

STUDENTS' PERCEPTIONS TOWARD DEEPSEEK AS A SUPPORTING TOOL IN ENGLISH LANGUAGE LEARNING

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Abstract

In an era of rapid technological advancement, artificial intelligence (AI) has profoundly influenced various sectors, including education. This study explores university students' perceptions of DeepSeek, an AI-powered chatbot, as a supporting tool in English language learning. Utilizing a qualitative method, the research involved interviews with eight second-semester students from the English Education Program at Universitas Muhammadiyah Kalimantan Timur. Findings reveal that students perceive DeepSeek as a beneficial tool due to its user-friendly interface, fast and concise responses, and its ability to assist in grammar correction, vocabulary development, and writing improvement. DeepSeek also fosters motivation and self-directed learning. However, limitations such as overly technical answers, daily usage restrictions, and sometimes irrelevant responses were identified. This study contributes to the ongoing discourse on AI-powered tool integration in education and highlights the potential and challenges of employing AI chatbots like DeepSeek in language learning contexts.

Keywords: Artificial Intelligence, AI Chatbot, DeepSeek, English Language Learning, Students' Perceptions.

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Introduction

Nowadays, in an age of rapid technological advancement, significant technologies and discoveries enhance all aspects of human life around the world. According to Minh Tri et al. (2021), rapid technological breakthroughs affect every area of human existence, including government, employment, and education. Artificial intelligence (AI) stands out as a major technological achievement. Artificial intelligence represents the creation of computer systems capable of performing tasks that once required human intelligence (Russell & Norvig, 2021). These tasks include problem-solving, observation, learning, and language comprehension. Therefore, the rise of artificial intelligence has profoundly impacted society across various fields, particularly in education. Integrating artificial intelligence (AI) in education has transformed traditional learning methods into technology-based learning, opening up new opportunities to expand the

learning experience. One of the most severely impacted areas is language learning (Hartono, 2024). Language learning, particularly English, plays a crucial role in today's global society. Proficiency in English is widely acknowledged as a desired ability that enables individuals to communicate effectively across countries, cultures, and professional domains (Arifatin & Setyaningrum, 2024).

Artificial intelligence (AI) has become increasingly prevalent in educational environments, particularly among university students who utilize it to enhance their academic pursuits, including English language learning. One of the popular AI-driven tools is the chatbot, a software application that leverages natural language processing (NLP) and machine learning (ML) to stimulate human conversation and provide relevant responses based on what users input (Alazzam et al., 2023). In the context of English language education, AI chatbots support learners

in improving their reading, writing, and speaking abilities by providing writing prompts, proposing sentence structures, enhancing vocabulary through contextual suggestions, and facilitating interactive conversations, although they are not as effective in developing listening skills (Song & Song, 2023). Therefore, the rapid advancement of AI-powered tool holds significant promise for revolutionizing the process of acquiring English through inventive and customized learning experiences.

DeepSeek is an AI-driven system designed for natural language processing (NLP), information retrieval, and data analysis. DeepSeek is one of the AI-powered chatbots developed by DeepSeek Technologies. According to Dandage (2025), this AI-powered platform boasts distinctive features that enhance user experience, particularly its capability to consolidate various data types, such as text, images, and audio, to deliver more thorough and precise outcomes. Therefore, in the context of learning, DeepSeek plays a crucial role as a learning tool such as text analysis, providing real-time information, and fostering reading skills and comprehension of context.

Recent studies related to artificial intelligence (AI) in language learning indicate that AI has significant potential as a supporting tool in English language learning. Keumalasari et al. (2024) most students have a positive attitude toward using AI tools like ChatGPT, Google Translate, and chatbots for learning English, appreciating their ability to improve learning, increase motivation, and provide instant feedback. Furthermore, A study by Slamet, (2024) showed that AI-powered platforms like ChatGPT offer several benefits to EFL students and teachers, including improved language competency, a personalized learning experience, and

increased engagement through real-time feedback and interactive conversations.

