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Exploring the Effect of AI-Driven Contextual Conversations on EFL Grammar Learning at University Level in Saudi Arabia

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Abstract

This study aims to explore EFL grammar learning through AI-driven contextual conversations at the university level in Arab countries, particularly in Saudi Arabia. To achieve the objectives of the study, 110 students who are enrolled at University of Bisha, Saudi Arabia, participated in this study. Quantitative and qualitative methods were used to collect the data of the study. The participants sat for a pre-test and a post-test, and they participated in filling in a questionnaire that was designed for the purpose. The findings of the study showed that there was an improvement in the post-test after the students used an AI tool for learning English grammar through contextual conversations. The findings of the study also showed that AI is engaging and enjoyable in learning English grammar. The AI tool that the students used enhanced the students' motivation and confidence to learn grammar. The students found that the feedback of the AI tool was clear, constructive, and highly beneficial for learning grammar. It showed that learning grammar by AI tool is more effective as it is used in realistic contexts. Its ease of use was another key factor that helped the students focus on learning without technical barriers. The students' preference for the AI tool over traditional methods suggests that the grammar instruction could benefit significantly from AI integration. The study ended with some recommendations that would certainly benefit the EFL learners, instructors and syllabi makers and enhance the learning environment. Some pedagogical implications are also included accordingly.

Keywords: *AI, Contextual Conversations, EFL Learners, EFL Learning, Grammar Learning.*

Introduction

As grammar plays an essential role in linguistic competence, it provides learners with the knowledge that is necessary to build meaningful sentences and communicate effectively. In contexts of English as a Foreign Language (EFL), grammar teaching has historically been characterized by an explicit focus and repetitive practice and an emphasis on memorizing rules and examples. Although such an approach may help with a theoretical understanding of grammar, there was often no motivation for the students to learn grammar on this system, nor the immediate application of grammatical knowledge in life situations. There is a recurrent challenge in EFL education, especially in countries like Saudi Arabia where English is not used beyond the classroom.

The students of General English courses at the University of Bisha find it hard to learn grammatical rules and how to use grammar in spoken and written communication. Such problems emphasize the importance of novel ideas regarding grammar teaching, which acknowledge the space between knowledge through automated learning and grammatical competency.

EFL grammar instruction is frequently criticized for an extensive emphasis on context-free rules and forms. Although this assists in developing a theoretical basis, such methods often neglect the role of adequate interaction and real-world application. Studies, such as Ho (2014) have shown that students exposed to traditional grammar practice often have difficulty applying their knowledge to real-life communicative situations.

This challenge has more heavyweight when it comes through to the countries such as Saudi Arabia where English is considered as a second or a foreign language. When there is limited exposure to English outside

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the classroom, students have fewer opportunities to interact with the language in relevant, purposeful ways. As a result of this, the need to develop other methodologies for teaching, which put interactivity, contextualization, and the student at the center, is very much in demand.

Artificial intelligence (AI) is rapidly changing many fields, including education. AI tools including chatbots, virtual assistants and adaptive learning platforms are contemplating solutions for dated pedagogical quandaries in language learning.

Over the past few years, researchers and educators have started investigating the potential of AI to revolutionize grammar instruction. Research such as Fathi, et al (2024) has indicated that AI-supported platforms can improve grammatical competence by contextualizing rules through interactive dialogues. Nonetheless, the incorporation of AI into EFL syllabuses remains in its infancy, particularly in Saudi Arabia.

AI-Driven contextual conversation is a method that integrates grammatical structures into realistic dialogues, allowing students to apply language in real-world situations, rather than using traditional methods that focus on isolated grammar practice. For instance, an AI-based chatbot can enact a dialogue to order some food in a restaurant and push students to use the correct verb tenses, articles and prepositions.

Since interactions are contextual, grammar learning becomes fun and less rigorous. Rather than just memorizing the rules in a vacuum, students acquire grammatical competence by constructing sentences based around prompts and responding to them. Also, AI tools that analyze the input of learners and give instant, personalized feedback provide significant support for learners to fine-tune their understanding of how and when to use various grammatical structures.

The case of the University of Bisha is a perfect test case to experiment with the effect of AI-based contextual conversations on grammar acquisition. As a university in a country where English is very much a foreign language, the university's students have widely varying levels, and the General English courses are the start point. Even when instructors do their best to help students, many students have difficulty applying their understanding of grammar to real-life contexts.

