

Evaluating the effectiveness of English language learning supported by artificial intelligence: A Survey at Hong Bang International University

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ABSTRACT

The purpose of this study is to determine whether chatbots are likely to improve Hong Bang International University students' English language proficiency. A survey was conducted to investigate 229 English majors' opinions and experiences with chatbots. The results showed the advantages as well as disadvantages of using chatbots. Most of the students like using chatbots since chatbots provide quick feedback, are mobile-friendly and offer conversation and grammar practice. Nevertheless, difficulties in managing complicated language and guaranteeing information authenticity surfaced. Furthermore, restrictions in advanced grammar practice were found. According to the study, chatbots can be useful resources, especially for cultivating fundamental skills and getting quick feedback. Ultimately, the study highlights that chatbots can supplement conventional techniques and human interaction, not replace traditional methods and human interaction for comprehensive language acquisition. In short, the study emphasizes the importance of taking accessibility into account when including chatbots as tools for language acquisition.

Keywords: AI Chatbots, English language learning, Hong Bang International University

1. INTRODUCTION

Mastering the English language is essential for obtaining academic and professional opportunities in our increasingly globalized world [1]. Vietnamese universities, notably Hong Bang International University, seek to provide excellent techniques to assist students become fluent in English. Traditional methods are useful, but they might not include self-customized or interactive elements. This underscores the potential of new technologies, such as chatbots and sophisticated large language models (LLMs), to provide engaging environments for English language learning.

Research shows that chatbots, as learning tools, can positively impact language acquisition by promoting engagement, providing personalized learning opportunities, providing opportunities for self-actualization practice, and receiving feedback. However, the specific advantages and limitations of using chatbots for learning English, particularly in the context of Hong Bang International University, remain uninvestigated.

This study aims to investigate the potential benefits of chatbots for students majoring in English at Hong Bang International University. By evaluating student experiences and perspectives, the research will also provide specific information on the usefulness of AI chatbots in improving language abilities and overall learning outcomes.

2. LITERATURE REVIEW

2.1. Benefits of Chatbot-Assisted language learning

AI chatbots are rapidly transforming the educational landscape due to their special characteristics, offering unique capabilities that can enhance language learning as well as acquisition. When examining chatbots in this setting, some key benefits may be identified apparently:

- Firstly, AI chatbots have the potential to increase motivation and engagement. Studies on educational technology have shown that interactive tools can foster a more positive learning environment. Chatbots can provide a dynamic and

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engaging way to practice language skills, breaking away from traditional rote memorization and textbook exercises. Research by Ali et al. (2023) on ChatGPT highlights this potential, with both teachers and students reporting increased motivation due to the interactive nature of the tool [2].

- Secondly, chatbots can personalize the learning experience. Chatbots are always ready to create a more effective learning path by adjusting conversations to students' individual strengths and weaknesses. Kasneci et al. (2023) discuss the opportunities for chatbots to adapt to learners' levels and provide targeted practice exercises. This personalization may address the diverse needs of students in classroom settings, ensuring each learner may attain individual attention [3].

- Thirdly, AI chatbots can improve speaking and listening skills through conversation practice. Chatbots can act as virtual language partners, allowing students to converse in a safe and supportive environment. Zhai (2022) explores the user experience of ChatGPT in education, highlighting its potential to provide students with opportunities for spoken language practice. This regular interaction can help students develop fluency, pronunciation, and comprehension skills [4].

- Furthermore, chatbots can offer immediate feedback and correction. AI-powered chatbots can analyze student responses and provide real-time feedback on grammar, vocabulary usage, and pronunciation. This immediate feedback allows students to identify and correct their mistakes as they learn, leading to faster and more effective learning [5].

- Finally, AI chatbots provide amazing accessibility and convenience. Students can access chatbot tutors anytime, anywhere, on a variety of devices. This flexibility serves different learning styles and enables students to practice at their own pace. Research by Göçen & Aydemir (2021) on AI in education emphasizes the potential for these tools to easily access language learning resources, particularly for those in remote locations or with limited resources [6].

In conclusion, AI chatbots hold significant potential for revolutionizing language acquisition

by enhancing motivation, personalizing learning experiences, refining oral communication abilities, providing immediate feedback, and enhancing accessibility, ultimately supporting students in achieving fluency and confidence in their desired language. It is essential to investigate the benefits as well as challenges of chatbots. From these comprehensions, educational uses of chatbots and incorporating them efficiently into learning environments may be adopted to improve AI-based language learning.

