RETORIKA: Jurnal Ilmu Bahasa
Vol. 10, No. 2 August 2024, Page 661-675

P-ISSN: 2406-9019
E-ISSN: 2443-0668
Available Online at https://ejournal.warmadewa.ac.id/index.php/jret

Exploring Higher Education Learners' Experience of Utilizing Gemini Chatbot in English Language Learning

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Published: 01/08/2024

How to cite (in APA style):
Utami, N. P., Kembaren, F. R. & Daulay, S. H. (2024). Exploring Higher Education Learners' Experience of Utilizing Gemini Chatbot in English Language Learning. *Retorika: Jurnal Ilmu Bahasa*, 10(2), 661-675. DOI: http://10.55637/jr.10.3.10244.661-675

Abstract- The tremendous progress in Artificial Intelligence (AI) and Natural Language Processing (NLP) has resulted in the creation of advanced chatbots that can participate in intricate conversations. This research investigates university students' experiences using the Gemini chatbot for learning English as a second language. It emphasizes the advantages as well as the difficulties encountered. A case study method was used to observe and interview 10 students from a public institution in North Sumatra. The findings indicate that the Gemini chatbot's interface, which is easy to use, the comprehensive feedback it provides, and its wide range of capabilities have a substantial positive impact on students' language proficiency and self-assurance. Nevertheless, several constraints were observed, including imprecise translations, problems with speech recognition, and technological challenges such as poor internet connections. Effective approaches to address these obstacles including using alternate educational materials, implementing well-organized study timetables, participating in virtual learning groups, and employing formal language to enhance communication clarity with the chatbot. This study offers useful insights for educational institutions and policymakers on the optimization of AI chatbots in language teaching university students' experiences using the Gemini chatbot for learning English as a second language. to successfully enhance student learning.

Keywords: Artificial Intelligence (AI), English Language learning, Gemini

I. INTRODUCTION

The advancements in Artificial Intelligence (AI) and Natural Language Processing (NLP) technologies have significantly contributed to the development of chatbots capable of engaging in more complex and in-depth interactions with humans. By harnessing the ability to process and analyze vast amounts of data, chatbots can now comprehend context, intent, and emotions in human conversations. This enables chatbots to perform tasks previously exclusive to humans, such as providing personalized advice, answering questions with specific details, and adapting to user preferences over time (Lyu et al., 2023). Chatbots have become increasingly popular in higher education, especially for language learning, as they can greatly improve student engagement and learning outcomes. Nevertheless, there is a lack of comprehensive knowledge regarding how learners perceive and employ these technologies, particularly in the realm of English language learning. The focus of this research is to explore the interaction and benefits that higher education students experience when using the Gemini Chatbot for their English language studies. It is essential to grasp these experiences in order to enhance the chatbot's design and implementation, ultimately leading to better educational outcomes. Chatbots are becoming more often used in higher

education to assist with language learning, providing several advantages that improve student participation and academic achievements. Gemini, a chatbot in the field of English language learning, is specifically created to provide interactive, tailored, and easily available practice opportunities. These digital tools allow students to enhance their English abilities at any given moment, get immediate feedback, and participate in interactive activities customized to their specific requirements. The Gemini Chatbot is designed primarily to aid learners in achieving English language proficiency. The system has adaptive learning functionality that adapts to the user's skill level, offering personalized practice and feedback. Gemini enhances language practice by integrating multimodal information, including text, audio, and interactive conversations, to accommodate diverse learning methods, resulting in a more captivating and efficient learning experience. Although chatbots are increasingly being used in education, there is a lack of study on how learners perceive and use these technologies, especially in the context of English language acquisition. The objective of this study is to investigate the interaction between higher education students and the Gemini Chatbot, evaluate its influence on their learning achievements, and identify its advantages and areas that need improvement. Comprehending these factors will be essential for enhancing the chatbot's structure and guaranteeing its effectiveness in meeting the educational requirements of learners.

AI chatbots offer various benefits in language learning, such as providing authentic resources for learners to interact in realistic contexts, offering immediate and personalized feedback, and being tailored to individual needs, thus enhancing motivation and engagement (Taj et al., 2017; Loncar et al., 2023). However, despite the many advantages offered by Gemini and other AI chatbots, limitations such as reliance on existing data and potential inaccuracies due to outdated information remain (Pavlik, 2023). Studies have shown that chatbots can improve language proficiency and skills in various aspects, including conversation, pronunciation, and writing (Shin et al., 2021; Yang et al., 2022; Chen et al., 2022). Research has indicated that chatbots increase students' motivation to learn English and improve their learning outcomes (Ali et al., 2023; Alneyadi & Wardat, 2023; Ramadhan et al., 2023; Huang & Li, 2023; Fauzi et al., 2023). Although several studies have explored the use of chatbot technology, no research has yet investigated students' experiences with Gemini, necessitating a smaller-scale study to gain specific and relevant insights into Gemini's use in language education, particularly among college students. This study aims to explore students' experiences, identify benefits and challenges, and evaluate Gemini's effectiveness in enhancing their English language skills. This research will provide valuable insights for educational institutions, policymakers, and further studies on the use of chatbot technology in English language learning (Supriyadi, 2024; Alnasib & Alharbi, 2024; Ananda & Salmiah, 2024; Imran & Almusharraf, 2024; Suthar & Digaswala, 2024). The study's objectives are to explore higher education learners' experiences using the Gemini chatbot for English language learning and identify the difficulties and challenges they encounter. The findings are expected to benefit students by enhancing their language skills, lecturers by improving teaching methods, researchers by providing foundational data, and other researchers by encouraging further innovation in educational technology.

