

Research paper

## Investigating Impacts of Artificial Intelligence Software on Learning English Grammar: A Systematic Review from 2019-2024

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### **Abstract**

In today's world, where the growth and expansion of technology are moving at a rapid pace, learning English grammar through artificial intelligence has become an exciting and interactive experience (Ghaleb, 2024). According to Rosmitai et al. (2023), one of the most significant benefits of learning English grammar through artificial intelligence tools is the linguistic accuracy they provide. This review article has analyzed eleven related studies from 2019-2024 using the PRISMA method (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) to examine the diverse impacts of AI tools on learning English grammar as a foreign language. The articles were retrieved by searching three original databases: Google Scholar, ResearchGate, and Springer Link. Therefore, AI tools such as Duolingo, Grammarly, Quill Bot, Deep English, Speak and Improv, GPT Chat, White Smoke, Ginger, Scribe, and Sentence Master were analyzed because they can monitor students' progress and can provide content that is appropriate for their needs. Finally, the effectiveness, ease of use, and challenges of these AI tools in the process of learning English grammar were studied. The article also presents the challenges and opportunities created by artificial intelligence for English language teaching. According to the results, combining new and innovative methods with traditional methods can increase motivation and focus in learners, because these tools can help them learn more easily by providing quick feedback. Future research should pay more attention to the challenges and problems of artificial intelligence tools in learning English grammar.

**Keywords:** Systematic Review, Artificial intelligence (AI), English grammar, Learning, PRISMA method

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## **Introduction**

Nowadays, learning English grammar is significant. This language functions as an instrument for communication across diverse cultures and regions. Through learning this language, learners can achieve academic, professional, and social opportunities on a global scale. As a result, the solicitation for effective methods for English language acquisition has increased significantly. One of the effective ways to learn English grammar is the use of AI technology, which has affected almost all aspects of life, such as education, and has greatly influenced the process of learning English grammar. Artificial intelligence applications have become an exhaustive portion of people's lives, mainly attached to technology, have had a noticeable impact on them, and have transformed people's lives (Guzey et al., 2023). Limones Rios (2024) argues that artificial intelligence meets the various needs of modern education and solves problems related to the challenges of the changing world.

Artificial intelligence (AI) plays a remarkable role in the progress of education proposition technology and has drastically influenced the process of learning English, including grammar. Artificial intelligence software enhances and facilitates learning and serves as a tool, platform, and communication resource for people worldwide (Luan et al., 2020). These artificial intelligence grammar tools are Duolingo, Grammarly, Quill bot, Deep English, Speak& improve, Chat GPT, White Smoke, Ginger, Scribe, and Sentence Master, which are used based on popularity and relevance in learning English grammar. Also, Luan et al. (2020) add that AI provides solutions, predictions, and insights into the individual's situation and needs. Also, Chen et al. (2020) believe that AI technology has a phenomenal influence on the educational environment. According to Asad et al. (2021), technology pertains to learning effectively and facilitates students' learning

process. Besides, According to Rocky (2022), computer software such as Microsoft Word, which has artificial intelligence features in recent years, can help improve writing and grammar skills.

All in all, the present research has aimed to define the functions and tools of (AI) in learning English grammar and has explored tools used in learning grammar like Duolingo, Grammarly, Quill bot, Deep English, Speak& improve, Chat GPT, White Smoke, Ginger, Scribe, and Sentence Master. These artificial intelligence tools can help students learn the grammar of languages like English and facilitate learning procedures by providing interactive exercises, analyzing errors, and providing quick feedback (Ghaleb, 2024). Additionally, personalized education based on the individual needs of language learners is another advantage of these tools (Zulkarnain, 2023). However, few students and language learners use these tools because of a lack of awareness, motivation to use new technologies, or preference for traditional learning methods (Telaumbanua et al., 2024). Also, lack of access to the Internet or suitable devices may be the reason for not benefiting from these resources (Al-Shidi, 2024). Although artificial intelligence software for learning English grammar has advantages and disadvantages, it is necessary to increase the motivation and awareness of language learners. This study has sought to answer the following research questions.

