. Another big issue is that students might become too dependent on AI. Using it too much can stop their ability to write on their own, hurt their thinking skills, and make them less responsible for their academic work.

Therefore, it is important to highlight that DeepSeek AI should be used as a helpful tool, not as a replacement for human thinking. When using this technology, it is important to support academic values, ethics, and strong thinking skills so that students stay active in their learning. Lecturers and educational institutions also play an important role in teaching students how to use technology in an ethical and smart way. With the right approach, DeepSeek AI can help students develop their abilities in a well-rounded way, especially when dealing with the challenges of education in the digital age. This study also stresses that using AI in higher education should be done with a thoughtful teaching approach so that technology does not take away from the learning experience that focuses on deep understanding, original thinking, and student creativity.

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