The Role of Chatbots in Language Learning

Chatbots are crucial in language learning since they improve accessibility, personalization, engagement, and scalability. These digital technologies enable teachers to enhance language teaching and assist learners in attaining their objectives. Although chatbots provide substantial advantages, it is crucial to acknowledge their limits, including the need for ongoing technical advancements and the necessity to ensure they supplement rather than supplant conventional learning approaches. Chatbots, using artificial intelligence to enable text or voice conversations, have found use across many online platforms, including as college, library, and museum websites (Fryer et al., 2020). Although they have been there for a long time, their function in language acquisition has changed. Coniam (2004) conducted first assessments of chatbots such as Dave and Lucy, which emphasized both their capabilities and constraints. Dave, created by the ALICE Artificial Intelligence Foundation, was recognized for its instructional efficacy, while it was also criticized for its grammatical inaccuracies and disruptions during conversations. Lucy, however, offered manual mistake correction and grammatical recommendations, representing a first effort

towards interactive language assistance.

Recent study highlights the benefits of chatbots as aids for learning languages. According to Haristiani (2019), chatbots are highly appreciated for their accessibility and ease, frequently being favored over conventional teacher contacts. Huang, Hew, and Fryer (2022) delineated three primary advantages of chatbots: expeditious feedback, ease of use, and personalization. Furthermore, chatbots enhance social presence by involving learners in significant dialogues.

Chatbots are compatible with several learning philosophies. Constructivism asserts that learners actively construct knowledge via interaction (Bruner, 1996). Chatbots facilitate this process by providing tailored feedback that is customized to meet the specific requirements and knowledge of each user. Social constructivism highlights the significance of social contact, which is facilitated by chatbots via conversational interfaces (Vygotsky, 1978). The concept of cognitive load theory emphasizes the need of effectively managing cognitive demands. Chatbots have the potential to reduce unnecessary cognitive effort by incorporating feedback into a conversational setting, as suggested by Atkinson and Shiffrin (1968). The notion of information processing centers around the many phases of learning. Chatbots assist in this process by providing customized feedback that is in line with the strengths and preferences of learners (Simon, 1978). While chatbots are becoming more acknowledged for their contribution to language acquisition, continuous study and improvement are crucial to overcome their limits and improve their efficacy.

Challenges in Using AI Tools in English Language Learning

The potential of AI to change education is clear, but its implementation must be done with careful consideration of ethical, pedagogical, and technical concerns. This section examines the difficulties associated with the Gemini chatbot, including addressing ethical concerns and applicable restrictions. An important ethical consideration is on the possibility of prejudice in AI systems. AI systems, such as chatbots like Gemini, have the ability to adopt and intensify biases that exist in the data they are trained on. This has the potential to put diverse student groups at a disadvantage (Abbas et al., 2023; McCardle, 2019). To tackle this problem, continuous efforts are required to recognize and reduce biases in order to guarantee that AI technologies foster fairness instead of worsening inequalities. Furthermore, ethical quandaries emerge when attempting to strike a balance between individualized training and safeguarding student confidentiality. Establishing strong data security measures and promoting clear and open communication are crucial for building confidence and avoiding unlawful use (Wang et al., 2023). Furthermore, while AI has the capability to improve efficiency by implementing tailored learning routes, it is essential to not diminish the key function of educators. Preserving human connection and creativity in the learning process requires striking a compromise between the capacities of artificial intelligence and the autonomy of teachers (Bittencourt et al., 2023; Pokriváková, 2022).

An overreliance on individualized learning platforms might reduce human connection, which is essential for comprehensive growth, analytical thinking, and emotional assistance (Rizvi, 2023). Therefore, it is crucial to maintain a balance between customization and meaningful human interaction. Although AI-powered assessments are efficient, they may not consistently provide an adequate measure of student understanding, especially for individuals with unconventional learning preferences (Abbas et al., 2023; Xu, 2020). To guarantee the precision and uniformity of these evaluations, meticulous development and calibration are necessary. Moreover, the digital gap presents substantial obstacles, which might possibly exacerbate preexisting educational disparities (Papa & Jackson, 2021).