1. How effective, convenient, and challenging are artificial intelligence tools in learning English grammar?
2. What are the differences between learning English grammar using artificial intelligence tools and traditional methods?

## **Literature Review**

### **Previous Related Studies**

Previous studies have evaluated the impact of AI software on improving English grammar skills, and their results indicate that these technologies have a positive influence on the learning process. Park (2019) shows that AI-based grammar correction tools enhance students' grammar skills, but teacher supervision is required to properly understand and rectify errors. This finding is consistent with the results of a study conducted by Lalira et al. (2024) which found that the use of intelligent tools such as Grammarly and ChatGPT increased students' grammar scores, whereas this study also emphasizes the importance of properly integrating technology with traditional teaching.

Besides, other studies indicate the importance of AI tools in the learning process. Kumar (2023) claims that AI tools not only make learning more engaging and exciting but also enhance the learning experience. On this subject, Tamil and Vaishnavi (2024) believe that students can develop their grammar learning by using AI tools.

Moreover, Daniel (2023), in his conducted study believed that artificial intelligence tools have high accuracy and can improve the English language learning process. Of course, teacher supervision is necessary to cover all errors. The findings indicate traditional and modern methods have advantages and disadvantages, and combining these methods helps reduce the disadvantages. Besides, Lemons Reeves (2024) highlighted that artificial intelligence tools enhance learners' language skills through personalized learning. Therefore, the use of both traditional and modern methods will make these two methods more efficient and will lead to further evolution of these two methods.

In addition, the findings of Limones Rios (2024) show that artificial intelligence has become an efficient tool for learning and can create effective learning. According to this article, investment in artificial intelligence by countries such as China and the United States is expected by 2025. This technology will improve students' grammar skills and keep them up to date. Artificial intelligence tools positively impact English learning, especially by combining traditional and modern techniques to boost the overall experience. This approach also offers quick and varied feedback from multiple sources. The learning process through tools like Grammarly, Duolingo, and ChatGPT facilitates learning, creates new opportunities, and motivates learners. According to Rocky (2022), computer software such as Microsoft Word, which has artificial intelligence features in recent years, can help improve writing and grammar skills.

### **Theoretical Framework**

According to cognitive learning theory (Mayer, 2009), the learning process is managed more efficiently when information is meaningfully organized and accompanied by immediate feedback. Also, Vygotsky (1978) points out that the basis of this model lies in cognitive learning theories and social constructivism and that immediate and personalized feedback is very important for enhancing language acquisition.

Artificial intelligence facilitates learning English grammar due to immediate feedback and adaptive exercises. It also analyzes and adjusts individual and personalized learning patterns according to the needs of learners.

Accordingly, this review article was conducted under the PRISMA Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) framework for reporting systematic reviews (Moher et al. 2009). This methodology was introduced in 2009 by Dr. David Moher and

colleagues and updated in 2020. Based on research by Maristy (2023), Farrús Mireia (2023), Peixoto et al. (2021), and Giovannoli et al. (2020), all have used this methodology, the performance of PRISMA has a set of evidence-based best practices. These elements help readers and reviewers evaluate the logical steps of the process and clarify the research boundaries. Improving the quality of reporting in systematic reviews and meta-analyses is one of the main goals of PRISMA.

PRISMA assists researchers in documenting their data search, selection, and analysis processes clearly and comprehensively through the use of checklists and flowcharts it provides. In this method, reviewers present their research findings more reliably and consistently. Utilizing the PRISMA method in review articles assists authors in presenting their work systematically and clearly while also offering readers a precise evaluation of the study's quality and validity. Numerous journals have supported PRISMA and include it in their author guidelines. The PRISMA checklist is consisted of 27 items, including title, abstract, introduction, methods, results, discussion, conclusion, and other relevant elements with clarity and detail. It shows the steps of searching and selecting relevant studies, including the number of articles excluded or selected. Flowcharts in this method include four phases: identification, screening, eligibility, and inclusion.