Consequently, most studies focused on the use of artificial intelligence such as ChatGPT, Google Translate, and Duolingo, but did not include the DeepSeek application. The limitations of the previous studies highlight the need for further research on AI-powered tools with different applications. Furthermore, the researcher sought to broaden and deepen the scope of previous studies by highlighting the role of DeepSeek, an AI-powered chatbot as a support tool in English language learning from the perspective of university students.

This study adds to the existing body of knowledge by examining how DeepSeek, an innovative technology, supports English language acquisition. Exploring students' perceptions reveals how technology can enhance vocabulary acquisition, grammar understanding, and overall language proficiency, particularly in non-native English-speaking contexts where effective tools can bridge gaps in traditional learning methods. The researcher aspires for this study to be beneficial in both theoretical and practical contexts.

Theoretically, it provides valuable insights and data for educational institutions and future researchers, serving as a reference for evaluating the role of DeepSeek in language learning. By highlighting students' experiences, the study adds to the ongoing conversation about using AI in education and offers guidance for effective integration.

Practically, the study benefits students, teachers, and institutions by showing how DeepSeek can improve language learning. It helps students use AI tools more effectively and supports teachers in designing tech-enhanced lessons. The findings also help institutions integrate AI into curricula

responsibly, offering training and promoting balanced, engaging learning environments.

Given the background and objectives outlined in this study, it is imperative to identify specific research questions that will guide the direction of the investigation and help achieve a deeper understanding of the topic. Therefore, the following research questions are proposed:

1. What are the college students' perceptions towards DeepSeek as a supporting tool in English language learning?
2. What are the challenges faced by students when using DeepSeek in their learning process?

Literature Review

1. English Language Learning

Language learning, particularly English, is essential in this era of globalization. English is an international communication tool that opens up many opportunities in various aspects of life, from education to professional careers. Mastery of English provides a huge advantage for individuals who want to advance and compete globally. As English is an international language, mastery of English is necessary for every individual, especially students, in order to communicate more effectively, improve their quality of life, and provide a competitive advantage for each graduate (Tan et al., 2020). Therefore, in today's digital era, technology has transformed the way we learn. Technological developments have made the process of learning English easier and more interesting. The integration of technology is broadly acknowledged as a means to foster an interactive and dynamic educational environment, enhancing both student engagement and academic achievement (Ramaila & Molwele, 2022). There are many AI-powered applications that support

language learning, especially English, such as Duolingo, Grammarly, ChatGPT, Quillbot, DeepSeek, and other tools.

2. Learning Tool

Learning tools are digital or physical resources designed to enhance the educational process by supporting the acquisition of knowledge, skills, attitudes, or competencies. These tools come in various formats, including digital platforms, educational software, interactive applications, and traditional learning materials that promote personalized, adaptable, and contextualized learning for students, while improving accessibility and ease of access to educational resources (Judijanto, 2024). In this era of digitalization, learning tools are always developing to keep up with technological breakthroughs, resulting in the introduction and broad use of digital learning technologies. These technologies are essential in modern education because they provide interactive, adaptable, and accessible learning experiences that address a wide range of learning demands (Haleem et al., 2022). From Learning Management Systems (LMS) and educational applications to virtual classrooms and AI-powered tutoring systems, digital learning technologies have revolutionized traditional teaching techniques, making education more interesting, efficient, and inclusive for learners and educators alike (Alotaibi, 2024).

3. AI-Powered Tool

In the era of advanced digital development, technology has evolved into an important part of everyday human life, including in the field of education. Artificial Intelligence (AI) has fundamentally transformed multiple industries, including education, with a

particularly profound effect on language acquisition (Afifa et al., 2024). These technologies use machine learning algorithms and natural language processing (NLP) to assess learners' progress, identify areas for development, and offer personalized information that suits their particular needs (Alqahtani et al., 2023). The integration of AI into language learning has created new opportunities for personalized, efficient, and engaging education.

