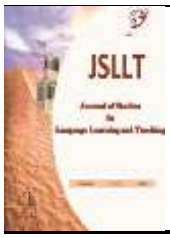
E-ISSN: 2981-1686



Journal of Studies in Language Learning and Teaching

www.jsllt.yazd.ac.ir

JSLLT, Vol. 2, No. 1, 49–65.

Paper Type: Original Article

# At a Crossroad: Comparing ChatGPT and Grammarly in Enhancing EFL Learners' Use of the Article 'The'

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Received: 17 January, 2025 Revised: 23 June, 2025 Accepted: 25 July, 2025

## Abstract

The present study investigated the effectiveness of ChatGPT and Grammarly as automated writing evaluation (AWE) tools in improving Iranian EFL learners' use of the article 'the'. As such, we selected 60 intermediate learners and divided them into three groups including two experimental groups that received ChatGPT and Grammarly feedbacks and a control group that was given teacher feedback. A pretest and a posttest were administered before and after the intervention. After we ran a one-way ANOVA, the results indicated a statistically significant difference among the groups, with the Grammarly group performing significantly better than the control group, though not significantly better than the ChatGPT group. Additionally, qualitative findings from semi-structured interviews revealed that the participants had positive perceptions of using the tools for bridging the gap between instruction and practice, providing immediate feedback, and enhancing motivation and engagement. However, they reported limitations such as limited availability, dependency, potential for plagiarism, and the need for digital literacy. These findings underscore the potential of Artificial Intelligence (AI) tools, specifically Grammarly as a supplementary aid in EFL contexts, particularly for helping learners improve their grammatical accuracy.

**Keywords**: Article "the", Artificial intelligence, Automated writing evaluation, ChatGPT, Grammarly.

## I | Introduction

One major factor contributing to students' poor writing skills is their inaccurate grammar use or lack of linguistic knowledge, particularly in academic writing. Recognizing this challenge, many universities offer English writing classes that focus on grammar instruction to prepare students for academic success and the job market. Given the increasing demand for high-quality writing in higher education, numerous studies have explored how technology can support language learning, especially in second-language (L2) writing. While tools like Microsoft Word can identify spelling and basic grammar errors, their capabilities are limited to highlighting issues and suggesting replacements without providing educational explanations. In contrast, advanced grammar checkers such as Grammarly, Ginger Software, SpellcheckPlus, and ChatGPT offer more detailed feedback, making them valuable tools for enhancing writing skills.

In the early 1990s, the use of grammar and spelling checkers in writing classes was not well-received. Grammar checkers at the time were limited to identifying spelling and basic language errors, without offering constructive feedback on content or organization. Hawisher et al. (1996) observed that "using grammar checkers resists meaningful change by using computers to reinforce older and often

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10.22034/jsllt.2025.22655.1064

conventional ways of thinking about learning" (p. 205). Additionally, technical shortcomings, such as inaccurate feedback and imperfect error detection, contributed to negative perceptions of these tools in language classrooms (Vernon, 2000). Nevertheless, the continuous development of grammar checkers and their integration into educational settings necessitates a reevaluation of their effectiveness in improving students' writing performance.

Articles are grammatical structures that pose significant challenges in EFL writing (Cahyani, 2011; Hasanah, 2011; Masduqi, 2011; Master, 2002). Since errors in article usage rarely hinder communication, many learners perceive the effort required to master them as disproportionate to the benefits (Ghofron & Rosyida, 2018; Yang, 2018). However, appropriate use of articles is a key indicator of writing proficiency, underscoring the importance of accuracy in writing. According to Sinclair (1991), article errors are readily noticeable to native English speakers, often revealing that the writer is not a native speaker. Errors with indefinite and definite articles are particularly common in EFL writing, as these articles are among the five most frequently used words in the English language (Sinclair, 1991). Therefore, it is essential to support EFL learners in mastering article usage, given its impact on writing quality (Master, 2002).

Over the past few decades, approaches to addressing writing errors, including article usage, have evolved significantly with advancements in technology. Innovations like podcasts and blogs have eliminited traditional limitations of time, place, and circumstance in writing education (Beach, 2017). Such technologies have shown the potential to not only positively influence EFL learning (Taylor & Gitsaki, 2003) but also promote favorable attitudes toward English language acquisition (Ngampornchai & Adams, 2016). The ongoing development of technology in the EFL context has further expanded opportunities for language skill development, particularly in writing. Among these, applications designed to enhance writing accuracy, such as ChatGPT and Grammarly, have gained prominence as effective tools.

The present study aims to compare the effectiveness of Grammarly and ChatGPT in improving Iranian EFL learners' use of the definite article 'the'. Additionally, it explores the perspectives of Iranian EFL learners regarding these tools as grammar checkers, thereby shedding light on their strengths and limitations in facilitating language learning.

## II. Review of the literature

As an essential skill in EFL teaching, writing has long been a challenging task for students and educators. It is widely accepted that writing plays an important role in language learning and development (Steinlen, 2018). However, many students within the Iranian education system demonstrate significant difficulties with academic writing. Observations indicate that many EFL university students struggle to write effectively in English (Vlack, 2009).

There are many factors that contribute to students' limited writing ability. Anderson et al. (2008) identify several common challenges in this area, including limited vocabulary knowledge, insufficient accuracy and fluency, unfamiliarity with the subject matter, inadequate use of effective writing strategies, and limited mastery of grammatical structures. Addressing these factors is key to improving students' writing proficiency and their overall language development.

### 2.1. Technology in education

The rapid development of technology has resulted in significant changes in many aspects of human life, with education being no exception. The advent of computers marks a revolutionary step that has changed teaching and learning practices. In the past, teaching and learning activities were done exclusively through face-to-face interactions, enabling direct engagement between teachers and learners (Qassemzadeh & Soleimani, 2016). In sharp contrast, contemporary learners—commonly characterized as "digital natives" or "the net generation" have been immersed in digital technology since childhood (Arteaga Sánchez, et al., 2014). In modern education, students are no longer tied to a physical classroom for learning. Many educational institutions now offer blended learning or fully online courses, allowing students to access content and participate in the learning process remotely. With digital devices such as smartphones and computers, students can easily submit their texts in an online form where grammar is assessed manually or automatically with the help of language tools (Schraudner, 2013).

The integration of technology in EFL teaching and learning has become an important research focus. Computer-assisted language learning (CALL) studies suggest that computer technology facilitates processes beneficial to second language acquisition (Teeler & Gray, 2000). This aligns with modern learner-centered approaches, where technology supports autonomy. Among these technologies, AI-powered tools like ChatGPT and Grammarly have emerged as particularly transformative for EFL learners. In addition to developing language skills, computer-assisted teaching improves students' communication abilities. This is especially valuable in EFL contexts, where authentic language exposure is often limited. Technology offers greater flexibility, variety, and convenience, making online learning diverse and adaptable (Azimi & Farahian, 2024). Such adaptability expands access to language education, particularly for underserved learners.

