

ChatGPT Integrated Grammar Teaching and Learning in EFL Classes: A Study on Tishk International University Students in Erbil, Iraq

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Abstract

This study aims to investigate and analyze the benefits and concerns that ChatGPT offers to EFL students' grammar learning and teaching in foreign language classrooms. There have been many studies on the advantages and disadvantages of ChatGPT in education, but there are almost no studies on the benefits and harms of this platform in grammar learning and teaching. This study will be an important resource for scholars who will investigate the importance and impact of ChatGPT in language learning and teaching. Simultaneously, it will serve as a valuable tool for examining the benefits and concerns that ChatGPT presents to students in the realm of grammar acquisition. In this context, control and experimental groups were created at Tishk International University using the random sampling method. The control group received teacher and book-centered grammar education, and the experimental group received ChatGPT-centered grammar education. When the post-test results applied to the students at the end of seven weeks were analysed using the SPSS-27 t statistic, there was a significant difference of .001 between the two groups. The control group students increased their marks by 8.86 points, whereas the experimental group students raised their marks by 26.58 points, which was quite significant. In addition, in the focus group interview analysis applied to the students at the end of the study, it was revealed that the majority of the students were satisfied with the integration of ChatGPT into their grammar lessons. Although some students expressed their concerns, when we look at the overall study, the benefits that ChatGPT offers to grammar learning are greater than the concerns it brings.

Keywords: Artificial intelligence, ChatGPT integrated grammar, EFL classes, teaching and learning English

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Introduction

Education is indispensable for the development of a country and for shaping its future (Kucuk, 2023). Due to the development of digital technology and the spread of artificial intelligence applications, there is a need to integrate such applications in educational fields. Recently, among these applications, the one that has entered life the fastest and has a say in the field of education is ChatGPT (Meniado, 2023). ChatGPT has become widely used in the field of education because it produces content according to the requests of individuals and students and provides consistent answers to all questions asked. Perhaps the most important reasons why ChatGPT is preferred and used in the field of education are that it offers solutions tailored to teacher and student questions and is always accessible (Kucuk, 2023).

ChatGPT's entry into the education field is a radical change (Hong, 2023). ChatGPT has brought a different dimension to learning and teaching. It especially facilitated students' grammar learning and destroyed their prejudices against grammar (Ali et al., 2023). ChatGPT has unlimited benefits in the field of education for both students and teachers if used correctly. The biggest benefit of ChatGPT in the field of education is that it offers alternatives according to the needs of individuals and provides continuous support to learners (Al-khresheh & Orak, 2021). Since ChatGPT works with a system as if you are chatting with someone, it offers students verification, instant feedback, and guidance appropriate to their level. This artificial intelligence application not only supports education but also provides resources for using traditional resources (Kucuk, 2023). By using ChatGPT, educators can add a different dimension to their lessons and the materials they use and make learning more fun.

Learning a foreign language has been a difficult task for students for many years because students do not know the learning material well, and the level of this difficulty increases (Yildiz, 2023). Students are no longer interested in learning foreign languages using traditional methods such as textbooks, dictionaries, etc., and more importantly, these methods reduce their motivation to study (Celik et al., 2023; Kara, 2023).

The opportunities that technology offers to people and the field of education are unlimited, and in this regard, the greatest revolutionary opportunity that technology offers us is artificial intelligence (Moqbel & Al-Kadi, 2023). Artificial intelligence has eliminated all conventional concepts and given us a completely different perspective. The functionality and practicality of artificial intelligence, which is in every aspect of people's lives, are among the factors that make it the most preferred. In the last decade, Artificial Intelligence (AI) has tremendously affected every aspect of life (Montenegro-Rueda et al., 2023). Perhaps the most prominent and most affected of these areas is the field of education (Meniado, 2023).

