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UNLOCKING THE POTENTIALS OF CHATGPT: THE EFFICACY OF CHATGPT IN ESL LEARNING OUTCOMES

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ABSTRACT

ChatGPT, a considerable language model chatbot released in late November 2022, has drawn much interest. However, there are still unanswered questions about its capabilities. With ChatGPT, an AI-driven conversational agent integrated into English Language Learning (ELL) programs, this empirical study report seeks to examine the practical outcomes.

It is crucial to evaluate the practical efficiency of AI technologies in enhancing ELL outcomes as they develop. This study has been conducted to evaluate ChatGPT's effects on ELL students' English language competence, learner engagement, and learning outcomes. This study employed a quantitative research method to examine how ChatGPT affected students' learning outcomes in ESL classes at Sindh Madressatul Islam University in Karachi. N=205 students from undergraduate programs were taken in survey research. The quantitative survey correlational design has been used for the data collection and analysis.

It has been found that there is a significant impact of ChatGPT in ESL classes. ChatGPT helps to learn more about ESL course content, assignments, activity-based tasks and better results.

AI-assisted language learning instruction helps to get respect and identity in the classroom. It is recommended that teachers should use ChatGPT in classes for learners to better-outcome-based learning. Teachers should be trained to use AI-assisted learning models and activities with the help of workshops and seminars for better future technology-based learning.

INTRODUCTION

The widespread use of ChatGPT, other digital technologies, and social media has expanded many facets of contemporary life, including the study of second and foreign languages.

OpenAI created ChatGPT, a natural language model that uses AI and deep learning. Transform architectures are used by the model to process input data and produce the desired results. It is based on the GPT (Generative Pre-trained Transformer) network architecture, which learns and captures the syntax, semantics, and structure of languages using vast amounts of data from the Internet. The capacity of ChatGPT to autonomously learn and advance through continuous training on new data is one of its distinguishing advantages. Some tests, like those at the GPT-4 version, perform like a human being, such as those at the schools (Thu, Bang, & Cao, 2023).

This study aims to analyze the efficacy of the ChatGPT on English language learning. It focuses on how ChatGPT supports students as they learn the English language. Teachers and students may benefit from ChatGPT's ability to aid in the teaching and learning of English. However, because ChatGPT's capabilities are constrained in several ways, we must use it cautiously (Tipayavaravan, Sirichokcharoenkun, & Cao, 2023). There is a need to explore AI-assisted learning in-depth for education and learning-based outcomes with the help of AI technology. ChatGPT can help in many ways, including on-the-spot feedback on grammar, vocabulary, and pronunciation is available through ChatGPT. This prompt response aids students in real-time error correction, speeding up language learning. Chatbots driven by AI, like ChatGPT, can adjust to different learners. They can adjust the exercises and subject matter to each student's level of proficiency, focusing on their strengths and limitations, which can result in more fruitful educational opportunities.

Contrary to human teachers, who are constrained by their schedules and availabilities, ChatGPT can offer students infinite practice chances. Students can participate in dialogues and exercises to develop their language skills for as long as they like. While speaking with classmates or native speakers, some students may experience anxiety. ChatGPT provides a more relaxed setting for students to hone their speaking and listening abilities without worrying about being judged.

ChatGPT can simulate conversations using various personas, dialects, and linguistic nuances. Exposing students to various linguistic scenarios increases their capacity for adaptability in real-world circumstances.

In the long run, integrating ChatGPT into ESL classes may be cost-effective. AI is cost-effective for large groups of learners, notwithstanding the possibility of initial development and implementation costs. Although ChatGPT has many benefits, it should only be used sparingly and as a supplement to in-person instruction, not as a substitute. To deliver a well-rounded educational experience, practical ESL training frequently calls for a combination of AI technology and human contact. There is a need to look into the advantages of AI-assisted learning and teacher-guided programs to explore more avenues of use of technology in classes.

RESEARCH QUESTIONS

1. What effects does ChatGPT use have on the language ability and comprehension of ESL learners?
2. Does ChatGPT help ESL learners to improve their learning?
3. What do ESL learners think of ChatGPT as a language learning tool?

LITERATURE REVIEW

As ChatGPT's extraordinary success reverberates throughout the AI world, its powerful successor, GPT-4, has arisen and showcased many innovative capabilities. The development of GPT-4, a massive, multimodal model that can accept text and image inputs and output text. GPT-4 displays human-level performance on various professional and academic standards, including passing a simulated bar exam with a score in the top 10% of test takers but less capable than humans in many real-world settings. The Transformer-based model GPT-4 has been pre-trained to anticipate the subsequent token in a document. The process of post-training alignment leads to better performance on tests of factual accuracy and adherence to intended behaviour. Creating infrastructure and optimization techniques that operate predictably across various scales was vital to this project (Axis, 2023).