2.2. Challenges of Chatbot-Assisted language learning

While AI chatbots show a compelling vision for the future of language learning thanks to their benefits, it's crucial to recognize their potential limitations. One of the key challenges is the ability to handle complex language. Chatbots, despite their advancements, can struggle with nuanced expressions, sarcasm, and understanding the context of a conversation. Research by Kasneci et al. (2023) highlights this concern, acknowledging that chatbots may misinterpret complex language and provide inaccurate responses [3]. This may be a potential barrier to learners who desire to develop fluency in the subtleties of a language.

Accuracy is another significant limitation. Chatbots, based on massive datasets, can encounter biases or factual errors present in the database. Buriak et al. (2023) emphasize the importance of caution when using AI for tasks like writing, as inaccuracies may cause serious consequences. In language learning, this may lead to the potential for reinforcing incorrect grammar or vocabulary usage [7].

Furthermore, chatbots may not be like human beings to have the ability to sensitively assess a learner's emotional state or utilize their flexible teaching style accordingly. Effective language learning depends on a supportive and interactive learning environment. While chatbots can provide a level of interaction to some extent, they are increasingly striving to replicate the human touch and emotional intelligence of a skilled teacher. This can particularly have detrimental effects for students who require a more personalized approach or who struggle with motivation (Kasneci et al., 2023) [3].

Despite these limitations, AI chatbots hold immense potential for language learning. By acknowledging these challenges and finding solutions, we can take advantage of the power of chatbots to create a more engaging and effective learning experience. For instance, incorporating human oversight to address complex language or integrating feedback mechanisms to ensure accuracy can mitigate these shortcomings.

In conclusion, AI chatbots can be utilized as a powerful tool for language learning; however, to utilize them effectively, it is essential to consider their challenges. By addressing these challenges of complex language handling, accuracy, and emotional intelligence, we can exploit the full potential of chatbots and create a dynamic and empowering learning environment for all.

3. RESEARCH METHOD

3.1. Research objectives

This study aims to explore the effectiveness of AI chatbots used by English majors at Hong Bang International University, finding the benefits and challenges of these tools to use them effectively in teaching and learning English. This study surveyed 229 English majors at Hong Bang International University to explore their opinions and experiences using chatbots to learn English.

3.2. Research tools

In this research on chatbot-assisted language learning, a structured questionnaire served as the primary tool for data collection. The researchers used a questionnaire with different question types to get a well-rounded picture. The questionnaire was meticulously designed to elicit insights into participants' experiences with chatbots for language acquisition and their perceptions regarding the strengths and weaknesses of this approach. The survey asked about the students' background, how often they used chatbots, and what they used them for (conversation practice, grammar, etc.). It then asked the students to rate their agreement on statements about the pros (enjoyment, feedback) and cons (limited understanding, inaccurate information) of chatbot language learning. Finally, the survey included open-ended questions about the biggest advantages and challenges of chatbots, along with suggestions for

improvement and any other general feedback.

The questionnaire comprised four distinct parts, each targeting specific aspects of chatbot-assisted language learning:

- The first part focused on gathering background information, including participants' age, and year of study.
- The second part investigated participants' utilization of chatbots for language learning, inquiring about their frequency of usage and the various ways they employed chatbots, such as for conversation practice, grammar enhancement, exam preparation, and homework completion.
- Following this, the third part of the survey evaluated participants' perceptions of chatbot-assisted language learning. Using a scale of 1 (Strongly Disagree) to 5 (Strongly Agree), participants rated statements on the effectiveness of chatbots in areas like engagement, feedback, and convenience. This section also included additional statistical measures such as mean (average), standard deviation (data variability), minimum (lowest value), and maximum (highest value) to provide a more comprehensive picture of participant responses.
- Lastly, the fourth part consisted of open-ended questions, inviting participants to articulate the most significant advantages and challenges encountered while using chatbots for language learning. Additionally, participants were encouraged to offer suggestions for enhancing the efficacy of chatbots as language learning tools and provide any additional feedback they deemed relevant.