Using ChatGPT in education has given students a different dimension of learning. It has become a way out of complex situations for students because it provides answers quickly and is tailored to student needs (Javaid et al., 2023). Due to these advantages, ChatGPT has become a promising tool for students and an auxiliary tool that students frequently use (Sánchez, 2023). Especially in grammar lessons, students frequently use the ChatGPT application. Using this tool, students can make corrections about grammatical errors, receive extra feedback, and quickly correct spelling errors (Lo, 2023). Although it is not a definitive solution for grammar problems, it has now entered our lives as an effective auxiliary tool in education. Students must be under the control of teachers while using these tools to prevent them from becoming addicted (Grassini, 2023).

In addition to the advantages that ChatGPT offers in various areas of life and education, it also brings with it some concerns. Since this artificial intelligence application obtains its data from a wide data network, sometimes the formulaic sentences it presents may not be correct and may mislead us (Baidoo-Anu & Ansah, 2023). When using ChatGPT, students should use it under the supervision of their teachers, and the accuracy of the sources from which the information is obtained should be examined (Chang et al., 2024). Another disadvantage of ChatGPT is that it makes students dependent on themselves, and they do not put forward their thoughts (Javaid et al., 2023). It has been determined that the handwriting skills of students who use ChatGPT for a certain period even decrease, and their self-confidence is shaken. Finally, because ChatGPT is used directly by students and they do not compare the answers they get with other sources, they sometimes get wrong information (Michel-Villarreal et al., 2023).

Despite the above challenges, it has been observed that ChatGPT offers unlimited benefits to students and teachers in the field of education, especially in grammar learning and teaching. Since this application has a chat-like structure, it provides students with the opportunity to refresh their grammar knowledge and practice what they know in a dynamic and interactive environment (Kara, 2020). Since ChatGPT provides a partner opportunity to whom mutual questions can be asked, it provides instant feedback on grammar usage and errors, sentence structure and appropriate word selection (Kara, 2023). Thanks to these features, students' grammar acquisition accelerates, and grammar learning becomes more fun.

The objective of this study is to uncover the advantageous effects that artificial intelligence technologies, such as chatbots and ChatGPT, have on students' acquisition of foreign languages, particularly in the realm of grammar learning. Additionally, this study aims to assess any potential issues that may occur in the process. This study considered the following research topics among EFL students at Tishk International University, a private university in Iraq.

1. What are the positive contributions of artificial intelligence tools, and especially ChatGPT, to students' grammar learning?
2. What are the concerns that ChatGPT raises in addition to the benefits it offers to students in grammar learning?

Literature Review

Several studies have been conducted to examine the efficacy of artificial intelligence in the field of education. In particular, scholars have recently carried out extensive research to explore the impact and potential issues associated with ChatGPT in education (Lo, 2023; Montenegro-Rueda et al., 2023; Rahman & Watanobe, 2023). Within this body of research, investigations have uncovered the dual impact of artificial intelligence applications and ChatGPT, encompassing both detrimental and beneficial effects.

The emergence of AI technology has raised apprehensions across several domains, particularly in the realm of education. Emerging artificial intelligence applications, such as chatbots, have lately been readily available and feasible on the internet (Elbanna & Armstrong, 2024). Khalil and Er (2023) showed significant apprehension among educators over the utilization of chatbots, particularly the ChatGPT program, in writing and grammar instruction. The researchers generated fifty distinct essays employing chatbots and ChatGPT, thereafter subjecting these 50 compositions to scrutiny using two reputable plagiarism detection tools. ChatGPT has been shown to generate highly sophisticated messages that are extremely challenging to identify using any tool. Furthermore, they voiced apprehension regarding the potential for students to reap the rewards of

these tools by effortlessly producing essays and achieving outcomes without exerting any academic work (Khalil & Er, 2023).

Javaid et al. (2023) have conducted a scholarly investigation on the advantages and difficulties of using ChatGPT in the field of education. According to their analysis, ChatGPT's language-generation paradigm raises significant difficulties within the realm of education. Several scholars have advocated for the creation of diverse assessment methodologies because of ChatGPT's ability to swiftly handle even the most challenging queries (Kucuk, 2023; Chang et al., 2024). In their study, it was also asserted that academic cheating is not a novel occurrence, but rather a longstanding practice that has persisted for years. Furthermore, they contended that ChatGPT introduces a distinct element to this process. The researchers surveyed to gather individuals' perspectives on ChatGPT, obtaining a mixture of favorable and unfavorable responses. Research has shown that educational institutions may permit the utilization of artificial intelligence, specifically ChatGPT, under specific guidelines (Boscardin et al., 2024). These restrictions can effectively mitigate any negative consequences (Javaid et al., 2023).

