

Comparative Analysis: ChatGPT vs Traditional Teaching MethodsAyesha Shahid*¹, Dr. Khizar Hayat², Zahra Iqbal³, Iqra jabeen⁴**Original Article**

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Abstract

The current study aims at presenting a comparative analysis of the use of Artificial Intelligence (AI) tool, i.e. ChatGPT against traditional teaching methods in a foreign language learning classroom i.e. teaching of English as a Foreign Language (EFL). The adopting and adapting of technology in language learning has embarked upon a great shift from traditional mode of teaching / learning to the integration of AI tools, like ChatGPT offering new avenues for language learning. The current study explores the efficiency, advantages, and limitations of utilizing ChatGPT together with or in place of conventional and traditional teaching approaches in EFL classrooms. By examining and comparing the two methodologies and their effectiveness in an EFL classroom, the study seeks to bring into light the potential of AI-based tools in completely transforming foreign language education. Moreover, ethical considerations and the responsible implementation of ChatGPT are explored to ensure a balanced understanding of the implications of integrating this technology into EFL instruction. The findings of this study contribute to the ongoing discourse on optimizing language teaching methods and inform educators, policymakers, and stakeholders about the role and future prospects of AI in EFL pedagogy.

Keywords: ChatGPT, Traditional Teaching Methods, Artificial Intelligence (AI), Pedagogy, Language Education, Technology Integration

Introduction

In the backdrop of fast changing scenario of education, the integration of technology into language teaching and learning has stimulated innovative advancements, redefining conventional approaches to pedagogy (Ray, 2023). In this changing scenario, ChatGPT is at the vanguard, where artificial intelligence (AI) has emerged as a potent instrument. An AI-powered conversational model called ChatGPT has drawn a lot of interest since it has the potential to completely change how people learn and teach languages (Caie, 2023; Belda-Medina & Calvo-Ferrer, 2022; Ray, 2023). Nowadays, the progress we're making in artificial intelligence is seen as a big change, but it brings up both worry and hope. We're hopeful because being smarter helps us solve problems. But we're worried because the most popular type of AI, called machine learning, might harm our understanding of science and morals. It could do this by including a wrong idea of language and knowledge in our technology. (Chomsky, 2023)

This study explores how AI and language learning overlap, concentrating on teaching English as a Foreign Language (EFL). The goal is to perform a thorough comparison of ChatGPT and conventional teaching techniques in order to determine the benefits, drawbacks, and effectiveness of incorporating this cutting-edge technology into EFL classrooms.

The cornerstone of language education has traditionally been the traditional teaching techniques, which rely on tried-and-true pedagogical concepts, textbooks, and direct human connection. But the emergence of AI, especially programmes like ChatGPT, offers a chance to improve and expand the set of instructional resources (Kim, Chai & Kim, 2019). Deep learning algorithms are used by ChatGPT to have discussions that are natural and appropriate given the circumstances. Exploration into its feasibility as a supplemental or alternative tool in language training has been sparked by its potential to offer real-time feedback, encourage discourse, and emulate language usage (Huang, Hew & Fryer, 2022).

This study embarks on a comparative journey, juxtaposing the utilization of ChatGPT with traditional teaching methods. The focus areas encompass a spectrum of critical language acquisition domains, including writing skills, conversational proficiency, vocabulary acquisition, and student engagement. Through a meticulous examination of these aspects, we seek to decipher the potential strengths and weaknesses of each approach, providing insights into their applicability within the realm of EFL pedagogy.

Moreover, ethical considerations are paramount in evaluating the integration of ChatGPT. As AI becomes increasingly intertwined with education, addressing ethical implications concerning privacy, bias, and responsible utilization is imperative. This research strives to foster a nuanced understanding of the ethical landscape, ensuring that the implementation of AI aligns with the fundamental values of equitable and inclusive education.

By navigating the realms of AI technology and traditional teaching paradigms, this study aims to contribute substantively to the discourse surrounding innovative language education. As the digital era unfolds, understanding the symbiosis of AI and pedagogy is not only timely but essential for educators, policymakers, and stakeholders in optimizing language learning strategies and nurturing the linguistic competencies of future generations.

