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# Using ChatGPT to Enhance English Language Majors' Argumentative Writing Skills

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## **Abstract**

The purpose of this study was to investigate the effectiveness of using ChatGPT in enhancing English Majors' argumentative writing skills. The study employed the one-group pretest-posttest quasi – experimental design. The participants were 15 third year English department students enrolled in the Faculty of Education, Ain Shams University. The instruments of the study included an argumentative writing test and a scoring rubric. The argumentative writing test was pre administered to the study group. Then the study group was instructed through the proposed program using ChatGPT as a writing assistant tool. The argumentative writing test was then post administered to the study group. Quantitative data were collected from the participants' scores on the pre/ post argumentative writing test. Findings of the study revealed that using ChatGPT had a medium effect on developing participants' argumentative writing skills.

**Key words:** Artificial Intelligence, ChatGPT, Argumentative Writing Skills, English Majors, Egypt

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## **1. Introduction**

Argumentative writing is an important skill to accomplish success at school and work, as noted by Mitchell (2000). In EFL situations, mastering argumentative writing helps learners organize and express their ideas clearly. It also helps them participate in conversations and debates effectively. Additionally, it helps learners better understand different viewpoints. Therefore, argumentative writing is a skill that gains huge importance in EFL contexts.

Some of the reasons that make argumentative writing important for EFL learners in generals and English Majors in particular can be summarized as follows:

- Helping EFL learners express their point of views clearly (Hirsch et al., 2004).
- Helping EFL learners develop higher-order thinking skills, like critical analysis, logical reasoning, and decision-making abilities (Hirsch et al., 2004).
- Helping EFL learners understand academic content and concepts (Kuhn et al., 2008).
- Helping EFL learners identify problems, research their causes, and suggest feasible solutions in academic settings (Takagi, 2009).

Despite the great impact that argumentative writing skills have on students' personal lives and academic achievement, EFL learners encounter serious challenges when they are required to write argumentative essays. These challenges can be seen in several

aspects such as their struggle to back their points of views with strong support (Hsu et al., 2015), and not resorting to their personal experience as evidence to their views. Additionally, they don't usually use counterarguments and rebuttals effectively (Liu & Stapleton, 2020).

Furthermore, teachers often face big challenges when helping their learners develop their argumentative writing skills, which are very important in the learning process. (Dawson & Venville, 2010; Simon et al., 2006). One primary challenge lies in that argumentation itself is a complex skill and involves many directions. This makes it hard for learners to create clear and strong arguments. (Noroozi et al., 2016). Additionally, students frequently struggle with identifying reliable information sources, crafting generalizable claims. They also find it hard to use evidence effectively to support their ideas, and they have difficulty responding well to opposing arguments using evidence. (Liu et al., 2019).

Another issue affecting argumentative writing is the traditional way of teaching. It often focuses just on giving students information directly instead of encouraging them to think deeply and critically. This traditional approach makes it harder for learners to develop their critical thinking and argumentative writing skills. (Dehler & Welsh, 2014). Educators have been looking into different teaching methods to improve students' argumentative writing skills. Considering that argumentation is naturally interactive and happens in social situations, as noted by Osborne et al. (2004), numerous effective teaching strategies have been suggested.

To better face these challenges, artificial intelligence in general and chatbots in particular are highly recommended. They offer new and creative ways to create learning experience based on individual student needs. When AI is integrated into teaching, it opens the door to more personalized and flexible learning pathways, enabling teachers to design personalized learning that aligns with each learner's pace and preferences (Song & Wang, 2020).

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These chatbots are tools that are used to communicate with people in a way that closely feels like human conversation, either through speaking or writing. These tools can understand and answer many questions and commands. They respond according to the situation, providing personalized answers. (Huang et al., 2022).

ChatGPT is one of the examples of chatbots that quickly became popular online after it came out in November 2022. This AI-powered tool talks with users and can answer questions well. It admits its mistakes, corrects wrong information, and turns down inappropriate requests (ChatGPT, 2023). ChatGPT shows a remarkable ability to understand and use human language. It is advanced, responsive, and very practical (Haque et al., 2022). It's a language model that was developed by the OpenAI foundation with the purpose of generating texts that resemble those produced by humans.

ChatGPT has opened new possibilities for personalized learning. With ChatGPT, students can learn in a way that is tailored to their needs, allowing them to get rapid feedback, modify their learning path, and investigate information in a flexible manner. (Albdrani & Al-Shargabi, 2023).

Using ChatGPT in English as a Foreign Language may have good impact in enhancing argumentative writing skills among learners. ChatGPT, with its assistant language processing abilities, may work as an interactive platform for students to practice and reinforce their argumentative writing (OpenAI, 2021). EFL learners can develop their argumentative skills through the use of ChatGPT as it can provide them with an environment that enables them to discover several perspectives on a topic.

### **1.1 Context of the problem**

Argumentative writing has been slow to develop among English Majors who used to produce poor quality argumentative essays as many of those learners find it difficult to improve the skills needed for producing outstanding argumentative essays (Allen et al., 2019;

Noroozi et al., 2023). Research has uncovered several common challenges encountered by students, which include: a lack of a coherent structure in their essays (Hirose, 2003; Liu & Stapleton, 2014; Osborne, 2010); a deficiency in the necessary content knowledge required for formulating arguments and adhering to writing standards (Bacha, 2010; Barrot & Gabinete, 2021; Butler & Britt, 2011; El-Henawy et al., 2012); and a tendency to favor personal opinions while neglecting counterarguments or finding it challenging to dispute other viewpoints (Stapleton, 2001; Toplak et al., 2013).

As stated earlier, argumentative writing is very important to English Majors. Despite the importance of argumentative writing, English Majors still have big issues. This is evident from a number of research findings that confirmed that English Majors have serious issues and weaknesses regarding argumentative writing (Abbas & Herdi, 2018; Ka-Kan-Dee & Kaur, 2014; Lee & Deakin, 2016; Ozfidan & Mitchell, 2020; Peloghitis, 2017; Prananda, 2016; Rahmatunisa, 2014). Liu and Stapleton (2014) added that many students do not have efficient argumentative skills as most of them struggle to form arguments and counterarguments. In the same context, Fan and Chen (2021) asserted that writing argumentative essays is demanding and it does not develop effortlessly.