In 2023, Lo did a comprehensive literature study on the significance of ChatGPT in education and the associated problems. In his research, he asserted that this artificial intelligence program generates adaptable, enlightening, and lifelike responses. Furthermore, he emphasized the integration of the ChatGPT application into education and its potential for enhanced utilization by students and teachers (Ali et al., 2024). Upon concluding his analysis, he asserted that the ChatGPT application yields distinct advantages across several domains. For instance, empirical evidence has demonstrated that it yields very valuable outcomes in the domain of economics, somewhat satisfying outcomes in the realm of programming, and ineffective outcomes in mathematics (Kucuk, 2023). Furthermore, he asserted that while it might serve as a supplementary resource for educators and learners, it has the potential to yield inaccurate outcomes. Upon concluding the study, it was noted that both teachers and students should undertake comprehensive training while utilizing ChatGPT, ensuring they receive accurate instruction on this matter (Lo, 2023).

Montenegro-Rueda et al. (2023) analyzed a total of 12 studies published in Scopus, Web of Science, and Google Scholar that investigated the utilization of ChatGPT in the field of education. An extensive study has demonstrated that including ChatGPT in the learning and teaching process yields favorable outcomes (Ali et al., 2024). Furthermore, it is emphasized that instructors should get adequate training in light of this developing situation. Furthermore, while it proves to be a powerful tool for educators, instructors must acquire proficiency in the utilization of this artificial intelligence application within the realm of education.

Despite concerns regarding ChatGPT, it is imperative to acknowledge its immense utility in the realm of education (Baidoo-Anu & Ansah, 2023). A comparative analysis was carried out by Schmidt-Fajlik (2023) in a Japanese university to assess the advantages of ChatGPT in enhancing students' English language acquisition in comparison to two other artificial intelligence programs. Three different tools, including ChatGPT, were employed to evaluate a concise text in the study. The study findings indicate that ChatGPT provides more effective contributions to students' grammar learning in comparison to other programs. Based on the favorable outcomes, it was advised to introduce ChatGPT to first-year university students and appropriately tell them about this matter.

An additional advantageous aspect of ChatGPT is its ability to serve as a source of motivation for both students and teachers (Chang et al., 2024). In their study, Ali et al. (2023) examined the impact of ChatGPT on teachers and students in the process of learning English, exploring both the

manner and degree to which it influenced them. The researchers employed the quantitative research methodology to examine a cohort of 80 students and teachers who have been utilizing ChatGPT since its launch. The researchers devised a survey to gather the perspectives of the participants and obtained input from both students and teachers. ChatGPT is an artificial intelligence tool that enhances pupils' grammar, listening, and writing abilities (Luo et al., 2024). Simultaneously, it is underscored that ChatGPT is not an application to be feared; instead, it may serve as a valuable supplemental resource for teaching when utilized appropriately.

Methodology

This study employed a mixed method design to analyze both qualitative data received from interviews with students and quantitative data obtained from pre-test and post-tests. The aim was to reach specific outcomes. Initially, an expert team administered a pre-test to assess the grammatical proficiency of both the control and experimental group students. Subsequently, after a seven-week research period, a post-test was conducted to evaluate the progress in the students' grammar levels. Following the completion of the study, a semi-structured interview was administered to the students in the experimental group to get their perspectives on the grammar lessons delivered using ChatGPT. The gathered data was properly documented.