One of the AI-powered tools, specifically DeepSeek, has gained considerable attention due to its advanced capabilities to deliver immediate feedback, such as grammar correction, sentence restructuring, and pronunciation, develop personalized learning pathways, and foster interactive engagement. DeepSeek enables learners to attain their learning goals more effectively. Despite the advantages of DeepSeek, there are still some limitations. DeepSeek frequently reiterates concepts even when prompted to elaborate on them. For instance, when users ask for written content, they must present a distinct idea. Nonetheless, DeepSeek often repeats similar ideas. Furthermore, its database is limited to information available up to 2023 since DeepSeek is a new AI application that is launched in 2024.

Although AI-powered tools have certain challenges and limitations, their ability to enhance English language skills remains undeniable. Studies have indicated that these tools can significantly assist students in developing their English proficiency. AI-powered applications such as ChatGPT positively influence students' understanding by offering explanations for both correct and incorrect answers, along with feedback on vocabulary tasks, making this tool more interactive and effective for enhancing students' vocabulary knowledge in English (Vita

Losi et al., 2024). AI-powered, as a tool for English language learning improves students' vocabulary acquisition and grammar understanding, as well as enhances learning motivation (Salsabila & Widiastuty, 2024). As artificial intelligence advances, its importance in teaching languages will keep expanding, offering increasingly creative methods to assist learners around the world, while these technologies enhance educational outcomes and make the experience more enjoyable and motivating for students.

The domains of English language acquisition, learning tools, and AI-powered applications are intricately linked, each playing a role in the advancement of the others. The growing importance of English as a universal language has driven the creation of innovative educational approaches and technologies, with artificial intelligence becoming a crucial factor in fostering personalized, effective, and engaging language learning experiences. As global dynamics evolve, the amalgamation of these components will be vital in influencing the future of education, helping learners meet their language and career aspirations in an ever-more interconnected world.

Several studies have shown that AI-powered tools like DeepSeek can positively impact English language learning. For example, Rosmayanti (2024) found that applications such as ChatGPT and Grammarly provide personalized feedback, help improve vocabulary, and support good learning habits. Using a convergent parallel design, the study gathered both qualitative and quantitative data from 100 participants through surveys and interviews. Results showed that these tools increase learning efficiency (89%), improve writing skills (82%), and boost confidence in completing academic tasks (75%), proving their strong benefits for students.

Similarly, Chen (2025) highlighted that AI tools significantly increase student engagement and motivation in digital learning. A study by Salsabila & Widiastuty (2024), using interviews with 16 EFL students from the State Islamic Institute of Palangka Raya, also found that tools like ChatGPT make learning more interactive and enjoyable. These tools help improve motivation, expand vocabulary, and support grammar learning, contributing to overall language development.

However, while many studies have explored well-known AI tools like ChatGPT, Grammarly, and Duolingo, there is limited research specifically focused on DeepSeek. Despite its growing role in language learning and academic support, little is known about how students perceive and use DeepSeek. This lack of research creates a gap in understanding its effectiveness and application in English language learning.

To address this, the current study aims to explore students' experiences, perceptions, and challenges with DeepSeek as a tool for learning English. It will examine how students view its usefulness, how well they accept it, and how effectively it is integrated into their learning environment.

Research Methodology

1. Research Design

The research employs a qualitative approach method to demonstrate and explain students' perception of DeepSeek as a supporting tool in English language learning. Qualitative research methods are often referred to as artistic or interpretative methods due to their more creative (less structured) approach to the research process, and the data collected is more closely related to the analysis of field observations (Sugiyono, 2023). Additionally, a qualitative approach enables a more in-depth investigation of

students' experiences, thoughts, and emotions related to their use of DeepSeek, aspects that may not be adequately represented through quantitative methods. By concentrating on personal interpretations, this study seeks to offer an extensive understanding of the impact that DeepSeek has on students' English learning processes and their level of engagement.