To better investigate the problem, the researcher conducted a pilot study on a number of 15 students enrolled in the third year of English department, Faculty of Education, Ain Shams University. The pilot study was in the form of an argumentative writing assignment where the participants were required to write an argumentative essay to the following prompt” The fast progress of technology has deeply affected different fields, including education. While some advocate for the integration of technology as a tool for enhancing learning experiences, others caution against its potential distractions and the widening of the digital divide”. Students’ task was to present a well-reasoned argument that either supports or opposes the use of technology in educational settings, using evidence to back up their claims. The targeted argumentative

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writing skills were to assess students' ability to formulate a clear and compelling thesis statement, evaluate skills in researching and selecting credible sources to support argument, measure proficiency in organizing the participants' ideas coherently, balancing arguments and counterarguments, and examine linguistic capabilities in presenting a persuasive and logically structured essay. The results of the pilot study revealed the following:

- Writing a clear Thesis Statement: 73% (11 out of 15) of the students struggled to write a good thesis statement. Many thesis statements were lacking a specific position on the role of technology in education.
- Researching and Selecting Credible Sources: 80% (12 out of 15) of students demonstrated difficulties in identifying and selecting credible sources to support their arguments.
- Organizing Ideas Coherently and Balancing Arguments: 87% (13 out of 15) of the students faced problems with organizing their essays coherently and effectively balancing arguments and counterarguments.
- Linguistic Proficiency and Logical Structure: 67% (10 out of 15) of the students had clear weaknesses in sentence structure. There were grammatical, vocabulary, and punctuation mistakes. Also, there were no clear topic sentences and cohesive devices in paragraphs.

This pilot study highlighted the need to improve the argumentative writing skills of EFL students.

In addition, the researcher supported these findings with in-depth, semi-structured interviews with three academic faculty members (assistant professors and lecturers) from the Faculty of Education, Ain Shams University. The primary aim was to collect data about the quality of argumentative essay writings by English major

students. Questions posed to the interviewees included inquiries like, "What is your assessment of the students' skills in writing argumentative essays?" and "Could you identify issues in these essays?". The analysis of the interviewees' responses came as follows:

- The students often present dual perspectives on controversial topics in their argumentative essays but fail to argue in favor of or against either viewpoint.
- Their arguments typically lack support and evidence.
- Critical and analytical thinking skills necessary for evaluating different viewpoints are generally missing among the students.
- There is a clear weakness in the depth of content knowledge reflected in the topics discussed.

### **1.2 Statement of the problem**

The problem of the research can be identified in "Third year English department students have poor mastery of the essential argumentative writing skills which may be attributed to the lack of feedback, individualized sort of learning they receive and traditional teaching practices." To better address this problem, the current research attempted to investigate the following main question:

"What is the effectiveness of using ChatGPT in developing third year English department students' argumentative writing skills?"

In attempting to answer the above question, the following sub-questions were also answered:

1. What are the argumentative writing skills that the 3<sup>rd</sup> year English department students should have?
2. What are the argumentative writing skills that those students already have?
3. What is the effectiveness of employing ChatGPT in enhancing the argumentative writing skills of third-year English department students?

### **1.3 Hypotheses of research**

The current study attempted to verify the hypotheses below.

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1- There is a statistically significant difference between the mean rank scores of the research group students in the pre-test and post-test of the argumentative writing test (total score), in favor of the post-test.

2- There is a statistically significant difference between the mean rank scores of the research group students in the pre-test and post-test for each subskill of the argumentative writing test, in favor of the post-test.

### 1.4 Purpose of the research

The aim of the current research was dual: Firstly, it sought to explore the impact of using ChatGPT on developing argumentative writing skills of third year English department students. Secondly, the study aimed to assess the extent to which the participants found ChatGPT beneficial in improving their argumentative writing skills.

### 1.5 Significance of the research

- **For Third Year English Department Students:** Providing them with ChatGPT that will help them improve their argumentative writing skills.
- **For EFL Educators:** Providing them with recommendations and insights that can be integrated into their instructional methods to improve English Majors' argumentative writing skills.
- **For Curriculum Planners and Designers:** Incorporating artificial intelligence applications and tools such as ChatGPT into the educational programs and materials focusing on improving argumentative writing skills in EFL contexts.
- **For EFL Researchers:** Seeking a comprehensive theoretical and evidence-based basis that can act as a foundation for further research in the domain of EFL argumentative writing.

### 1.6 Delimitations of research

**This study is delimited to:**

- A group of students in third year English department students, Faculty of Education, Ain Shams University was selected as the



participants of the study. This particular year group was chosen as they had some initial experience in essay writing, unlike the first two-year students.

- A number of argumentative writing skills that are necessary for third year English department students.
- A limited time to implement the program (10 weeks) during the first semester of the academic school year 2024-2025.

## **1.7 Definitions of Terms**

### **1.7.1 Argumentative writing**

Ozfidan and Mitchell (2022) defined argumentative writing as a distinctive form of writing that emphasizes taking a stance on a particular issue or topic. It involves expressing this stance and providing support with credible evidence to support the arguments made. This genre of writing not only presents a viewpoint but also backs it up with facts and logical reasoning, making it a critical skill in academic and professional settings. For Mitchell (2000), argumentative writing is the process that involves the practice of stating claims and then supporting them with evidence and logical reasoning. In this study, argumentative writing is defined as the ability of the third year English department students to write structured essays that reflect a clear position on a given topic. This position should be supported by relevant evidence, logical reasoning, counterargument acknowledgment, and appropriate rebuttals.

### **1.7.2 ChatGPT**

ChatGPT is an acronym for Chat Generative Pre-Trained Transformer. It is a chatbot designed by the U.S. based company OpenAI. Using advanced computing methods and an extensive database, it effectively links words and concepts to comprehend context-based prompts (Barrot, 2023). ChatGPT is an advanced Natural Language Processing (NLP) model. It is trained on extensive text data, which enables it to generate human-like language (Dempere et al., 2023). In this research, ChatGPT refers to the AI tool that is used as a personalized writing assistant that

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provides students with immediate feedback through 4 instructional stages: preparation, editing, proofreading, and reflection. The role of ChatGPT in this study was not to replace the instructor but to serve as a supportive digital partner that provided individualized feedback to develop students' argumentative writing performance.

### **2. Literature Review**

#### **2.1 Argumentative writing**

The concept of argumentative writing in academic literature is diverse and complex which makes it challenging to identify one definition. This diversity is the reason why researchers prefer to define argumentative writing through its components, goals, or functions. For instance, Wingate (2012) proposed a three-fold definition focusing on what students need to learn for effective argumentative writing: the examination and assessment of content, the development of a writer's position, and the clear expression of that stance.

Similarly, Concha and Paratore (2011) offered a definition that emphasizes the functional aspect of argumentative writing more than its essence. They defined argumentative writing as writing that adopts and supports a point of view. Also, other scholars have defined argumentative writing in terms of its purpose. Moore and MacArthur (2012) view it as writing that intends to persuade readers to change their thoughts or actions. These definitions highlight the significance of persuasion and the consideration of the audience as the main elements in argumentation.

According to Soles (2015), argumentative writing is that type of writing that aims to assert a stance on a controversial topic. These writings not only present significant proof to support an argument or thesis but also address and counter any opposing evidence to the stated argument or thesis. In the same context, Oshima and Hogue (1998) explained that an argumentative essay is a type of writing in which the writer either supports or opposes an issue, and provides reasons to reinforce their viewpoints. The primary aim is to persuade the reader of the soundness of the writer's viewpoint.