ChatGPT-4 has been trained more accurately than ChatGPT-3 in order to assure compliance with producing accurate and safe material; ChatGPT 4 offers additional reward signals throughout the Reinforcement Learning from Human Feedback (RLHF) fine-tuning process on the created text (Imran & Lashari, 2023).

ChatGPT is a helpful tool in writing, guided writing, comprehension and finding the solution to complex problems and ideas but it has also been claimed that the output of ChatGPT frequently contains false assertions, cliched language, and inaccurate references to scientific sources (Han et al., 2023; Kim et al., 2022; Lovin, 2022; Vincent, 2022; Whitford, 2022; Dao, Le & Nguyen, 2021). One can not rely entirely on ChatGPT to understand the context.

Recent developments in large language models (LLMs) have enabled AI to comprehend and interact with people, opening doors for its use in education. LLMs have demonstrated significant promise in education, content creation, and language translation (Raffel et al., 2020; Brown et al., 2020; Atlas, 2023). To evaluate the strengths and shortcomings of large language models like ChatGPT and to pinpoint potential areas for improvement, benchmark tasks on these models are essential (de Winter, 2023). The emergence of ChatGPT has

helped in the content and academic material development and understanding in language learning and understanding in ESL classes (Alec et al., 2018).

The potential use of chatbots in education has drawn more attention in recent years. Research has investigated the advantages, drawbacks, and difficulties of incorporating chatbots, particularly ChatGPT, into educational contexts (Hwang et al., 2020; Chen, Chen & Lin, 2020; Imran & Lashari, 2023). A summary of AI applications in higher education, including profiling and prediction, evaluation and assessment, adaptive systems and personalization, and intelligent teaching systems, was offered (Zawacki-Richter et al., 2019). Potential study areas in AI applications for education were presented by Hwang et al. (2022).

An online learning platform with a Vietnamese virtual assistant was suggested by Nguyen et al. (2023) to help teachers offer students lectures and make editing more accessible without the requirement for video recording. According to a recent study by Gilson et al. (2022), ChatGPT performs reasonably well on medical license examinations, with outcomes that are on par with those of third-year medical students on one of the four exams considered. By showing that the model attained scores close to the passing mark for the United States Medical Licensing Exam (USMLE), Kung et al. (2023) provided support for this conclusion. However, it was discovered that ChatGPT performed below average in physics (Kortemeyer, 2023) and in several mathematical areas, including problem-solving for Olympiads, functional analysis, and symbolic integration (Frieder et al., 2023). Also, in 2023, Newton and Xiromeriti reported that ChatGPT slowed down—multiple-choice examinations in various disciplines, including ophthalmology, law, Physics and economics. Therefore, additional study is required to assess ChatGPT's effectiveness across several exam types.
Regarding GPT-3.5, the evidence mentioned above is relevant. A new version, GPT-4, with API (Application Programming Interface) access, was released on March 14, 2023. OpenAI (2023) shows that GPT-4 performs better than GPT -3.5, especially regarding complex and nuanced dialogue. According to Bordt and Von Luxburg (2023), GPT-4 scored 17% higher than GPT -3.5 on an undergraduate computer science exam, comparable to the average student's performance.

The use of AI in the classroom is helpful for teaching and learning. Youth have become more dependent on the use of cell phones. Recent years have seen a substantial increase in interest in using artificial intelligence (AI) and natural language processing (NLP) technology in education. Using these tools in ELL classrooms is one area with enormous promise. Learning is impossible nowadays without self-driven motivation (Umrani, Lashari & Buriro, 2021; Lashari, Mashori, Abbasi & Talpur, 2018). Self-directed motivation helps achieve better results and lifelong learning(Lashari, Umrani & Buriro, 2021).

Modern classrooms without integrated classrooms and lack a conducive environment cannot contribute sufficiently to the holistic development of learners (Lo, 2023; Rehman, Lashari & Abbas, 2023; Bukhari et al., 2023; Salman et al., 2023). According to Lashari et al. (2023), as environment and motivation matter for learning, motivated learning needs integrating art, music

and technology to facilitate learning well. In this regard, AI-assisted tools can be used well for better learning. Chatbots can potentially improve the ELL experience by offering individualized language practice and support, especially those developed using models like ChatGPT. The usage of ChatGPT in the classroom for English language instruction is examined in this overview of the relevant literature.