To provide equal access to AI-enhanced education, it is essential to address deficiencies in infrastructure, discrepancies in resources, and promote digital literacy. From a technology standpoint, there are various challenges that need to be addressed. The absence of transparency in AI algorithms may undermine confidence and impede comprehension of decision-making processes, emphasizing the need for enhanced explainability (Xu, 2020). While chatbots like as Gemini provide tailored instruction and feedback, they still encounter constraints in offering complex material and precise ratings (Georgescu, 2018; Yang & Evans, 2019). Foreign students may face difficulties due to cultural and language disparities, highlighting the need of culturally sensitive design and localization to guarantee inclusive implementation (Wang et al., 2023). It is crucial

to examine the various effects of AI on English as a Foreign Language (EFL) learners and to solve the unique limitations of tools such as Gemini. While AI has the potential to bring about significant changes in education, it is crucial to address the ethical, pedagogical, and technical problems associated with it. To guarantee that AI technologies, such as chatbots like Gemini, improve rather than impede the learning experience for all students, it is important to address these issues.

Gemini Features

Gemini, GenAI's cutting-edge tool, showcases a wide range of characteristics that set it apart in the field of artificial intelligence. It exhibits exceptional overall talents in multiple areas and showcases state-of-the-art performance in comprehending and logical thinking across diverse fields. (Team and others, 2024) Gemini has a notable capability to manage many data kinds, including text, photos, audio, PDFs, and videos. Gemini's adaptability enables it to provide detailed responses that are tailored to the specific situation, making it very beneficial for a wide range of jobs and applications. Gemini is seen as a promising catalyst for progress in educational technology and its practical implementation, extending beyond its theoretical basis (Lee, Latif, Shi, & Zhai, 2023; Lee, et al., 2023). Google Gemini is not limited to text-based activities like ChatGPT. It has the ability to handle several types of inputs such as audio, visual, and video data, and produce output depending on these inputs (Portakal, 2023; Koubaa et al., 2023).

The Gemini 1.0 Ultra model stands out for its outstanding performance in several areas. The multimodal features of this technology are especially advantageous for those who have limited access to digital learning resources, since it enables them to engage with a wide range of immersive and comprehensive learning environments. Users may get advantages from language acquisition, identification of objects, receiving feedback using various input methods, and participating in dynamic discussions on any subject matter (Nyaaba, 2023). Gemini has exceptional proficiency in activities such as language analysis, programming support, logical deduction, reading comprehension, mathematical problem-solving, and code production. Gemini, as stated in a Google report, is specifically designed to minimise the potential for triggering undesirable reactions. The Google DeepMind Team has categorised approximately twenty forms of detrimental cues and expressions, including recommendations for hazardous conduct, offensive language, concerns regarding security, and medical guidance. This ensures that Gemini's responses are derived from a dataset devoid of potentially harmful inputs and enquiries (Team et al., 2023).

Gemini, fuelled by GenAI, is an impressive AI model that specialises at producing fresh content by using the input it gets. It has the ability to generate a wide range of data kinds, such as text, code, and graphics, which makes it a very effective tool for jobs involving creativity, content production, and problem-solving. Gemini has the ability to utilise Google Search to get and analyse real-world data, which distinguishes it apart from earlier models that were trained on fixed datasets (Portakal, 2023). Gemini is able to customise its replies to align with current events, guaranteeing that they accurately represent the most recent advancements.

Another notable attribute of Gemini is its proficiency in managing various communication responsibilities and styles. The system has the ability to adjust its replies to provide information, cover a wide range of topics, or even adopt a more relaxed and captivating tone, depending on the specific need and context. Additionally, it provides interactive simulations and learning environments that integrate audio, video, images, and text to provide immersive educational experiences that vividly illustrate abstract ideas (Team et al., 2023). Gemini distinguishes itself from its rivals (such as Bing Chat, Claude 2.0, Ernie, and ChatGPT) by its exceptional capacity to comprehend and analyse diverse input data, rendering it an influential instrument for tailored, easily available, and dynamic learning encounters. Given the need for adaptation, the educational environment requires new solutions (Perera & Lankathilake, 2023). In addition, Gemini offers individualised feedback and explanations for a wide range of activities and suggestions (Saeidnia, 2023). The system has the capability to examine the answers provided by pupils and provide customised feedback, which includes clarifications using visual representations, authentic comments, and pertinent illustrations.

Gemini utilises its sophisticated comprehension of language and logic to conduct methodical evaluations, providing efficient and uniform feedback and grading for both coding

and written assignments and activities (Team et al., 2023). It provides advantages to educators, learners, and professionals alike. Gemini is a tool that may provide instructors with thought-provoking prompts and situations. It aims to stimulate critical thinking, logical analysis, hypothesis development, and solution exploration among students. According to Saeidna (2023), Google Gemini enhances the sharing of information and communication across different learning groups, fostering a collaborative learning atmosphere. This technology is specifically developed to provide a conversational experience that is tailored to the user's needs, providing accurate and relevant replies in a user-friendly way.