2. Participants

The participants of this study consist of eight second-semester students from the English Education Program at Universitas Muhammadiyah Kalimantan Timur. The researcher will employ purposive sampling to select participants who actively use DeepSeek and conduct an interview to guarantee that responses from participants are relevant and aligned with the objective of the study. According to Sugiyono, (2023) purposive sampling is a method for selecting a sample based on particular criteria. Purposive sampling is employed when the sample being targeted possesses specific traits, meaning that it may exclude samples lacking those predetermined characteristics.

3. Instruments

The researcher used open-ended questions to gain more insight into students' perceptions. The interview questions are adapted from earlier research to guarantee their applicability to the present study (Zhou, 2024). This instrument is designed to explore students' perceptions in depth regarding the use of DeepSeek as a supporting tool in English language learning. Through this approach, the researcher obtains rich and reflective qualitative data, enabling a more comprehensive analysis of students' experiences and views toward the use of DeepSeek in the context of English language learning.

4. Data Collection

In this research, semi-structured interviews will be utilized as the primary method for data collection. The interview technique is selected as the key tool to obtain detailed insights into students' views on DeepSeek as an aid for English language learning. This method enabled researchers to delve into participants' experiences, opinions, and attitudes while allowing for a flexible format that facilitated follow-up questions and clarifications. Through the use of semi-structured interviews, the study maintained a balance between directed inquiries and open-ended responses, resulting in a thorough understanding of the topic.

5. Data Analysis

The analysis of the interview findings will be conducted through data analysis. During the reduction phase, the researcher will gather all the information obtained from the interview results. Subsequently, it is refined through selection, concentration, simplification, and reduction to achieve the purpose of the research. In addition, during the data presentation phase, researchers exhibit data in a narrative format, therefore, the result will be presented in a descriptive manner. Lastly, the researcher condensed the data according to theoretical frameworks and supported it with comprehensive details and insights from the interview analysis results.

Findings and Discussions

The research encompasses the advantages and challenges associated using DeepSeek, as reported by students based on their personal experiences. The researcher discovered strong evidence to support this statement. The results of this study are derived from data gathered through interviews, which were then analyzed and interpreted as follows:

DeepSeek's Integration in Boosting Engagement and Enthusiasm Among Students

DeepSeek's straightforward and easy-to-navigate design greatly enhanced student involvement in academic activities, particularly learning English. Students responded positively to the user-friendly interface, quick access to information, and responsive AI feedback, which they often prefer over alternative chatbot platforms. There are statements from students.

Excerpt 1 RN

"Personally, DeepSeek is just simpler, it also provides a reference history. It's just more straightforward, and clearer too. The AI also responds quickly, it's not slow or anything."

Excerpt 2 AM

"I use DeepSeek over other AIs because the interface is simple, and the responses are faster, too. Compared to other AI chatbots, DeepSeek just feels nicer to talk to, it's more comfortable in a way. And when I'm looking for information, I usually find it faster."

Excerpt 3 MA

"In my opinion, DeepSeek has a better response than other AIs because it's the newest AI chatbot out there. The AI's responses are straight to the point and concise."

Excerpt 4 AY

"I use DeepSeek because the interface is simple and easy to use. The AI is good and responsive, and it's also better than other AI chatbots."

Excerpt 5 AA

"It helps a lot because, thanks to DeepSeek, learning becomes way more fun. It boosts my interest, and I learn a lot of new vocabulary from it."

Excerpt 6 JE

"So far, it's helpful because when I look for material on DeepSeek, it's in English, and I'm interested in English. For me, reading and learning English is

fun, so it boosts my motivation to study the language.”

Excerpt 7 NM

“Yeah, because when I want to find out something, the response is quick and straight to the point. It makes me more excited to learn English since it’s not complicated and I get the answers I need right away.”

Excerpt 8 FW

“Yeah, it helps. Sometimes learning English can get boring, but I feel more motivated because DeepSeek feels like a conversation buddy. It keeps me excited to practice English since the AI is responsive.”