Participants

The study was carried out during the academic year 2022-2023 at the foundation classes of Tishk University, a privately owned institution located in Iraq. At this private institution, which has an estimated student population of 5000, a proficient command of English is mandatory for all students, as English serves as the medium of teaching in all departments, apart from the law department. Hence, prospective students must undergo a placement exam at the university. If they achieve a score of 65 or above, they are eligible to pursue studies in their respective departments. Alternatively, they have the right to enrol in a rigorous one-year English immersion program followed by pursuing studies in several academic disciplines. All 30 participants in the research were freshman students in the foundation classes. There are 16 female pupils and 14 male students. The selection of these students was based on their participation in volunteering activities using the random sample approach. Most of the students are of Kurdish nationality, with an average age ranging from 18 to 25.

Research Instruments

This study employed a mixed-method approach. Quantitative data was collected by administering a pre-test to assess the students' grammatical proficiency at the start of the study, and a post-test to evaluate their grammar proficiency at the conclusion of the study. Furthermore, as a consequence of the study, a focus group interview was conducted with the students to get their perspectives on ChatGpt, and the collected data was documented. The students were divided into control and experimental groups based on volunteers, using the random selection approach. The qualitative data obtained was analysed using SPSS-27, and the pre-test and post-test findings were compared.

Research Procedures

The duration of our study on ChatGPT's integration of grammar learning and teaching was 7 weeks. The data-gathering technique was conducted under two distinct categories. During these two distinct phases, efforts were made to gather qualitative and quantitative data.

At the start of our investigation, control and experimental groups were established by the use of the random sampling technique. The selection of students was conducted voluntarily, resulting in 30 students being assigned to the control group and 30 students to the experimental group. Before commencing the study, pertinent information on the significance and objectives of the study was provided to both the students in the groups and the teachers. To assess the initial English proficiency levels of both groups, a pre-test including 30 grammatical questions was administered. The exam, developed by Oxford University Press, aimed to gauge the participants' language abilities. Following the test, it was observed that the initial levels of both groups were similar, with no significant disparity. Throughout seven weeks, students in the experimental group were granted permission to utilize their mobile devices to study grammar classes. Additionally, whenever they faced any difficulties with grammar, they were permitted to access the ChatGPT program to seek assistance. Students sought assistance via ChatGPT for inquiries on grammar, spelling rules, or in instances where their professors were unavailable, and obtained resolutions about grammar. The control group was provided with grammatical instruction that focused on books and teachers using the traditional technique. Whenever they had difficulties, their initial approach was to consult their books for answers. To address the grammatical issues that were not covered in their textbooks, they sought guidance from their professors through meetings. Upon completion of the study, a grammar examination comprising 30 inquiries was conducted on both the control group and the experimental group to assess the alterations in the students' grammar proficiency and their academic progress. Prior to being presented to the students, the test committee reviewed and verified the questions, ensuring that they were tailored to the students' proficiency levels.

Following the conclusion of the seven-week research, a focus group interview was conducted with the students in the experimental group, during which their thoughts were recorded.

Findings

The data acquired were categorized into three primary sections: pre-test, post-test, and interview analyses. These data were then analyzed using the Spss-27 t-statistic, and the findings were subsequently compared.

The Comparison of Pre-test and Post-test Scores

The descriptive analysis of pre-test scores and post-test scores is shown in the following table.

Table 1. *Pre-test and post-test data of the experimental and control groups in grammar tests*

Variables	Measurement	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Pre-test	Control	30	59.07	13.128			
Pre-test	Experimental	30	60.47	13.318	-.410	58	.683
Post-test	Control	30	67.93	11.916			
Post-test	Experimental	30	87.00	7.230	-7.493	58	.001

The pre-test findings at the start of the research were analyzed using SPSS-27. Table One shows the results of the pre-test administered to the students, which consisted of thirty questions. The control group had an average score of 59.07, whereas the experimental group had an average score of 60.47. Based on these findings, it is evident that the groups were established with comparable levels and the initial levels were near each other. After completing the seventh week, the students were administered a post-test consisting of thirty questions that assessed their understanding of the grammatical themes they had studied. The test underwent evaluation by the exam committee, which confirmed its appropriateness for the students' proficiency level. The post-test findings were analyzed using SPSS-27 t-statistics. The control group showed an increase in success rate from 59.07 to 67.93, whereas the experimental group demonstrated an increase from 60.47 to 87.00. Upon analyzing the data, a significant disparity of .001 between the two groups becomes apparent. The results indicate a significant and favorable improvement in the grammar learning of the experimental group.

