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**Investigating the Efficiency of Using ChatGPT to Generate Ideas for Writing on
Enhancing the EFL Learners Writing Creativity**

The Case of Master one English students at University Mohammed Khider of Biskra

*A Thesis Submitted to the Department of English and Literature in Partial Fulfilment of the
Requirements for the Master's Degree in Sciences of the Language*

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Declaration of Integrity

I, Khaoula CHATTI, hereby declare that this MA thesis entitled "Investigating the Efficiency of Using ChatGPT to Generate Ideas for Writing on Enhancing EFL Learners' Writing Creativity the Case of Master One English as Foreign Language Students of University Mohammed Khider of Biskra", submitted to the Department of the English language and Literature at University Mohammed Khider of Biskra, is the original work done by me under the supervision of Dr. Tarek ASSASSI. I confirm that this thesis was not submitted to any other University or Institution for the award of any other degree/ certificate or published any time before. This study was carried out and completed for the academic year 2023/2024, at University Mohammed Khider of Biskra, Algeria.

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Dedication

I dedicate my modest work to my dearest two people in my life, my father Mostefa, who has been always my source of strength during my periods of weakness, and my mother Fatma, who bore my anger and volatile mood during all the research time,

To my supervisor Dr. Tarek ASSASSi, for his support, guidance

To my dear brothers Mohieddine, Zoubir, who enjoyed bothering me but continuously inspiring me,

To my sister Ouafa, whose job was always to annoy me, but all the time encourage me,

To my beloved friends: Safa MOHAMMEDI and Sadika CHATTI, who were always ready to listen to my problems and complains,

To my lovely cousin Hyam CHATTI, who did not hesitate to help and support me.

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Abstract

Writing in English is considered as an important skill for English as foreign language (EFL) learners especially in higher education. However, EFL learners may sometimes find it very difficult to perform their writing assignments particularly at the prior stage of the writing process. While various techniques have been attempted to help learners' fix such problems, the use of Artificial Intelligence technologies has gained more attention recently. Therefore, this study aims at examining if AI tools, specifically ChatGPT, can assist EFL learners in comprehending and leveraging its innovative potentials for generating ideas for EFL writing assignments. In order to accomplish this aim, a quasi- experimental design with a quantitative approach was adopted. The data was collected using a pre-post testing technique conducted with thirteen (13) Master one (M1) EFL students at English department of University Mohammed Khider of Biskra, Algeria. The tests involved writing paragraphs, with an intervention where ChatGPT was used to generate ideas for writing. The researchers counted the number of ideas in the pre-test and the post-test then compared them. The obtained data was analysed and compared using the Statistical Analysis in Social Science (SPSS) software. The researchers utilised SPSS to compute descriptive statistics for both the pre-test and the post-test. Additionally, SPSS facilitated the comparison of data between the pre-test and the post-test using the Wilcoxon Signed-Rank test, thereby aiding in making inferences. The research demonstrated significant results concerning the impact of ChatGPT on M1 EFL learners' writing. To begin with, ChatGPT can provide M1 EFL learners with new ideas for their writing assignments, aiding in diversifying and augmenting the number of ideas within their paragraphs. In addition, it facilitates expanding sentence length and overall word count per paragraph. Moreover, ChatGPT enables learners to articulate exemplifications and explanations within their paragraphs, thereby enhancing idea delivery. Furthermore, findings indicate that most of the participants had the ability to add one idea in the post-test comparing

to the pre-test. This research gave noteworthy insights regarding the effectiveness of integrating ChatGPT as an idea generator into the EFL writing realm. ChatGPT, with its valuable potentials, can be a good writing assistant to help EFL learners perform their writing assignments in easy and effective way. ChatGPT, in this research, proved its efficiency and potentials in which it can aid EFL learners enhance their writing creativity.

Keywords: EFL writing, ChatGPT, Generating ideas, Writing creativity, AI tools

List of abbreviations and acronyms

%: Percentage

&: and

n.d.: No Date

AI: Artificial Intelligence

ASR: Automated Speech Recognition

EFL: English as a Foreign Language

Et al., Et alii (And Others)

Etc: et cetera (and other similar things)

FL: Foreign Language

GPT: Generative Pre-trained Transformer

RH: Hypothesis

i.e.: Id est (that is)

LLM: Large Language Models

M1: Master one

MT: Machine Translation

P.: Page

Para: paragraph

RQ: Question

SPSS: Statistical Package for The Social Sciences

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General Introduction

1. Background of the Study

Writing has been a concern of many scholars and experts for years due to its importance and wide use in many domains. Walsh (2010, cited in Klimova, 2012) stated that writing is of utmost importance as it is extensively employed in higher education and the workplace. Foreign Language (FL) pedagogy may be the most interested field in writing because it is considered one of its main pillars besides the other skills (listening, speaking, and reading). However, writing in a foreign language is not an easy process. Hamp-Lyons and Heasley (2006) claimed that proficiency in writing is commonly acknowledged as the ultimate language competency for both native and non-native speakers. English as a Foreign Language (EFL) learners face a variety of challenges that can affect the quality of their writing. For instance, learners' poor grammar and vocabulary proficiency seem to be the most challenging issues while writing (Alisha et al., 2019). Also, A study by Ibnian (2017) showed that the most common writing challenge faced by Jordanian EFL students was "lack of ideas." Moreover, Using the English article system is the hardest issue for Chinese students (Sun, 2014).

Recently, and with the trend of artificial intelligence (AI) and natural language processing (NLP), researchers are studying the impact of integrating AI into the foreign language learning context. The review indicates that chatbots and other language models can assist in vocabulary mastery by creating flashcards, making quizzes, translating, and providing vocabulary lists, and designing tasks (Stephen, 2023). Also, Liu (2023) stated that speech recognition software has shown its worthiness and effectiveness in improving EFL learners' communication competence. Similarly, Noviyanti (2020) found that pronunciation skills can be greatly enhanced by AI-based spell-checking apps. Overall, as Liu (2023) expressed, AI technology can aid students in quickly gaining proficiency in a foreign language by providing them with prompt and precise language resources and exercise opportunities that can improve language skills and knowledge acquisition.