The emergence of AI and ChatGPT and integration with learning is a novel topic (Imran, Lashari, 2023) that needs to be explored and examined. There is a dire need to address how ChatGPT can be used in ELL classrooms. According to research (Ali, 2023; Liu & Mac, 2023; Lashari et al., 2023), students value ChatGPT's engaging and conversational style, which can help them improve their speaking, listening, and writing abilities (Imran, Lashari, 2023; Sajid et al., 2023). However, there are also issues with maintaining a balance between human and AI interaction, data security, and privacy (Wardat et al., 2023; Imran & Lashari, 2023; Lashari & Umrani, 2023) and active learning in the classrooms. To some extent, data insecurities have restricted people from using AI-generated apps for security reasons (Kandhro et al., 2019; Lashari & Umrani, 2023). AI technology is evolving, which can ensure the privacy and safety of the data so that learners can use it in their learning process. The study will pave the way for future researchers to explore the use of AI models in teaching and learning to make compelling learning experiences motivated and results-oriented.

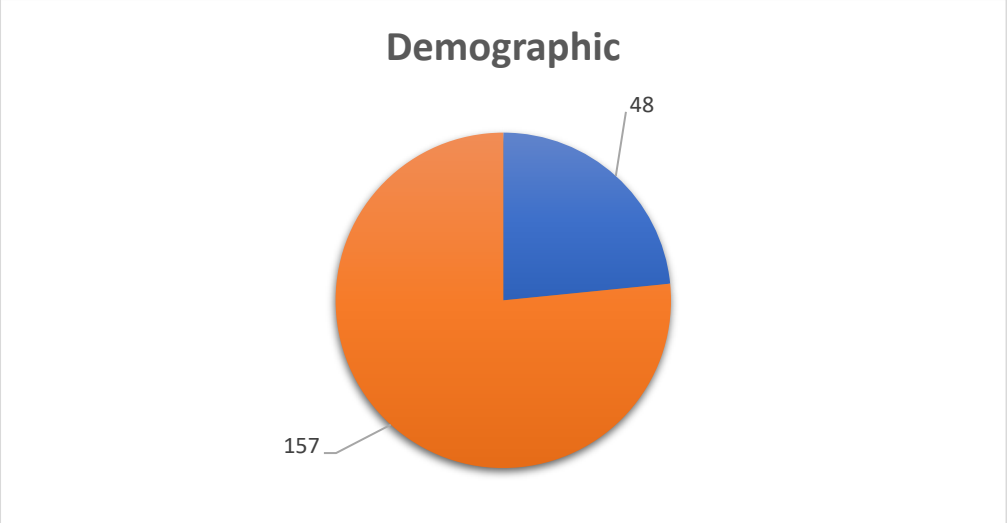
METHOD

The study implied a quantitative research methodology and employed a survey design. The data has been collected through the help of Google survey forms. The questionnaire was the tool to collect the data. The questionnaire was administered after the initial reliability, validity and model testing phases. After getting satisfactory results, we got the approval. The items were designed considering the nature of the study variables and variables. The questionnaire comprises 20 items. Ten items were based on the independent variable, and ten were dependent variables.

Data Analysis

Data was quantified by using SPSS Version 24. The data has been analyzed by using average mean standard deviation. The regression analysis has been conducted to see the impact of the independent variable on the dependent variable.

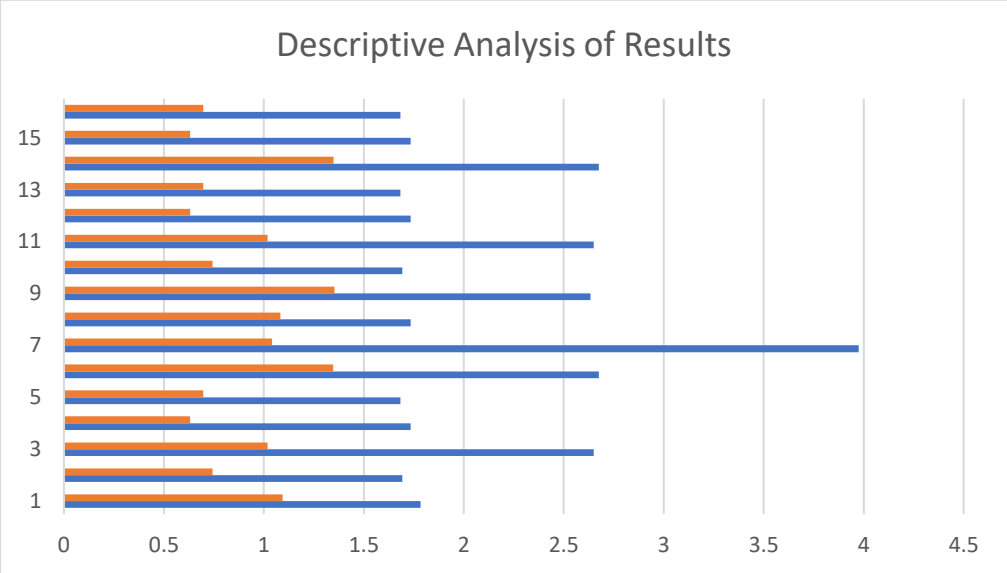
Participants: A broad sample of ELL students from varying proficiency levels participated in the study using the survey approach to obtain data from undergraduate students. The study sample was made up of respondents who were familiar with ChatGPT.