According to Murtadho (2021), argumentative writing is a vital skill in today's world. It involves the ability to think and present arguments in an effective way. An argument is essentially an effort by the writer to persuade the audience through logical reasoning, either through spoken word, written text, or public speaking. According to (van Laar, 2009), it's a specific type of communication that is defined by certain limits in time or space. At the heart of persuasive writing, an argument arises when the writer tries to convince their specific audience of something by using logical reasoning or evidence. Students practicing this form of writing must adopt a position on a topic and support it with data from credible sources as noted by Setyowati et al. (2017). Ferretti and De La Paz (2011) also pointed out the importance of preparing students for a modern work environment that values their ability to write argumentatively. This includes the expectation for students to create and assess claims based on disciplinary methods and standards of evaluation while engaging with texts.

An argument is deeply linked with the concept of critical thinking, where it is understood as a collection of statements, with some used to support the acceptance of others, leading to a final assertion (Indrilla & Ciptaningrum, 2018). The objective of argumentative writing is to persuade the audience through the presentation of facts and reasoning in a manner that they find convincing or acceptable. For a piece of writing to be effective in persuading, the author needs to organize the information in a clear, systematic, and logical manner, aiming for a convincing end result (Fisher, 2018). It's widely believed that using metacognition, or thinking about one's own thinking, enhances the quality of an argument (Fisher, 2018). The persuasive elements in a piece of writing, which encourage the readers to agree with the conclusion, may differ in structure and substance. However, they typically include a series of statements positioned as justification for welcoming additional statements all created to convince the audience (Indrilla & Ciptaningrum, 2018; Setyowati et al., 2017).

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According to Toulmin (2003), there are five main components for argumentative writing. These five components are claim (taking a stance in a discussion), evidence or data (reason, proof, facts), Warrant (linking rules), backing (support of the warrant) and rebuttal (restrictions, specifications, and counterarguments)

The components of argumentative writing are interconnected. Mastering these components, from developing a clear thesis to effectively integrating evidence and engaging with counterarguments, is essential for academic success. As educators and students continue to sharpen these skills, the quality of academic discourse and critical thinking will improve, emphasizing the lasting importance of argumentative writing in education and beyond (Bean, 2014).

### **2.2 ChatGPT**

Artificial Intelligence (AI), which is a branch of computer science, was developed to enhance human productivity and ease various activities. AI enables computer systems, software, and robots to function and 'think' in human-like ways. AI resembles human intelligence via computer-generated simulations which are designed to imitate human functions. According to Maitri (2019), some systems use AI to automatically provide responses to human inquiries. The use of AI has gained widespread popularity in numerous sectors, particularly in the form of Chatbot technology, which is now essential. These software applications that use natural language processing (NLP) and deep learning facilitate text-based online chats (Dharani et al., 2020).

The advancement of AI has increasingly facilitated human-like interactions between computers and humans (Bozic et al., 2019). As a result, there's a growing number of chatbots designed to help in tasks like organizing work or reaching decision-making. These led chatbots to represent a significant technological breakthrough (Lalwani et al., 2018). These intelligent systems are being designed to use artificial intelligence (AI) and natural language processing

(NLP) algorithms, marking a significant step forward in the field (Fitria, 2023).

Furthermore, Chatbots, which function to produce interactive conversations, have become increasingly popular. These computer applications, also referred to as chatterbots or bots, are programmed to engage in intellectually conversations with one or more persons, either through text or audio (Falah & Syamsidar, 2021). Chatbots are the latest innovation aimed at creating communication between humans and computers (Nghie et al., 2019). Additionally, chatbots are being utilized to provide a variety of school, university, or college-related information, tailored to student needs (Patel et al., 2019).

ChatGPT is one example of these chatbots (Zhou et al., 2022). It was initiated by OpenAI, a company. This company started GPT-3 in 2020. This model generates text by analyzing billions of words from its training data and from understanding the relationships between words and phrases. (Fitria, 2023). ChatGPT is used in several disciplines. For example, in information technology and programming, programmers use it to interpret code; in companies, employees use it to write and translate documents. On the other hand, poets use it to write poems, movie scripts, etc. Teachers and educators use it in the field of education to help them prepare their lessons and generate classroom activities (Zhang et al., 2022).

In addition, ChatGPT is designed to deal with a big number of text-based tasks. Its capabilities range from responding to straightforward questions and inquiries to dealing with more complex challenges, such as writing essays and facilitating assistance in complicated discussions (Lund & Wang, 2023). While the main objective of ChatGPT was to imitate human dialogue, its capabilities extend far beyond that. The AI can generate original content, ranging from poems and stories to novels. Additionally, it can carry out several requests given to it (Firat, 2023).

In the field of language research, these chatbots including ChatGPT 3.5 and ChatGPT 4 have been particularly noted for their interactional capabilities. As highlighted by Jeon, Lee and Choi

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(2023), interactions with chatbots can closely mimic those with human counterparts. This similarity extends to the quality of student utterances in terms of linguistic complexity (Forsyth et al., 2019), as well as fluency, pronunciation, grammar, and vocabulary (Ockey & Chukharev-Hudilainen, 2021). Moreover, in scenarios like book reading, the level of engagement students exhibit in chatbot interactions is comparable to their engagement with human interlocutors, as found in studies by (Xu et al., 2022). This suggests that chatbots can be effective tools in language learning and practice, providing a user experience similar to human interaction. In the context of language learning, researchers have identified six key advantages of chatbots in general including ChatGPT as it shares the same functionality. These are six advantages as follows:

1. **Anxiety-Reduction:** Studies indicate that students who interact with chatbots in general, keeping in mind that they are artificial, feel less anxious about making mistakes. Such an environment makes it easier for them to speak or perform tasks because they feel more at ease compared to interactions with human counterparts. (Tai & Chen, 2022).
2. **Repetitive Practice:** Chatbots allow students to practice the task several times until they are satisfied with their language performance. This level of repetition can be challenging if intended to be done with human partners (Jeon, 2021).
3. **Student-Centeredness:** Chatbots can act as private tutors who can create student-centered learning experience. This is particularly useful in scenarios where individualized learning is needed but may not be easier to achieve in a traditional classroom setting (Jeon, Lee, & Choe, 2023).
4. **Communicative Authenticity:** Chatbots can simulate real-life conversation scenarios, providing learners with a platform to practice authentic communicative exchanges. (Jeon, Lee, & Choe, 2023).

5. **Ubiquity:** Chatbots can be reached through various devices and platforms which means that language learning can happen anywhere and at any time (Jeon, Lee, & Choe, 2023). These affordances suggest that chatbots including ChatGPT can significantly enhance language learning in ways which might not always be possible in regular classroom settings, offering a blend of practicality, comfort, and authenticity that is essential for effective language acquisition (Jeon, Lee, & Choe, 2023).

Turning to argumentative writing, ChatGPT makes it easier for foreign language learners to practice their writing skills in general and argumentative writing in particular. Beyond the topic suggestion, it can help learners draft outlines in various formats. This feature is especially helpful for learners who frequently have trouble structuring their ideas when writing lengthy essays. (De Smet et al., 2012).