**2.2. ChatGPT**

AI is becoming an increasingly important part of various sectors, including higher education. AI applications now serve as essential tools for colleges and universities by providing personalized learning, automatic assessment, intelligent education systems, and teacher support (Wang et al., 2024). These tools help to reduce costs while improving learning outcomes.

AI-powered chatbots like ChatGPT represent AI-powered software applications designed to imitate human conversational interactions. These systems analyze the context of the conversation and create responses that are appropriate to the context. Chatbots are multipurpose tools that can answer a wide range of questions by being trained on an extensive linguistic dataset. Educational institutions at all levels from primary schools and universities to professional development programs would benefit from integrating chatbots like ChatGPT into their systems (Labadze et al., 2023).

While many educators and practitioners recognize the opportunities provided by tools like ChatGPT for enhancing learning and development, others raise concerns about their potential to undermine the core mission of education. These concerns include the impact on developing critical thinking and problem-solving skills, ensuring fairness in assessment, maintaining the value of educational credentials, and addressing inequalities in education (Zhai et al., 2024). Despite such debates, ChatGPT has experienced unprecedented consumer growth since its launch, with over 100 million active users (Biswas, 2023).

ChatGPT leverages AI and Natural Language Processing (NLP) to respond to user queries, generating human-like, coherent, and informative answers. It has garnered global attention for its ability to create well-organized and instructional responses (Slamet, 2024). However, careful evaluation of ChatGPT's impact on education is necessary to maximize its benefits while addressing potential challenges. A key concern regarding credibility is that, unlike search engines, which provide specific references or URLs for verification, ChatGPT-generated content lacks such traceable sources. For instance, when asked for academic references, ChatGPT may produce plausible-sounding but unverifiable citations (Gao et al., 2023), raising questions about credibility and transparency.

One of the most significant and controversial uses of ChatGPT is the generation of written contents in response to exam or essay prompts. The tool enables both educators and students to draft articles on any topic based on the provided input. It also offers suggestions to improve grammatical structures, clarity, and conciseness, helping users overcome writing barriers and providing fresh perspectives on various subjects. ChatGPT can effectively address multiple writing genres, including argumentative, narrative, and informational writing.

This capability could shift the focus of academic writing instructions away from traditional essay formats and toward innovative forms of expression, such as interactive presentations, videos, infographics, podcasts, blog entries, digital art, and other evolving media formats. These tools can help to develop research skills, and creative organization of ideas. However, AI-generated texts still require human review and editing, which demands subject knowledge and attention to details (Sardinha, 2024). AI is capable of producing content at a much faster rate; however, human oversight ensures accuracy and ethics, and an authentic voice of authorship, which remains a valued commodity in the context of academia even in an age of technology.

ChatGPT can also act as a writing coach or personal tutor. Students can receive immediate feedback from AI instead of waiting for teacher comments. This immediate feedback capability offers various benefits, including the opportunity to review and refine writing independently. For example, students can request

ChatGPT to evaluate and correct their work, enhancing their understanding of writing mechanics (Fereidouni & Farahian, 2024).

### 2.3. Grammarly

Grammarly is an autoresponder widely used in EFL writing classes. It is an online platform for proofreading that identifies grammatical errors and corrects spelling. Punctuation, word choice, synonyms, and verb forms are also suggested, and plagiarism is detected. Grammarly helps students improve the quality of their EFL writing by correcting common mistakes and providing options to increase clarity and accuracy.

Grammarly surpasses common proofreading tools by detecting not only surface-level errors (e.g., punctuation or spelling) but also more complex writing issues. It also explores fragmented sentences and suggests improvements in grammar structure and word usage. It helps users improve their use of nouns and provides many options for misspelled words. This functionality complements the efforts of teachers who use a variety of teaching methods to develop students' writing skills both online and offline, making it a versatile tool for EFL learners (Daniels & Leslie, 2013).

Teachers play a crucial role in providing feedback to enhance students' writing quality, with particular emphasis on grammar, structure, vocabulary, spelling, and word choice. Grammarly supports this process by helping educators systematically identify and analyze learner errors in grammar, vocabulary, and semantics. When combined with teacher feedback, Grammarly significantly contributes to improving both the accuracy and overall quality of student writing (Fereidouni & Farahian, 2024).

Using a tool like Grammarly does not just improve the teaching experience, but it also helps educators and researchers explore how AI-based software programs can support English language learning. Recognizing its influence, Fast Company (a leading business media brand focused on technology and innovation) named it Grammarly.

### 2.4. Grammarly vs. ChatGPT

Both Grammarly and ChatGPT are web-based tools that can evaluate and help to create written content. They provide suggestions for improving writing during composition or editing. From a broader perspective, both Grammarly and ChatGPT can create, rewrite, and summarize texts. Although both Grammarly and ChatGPT use advanced language processing technology, they serve different purposes in writing. Therefore, Grammarly and ChatGPT offer different approaches to improve EFL learners' grammar skills. Grammarly is specifically designed to detect and correct non-verbal grammar errors in real time and provide clear explanations and suggestions to improve writing accuracy (Shaikh, 2024). Its advanced grammar checking capabilities make it a reliable tool for learners who want to improve their grammar expertise (Ebadi et al., 2022). ChatGPT also functions as a conversational AI, generating human-like texts based on user prompts (Ray, 2023). While it can assist with grammar correction when explicitly instructed, it lacks the specialized focus on grammatical accuracy that Grammarly offers. ChatGPT's primary strength lies in generating contents and engaging in dialogues, rather than providing targeted grammar corrections (Li et al., 2024).

Overall, it is important to note that, although both tools are useful, they have different purposes. Grammarly acts as a digital proofreader. It focuses on making your writing error-free and more efficient, while ChatGPT serves as your creative partner.

## III. The present study

### 3.1. Background and objective

The emergence of AI-based technology has introduced a new dimension to research on writing improvement strategies. While much research has focused on traditional approaches, there remains significant potential to explore these advanced tools. Investigating their use could give EFL learners an advantage over peers who rely solely on traditional methods, potentially enabling a shift toward more effective teaching approaches. Learners and educators must embrace technological advancements and integrate them into the learning process. AI-based tools like Grammarly and ChatGPT have the potential to improve the use of appropriate articles in writing. Over the past decade, there has been significant research on the application of artificial intelligence in education. For example, Ebadi et al. (2022) studied the effects of Grammarly on EFL writing. Their findings indicated that Grammarly improved the correct usage of articles in the writings of Iranian learners. Similarly, Abbas et al. (2023)

examined the integration of ChatGPT as an AI tool for education and research. The study revealed that most participants were aware of and reasonably familiar with ChatGPT. They perceived it as a valuable, user-friendly resource for enhancing teaching and research, and the findings suggested that incorporating ChatGPT positively influenced the quality of education and research outcomes.