Overall, the questionnaire served as a comprehensive instrument for capturing nuanced insights into participants' experiences, perceptions, and suggestions related to chatbot-assisted language learning, thereby contributing valuable data to the ongoing research in this domain.

4. RESULT AND DISCUSSION

The background information collected in the first part of the questionnaire paints a picture of a diverse participant pool in terms of their academic standing.

The result (refer to Figure 1) indicates that the largest group (44.1%) were fourth-year students,

with a significant spread among all year levels. Only 9.8% were in the first year, while participation increased steadily in subsequent years (34% in the third year, 12.1% in the second year). This spread is crucial for analyzing how students in various stages of English language development use chatbot-assisted learning. Comparing first-year students to near-graduates helps determine

chatbot benefits across academic stages. Students with more experience can effectively use chatbots for language learning. Learners find chatbots struggle to provide comprehensive language learning, especially in complex language understanding. Further development is necessary to address nuances of human language and provide adequate learner support.

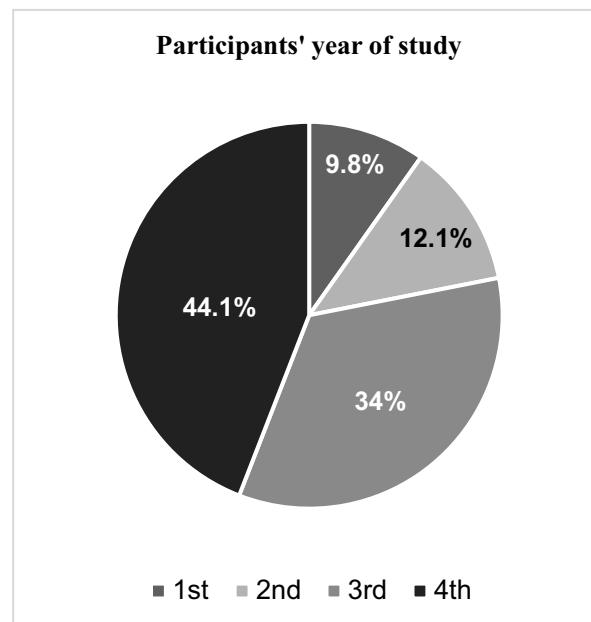


Figure 1. Participants' year of study

The second part of the questionnaire delves into how participants utilized chatbots for language learning. A considerable percentage of people (71.6%) have used chatbots to learn a language, as shown in Chart 2. This suggests that chatbots are a widespread tool for language acquisition.

However, it is crucial to remember that a sizeable minority (28.4%) haven't used chatbots for this purpose. This may be the outcome of a preference for traditional teaching methods or an ignorance of chatbots used in language learning.

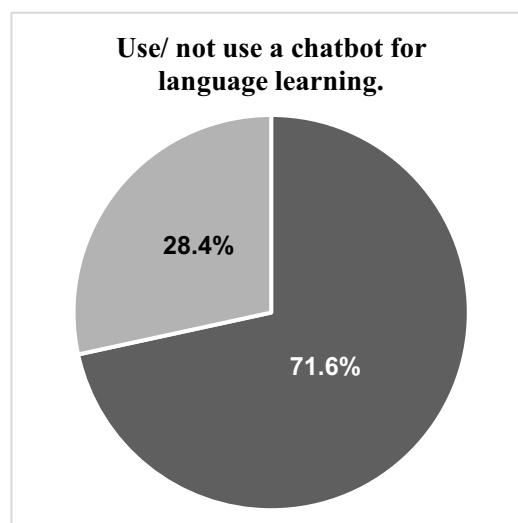


Figure 2. Use/ not use a chatbot for language learning

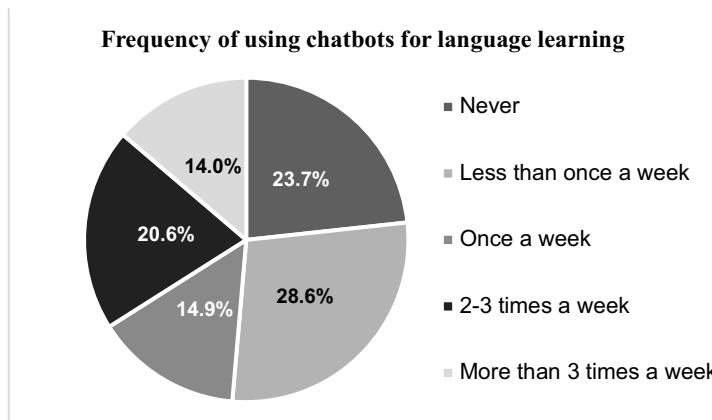


Figure 3. Frequency of using chatbots for language learning

Pie chart number 3, on the other hand, presents a more favorable image of the frequency of use among those who adopted chatbots. The most common response (26.8%) was using them "more than 3 times