Additionally, ChatGPT can provide learners with constructive feedback regarding their writings. It can analyze learners' writings and provide them with points of strengths and weaknesses. This may include not just the style and the mechanics of learners' writing, but also several other writings aspects including content richness and relevance, audience, clarity, purpose, depth of analysis, focus, and organization (Barrot, 2023).

The phases of the writing process, which include prewriting, writing, and post writing, may all be improved with ChatGPT. ChatGPT may assist with brainstorming and providing varied viewpoints on the subject during the prewriting stage. Its use is restricted during the real writing process to help learners be more creative and authentic regarding their writings. In the post-writing stage, ChatGPT can be help in providing feedback and editing and adjusting language, style, and grammar. By doing this, students remain the primary authors of their work (Barrot, 2023).

In addition to supporting student learning, ChatGPT offers many benefits for teachers. It can reduce the workload of teachers by serving as an effective feedback tool; it can be used to provide feedback on various essays and assignments. Through ChatGPT,



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teachers can create several types of tests, including open-ended questions, multiple-choice quizzes, and rubrics that target argumentative writing and other types of writings (Zhai, 2022). ChatGPT can help teachers grade writing assignments. It helps teachers provide students with constructive feedback (Farrokhnia et al., 2023). Also, ChatGPT can provide personalized guidance to learners which can play an important role in developing learning. It can support learners with disabilities and providing accessible services like speech to text and text to speech options. (Rahman & Watanobe, 2023).

Moreover, ChatGPT is able to help teachers identify areas where students are struggling and provide more assistance. As an example, teachers can utilize ChatGPT to determine the underlying reasons why students make repeated mistakes in answering certain questions and then offer further resources to help them in overcoming those issues. One of the most important aspects of personalized learning is the capacity of instructors to adjust their lessons to the individual needs of each student (Abas et al., 2023).

Loos et al. (2023) expanded the following roles of ChatGPT:

- Answering questions: answers to questions can be provided by ChatGPT. It can offer students immediate feedback. This immediate response helps with more effective learning.
- Tutoring: individual tutoring sessions can be provided by ChatGPT to help address students' needs.
- Generating content: ChatGPT can produce content like detailed explanations, summaries, and study guides. This might be helpful for simplifying complicated subject matters and offering more educational materials.

AI including ChatGPT has played a critical role in creating a learning environment that promotes personalized learning (Schmid & Petko, 2019; Watson & Watson, 2016). Students can use AI tools to navigate the instructional process by selecting choices that are



tailored to their specific requirements. In light of this challenge, the use of technology is seen as a viable way to provide personalized learning to each student. Teachers may utilize technology to effortlessly record each student's unique traits that are helpful for fostering student learning, such as interests, career aspirations, significant life events, special needs, and more (Reigeluth et al., 2016).

To sum up, learners may use ChatGPT to have authentic, individualized learning experiences that allow them to acquire immediate feedback, adjust their learning experiences, and learn in a flexible manner. (Albdrani & Al-Shargabi, 2023).

### **2.3 ChatGPT and Argumentative writing**

Argumentative writing is a challenging and demanding skill for EFL learners. To write argumentative essays, learners are required to tackle both language skills and argument structure concurrently (Khampusaen, 2025). Considering the demands of high-quality argumentative essays, which include structure, and language, and other skills and the creative potential of ChatGPT (Aydın & Karaarslan, 2022; Su et al., 2023), ChatGPT can play two roles in supporting this process. ChatGPT can work both as a tool that evaluates and gives feedback on essays, helping improve their structure, language, and other skills and as a digital partner that discusses essay topics, helps overcome writing challenges, and provides tips to enhance students' writings (Hartwell & Aull, 2022). Using ChatGPT can offer prospective and promising opportunities in developing EFL learners' argumentative writing skills. In connection with the pedagogical aspects, ChatGPT can offer instant feedback on structure, organization, argument construction, support evidence incorporation and help with counterargument development (Khampusaen, 2025). In connection with the linguistic aspects, ChatGPT can enhance its three key domains which include grammatical and lexical development, stylistic sophistication and rhetorical pattern analysis (Khampusaen, 2025). Recent research has proven the positive impact that ChatGPT has on argumentative writing whether at the pedagogical level or linguistic level. In this

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context, Marzuki et al. (2023) revealed that ChatGPT had significant improvements on writing fluency, while Banihashem et al. (2024) found out that ChatGPT had clear improvements on argumentative structure.

Recognizing the effectiveness of a process-based approach to teaching writing (Graham et al., 2013), looking into how ChatGPT could help at different stages of writing, offering support in the argumentative writing stages as follows:

### **The preparation stage – facilitating idea generation and providing feedback on outlines:**

Conceptual planning marks the beginning of argumentative writing (Coirier et al., 1999). ChatGPT can help with generating ideas (Guo et al., 2022) and as an evaluator that helps in developing outlines. To avoid making ChatGPT replace the work of learners, teachers should encourage students to create a first draft of their essay outline on their own. Afterward, students can use ChatGPT to get feedback and additional suggestions. Teachers can also customize the feedback by providing students with specific evaluation rubrics tailored to their stage of learning; ensuring the feedback from ChatGPT is appropriate and effective. In the preparation phase, ChatGPT can offer valuable feedback on the argumentation outline. It can assess how well the claims and subclaims are connected, evaluate the quality of supporting evidence and rebuttals, and suggest potential counterarguments and additional claims (Guo et al., 2022).

### **The editing stage – providing feedback on the draft and supplying different perspectives:**

During the editing stage, emphasis is placed on the content quality. Improving the quality of the content requires students to complete a draft based on their argumentative outline. Then, they can use ChatGPT to get specific feedback on the content. To facilitate this process, teachers can provide ChatGPT with rubrics (Guo et al., 2022).

**The proofreading stage – providing error corrections:**

ChatGPT can support learners' language use by offering them language-specific feedback. Through providing ChatGPT with detailed rubrics appropriate to the language aspects of argumentative writing. ChatGPT can evaluate the accuracy of grammar, clarify the intended meaning of sentences and suggest alternative expressions. It also adjusts lexical choices and syntactic structures to ensure precise language, enhance clarity, and foster a more academic tone (Guo et al., 2022).

**The reflection stage – facilitating reflection through the chat history:**

Reflection plays a crucial role in helping students integrate new knowledge into long-term memory ((Bitchener & Storch, 2016). The detailed chat history between students and ChatGPT, which is stored in the system, acts as a record of the students' writing processes and progress. By regularly and systematically reviewing the feedback and discussions on their argumentative writing, students can deepen their understanding and enhance the quality of their future writing assignments (Malecka et al., 2022).

While comprehensive research has already investigated the applications and tools of artificial intelligence in language learning, there is still significant knowledge gaps in grasping the role of ChatGPT in enhancing argumentative writing skills in EFL settings in Egypt; a role that the current study is attempting to accomplish.

In conclusion, our examination of ChatGPT in supporting the writing process shows that it can effectively contribute to the structural, dialogical, and language components of argumentative writing. As a generative AI, ChatGPT can offer personalized responses and feedback, suggest improvements in content organization, conduct linguistic analyses, and proofread texts.