Koltovskaia (2020) conducted a multiple case study to examine how ESL college students engaged with Grammarly feedback, focusing on behavioral, cognitive, and emotional aspects during the revision of their final drafts. The results highlighted that Grammarly and similar automated tools could be beneficial for writing assessments in L2 classrooms, provided that students have a foundational understanding of writing principles. Incorporating these tools as supplementary resources in the curriculum helps to address lower-order writing issues, such as punctuation accuracy. Similarly, Qassemzadeh and Soleimani (2016) found that the feedback provided through Grammarly, in conjunction with the teacher feedback, significantly improved the learning of passive structures among Iranian EFL university students. Ghufron and Rosyida (2018) showed that Grammarly significantly improved the writing abilities of EFL learners, especially regarding vocabulary usage, grammar, and writing mechanics. Likewise, Alshayban (2024) discovered that Grammarly's comprehensive explanations and corrective feedback helped learners understand their mistakes better, promoting improved retention and application of grammatical rules.

Although some effects of AI tools on EFL writing have been extensively studied, no research has yet compared the impact of Grammarly and ChatGPT on Iranian EFL learners' use of articles. This gap in the literature led to the formulation of the following research questions:

1) Which instructional approach (using ChatGPT, Grammarly, or the conventional method) is more effective in improving the use of the article 'the' among Iranian intermediate EFL learners?

2) What are the perceptions of Iranian intermediate EFL learners regarding the use of ChatGPT and Grammarly as online tools?

### 3.2. Design

In order to maximize the benefits of both quantitative and qualitative data gathering and the integration of the two, the researcher used a mixed design (Riazi & Candlin, 2014). As a result, a pretest-posttest design was employed in the quantitative phase of the study to ascertain the effect of the feedback generated by Grammarly and the feedback generated by ChatGPT on their writing performance in the use of the article 'the'. In the qualitative phase, semi-structured interviews were conducted to explore learners' perceptions and experiences with Grammarly and ChatGPT as feedback tools. This approach enabled the researchers to gather rich detailed insights into the learners' attitudes, and challenges associated with using AI-driven tools for language learning.

### 3.3. Participants

The study involved 100 Iranian male and female EFL learners from four language institutes in Kermanshah, western Iran. The participants were all native Persian speakers aged 18 to 32 years and represented diverse socioeconomic backgrounds. To ensure **equivalent** language proficiency, all the participants then took the DIALANG test, and 60 learners who scored at the intermediate level (B1 to B2) were selected for the study before being randomly assigned to the conditions. The 60 participants were divided into three groups, two experimental groups and one control group. Additionally, semi-structured interviews were conducted with 15 participants randomly chosen from the experimental group to gain deeper insights into their perceptions of the tools used in the study.

### 3.4. Instruments

#### 3.4.1. The DIALANG test

The DIALANG test, being an online tool for evaluating language proficiency, was utilized to assess the participants' proficiency level. This test evaluates all the aspects of language ability and provides results classified from B1 to B2. According to the results of the test for the participants in this study, they were found to be at either the B1 or B2 proficiency level.

The test was administered in a controlled computer lab setting at each of the four participating language institutes. Under the supervision of trained proctors, the participants completed the test individually on institute computers during scheduled sessions. The testing environment ensured reliable internet access and minimized distractions.

### 3.4.2. English article pretest and posttest

A pretest and a posttest were designed to evaluate the participants' knowledge of the English article 'the' usage before and after the intervention. These researcher-developed tests assessed various aspects of the article use, including definiteness, specificity, and contextual application. The test was developed based on the *Top-Notch* series, which was used as the instructional material in the language institutes. The tests were piloted to ensure their reliability and validity prior to their administration.

The development of the pretest and posttest involved consultation with experienced university faculty members, who provided feedback on clarity, complexity, and usability. Their comments and suggestions were incorporated to revise the tests for better alignment with the study objectives. For the content validity, the test items were reviewed by four expert judges specializing in English language teaching and testing.

The English Article pretest and posttest consisted of 30 multiple-choice questions designed to determine the learners' understanding and use of the definite article 'the'. The subcomponents of the test focused on various aspects of article use, in particular definiteness, specificity, and contextual application. The topics selected were informed by the instructional content and the learning outcomes of the study. The test was focused on contexts where the definite article 'the' was necessary; it did not examine a full range of article use (i.e., a/an vs. the vs. zero article). While the test did address article use in contextual settings, it did not explicitly distinguish or focus on anaphoric or generic contexts. However, some items may have incidentally involved anaphoric reference due to the nature of article usage in discourse. Generic contexts were not a primary focus of the assessment. The same test was administered for both the pretest and posttest to ensure consistency in measuring changes in the participants' knowledge and use of the article 'the'.

The pretest/posttest focused primarily on *definiteness* (e.g., "I saw ___ moon last night") and *specificity* (e.g., "She opened ___ door" [shared knowledge] vs. "She needs a door" [non-specific]) (Appendix, B). While the test included discourse-based items (e.g., "A man entered. ___ man wore a hat"), *anaphoric* and *generic* contexts (e.g., "___ tiger is endangered") were not systematically distinguished. To ensure the robustness of the assessment instrument, multiple reliability measures were implemented. The test showed good reliability in the form of strong internal consistency (Cronbach's $\alpha = 0.82$) based on pilot testing with 30 students of similar proficiency levels. Inter-rater reliability was established by two raters independently rating 20% of students' responses, with almost perfect agreement (Cohen's $\varkappa = 0.89$). Content validity was established by having experts review the instrument; four ELT experts reviewed the test items for relevance and appropriateness, returning an excellent Content Validity Index (CVI) of 0.91. Overall, these reliability measures support the instrument as a reliable measure of learners' use of articles.

**Semi-structured interviews**

In order to gather more comprehensive insights about Grammarly and ChatGPT, after the post-study questionnaire, we invited 16 students to take part in voluntary semi-structured individual interviews. By utilizing semi-structured interviews, both researchers and participants could address unexpected issues that arose during the discussion with greater freedom and flexibility (Merriam & Tisdell, 2015). The interviews were conducted in Farsi (the participants' native language) to minimize any misunderstanding and were audio-recorded with the respondents' consent, then transcribed word for word. The confidentiality of the participants and the anonymity of the data were assured as well. The data collection methods allowed us to utilize triangulation, thereby enhancing the internal validity of the study (Merriam & Tisdell, 2015). Furthermore, these interviews also gave the researcher the chance to engage in member checking to verify the responses. This process is considered by Merriam (1997) as a crucial step in establishing the trustworthiness of qualitative research. Lincoln and Guba (1985) assert that member checking fosters a level of confidence that leads to mutual understanding and shared values between the researcher and the participants.