Initial observations suggest that students tend to view grammar as a rather dry, mechanical enterprise. This perception adds to low engagement and weak retention of grammatical rules. AI-driven tools can offer an interactive and student-centered approach to grammar instruction, addressing the challenges while providing a solution.

Research Objectives

Thus, this study aims to explore the effectiveness of AI-driven contextual conversations as a pedagogical approach to improving grammar teaching for EFL students at the University of Bisha. Specifically, the research aims:

To assess the effectiveness of AI-enhanced contextual conversations in improving EFL learner grammar proficiency.

To evaluate students' attitude towards usability and effectiveness of AI tools in grammar learning.

To investigate the potential usage of AI-driven tools in the grammar of General English Curriculum at University of Bisha.

Research Questions

To reach these aims, the study addresses the following research questions:

How much does AI-driven contextual conversations enhance the grammatical proficiency of EFL students at University of Bisha?

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What are the students' attitudes towards usability and effectiveness of AI tools in grammar learning?

What is the potential usage of AI-driven tools in the grammar of General English Curriculum at University of Bisha?

Significance of the Study

This study significantly contributes to the field of EFL education, especially grammar learning and teaching. First, it provides empirical evidence regarding the effectiveness of AI-driven tools in promoting grammatical proficiency, which has been a gap in the existing literature. Second, it provides insight into students' attitudes toward applications of AI in education that can help inform the design and deployment of AI-based learning solutions. The study will also act as a practical guide for educators/policy makers who intend to reform EFLE methodology and enhance the learning outcomes.

Literature Review

The use of AI in English language teaching and learning to improve grammar skills has been underscored in recent research. Artificial intelligence (AI) based applications powered with natural language processing (NLP), machine learning (ML) and deep learning can deliver personalized learning experiences and immediate feedback (Winaitham, 2022; Agrawal, 2024). Notably, the study was conducted Korean college students interested in improving their English grammar skills using either AI chatbots or human chat partners and found that the chatbot group significantly outperformed their human counterparts in grammar skills. Using AI chatbots is more effective than human partners for improving English grammar skills of Korean college students (Kim, 2019). Conversational AI frameworks such as RASA can also be leveraged to build virtual teaching assistants, which can provide contextual support to students, identify students in need of additional help, and help students with common administrative inquiries and tasks (Shekhar et al., 2020). Personalized learning experiences from AI-driven tools like Grammarly and Duolingo cater to the unique needs of individual learners, creating a more engaging and motivating environment. AI has many advantages, but ethical issues such as privacy and transparency should also be addressed (Agrawal, 2024).

All these recent studies show that AI-powered, smart, and adaptive systems have the potential of greatly influencing English language instruction, just as it is being seen today with grammar instruction. Emerging AI technologies, such as Natural Language Processing and Machine Learning, offer opportunities to provide personalized, immediate feedback due to their speed and widespread availability further than with just traditional methods (Evenddy, 2024). Intelligent language tutoring systems appear to hold promise for personalized grammar instruction, with students indicating positive attitudes toward these systems (Dahbi, 2023). AI applications also provide personalized lessons that adapt to the needs of students, and teacher analytics that allow educators to track student performance (Agrawal, 2024). With regard to chatbot-based language learning, synchronous conversational corrective feedback techniques enabling self-correction along with metalinguistic explanation have shown their effectiveness. Teaching grammar in context has become an effective approach to this teaching process, since it provides advantages over traditional methods (Noor Maulidiyah, 2015). Another exciting avenue is to explore new ways of teaching language understanding and generation to these systems, such as interactive teaching for conversational AI systems, in which these systems can learn new concepts and relationships directly from their users (Ping et al., 2020).

Recent investigations have examined how such AI-powered conversational agents could assist in language learning and teaching. Research such as Jose Belda-Medina & José Ramón Calvo-Ferrer (2022) has documented positive perceptions towards using chatbots in language education, particularly toward its perceived ease of use and attitudes. AI can improve that, through interactive systems for teaching that can detect gaps in understanding and encourage the students to get more complex, personalized learning experiences (Ping et al., 2020). In fact, guided self-correction provides more extensive learning than explicit corrections, particularly for highly motivated learners or for learners with less control of linguistic knowledge (Liang et al., 2023). But it also presents challenges, like accuracy problems and ethical frameworks for implementing AI (Evenddy, 2024; Agrawal, 2024). Studies have proved that AI tools can

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be used for grammar learning, with an example reporting a global usability score of 76% for a French grammar chatbot (Safitri et al., 2021).