Particularly in writing, many studies have been conducted concerning the influence of AI tools on enhancing EFL writing skills. Marzuki et al. (2023) found in their study that AI programs and tools prove to have potential when it comes to the area of content, including idea generation and articulation. Besides, according to Tambunan et al. (2022), Grammarly's feedback can allow teachers to easily identify students' mistakes. In conjunction with that, QuillBot, as Kurniati and Fithriani (2021) reported in their study, can enhance learners' academic writing style as well as improve their grammatical expertise. Further, a study by Al Mahmud (2023) revealed that Wordtune can be successfully integrated into writing instruction, giving students the chance to learn writing effectively by recognizing writing problems and finding satisfactory solutions. Relatively, Harunasari's (2023) findings demonstrated that ChatGPT has been successfully incorporated into Creative and Media Writing classes to help EFL students with idea generation, story planning, and grammar and spelling correction. Similarly, using ChatGPT can help students enhance their learning skills and experience by coming up with ideas for their writing assignments, research papers, analyses, and assessments (Rasul et al., 2023). Apart from this, with ChatGPT's instant feedback and recommendations, second language learners can address mistakes and write more quickly, which may result in fewer revisions and a shorter turnaround time for written work (Zakaria & Ningrum, 2023).

2. Statement of the Problem

Artificial intelligence (AI) use is on a rise due to its great potential in dealing with most complexities (AlSedrah, 2017; Mureşan, 2023). AI has integrated into many domains, such as engineering, medicine, business, and education. Artificial intelligence in education refers to integrating AI technology in the education field to deal with its challenges and provide better experiences to enhance the teaching-learning process.

The latest version of Open AI technology, ChatGPT, has revolutionised the education sector (Kasneci et al., 2023; Imran & AL Musharraf, 2023). ChatGPT has an immense ability

to generate human-like texts and conversations (Baskara, 2023; Kasneci et al., 2023). It can solve enormous educational issues, such as mathematical, scientific, and computer science problems. It also shows a large capacity for generating ideas for architecture projects, research topics, writing, etc.

Idea generation is one of the important steps of the EFL writing process. However, the most difficult phase for many EFL learners may be before they start writing (King, 2000). Finding what to write in a paragraph or an essay is challenging for many learners. This problem may be due to many reasons, such as vocabulary constraints, a lack of knowledge about the topic they intend to write about, a lack of motivation, etc.

ChatGPT has been integrated into the EFL teaching and learning context. For example, teachers can use it to outline and design activities and courses. Also, it can be used in the writing area. Many studies have proved the eligibility of ChatGPT in writing (Harunasari, 2023; Rasul et al., 2023; Zakaria & Ningrum, 2023; Faiz et al., 2023)

The literature shows that ChatGPT can be a good choice for assessment, feedback, design, and provision of ideas for creative writing. However, the studies did not give attention to investigating the effectiveness of integrating ChatGPT into the EFL context to generate ideas for writing assignments on enhancing EFL writing creativity. Because of that, the current research aims to study the capacities of ChatGPT in helping EFL learners better write and enhance their idea generation skills and capacities.

3. Research Questions

This research seeks to answer the following research question:

RQ1: Can generated ideas using ChatGPT help in expanding the diversity of concepts in paragraph writing among M1 English student at University Mohammed Khider of Biskra

RQ2: To what extent can ChatGPT increase the number of ideas per paragraph among M1 English students at University Mohammed Khider of Biskra.

4. Research Hypothesis

Based on the above research question, researchers propose the following research hypothesis:

RH: ChatGPT can be used as a writing assistant, and it has the ability to significantly foster EFL learners' creativity through aiding in expanding their writing ideas per paragraph.

5. Research Aims

General Objective

The primary objective of this study is to explore if AI tools, specifically ChatGPT, can assist EFL learners in comprehending and leveraging their innovative potential for generating ideas in writing assignments.

Specific Aims

- To improve the academic writing skills
- To Boost EFL learners' creativity
- To encouraging students to integrate technology in their learning process correctly and ethically.
- To Make learners more comfortable with their writing

6. Research Methodology

In order to realize this research's aims, answer its questions, and test the hypothesis, a quantitative approach will be implemented in which it will be suitable to collect and display the numerical data which are the scores of the tests. The current research will adopt a quasi-experimental design because it can help researchers determine the effects of integrating ChatGPT to generate ideas for writing on the enhancement of the EFL learners writing skills.

The target population of this study is Master one (M1) English language students at University Mohammed Khider of Biskra, Algeria. A purposive sampling method will be adopted in order to select thirteen (13) participants. Based on the aims of the research, participants would be selected if they met the following criteria: they have to be aware of what ChatGPT is and how to use it as well as they have to know how to write a structured paragraph. Data will be gathered based on a pre-post testing technique. That is to say, the researchers will get and compare the scores of the tests. First, in the pre-test, each participant will be asked to write a paragraph of about 100 words in which he will discuss **“the uses of technology in education”**. Then, the researchers will intervene after the pre-test and before the post test, the intervention will be about three sessions. In the first session the researchers are going to explain what the participants should do and how to write good prompts in ChatGPT as well as the researchers will tackle the ethical use of ChatGPT in order to avoid plagiarism and guarantee the originality of the piece of writing. The second session and the third session are going to be two online homework both with the same instruction. They will be about 30 minutes timing in which the researchers will ask each participant to write a paragraph about the same topic of the pre-test but with the help of ChatGPT to generate ideas for writing. Finally, the researchers will ask each participant to write a paragraph again about the same topic of the pre-test for the post-test in order to compare the results. Further, the researchers will evaluate the pieces of writing based on an answer key in which they will write the possible number of ideas that can be written by the participants and count the ideas in the participants paragraphs based on it. To analyse and compare the data, a statistical analysis will be chosen including Wilcoxon Signed-Rank test because of the lack of randomisation when selecting the sample, which would be a violation of one of the assumptions of parametric testing. The analysis will be conducted using the Statistical Package for the Social Sciences (SPSS).

This research will adhere to ethical considerations, including participants' permission and awareness of the procedures, privacy and confidentiality, and fair treatment.

7. Significance of the Study

With the rapid growth and use of AI and especially ChatGPT that have been noticed recently in the education sector, the researchers will conduct this research to investigate the effectiveness of generating ideas using ChatGPT on improving EFL learners academic writing quality. The researchers suppose that this study is relevant to the EFL context because academic writing is one of the essential skills of learning languages. Further, the researchers assume that this study will be significant for learners of English as foreign language because it can help them enhance their academic writing products through boosting their creativity and idea generation abilities using ChatGPT's capacities. In addition, this study can give better understanding to the role of AI technologies in the sector of education. It can show to learners the impact of integrating technology such ChatGPT into the EFL context and how it can affect their learning process and especially the writing skill.

Artificial intelligence (AI) world has revolutionised the education field and specially the foreign language education sector. It has changed the way learners and educators do their duties, perform their exercises, and prepare their tasks. AI has shown its ability in aiding learners to better and easily master language skills and reach its proficiency. As it can help teachers design their courses and assess learners.