a week," followed closely by "2 - 3 times a week" (23.7%). This indicates that a significant portion of participants found chatbots to be a valuable and frequent part of their language-learning routine.

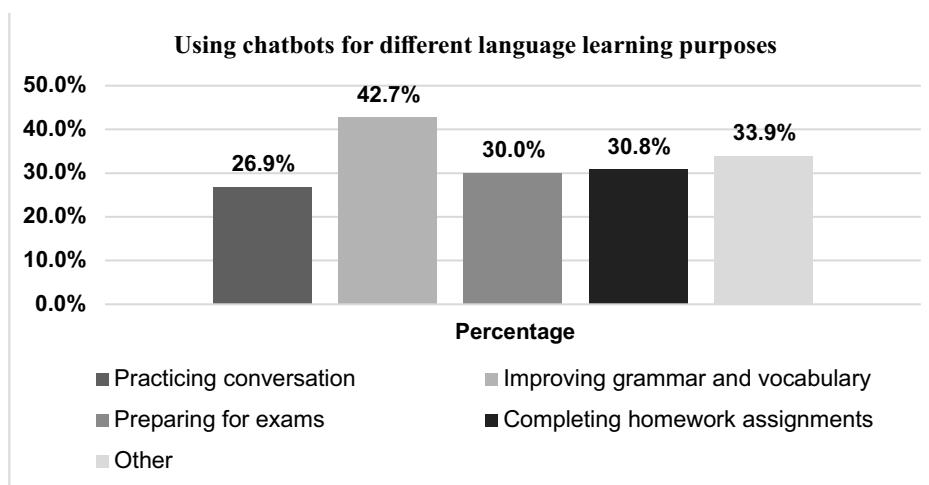


Figure 4. Using chatbots for different language learning purposes

Furthermore, the survey explored the various ways participants utilized chatbots (see chart N4). While conversation practice (26.9%) was a popular choice, the most prominent use case was for "improving grammar and vocabulary" (42.7%). This suggests that participants valued chatbots for their ability to identify and address weaknesses in core language skills. Exam preparation (30%) and homework completion (30.8%) were also notable uses, highlighting the potential of chatbots to support students across various learning objectives. The presence of an "other" category (33.9%) with a significant response rate suggests there may be even more diverse

applications for chatbots in language learning that future research could explore.

In conclusion, the second part of the questionnaire suggests the potential for chatbots in language learning. Some participants see them as valuable for improving language skills and academic goals. Studying the "other" category and reasons for stopping chatbot use may enhance their effectiveness for language learners.

The questions in the third part of the questionnaire are used to explore the perceived benefits and challenges of chatbot-assisted language learning based on a survey of 229 participants.

Table 1. Benefits of Chatbot-Assisted language learning

Benefits of Chatbot-Assisted language learning	N	Min	Max	Mean	Std. Deviation
Engagement	229	1	5	3.88	1.12

Benefits of Chatbot-Assisted language learning	N	Min	Max	Mean	Std. Deviation
Speaking and listening practice	229	1	5	3.54	1.21
Immediate feedback	229	1	5	4.18	1.06
Mobile convenient	229	1	5	4.02	1.14
Personalize the learning experience	229	1	5	3.81	1.17

Upon analyzing the data presented in Table 1, it is evident that immediate feedback (mean 4.18, std. deviation 1.06) emerged as the most highly rated benefit among learners, closely followed by mobile convenience (mean 4.02, std. deviation 1.14). The results indicate that learners perceive the prompt feedback and the flexibility of learning on the go as the most advantageous aspects of chatbot-facilitated language learning.

Conversely, the aspects of personalization of learning experience (mean 3.81, std. deviation 1.17) and engagement (mean 3.88, std. deviation 1.12)

exhibited slightly lower mean values. This observation may imply that learners consider these elements to be somewhat less beneficial in comparison to immediate feedback and mobile convenience.