Interview Analysis

Within this segment, a focus group interview was conducted with thirty students from the experimental group. They were specifically queried about their perceptions of the integration of ChatGPT in grammar courses, and their responses were carefully documented.

The majority of students held a dominant opinion on the use of ChatGPT in grammar classes. The ChatGPT integrated language was well-received by most students, who expressed good sentiments about it. For example, Student B said, "Since I am addicted to technology, I loved ChatGpt integrated grammar learning and found it useful." The users expressed their appreciation for the interactive and conversational nature of ChatGPT, highlighting its ability to enhance their understanding of grammar. In this context, Student D said, "ChatGPT was like my friend. I asked all my questions and got clear answers." Several students reported receiving quite obvious responses to even the most intricate grammatical inquiries they addressed to ChatGPT. Additionally, some students emphasized that this application promptly addresses their inquiries and remains consistently available. Additionally, some students reported that ChatGPT generated answers according to their level and needs. For instance, Student E said, "The answers that ChatGPT gave me were tailored according to my needs." The fact that ChatGPT is on every student's mobile phone and is easy to use is among the reasons that make it a favorite application.

Despite the numerous advantages, several pupils have raised apprehensions regarding ChatGPT. One of the difficulties with ChatGPT is the provision of ambiguous responses and insufficient feedback. Critical thinking has an important place in foreign language learning and grammar learning (Calma & Davies, 2021). A certain segment of students stated that platforms such as ChatGPT and chatbot reduced their critical thinking skills and made them dependent on technology. Some students even added in their answers that they were not sure of any grammatical answer without asking ChatGPT. Critical thinking has an important place in foreign language learning and grammar learning (Calma & Davies, 2021). In addition, both teachers and students need to receive training on its use (Ausat et al., 2023). In the interview analysis conducted with the students, the students stated that some of their friends did not know how to use ChatGPT and that a certain majority of them were used for the wrong purposes. For this reason, just as it is necessary to check the depth of water before jumping into it, it will be beneficial for students to take the training before using ChatGPT.

Considering the interview analysis in general, the advantages of using ChatGPT in grammar learning and teaching outweigh its disadvantages and it is obvious that it has great benefits for education.

Discussion

This study was conducted to investigate the benefits and concerns of ChatGPT in grammar learning and teaching in foreign language learning.

The first research question investigated the benefits of ChatGPT on grammar learning for EFL students at Tishk University. According to the data obtained from the post-test results, the grammatical success level of the experimental group was more successful than the control group with a difference of .001. These results revealed common results with the study conducted by Kucuk (2023).

The second research question investigated the concerns that ChatGPT, one of the artificial intelligence applications, raised in grammar learning. According to the information obtained from the data obtained from both qualitative and quantitative results, the benefits offered by ChatGPT outweigh its concerns. For example, some of the students stated that this application reduced their critical thinking abilities and made them dependent on it. At the same time, a general conclusion is that it would be better to provide training before starting the use of such applications and then start implementing them.

At the beginning of the study, a pre-test was applied to measure the students' grammatical levels, a post-test was applied to measure the levels they reached as a result of the study, and a focus group interview was applied to obtain the students' opinions at the end of the seven-week study. The results obtained have common similarities with the studies of scholars who have previously conducted research on this subject (Liu et al., 2023; Opara et al., 2023; Kara & Kucuk, 2023). Each research tool used in this context has produced very important results and the results obtained are as follows.