8. Structure of the Thesis

This thesis starts with a general introduction that includes the background of the study, research problem, questions, hypothesis, aims, methodology and significance of the study. This thesis consists of two main parts: theoretical part and practical one. On one hand, the theoretical part consists of two chapters. The first chapter provides a general overview of

Artificial intelligence (AI) and the second chapter is about EFL writing. On the other hand, the practical part consists of one chapter. This chapter discusses the methodology used in order to conduct the research as well as it displays, discusses, interprets the results of this study.

➤ **Chapter One**

The first chapter is about the use of AI in the foreign language education and its main tools used to learn language. Furthermore, it presents the use of chargeability in FL learning and particularly in writing. Also, this chapter tackles the main issues of using ChatGPT as writing assistant.

➤ **Chapter Two**

The second chapter is devoted to discussing the role of writing in higher education and specifically in the EFL realm. Moreover, it tackles the main approaches to writing and the process of each of them. Furthermore, it talked about the writer's block, reasons, and effects on writing. Finally, it compares and evaluates the previous studies concerning the impact of ChatGPT on the EFL writing.

➤ **Chapter Three**

The third chapter is divided into two parts. The first part is the methodology used in order to conduct this study including the design, approach, population and sample, the data collection and the data analysis methods. As for the second part, it is devoted to the analysis, discussion, and interpretation of this research's results.

Finally, a general conclusion in which it summarizes the main findings, contributions, limitations, implications, and recommendations for further research.

Chapter one: Artificial Intelligence

Introduction

The utilisation of artificial intelligence (AI) in the English as foreign language (EFL) sector is on a continuous increase. It offers several uses and facilitations to many complexities such as writing paragraphs, teaching pronunciation, translating text, etc. this can facilitate the duties of teachers as well as it can enhance the learning process for EFL learners by providing them with personalised learning programs. Recently, the launch of the OpenAI's new production, ChatGPT has revolutionised the EFL sector since it came with new innovations to the field. The following chapter starts by discussing the integration of AI into the EFL education. Then, it tackles the use of different AI tools such as the chatbots, speech recognition technology, etc. in the EFL sector. Furthermore, the chapter gives a general overview of ChatGPT and its integration into the EFL instruction and especially writing. Also, it introduces the different items that should be included in order to write a good prompt for ChatGPT. Finally, it discusses the different issues of using ChatGPT in the EFL writing realm

1.1. Artificial Intelligence (AI) in Foreign Language (FL) Education

Artificial intelligence (AI) has been integrated and has shown its capacity in dealing with complex tasks in a wide range of domains. Artificial Intelligence is the term used to describe computer programmes that can perform sophisticated operations that were previously limited to human performance, like problem solving, reasoning, and decision making (Coursera, 2023).

With the advancement of AI in the world, education is one of the other fields that has benefited from it. The increasing role of AI could transform the way education is structured. According to Bojorquez and Vega (2023), AI could completely transform education by improving learners' experiences, assisting teachers, and providing more individualised learning options. The learning process became easier for learners. They can customise their

learning based on their lacks, needs, abilities and interests. Additionally, it can enhance assessment efficiency and offer immediate feedback (Mureşan, 2023).

Foreign language (FL) learning and teaching, as a division of education, has been impacted by the power of AI. The latter has been successfully integrated into the FL learning and teaching domain and could make radical changes in the roles of instructors and learners as well as the way they perform their tasks. FL context has benefited from the realm of AI with its different types and tools. The AI technologies could develop many aspects of FL learning and enhance its pedagogical aspects. It can provide language instructors with new and effective teaching methods and techniques that can aid in developing the teaching process and help students reach proficiency in a quicker way. Wei (2023) supported this by stating that AI-assisted language learning tools that are widely available on computers and mobile devices can aid language learners in their learning endeavours and enhance various language skills. Thus, Artificial intelligence can impact foreign language instructing processes, learning techniques, teaching methodologies, assessment procedures, etc.

1.2. AI Tools Used in Foreign Language (FL) Learning

The integration of AI into the FL context has changed the teaching learning process. It can provide innovative ways that can help learners master the language effortlessly and effectively. AI can detect FL problems such as pronunciation errors (Humardhiana, 2022, Indari, 2023), grammar and spelling issues (Alharbi, 2023; Park, 2019), etc. It can also aid learners with instant feedback (Zaghlool & Khasawneh, 2023). The integration of AI in the foreign language education can enhance the teaching learning experiences using several tools such as speech recognition technology, machine translation tools, and Chatbots.

1.2.1. Speech Recognition Technology

known as Automated Speech Recognition (ASR), is a form of AI software products that can transform human speech into written words. ASR has been integrated into the FL context and has the potential to transform the FL education sector. ASR offers a wide range of advantages and benefits to learners of foreign languages that can improve the effectiveness of the learning process. Research showed that speech recognition technology could improve the FL learners' pronunciation and accent positively through its ability to compare their performance with that of natives and receive instant feedback and immediate correction. According to Foote and McDonough (2017), ASR technologies can be good tools to improve the pronunciation, accent, and fluency of L2 learners. ASR technology adapts the demands of individual learners, delivering personalised feedback and targeted interventions that fit their unique pronunciation issues (Sun, 2023). ASR can enhance the speaking skill by helping learners to be fluent in language through aiding learners to deal with complex vocabulary and help them to acquire the correct pronunciation of words. FL learners can improve their language proficiency using ASR by providing each learner with an individualised learning program based on their needs and has the ability to improve their lacks. ELSA (English Language Speech Assistant) Speak is an example of ASR technology. ELSA Speak is an ASR AI-based language learning platform and phone application. Akhmad and Munawir (2022) stated that the use of the ELSA Speak App affects improving learners' pronunciation skills in learning English. To sum up, ASR can be an effective pronunciation assistant in which it can recognize and understand the pronunciation problems and identify learner's challenges based on their previous performance by providing personalised learning programs for each learner.

1.2.2. Chatbots

AI chatbots can be valuable tools for language learning. A chatbot can be defined as “a computer program designed to have a conversation with a human being, usually over the

internet” (Cambridge English Dictionary, n.d.). Chatbots enable foreign language learners to perform a large variety of tasks in different language aspects. Learners' positive experiences using chatbots to learn the English language influenced their intention to switch to another language. (Annamalai et al., 2023). It is important to mention that using chatbots could positively impact learners' motivation and enhance their desire to do their best through the chatbots' interactive nature. Chatbots enable learners to engage in the learning process more effectively than the traditional ways such as discussions, group works, etc. Learners can learn new vocabulary through their interaction with the chatbots. Chatbots can program personalised vocabulary exercises based on the performance of learners. Also, they can acquire new words unintentionally through their interaction with chatbots. In addition, Haristiani (2019) affirmed that after using chatbots, students could have the chance to utilise a variety of language structures and vocabulary that they may not ordinarily have used before. Furthermore, Fryer and Carpenter (2006) found that Chatbots have the potential to provide students with instant and effective feedback on their spelling and grammar. Along, Chatbots can be a helpful tool while writing in which they can be trustful in providing foreign language learners with effective feedback in grammar and spelling that can improve the students' grammar and spelling skills. According to Kim et al. (2021), AI chatbots can assist language learners in improving their pronunciation, stress, and intonation. Finally, Chatbots enable students to practise listening and reading skills by offering text and synthesised speech. In summary, chatbots can help learners be proficient in the four language skills thanks to their potential in interacting with learners and recognise and understand their requirements.