Gemini 1.5 Pro is equipped with the ability to carry out complex cognitive tasks involving many modes of thinking. Nyaaba (2023) asserts that Gemini offers a more comprehensive and knowledgeable perspective on scientific issues compared to other prominent language models such as ChatGPT. Gemini has the ability to comprehend intricate, multifaceted, and dynamic scientific ideas, methodologies, approaches, and information, in accordance with the most up-to-date scientific insights (Knight, 2023; Nyaaba, 2023). Gemini places a strong emphasis on using methodical investigation and making decisions based on evidence in the context of learning and training. This feature makes it very adaptable compared to its rivals in delivering lucid and succinct comparisons across a range of topics including science, religion, and philosophy. It has the ability to analyse and evaluate experimental elements and engage in discussions on research-focused priorities and procedures (Nyaaba, 2023).

Gemini 1.5 Pro is specifically designed to efficiently manage complex problem-solving activities that need the manipulation of extensive sections of code. According to the Google Team (Team et al., 2023), their system is capable of analysing and understanding 100,000 lines of code, offering useful solutions, adjustments, and explanations. In addition, Gemini is the first model to surpass human experts in Massive Multitask Language Understanding (MMLU), a widely used technique for evaluating the knowledge and problem-solving capabilities of AI models.

II. METHODS

This study employs a case study design to gain a comprehensive understanding of the experiences and perceptions of higher education students using the Gemini chatbot for learning English. According to Creswell (2007), a case study involves an in-depth exploration of a bounded system through extensive data collection, which is particularly suited for examining the nuanced interactions between students and the chatbot. This research is a multiple-case study, involving ten students from the English Language Education program at a public university in North Sumatra, selected through purposive sampling to ensure they possess relevant backgrounds and skills in using technology for language learning. The research will involve both direct observations and structured interviews. Observations will focus on how students interact with the Gemini chatbot, including their use of chatbot features, responses to instructions, and the technology's impact on their participation and engagement. Structured interviews will provide additional insights into students' opinions, challenges, and benefits associated with the chatbot. Each interview will last approximately 30 minutes and will be conducted in a comfortable setting to promote openness.

Ethical considerations are a priority in this study. Participants will receive clear information about the research objectives and procedures, and informed consent will be obtained from each participant. Confidentiality will be strictly maintained both during and after the study. Data will be stored securely, with access limited to the research team. Identifiable information will be anonymized in all reports and publications to protect participants' privacy. The researcher will ensure that data handling complies with institutional and legal requirements for confidentiality. Additionally, the study will address potential power dynamics, as the researcher may have a role in the academic environment of the participants. To mitigate any potential influence, the researcher will maintain a neutral stance, emphasizing that participation is voluntary and will not affect students' academic evaluations. The researcher will also establish clear boundaries and ensure that the research process is conducted with sensitivity to the participants' perspectives and autonomy.

Data collection will involve recording observations on pre-designed sheets that capture various aspects such as material comprehension and feature usage (Morris, 1973). Interviews, defined as face-to-face interactions aimed at gathering information or opinions (Allison et al.,

1996), will begin with background questions and focus on experiences, understanding, engagement, challenges, and recommendations. These interviews will be recorded with participants' consent for subsequent transcription and analysis.

Data analysis will follow the approach outlined by Miles, Huberman, and Saldana (2014). The process starts with data collection through observations and interviews, followed by data condensation, which involves selecting, focusing, simplifying, summarizing, and converting raw data. Unnecessary material will be removed, and valuable data will be categorized based on emerging themes. Data presentation will use tables, charts, or graphs to visually depict relationships between topics, facilitating the identification of patterns and trends. Conclusions will be drawn and validated through data triangulation, involving comparisons between observations and interviews to ensure consistency and accuracy. This methodology will provide insights into the effectiveness and challenges of using the Gemini chatbot and offer practical recommendations for future technological advancements and implementations.

III. RESULT AND DISCUSSION

Users' First Experiences with the Gemini Chatbot

Respondent	First Experience
Respondent 1	The first experience was pleasant, easy to use
Respondent 2	Initially challenging due to new technology, but became comfortable over time
Respondent 3	Initially confused, but found it helpful with conversation practice
Respondent 4	Initially awkward, but later found it enjoyable and helpful
Respondent 5	Positive, easy interaction and clear instructions
Respondent 6	Positive; easy to use and informative
Respondent 7	Impressive; interactive and engaging
Respondent 8	Initially confused, but got used to it and found it fun
Respondent 9	Positive; easy to use and navigate
Respondent 10	Initially confused, but became enjoyable

Table 1: Users' First Experiences with the Gemini Chatbot

The implementation of the Gemini Chatbot in English language learning has elicited varied initial responses from students majoring in English Language Education. The majority of respondents reported positive experiences with the chatbot, highlighting its user-friendly interface and engaging features. For instance, R1 noted, "My first experience using the Gemini chatbot was quite enjoyable. The application is easy to use, and I was able to start practicing immediately." Similarly, R6 expressed, "The chatbot is easy to use and engaging. It feels like I'm talking to a real person, which is great for practicing my speaking and writing skills." These comments underscore the chatbot's effectiveness in providing a realistic and motivating learning environment. However, some users faced initial challenges when adapting to the new technology. For example, R2 mentioned, "My first experience using the Gemini chatbot was quite challenging because I had to adapt to new technology, but over time, I became comfortable." This sentiment was echoed by R3, who stated, "Initially, I was a bit confused, but after trying the conversation practice feature, I found it helpful in boosting my speaking confidence." Despite these early difficulties, 90% of respondents eventually found the chatbot beneficial, indicating that initial confusion was a temporary barrier that diminished with continued use.

