AI Chatbot as an Effective English Teaching Partner for University Students

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Abstract

This study investigated the effectiveness of an AI chatbot for improving English language skills among Indonesian university students. In order to address the research question, the researchers conducted an analysis of responses to a 20-item questionnaire distributed via Google Form among a sample of 95 university students. The survey was conducted to evaluate student perceptions of the chatbot's usability, language accuracy, feedback quality, and overall strengths. The findings revealed high student satisfaction with all aspects of the chatbot. Students agreed that the chatbot was user-friendly, understood their questions, provided helpful feedback, and offered valuable learning opportunities. These results align with previous research on the effectiveness of chatbots in enhancing English language proficiency. The study suggests that AI chatbots can be a beneficial tool for both independent language practice and supplementing classroom instruction. The chatbot's ability to personalise learning experiences and adapt to individual needs contributes to improved student engagement and language acquisition. This research adds to the growing body of evidence supporting the use of AI chatbots in computer-assisted language learning (CALL). Future research could investigate the effectiveness of the chatbot for learners with varying proficiency levels.

Keywords: *AI Chatbot, English Teaching Partner and University Students.*

I. INTRODUCTION

Education is changing dramatically in the direction of a more technologically oriented approach. This is especially true for language learning, where cutting-edge tools are being added to more conventional approaches. Routine memorizing and static lectures were common in traditional school settings. Multimedia materials, games, and simulations are some of the interactive components that technology-assisted learning (TAL) offers. This encourages more active learning and deeper engagement in the process of acquiring a language (Nadiem, 2023; Chu et al., 2022). However, not all students are exposed to these interactive components. This led to the limitation of learning languages, particularly English. Data has shown that not every location has easy access to certified English teachers, particularly in rural areas (Echazarra & Radinger , 2019; Brownell et al., 2018; du Plessis & Mestry, 2019). For students looking for appropriate education and direction, this poses a hurdle. Another problem that arises is individual learning styles and pace may not be accommodated in traditional classroom environments. There may not be enough opportunity for learners to receive individualized practice that meets their unique needs. Sometimes, using traditional methods might get boring, which makes students lose interest and enthusiasm (Broom, 2015; Filgona et al., 2020; Lochner et al., 2015; Wong et al., 2020). This impedes development and delays the learning of a language.

Learners may become discouraged from actively practicing speaking English if they are afraid of making mistakes. Communication becomes less confident and fluent as a result.Though it is not a recent development in the realm of education, artificial intelligence (AI) has the potential to significantly alter the laws of the game. Among other things, one of the areas where AI has the biggest potential to transform education is language teaching. Artificial Intelligence (AI) has the potential to provide individualized learning opportunities, improve language evaluation through automated grading and feedback, and provide immersive language practice via chatbots and language processing technologies (Amin, 2023; Kaledio et al., 2024; Kamalov et al., 2023). Manns (2017) mentioned that the "4th Industrial Revolution" is characterized by the rapid advancement of digital applications and technology, which is altering the way people work, live, and study. It's a revolution propelled by the combination and augmentation of recent advances in robotics, automation, and artificial intelligence, as well as the vast interconnectedness between billions of people through mobile devices that provide never-before-seen access to information. In order to customize lesson

plans and increase the effectiveness and engagement of language learning, AI-powered platforms can also analyse student data. Furthermore, AI has the ability to eliminate language barriers via a variety of techniques, increasing accessibility to language education for a worldwide audience (Alharbi, 2023; Steigerwald et al., 2022).