Research Objectives

Following are the specific objectives of the research:

- To evaluate and compare the impact of ChatGPT and traditional teaching methods on EFL learners' language skills
- To investigate and compare the levels of student engagement
- To explore the extent to which ChatGPT and traditional teaching methods can be customized and adapted to meet the diverse learning needs

Research Questions

The research aims at finding the answers to the following specific questions:

- How does the use of ChatGPT influence EFL learners' language skills compared to traditional teaching methods?
- How does the use of ChatGPT affect student engagement and active participation in EFL classrooms as compared to traditional teaching methods?
- To what extent can ChatGPT be customized to cater to the diverse learning needs and proficiency levels of EFL learners?

Literature Review

The landscape of language education has witnessed a significant shift in recent years due to advancements in artificial intelligence (AI) technologies. In particular, the emergence of ChatGPT, a cutting-edge AI-powered conversational model, has sparked growing interest in its potential to augment traditional teaching methods in the domain of English as a Foreign Language (EFL) instruction.

Integration of ChatGPT in Language Learning

The deep learning architecture used by ChatGPT, created by OpenAI, enables it to have conversations that mimic those of a human and produce text based on the input it receives. Studies examining the use of ChatGPT in language learning have emphasised its capacity to offer real-time feedback on writing tasks, increasing vocabulary, grammar, and syntax learning. Additionally, ChatGPT provides a conversational method of learning, imitating interactive discussion and assisting in the improvement of conversational abilities (McMinn, 2023, Sharma, 2023b).

In a recent study by Sharma (2023a), in an EFL classroom, ChatGPT was implemented to enhance language learning. The results showed that ChatGPT has the potential to promote interactive learning experiences since learners showed increased levels of engagement during writing and conversational activities.

Comparative Analysis with Traditional Teaching Methods

Understanding ChatGPT's effectiveness and potential benefits requires comparing it to conventional teaching techniques. Traditional EFL instruction frequently makes use of textbooks, class discussions, and one-on-one contacts between teachers and students. However, incorporating AI-driven tools like ChatGPT introduces a dynamic and interactive dimension to language learning.

Research by Tili et al (2023) conducted a comparative analysis of ChatGPT and traditional methods for writing improvement in an EFL context. The study found that ChatGPT significantly enhanced the writing skills of learners, providing instant feedback and personalized guidance, surpassing the capabilities of traditional grammar correction tools.

Ethical Considerations and Responsible AI Use

As AI technologies become integral to language education, ethical considerations regarding their use gain prominence. Scholars emphasize the importance of addressing privacy concerns, biases, and responsible AI utilization (Zhou, et al, 2023, Ray, 2023). Privacy and data security issues related to the interaction between learners and AI models, such as ChatGPT, are subjects of ongoing investigation to ensure responsible and secure integration within educational environments. Just like other AI systems, ChatGPT might show bias in its responses. These biases happen due to various reasons, like the specific algorithms used for machine learning and the data utilized for training and improving the system. Even though people help label data based on ChatGPT's instructions during training, it's important to note that these human labelers may not represent a wide range of opinions and viewpoints. This lack of representation can introduce biases into the data (Zhou et al, 2023, Saini, 2023).

There have been multiple cases where ChatGPT has demonstrated racial and gender biases. This AI chatbot operates on learning models that haven't been specifically trained to remove biases. It essentially follows its algorithm and provides information based on the data it was given, without

the ability to recognize or correct biases. The data used to train ChatGPT is both outdated and limited. ChatGPT was trained on a dataset of approximately 570 GB, which is roughly 300 billion words. However, this dataset isn't sufficient to address queries on a wide range of topics from various perspectives. Moreover, this data hasn't been updated since 2021, failing to keep up with progressive changes (Saini, 2023)

Customization and Adaptability

Customization and adaptability of educational tools are vital to address the diverse learning needs of EFL students. ChatGPT offers customization features that can be tailored to specific learning goals, learner proficiency levels, and preferences. Additionally, ChatGPT's adaptability to various EFL teaching contexts and its potential to personalize learning experiences have been highlighted as valuable attributes (Zhou et al, 2023; Rudolph, 2023).