Overall, AI technologies also hold great potential to reshape the way English is taught, making the learning process more personalized and accessible while reducing the workload on educators. The incorporation of contextual conversations powered by AI combined with an emphasis on real-life language utilization allows educators to provide a more interactive and practical approach to grammar teaching and learning for EFL learners.

Here are some points summarize the added value of using AI to present grammar instruction in a contextualized way which ties with the modern educational objectives of grounding learning in real-life situations, offering personalized learning paths and enhancing the effectiveness of learning as follow:

Grammar Instruction Styles

Grammar instruction methods have changed and evolved over the years. Research strongly supports a bunch of different ways and shows that providing explicit grammar instruction results in faster and more accurate learning outcomes. This style of teaching is deductive, as it inspires logical thought and proactive language study (Caprario, 2013). Activities centering on the students, such as pair work, group work, etc., can serve to practice grammatical aspects and internalize grammatical structures (Davidheiser, 1996). According to Ellis, (1998) investigated four possibilities: structured input, explicit instruction, production practice, and negative feedback. This follow-up poses directions such as viewing research as provisional specifications for experimentation, conducting action research, collaborative work between teachers and researchers.

Contextualized Learning

Contextualized learning is an expanding paradigm that augments learning experience by integrating contextual data. Lengerich et al. (2023) take this further by introducing Contextualized Machine Learning, which uses a context encoder and sample-specific models to estimate heterogeneous effects and consolidate many modeling frameworks. Abu-Rasheed et al. (2023) examine the importance of learning context in personalized recommendations, arguing that context-aware systems are better able to match recommendations to the current state and needs of the learner, thereby improving performance. Lastly, Fortin and Chaib-draa (2021) introduce contextual learning principles to few-shot object classification and methods that exploit contextual components in complex environments for better generalization. The combination of these studies addresses the role of context in several learning situations, including not just machine learning but also personalized educational recommendations.

AI and Education

Integrate new technologies such as Artificial Intelligence (AI) into the educational process to deliver personalized experiences. These include intelligent tutoring systems, adaptive learning platforms and data analytics to monitor students' progress. These technologies make it possible to improve engagement, tailor feedback, and support students to learn at their own pace (Trivedi, 2023; Sadiku et al., 2021). However, a few of the issues - which arise with the integration of AI in education - are privacy issues, data security, bias and ethical issues. Collaboration between educators, administrators, developers, and policymakers is needed to fully realize AI's potential in education (Grace et al., 2023; Harry, 2023). AI could streamline administrative tasks as well as create course content. In spite of these challenges, AI holds the potential to revolutionize education, making it more responsive and equitable (Trivedi, 2023).

AI-Driven Contextual Instruction v/s Traditional Methods in Grammar Education

Research gaps are under-explored areas that limit the lack of knowledge that prevents making conclusions from research on a topic. For academics, identifying these gaps is important to demonstrate the relevance and potential contributions of their studies. To overcome this issue, researchers, particularly students, have

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developed skills frameworks and training programs (Chand, 2023; Jabu & Korompot, 2018). To help researchers to formulate gaps in their research. It starts with asking questions or finding unexplored areas of research based on prior research. Such gaps can result from limitations in the design of the study, instruments, or other factors that are simply beyond control (Chand, 2023; Ajemba & Arene, 2022). Identifying gaps might be a nightmare for novice researchers due to lack of criteria/ established methodologies (Chand, 2023). It is necessary to identify research gaps to broaden knowledge in different domains and focus future research ventures (Ajemba & Arene, 2022).

Methodology

Research Design

To assess how effectively an AI based contextual conversation tool outperforms traditional grammatical instructions, the study falls under a mixed-methods approach. The qualitative part consists of pre- and post-tests to examine whether students improved their grammatical competence because of the tool, and the quantitative part entails a 16-item questionnaire to explore students' perceptions of the AI. Using a combination of these methods will ensure a thorough understanding of learning outcomes and usability.

Participants

The study was performed at University of Bisha. 110 students of General English courses participated in this study. They were first-year undergraduates, 18–22 years old, with a wide variety of English proficiency, ranging from beginner to intermediate. Convenience sampling was used to select students from the classes enrolled in the first semester (2024-2025). Their participation in the study was voluntary and informed consent was obtained prior to the study.

Instruments

To achieve the objectives of the study, two instruments were employed.