1.2.3. Machine Translation (MT) Tools

Learners of foreign languages usually face some problems in L2 while learning the language. FL learners sometimes fall in a situation of a lack of understanding of a word, a sentence or even a whole paragraph. So, they try to fix these problems by translating texts to

their mother tongues or any other language they are proficient in. FL learners usually tend to use machine translation (MT) tools in order to translate their text. MT technology refers to “The process by which computer software is used to translate and [is] compatible with PC systems and smart phone systems” (Alhaisoni & Alhasysony, 2017, p. 73). The literature showed the effectiveness of incorporating the MT technology into the EFL context. A study by Lee (2019) on the impact of MT on EFL students’ writing showed that the participants found MT helpful in choosing words that fit the context and creating more authentic expressions. Also, MT tools has proved its benefits in the FL learning from various aspects. First, MT technology has the ability to improve EFL learners lexico-grammatical awareness in which it leads them to correct their mistakes what can decrease the numbers of the grammatical and lexical errors that can enhance the quality of the piece of writing (Lee, 2019; Niño, 2008). Second, Using MT offers more exposure to new words from the translated text that allow learners to increase their vocabulary. This can expand FL learners’ lexis and help them be more fluent in language. DeepL Translator platform, for instance, has proved to be a successful machine translation software to translate simple vocabulary and phrases as well as specific discourse text types in different contextual situations (Schmidt & Strassner, 2022). To conclude, the analysis of the translated text by MT helps learners correct the wrong grammatical structure and their grammatical mistakes as well as it can expose learners to new grammatical structures.

1.2.4. Large Language Models (LLMs)

Incorporating large language models (LLMs) into the Foreign Language (FL) context has proven to be effective in improving language learning experiences. A large language model (LLM) is “a type of artificial intelligence (AI) algorithm that uses deep learning techniques and massively large data sets to understand, summarise, generate and predict new content” (Sarno, 2023). In other words, it uses the technique of teaching computers to process a large amount

of data in a way that is inspired by the human brain. According to Bonner et al. (2023), “Large Language Models (LLMs) has emerged as perhaps the most powerful tool that is affecting language teaching and learning today” (p.24). LLM can help language learners to deal with their various tasks efficiently. For instance, LLMs are able to summarise text quickly and efficiently, providing learners not only with a model of a well-written summary, but also with level-appropriate text. (Bonner et al., 2023). In addition, ChatGPT, as an LLM, can make it easier for students to access information, develop writing skills and enhance subjective learning (Farrokhnia et al., 2023). The capabilities of ChatGPT in particular and LLMs in general allow users to easily access to knowledge. Simply by engaging in a conversation with the models, learners can effortlessly receive instant information about a large range of topics in different contextual situations. Also, LLMs were proved to be a powerful writing assistant. LLMs could help in enhancing many aspects of writing such as checking grammar, generating and developing ideas as well as evaluating and criticising writing pieces.

To sum up, EFL learners had good learning experiences using AI tools like ASR technology, machine translation products, chatbots, LLMs, etc. Each tool has proved its efficiency in an aspect or more in foreign language learning and teaching and could help learners reach language proficiency in its four skills.

1.3. ChatGPT

1.3.1. Overview of ChatGPT

ChatGPT (Chat Generative Pre-Trained Transformer) is a large language model designed by the American AI-based research organisation OpenAI. It was launched in November 2022. It is designed to generate human-like discussions by understanding the context of a conversation and providing suitable replies (Deng & Lin, 2022). The great capacities delivered by ChatGPT allow it to reach one million users in five days only after it went public. So, it has become a part of a plenty of domains due to its helping nature and fast and accurate responses.

ChatGPT has several uses, including but not limited to translating languages, creating content, and providing customer support (Li et al., 2024). It can also help in writing, generating codes, and designing. It is trained on a variety of internet information to provide relevant responses to the instructed task.

1.3.2. ChatGPT Prompt Engineering

A prompt is a specific task that the user gives to the AI model seeking to get an output. ChatGPT prompt engineering is designing and developing an instruction to effectively deliver the user's problem or question to the large language model. Engineering a good prompt for ChatGPT is a crucial skill in which it helps the user to get accurate responses and workable solutions through creating a meaningful interaction with the model.

1.1.1.1. Elements of Good Prompt

- a. **Task:** The task refers to the specific instruction that represents the problem, question, or request that the user wants ChatGPT to provide an answer / solution for. The task should be explicitly mentioned which can help in getting accurate responses. The user could break down complex tasks into smaller sub-tasks, that could make the instructions clearer and more manageable.
- b. **Context:** means incorporating the necessary details that can supply ChatGPT with background information related to the task.
- c. **Constraints:** the limitation or guidelines that can keep ChatGPT's responses relevant, limited, specific to the desired task.
- d. **Format:** it is the form or style that the user wants the output to look like for example pointed-list, tables, paragraph, short, detailed, etc. the style should be chosen based on the type of information and nature of the task.
- e. **Persona:** it means simply assigning a role for ChatGPT to play. This can help the model to provide answers from a specific angle.

1.3.3. ChatGPT in Education

The recent decades have witnessed radical changes in the teaching learning process thanks to AI technology. ChatGPT, as a new AI model, has revolutionised the education sector like all AI technologies. However, it is a larger model and has many plugins that can make it unique. Several research studies proved the capability and efficacy of integrating ChatGPT in education. ChatGPT has shown its potential in performing various tasks, solving complex educational issues, and personalising learning based on learners' needs, lacks, and wants. Also, it can be used as an idea generator for designers and generate ideas for writing. ChatGPT is a self-reflection and assessment tool as it can help learners personalise their learning goals and strategies (Biswas, 2023). “The model can be used for learning programming, writing essays, problem-solving, explaining complicated subjects, virtual tutoring, practising languages, teaching, and research support” (Rahman & Watanobe, 2023, p.18). ChatGPT has the ability to deal with many tasks in a large range of fields in human-like performance and can find solutions for various educational problems.