The researcher's observations supported these findings, showing that users gradually became more confident in communicating in English. Documentation from practice sessions revealed significant improvements in grammar accuracy and speaking fluency among those who used the chatbot's grammar and conversation features. Additionally, most respondents appreciated the variety of features available on the Gemini Chatbot, such as grammar, vocabulary, and conversation practice, with R7 stating, "I am impressed with the various features offered by the Gemini chatbot." Overall, the study suggests that the Gemini Chatbot has a positive impact on users' initial experiences and preferences in English language learning. Despite some initial adaptation challenges, users generally perceived significant benefits from the chatbot, which offers a comprehensive and engaging learning solution for students.

The research found three main points related to these experiences, namely the user-friendly interface design, increased confidence after the adaptation phase, and the variety of features that meet different learning needs.

First, the findings show that the user-friendly interface design of the Gemini chatbot makes the initial user experience enjoyable and motivating. An intuitive and easy-to-understand interface plays a crucial role in influencing their initial experience. This is supported by Bruner's (1996) findings that chatbots offer feedback and suggestions tailored to the needs and initial knowledge of students. A well-designed interface minimizes confusion and misunderstandings, allowing students to focus more on learning content rather than facing technological barriers. This user-friendly interface design is not only important in facilitating initial use but also

influences students' motivation to continue using the chatbot. When users feel comfortable with the interface, they are more likely to be motivated to explore other features and continue interacting with the chatbot. When students experience ease of navigation and use, they are more likely to develop consistent learning habits, which in turn can enhance their learning outcomes. These findings indicate that interface design is a key element that should be considered in the development of learning technologies.

Additionally, after users pass the adaptation phase, they feel that the Gemini chatbot helps increase their confidence in using English. In the initial phase of use, users often feel awkward and insecure when using new technology, but over time and with continued use, they become more confident in their abilities. In the context of using the Gemini chatbot, increased confidence after the adaptation phase means that users feel more competent in using English. This aligns with Cunningham-Nelson et al.'s (2019) findings, which suggest that the more users interact with chatbots, the more they build confidence in their language skills. This indicates that continuous use and familiarity with the technology play an important role in increasing users' self-confidence. This confidence not only helps users utilize the chatbot more effectively but also carries over into other aspects of their English learning, such as speaking and writing. Increased self-confidence enables users to apply the language skills they have learned in real-life situations more effectively.

The Gemini chatbot has a range of functions that accommodate different educational requirements, including listening, speaking, and writing. The chatbot's capacity to accommodate diverse learning requirements enables the implementation of tailored teaching. This guarantees that students may interact with the material in manners that align with their own learning styles and preferences. Implementing features that cater to diverse requirements fosters an inclusive learning environment, enabling all students to effectively access and get benefits from educational resources. Users may customize their learning experience based on their own requirements and preferences due to the wide range of options available. Bruner (1996) asserts that chatbots have the capacity to aid pupils in honing their writing skills and provide pertinent comments on tasks. For instance, those seeking to enhance their oral communication abilities may use the speaking practice functionalities, whilst those desiring to enhance their written communication skills might engage in writing exercises offered by the chatbot. This array of features not only assists users in tackling many facets of language acquisition but also offers a more extensive and all-encompassing learning encounter. Users have the ability to alternate between various features according to their learning priorities and requirements, hence enabling a more customized learning experience. Utilize the chatbot's functionalities to create tasks that cater to various learning styles. For example, provide visual aids to cater to visual learners, interactive exercises to engage kinesthetic learners, and audio explanations to accommodate auditory learners. Harness the chatbot's adaptive functionalities to provide customized assistance. For instance, if a learner has difficulties with a particular idea, the chatbot might provide further explanations or alternative resources to enhance their comprehension. Consistently evaluate the extent to which the chatbot's functionalities are fulfilling the educational requirements of pupils. Collect input from students and modify the use of the chatbot's functionalities according to their comments and performance.

In conclusion, the user-friendly interface design of the Gemini chatbot makes the initial user experience enjoyable and motivating. After passing the adaptation phase, users feel that the chatbot helps increase their confidence in using English. Additionally, the variety of features provided by the chatbot caters to different learning needs, making the learning experience more comprehensive and personalized. These findings highlight the importance of user experience, confidence-building, and feature variety in the development of learning technologies like the Gemini chatbot.