AI is continually developing and growing, and there are strong signs that educational methods and the resources we use for them may undergo significant change. AI technology tools combined with creative teaching methods and mentorship are a potent combination that can help students advance in their language acquisition.One implementation of AI is chatbots.Concerns regarding using artificial intelligence (AI) chatbots in educational contexts, particularly for language acquisition, have been raised by the boom in chatbot usage (Esiyok et al., 2024; Labadze et al., 2023). A chatbot is a computer software that uses natural language processing to mimic "human language with the aid of a text-based dialogue system" (Zumstein & Hundertmark, 2017). According to Belda-Medina and Carlo-Ferrer (Belda-Medina & Calvo-Ferrer, 2022) a chatbot is an artificial intelligence (AI) computer program that mimics human speech either through textual or audio means. Chatbots can be integrated into websites or used in instant messaging apps, both of which give students quick access to the internet for studying, practicing, and advancing their English language skills (Grudin & Jacques, 2019). Chatbots are accessible around-the-clock, allowing language learners to pick up the language in manageable bits and repeat it whenever it suits them (Dwivedi et al., 2023; Haugeland et al., 2022; Roos, 2018). According to a study by Sol et al. (2024) university students studying English as a foreign language in Cambodia had favorable opinions on artificial intelligence.

They suggested selecting AI tools or apps that were easily adaptable to teachers' and students' different demands. AbuSahyon et al. (2022) mentioned that chatbots and AI-driven technologies have many advantages, including personalized feedback, flexible learning paths, and real-world language exchanges. They also encourage learners' motivation, involvement, and self-directed learning (Kuhail et al., 2023; Parsakia, 2023).Research on how teachers and students experience and perceive artificial intelligence (AI) and how AI technologies affect various EFL abilities is growing in the field of English language education, especially in the setting of EFL. However, no such research about the effectiveness of Chatbot affects language learning has been done in the context of Indonesian EFL, despite the Ministry of Education's fervent efforts to advance digital learning and the integration of AI technology into teaching at all levels of education. Adult English language learners who use AI chatbots for speaking practice will show greater gains in fluency and vocabulary acquisition compared to those who use traditional learning methods. In order to close this gap, this study looks at the perception of Indonesian EFL university students at the usability, language precision, assessment and feedback, and strength of AI Chatbot in English language education.

II. METHODS

We polled Indonesian university students to find out if employing an AI chatbot as a teaching assistant for English was beneficial. This research uses a descriptive qualitative method that can explain the results of data management thoroughly. Data was collected by distributing questionnaires using Google Form to students at one of the universities in Indonesia. Then the data is processed using a Likert scale which is considered effective in proving the effectiveness of the thing being tested. The Likert scale can measure the attitudes, opinions and perceptions of a person or group of people about social phenomena. There are two forms of statements in the Likert questionnaire, namely the form of positive statements or questions to describe positive interests, and negative questions or statements to describe negative interests. To find out how students felt about chatbots as learning aids, the researchers employed an experimental survey. A 5-point Likert-scale online survey with the following items was created: (1) strongly disagree, (2) disagree, (3) uncertain, (4) agree, and (5) strongly agree. It was based on the chosen questionnaire structure. There was a twenty-item Likert scale in the questionnaire. Usability, linguistic accuracy, assessment and feedback, and strengths were the four main areas.

To find out what students thought about the accessibility and ease of use of chatbots, five items were devoted to the topic of usability. Five additional items were allocated to the language accuracy dimension in order to gauge the students' opinions regarding the possible application of chatbots for enhancing language

abilities, grammar, and vocabulary. The evaluation and feedback dimension (n = 3) looked into how students felt about chatbots' ability to provide real-time feedback. Lastly, an analysis of the top seven chatbot strengths (n = 7) looked at the advantages of chatbots. The purpose of the questions was to find out how the students felt the chatbot helped them with their English language proficiency, how satisfied they were with its features and operation, and whether or not they would recommend using it as a teaching tool for English.The population of research subjects selected by the researcher was comprised of first-year students at one of the universities in Indonesia, with a total of 2000 individuals. The sample size was calculated according to the Purposive Random Sampling method (n = N / (Nd2 + 1)), resulting in a sample size of 95 individuals. From February 25 to March 25, 2024, 95 first-year EFL students from one Indonesian university participated in the study. The study population consisted of 41% male and 59% female participants. Prior to the commencement of the trial, all participants were instructed on the use of the chatbot software. By going through this process, the professors could make sure that the students were familiar enough with the Chatbot and had enough experience to give the required information in an accurate and insightful manner. It was also carried out for the veracity of the information gathered and any potential future analysis.