Based on the statements from students 1 to 4, it is clear that DeepSeek stands out as the preferred AI tool due to its simple interface, fast response time, and clear and to-the-point answers. The students appreciated how easy and convenient the tool was to use. They also found that it helped them find information more quickly and efficiently. While the statements from students 5 to 8, it is clear that DeepSeek makes learning English more enjoyable and motivating. They find the app fun to use, like chatting with a study buddy, which keeps them engaged. Its quick and clear answers help keep their interest and make learning feel less like a chore and more like a natural and enjoyable experience. Therefore, the positive feedback consistently highlighted how DeepSeek makes learning English more enjoyable and engaging. These attributes are highly esteemed as they facilitate independent learning, where clarity and efficiency are crucial. Students also showed considerable enthusiasm and gratitude for DeepSeek, describing it as more effective and satisfying than other AI tools.

Students’ Perception of The Use of DeepSeek as A Supporting Tool in Learning English

From the interview data collected, it is evident that students reveal that DeepSeek is highly beneficial as a supporting tool in learning English. Many students expressed that the AI tool helps them enhance their English language proficiency, boosts their confidence, offers personalized assistance, ensures greater accessibility, and provides instant feedback throughout their learning process. Students emphasized improvements in key areas such as academic writing, grammar correction, vocabulary enrichment, speaking, and spelling. These features contributed to a more effective and motivating learning experience, allowing students to develop their language skills practically and interactively. Evidence statements are as follows:

Excerpt 1 JE

“It helps me organize my language, like figuring out the main point of a long assignment. It also corrects my grammar and suggests synonyms, making my writing clearer and easier to read.”

Excerpt 2 RN

“From my experience using DeepSeek, it’s helpful, like it helps develop my writing skills, because when I search for things, it’s always in English. It also improves my speaking skills. When I put together a description, I learn new things, like how sentences should be structured. It kind of acts like a corrector.”

Excerpt 3 AM

“It helps correct my grammar if I make mistakes, and it gives me better word alternatives, for example, if a word needs to be changed, it shows me how. Plus, if the meaning of a sentence isn’t clear, it helps with that too.”

Excerpt 4 AA

“DeepSeek helps improve my English learning skills. Especially when

I'm reading the information from journals, and I get a lot of English input, which helps me expand my vocabulary."

Excerpt 5 NM

"DeepSeek helps me correct grammar and also helps with checking my writing assignments, which helps improve my English skills as well."

Excerpt 6 FW

"DeepSeek helps me a lot with vocabulary, and sometimes it also helps correct my grammar, so I feel more confident with writing assignments. It makes my English learning process more practical and enjoyable."

Excerpt 7 MA

"DeepSeek helps me a bit in correcting mistakes like grammatical errors and misspellings."

Excerpt 8 AY

"It helps when I'm writing something in English and make a typo, DeepSeek helps by correcting it, explaining it, and suggesting the right words. It also helps with spelling and proper word usage in English."

According to the excerpts from students RN, AA, and AY, and the rest of the student, DeepSeek plays a crucial role in enhancing students' development in English writing and expanding vocabulary knowledge. The tool assists students in refining their grammar, spelling, sentence construction, and vocabulary by providing corrections, explanations, and improved word selections. Students indicated that DeepSeek acts as a writing assistant, helping them create clearer and more precise English texts. This type of prompt and individualized feedback boosts their comprehension and fosters ongoing progress in both writing and speaking abilities. Furthermore, these findings indicate that AI chatbot tools such as DeepSeek are viewed as helpful academic resources and enablers of self-directed learning and skill enhancement. The tools encourage a more engaging

and efficient learning atmosphere, especially for language learning in higher education settings.

Challenges

Although several students acknowledged the advantages of DeepSeek, some pointed out its limitations, particularly regarding the accuracy and appropriateness of responses. Based on the interview data, several students expressed dissatisfaction with responses that were either excessively technical, overly formal, or not directly related to the questions they asked.

Excerpt 1 RN

"Well, sometimes when I'm searching for something, the answer can be too technical. Sometimes it's also not very detailed or long."

Excerpt 2 JE

"One of the drawbacks is that there's a daily limit if I ask too many questions."