Pre- and Post-Tests

The pre-test and post-test were designed to assess students' grammatical proficiency. They included multiple-choice questions, filling in the blanks and sentence completion tasks, and correcting the mistakes in the sentences. The questions in both tests focused on verb tenses, prepositions, articles, and subject-verb agreement. To ensure relevance and validity, these tests were aligned to the General English courses the students are studying.

Survey

To gather data on the students' perceptions towards the AI tools in learning grammar, a 5-point scale Likert questionnaire including 16 items was developed, in which the responses were ranged as "strongly agree", "agree", "neutral", "disagree" and "strongly disagree". The items were divided into six dimensions; engagement and enjoyment, feedback quality and effectiveness, realistic context and grammar understanding, motivation and confidence, usability and ease of use, and preference for AI over traditional methods.

Procedure

The study was conducted over six weeks. In the first week, the students sat for the pre-test that was done in the classroom. In the next four weeks, the students engaged in AI-driven conversations that were used to provide contextualized grammar practice. It simulated real-life scenarios (e.g., ordering at a restaurant, discussing hobbies) and provided instant feedback on grammar usage. During the four weeks, the students were required to complete three (30-minute) sessions per week on the AI-driven conversations to practice contextualized grammar, using Talkpal tool.

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This AI tool was chosen as it provides access to learning grammar through conversations. In the sixth week, to measure changes in grammatical proficiency, the students completed the post-test. Then, the students were asked to fill in the questionnaire to gather data about their perceptions towards their experiences of AI conversations to contextualize their grammar knowledge.

Data Analysis

Two methods were used to analyze the data collected. Qualitative analysis was used for analyzing the data of the pre-and post-test. Quantitative analysis was used for analyzing the data of the questionnaire. Furthermore, the means, standard deviations and percentages were also calculated in the scores of the pre- and post-tests to provide a clear picture of learning outcomes and in the data of the questionnaire to identify the trends in the students' perceptions.

Results

Pre- and Post-Test Results Analysis and Interpretation

To measure the effectiveness of the AI-based contextual conversation tool with respect to grammar learning, pre- and post-test data analysis plays an important role. The pre- and post-tests were conducted to assess students' grammatical proficiency prior to and after their exposure to the AI tool (Talkpal) and provide new insights in terms of the tool's impact on students' learning development.

Overview of Pre-Test and Post-Test results

Pre-Test Results Analysis

After correcting the pre-test of the students, it was shown, in Table 1 below, that the mean score on the pre-test was 58.3% (SD 10.2). The data implies that on average, the test takers (students) were fairly decent in grammar (with some variance in performance across the students) before being tested with the AI tool.

Although a considerable portion of students (48) reached marks between 50% and 65%, indicating an intermediate level of grammar competence, others (64) did not even score 50%. Thus, it aligns with the struggles that most non-native speakers experience when learning grammar without contextualized or interactive opportunities.

The areas of struggle that came out most commonly when the authors analyzed the pre-test were:

Correct use of verb tenses: Past and present perfect tenses were the strikingly hard aspect for many of the students

Subject-verb agreement: Many students made common errors in relation to subject-verb agreement.

Using prepositions: It was found that using the correct prepositions is also a challenge to the students, indicating a lack of familiarity with the use of prepositions.

These results show that there is a need for targeted grammar instruction and contextualized practice, which can be done via AI-driven tools.

Post-Test Results Analysis

Following the cycle of practice with the AI tool for four weeks, the same students attempted the post-test to measure their improvement in grammar. As it was shown in Table 1, the mean score of the students' results on the post-test was 75.1% (SD = 9.4), indicating that there is a significant improvement in the students' grammar proficiency. This represents an average improvement of 16.8% across the cohort of the students who took the pre- and post-tests.

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The analysis of the post-test highlighted some important trends about the improvement of the students:

Correct use of verb tenses: In terms of the students' use of various tenses, the students improved significantly on the use of the past perfect tense, with an improvement of around 20%+ from the pre-test.

Subject-verb agreement: The students made fewer errors in subject-verb agreement, matching singular/plural subjects to the correct verb forms. The error rate dropped by 15% on average.

Using prepositions: The students showed a significant effort on using prepositions in sentences. This section had been especially difficult during the pre-test, but the students improved by 18% in the number of corrected answers.

These results show that the AI tool helped the students to improve not only in line with the common grammar markers but also in the areas typically problematic for EFL students. The interactive, contextualized practice offered by the AI tool helped the students improve their grammar by providing them with immediate feedback and chances to practice in a supportive environment.