The interview (Appendix A) comprised questions about how the learners experienced Grammarly and ChatGPT, their views on the usefulness of the tools, the problems they faced (such as working with the tools or lacking digital skills, and their overreliance on them), and their opinions about the influence of these tools on motivation, engagement, and grammatical development, especially with the article 'the'.

### 3.4.3. Procedure

To conduct the study, 60 out of 100 Iranian intermediate EFL learners were selected based on their DIALANG scores, and the participants were then randomly assigned to three equal groups, including two experimental groups and one control group. Before intervention, the process began with administering a pre-semester test to assess the participants' knowledge of the English article 'the'. The pre-test included 30 multiple-choice questions, and the students were given 30 minutes to complete it. Then, the interventions began.

### 3.4.5. Intervention

Following the pretest, there was an intervention phase to start.

**The first experimental group (ChatGPT feedback):**

The EFL learners in this group used ChatGPT, an AI-powered conversational model, for feedback on their writing. Accounts were created for each participant, and their writing tasks were uploaded to ChatGPT, which identified and annotated the article errors. The annotated tasks, along with ChatGPT's suggestions, were shared with the participants in PDF format. Similar to the first group, the students worked on two writing tasks per session and revised their errors based on ChatGPT's feedback.

**The second experimental group (Grammarly feedback):**

The participants in this group were instructed to use Grammarly, a grammar and style-focused writing assistant, to enhance their use of the article 'the' in English writing. During each session, the learners completed two writing tasks. Their essays were uploaded to Grammarly by the instructor, who was the first researcher, and Grammarly highlighted the errors, including those related to article usage. The highlighted sections were provided to the participants, who were encouraged to revise their work based on this feedback. If the students were unable to correct their errors, the instructor demonstrated the correct forms and provided explanations using Grammarly. A holistic score was assigned after the students submitted their revised drafts.

**The control group (Teacher feedback):**

The control group participants wrote essays during each session, but they did not receive feedback from Grammarly or ChatGPT. Instead, their essays were corrected by the instructor, who provided feedback directly. This traditional feedback approach ensured consistency within the control group.

It should be noted that all the participants were informed that their writing performance would be recorded for research purposes, but they were not explicitly told the purpose of the study so as to mitigate the Hawthorne effect (Seliger & Shohamy, 1989).

### 3.4.6. Posttest and interviews

At the end of the intervention, all the participants completed a posttest identical in format to the pretest, which measured changes in their use of the definite article 'the'. Additionally, 16 participants were voluntarily selected for semi-structured interviews to evaluate their perceptions of the quality and effectiveness of Grammarly and ChatGPT feedback.

### 3.4.7. Data analysis

In line with the purpose of this study, the data obtained from the proficiency test, pretest, and posttest were analyzed using SPSS version 24.0. Descriptive statistics, including the mean, standard deviation, and normality of distribution for the pretest and posttest scores, were calculated to provide an overview of the data and ensure its suitability for further statistical analysis.

To assess the normality of the data, the Kolmogorov-Smirnov test was conducted. Based on the results, a one-way ANOVA was performed to compare the scores across the three groups (ChatGPT, Grammarly, and control group) in the pretest and posttest. This analysis helped to determine the effectiveness of the interventions in improving the participants' use of the English article 'the'.

The second research question, which explored qualitative insights, was addressed through a systematic analysis of the interview data. This involved three key steps: transcription, coding, and content analysis. Coding, defined as the process of developing concepts from raw data, followed a structured approach adapted from Ary et al. (2014). The thematic analysis of the interview data was performed within the framework outlined by Cohen et al. (2007), ensuring a rigorous and detailed examination of the participants' perspectives.

## IV. Findings

### 4.1. Quantitative analysis

To ensure a homogeneous sample of participants, the DIALANG test was administered and analyzed. Based on the results, the participants whose scores fell within one standard deviation above and below the mean were selected as the main participants of the study (n = 60). These participants were then randomly divided into three equal groups: two experimental groups and one control group. The descriptive statistics for the pretest and posttest scores on the English article 'the' for the experimental groups are presented in Table 1. This analysis highlights the impact of the interventions on the participants' performance.

**Table 1.** The descriptive analysis of the first experimental group (ChatGPT)

| | N | Min. | Max. | Mean | Std. deviation |
|---|---|---|---|---|---|
| Pre | 20 | 7 | 19 | 11.59 | 2. 652 |
| Post | 20 | 11 | 25 | 13.24 | 3. 689 |
| N | 20 | | | | |

As shown in Table 1, the mean score of the first experimental group on the pretest is 11.59, and SD = 2.65. In addition, the posttest mean score of this experimental group is 13.24 with SD = 3.68. Furthermore, the results of the English Article (the) pretest and posttest of the second experimental group are presented in Table 2.

**Table 2.** The descriptive analysis of the second experimental group (Grammarly)

| | N | Min. | Max. | Mean | Std. deviation |
|---|---|---|---|---|---|
| Pre | 20 | 5 | 15 | 11.98 | 2.419 |
| Post | 20 | 10 | 16 | 13.88 | 1.255 |
| N | 20 | | | | |

As presented in Table 2, the mean of the second experimental group on the pretest is 11.98 with a standard deviation of 2.41, while the posttest of this group indicates a mean score of 13.88 with the standard deviation of 1.25. The descriptive analysis of the pretest and posttest of the control group is presented in Table 3.

**Table 3.** The descriptive analysis of the control group

| | N | Min. | Max. | Mean | Std. deviation |
|---|---|---|---|---|---|
| Pre | 20 | 6 | 16 | 11.02 | 2.179 |
| Post | 20 | 10 | 25 | 11.43 | 3.287 |
| N | 20 | | | | |

As illustrated in Table 3, the mean score of the control group on the pretest is 11.02 with the SD of 2.17. In addition, the mean score of the control group on the posttest is 11.43 with SD = 3.28. After the calculation of the descriptive statistics, to compare the performance of the three groups in the pretest and posttest, one-way ANOVA was conducted. Table 4 illustrates the results of the pretest.