**Method**

This section presents the methods used in this study, focusing on its design, participants, and the instruments employed.

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### **3.1 Research Design**

In this study, a one-group pretest-posttest design was employed to investigate the effectiveness of ChatGPT in the participants' argumentative writing skills. This quasi-experimental approach involved collecting quantitative data through an argumentative writing test administered both before and after the intervention.

### **3.2 Participants**

This study employed the purposive sampling (Etikan et al., 2016) by selecting 15 (n=15) third year English Department students at the Faculty of Education, Ain Shams University. The selection of this particular grade level was done in line with the objective of the current study as it required participants to have basic understanding of academic writing conventions as they attended writing courses before in their first and second years in the English department.

### **3.3. Instruments**

For this study, a specialized argumentative writing test and detailed scoring rubric were developed. These instruments underwent precise validation through EFL expert review (n=5), and pilot testing (n=30) to ensure both validity and reliability. SPSS version 27 (Statistical Package for the Social Sciences) was used to perform the following statistical procedures:

- Calculating the correlation coefficient between the score of each sub-skill and the total score of the argumentative writing test in order to examine construct validity (internal consistency of sub-skills).
- Calculating the correlation coefficient between the score of each item and the total score of the argumentative writing test, to assess internal consistency reliability (item-total correlation).
- Calculating the inter-rater reliability by computing the correlation between the scores assigned by the two raters (the researcher and another rater) to determine the overall reliability of the argumentative writing test.

- Calculating Cronbach's alpha coefficient to assess the internal consistency and overall reliability of the argumentative writing test.
- Calculating the difference between the mean ranks of the pre-test and post-test scores for the research group on the argumentative writing test—both the overall score and the sub-skills—using the Wilcoxon Signed-Rank Test.
- Measuring the effectiveness of using ChatGPT in enhancing the argumentative writing skills of third year English department students, by applying Ezzat's Corrected Effectiveness Gain (CEG) ratio.

### **3.3.1. The Academic Writing Test**

#### **Purpose**

The argumentative writing test served as a pre/post assessment designed to measure the argumentative writing skills of the participants both before and after the intervention.

#### **Description**

The argumentative writing test was developed based on a list of argumentative writing skills identified in the literature. To assess the participants' argumentative writing skills, an argumentative writing test was developed. The test consisted of two parts. The first part consisted of a structured essay-writing prompt that required participants to compose a 350–500 word argumentative essay on the following prompt: “Some people believe that social media has a positive role in our life. Others argue that it negatively affects people's lives. The participants were instructed to take a clear position on this issue, provide relevant examples and evidence, and include counterarguments and rebuttals. This question targeted all the argumentative writing skills at once. The second part of the test consisted of eight constructed-response questions. Each of these questions targeted a separate argumentative writing subskill. These skills included: organizing ideas coherently (Q2), developing a clear, debatable thesis (Q3), establishing a strong position (Q4), identifying and articulating counterarguments (Q5), constructing effective rebuttals (Q6), varying sentence structure (Q7),

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maintaining academic tone (Q8), applying accurate punctuation and mechanics (Q9). The integration between the holistic task (part one) and discrete-item questions (part two) made the assessment accurate more accurate and deeper. (See Appendix B for details).

### **Content Validity**

The content validity of the test was confirmed through consultations with a panel of TEFL experts. These jury members assessed the adequacy of the questions in measuring the intended argumentative writing skills.

### **Piloting the Test**

A preliminary version of the test was administered to a group of 30 students who were enrolled in the same academic year. These individuals were not participants in the primary study. The pilot test aimed to: establish the appropriate length for the test, confirm the internal consistency reliability, and estimate the reliability of the overall test.

- **The appropriate length for the test.**

The test length was calculated using data from the pilot study. The duration each student needed to complete the test was recorded and then the average time of the test was calculated by dividing the total time taken by all participants over the number of participants. The calculated test time was around 150 minutes.

- **Internal Consistency Reliability**

The internal consistency reliability of the test was verified through the following procedure:

- **Item-Total Correlation Analysis**

The correlation coefficients between the score of each test item and the overall test score were calculated, excluding the item's own contribution from the total score to avoid inflated results. The table below presents the correlation coefficients obtained:

**Table 1**

*Correlation coefficients between each test item and the total test score.*

| Part            | Item | Corrected Item-Total Correlation |
|-----------------|------|----------------------------------|
| The first part  | 1    | **0.72                           |
| The Second part | 2    | **0.65                           |
|                 | 3    | **0.62                           |
|                 | 4    | **0.63                           |
|                 | 5    | **0.64                           |
|                 | 6    | **0.60                           |
|                 | 7    | **0.61                           |
|                 | 8    | **0.65                           |
|                 | 9    | **0.63                           |

Significance at the 0.01 Level with a sample size of  $n = 30$ ; the correlation is considered statistically significant at the 0.01 level when  $r \geq 0.46$ .

As shown in the table above, all items are significantly correlated with the total test score.

**- Construct validity of the Test**

To ensure the construct validity of the test dimensions, correlation coefficients were calculated between each subskill or dimension score and the overall test score excluding the score of the corresponding subskill from the total. The following table presents the resulting correlation coefficients:

**Table 2**

*Correlation coefficients between each subskill score and the total test score.*

| Skills                         | Corrected Item-Total Correlation |
|--------------------------------|----------------------------------|
| Organization                   | 0.67**                           |
| Thesis Statement Development   | 0.69**                           |
| Position Development           | 0.65**                           |
| Counterargument Acknowledgment | 0.69**                           |
| Rebuttal Development           | 0.67**                           |
| Sentence Structure Variety     | 0.68**                           |
| Formal and Academic Tone       | 0.66**                           |
| Punctuation and Mechanics      | 0.67**                           |

Significant at the 0.01 Level

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The table above shows that all components of the test are significantly correlated with the total score at the 0.01 significance level which indicates strong construct validity which supports the structural validity of the test.

- **The Reliability of the Overall Test**

The reliability of the overall test was assessed using two methods:

- **Cronbach's Alpha Coefficient:**

Cronbach's alpha was calculated and found to be 0.88. This high value generally indicated that the test is both accurate and reliable as a measurement tool which makes it suitable for use.

- **Inter-Rater Reliability:**

The test was re-scored by a second rater and the correlation coefficient between the two sets of scores was calculated. The correlation was 0.98 which is a very high value that reflects a strong agreement between raters and further confirms the reliability of the test as a reliable assessment tool.

### **3.3.2. The Scoring Rubric**

The scoring rubric was developed based on a list of argumentative writing skills identified in the literature. The analytical rubric was designed by the researcher to assess the participants' argumentative writing skills in the pre/post test. Eight evaluation criteria reflecting the essential argumentative writing skills were determined: organization, thesis statement development, position development, counterargument, rebuttal development, sentence structure variety, formal and academic tone, and punctuations and mechanics. These criteria were evaluated quantitatively across four performance levels: inadequate, below average, average, and Excellent. Scores for each essay were calculated by multiplying the level number by the designated weight for each criterion. (See Appendix C for details).