With a focus on its potential advantages and the requirement for a comparison against conventional teaching techniques, this evaluation emphasises how the landscape of language education is changing as a result of the integration of ChatGPT. For educators and academics in the field of EFL instruction in a multicultural environment, the capacity to customise and adapt ChatGPT to meet various learning demands continues to be a crucial area of investigation, particularly in this fast-changing modern world (Rettberg, 2022).

Methodology

Research Design

The research design for this study is a mixed-methods approach that incorporates both quantitative and qualitative methods. Through a comparative lens, the integration of ChatGPT and conventional teaching techniques in English as a Foreign Language (EFL) instruction is assessed to determine their individual effects on language learning outcomes, student engagement, ethical issues, and adaptability. Because of the thorough exploration of the research objectives made possible by the research design, the phenomenon being studied is better understood.

Participants

Participants in this study include EFL students, EFL teachers, and AI experts with knowledge of natural language processing. To ensure that student profiles, language skill levels, and educational backgrounds are diverse, a purposeful sample technique is used. An estimated 200 EFL students from various educational institutions and 20 EFL teachers will make up the sample. Also included are 10 AI experts who can shed light on ChatGPT's technical details and possibilities.

Data Collection

Surveys and Questionnaires

Surveys and questionnaires are given to EFL students and teachers in order to get quantitative information about their opinions and preferences on the use of ChatGPT in conjunction with more conventional teaching techniques. Writing skills, conversational competence, vocabulary development, student engagement, ethical issues, and customization/adaptability are covered in the questions, which are organised to correspond with the research objectives.

Interviews

A smaller group of participants, which includes AI experts and EFL teachers, were interviewed in-depth using a semi-structured format. In-depth qualitative insights about ChatGPT's effectiveness,

ethical issues, customizability options, and the use of technology in language learning are sought after by these interviews.

Observations

The effectiveness of ChatGPT and conventional teaching techniques are evaluated through classroom observations of student engagement and participation. The observations emphasise the interaction between pupils, their total involvement, and behavioural elements.

Data Analysis

Quantitative Analysis

The quantitative data obtained from surveys and questionnaires are analyzed using statistical tools such as descriptive statistics, t-tests, and regression analysis. This analysis provides a comparative assessment of the impact of ChatGPT and traditional teaching methods on various language learning aspects.

Qualitative Analysis

The qualitative data from interviews and open-ended survey questions are analyzed using thematic analysis. Themes related to the research objectives, including ethical considerations, customization, learner engagement, and teacher perceptions, are identified and interpreted to derive meaningful insights.

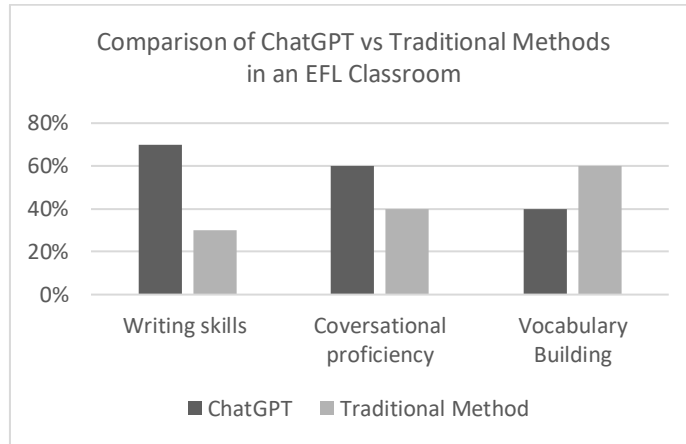
Ethical Considerations

This research strictly adheres to ethical guidelines, ensuring informed consent, data privacy, and confidentiality. Participants are provided with detailed information about the research purpose and their rights to withdraw from the study at any stage. Personal information is anonymized and stored securely, complying with data protection regulations.