## **Methodology**

This research selected studies based on the criteria mentioned in the theoretical model, the previous section, by searching three databases: Google Scholar, Springer Link, and Research Gate from 2019 to 2024. The keywords used in this study were artificial intelligence tools, grammar learning, PRISMA method, and language learning technologies. Therefore, the various phases through which the selected articles were reviewed to gather the data are explained in the following sections.

### Identification Section

From 2019 to 2024, the research used three databases, including Google Scholar, Springer Link, and ResearchGate. Google Scholar provided a wealth of useful general information about the impact of artificial intelligence on grammar. Also, Springer Link and ResearchGate offered comprehensive resources that contained in-depth information on the topic. The search string and keywords used to search for the articles are summarized in Table 1 below.

**Table 1**  
*Keywords and Search String for Selecting Articles*

Databases	Keywords/search string
Google Scholar	Impact of AI on Grammar+ PDF AI Influence on Grammar+ PDF AI Software's impact
Springer Link	Artificial Intelligence Grammar Effect+ PDF AI applications in Grammar+ PDF Educational Technology
Research Gate	Grammar Improvement Using AI+ PDF AI /Artificial Intelligence /Grammar

### Screening Section

In this section, the articles were analyzed based on title, theory, and keywords to ensure the criteria of the article. Also, to get a more precise search result, additional information such as inclusion and exclusion criteria as guidelines for search in Table 2.

**Table 2**  
*Inclusion and Exclusion Criteria*

Criterion	Inclusion	Exclusion
Type of article	Journal articles- Books	Book chapter, proceedings
Language	English, Turkish	Non-English and non-Turkish articles
Year	2019_2024	<2019
Methodology	Quantitative- qualitative Mixed method	
Perspective	Learners	Teachers, Parents

### Eligibility Section

In a systematic review, validity, applicability, and comprehensiveness of the criteria in question play a fundamental role. The research period was limited to 6 years 2019 to 2024. In this

review article, we worked on studies about the impact of artificial intelligence on English grammar learning. Only articles published in Turkish and English were reviewed, excluding other languages from the scope of the research. Also, this review focused solely on scientific articles published in reputable journals and books, excluding book chapters and series of articles from the scope of the research.

### **Inclusion Section**

The researchers of the present study removed the articles that were not journals or related to the years before 2019. Other criteria for removing different articles were not in English or because our main focus was on the impact of AI technology tools on only learning English grammar.

**Table 3**

*Summary of the Selected Studies*

Study	Database	Aim	Samples	Findings
<b>Park, (2019)</b>	Google Scholar	This study examines the grammar and writing of high school students in English and the use of artificial intelligence grammar Checkers.	Fifty-nine high school students participated in this research. The study excluded 13 students because of non-response, and 106 students participated in this research.	This research shows that artificial intelligence tools can help improve students' grammar, but they need teacher supervision to ensure learners can understand and correct their errors.
<b>Kumar, (2023)</b>	Google Scholar	Investigating the effect of artificial intelligence and technology on English language learning (EL) among students of Quest University, Nawabshah.	There are 79.6 % of men and 20.4% of women among the 49 participants, Aged 65.3% over 20 years old.	Technology is essential for learning English, and Students discover it more interesting and enjoyable than traditional methods.
<b>Thamil &amp; Vaishna vi.,(2024)</b>	Google Scholar	To investigate the role of AI in learning grammar and how AI helps improve language through grammar learning tools. Grammarly and Quillbot	There are 60 undergraduate engineering students aged 18-25. Among them, 35 were girls, and 25 were boys, all of whom had an intermediate level in	AI-powered platforms are valuable tools for improving English grammar skills. Platforms are excellent resources for disseminating grammar information and