The content validity of the rubric was confirmed through consultations with a panel of TEFL experts. These jury members assessed the adequacy of the rubric's eight categories in measuring the intended argumentative writing skills in the students' essays.



### **3.3 The program**

A program based on ChatGPT was developed to enhance third year English department student' argumentative writing skills.

#### **3.3.1 The aim of the program**

The program aimed at developing argumentative writing skills among third year English department students at Faculty of Education, Ain Shams University.

#### **3.3.2. The objectives of the program**

By the end of the program, students were expected to:

1. Organize argumentative essays following a logical and coherent structure.
2. Develop precise and debatable thesis statements.
3. Maintain a consistent position throughout their writing.
4. Identify and address counterarguments effectively.
5. Formulate strong rebuttals to opposing views.
6. Use varied sentence structures to improve clarity and engagement.
7. Adopt a formal and academic tone in writing.
8. Edit and revise their essays using ChatGPT-generated feedback.
9. Reflect on their writing process using ChatGPT chat history.

#### **3.3.3. Content of the program**

The program was designed to develop the argumentative writing skills of third-year English department students. The program consisted of ten lessons. Each lesson is designed around an argumentative topic. These topics were chosen to encourage arguments. The argumentative topics of the program were various and included themes such as the use of modern technology in education, the use of native language in ESL classrooms, animal experimentation and others. ( See Appendix D for more information about the program)

Each lesson followed a steady four-stage instructional model grounded in the process approach to writing with *ChatGPT* serving as a personalized writing assistant. These four stages are:

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1. **Preparation Stage** – focused on idea generation and outline development with ChatGPT feedback.
2. **Editing Stage** – involved writing full drafts and refining arguments using ChatGPT suggestions as peer feedback.
3. **Proofreading Stage** – concentrated on grammar, vocabulary, and stylistic improvements using ChatGPT's language support.
4. **Reflection Stage** – emphasized student self-assessment and learning consolidation by reviewing their ChatGPT interaction history.

### 3.3.4 Description of the Program

The program consisted of **ten thematic lessons** implemented over a period of ten weeks. Each week covered one full argumentative writing lesson. Instruction was delivered virtually to ensure the availability of the internet and the use of ChatGPT as a writing assistant tool.

Each lesson was structured as follows:

1. **Introduction**

The instructor began with a thought-provoking question to introduce the essay topic and activate background knowledge. Students discussed their views in pairs or as a group.
2. **Preparation Stage**
  - Students brainstormed arguments and used *ChatGPT* to explore additional perspectives and evidence.
  - They drafted essay outlines including claims, evidence, and counterarguments.
  - *ChatGPT* provided structural feedback on argument coherence and idea development.
3. **Editing Stage**
  - Students wrote full drafts based on their outlines.
  - They used *ChatGPT* to refine arguments, strengthen reasoning, and expand evidence.

- Peer feedback sessions were conducted using instructor-provided rubrics.

#### 4. Proofreading Stage

- Students used *ChatGPT* to identify and correct grammatical, lexical, and syntactic errors.
- Final language adjustments were made to improve clarity, formality, and tone.

#### 5. Reflection Stage

- Students reviewed their *ChatGPT* chat history to reflect on writing development.
- A guided discussion followed encouraging students to evaluate the role of ChatGPT in shaping their writing strategies.

#### 6. Closure and Homework

- Key learning points were summarized.
- Students were assigned a full argumentative essay based on their outlines and feedback, to be submitted before the next session.

### 3.3.5 Assessment of the program

The program was implemented after administering a pre-test assessing students' argumentative writing proficiency across the eight targeted subskills. Throughout the program, performance was formatively evaluated through in-class rubrics, peer reviews, and ChatGPT-generated feedback. After ten weeks, a post-test was administered using the same rubric.

## 4 Results

### Testing the Validity of the First Hypothesis

The first hypothesis states that: *"There is a statistically significant difference between the mean rank scores of the research group students in the pre-test and post-test of the argumentative writing test (total score), in favor of the post-test."*

To test this hypothesis, the mean rank scores of the research group were compared before and after the implementation of the program using *ChatGPT*, based on their performance on the argumentative writing test as a whole.

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The Wilcoxon Signed-Rank Test was employed to determine the statistical significance of the differences between the two administrations. The results are presented in the following table:

**Table 3**

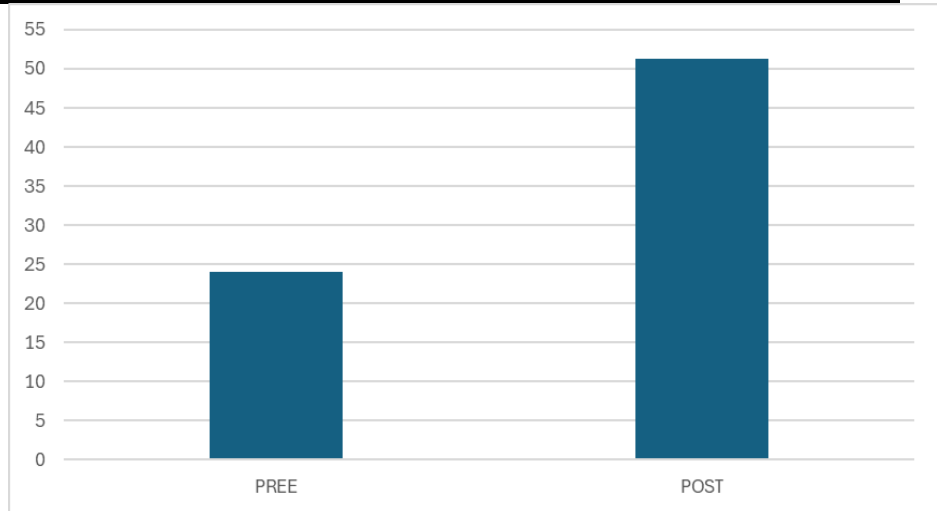
*The mean rank scores of the research group students in the pre- and post-tests of the argumentative writing test (total score), where  $n = 15$  and degrees of freedom = 14.*

| Test  | Ranks             | Number<br>(N) | Mean<br>Rank | Sum<br>of<br>Ranks | mean  |       | Std. Deviation |      | Z -<br>value | Sig.  |
|---|-------------------|---------------|--------------|--------------------|-------|-------|----------------|------|--------------|-------|
|   |                   |               |              |                    | PRE   | POST  | PRE            | POST |              |       |
| Overall of<br>the<br>Argumentative<br>Writing | Positive<br>Ranks | 15            | 8.00         | 120.00             | 24.06 | 51.23 | 3.6            | 2.90 | 3.416        | 0.001 |
|   | Negative<br>Ranks | 0             | 0.00         | 0.00               |       |       |                |      |              |       |

As shown in Table 3, the mean score of the research group in the post-test of the argumentative writing test (total score) was higher than that of the pre-test. This indicates an improvement in the overall argumentative writing performance of the students following the use of the program with *ChatGPT*.