III. RESULT AND DISCUSSION

The data was collected by researchers through Google Forms on 95 randomly selected respondents. The Google Form questionnaire included 20 statements, each with different point weights. The effectiveness of AI Chatbot use in teaching English to first-year students at one of Indonesia's universities was tested using a Likert scale. The respondents indicated their level of agreement with a statement by selecting one of the five available options: strongly agree, agree, don't know/doubt, disagree, and strongly disagree. To obtain a Likert scale score, the following calculation can be employed:

$$Final\ Score = \frac{SA + A + U + D + SD}{Total\ Scale\ Score\ x\ Total\ Participant} \quad x \quad 100$$

In this section, the researchers examine the results of the experiment in light of the study questions. In addition, the findings are discussed in light of existing literature. Table 2 (Appendix One) shows the mean scores for all questions and each category pertaining to EFL students' opinions about using chatbots.The results of the Likert scale calculation indicate that respondents strongly agree with the statement representing the Usability aspect, with a score of 91.79%. This implies that respondents believe that AI chatbots that are easy to use, efficient, and reliable are beneficial. The statements that describe the Language Precision aspect achieved a score of 92.21%, indicating that respondents strongly agree that this AI chatbot can understand the statements or questions asked accurately, can correct language errors, and can provide explanations of correct English concepts. For statements describing the Assessment and Feedback aspect, the score is 94.32%, which means that respondents strongly agree that the AI chatbot can provide good feedback in improving the respondent's English language skills. The results of the Likert scale for the Strengths aspect yielded a score of 95.16%. The respondents' responses indicated that they perceived the advantages of the AI chatbot as being highly attractive, readily accessible, adaptable to their individual learning styles, effective in developing English language proficiency, and more affordable for use in enhancing English language abilities.In response to the initial query, it is apparent that students perceived the chatbots to be accessible and user-friendly.

The overall score for this aspect of the evaluation was 91.79%. Notably, the items related to the chatbots' usability, user-friendly interface, and comprehensibility demonstrated the highest mean values, indicating that their distinctive design and effects encourage student engagement and interactive interaction. This in line with the study conducted by Klimova and Seraf (2023) which found that chatbots are designed to be user-friendly, which makes them entertaining and simple to use. This accessibility makes them appealing to a broad audience, regardless of technological expertise. In response to the second sub-question regarding the accuracy of language generated by chatbots, the majority of students (92.21%) concurred that the language produced is highly accurate. The remaining remarks, which pertained to grammatical mistakes, comprehension of queries and assertions, giving criticism, and justification, obtained high means. The utilization of chatbots enabled students to develop their linguistic abilities. They were able to communicate

in a clear and concise manner, and their proficiency in grammar has improved (Jo & Park, 2024). As stated in a study conducted by Zhang and Huang (2024) the utilization of an AI chatbot built on LLMs significantly enhances the learning process of vocabulary in both receptive and productive ways, particularly for students undergoing second language acquisition.