		detect errors and suggest corrections.	English and volunteered to participate in the research. Another requirement for participating in this interview is the absence of serious issues related to technology and access to artificial intelligence tools.	providing practical examples.
<b>Ghaleb (2024)</b>	Springer Link	The study explores the impact of artificial intelligence (AI) tools on learning English grammar and compares students' performance using different tools, including Grammarly, Speak&Improve, QuillBot, and Deep English.	There are 118 Kurdish students at Salahuddin University, 22 men and 90 women.	AI-powered platforms are beneficial tools to improve English grammar skills, and Kurdish language students value them.
<b>Awalin et al., (2023)</b>	Google Scholar	Investigate the impact of artificial intelligence technologies, especially Grammarly, on students' learning English grammar and present their perceptions.	The information was about the attitudes of 20 undergraduate students towards grammar in language teaching through surveys and interviews.	Grammarly is useful as a grammar tool, ultimately helping to make informed decisions about integrating artificial intelligence into language teaching.
<b>Baron et al., (2024)</b>	Research Gate	To investigate how effectively the Quillbot program improves the grammar skills of English language learners.	The study included 35 students from the English language department at an Asian university who utilized a quantitative survey method and a questionnaire.	Students pointed out that this program makes the process of learning English grammar easier and reduces students' grammar mistakes.
<b>Limones Rios (2024)</b>	Google Scholar	This paper investigates the effectiveness of an artificial intelligence-based system designed to improve English grammar in third-year high school students, focusing on personalized learning.	The study included 47 third-year high school students at Colegio Juana de Dios in Machala, El Oro province, aged 16 to 18, with a balanced gender distribution (27 females and 20 males).	Demonstrate that AI tools can enhance grammar learning and foster a positive attitude towards language acquisition through interactive and adaptive activities.

<b>Daniels (2023)</b>	Google Scholar	Sort and assess the appropriateness and effects of grammar-checking tools on students.	Twenty English dialect understudies, eight of whom were young women and twelve of whom were boys.	Instructor supervision is still necessary for nearby artificial intelligence tools that improve English language structure learning.
<b>Sutrisno et al., (2023)</b>	Research Gate	Investigating the positive impact of artificial intelligence (AI) technology on learning and increasing personalized learning and student participation in education.	The study participants included 25 students from two private elementary schools in Kaboom City.	The students indicated that while AI-based autonomous learning systems address students' needs, there is a significant concern about data protection and the potential for AI to replace human interaction and personalized learning among students.
<b>Lalira et al., (2024)</b>	Research Gate	Investigating learning tools based on artificial intelligence (such as Grammarly and ChatGPT) and their impact that improves students' grammar scores and evaluating their effectiveness.	There were 150 students from two higher education institutions in Indonesia who were nursing, pharmacy, health management, economic education, and English language students.	Students' grammar scores increased, especially those in non-language-related programs (an average increase of 15%). Students in the English language training program experienced a 5% increase, attributed to their higher proficiency in grammar. This raises concerns about excessive dependence on technology and the need for straightforward integration into educational settings.
<b>Al-Shidi (2024)</b>	Research Gate	This study aims to demonstrate the advantages and disadvantages of AI tools in the educational environment. Provides recommendations for increasing the integration of AI.	The study involved 100 students from Persian Gulf University and 20 English teachers through qualitative surveys and interviews.	Over half of the participants believe that these tools replace traditional assessment methods. They also find that this technology is beneficial in English and enhances the connection between teachers and students.

## Results

The first research question aimed to investigate how effective, convenient, and challenging artificial intelligence tools in learning English grammar are. This study selected and discussed 11 articles in this systematic review. Based on the reviewed articles, the researchers classified the impact of artificial intelligence software in grammar learning into effectiveness, convenience, and challenges such as Duolingo, Grammarly, Quill bot, Deep English, Speak& improve, Chat GPT, White Smoke, Ginger, Scribe, and Sentence Master. Table 4 presents eleven articles categorized into three key perspectives: effectiveness, convenience, and challenges.