The pie chart result shows that there were 157 male respondents and 48 female respondents participated in the study. The study's total sample from multiple disciplines, including Education, English, Social Development, Media and Communication Studies, and Computer Science students were part of the study.

RESULTS

According to preliminary findings, ChatGPT can help language learners improve their communication abilities. It scaffolds the learning process by giving students feedback on their language use and acting as a partner in language practice by suggesting tasks for more language use.



The graph result shows that statement 7 has the highest mean score with M= 3.987 and SD= 1.34, which shows that ChatGPT helps me in better results in English language subjects. Another statement with the second highest score is M=2.685, SD=1.087. ChatGPT helps me perform classroom subject-related activities better. The third statement with the highest score is M= 2.75, SD= 1.34, which reveals that ChatGPT helps me think creatively for my English language class exam preparations. The Standard deviation results are not higher,

so they have impacted results. The statement that reveals that the use of ChatGPT for English language class homework is more dependent on its use has the lowest mean score with M=1.84, SD=.543. In another statement, respondents have shared that their use of ChatGPT does not affect their creative ideas in English language class with M= 2.04, SD= .896. It reveals that English language learners do not think the use of ChatGPT has negatively influenced their creativity. The study's results reveal that ChatGPT helps them complete tasks on time and develop their reputation and identity for better performance in the English classroom.

ANOVA and regression analysis were utilized in the study's statistical analysis to determine the effect of ChatGPT effectiveness on language acquisition scores.

Besides this, the regression analysis test was conducted to test whether ChatGPT predicted ESL learning outcomes. The results of the test showed that (R^2=.58 F (2, 55) =5.56, p < .001, which indicates that ChatGPT is a significant predictor of ESL learning. The results indicate that there is a significant impact of ChatGPT on ESL learning.

DISCUSSION

According to the study's findings, ChatGPT can increase learner motivation and engagement, two essential aspects of language acquisition. The results of the study are fascinating and innovative. The study's findings indicate that ChatGPT-assisted learning improves English language learning. It has aided in thorough comprehension of the subject matter and improved performance in-class exercises. According to the study results, ChatGPT helps to boost student engagement and better performance in classroom activities in English language-related subjects. ChatGPT has a positive effect on language development and retention rates. It helps to achieve better results by performing well in classroom activities, presentations, assignments, and assessments. Learners prefer to use ChatGPT for assistance in their learning rather than visiting someone or asking for help from peers. Innovative teaching strategies may result from the implementation of ChatGPT in ESL classes. For instance, ChatGPT can offer more possibilities for conversation practice, tailored feedback, and immediate language coaching. ChatGPT can adjust to individual students, providing activities and content specific to their requirements and skill levels. In ESL lessons, this personalization may result in more productive learning opportunities.

The findings demonstrate that ChatGPT does not stifle innovation but encourages it. It offers aid but cannot replace actual instructors; it plays a supporting role. Future research would be beneficial to concentrate on the efficiency of ChatGPT in particular ESL sub-skills (such as speaking, listening, and writing), investigate the ideal frequency and duration of ChatGPT interactions, or investigate its use in various ESL circumstances. In light of the study's findings, it is also advised that instructors be adequately trained to include ChatGPT in their teaching methods. Teachers' training sessions should concentrate on integrating professional development seminars into language instruction for better outcomes and student engagement.

CONCLUSION

The study's primary conclusions are that ChatGPT can potentially improve ESL learning outcomes, learner engagement, and retention rates. Ethics must be taken into account, and a balanced strategy that combines the benefits of AI with higher performance from humans must be used. Positively, ChatGPT has the potential to encourage innovation in the field of education, especially in ESL classrooms. Applications could include assisting in developing writing abilities, promoting comprehension through step-by-step explanations, accelerating the dissemination of information through text summaries, and boosting engagement through individualized feedback and work plans.

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