Comparative Analysis of Pre-Test and Post-Test Results

The results of the analysis of the pre-test and post-test were compared to show the difference and improvement in the students' grammar proficiency before and after the use of AI tool in learning grammar through contextualized conversations.

Pre-Test and Post-Test Results Comparison

Table 1. Comparison Between the Students' Performance in the Pre- and Post-Tests

	Mean Score	SD	Improvement (%)
Pre-Test	58.3%	10.2	
Post-Test	75.1%	9.4	16.8%

The results showed an improvement in the students' grammar after this approach using the AI tool. The improvement shows that long-time practicing with the tool helps the EFL students' understanding and production of various grammatical structures, and this grammatical instructed learning via context-aware specific tool driven activity is feasible.

Interpretation and Implications of the Results

The 16.8% improvement in grammar suggests that AI can be effective in grammar instruction. The significant difference in the means of pre-test and post-test score data indicates that AI tool has a positive impact on the grammar-learning outcomes of students. The three areas with the highest improvement rates (use of verb tense, subject-verb agreement, and prepositions usage) match the three areas of difficulty identified in the pre-test, showing the tool helped them improve in the areas in which they struggled.

The following factors probably contribute to the improvement observed:

Contextualized Grammar Practice: The AI tool mimics grammar practice in context, supplying students with realistic applications of rules in conversation. It creates a context around the grammatical principles, making them more applicable and memorable.

Immediate feedback: The AI tool's immediate feedback allowed students to correct errors on the spot, which is critical for reinforcing correct grammatical usage rather than perpetuating errors.

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Repetition and reinforcement: The AI tool likely allowed students to practice certain grammar rules a number of times and this practice is critical for mastery. It is well known in language learning that the more often something is repeated, the more likely one is to retain it and apply it correctly.

The AI tool provides a more focused, informative, and interactive approach to learn grammar that the students would find more interesting compared to the traditional method. This tool, with its immediate feedback, interactive scenarios, and personalized learning experience, seems to have remarkably improved the students' grammatical knowledge as well as their application of that knowledge to contexts found in their lives.

Analysis of the Survey Responses

After collecting the data on the questionnaire, the responses on the 16 items were analyzed to assess multiple dimensions of the tool in terms of engagement and enjoyment, feedback quality and effectiveness, realistic context and grammar understanding, motivation and confidence, usability and ease of use, and preference for Ai over traditional methods. Table 2 shows the descriptive statistics (the means and standard deviations) of each of the 16 questionnaire items.

Table 2. Descriptive Statistics of Questionnaire Responses

Dimensions	No	Items	Mean	Standard Deviation
Engagement and enjoyment	1	The AI tool I used was engaging.	4.42	0.55
	2	Practicing grammar using the AI tool was enjoyable.	4.38	0.62
	3	Grammar learning was less stressful with the help of the AI tool.	4.42	0.58
Feedback quality and effectiveness	4	The AI tool I used provided helpful feedback.	4.55	0.52
	5	The practice sessions in the AI tool were interactive.	4.55	0.51
	6	The AI tool helped improve my test scores.	4.48	0.57
	7	Sufficient practice opportunities were provided by the AI tool.	4.51	0.54
	8	The AI tool provided clear and constructive feedback.	4.56	0.51
Realistic context and grammar understanding	9	The scenarios presented by the AI tool I used were realistic.	4.30	0.63
	10	With the help of the AI tool, I learned new grammar rules effectively.	4.50	0.58
	11	Practicing grammar in context using the AI tool helped me understand better.	4.59	0.51
Motivation and confidence	12	The AI tool I used motivated me to learn grammar.	4.44	0.58
	13	My learning experience was enhanced by the AI tool.	4.57	0.49
	14	My confidence in using grammar was increased by the AI tool.	4.50	0.56
Usability and ease of use	15	It was easy to use the AI tool in learning grammar.	4.57	0.50
Preference for AI over traditional methods	16	Using the AI tool was preferred to traditional methods alone.	4.50	0.58

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Detailed Interpretation of the Descriptive Analysis of the Main Dimensions of the Questionnaire

Engagement and Enjoyment

The students' engagement and enjoyment with the AI tool was measured by the first three items "the AI tool I used was engaging", "practicing grammar using the AI tool was enjoyable", "grammar learning was less stressful with the help of the AI tool". For these items, the analysis showed that the AI tool used by the students was highly engaging as the means were 4.42, 4.38 and 4.48 respectively, which indicates that the AI tool was interesting and enjoyable for the students. Pedagogically speaking, the EFL classrooms can benefit greatly from using AI approaches in AI-driven tools which can make learning grammar a more interactive process.