**Table 4**  
*The Selected Articles' Perspective*

Article	Software	Effectiveness	Convenience	Challenges
<b>Kumar (2023)</b>	AI chatbots, Language learning software	✓	✓	✓
<b>Thamili &amp; Vaishnavi, (2024)</b>	Grammarly, QuillBot, Deep English, Speak & Improve	✓	✓	✓
<b>Ghaleb (2024)</b>	Grammarly, WhiteSmoke, Ginger, GPT, Duolingo, Scribes, Quillbot, SentenceMaster	✓	✓	✓
<b>Lalira et al. (2024)</b>	Chat GPT, Grammarly	✓	✓	✓
<b>Awalin et al. (2023)</b>	Grammarly	✓	✓	✓
<b>Limones Rios (2024)</b>	Duolingo, Chat GPT	✓	✓	✓
<b>Park (2019)</b>	Grammarly, SPSS	✓	✓	✓
<b>Daniels (2023)</b>	AI Chatbots	✓	✓	✓
<b>Sutrisno&amp; et al. (2023)</b>	AI software	✓	✓	✓
<b>Al-Shidi (2024)</b>	AI tools	✓	✓	✓
<b>Baron et al. (2024)</b>	Quill Bot	✓	✓	✓

Considering the challenges associated with learning English grammar through traditional methods and modern approaches that utilized artificial intelligence, the most effective way to

learn English was by integrating both methods. This combination could help enhance the learner's focus, motivation, and overall learning experience. Further, the study examined the differences, advantages, and disadvantages of learning English grammar through these two approaches. The following tables illustrates the results of this section.

**Table 5**

*The Results for Article 1: Kumar (2023)*

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**1) AI chatbots**

Effectiveness: 79.6% of students believe that AI chatbots increase their motivation. Also, 34.7% agree that these bots enhance their vocabulary.

Convenience: 73% of students used and were satisfied with the chatbot.

Challenges: 36.7% disagree that chatbots are enjoyable and express negative opinions and experiences.

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**2) Language learning software**

Effectiveness: 79.6% of students reported developing their language skills after using this software.

Convenience: This software is available and makes language practice easier.

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**Table 6**

*The Results for Article 2: Tamil & Vaishnavi (2024)*

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**1) Grammarly**

Effectiveness: Improves users' grammar by providing corrections at the moment.

Convenience: Simple user interface and easy access to correction suggestions.

Challenges: get used to depending on this tool to correct mistakes.

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**2) QuillBot**

Effectiveness: It helps users to rewrite sentences and gain a deeper understanding of grammatical structures.

Convenience: easy to use and provides educational tips for better understanding.

Challenges: May not be able to retain exact meanings or rewrite sentences naturally in some cases.

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**3) Deep English**

Effectiveness: offers engaging stories that make learning natural and interactive.

Convenience: designed for conversational learning, which can be more attractive to users.

Challenges: there are Limitations in different topics or educational scenarios.

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**4) Speak & Improve**

Effectiveness: Analyzes language skills and provides constructive feedback.

Convenience: interact directly with the educational chatbot that facilitates learning.

Challenges: requires a stable internet connection, may not feel comfortable interacting with the bot.

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**Table 7**

*The Results for Article 3: Ghaleb (2024)*

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**1) Grammarly**

Effectiveness: Automatically detects and corrects grammatical errors, improving writing accuracy.

Convenience: accessing an easy user interface makes it attractive to users.

Challenges: become dependent on the software and move away from independent learning.

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**2) WhiteSmoke**

Effectiveness: Detects grammatical, spelling, and writing style errors and provides good feedback.

Convenience: It is easy to install and use on different websites and programs.

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Challenges: fail to detect some errors.

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**3) Ginger**

Effectiveness: Provides effective grammar corrections and helps learners learn.

Convenience: has additional features such as text translation that make it more useful.

Challenges: May have difficulty processing complex sentences.

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**4) ChatGPT**

Effectiveness: Can answer the learners' questions by providing interactive examples and impacting learning positively.