**Table 4.** One-way ANOVA for the pretest

| | Sum of squares | df | Mean square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 9.228 | 2 | 4.614 | .785 | .461 |
| Within Groups | 335.174 | 57 | 5.880 | | |
| Total | 344.402 | 59 | | | |

According to Table 4, there is no significant difference among the three groups' pretest performance ($p > 0.05$ and $F = 0.78$). Then, their performance was calculated and compared after the treatments in the posttest. Table 5 presents the results.

**Table 5.** One -way ANOVA for the posttest

| | Sum of squares | df | Mean square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 59.486 | 2 | 29.743 | 4.415 | .017 |
| Within Groups | 377.228 | 56 | 6.736 | | |
| Total | 436.714 | 58 | | | |

Based on Table 5, there is a statistically significant difference among the three groups on the posttest, $F(2, 56) = 4.415$, $p = .017$, with a medium effect size ($\eta^2 = 0.136$). This shows that at least one group performed significantly differently from the others in their use of the article 'the'. In order to know which instruction showed the highest mean values and identify the difference between the groups, the post-hoc Scheffe test was conducted (Table 6).

**Table 6.** Post-hoc Scheffé test results for between-group comparisons

Scheffe

| (I) A | (J) A | Mean difference (I-J) | Std. error | Sig. | 95% confidence interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower bound | Upper bound |
| A. Control (teacher feedback) | B. (ChatGPT) | -1.67961 | .83147 | .140 | -3.7705 | .4113 |
| | C. (Grammarly) | -2.41711* | .83147 | .020 | -4.5080 | -.3262 |
| B. (ChatGPT) | A. Control (teacher feedback) | 1.67961 | .83147 | .140 | -.4113 | 3.7705 |
| | C. (Grammarly) | -.73750 | .82074 | .670 | -2.8014 | 1.3264 |
| C. (Grammarly) | A. Control (teacher feedback) | 2.41711* | .83147 | .020 | .3262 | 4.5080 |
| | B. (ChatGPT) | .73750 | .82074 | .670 | -1.3264 | 2.8014 |

Based on Table 5, a significant overall difference was found among the three groups ($p = .017$). However, the post hoc Scheffé analysis (Table 6) revealed that only the Grammarly group significantly outperformed the control group ($p = .020$). No significant difference was observed between the ChatGPT and control groups ($p = .140$), or between the Grammarly and ChatGPT groups ($p = .670$).

**4.2. Qualitative results**

One key benefit that the participants highlighted was the potential of AI tools such as Grammarly, ChatGPT, and others to bridge the gap between classroom teaching and individual practice. Learners appreciate the customized support these tools provide. This allows them to practice writing outside of structured lessons. This flexibility helps them engage and work on their weaknesses more effectively. In this regard one participant commented:

*ammarly allows me to get feedback all the time. Even if you're not in class, it was like having a teacher with me all the time helping me improve step by step.*

This highlights how AI tools can expand learning opportunities and strengthen writing skills beyond traditional teaching.

Another important benefit of AI tools like Grammarly and ChatGPT is their ability to provide immediate feedback on writing. The participants emphasized that immediate feedback helps to identify and correct errors in real time. This promotes learning and prevents mistakes from being repeated. This is different from traditional methods in which you may have to wait for feedback from the teacher. These tools allow learners to refine their writing and proceed with confidence instantly. One participant noted:

*When I make a mistake, Grammarly immediately shows me what's wrong. So I can correct and understand the errors immediately. A quick update would be very helpful.*

This immediacy promotes a more dynamic and responsive learning environment for EFL learners. Additionally, some participants emphasized the role of Grammarly and ChatGPT in boosting their motivation and engagement. This theme occurred frequently in the data. One participant shared:

*Using Grammarly keeps me motivated because I can instantly see my mistakes and improvements which makes me want to write more and better.*

Another participant commented on this:

*I like Grammarly because it is interactive. I received immediate feedback and I feel like I'm learning when I write.*

Additionally, some participants expressed the view that Grammarly and ChatGPT should be used as supplements or additions rather than as a standalone learning tool. In this regard, one participant explained:

*These tools are useful but they cannot replace teachers. It should be used in conjunction with traditional methods for best results.*

The participants also highlighted a notable limitation of AI tools like Grammarly and ChatGPT in Iran which is their limited availability and technical problems. This issue stems from restricted access due to geopolitical constraints, occasional technical issues, or the need for reliable and fast internet connectivity, which is not always accessible in all parts of the country. Many learners expressed their frustration with being unable to use these tools when they needed them the most, such as during late-night study sessions or periods of high academic demand. This is echoed in one participant's view who expressed her frustration:

*Sometimes I want to use Grammarly late at night when I'm studying, but the Internet is too slow or it doesn't work at all. It's really disappointing because I depend on it for the feedback in my writing.*

Some participants suggested that relying heavily on these tools may lead to a dependency that becomes problematic when the tools are unavailable. One participant succinctly expressed her frustration, stating:

*I've started to rely on the AI tool so much that when it's not available, I feel stuck and unsure about my writing.*

Another notable shortcoming highlighted by the participants was the ability of AI tools like ChatGPT and Grammarly to encourage unintentional plagiarism. Some participants expressed concern that, although these tools help to improve grammar and generate ideas, they also lead students to inappropriately rely too much on pre-written or AI-suggested content. This overdependence risks undermining originality and ethical writing practices. One participant stated:

*ChatGPT and Grammarly are useful, but I worry that some students might just copy the suggestions word-for-word without thinking about their own ideas or giving credit.*

This concern underscores the need for educators to emphasize proper usage of these tools and instill strong academic integrity principles in students.

Some participants also noted that using AI tools like Grammarly and ChatGPT effectively requires a certain level of digital literacy, which can be a challenge for some learners. Navigating these tools, understanding their functionalities, and interpreting their feedback demands familiarity with technology, which not all students possess. This limitation can create a barrier for learners who are less tech-savvy, potentially widening the gap in learning outcomes. One participant remarked:

*Sometimes it's hard to figure out how to use these tools properly, especially when they give suggestions that aren't clear. Not everyone knows how to handle that.*

This highlights the importance of providing guidance and training to ensure equitable access to the benefits of AI tools.

In sum, the themes generated after analyzing the transcribed interviews are summarized in Table 7.