Notably, the integration of chatbots into the learning environment has been observed to facilitate the process of incidental vocabulary learning and to enhance the long-term retention of effective vocabulary. In response to the evaluation and feedback offered by the chatbots (sub-question 3.), it is evident that the chatbots provided students with prompt, insightful, customised, precise, and thorough feedback on their language proficiency (Ren et al., 2022). This feedback was received with a total score of 94.32%. In response to the question regarding the benefits and advantages of chatbots (sub-question 4.), the students' responses indicated that they are user-friendly, inspiring, and engaging. This is align with the findings of Al-Abdullatif (2023) who suggests that if students think the chatbot is useful, valuable, and enjoyable to use, they're more likely to accept it. This is one of the first studies to combine these two models (TAM and VAM) to predict chatbot acceptance in higher education. It is becoming increasingly clear that the use of artificial intelligence (AI) chatbots has the potential to completely transform the way in which students engage with and learn from information. One of the key advantages of AI chatbots is their ability to deliver individualized and engaging learning experiences, which represents a significant benefit to the educational sector. Chatbots provide personalized feedback and instructional support by adapting to each student's requirements and preferences, which ultimately improves student engagement and retention of material (Labadze et al., 2023; Menon & Shilpa, 2023).

According to the survey's findings, Indonesian university students can effectively learn English with the help of the AI chatbot. The majority of participants stated that the chatbot had improved their ability to communicate in English. The idea that the AI chatbot can be a useful tool for enhancing English language proficiency is supported by these results. The findings also demonstrate that the participants approved of the chatbot's characteristics and operation and suggested that it be used as a teaching tool for English. These results are in line with earlier studies on the efficiency of computer-assisted language learning (CALL) and artificial intelligence (AI) chatbots in enhancing English language proficiency.The survey's findings attest to the AI chatbot's efficacy as a teaching aid for Indonesian university students. Most of the participants said that the chatbot improved their ability to communicate in English, and they were happy with its features and functionality. These results imply that the chatbot can be a useful educational tool and an efficient means of enhancing one's English language proficiency. The results of this study are in line with earlier investigations into the efficacy of CALL and AI chatbots in enhancing English language proficiency learners' vocabulary, as well as students' social presence through emotive, transparent, and well-organized communication (Annamalai et al., 2023; Huang et al., 2022; Qasem et al., 2023). The chatbot's purpose was to support active, after-hours language study to enhance classroom instruction. By conversing with students, it can adjust to their skill levels and learning style, offering individualized training (Kohnke, 2023). Kim (2018) investigated the impact of chatbots on participants' English reading and listening skills. 46 college students were recruited by the author to participate in the study; 24 were placed in the experimental group, and the other participants were placed in the control group.

The study's conclusions showed that both groups' reading and listening comprehension had significantly improved. Study by Mohammed and Alian (2023) showed that language learners are drawn to chatbots because they can use them independently of their teachers, which helps them develop into independent learners. They also thought that in order for them to practice the target language, the Chatbot might mimic an interaction cycle. Furthermore, the students reported that the Chatbot increased their confidence and excitement, which in turn made them feel more engaged and at ease (Kim & Su, 2024; Lee et al., 2022; Yin et al., 2021). Another constraint regarding the language proficiency of the learners (lower- and higher-level learners) was highlighted by Yin and Satar (2020)through the use of the chatbot program on eight Chinese EFL learners divided into two groups. The results demonstrated that while most participants with low language proficiency would benefit most from interactions with teaching agents, high language learners expressed dissatisfaction with chatbots. For instance, another research shown that students'

vocabulary, grammar, and pronunciation all improved when they learned the language through the use of a chatbot. A different study discovered that pupils' speaking and listening abilities were enhanced when they used chatbots to learn the language. The results of this study and other studies indicate that AI chatbots can be a useful tool for enhancing language proficiency in English across a variety of domains.

IV. CONCLUSION

It is clear from the findings and the discussion above that Indonesian university students can benefit greatly from the AI chatbot's assistance with their English language studies. Most of the participants said that the chatbot improved their ability to communicate in English, and they were happy with its features and functionality. The results are in line with earlier studies on the efficiency of CALL and AI chatbots in enhancing English language proficiency. The chatbot can be utilized as an additional tool in the teaching of English, giving students opportunities for practice and tailored feedback. Three essential elements of learning an English language are vocabulary, grammar, and pronunciation, all of which can be enhanced by students using the chatbot.

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