Benefits and Limitations Features

Category	Feature	Respondent
Correction and Feedback	Grammar correction	Respondent 1
	Grammatical correction	Respondent 3
	Constructive feedback	Respondent 5, Respondent 6
	Feedback on grammar and vocabulary	Respondent 8
	Feedback on grammar and word choice	Respondent 10
	Detailed feedback on grammar, vocabulary, and pronunciation	Respondent 7
	Accurate feedback and progress tracking	Respondent 9
Simulation and Practice	Conversation simulation	Respondent 2
	Recording analysis	Respondent 4

Table 2: Benefits Features

In this section, the researcher examines the benefits and limitations of the Gemini chatbot technology in English language learning at the university level, highlighting the varying impacts on different student demographics. The majority of users find the grammar correction and recording analysis features particularly beneficial. These features provide immediate feedback on grammatical errors and detailed analyses of conversation recordings, which help users identify and correct frequent mistakes. Such real-time corrections are valued because they streamline the learning process, making it more efficient and interactive compared to waiting for feedback from lecturers or tutors.

Category	Respondents	Details
Translation Issues	Respondent 1	The translation is not always accurate
Idioms and Vocabulary	Respondent 2, Respondent 3, Respondent 5	Idioms explanation unclear, synonyms sometimes incorrect, limited vocabulary understanding
Speech and Pronunciation	Respondent 7, Respondent 8, Respondent 10	Voice recognition is sometimes inaccurate, pronunciation drills are difficult, and speech recognition is sometimes inaccurate
Specific Features Difficulty	Respondent 4	Story creation is somewhat confusing
General Satisfaction	Respondent 6, Respondent 9	No feature is less useful; all are easy to use

Table 3: Limitation Features

However, limitations exist, as noted by the respondents. A significant issue is the inaccuracy of the translation feature, which often leads to confusion regarding the actual context. This limitation is consistent with findings by Georgescu (2018) and Yang & Evans (2019), who observed that while chatbots have considerable potential for learning support, they still need further development to deliver nuanced content and effective assessments.

The diversity of learning needs among students also impacts the effectiveness of the chatbot's features. A more detailed demographic analysis, including factors such as age, prior language proficiency, and digital literacy, could provide insights into why certain features of the chatbot were more effective for some students than others. For instance, younger students or those with higher digital literacy might benefit more from interactive features, while older students or those with lower digital skills might face greater challenges. Understanding these differences can inform the design of future iterations of the chatbot, making it more adaptable to diverse student needs and enhancing its overall effectiveness as a learning tool. Overall, while the Gemini chatbot offers notable advantages, particularly in grammar correction and recording analysis, addressing its limitations and considering diverse student needs will be crucial for improving its effectiveness and ensuring it meets the varied requirements of all learners.

Feedback in English Language Learning with Gemini Chatbot

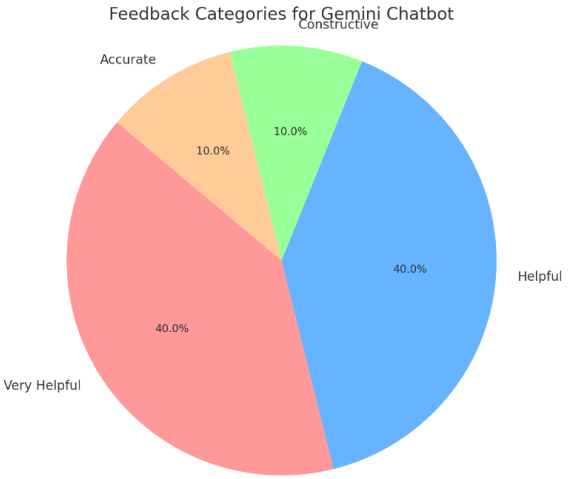

Figure 1: Feedback Categories for Gemini Chatbot

This study has presented data on the experiences of university students in utilizing the Gemini chatbot for English language learning. In this section, the researcher discusses findings regarding the detailed and constructive feedback from the chatbot, which is highly effective in helping students correct errors and track learning progress. This finding is an important part of the technology use experience by students that has a significant impact on the English learning process. Detailed and constructive feedback from the Gemini chatbot is a significant finding in this study. Learners indicate that the chatbot provides direct and detailed feedback, enabling them to immediately understand the mistakes they make in various aspects of English, such as grammar, vocabulary, and sentence structure. Bruner (1996) states that learners can construct their learning by actively engaging with new information and building their knowledge. This aligns with the experiences reported by students where they actively interact with the chatbot. This detailed feedback allows students to make immediate corrections and act on their mistakes, thus facilitating more efficient knowledge construction.

This finding can also be related to previous research by Crompton, Jones, and Diane (2022), which mentioned that AI integration in learning can function as a tool to assess student essays, provide corrective feedback, or design teaching processes tailored to each student's needs. The implementation of AI technology like the Gemini

chatbot in the context of English language learning at universities aligns with this theory, where the chatbot can provide corrective feedback tailored to users' specific errors. Thus, the learner experiences show that the Gemini chatbot plays an important role in supporting learning tailored to the individual needs of students. Further exploring the benefits of chatbot feedback, this study finds that the feedback not only helps in immediate error correction but also in tracking learning progress over time. Students report that they can see improvement in their English skills through fewer mistakes after receiving feedback from the chatbot. This supports the concept proposed by Bruner (1996), where the learning process becomes more meaningful when individuals actively participate and see their progress.