**Table 7:** *Opinions of Iranian EFL learners about ChatGPT and Grammarly*

| | Categories | Themes | Examples |
|---|---|---|---|
| 1 | Positive opinions | A. Bridging the Gap between Instruction and Practice | "Grammarly feels like having a teacher by my side at all times, offering constant feedback and helping me improve step by step, even outside the classroom." |
| | | B. Immediate feedback | "I like how Grammarly and ChatGPT give corrections right away; it helps me fix mistakes quickly." |
| | | C. Motivation and engagement | "Using ChatGPT feels like having a real conversation, which makes learning fun and keeps me interested." |
| | | D. As supplements or add-ons | "These tools are helpful, but they work best when combined with what teachers provide. |
| 2 | Negative opinions | A. Limited availability and technical problems | "Sometimes the app wouldn't load properly, or it took too long to give feedback. It was frustrating and interrupted my learning." |
| | | B. Dependency | "I feel like I depend on it too much now. When I don't use it, I second-guess everything I write." |
| | | C. Plagiarism | "ChatGPT and Grammarly are helpful, but I'm concerned that some students might simply copy the suggestions directly instead of developing their own thoughts and ideas." |
| | | D. Requires some digital literacy | "Using ChatGPT and Grammarly requires some digital skills. Not all students are familiar with how to use these tools effectively, so it can be a bit challenging for them." |

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## V. Discussion

The aim of this study was to examine the comparative effectiveness of Grammarly and ChatGPT in improving Iranian-intermediate EFL learners' use of the article 'the' and to explore students' perceptions of these tools. The findings on both research questions are discussed below.

The quantitative results revealed that the Grammarly group significantly outperformed the control group but did not significantly differ from the ChatGPT group in improving learners' use of the definite article 'the'. Furthermore, the ChatGPT group showed higher mean scores than the control group, although this difference was not statistically significant. These findings corroborate previous studies (see Son et al., 2023) that highlight the utility of AWE tools and AI-driven applications in language learning.

Grammarly's superior performance aligns with research emphasizing its targeted feedback on grammatical accuracy. For example, Ghufron and Rosyida (2018) demonstrated that Grammarly effectively enhanced the writing skills of EFL learners, particularly in the case of vocabulary usage (diction), language use (grammar), and mechanics of writing (spelling and punctuation). Similarly, Alshayban (2024) found that Grammarly's detailed explanations and corrective suggestions provided learners with a clear understanding of their errors, fostering better retention and application of grammatical rules. In the current study, these features may have contributed to the learners' improved mastery of the definite article.

The observed differences between Grammarly and ChatGPT can be attributed to the tools' distinct design and functionalities (Wu et al., 2023). Grammarly's explicit focus on grammar correction allows for targeted learning of grammatical rules, whereas ChatGPT offers broader conversational support that may benefit overall language competence but lacks specificity in addressing grammatical details. While the difference between the two tools was not statistically significant in this study, their design purposes may still influence how learners interact with them and perceive their usefulness. In sum, Shaikh (2024) suggests that Grammarly should be utilized for identifying errors and enhancing the structure of sentences and ChatGPT for content generation, paraphrasing, or assistance with research since it helps the user receive suggestions for grammar, spelling, and punctuation as he/she writes. To be more specific, it seems that Grammarly is more interactive since it often requires extra input from users to determine whether to accept proposed edits in their essays or assignments. Therefore, in line with Staff's (2024) suggestion, it is important to collaborate with Grammarly to navigate grammar-related choices. However, further research can explore the potential of combining both tools to address different aspects of language learning.

The qualitative findings from the semi-structured interviews provided further insights into learners' perceptions of Grammarly and ChatGPT as online tools for language learning. Several themes emerged, revealing both positive and negative aspects of these tools.

Most participants acknowledged the usefulness of Grammarly and ChatGPT in enhancing their grammatical proficiency, particularly for subskills such as the use of articles. As one participant stated, these tools are valuable supplements for classroom tasks and help to improve specific language skills. This perception aligns with research by Alharbi (2024), which emphasized the supplementary role of automated writing evaluation (AWE) tools in EFL learning environments.

The participants also highlighted the motivational aspects of these tools, noting features that promote engagement and maintain interest in learning. For instance, the immediate feedback provided by Grammarly and ChatGPT was consistently praised for its role in reinforcing correct language use and supporting learner autonomy. These findings align with Zheng et al. (2024), who identified immediate feedback as a key feature of effective language learning tools. Additionally, the participants valued the tools' ability to bridge the gap between instruction and practice by offering round-the-clock support, allowing learners to continue improving outside of the classroom. These benefits are consistent with the findings of Fan and Ma (2022), who reported that AWE tools significantly enhance learner motivation and engagement by providing constant opportunities for practice and improvement.

Despite their positive attitudes, the interviewees expressed reservations about the limitations of Grammarly and ChatGPT as standalone pedagogical tools. Many argued that these tools should complement traditional methods rather than replacing them, as they are perceived to address limited aspects of language learning. Such a view is partially in line with Fereidouni and Farahian (2024) who reported that the combination of ChatGPT and teacher feedback greatly enhanced the writing performance of EFL learners. This perspective is also supported by Mohammad (2024) and Mun (2024), who cautioned against over-reliance on technology-driven tools, noting that excessive dependence on such tools could hinder students' development of independent writing skills.

Another significant concern was the inconsistent availability of these tools due to technical issues and infrastructural constraints in Iran. The participants noted that unreliable internet access, geopolitical restrictions, and occasional technical problems disrupted their ability to use Grammarly and ChatGPT effectively. These findings align with those of Hedayati and Marandi (2022) and Salehi and Largani (2020), who highlighted similar challenges faced by Iranian EFL learners in integrating digital tools into their studies. Moreover, Zhang (2024) found that limited access to AI-based platforms negatively impacts learners' ability to maintain consistent study habits, a limitation echoed by participants in this study.

The participants also expressed concern about the possibility of over-reliance on these tools which can create dependency and reduce opportunities for independent learning. This is consistent with the literature (Mohamed, 2024; Mun, 2024; Zhai et al., 2024) which warns that excessive reliance on technology-driven tools can hinder students' ability to develop independent writing skills. In addition, the need for digital literacy was also highlighted as a barrier, as some students had difficulty using the tools effectively. These limitations highlight the importance of digital literacy training and equitable access to these technologies.

## VI. Conclusion and implications

This study highlights the potential of AI tools like ChatGPT and Grammarly in improving Iranian EFL learners' use of the article 'the' while also shedding light on learners' perceptions of these tools. The findings underscore the importance of integrating AI technology into language instruction to enhance grammar learning, while addressing challenges such as accessibility and over-reliance. The comparative effectiveness of ChatGPT and Grammarly suggests that such AI tools could be integrated into EFL instruction to enhance learners' grammatical accuracy, particularly in mastering articles like *the*. Teachers can design hybrid lesson plans in which students use ChatGPT for contextualized, conversational practice and Grammarly for detailed feedback on specific errors. This dual approach would complement traditional methods, offering a more holistic grammar learning experience.