The number of positive ranks was 15 with zero ties and zero negative ranks. This means that all 15 students in the research group achieved higher scores in the post-test compared to the pre-test. Additionally, the significance level (*Sig.*) for both the total score and the subcomponents of the argumentative writing test is less than 0.01. This confirms that there are statistically significant differences between the pre-test and post-test scores both overall and for each individual subskill at the 0.01 significance level. Accordingly, this hypothesis is accepted.

The following figure illustrates the difference in mean scores between the pre-test and post-test for the research group on the argumentative writing test:



**Figure 1**

*Mean scores of the research group in the pre-test and post-test of the argumentative writing test.*

The second hypothesis states: *"There is a statistically significant difference between the mean rank scores of the research group students in the pre-test and post-test for each subskill of the argumentative writing test, in favor of the post-test."*

To test this hypothesis, the mean rank scores of the research group were compared before and after the implementation of the program using *ChatGPT* focusing on each subskill of the argumentative writing test separately.

The Wilcoxon Signed-Rank Test was used to determine the statistical significance of the differences between the two test administrations. The results are presented in the following table:

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**Table 4**

*The mean rank scores of the research group students in the pre-test and post-test for each subskill of the argumentative writing test, where  $n = 15$  and degrees of freedom = 14.*

| Subskills                      | Ranks          | Number (N) | Mean Rank | Sum of Ranks | mean |      | Std. Deviation |      | Z value | Sig.  |
|--------------------------------|----------------|------------|-----------|--------------|------|------|----------------|------|---------|-------|
|                                |                |            |           |              | PREE | POST | PREE           | POST |         |       |
| Organization                   | Positive Ranks | 15         | 8.00      | 120.00       | .80  | .57  | .94            | .96  | 3.477   | 0.001 |
|                                | Negative Ranks | 0          | 0.00      | 0.00         |      |      |                |      |         |       |
| Thesis Statement Development   | Positive Ranks | 15         | 8.00      | 120.00       | .00  | .33  | .93            | .11  | 3.502   | 0.001 |
|                                | Negative Ranks | 0          | 0.00      | 0.00         |      |      |                |      |         |       |
| Position Development           | Positive Ranks | 15         | 8.00      | 120.00       | .67  | .70  | .62            | .01  | 3.472   | 0.001 |
|                                | Negative Ranks | 0          | 0.00      | 0.00         |      |      |                |      |         |       |
| Counterargument Acknowledgment | Positive Ranks | 15         | 8.00      | 120.00       | .33  | .47  | .49            | .52  | 3.573   | 0.001 |
|                                | Negative Ranks | 0          | 0.00      | 0.00         |      |      |                |      |         |       |
| Rebuttal Development           | Positive Ranks | 15         | 8.00      | 120.00       | .27  | .90  | .46            | .92  | 3.483   | 0.001 |
|                                | Negative Ranks | 0          | 0.00      | 0.00         |      |      |                |      |         |       |
| Sentence Structure Variety     | Positive Ranks | 15         | 8.00      | 120.00       | .07  | .47  | .96            | .74  | 2.683   | 0.007 |
|                                | Negative Ranks | 0          | 0.00      | 0.00         |      |      |                |      |         |       |
| Formal and Academic Tone       | Positive Ranks | 15         | 8.00      | 120.00       | .03  | 6.60 | .83            | .72  | 2.818   | 0.007 |
|                                | Negative Ranks | 0          | 0.00      | 0.00         |      |      |                |      |         |       |
| Punctuation and Mechanics      | Positive Ranks | 6          | 22.00     | 5.50         | 5.00 | 5.50 | 1.07           | 0.94 | 0.576   | 0.565 |
|                                | Negative Ranks | 4          | 33.00     | 5.50         |      |      |                |      |         |       |
|                                | Ties           | 5          |           |              |      |      |                |      |         |       |

As shown in Table 4, the mean scores of the research group in the post-test of the argumentative writing test, when assessed across

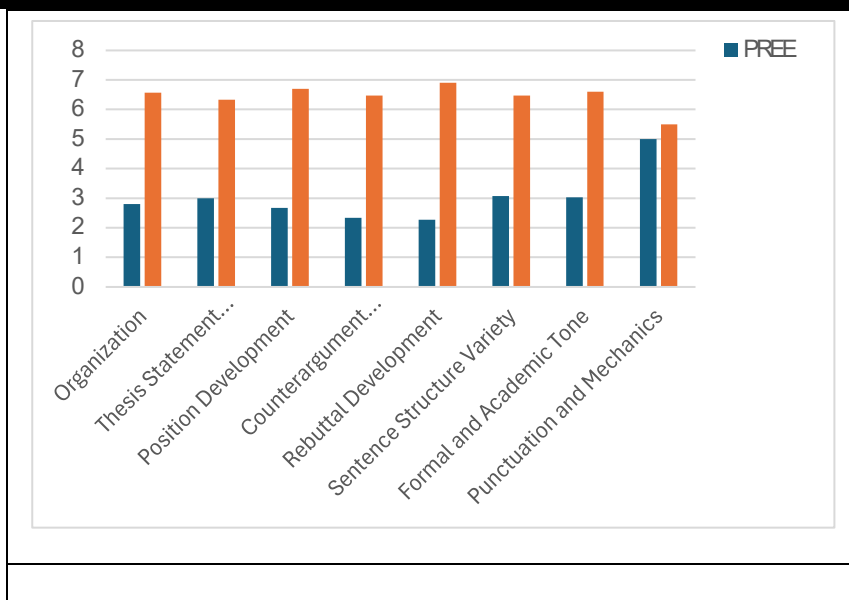
individual subskills, were higher than those in the pre-test. This indicates that the students' performance in each of the argumentative writing subskills improved following the use of program through *ChatGPT*. The results for the individual subskills of argumentative writing were as follows:

- For the first seven subskills (*Organization, Thesis Statement Development, Position Development, Counterargument Acknowledgment, Rebuttal Development, Sentence Structure Variety, and Formal and Academic Tone*), all 15 students in the research group showed positive rank scores in the post-test compared to the pre-test, with no tied or negative ranks. This indicates that every student improved in these seven subskills following the use of the program with *ChatGPT*. The significance level for each of these subskills was below 0.01 which indicates statistically significant differences between the pre-test and post-test scores at the 0.01 level.
- In contrast, for the eighth subskill (*Punctuation and Mechanics*), the significance level was 0.655, which is greater than 0.05. This suggests that there were no statistically significant differences between the pre-test and post-test scores for this particular subskill.

Based on these results, the second hypothesis is accepted.

The following figure illustrates the differences of the mean scores between the pre-test and post-test for the research group across the subskills of argumentative writing:

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**Figure 2**

*Mean scores of the research group students in the pre-test and post-test of the argumentative writing test across individual subskills.*

To assess the effectiveness of employing the program in enhancing argumentative writing skills among students, the *Corrected Effectiveness Gain (CEG)* ratio proposed by Ezzat (Ezzat Abdel-Hamid, 2013, p. 28) was used. The ratio is calculated using the following formula:

$$CEG_{ratio} = \frac{M_2 - M_1}{P - M_1} + \frac{M_2 - M_1}{P} + \frac{M_2 - M_1}{M_2}$$

Where:

- **CEG Ratio** = Corrected Effectiveness Gain
- **M1** = Mean score in the pre-test
- **M2** = Mean score in the post-test
- **P** = Maximum possible score on the test

### **Interpretation of the CEG Ratio:**

- If the CEG ratio is less than 1.5, the program is considered ineffective.