In summary, the data indicates that immediate feedback and mobile convenience are perceived as the most positively received advantages of chatbot-supported language learning based on mean ratings. Learners appear to regard these attributes as more advantageous when compared to personalization of learning experience and engagement.

Table 2. Challenges of Chatbot-Assisted language learning

Challenges of Chatbot-Assisted language learning	N	Min	Max	Mean	Std. Deviation
Difficulty understanding complex language	229	1	5	3.79	1.02
Concern about information accuracy	229	1	5	3.61	1.01
Ineffectiveness for advanced grammar	229	1	5	3.40	1.12
Frustration with incomplete answers	229	1	5	3.52	1.07

Indeed, as highlighted by Table 2, participants' responses regarding the level of dissatisfaction towards incomplete answers were 3.52 (mean 3.52, standard deviation 1.07) and the complexity of language comprehension (mean 3.79, standard deviation 1.02). These predominant obstacles, with their closely aligned mean values, signify those learners identified as the most challenging elements of utilizing chatbots for language learning. The concern regarding the accuracy of information (mean 3.61, standard deviation 1.01) and the inadequacy in addressing advanced grammar (mean 3.40, standard deviation 1.12) were perceived as slightly less troublesome by the learners.

Overall, it appears that learners often encounter challenges with the efficacy of chatbots in delivering a holistic language learning journey, especially in the realms of grasping intricate language structures and furnishing thorough responses. Further efforts might be imperative in enhancing the capability of chatbots to navigate the subtleties inherent in human language and furnish learners with the

requisite degree of assistance.

The fourth section of the questionnaire included 4 open-ended queries.

Considering the initial query: What are the biggest advantages of using chatbots for language learning? The information is combined in this way: Chatbots are beneficial to language acquisition in many ways. First, studying is convenient because they are available anywhere and at any time. Secondly, users' learning experiences can be tailored by chatbots to meet their specific needs. Thirdly, they can include students in activities and dialogue. Additionally, chatbots give consumers instant feedback on their errors, which helps accelerate their progress. Finally, by offering extra practice outside of the classroom, chatbots can assist autonomous learning. It's crucial to remember that chatbots may give false replies and might not always comprehend complicated queries completely.

Regarding the second query: What are the biggest challenges of using chatbots for language learning?

A summary of the information is given. First,

chatbots might have trouble with advanced grammatical structures, natural discourse, and personalizing learning experiences. Fluency and proficiency in a language may suffer as a result. Second, they might not be able to consider contextual factors and cultural quirks, which are crucial for successful communication in a variety of settings. Lastly, because chatbots depend on technology, they might not be accessible in every setting, especially for students who don't always have access to a computer or other device. In conclusion, even though chatbots can be a useful tool for language learning, their drawbacks make a thorough program that combines real-world practice and human interaction necessary for well-rounded language acquisition.

Viewing the third query: What changes could chatbots make them a more useful tool for language learning? Limitations including trouble understanding sophisticated language, a lack of cultural context, and technological obstacles are highlighted in the information. Natural language processing (NLP) advances can help chatbots become better at understanding and producing natural language, giving instant feedback, and integrating multimedia information. To reach their full potential, however, complete language learning programs with real-world practice and human interaction are still necessary. In the end, for language learning to be effective, chatbots shouldn't take the place of human connection and practical experience.

Considering the last query: Do you have any other comments or feedback about using chatbots for language learning? Description of the information contained. Whereas chatbots are a convenient way to learn a language, they may not be able to understand sophisticated language or cultural contexts. Enhancing their Natural Language Processing (NLP) skills may enhance their comprehension. Fluency and cultural knowledge also depend on exposure to a variety of sources and interactions with native speakers.

5. SUGGESTIONS AND RECOMMENDATIONS

The study revealed that while chatbots hold promise for language learning, they currently fall short in crucial areas. To address these shortcomings and unlock their full potential, several improvements are necessary.

First and foremost, advancements in Natural Language Processing (NLP) are essential. Chatbots need a deeper understanding of complex grammar,

natural discourse, and the nuances of human language. This includes the ability to decipher sarcasm, figurative speech, and other subtleties that are often lost in translation for machines. By refining their NLP capabilities, chatbots can engage in more meaningful conversations and provide learners with a more natural language acquisition experience.