The findings of this study have several important implications for EFL education. Educators should receive specific training to effectively integrate ChatGPT and Grammarly, and other AI tools into their

teaching approaches. This kind of training should address the strengths of these tools, such as the ability to provide immediate feedback and bridge the gap between teaching and practice, as well as limitations like potential dependency and limited effectiveness for subtle grammatical errors, as in the use of articles. Teachers should be equipped to guide learners in using these tools as supplements to traditional teaching methods instead of replacing them.

The study also underscores the need to address infrastructural barriers, particularly in contexts like Iran, where restricted and inconsistent access to AI tools remains a significant challenge. Policymakers should prioritize improving internet infrastructure and exploring strategies to ensure reliable access to these platforms. Efforts to increase digital literacy among both educators and learners are equally critical to ensure the effective use of these technologies.

Finally, the study highlights the potential for further research into the long-term impact of AI tools on learners' grammar acquisition and writing development. Future studies are needed to explore the comparative efficacy of these tools in different cultural, technological, and educational contexts. Such research would provide valuable insights into the global applicability of AI tools and help to optimize their role in language education.

This study has some limitations like any other study. First, because it focuses on Iranian EFL learners, the results may not be applicable to those from different cultural or linguistic backgrounds. Second, due to the internet restrictions and political issues, access to ChatGPT and other AI tools in Iran is limited. This may affect how participants use and view these tools. The study also used self-reported data for qualitative analysis that may introduce bias. Third, while the test instrument measured important aspects of article use (e.g., definiteness and specificity), it also did not consistently distinguish between anaphoric contexts (e.g., referential 'the' in a discourse) or generic contexts (e.g., zero article with plural nouns), which may affect the extent to which the results can be generalized beyond the context of article use in the test instrument. Future studies could do this by including focused item types based on the differing grammatical functions. Finally, the duration of the intervention of this study was relatively short, limiting the ability to assess the long-term effects of using ChatGPT and Grammarly in teaching grammar. Future research should attempt to address these limitations by including learners from diverse backgrounds, varying participants from different proficiency levels, and extending the study durations.

## AUTHORS' BIOGRAPHIES

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## REFERENCES

Abbas, S., Ehsan, M., Akbar, G., Rehman, A., & Bibi, A. (2023). Effects of ChatGPT integration as an Artificial Intelligence tool for education and research: *PalArch's Journal of Archaeology of Egypt/Egyptology (PJAEE), 20* (2),1993-2017.

Alharbi, W. (2023). AI in the foreign language classroom: A pedagogical overview of automated writing assistance tools. *Education Research International.* https://doi.org/10.1155/2023/4253331

Alshayban, A. (2024). Comparative study of the error-detection accuracy of Grammarly and Microsoft Word editor in formal English writing. *World Journal of English Language, 14*(5), 535-544.

Anderson, C. A., Sakamoto, A., Gentile, D. A., Ihori, N., Shibuya, A., Yukawa, S. & Kobayashi, K. (2008). Longitudinal effects of violent video Grammarly and ChatGPT on aggression in Japan and the United States. *Pediatrics, 122*(5), 1067-1072.

Arteaga Sánchez, R., Cortijo, V. & Javed, U. (2014). Students' perceptions of Facebook for academic purposes. *Computers & Education, 70*, 138-149.

Ary, D., Jacobs, L.C., Sorensen, C.K. & Walker, D. (2014). *Introduction to research in education* (9th Ed). Wadsworth: London.

Azimi, M., & Farahian, M. (2024). Exploring the effect of corrective feedback through QuillBot on EFL learners' writing skill. *Technology Assisted Language Education,2*(3),74-1.

Beach, E. B. (2017). A scoping review of rapid review methods. *BMC Med, 13*, 224.

Biswas, S. (2023). ChatGPT and the future of medical writing. *Radiology, 307*(2), e223312. https://doi.org/10.1148/radiol.223312

Cohen, D. B., Nelson, B. C., Chang, H. Y., Martinez-Garza, M., Slack, K., & D'Angelo, C. M. (2007). Exploring Newtonian mechanics in a conceptually-integrated digital Grammarly and ChatGPT: Comparison of learning and affective outcomes for students in Taiwan and the United States. *Computers & Education, 57*(3), 2178-2195.

Daniels, P., & Leslie, D. (2013). Grammar software ready for EFL writers? *OnCUE Journal, 9*(4),391–401.

Ebadi, S., Gholami, & Vakili, S. (2022). Investigating the effects of using Grammarly in EFL writing: The Case of articles. *Computers in the Schools*, *40*. 1-21. 10.1080/07380569.2022.2150067.

Fereidouni, P., & Farahian, M. (2024). Is ChatGPT a cure all? Demystifying the impact of using ChatGPT on EFL learners' writing skill. *Applied Linguistics Inquiry, 2*(1), 89-103.

Gao, C. A., Howard, F. M., Markov, N. S., et al. (2023). Comparing scientific abstracts generated by ChatGPT to original abstracts. *JAMA Network Open, 6*(5). https://doi.org/10.1001/jamanetworkopen.2023.15855

Ghofron, B. & Rosyida, T. (2018). A new frontier: AI and ancient language pedagogy. *The Journal of Classics Teaching, 1*-19. https://doi.org/10.1017/S2058631023000430

Ghufron, M. A., & Rosyida, F. (2018). The role of grammarly in assessing English as a Foreign Language (EFL) writing. *Lingua Cultura, 12*(4), 395 https://doi.org/10.21512/lc.v12i4.4582

Hasanah, E. (2011). Academic integrity considerations of AI large language models in the post pandemic era: ChatGPT and beyond. *Journal of University Teaching & Learning Practice, 20*(2), 1-24.

Hawisher, R. Orrù, G., Piarulli, A., Conversano, C., & Gemignani, A. (1996). Human-like problem-solving abilities in large language models. *Frontiers in Artificial Intelligence, 6*, 1199350. https://doi.org/10.3389/frai.2023.1199350

Koltovskaia, S. (2020). Student engagement with automated written corrective feedback (AWCF) provided by Grammarly: A multiple case study. *Assessing Writing, 44*. https://doi.org/10.1016/j.asw.2020.10045

Labadze, L., Grigolia, M. & Machaidze, L. (2023). Role of AI chatbots in education: Systematic literature review. *Int J Educ Technol High Educ 20*, 56. https://doi.org/10.1186/s41239-023-00426-1

Li, J., Huang, J., Wu, W. Whipple, P.B. (2024). Evaluating the role of ChatGPT in enhancing EFL writing assessments in classroom settings: A preliminary investigation. *Humanit Soc Sci Commun 11*. https://doi.org/10.1057/s41599-024-03755-2

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.