Feedback Quality and Effectiveness

The students' perceptions towards the feedback quality and effectiveness of the AI tool they used was evaluated by five items as shown in Table 2 above. The means of these items ranged between 4.48 and 4.67. These means indicate that the students found the AI tool's feedback to be not only helpful but also clear and constructive. These results emphasize the importance of accurate feedback and effectiveness in AI-based language tools. So, the ability of providing real-time feedback by AI tools fosters better understanding and retention of grammatical structures and can significantly enhance students' grammar learning.

Realistic Context and Grammar Understanding

The use of AI tool in realistic context and grammar understanding were evaluated by three items as shown in Table 2 above. The means of the items ranged between 4.30 and 4.59. The responses showed that the scenarios presented by the AI tool were realistic and could be more closely aligned with real-life situations and the contextual practice of grammar was effective for grammar comprehension. This pedagogically reinforces the idea that grammar instruction in context, where students practice language in real-life situations, is more effective than rote memorization.

Motivation and Confidence

The students' motivation and confidence when using the AI tool were evaluated by three items. The three items received high means (4.41, 4.57 and 4.50), indicating that the AI tool had a significant positive impact on students' motivation and confidence. This suggests that the AI tool was not only motivating but also helped students feel more confident in their grammar abilities. So, it could be said that the AI tools can significantly boost students' intrinsic motivation and help them overcome the anxiety that often accompanies grammar learning.

Usability and Ease of Use

To check the usability and ease of using the AI tool in learning grammar, one item was used "It was easy to use the AI tool in leaning grammar". The responses mean was 4.57, suggesting that the students found the tool extremely user-friendly. This highlights the importance of usability in technology-based educational tools. As usability is a critical factor for ensuring that students can fully engage with learning without being hindered by technical difficulties, this makes it easier for the students to focus on grammar learning rather than technical challenges.

Preference for AI Over Traditional Methods

Finally, the item "I prefer using the AI tool over traditional methods alone" that was used for checking the preference of AI over traditional methods received a mean of 4.50, reflecting that the students preferred the AI tool over traditional methods. This result supports the growing trend toward integrating AI technologies in educational settings, where students increasingly appreciate the interactivity, personalization, and real-time feedback that AI provides. The preference for AI-based learning tools over

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traditional methods suggests that students recognize the benefits of interactive and technology-driven learning environments. The responses mean of the item indicates that the AI tool provides an educational experience that is seen as more engaging and beneficial compared to traditional methods.

General Observations and Insights

The results of the questionnaire highlight some important pedagogical trends. The AI tool that the students used fostered the students' enjoyment and motivation to learn grammar. The feedback of the AI tool was clear, constructive, and highly beneficial for learning grammar. It was effective in increasing the students' confidence in their grammar skills. It showed that learning grammar by AI tool is more effective as it is used in realistic contexts. Its ease of use was another key factor that helped the students focus on learning without technical barriers. The students' preference for the AI tool over traditional methods suggests that the grammar instruction could benefit significantly from AI integration.

Discussion

The findings of the study offer compelling evidence for the effectiveness of AI-powered contextual conversation tools to greatly improve grammar acquisition in an EFL setting, particularly in the context of the University of Bisha, Saudi Arabia. A significant improvement in the students' grammatical abilities before and afterwards was achieved as evidenced through pre- and post-test results showing statistically significant differences. There was an average of 16.8% improvement in the students' scores indicating marked difference in their grasp and application of grammar, especially in terms of verb tenses, subject-verb agreement, and prepositions usage. This aligns with the study by Noor Maulidiyah (2015) that found that chatbot-based language learning has become an effective approach in language learning. It also aligns with Kim (2019) who found that AI chatbots is more effective than human partners for improving English grammar skills.

One of the most engaging facets of the AI tool's impact was its ability to give real, personalized feedback in real time. That instant feedback is useful in grammar learning since it allows students to see their errors and fix them before they become habitual. Additionally, the AI tool's practice was highly contextualized which was a key reason for its success. This contextualization allowed students to apply grammar rules in real-world situations to reinforce their learning. This is in parallel with Ping et al. (2020) that found that AI can improve that, through interactive systems can encourage the students to get more complex, personalized learning experiences.