Additionally, constructive feedback from the chatbot encourages reflective learning, where students not only receive passive information but also reconsider and analyze their mistakes. This allows them to build a stronger knowledge foundation. In the research by Crompton, Jones, and Diane (2022), it is also emphasized that AI's ability to provide detailed and tailored feedback facilitates deeper and more reflective learning. Overall, findings on feedback and correction from the Gemini chatbot indicate that this technology is very helpful in the English learning process for students. The feedback offered by the chatbot not only helps in correcting mistakes but also allows students to track their progress and build a stronger knowledge foundation. Although there are some technical limitations to overcome, the benefits offered by this AI technology are far greater, especially in the context of tailored and detailed learning. In a broader perspective, these findings underscore the importance of integrating AI technology into higher education. Chatbots like Gemini offer innovative solutions to traditional learning challenges and open up new opportunities for tailored and interactive teaching. With technological advancements, it is expected that technical limitations will diminish, and AI technology will increasingly be able to provide more accurate and effective support in English language learning and other fields of study.

The Challenges and Obstacles of Using the Gemini Chatbot in English Language Learning in Higher Education

The study identified several technical challenges encountered by students using the Gemini Chatbot, notably slow internet connections and limitations in voice recognition. These issues significantly impacted the effectiveness of the chatbot and highlighted areas for improvement.

Respondent 1 noted the problem of unreliable internet access, stating, "Sometimes I experience difficulties with slow internet connections, which disrupt interaction with the chatbot. To overcome this, I usually seek places with more stable internet connections or use additional resources such as books and online videos to supplement my learning." This feedback illustrates how unstable internet connections can interrupt learning sessions and lead to user frustration. To address this, developing an offline mode for the chatbot could be highly beneficial. An offline mode would enable users to download lessons and practice materials in advance, ensuring that their learning is not disrupted by connectivity issues. Similar approaches have been implemented effectively in language learning applications such as Duolingo, which offers offline functionality to allow users to continue learning without an active internet connection. Additionally, creating a lightweight version of the chatbot, which requires less bandwidth, could enhance accessibility for users with slower internet connections. For example, the language learning app Babbel offers a low-bandwidth mode that reduces data usage while still providing valuable learning experiences. Encouraging the use of supplementary offline resources, such as textbooks and downloadable videos, can also help bridge the gap when internet access is unstable.

Voice recognition limitations were another significant challenge. Respondent 3 observed, "Sometimes Gemini doesn't understand my meaning, especially when I use slang. When this happens, I try to explain again with simpler sentences. If still confused, I look it up in an online dictionary." This highlights the chatbot's difficulty in accurately interpreting various accents, intonations, and informal language, which can hinder effective communication. Improving the chatbot's voice recognition algorithms to better handle diverse accents and informal language is essential. For instance, the voice recognition system used by Google Assistant and Amazon Alexa has continually improved by incorporating machine learning models trained on diverse speech patterns and accents. Implementing similar advanced algorithms could help reduce misunderstandings

and enhance user satisfaction. Additionally, providing users with guidelines on how to interact with the chatbot using clear and formal language could improve communication effectiveness. Implementing a feedback loop where users can report misinterpretations can also help developers continuously refine the voice recognition capabilities of the chatbot.

According to Shneiderman (2020), automated systems should perform tasks quickly and accurately; however, Gemini's voice recognition currently falls short, causing frustration and reduced motivation among students. Papa and Jackson (2021) emphasize that technical challenges, such as slow internet connections, disrupt interactions, particularly for students in areas with inadequate network infrastructure. To address these challenges comprehensively, a holistic approach is needed. This includes deeper integration of the chatbot into the academic curriculum and ensuring adequate technical support. Aligning chatbot usage with structured lesson plans, as seen in educational technologies like Khan Academy, which integrates content delivery with interactive tools, can provide a more cohesive learning experience. Continuous technical assistance and support will also help mitigate these issues and enhance the overall effectiveness of the chatbot.

Addressing technical challenges such as slow internet connections and voice recognition issues is crucial for maximizing the Gemini Chatbot's effectiveness in English language learning. By implementing solutions such as offline modes, advanced voice recognition algorithms, and integrating the chatbot into structured academic curricula, these challenges can be significantly mitigated. Drawing on successful models from similar tools and continuously evaluating and refining chatbot technology will ensure that it effectively supports students' learning objectives and enhances language competence in higher education.

Strategies to Overcome Challenges and Obstacles in Using the Gemini Chatbot for English Learning

The results of the study indicate that despite the many benefits of the Gemini chatbot, students face several difficulties and challenges. This section will discuss the strategies identified to overcome these difficulties and challenges. These strategies include using alternative resources such as books and online videos, finding places with more stable internet connections, creating a structured study schedule, joining online learning communities, and using formal and clear language in interactions with the chatbot. One of the main strategies identified is the use of alternative resources such as books and online videos and finding places with more stable internet connections. Most respondents acknowledged that slow internet connections often pose a major obstacle to using the Gemini chatbot. This limitation disrupts the flow of interaction and reduces the effectiveness of the learning experience. Users facing this problem seek places with more stable internet connections, such as libraries or cafes with Wi-Fi. Additionally, learners also utilize alternative resources such as English textbooks and online learning videos as supplements and solutions when the internet connection is inadequate. The use of books and online videos can be an additional resource that supports learning by providing various ways to understand the material in depth. This aligns with Vygotsky's (1978) theory, which emphasizes the importance of social interaction and the use of various tools to facilitate learning. The use of alternative resources supports social interaction through learning materials that can be used collaboratively by students.