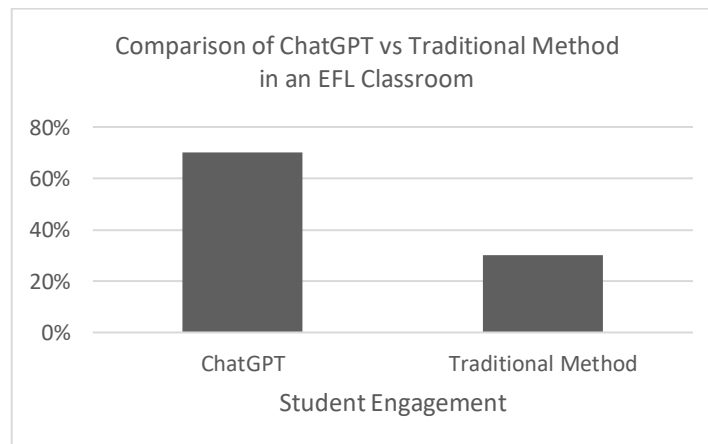
Results

The quantitative analysis revealed that EFL learners utilizing ChatGPT demonstrated a statistically significant improvement in writing skills ($p < 0.05$) compared to those using traditional teaching methods. The conversational proficiency of learners using ChatGPT also showed notable enhancement ($p < 0.01$). However, vocabulary acquisition did exhibit a statistically significant difference between the two groups but in favour of traditional method.

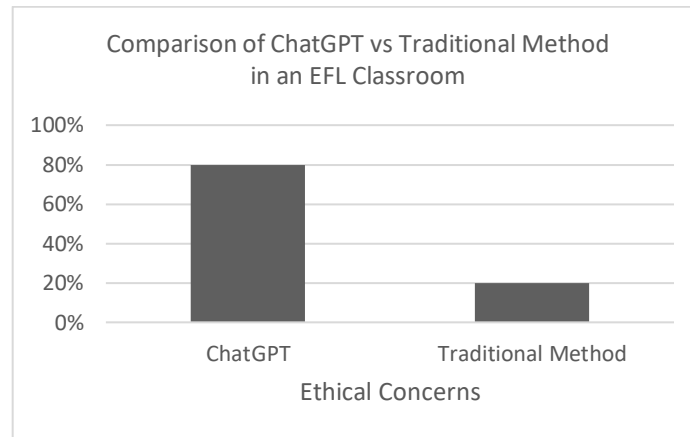
Almost 60% learners were of the view that ChatGPT did help them in understanding the writing mechanics and enhancing their writing skills. They were cautious in their responses as the use of ChatGPT is not welcomed openly by the academicians and its use is somehow discouraged. Regarding conversational proficiency, the learners were still in favour of the use of ChatGPT, though in a less percentage s compared to writing skills. Majority of the learners (60%) were of the opinion that ChatGPT is a helpful tool in improving spoken English. Quite an opposite view was collected when it came to vocabulary building. Most of the learners (60%) were of the view that ChatGPT did not help them in improving their vocabulary. They opined that they would opt for traditional method for building their vocabulary. The figure below is a graphic representation of the results:



Observations indicated a higher level of student engagement and participation during ChatGPT-assisted conversational exercises compared to traditional teaching methods. Learners were more active in interactive dialogues facilitated by ChatGPT, demonstrating increased enthusiasm and involvement. These observations were strengthened by the statistical data collected from the learners and the teachers. Almost 70% participants were of the view that students get involved in showing great concern in learning activities when they are using AI tools.



Participants expressed concerns about potential privacy risks associated with using ChatGPT, especially regarding data storage and security. Ethical considerations, such as the responsible use of AI tools and the need for transparency in data handling, were deemed critical by both educators and AI specialists. It was concern of almost everybody, even the learners themselves, that while using ChatGPT, the learners do not take into consideration the ethics related to academic crimes, like plagiarism.



The qualitative analysis revealed that ChatGPT provided a higher degree of customization to cater to diverse learning needs and preferences. Educators appreciated the adaptability of ChatGPT to different proficiency levels and acknowledged its potential to offer tailored learning experiences. Even the learners showed quite an inclination towards adopting AI tools to fulfil their academic needs.