Masduqi, R. (2011). Exploring the potential of using an AI language model for automated essay scoring. *Research Methods in Applied Linguistics, 2*(2). https://doi.org/10.1016/j.rmal.2023.100050

Master, E. (2002). Empowering Southeast Asian English language teachers to thrive in the age of Artificial Intelligence (AI). TEIS News: *The Newsletter of the Teacher Educator Interest Section*. Retrieved from https://my.tesol.org/news/717935

Mehta, S. R., & Al-Mahrooqi, R. (2015). Can thinking be taught? Linking critical thinking and writing in an EFL context. *RELC Journal, 46*(1), 23-36. https://doi.org/10.1177/0033688214555356

Merriam, S. B. (1997). *Qualitative research and case study applications in education*. Jossey-Bass Publishers.

Merriam, S., & Tisdell, E. (2015). *Qualitative research* (4th ed.). Wiley.

Ngampornchai, R., & Adams, E. (2016). Exploring the dimensions of ChatGPT in English language learning: A global perspective. *Library Hi Tech. Advance online publication*. https://doi.org/10.1108/LHT-05-2023-0200

Qassemzadeh, A., & Soleimani, H. (2016). The impact of feedback provision by Grammarly software and teachers on learning passive structures by Iranian EFL learners. Theory and *Practice in Language Studies,6* (9),1884–1894. doi:http://dx.doi.org/10.17507/tpls.0609.23

Ray, P.P. (2023). ChatGPT: A comprehensive review on background, applications, key challenges, bias, ethics, limitations and future scope. *Internet of Things and Cyber-Physical Systems, 3,* 121-154.

Riazi, A., & Candlin, C. (2014). Mixed-methods research in language teaching and learning: Opportunities, issues, and challenges. *Language Teaching, 47*(2), 135–173. doi:10.1017/ S0261444813000505

Sardinha, T.B. (2024). AI-generated vs human-authored texts: A multidimensional comparison. *Applied Corpus Linguistics, 4*(1). https://doi.org/10.1016/j.acorp.2023.100083

Schraudner, M. (2013). *The online teacher's assistant: Using automated correction programs to supplement learning and lesson planning.* Asia University Press.

Seliger, H. W., & Shohamy, E. (1989). *Second language research methods*. Oxford University Press.

Shaikh, E. (2024). *Grammarly vs ChatGPT: Which one is better?* Retrieved from https://www.demandsage.com/chatgpt-vs-grammarly

Slamet, J. (2024). Potential of ChatGPT as a digital language learning assistant: EFL teachers' and students' perceptions. *Discov Artif Intell, 4*, 46. https://doi.org/10.1007/s44163-024-00143-2

Son, J.-B., Ružić, N. K., & Philpott, A. (2023). Artificial intelligence technologies and applications for language learning and teaching. *Journal of China Computer-Assisted Language Learning.* https://doi.org/10.1515/jccall-2023-0015

Sinclair, J. M. (1991). *Corpus, concordance, collocation*. Oxford University Press

Staff, C. (2024). *Grammarly vs. ChatGPT: Which one is best?* Retrieved from https://www.coursera.org/articles/grammarly-vs-chatgpt

Steinlen, R. (2018). From human writing to artificial intelligence generated text: examining the prospects and potential threats of ChatGPT in academic writing. *Biology of Sport, 40*(2), 615-622.

Taylor, T. & Gitsaki, E. (2003). ChatGPT: Friend or foe? *The Lancet: Digital Health, 5*(3), e102. https://doi.org/10.1016/S2589-7500(23)00023-7

Teeler, D. & Gray, P. (2000). *How to use the Internet in ELT*? Pearson Education Limited.

Vernon, R. (2000). Large language models in education: A focus on the complementary relationship between human teachers. *Education and Information Technologies. 28*, 15873–15892. https://doi.org/10.1007/s10639-023-11834-1

Vlack, E. (2009). A systematic review of research on speech-recognition chatbots for language learning: Implications for future directions in the era of large language models. *Interactive Learning Environments.* https://doi.org/10.1080/10494820.2023.2204343

Wang, X., Xu, X., Zhang, Y., Hao, S., & Weng, J. (2024). Exploring the impact of artificial intelligence application in personalized learning environments: Thematic analysis of undergraduates' perceptions in China. *Humanit Soc Sci Commun 11*. https://doi.org/10.1057/s41599-024-04168-x

Wu, H., Wang, W., Wan, Y., Jiao, W., & Lyu, M. (2023). *ChatGPT or Grammarly? Evaluating ChatGPT on grammatical error correction benchmark*. Retrieved from https://arxiv.org/abs/2303.13648

Yang, E. (2018). ChatGPT for language teaching and learning. *RELC Journal, 54*(2), 537-550. https://doi.org/10.1177/00336882231162868

Zhang, L. (2024). Benefits and challenges in implementing artificial intelligence from Chiense EFL primary school teachers' attitude and perception. *Global and Local Distance Education.,10*(2),48-67.

Zhai, C., Wibowo, S. & Li, L.D. (2024). The effects of over-reliance on AI dialogue systems on students' cognitive abilities: a systematic review. *Smart Learn. Environ. 11*(28). https://doi.org/10.1186/s40561-024-00316-7

Zheng, L., Fan, Y., Chen, B., Huang, z., Lei, G., & Long, M. (2024). An AI-enabled feedback-feedforward approach to promoting online collaborative learning. *Educ Inf Technol* 29, 11385–11406.

**Appendix A**

**The Interview Guide**

1. How did Grammarly or ChatGPT help to bridge the gap between instruction and practice?
2. What was your experience with the immediate feedback provided by these tools?
3. Did using the tools increase your motivation or engagement in writing?
4. In your opinion, should these tools be used alone or with teacher support?
5. Did you experience any issues with access or availability of the tools?
6. Do you feel you've become dependent on Grammarly or ChatGPT?
7. Were you concerned about plagiarism when using these tools?
8. Did you face any challenges using the tools due to digital skills?

**Appendix B**

**Sample Items from the English Article Test**

**Instructions**: Choose *the*, *a/an*, or *Ø* (no article) for each blank.

1. **Definiteness** (Unique Referent):
   - "Look at ___ sky! It's so blue today." (*Correct: the*)
   - "She wants to buy ___ car." (*Context: any car; correct: a*)
2. **Specificity** (Shared Knowledge):
   - "I talked to ___ doctor you recommended." (*Correct: the*)
   - "He needs ___ new phone." (*Context: unspecified; correct: a*)
3. **Discourse-Based (Anaphoric)**:
   - "A woman walked in. ___ woman was wearing a red coat." (*Correct: the*)
4. **Excluded Generic Contexts**:
   - *Not tested*: "___ elephants are large animals." (Generic plural)