Convenience: quick access and the possibility of natural interaction with the user make the learning experience more attractive.

Challenges: There are concerns about not being able to provide personal experiences.

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**5) Duolingo**

Effectiveness: increases learners' motivation with a playful approach and strengthens grammar skills.

Convenience: access anytime and anywhere due to being a mobile application.

Challenges: this is not enough for deeper learning.

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**6) Scribes**

Effectiveness: Powerful grammar-checking tool that detects various errors.

Convenience: Being free and attracting more users.

Challenges: have more limited features than Grammarly.

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**7) Quillbot**

Effectiveness: Paraphrasing texts enhances users' writing skills.

Convenience: has a simple user interface that makes it easy to use.

Challenges: the quality of paraphrasing is sometimes unsatisfactory.

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**8) SentenceMaster**

sentence construction exercises help a lot to strengthen grammatical structures.

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**Table 8**

*The Results for Article 4: Lalira et al. (2024)*

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**Grammarly and Chat GPT**

Effectiveness: tools help solve grammar challenges for learners exposed to limited formal language instruction.

Challenges: Reliance on artificial intelligence technologies can destroy language learners' individual problem-solving and critical thinking skills.

Convenience: helps practice and improve skills, and language learners can improve their grammar skills at their own pace.

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**Table 9**

*The Results for Article 5: Awalın et al. (2023)*

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**Grammarly**

Effectiveness: Grammar is a valuable tool for enhancing language skills. It offers real-time feedback, enabling students to identify and correct errors while understanding grammar rules through detailed explanations and corrections.

Convenience: User-friendly interface accessible through web browsers and integrates with various platforms (Microsoft and Google Docs), making it easy for students to use. It also has instant feedback.

Challenges: It causes students to rely too much on it and may have difficulty using subtle language or context errors, leading to incomplete learning.

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**Table 10**

*The Results for Article 6: Limones Rios (2024)*

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**1) Duolingo**

Effectiveness: Makes learning engaging by providing different activities and challenges appropriate to the level.

Convenience: Easily accessible, free, and designed for everyday use.

Challenges: not enough depth of learning may be in some languages.

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**2) Chat GPT**

Effectiveness: Interacting with AI for grammar correction and translation personalizes learning.

Convenience: easy access and quick response to users' questions.

Challenges: The accuracy of answers may not be sufficient in some cases, or it may require human supervision.

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**Table 11**

*The Results for Article 7: Park (2019)*

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**Grammarly**

Effectiveness: helps students identify and correct grammar mistakes and find accurate errors using natural language processing.

Convenience: It has high accessibility and a simple user interface.

Challenges: Needs teacher supervision and overconfidence by trusting learners in the software and underestimating their abilities.

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**Table 12**

*The Results for Article 8: Daniels (2023)*

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**Artificial Intelligence Chatbots**

Effectiveness: Natural interaction: Chatbots can naturally interact with users and answer their questions, which can help them learn grammar.

Simulation of real situations: These tools can simulate real conversation situations and put learners in a similar environment.

Convenience: 24 hours a day.

Challenges: Quality of responses: The quality of responses provided by chatbots may vary and require teacher supervision. Chatbots may struggle to explain complex concepts accurately, leading to misunderstandings.

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**Table 13**

*The Results for Article 9: Sutrisno & et al(2023)*

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**AI software**

Effectiveness: increase motivation, classroom engagement, and learning.

Convenience: Access to educational resources is seamless, and learning is possible at different times and places.

Challenges: Problems with this system include data privacy and the replacement of human interaction with artificial intelligence.

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**Table 14**

*The Results for Article 10: Al-Shidi (2024)*

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**AI Tool**

Effectiveness: AI tools can provide students with personalized learning experiences, which can improve learning grammar and increase their motivation. This software provides quick feedback to students, which helps them learn their strengths and weaknesses easily and quickly. 67% of respondents concluded that AI replaces traditional assessment methods and automates the scoring of written assignments.