The results of the survey showed that the AI tool could be used to enhance the students' motivation and enjoyment to engage with learning, allowing them to practice simulated conversations and receive immediate feedback. This is aligned with Yu Li et al. (2022) who stated that AI-driven chatbot system can provide conversational practice and grammar error feedback to help language learners spot their errors and correct them. It is also parallelized with Liang et al. (2023). This study and other studies such as Safitri et al. (2021) have proved that AI tools can be used for grammar learning.

The findings of this study are also consistent with previous studies on the efficacy of AI-based language learning solutions. Studies like Liang et al. (2023) have suggested that these tools are effective at helping students not only improve their grammatical skills but also increase their confidence in language use as well. In this study, the students expressed that the use of the AI tool helped to build their confidence in their grammar.

To summarize, this study shows a cognitive approach to highlight the way AI tools could support grammar learning in the EFL context. The improvement in students' grammatical accuracy, engagement levels, and confidence shows how helpful this type of education technology can be for language learners. The findings of this study lay the groundwork for future investigation surrounding the integration of AI in language classrooms, serving as a springboard for continuous advancements in learning outcomes for EFL students across different educational systems.

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The current study was conducted on a sample size comprising 110 students. Therefore, although this sample size was adequate for obtaining significant results in the context of University of Bisha, a larger and more diverse sample would enhance the applicability of findings and increase the data's overall robustness. This study only investigated grammar learning, but not other aspects of language learning (e.g. vocabulary, speaking and/or listening). Moreover, evaluation of students' grammar retention using the AI tool was not part of this study.

Recommendations and Pedagogical Implications

Based on the study's findings, there are some recommendations here to facilitate the use of AI for grammar learning and to support future research in the field. Moreover, some pedagogical implications are also provided in this section.

AI should include adaptation learning, so it can configure difficulty of grammar based on students' performance. This could help students learn at their own pace, reinforcing concepts they find challenging, but moving them on to more complex material when they have mastered basic concepts. AI developers could integrate visual aids and audio prompts into the AI tool to make grammar instruction more dynamic. They also can provide feedback that includes more detailed explanations about why the mistakes or errors occur. This can help the students use grammatical rules more effectively.

Educators are recommended to consider incorporating AI tools into the traditional classroom to create a blended learning environment. Instructors can use AI tools to offer the students out-of-class exercises, focusing on more interactive tasks during the in-class sessions. Teachers can encourage the students to use AI tools regularly to make grammar practice a more autonomous part of their language learning process. They can create a gamified learning environment by taking advantage of the AI tools' interactive nature to make grammar learning more enjoyable for the students.

Feedback provided by the AI tools is an essential helper in the language acquisition process; thus, it is crucial when it comes to grammar education. Teachers should motivate the students to have a look at the feedback offered by the AI tool and utilize it to improve their grammar skills. Moreover, peer feedback can also be incorporated into the learning process by teachers where feedback is given based on performances and challenges that students face. A big educational advantage of AI tools is they favor autonomous learning. By the combining power of AI and the day-to-day practices, grammar is made a personal affair, where a user can practice as per their personalized needs, making them an expert in self-regulation which in turn excels their skills. These skills can be fostered in the students through teaching practices that support them to set learning goals, reference the performance reports provided by the AI tools to track their progress. This enables the teachers to create a habit of independent grammar practice to help the students become more proactive in their own learning.

The favorable outcome of an AI-driven contextual conversation tool in generating grammar usage advances provides insight into the ability of AI to innovate language education. AI tools have the potential to deliver personalized, scalable and interactive learning experience that can augment traditional teaching methods. AI in the language classroom enables teachers to deliver more life-like, personalized, and effective grammar instruction for learners, resulting in improved learning outcomes.

This study highlights the potential use of an AI tool for improving grammar learning, opening avenues for future research in this area and for language education practice. Future investigations may include an exploration of the long-term effectiveness of AI tools on the retention of grammar and their ability to support other facets of language acquisition such as writing, reading, speaking or listening. Furthermore, other research can investigate how the AI tools can be adjusted for those with different cultures and languages, increasing relevance and effectiveness in more diverse EFL contexts.