1.3.4. ChatGPT in English Foreign Language (EFL) Context

In the context of foreign language (FL) education, ChatGPT has the ability to transform the traditional ways of learning a language and bring up new ways of solving FL educational problems. ChatGPT has the potential to provide foreign language learners as well instructors with plenty of services and facilities that can help them learn and teach more comfortably and effectively. The integration of ChatGPT in the EFL context can assist teachers in creating lessons by providing authentic language materials. (Baskara & Mukarto, 2023). Additionally, it has the capacity to give comprehensive explanations regarding the utilisation of terminology, accompanied by illustrative instances (Ghafar, 2023). Furthermore, Teachers can use ChatGPT to engage their L2 students in meaningful discussions by creating discussion prompts based on specific themes or occurrences. (Kasneci et al., 2023).

ChatGPT can act as a foreign language writing assistant for teachers or for learners. It can aid FL learners in self-directed learning and self-assessment by providing immediate feedback for writing. Also, it can be used to evaluate the quality of the ideas and word choice. According to Athanassopoulos et al. (2023), using ChatGPT as a feedback tool could increase the total number of words, unique words, words per sentence in students' texts compared with their original ones before integrating ChatGPT. Faiz et al. (2023) supported this by stating that the suggestions and modifications generated by ChatGPT are crucial for enhancing lexical coverage and sentence structure that improve the quality of works. To conclude, using ChatGPT as an EFL writing assistant improves EFL learners' writing skills (Faiz et al., 2023).

1.4. Issues of Using ChatGPT in EFL Writing

ChatGPT, as a new language modal, has provided plenty of benefits and plugins to the EFL context, particularly writing. It helps to develop many aspects like checking grammar, enriching vocabulary, providing feedback, etc. However, ChatGPT presents several drawbacks that should be taken into consideration.

To begin with, ChatGPT can be a source of plagiarism. EFL learners may copy an entire text or essay without getting detected because differentiating between human and AI-generated texts can be challenging for teachers. Because it is easy to use, ChatGPT will mainly encourage learners to cheat (Rahma & Fithriani, 2024). Instructors should educate learners on the importance of academic integrity and encourage them to use ChatGPT as an assistant tool but not as an alternative to humans.

Furthermore, the full dependence on ChatGPT in writing can be another threat. The overreliance on ChatGPT in writing their assignments can destroy the learners' autonomy and decrease their critical thinking abilities. The easy access to information through ChatGPT can obstruct the active engagement of learners in independent research and decrease the critical

thinking abilities hindering the development of essential skills in critically evaluating information (Mai et al., 2024). Learners should evaluate and criticise the ChatGPT-generated ideas and suggestions before incorporating them into their texts.

Another disadvantage is the possibility of hindering the learner's language proficiency. L2 learners run the risk of depending too much on ChatGPT to generate content, which could restrict their writing creativity and originality (Cao & Chong, 2021 cited in Zakaria & Ningrum, 2023). Ready-made content by ChatGPT may lead learners to be lazy and reliant on the model to perform their writing tasks which can limit learners' creative mindset. This can show only the AI voice and prevent the development of the learner's writing style. Learners should use ChatGPT wisely and show their voices and styles of writing in their texts. As they can get help from other authors' works and cite them in their works.

Finally, ChatGPT may not always provide effective feedback for learners' writing. The inaccurate or inappropriate feedback can mislead them resulting in the production of incorrect language patterns or ineffective writing strategies (Zakaria & Ningrum, 2023). The suggestions and explanations that ChatGPT provides to learners about their writing may not always be correct and suitable for the context and the topic. Learners should seek feedback from teachers and peers besides the ChatGPT's help. Engaging learners in peer review activities can raise their motivation to perform the task and help to improve each other's writing skills.

Conclusion

To sum up, Artificial intelligence, with its different types and tools, serves valuable contributions and assistance in the field of education in general and language learning specifically. This chapter sheds light on the potentials of artificial intelligence in the EFL field and its impact on the four skills. The AI plays an immense role in facilitating the teachers as well as learners teaching-learning process. This includes the different AI tools that can be used

in this field such as the machine translation software and applications, chatbots, large language models, etc. The chapter also puts a specific focus on the power of using ChatGPT in the EFL sector, specifically its impact on writing skills. However, despite the fact that ChatGPT showed many advantages to EFL writing, it also has many drawbacks and disadvantages such as providing incorrect feedback, representing a source of plagiarism, etc. Educators and learners should be aware of the correct ways of using it and integrating it into their writing.

ChatGPT, as a new model, is not perfect yet and can be developed more.

Chapter two: Writing

Introduction

Writing is one of the crucial components of studying in higher education because it can be considered as a means of communication to share students' thoughts and ideas in their proposal, dissertations, and their articles. Nowadays, as the English language is considered as the "Lingua franca" in the world, it is important to take into consideration its significance in life and especially in the academic writing context. However, being proficient in EFL writing is not an easy process. EFL learners have to have certain cognitive abilities and processes to master writing in English language in higher education. This chapter put focus on the importance of EFL writing in the higher institution context. Then it sheds light on the main approaches to the EFL writing (i.e., product-based approach and the process approach) and asserts the adaptation of the process approach in the current time and explains its main steps. Further, it gives a brief overview of the writer's block, its reasons and effects on the piece of writing. Finally, the chapter brings to light the previous studies about the impact of ChatGPT in writing.

2.1. Writing in Higher Education

Learning in higher education involves adapting to new ways of knowing including new ways of understanding, interpreting, and organising knowledge (Lea & Street, 1988). Writing is a very essential skill in higher education institutions and universities. It can be considered as a starting point for academic success and intellectual development in higher education context. Writing can be defined as " the process of using symbols (letters of the alphabet, punctuation and spaces) to communicate thoughts and ideas in a readable form" (Benwell, n.d. para 1). That is to say, writing is one's ability to express thoughts, ideas, opinions, feelings and emotions to others in a form of written language. Writing goes beyond being only a task to becoming a means of communication, analysis, critical thinking and synthesis of ideas. According to Bora (2023), Writing helps students record their ideas and improves their ability to think creatively

and critically. Being a proficient writer in higher education means to adopt new ways, styles, rules and structures to write and submit proposals, dissertations, and articles.

Writing serves a great importance in the English as Foreign Language (EFL) sector. English departments may be the most interested field in writing because the latter is one of the main language learning skills (i.e., listening, reading, writing, speaking). However, EFL writing is considered as a complex cognitive process, which takes place within a certain social context (Yakhontova, 2003). EFL learners have to have certain cognitive abilities and critical thinking processes to master writing in English in an academic context. Learners can follow many ways to improve their writing skills. On one hand, EFL learners should read extensively in the target language. Reading helps students to become better writers through exposing learners to new grammar rules and developing their grammar structures as well as increasing their vocabulary (Johnson, 2008). On the other hand, seeking feedback from teachers and peers can aid learners explore their mistakes as well as explore new structures to enhance their writing styles.