Cultural awareness is another critical area for improvement. Integrating cultural context into chatbots would allow them to tailor responses and learning experiences to reflect the specific needs of students from diverse backgrounds. Training on culturally rich datasets would equip chatbots to understand and respond appropriately to various cultural references and expressions, fostering a more inclusive and relevant learning environment.

Personalization is another key factor. Currently, many chatbots offer limited personalization options. To enhance their effectiveness, chatbots should leverage sophisticated algorithms that adapt to individual student needs and learning styles. This could involve tailoring conversation topics, difficulty levels, and practice exercises to a student's progress, ensuring a more focused and engaging learning journey.

Finally, accessibility considerations are paramount. Chatbot-assisted language learning should be inclusive for all students, regardless of technological limitations. Exploring alternative access methods beyond computers and mobile devices is crucial. Lighter-weight versions or offline functionality could bridge the gap for students with limited internet access, ensuring everyone has the opportunity to benefit from these language learning tools.

Chatbots can enhance language learning by providing practice opportunities, immediate feedback, and personalized experiences. However, they should not replace traditional methods or human interaction. Chatbots can enhance the language learning journey by integrating real-world practice and human oversight, but human connection and exposure to real-world language use are still crucial.

6. CONCLUSION

This study explored the potential of chatbots for language learning. While the findings highlight their advantages, such as immediate feedback and

mobile convenience, they also reveal limitations that require addressing. Educators report appreciating chatbots for improving grammar and vocabulary, practicing conversation, and supporting exam preparation. The availability of on-the-go practice and instant feedback were identified as particularly valuable aspects. However, current chatbot technology struggles with complex language structures, natural conversation flow, and providing comprehensive answers. This can limit their effectiveness in developing fluency and understanding cultural nuances essential for successful communication. Therefore, chatbots should be viewed as supplementary tools within a broader language-learning program. For well-rounded

language acquisition, learners still need exposure to diverse materials, real-world practice opportunities, and human interaction with instructors and native speakers. Future advancements in Natural Language Processing (NLP) hold promise for improving chatbots' ability to understand complex language, integrate multimedia content, and provide more comprehensive feedback. However, human connection and practical experience will remain irreplaceable elements for effective language learning. The study also acknowledges a potential accessibility gap for learners who lack consistent technology access. This is a crucial factor to consider when promoting chatbots as language learning tools.

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Đánh giá mức độ hiệu quả của việc học tiếng Anh có sự hỗ trợ của trí tuệ nhân tạo: Một khảo sát tại Trường Đại học Quốc tế Hồng Bàng

TÓM TẮT

Nghiên cứu này nhằm điều tra tiềm năng của trí tuệ nhân tạo (AI-chatbots) trong việc tăng cường việc học tiếng Anh cho sinh viên tại Trường Đại học Quốc tế Hồng Bàng. Một cuộc khảo sát đã khám phá kinh nghiệm và nhận thức của 229 sinh viên chuyên ngành tiếng Anh sử dụng chatbot. Các phát hiện cho thấy cả lợi ích và hạn chế. Sinh viên đánh giá cao chatbot vì phản hồi nhanh chóng, khả năng truy cập di động và cơ hội thực hành hội thoại và ngữ pháp. Tuy nhiên bên cạnh những lợi ích, những thách thức cũng xuất hiện liên quan đến việc xử lý ngôn ngữ phức tạp và đảm bảo tính chính xác của thông tin. Ngoài ra, những hạn chế đã được xác định trong thực hành ngữ pháp nâng cao. Nghiên cứu cho thấy chatbot có thể là công cụ có giá trị, đặc biệt là để thực hành các kỹ năng cốt lõi và nhận phản hồi ngay lập tức. Cuối cùng, nghiên cứu nhấn mạnh rằng chatbot có thể bổ sung, không thay thế, các phương pháp truyền thống và tương tác của con người để tiếp thu ngôn ngữ toàn diện. Kết luận, nghiên cứu nhấn mạnh tầm quan trọng của việc xem xét khả năng tiếp cận khi tích hợp chatbot làm tài nguyên học ngôn ngữ.

Từ khóa: trí tuệ nhân tạo, học tiếng Anh, Trường Đại học Quốc tế Hồng Bàng

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