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Appendix (1)

Pre-Test Questions

1. Fill in the blanks with the correct form of the verb in parentheses:
    - a) She _____ (go) to the market every morning.
    - b) I _____ (read) a book right now.
    - c) They _____ (not/like) the movie last night.
    - d) By next week, we _____ (finish) the project.
    - e) They _____ (study) English for two years.
2. Correct the following sentence for subject-verb agreement:
    - a) The team are going to the final.
    - b) The students was happy with the result.
    - c) He don't like pizza.
    - d) The book on the table need organizing.
    - e) My friends is coming to the party.
3. Complete the sentences using the correct form of the article (a, an, the):
    - a) I saw _____ dog in the street.
    - b) She bought _____ apple from the market.
    - c) _____ book on the table is mine.
    - d) He has _____ idea to solve the problem.
    - e) We saw _____ elephant at the zoo.
4. Fill in the blanks with the correct preposition:
    - a) She is interested _____ learning new languages.
    - b) I am going to the cinema _____ my friends.
    - c) The book is on the table _____ the window.
    - d) I am looking forward _____ meeting you.
    - e) He is good _____ playing the guitar.
5. Choose the correct option to complete the sentence:
    - a) If I _____ you, I would take the job.
        - (1) am
        - (2) was
        - (3) were
        - (4) be
    - b) If he _____ harder, he would have passed the test.
        - (1) study
        - (2) studies
        - (3) had studied

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- (4) has studied

Appendix (2)

Post-Test Questions

1. Fill in the blanks with the correct form of the verb in parentheses:
    - a) By this time next year, she _____ (graduate) from university.
    - b) They _____ (live) in this city for five years.
    - c) I _____ (not/see) him lately.
    - d) We _____ (arrive) at the airport when the flight departs.
    - e) She _____ (study) for her final exams this week.
2. Correct the following sentence for subject-verb agreement:
    - a) The books on the shelf needs organizing.
    - b) The teacher were happy with the presentation.
    - c) My friend don't understand the question.
    - d) The people were waiting for the bus.
    - e) The children plays in the park every day.
3. Complete the sentences using the correct form of the article (a, an, the):
    - a) I am looking for _____ new job.
    - b) She has _____ important meeting today.
    - c) _____ dog in the park is mine.
    - d) He is _____ best student in the class.
    - e) We are going to _____ beach this afternoon.
4. Fill in the blanks with the correct preposition:
    - a) I am interested _____ traveling to new countries.
    - b) He is sitting _____ his desk.
    - c) She is good _____ playing tennis.
    - d) We will meet _____ 7 p.m.
    - e) He is afraid _____ dogs.
5. Choose the correct option to complete the sentence:
    - a) I wish I _____ more time to finish the project.
        - (1) have
        - (2) had
        - (3) will have
        - (4) would have
    - b) If I _____ earlier, I could have avoided the traffic.
        - (1) leave
        - (2) leaves
        - (3) left

(4) had left

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Appendix (3)
Questionnaire

Dear Students,

We kindly invite you to participate in this questionnaire as a part of research study. Your data is incredibly valuable and will contribute to gaining insights that will be used for the study entitled "Enhancing Teaching Grammar through AI-Driven Contextual Conversations at University Level in Saudi Arabia". Participation in this study is entirely voluntary, and you may choose to withdraw at any point. The questionnaire is designed to be anonymous, and all the data collected will be used solely for research purposes. Your responses will remain confidential and will be handled with security.

Your participation is greatly appreciated!
Thank you

Gender: Male ☐ Female ☐
Level of Study: Level I ☐ Level II ☐ Level III ☐
The English course you are studying this semester:
General English 1 ☐
General English 2 ☐
English for Specific Purposes ☐

No	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	The AI tool I used was engaging.					
2	Practicing grammar using the AI tool was enjoyable.					
3	Grammar learning was less stressful with the help of the AI tool.					
4	The AI tool I used provided helpful feedback.					
5	The practice sessions in the AI tool were interactive.					
6	The AI tool helped improve my test scores.					
7	Sufficient practice opportunities were provided by the AI tool.					
8	The AI tool provided clear and constructive feedback.					
9	The scenarios presented by the AI tool I used were realistic.					
10	With the help of the AI tool, I learned new grammar rules effectively.					

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11	Practicing grammar in context using the AI tool helped me understand better.					
12	The AI tool I used motivated me to learn grammar.					
13	My learning experience was enhanced by the AI tool.					
14	My confidence in using grammar was increased by the AI tool.					
15	It was easy to use the AI tool in learning grammar.					
16	Using the AI tool was preferred to traditional methods alone.					