2.2. Process Approach VS Product Approach

In the EFL field, writing plays a pivotal role in transmitting thoughts, opinions, and experiences. However, teaching academic writing in the EFL context has always been a controversial issue. Educators tend to find the suitable methods and strategies to adopt when teaching writing. Approaches to teaching writing vary according to the methodologies, techniques and strategies followed to reach the final outcome. Traditionally, there are two main approaches to teach and study EFL writing: product-based approach and process-based approach. According to Blackmore-Squires (2010), The distinction between these two approaches is centred mainly on the fact that the process approach is concerned with how a learner gets to the end of the product. In contrast, the product approach is concerned with the final product and the assessment of this as a piece of work.

2.1.1. The Product-based Approach to Writing

On one hand, the product-based approach emphasises on treating the writing content as a product. In other words, it is interested in the final version of the product rather than the way and the process followed to reach it. Steel (2004, cited in Selvaraj & Abdul Aziz, 2019) reported that applying this approach in the EFL classroom writers should adhere to four main steps. First, familiarisation; students need to read the model composition and take note on the different features of a composition which are organisation of ideas, the language use and writing mechanics. Second, controlled writing; students perform practices under the teacher's control to practise the elements outlined in the model text. Third, guided writing; Students attempt to mimic the model essay by organising a collection of pre-set thoughts to suit the model. Fourth, free writing; Students finally perform the task by using their own writing skills, including sentence structures and vocabulary choice in order to write their texts. This model encourages learners to mimic an already written model which can help them gain more confidence and proficiency in writing. It helps them overcome the writing complexities faced by them when they write. However, many studies emphasised many issues with adopting the product-based approach in the classroom for several reasons. Learners and instructors who adopt the product-based approach tend to overemphasise the importance of grammar, syntax, and mechanics which leads them to pay little attention to the target audience and purpose of the writing itself (Suryana & Iskandar, 2015). When prioritising grammar, mechanism, and syntax over the aim of the piece of writing and the audience, the substance and the core of the message might be lost, and the writer may fail to convey it effectively. Also, adopting the product-based approach may hinder the learners' creativity because of the constant imitation of previous product and emphasising the correctness of the grammar rather than the relevance of ideas. Badger and White (2000) maintained that the knowledge and skills that learners have are ignored in a way. Thus, using the product-based approach can aid learners develop plenty

of their learning aspects; however, imitating other texts continuously would hinder learners' abilities and diminish their creativity.

2.1.2. The Process Approach to Writing

On the other hand, according to Nordin and Mohammed (2006), "The process approaches focus on how a text is written instead of the final outcome" (p, 76). That is to say, the process approach to writing focuses mainly on the steps that should be followed in order to get a well-organised piece of writing. Indeed, L2 writing encompasses a multifaceted journey of exploration that entails the stages of pre-writing, numerous drafting, detailed revision, and ultimately, the final editing. (Maarof & Murat, 2013). It is noteworthy that the process of writing is not linear. It doesn't always proceed step by step in a straight line. Writers may go back to earlier stages to check and revise. It is more like a cycle of drafting, revising, and refining until the final product emerges.

2.1.2.1. Prewriting:

Finding what to say, how to say and how to support claims is the first stage a writer should pass through. Pre-writing is indeed a crucial initial phase in any successful writing process. It can be considered as the compass to guide writers with what they are going to express and communicate. This includes the ideas, thoughts, claims, and arguments. A good writer should plan before they start writing. Various techniques and strategies can be used in this stage to help writers generate ideas and arguments. According to Coffin et al. (2003) techniques like brainstorming and freewriting are valuable tools for writers to generate ideas, gather data, tap into implicit knowledge, and structure their thoughts in the prewriting stage.

2.1.2.1.1. Strategies to Generate Ideas in The Prewriting Stage

- a) *Brainstorming*: "Brainstorming is a technique used to encourage individuals to generate ideas and come up with a list of possible solutions to a certain problem" (Maghsoudi &

Haririan, 2013, p, 60). The literature demonstrated the efficacy of this strategy in improving the EFL learners' writing skills. This may be because it helps students to organise their thoughts and ideas before writing. The brainstorming technique aids learners to be actively involved in the classroom activities (Khalili et al., 2015). This involvement can lead to increased engagement, motivation, and ownership of their learning process. Brainstorming allows students to easily grasp their thoughts while also increasing their conceptual comprehension, which helps them organise their ideas. (Manouchehry et al., 2014) Brainstorming helps students to clarify and organise their thoughts, leading to improved conceptual understanding of the topic at hand. By verbally expressing their ideas and engaging in collaborative discussions, students can understand different concepts. Nevertheless, some risks to brainstorming include loss of motivation, pressure linked to specific ideas, and inhibition. (Shirvani, 2021)

- b) *Mind mapping*: Mind mapping, as noted by (Ward, 2023) is “A mind map is a brainstorming technique used to visually organise information into a hierarchy. They feature one main idea as the central point of the diagram, with subtopics branching out and connecting to supporting ideas" (para 2). Mind mapping is a creative tool to organise thoughts, ideas and structure content of writing. It helps make connections between thoughts, concepts, ideas that are related to the main theme of the piece of writing. Mind mapping techniques served many benefits in the sector of EFL writing. According to Wahid and Sudirma (2022):

Mind maps can work as tools to facilitate the learners to plan ideas in the prewriting process. Learners can be provided with examples to prepare a stepwise pattern in hierarchy that would help them retain ideas till the whole of the essay is written. Mind-mapping techniques are good to be applied in the prewriting stage to explore ideas and generate thoughts on the topic for

writing. Mind-maps allow gathering concepts in relation to the main theme.

The concepts gathered this way are coherent without the linear or inflexible structure of outlines, clustering or listing ideas (p, 40).