- If the CEG ratio is between 1.5 and 1.8, the program is considered moderately effective.
- If the CEG ratio is 1.8 or higher, the program is considered effective and acceptable.

The following table presents the mean scores of the research group in both the pre-test and post-test of the argumentative writing test, along with the calculated CEG ratio based on Ezzat's formula:

**Table**

**5**

*Mean scores of the research group in the pre-test and post-test of the argumentative writing test, and the Corrected Effectiveness Gain (CEG) ratio.*

| Test                  | Maximum Score | Mean (Pre-test) | Mean (Post-test) | CEG Ratio (Ezzat) | Effectiveness Level    |
|-----------------------|---------------|-----------------|------------------|-------------------|------------------------|
| Argumentative Writing | 64            | 24.06           | 51.23            | 1.64              | Moderate Effectiveness |

As shown in Table 5, the Corrected Effectiveness Gain (CEG) ratio for improving argumentative writing skills among third-year English department students was 1.64. Since this value is greater than or equal to 1.5 and less than 1.8, it indicates that the use of *ChatGPT* had a moderate level of effectiveness in enhancing the argumentative writing skills of the research group.

## 5. Discussion

This study investigated the effectiveness of *ChatGPT* in enhancing the argumentative writing skills of third-year English department students. The findings of the study provide convincing evidence for the positive impact of *ChatGPT* on students' argumentative writing skills.

The Wilcoxon Signed-Rank Test results revealed a statistically significant improvement in the total scores of students on the argumentative writing test after the intervention. All 15 participants showed higher post-test scores compared to the pre-test, with no ties or negative ranks. The post-test mean score (51.23) far exceeded the pre-test mean (24.06), and the Z value of 3.416 ( $p < 0.01$ ) strongly supports the effectiveness of the intervention.

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This improvement across all students reinforces the value of *ChatGPT* which can adapt to learners' needs and provide immediate, tailored feedback. Unlike traditional instruction, which may not accommodate each student's pace or writing weaknesses, ChatGPT allows students to experiment with their writing, receive unbiased guidance, and revise continuously; a process essential to develop argumentative writing.

Further analysis explored improvements in individual subskills. Statistically significant gains ( $p < 0.01$ ) were observed in seven key areas: organization, thesis statement development, position development, counterargument acknowledgment, rebuttal development, sentence structure variety and formal and academic tone. All 15 students exhibited positive ranks in each of these skills which indicate that ChatGPT helped them develop their argumentative writing. Such improvements may be attributed to the following reasons:

- ChatGPT allowed students to access information from anywhere and anytime so that it can always respond to students' requests and questions promptly (Thu et al., 2023); however, it can sometimes generate fake and incorrect information.
- ChatGPT acted as a virtual tutor for the students. This virtual tutor improved students' argumentative writing skills by providing the students with immediate constructive feedback regarding their essays (Pardos & Bhandari, 2023).
- ChatGPT provided the students with peer feedback which is considered a powerful tool that could help them improve their argumentative writing skills (Pardos & Bhandari, 2023).
- ChatGPT were able to help the students have more thoughts, vocabulary, and writing structure for their argumentative writing essays (Xiao & Zhi, 2023)
- ChatGPT was able to adapt the needs of the students whenever needed, which increased students' engagement and allowed students more tailored instruction (Nguyen et al., 2024).
- ChatGPT functioned as a learning partner or personal tutor by providing personalized, easily accessible, and adaptive feedback (Xiao & Zhi, 2023).

In contrast, the subskill **Punctuation and Mechanics** showed no significant difference between pre and post test scores ( $p = 0.565$ ). This indicates that while ChatGPT may enhance higher-order writing abilities, it may not be as effective in addressing low-level mechanical errors or the participants did not see this subskill as important as the other skills and, therefore. They did not give it much attention compared to the other seven subskills.

To measure the extent of the participants' argumentative writing improvement, the study used Ezzat's Corrected Effectiveness Gain (CEG) ratio. The calculated ratio was **1.64** which indicates that the program was **moderately effective**. While not reaching the minimum level for high effectiveness ( $\geq 1.8$ ), this result is still significant. This moderate effect size may be attributed to several factors including students' unfamiliarity with ChatGPT at the beginning, or the time needed to fully absorb feedback. However, the overall result suggests that *ChatGPT* can serve as a sustainable support tool for long-term writing development when integrated into regular instruction.

These results suggest that ChatGPT holds the potential to act as a tutor, particularly in large classrooms where teachers are not that easily accessible. These findings strongly back the use of ChatGPT as a writing aid in EFL settings. ChatGPT functions as a personalized instructor, and not just a writing helper, by providing tailored support and prompt feedback. These findings align with other similar findings by (Alasgarova & Rzayev, 2024; Banihashem et al., 2024; Eltahir & Babiker, 2024; Fan & Chen, 2021; Livberber & Ayvaz, 2023; Nguyen, 2024).

## 6. Limitations, conclusions, implications and suggestions for further research

### 5.1 Limitations

Even with these encouraging results, the research has certain limitations. Due to the small sample size ( $n = 15$ ) and the study's single educational location, the results may not be applicable to other populations. Furthermore, qualitative data on students'

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experiences and perspectives of using ChatGPT, which might have improved the results' interpretation, were not gathered.

### 5.2 Conclusion

It can be concluded that *ChatGPT* had a significant and moderately effective impact on improving the argumentative writing skills of third-year English department students. The participants showed improvement in seven of the eight argumentative writing subskills especially those involving logical reasoning, structure, and rhetorical development. While ChatGPT was less effective in developing mechanical accuracy, the overall results confirm the promise of ChatGPT as a powerful support for argumentative writing skills in EFL contexts.

### 5.3 Implications of the study

Based on the results of the study, some implications for educators and teachers are recommended as follows:

1. Educators and teachers should integrate *ChatGPT* as a supplement to—not a replacement, especially for reinforcing foundational skills like grammar and punctuation.
2. Educators and teachers should help students learn how to write effective prompts to increase the benefits of ChatGPT in developing writing skills.
3. Educators and teachers should encourage learners to reflect on the ChatGPT feedback they receive to develop metacognitive awareness and critical thinking.

### 5.4 Suggestions for further research

- At the time, the main focus of the current study was to examine the impact of using ChatGPT on enhancing argumentative writing skills for third year English department students, further research is required to address the impact of ChatGPT on other language skills.
- Exploring the impact of ChatGPT on developing argumentative writing skills at other educational levels is suggested.
- Exploring the impact of other AI tools and applications on developing EFL learners' argumentative writing skills is suggested.
- Replicating this study with larger samples may enhance generalizability.

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