The next strategy is creating a structured study schedule and joining online learning communities to maintain motivation and consistency in using the chatbot. It was found that decreased self-motivation and other academic commitments can hinder the consistent use of the Gemini chatbot. To address this, some students create a more regular study schedule that systematically utilizes the Gemini chatbot. By scheduling consistent study time, students can maintain a routine that helps improve their understanding and use of English through the chatbot. Additionally, joining online learning communities is also an effective strategy to maintain motivation. Students who participate in online study groups or discussion forums can support and motivate each other, share experiences, and seek solutions to problems encountered while using the chatbot. This is relevant to previous research by Shneiderman (2020), which emphasizes that active online communities can enhance communication clarity and user engagement with AI systems.

Using formal and clear language to minimize misunderstandings with the chatbot is another strategy found in this study. Mistakes often occur when students communicate with the

chatbot using informal or overly casual language. This leads to inaccuracies in the chatbot's responses and reduces the effectiveness of learning. Students who implement the use of formal and clear language tend to have more successful interactions with the chatbot, reducing misunderstandings and increasing accuracy in the responses provided by the chatbot. Wang et al. (2023) also indicated that clear communication is crucial for building trust between users and AI systems, which in this context is the Gemini chatbot.

The relationship between existing theories and the findings of this study also shows that the need for clear communication and the use of alternative resources in interactions with chatbots not only helps overcome technological limitations but also enhances the overall learning experience. This reinforces Vygotsky's theory regarding the importance of interactive tools for learning and the need for personal data protection and clear communication as outlined by Wang et al. (2023). The findings of this study also align with previous studies highlighting the importance of communication clarity between users and AI systems. For instance, Shneiderman's (2020) research emphasized that clarity in communication is key to the success of interactions between humans and AI systems such as chatbots. Therefore, students who can communicate clearly and formally with the Gemini chatbot are likely to experience fewer difficulties and gain greater learning benefits. Furthermore, the use of alternative resources such as books and online videos allows students to gain a broader and deeper understanding of the material being studied. This is particularly important when the chatbot faces limitations in voice recognition or translation features. The use of these resources provides students with the opportunity to learn the material from various perspectives and methods, thereby enriching their learning experience.

In the context of using a structured study schedule, this research found that students who consistently use the Gemini chatbot according to a predetermined schedule tend to experience improvements in their confidence and English language abilities. A regular study schedule helps students stay focused and committed to their learning process. It also enables them to track their progress more effectively and make necessary improvements based on the feedback provided by the chatbot. Joining online learning communities also shows significant benefits in maintaining motivation and consistency in using the chatbot. Through these communities, students can share experiences, challenges, and successful strategies, as well as receive the social support needed to stay motivated. Learning communities also provide a platform for discussion and collaboration, which can enhance students' understanding of the material being studied and develop their social skills.

Overall, the strategies to overcome difficulties and challenges in using the Gemini chatbot for English language learning reflect the importance of external support, consistency, and effective communication in the learning process. These findings provide valuable insights for educational technology developers, educators, and students in optimizing the use of chatbots for language learning. By implementing the strategies identified in this study, it is hoped that students can overcome the obstacles they face and maximize the benefits obtained from using the Gemini chatbot.

IV. CONCLUSION

This study investigated the experiences of higher education students using the Gemini chatbot for learning English, focusing on two primary inquiries: the effectiveness of the chatbot's features and the challenges encountered during its use. The findings revealed that most students had a robust foundation in English, supported by family and informal learning activities from a young age. Their motivation to use the Gemini chatbot was largely driven by positive recommendations from peers, lecturers, and social media. The chatbot’s user-friendly interface and diverse features contributed to a more engaging and motivating learning experience. It was effective in boosting students’ confidence in speaking English and facilitated flexible learning that integrated seamlessly into their daily routines. Notably, the chatbot's detailed feedback and grammar correction functionalities were highly beneficial for tracking progress. However, the study also identified significant technical issues, including difficulties with voice recognition, translation features, and slow internet connectivity. Addressing these technical challenges is crucial for optimizing the chatbot's effectiveness. Students reported that consistent use of the chatbot was impacted by decreased self-motivation and the demands of their academic workload. To mitigate these challenges, students employed strategies such as seeking alternative resources, ensuring stable

internet connections, and organizing their study schedules more effectively.

The implications of these findings contribute to the broader literature on AI tools in language learning by highlighting both the advantages and limitations of chatbot technology. The study underscores the potential of AI chatbots to enhance language acquisition through improved comprehension of sentence structure, expanded vocabulary, and increased speaking confidence. However, it also emphasizes the need for continued improvements in chatbot technology to address technical issues and enhance user experience.

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