Mind maps are valuable tools for learners, particularly in the prewriting phase, by aiding in organising and planning ideas. learners can effectively retain their thoughts and concepts in a form of drawing and graphs until the entire essay is developed. This can facilitate the generation of ideas, enable learners to explore various aspects of a topic as well as enhance coherence and connectivity among ideas. Despite all of what is mentioned, using mind mapping strategy to generate ideas can contain some issues. According to Nidayanti et al. (2022) the biggest challenge in conducting mind-mapping techniques is that some of the learners did not understand the characteristics of a mind mapping quite well resulting by wrong application of its steps. Thus, using this technique, learners can easily visualise the relationship between different concepts and their relevance to the main theme, which can lead to enhance their overall writing process, but they should take into consideration its drawbacks.

c) *Freewriting*: another technique is freewriting. Freewriting is a kind of writing that is mainly about writing with no stopping. That is to say, in freewriting technique, writers do not give attention to grammar, spelling, relevance, proofreading and editing. The main purpose of freewriting is to raise learners' creativity and encourage them to generate ideas and express themselves freely with no constraints. This technique has been proven to be very effective in decreasing writing fear and anxiety and helping in gaining confidence of their writing ideas, thoughts, style and decreasing grammatical and grammar errors. Many studies have demonstrated that freewriting can be a helpful strategy to aid EFL learners improve their skills in writing. For instance, research by Alharthi (2021) showed that students acknowledged that the act of engaging in free-writing exercises has been found to enhance individuals' writing proficiency, alleviate their fear towards writing in a foreign language,

and enhance the development of better writing skills. In the same line, Park (2020) in his study showed that students' writing anxiety noticeably decreased and their post-essays' quality improved significantly too. Although this technique serves as an effective warmup activity and as an idea generator, grammar mistakes remain uncorrected, and students could possibly choose the easiest vocabulary for expression (Tanner, 2016). What can make the piece of writing very basic and uninteresting. Thus, Freewriting is a valuable technique for EFL learners seeking to improve their writing skills. By providing a supportive environment. Freewriting can foster creativity, builds confidence, which can lead to more proficient writing abilities.

2.1.2.2.Drafting

It is a prior stage in the process of writing. it refers to the first attempt to put the gathered ideas and arguments together in a textual form. This step focuses on the content and the quality and relevance of ideas rather than the mechanism and grammar. The focus during drafting is primarily on content development and coherence rather than linguistic precision. Writers are encouraged to prioritise conveying their intended message effectively, even if it means neglecting the grammatical correctness or stylistic competence at this early stage. Thus, drafting serves the first step of transforming the separate thought to a partly coherent text.

2.1.2.3.Revising

To revise simply means to "see again". In this stage writers are supposed to see again their first draft to check the relevance and organisation of ideas. Revising is a crucial step in the writing process for refining and polishing one's work. The purpose of revising written work is to enhance the coherence of global content and the structure of ideas, thereby ensuring that the writer's message is conveyed more effectively to the reader which involves a critical review of the text to evaluate the clarity of communication with the intended audience. (Richards, 2002). So that they strengthen their claims and arguments as well as improve their writing style.

However, at this stage, writers do not pay much attention to correcting grammar and spelling. Bae (2011) supported this stating that it is important for educators to inform their students that revision goes beyond simply addressing minor grammar errors; it involves a comprehensive review of the content and organisation of the entire text.

2.1.2.4.Editing & Proofreading

It is the step of polishing and refining the text considering coherence, clarity and mechanism. That is to say this stage involves enhancing the overall quality of the piece of writing. At this stage, learners have the opportunity to revise their own or their peer's work by focusing on aspects such as grammar, spelling, punctuation, diction, sentence structure, and the accuracy of supporting textual material like quotations, examples and so on (Richards & Renandya, 2008). This may include the verb tense, word choice, correct spelling, and punctuation use. Learners can edit their works individually or with the help of their peers.

To conclude, within the realm of EFL education, teaching writing has been constantly an issue of debate. Some teachers tend to focus on the final result while others concentrate on how to realise the outcome. However, recently the widely used approach to writing is the process-based approach as noted by Gafur, (2020) The process approach to writing is extensively utilised and has proven to be helpful in boosting students' writing skills and learning behaviours.

2.2.The Writer's Block

In the field of EFL writing, writer's block can represent a big challenge for learners while doing their writing assignments. Writer's block or "white page terror" as stated by Huston (1998) is "an inability to begin or continue writing for reasons other than a lack of basic skill commitment" (Rose, 1985, p. 3) characterised by "being stuck in the writing process without the ability to move forward and write anything new" (Masterclass, 2021, para 3).

Writer's block can happen due to a plethora of reasons. To begin with, the fact that the writers are unfamiliar with the topic which they will write about and the limited time available for writing, coupled with inadequate support from teachers, can lead to writer's block. (Huston, 1998 cited in Bastug et al., 2017). Also, lack of motivation, disposition, attitude, and anxiety are concepts associated with writer's block too (Baştug et al., 2017).

Writer's block can be a real threat for the EFL learners in which it can affect their writing performance negatively. First, it may lead to the disorganisation of the ideas in the piece of writing which can affect the quality of writing. Second, it can lead to frustration and decrease of learner's motivation and desire to complete writing. Finally, writer's block can contribute in giving negative attitude towards writing among the EFL learners.

2.3.ChatGPT in EFL Writing

Using ChatGPT in the realm of EFL presents a transformative tool for learners in dealing with their assignments. ChatGPT offers a large variety of services to EFL learners and particularly in the writing skills. ChatGPT can aid them refine their skills and improve many aspects in their writing. The literature showed the impact of the capacities that ChatGPT delivered to the EFL writing sector to improve its skills. A mixed method study by C. Song and Y. Song (2023) aimed at evaluating the impact of AI-assisted language learning on fifty Chinese English as a Foreign Language (EFL) students' writing skills and writing motivation focusing on ChatGPT as a case study. The data was collected using a pre-post testing technique evaluated based on a scoring rubric and a semi- structured interview to explore the learners' perspectives and experiences using the AI-based tools. The students revealed a noticeable improvement in their writing skills as well as they showed an increase in their motivation towards writing. Also, Dergaa et al. (2023) employed a quasi-qualitative design in their study, focusing on exploring the potential benefits and threats associated with ChatGPT and other NLP technologies in academic writing and research publications, stressing their ethical

considerations and evaluated the impact these technologies may have on the authenticity and credibility of academic work. The study indicated that ChatGPT and other NLP technologies possess the capacity to enhance efficiency in academic writing and research. This study took place in two different countries: Qatar and Tunisia. Further, Faiz et al. (2023) undertook mixed-method research aimed at optimising the utilisation of ChatGPT. Their goal was to make a balance between exploiting its capabilities to enhance grammar, vocabulary, and composition, also fostering learners' self-reliance in constructing logically structured and coherent written discourse. This research was conducted with fifty EFL Pakistani learners. The study showed that incorporating ChatGPT as a writing aid holds substantial promise in enhancing the writing proficiency of EFL learners. Along, in their 2024 study in Taiwan, Tseng and Lin employed a qualitative research design. Their aim was to investigate the innovative integration of OpenAI's GPT-3.5 within a university-level English as a Foreign Language (EFL) writing course, presenting a novel approach to academic instruction. The findings of this research reveal that ChatGPT enhances efficiency in writing by providing immediate feedback and generating content ideas as well as it improves the organisation within students' writing offering critical and objective feedback that students can use to refine their drafts.