Grammar knowledge is undeniably a fundamental aspect of the English language, and the resources used for studying grammar are of utmost significance (Al-khresheh & Orak, 2021). ChatGPT has introduced a new aspect to the process of acquiring grammatical skills (Grassini, 2023). Upon examination of the table above, it is evident that there is no substantial disparity between the students in the control group and the experimental group in the pre-test that was administered at the commencement of the research. The control group has an average success rate of 59.07, whereas the experimental group has an average success rate of 60.47. A marginal discrepancy of 1.4 was observed between the two groups. As previously mentioned, the control group was provided with grammatical instruction that focused on teachers and course books, whereas the experimental group received grammar education centred upon technology, specifically utilising ChatGPT. The trial persisted for a duration of seven weeks. Upon completion of the study, the examination committee devised a post-test to assess the grammatical proficiency achieved by both groups. The results of the post-test exam revealed surprising results, similar to the studies of Rahman and Watanobe, 2023 and Hong, 2023. The control group had a significant rise from 59.07 to 67.93, representing a notable improvement of 8.86%. Upon analyzing the experimental group, it is evident that their average score rose from 60.47 in the pre-test to 87.00, indicating a notable improvement of 26.53%. Based on the t-statistical calculations performed using SPSS-27, the observed difference between the two groups is .001. This disparity highlights the need to use the ChatGPT tool in grammar instruction. This difference, as in the studies

conducted by some other scholars, revealed the fact that education using ChatGPT is more effective than other traditional education (Kohnke et al., 2023; Michel-Villarreal et al., 2023; Hong, 2023).

Focus group interview analyses applied to students in the final stage of the study provide us with more detailed information about the students' opinions. The majority of students stated that using ChatGPT had a positive contribution to their grammar learning. As in the study by Yildiz (2023), integrating ChatGPT into lessons increased students' motivation and made learning more fun. Ausat et al. (2023) stated in their study, that ChatGPT cannot replace a teacher, but its proper integration into education can increase the quality of education. In general, students stated that ChatGPT answered their grammar questions instantly and offered answers tailored to their needs. This shows us that this platform is a student-friendly application, and when used correctly, it can produce very productive results, as Baidoo and Ansah (2023) say. In addition to these advantages, some students have expressed concerns that ChatGPT brings with it. As stated in different studies, we see that ChatGPT makes students addicted, sometimes gives unclear answers, and some students do not know how to use ChatGPT and even use it for the wrong purposes (Baidoo & Ansah, 2023; Sallam et al., 2023).

The data gathered leads us to the following conclusion. ChatGPT should not serve as the primary objective of education, but rather be included in education and grammar instruction to maximize its advantages.

Conclusion

This study aims to investigate the positive benefits of ChatGPT, one of the artificial intelligence tools, on students' grammar learning and at the same time examine the concerns it brings with it. As a result of the seven-week study and in the light of the pre-test, post-test and focus group interviews, we reached the fact that integrating ChatGPT into grammar lessons in foreign language teaching is beneficial to their academic development and makes learning fun. When the tools applied during the study are examined, we see that the average grammatical success of the students is close to each other at the beginning. We observe that the control group did not make much progress with teacher- and book-centred grammar education, but the experimental group students who received education using ChatGPT made significant positive progress in their grammatical success averages. When these data are analyzed, it is concluded that there will be no concerns about integrating ChatGPT into grammar lessons and foreign language education, on the contrary, positive results will be achieved.

Upon analyzing the data collected from the student interviews, which constituted the second part of the study, it was found that the students mostly conveyed favorable sentiments about ChatGPT. Students commonly conveyed their contentment with the assistance that ChatGPT offers in acquiring knowledge of grammar, its constant availability, and its ease of use. Another notable finding derived from the interview analysis is that the students conveyed their contentment with using this program. They inputted the desired commands into ChatGPT and received precise responses that aligned with their requirements and preferences. Research has uncovered that ChatGPT, while its benefits in acquiring grammatical skills, nevertheless raises some apprehensions. These issues include the teacher fostering dependency among pupils, impairing their critical thinking skills, effectively turning them into robots, and negatively impacting the handwriting talents of some children. Furthermore, the study analysis reveals that certain pupils

lack proficiency in using such tools, and some students even employ them for inappropriate objectives.

Upon analysing the acquired qualitative and quantitative data, it can be inferred that the integration of ChatGPT into foreign language education and grammar sessions yields advantageous outcomes for both students and teachers. By incorporating ChatGPT into classrooms with adequate training, students and teachers can get enhanced outcomes and foster a more enjoyable educational experience.

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