Excerpt 3 FW

"There are some drawbacks. The answers are sometimes too formal and not quite what I'm looking for, but so far, it hasn't been too much of an issue."

Excerpt 4 AM

"There are some drawbacks, of course. Since it's a technology, that's to be expected. For example, when the question is long, the response doesn't always match what was asked. Sometimes the answer suddenly ends up being too short."

Based on the statements from students 1 to 4, it is evident that sometimes the tool's responses do not align with their expectations. Several students found the answers overly technical, excessively formal, or irrelevant to their inquiries. Some students also noted problems such as restricted daily usage and brief or incomplete responses, particularly when their questions were more detailed or

complex. From these interviews, it can be inferred that while DeepSeek offers advantages, there remains room for improvement to enhance its reliability, responsiveness, and usability for students.

This research seeks to understand how DeepSeek can be a supporting tool among students in learning English. Based on the data collected through interviews with eight participants, the findings reveal that DeepSeek serves as an effective tool in helping students learning the English language.

One of the key findings of this study is that students reported that DeepSeek greatly enhances student involvement and excitement, particularly in the context of learning English. This aligns with Satiti et al. (2024), who stated that the AI chatbot improved students' English skills and made the learning experience more captivating and enjoyable due to its interactive features and ability to adjust to personal learning preferences, increasing student participation and excitement. Similarly, Ramadhani (2025) argued that AI chatbots simulate real conversations, boosting students' motivation and promoting more regular language practice in a low-pressure setting.

This study also found that AI chatbots, particularly DeepSeek not only boost students' engagement and enthusiasm but also supporting the development of English writing abilities and contributing to the improvement of vocabulary acquisition. This concurs with the study by Waziana et al. (2024) which revealed that AI chatbots enhanced vocabulary range, improved grammar accuracy and also helped reduce repetition, improve clarity, and coherence in writing. In addition, Malik et al. (2023) concluded that AI tools enhance academic writing by aiding in the structure of ideas and increasing vocabulary variation, aligning with the

experiences reported by the students in this research.

Another notable aspect of this study is how DeepSeek promotes self-directed learning. A number of participants indicated that they were able to autonomously investigate language resources, obtain feedback, and make progress over time. This finding aligns with Mohebbi (2025), who highlighted the ability of AI chatbots to enhance learner autonomy by providing personalized support and facilitating self-directed language exploration.

Furthermore, in comparison to other AI chatbot platforms, students expressed a distinct preference for DeepSeek, highlighting its ease of use and effectiveness. While previous studies have focused on more established tools like ChatGPT, this research offers a new perspective by emphasizing that newer AI chatbots such as DeepSeek can be very beneficial, especially for English language learners in higher education environments.

Additionally, the research aims to explore whether the AI chatbots can enhance students' learning experience while also acknowledging the challenges encountered. The results indicate that using the AI chatbot DeepSeek in education results in increased vocabulary, enthusiasm, improved writing structure, and grammar accuracy for students, thereby enhancing motivation, particularly in Internet-related fields. However, a notable challenge observed is the occasional irrelevant responses from the AI tool during student inquiries. This element strongly suggests that DeepSeek is considered a valuable and pertinent resource for facilitating English language acquisition in today's digital age.

Conclusion

DeepSeek plays a supportive and beneficial role in English language learning among university students. Its integration into the learning process enhances student engagement and motivation through a user-friendly interface, fast response time, and interactive features that contribute to an enjoyable and autonomous learning experience. It has been effective in assisting students with writing skill development, vocabulary expansion, grammar correction, and fostering self-directed learning.

However, some limitations were identified, such as overly technical or less relevant responses, daily usage restrictions, and answers that may be too formal or lacking in contextual depth. These challenges indicate the need for further refinement to ensure DeepSeek provides more contextualized and learner-oriented support.

Future research is encouraged to increase the number and diversity of participants, especially regarding academic background and language proficiency, to gain broader and more representative insights. Additionally, combining quantitative approaches with qualitative methods may offer a more comprehensive understanding of DeepSeek's impact on students' English language development.

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