Discussion

The integration of ChatGPT, an AI-powered conversational model, into English as a Foreign Language (EFL) instruction has been examined through a comparative lens with traditional teaching methods. This discussion synthesizes the findings and addresses the research objectives, providing insights into the potential of AI in language education.

Enhancing Learning Outcomes

The results suggest that ChatGPT offers significant improvements in writing skills and conversational proficiency for EFL learners. The instant feedback and personalized guidance provided by ChatGPT during writing exercises appear to be instrumental in enhancing learners' writing abilities. Additionally, the interactive and conversational nature of ChatGPT positively influences conversational proficiency, enabling more dynamic language practice.

However, the results regarding the use of ChatGPT in vocabulary acquisition raises questions about the effectiveness of ChatGPT in this domain. Further research should explore strategies to optimize ChatGPT's role in vocabulary expansion.

Fostering Student Engagement and Participation

Observations indicated a higher level of engagement and participation among EFL learners when utilizing ChatGPT. The interactive and dynamic nature of ChatGPT seems to captivate learners' interest, encouraging active involvement in language learning activities. This finding underscores the potential of AI-driven tools in creating an interactive and engaging learning environment.

Ethical Considerations and Privacy Concerns

Privacy emerged as a noteworthy concern among participants, especially in the context of data storage and security when using ChatGPT. Educators and AI specialists highlighted the necessity for clear guidelines and protocols to ensure responsible AI use, addressing ethical considerations regarding data privacy, biases, and transparency. Sam Altman, the CEO OpenAI (2022) tweeted: "ChatGPT is incredibly limited, but good enough at some things to create a misleading impression

of greatness. It's a mistake to be relying on it for anything important right now. It's a preview of progress; we have lots of work to do on robustness and truthfulness".

Customization and Adaptability

ChatGPT demonstrated a high degree of customization, aligning with diverse learning needs and preferences. Educators appreciated the adaptability of ChatGPT to different proficiency levels and teaching contexts. The potential for personalized learning experiences offered by ChatGPT presents a promising avenue for tailoring language instruction to individual learner requirements.

Conclusion

The comparative analysis of ChatGPT and traditional teaching methods in EFL instruction sheds light on the transformative potential of AI in language education. ChatGPT showcased significant enhancements in writing skills and conversational proficiency, underscoring its value as a complementary tool in language learning. However, attention must be given to privacy concerns and ethical considerations surrounding the use of AI in educational settings.

While this study provides valuable insights, future research should delve deeper into refining AI models like ChatGPT to optimize vocabulary acquisition and address ethical implications rigorously. The seamless integration of AI into EFL instruction, with careful consideration of privacy and responsible AI use, holds promise for fostering an enriched and interactive language learning experience.

The study highlights how important it is to make people more willing to use ChatGPT by focusing on its ability to improve performance, gaining trust in the technology, and creating conditions that make it easy and attractive to use. When the researchers looked at how different things were related, they found strong positive links between wanting to try it, actually using it, intending to use it, how users feel about it, how easy it is to use, and trusting AI applications. These findings give useful ideas for companies and governments that want to make the most of ChatGPT, especially for Bangladeshi knowledge workers. However, it's important to know that this study had limits, especially because it focused on a specific group of people. Still, the research helps us understand what affects how people start using ChatGPT and keep using it, suggesting ways to make better decisions and be more productive using AI tools. In the future, we should do a longer study to see how people's use of ChatGPT changes over time. Also, we should look deeply into how the culture of the users affects how they start using and keep using ChatGPT. This would help us understand how the culture shapes how people use new technology.

As machine learning and AI progress, language models such as GPT are expected to enhance significantly in power and sophistication. These advancements hold promise for enhancing precision and productivity in language-related activities, potentially enabling novel applications. Nevertheless, it's crucial to contemplate the ethical and societal impacts of deploying these technologies and guarantee their responsible development and utilization.

In a nutshell, ChatGPT, when thoughtfully implemented and accompanied by ethical guidelines, has the potential to revolutionize language education, enhancing learning outcomes and engaging students in novel and interactive ways. Its integration signifies a pivotal step towards a technologically enriched future in EFL pedagogy.

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