Convenience: access Easily to Artificial intelligence tools is usually online, and students can access them anywhere and anytime. This software makes learning easier and more attractive for students by providing simple and understandable user interfaces. Students can use these tools at any time and place according to schedule.

Challenges: Training teachers to effectively use artificial intelligence tools May face challenges due to a lack of internet access or appropriate devices.

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**Table 15**

*The Results for Article 11: Baron et al.,(2024)*

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**Quill Bot**

Effectiveness: helps students check and correct their language with natural grammar corrections when teachers are unavailable.

Convenience: Most language learners like this software.

Challenges: a small percentage of language learners have had problems with the user interface. Furthermore, there is no certainty that the grammar checks are error-free.

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In the second research question, the researchers explored the differences between learning English grammar using artificial intelligence tools and traditional methods. A total of 7 out of 11 studies discussed the differences between learning English grammar with artificial intelligence tools and traditional methods. Learning using artificial intelligence tools or traditional methods has significant differences. These differences include attractiveness, excitement, and facilitating language practice (Kumar, 2023). Also, different teaching and learning methods have convenience and access, analysis, and feedback (Thamli & Vaishnavi, 2024).

## Discussion

These findings confirm the findings of the study by Mohammed and Ja'ashan (2024). They investigated EFL grammar learning via AI-driven contextual conversations in Arab countries, especially in Saudi Arabia. The results of their study revealed that students progressed in the post-test after employing an AI tool for learning English grammar through contextual conversations.

The findings indicated that AI is delightful for learning English grammar. The AI tool learners utilized improved the students' motivation and enthusiasm to learn grammar. The students found that the feedback of the AI tool was highly beneficial for learning grammar. Moreover, Lalira et al. (2024) used a quasi-experimental design to compare pre-test and post-test grammar scores to assess the effectiveness of AI tools in grammar proficiency. The findings demonstrated significant progress in grammar scores. Furthermore, Amir Jalili (2024) has examined the integration of ChatGPT into classrooms from the perspective of teachers, profits, and disadvantages. The results show that tools like ChatGPT provide personalized learning experiences and enhance language teaching.

Along with efficiency, user-friendly interactions, and flexible communication, it is crucial to acknowledge concerns about an over-reliance on artificial intelligence software (Park, 2019). Also, according to Kumar (2023), teaching methods may be limited to books and pamphlets. Thus, the learning experience is not affirmative enough, and learners cannot easily use these methods. Also, the reliance on books and pamphlets makes learning more challenging (Kumar, 2023).

Additionally, these outdated approaches did not provide a positive learning experience, leading to a lack of enthusiasm among students. Many students also found these methods hard to utilize effectively. Also, Classrooms, textbooks, and feedback provided after the end of the exams may be time-consuming (Thamli & Vaishnavi, 2024). According to Limones Rios (2024), artificial intelligence tools supply convenient, accessible resources and allow users to learn at any time and place. In particular, GPT Chat facilitates learning procedures by quickly answering users' questions.

According to Park (2019), software such as Grammarly helps students improve, identify, and correct grammatical errors. In traditional assessment, error correction is usually the teacher's

responsibility, which can be as challenging as the tools themselves. Chatbots are available 24 hours a day, and users can use them continuously or communicate. This flexibility in learning increases convenience and access to educational resources (Daniel, 2023). Artificial intelligence tools make the language learning experience more enjoyable, but teacher supervision and the ability to deeply understand educational concepts are also necessary.

Educators should employ Artificial intelligence integration with a critical and conscious approach in the learning process to achieve the best results (Daniel, 2023). Regarding Ghaleb (2024), traditional methods may be tedious and fail to fully meet the needs of learners, adding that this method provides delayed feedback. In antiquated methods, learning sometimes occurs without immediate feedback, and learners may not realize their mistakes until long after making them, which can lead to incomplete learning (Awalin et al., 2023).

However, challenges can affect the integration of AI technology into educational systems, requiring the attention of teachers and language learners. Regarding Limones Rios (2024), Artificial intelligence tools like Duolingo present several challenges that should be considered. Also, the accuracy of answers in GPT chat needs human supervision and access. In general, artificial intelligence tools such as chatbots can make the experience of learning English lighter, so the incorporation of artificial intelligence into the educational process must be executed with a thoughtful and discerning perspective to attain optimal outcomes (Daniel, 2023). Outdated methods may be more efficient in some areas, but integrating artificial intelligence with antiquated methods can bring the best results for learners' grammar learning and help improve the grammar learning experience in English.

## **Conclusion**

This review article highlights the influential effect of AI tools on English learners, emphasizing their potential to improve grammar learning through personalized content, advancement monitoring, and interactive engagement. By operating the PRISMA methodology to examine eleven appropriate studies from 2019 to 2024, the analysis indicates that tools like Duolingo, Grammarly, Quill bot, Deep English, Speak& improve, Chat GPT, White Smoke, Ginger, Scribe, and Sentence Master can encourage students and enhance their learning experiences through immediate feedback and various resources. Nevertheless, the study specifies challenges associated with AI incorporation, proposing that a mixed approach integrating traditional and modern techniques may produce the most practical results.

The present article outlines several limitations that should be considered when recommending future research. First, the literature studied was limited to eleven articles published between 2019 and 2024, which may not widely explain the scope of current studies on the influence of artificial intelligence (AI) tools in learning English. Choosing articles from three databases may further restrict the diversity of perspectives and methodologies in this review study. Therefore, the current study may have overlooked several investigations published in other databases or journals.

Second, while the present research employed the PRISMA methodology to provide a systematic review procedure, the inherent subjectivity in choosing appropriate articles could present bias. The inclusion and exclusion criteria may have inadvertently preferred specific investigations or consequences, potentially skewing the overall findings about the AI tools' efficacy and usability in language learning. Further, focusing on particular AI tools, including Duolingo, Grammarly, Quill bot, Deep English, Speak& improve, Chat GPT, White Smoke, Ginger, Scribe, and Sentence Master, may restrict the generalizability of the findings. Various AI

applications may differ in structure, functionality, and pedagogical methods, impacting their effectiveness in teaching English grammar. Consequently, the findings of this research may not involve all AI tools available for language learning. Lastly, while the article underscores the potential usefulness of AI tools like boosted motivation and direct feedback, it also realizes the challenges related to their use. Yet, exploring these challenges was not comprehensive.

The implications of this study underline the transformative potential of AI tools in improving learning English, mainly in the domain of grammar acquisition. The present research highlights the significance of incorporating these technologies into language education by showing that AI tools, including Duolingo, Grammarly, Quill bot, Deep English, Speak& improve, Chat GPT, White Smoke, Ginger, Scribe, and Sentence Master, can effectively monitor learner advancement and tailor content to individual requirements. The results imply that a mixed process, integrating traditional teaching methods with AI resources, can enhance learner concentration and motivation through immediate feedback and various learning materials. Furthermore, identifying challenges and opportunities in AI integration provides a crucial basis for instructors and policymakers to manage obstacles to practical implementation. This study not only contributes to the current body of literature but also paves the way for future investigations to examine the intricacies of AI in language learning, eventually seeking to optimize educational consequences for language learners.

Future research should examine the barriers that restrict the effective incorporation of AI tools in English grammar learning, as determining these obstacles is critical for enhancing academic courses. Exploring the viewpoints and experiences of students and teachers concerning the efficacy of AI tools could deliver practical understandings of their implementation in various educational contexts. Besides, comparative studies that systematically consider the disparities in learning consequences between AI-assisted and traditional methods should be conducted to determine best

practices and optimize instructional approaches. Similarly, longitudinal studies could examine the long-term impacts of AI tools on the grammatical proficiency of learners and language acquisition. Ultimately, further research could analyze how AI tools can adjust diverse learning techniques, thus improving inclusivity and accessibility in language instruction.

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