These studies collectively examine the impact of the integration of AI technologies like ChatGPT into EFL writing instruction. Although all these studies agreed on the same findings that ChatGPT has a positive impact on enhancing the EFL learners' writing skills, according to the literature, some researchers adopted the mixed-method approach (C. song and Y. song, 2023; Faiz et al., 2023). Other studies employed the qualitative approach (Dargaa et al., 2023; Tseng and Lin, 2024). However, these studies have different aims, different data collection methods (pre-post testing technique, interviews, etc) and different contextual settings (China, Qatar, Tunisia, Pakistan, Taiwan).

The above literature showed the effectiveness of integrating AI tools and specifically ChatGPT in the EFL sector. The studies employ different designs and approaches focusing on exploring the impact of ChatGPT in different aspects of writing in different countries over the world. However, none of the studies has focused on investigating the impact of using ChatGPT to generate ideas for writing on enhancing the EFL Learners writing creativity in the Algerian context.

Chapter Three:
Fieldwork and Data
Analysis

Introduction

This chapter outlines the methods, approaches, context, and participants engaged in this research in order to collect, analyse, and discuss the data concerning the effectiveness of using ChatGPT as an assistant for writing on enhancing the EFL learners' writing creativity through aiding them in the process of generating ideas for their paragraphs. Also, it highlights the main results and contributions of the study in relation to the research question, hypothesis and aims.

3.1. Research Methodology

Research Design

The main objective of this study was to explore if AI tools, specifically ChatGPT, can assist EFL learners in comprehending and leveraging their innovative potential for generating ideas in writing assignments. In order to achieve this objective, answer the questions, and test the hypothesis, the current research adopted a quasi-experimental design. The quasi-experimental design was seen to be appropriate because it allowed researchers to determine the effects of the intervention of ChatGPT to generate ideas for the writing tasks on the improvement of the EFL learners' writing skills.

3.1.1. Research Approach

The present study adopted a quantitative research approach. A quantitative approach is a research methodology that focuses on collecting and analysing numerical data to describe, predict, or manipulate variables. "It is used in various fields, including the natural and social sciences" (Fleetwood, n.d., para 1.). "A quantitative research method deals with quantifying and analysing variables in order to get results. It involves the utilisation and analysis of numerical data using specific statistical techniques to answer questions like who, how much, what, where, when, how many, and how". (Apuke, 2017, p. 41). Quantitative research is a way to carefully measure and study things using numbers. It involves gathering data like numbers of people or amounts of things, and then analysing

them with maths. This helps researchers understand patterns and make solid conclusions. “Quantitative data analysis employs statistical techniques for processing and interpreting numeric data” (Fleetwood, n.d., para 1). In order to analyse the quantitative data, two types of statistics can be used: the descriptive statistics and the inferential statistics. The former are a summary for the obtained data. Regarding the inferential ones, they are predictions for the possible impact or relationships of the variables. Also, researchers should use statistical tests to be able to interpret and analyse the data. Through this process, researchers can quantify relationships between variables, test hypotheses, and make predictions and draw objective conclusions. This research adopted the quantitative approach in order to collect numeral data concerning the number of participants that have benefited from ChatGPT in the process of generating ideas for their writing assignments. These statistics helped researchers make conclusions regarding the impact of ChatGPT on the EFL writing skills.

3.1.2. Context and Population

The target population of this study was Master one (M1) English language students of University Mohammed Khider of Biskra, Algeria. The choice of M1 students was based on the fact that at this level, (1) learners are more knowledgeable about the requirements of academic writing with its different genres. (2) they are aware of the wise use of the different artificial intelligence tools because they use it continuously in writing their papers. A purposive sampling technique was adopted in order to select thirteen (13) participants (10 females, 3 males) from the entire population, their age range was between 22 and 24 years old. “The Purposive sampling is a non-random sampling technique where researchers select participants based on specific characteristics or criteria relevant to the research question or objectives” (OpenAI, 2024). Because of the shortage of time and the inability to introduce

ChatGPT in detail to participants, they were selected if they knew ChatGPT before and had prior experience with its use.

3.1.3. Data Collection

A quantitative pre-post testing technique was used in order to collect data for this study, answer the questions and test the hypothesis. The main aim of using the pre-post testing technique based quantitative approach was to gather numerical data concerning the participants' performance in writing. The numerical data presented the number of ideas in paragraph writing. Ideas were counted based on an answer key that was designed by the researchers where they wrote the possible ideas that might be written by the participants in their paragraphs. Also, it represented the number of participants categorised based on their changes from the pre-test to the post-test. It helped the researchers compare the performance between before and after the intervention with ChatGPT. Therefore, it helps in making decisions for the study.

○ Administration of the Test

The test was conducted with thirteen (13) Master 1 (M1) students at the Faculty of Letters and Foreign Languages, University Mohammed Khider of Biskra. The test was administered twice with a duration of one week each time. Initially, only eight participants attended, raising concerns about the representativeness and validity of the results. Consequently, the researchers decided to repeat the test with additional participants from the same M1 population.

○ Description of the Test

The test was administered to M1 students at University Mohammed Khider of Biskra. It was in a form of a pre-post-test. First, in the pre-test, each participant was asked to write a paragraph of no less than 100 words in which they discussed "the uses of technology in

education” without the use of any external resources of information in a duration of 30 minutes. Then, researchers intervened after the pre-test and before the post test, the intervention was about three sessions. In the first session the researchers explained briefly what the participants should do and how to write good prompts for ChatGPT to generate relevant ideas for their paragraphs as well as researchers tackled the ethical use of ChatGPT in order to avoid plagiarism and guarantee the originality of the piece of writing. All the participants used the GPT-3.5 version of ChatGPT since it is free and accessible by everyone. The second session and the third session were two online homework both with the same instruction. There were about 30 minutes in which the researchers asked each participant to write a paragraph about the same topic of the pre-test but with the help of ChatGPT to generate ideas for writing. Finally, the researchers asked each participant to write a paragraph again on the same topic of the pre-test for the post-test without the use of ChatGPT in 30 minutes. Then, they compared the results between the pre-test and the post-test.

The researchers evaluated the paragraph based on answer key. The researchers wrote the possible ideas that the participants might write in their paragraphs. After that, the researchers counted how many ideas they wrote based on the answer keys.

3.1.4. Data Analysis

To analyse and compare the data, a quantitative analysis was used. The analysis of data was performed through descriptive and inferential statistics. The descriptive statistics summarised the different statistical measures such as means, standard deviation, distribution of data, etc. for both the pre-test and the post-test. As for the inferential statistics, it was used to predict the impact of the intervention of ChatGPT to generate ideas on improving the students’ writing performance and helped in making decisions and conclusions for this study. In order to analyse the data, Statistical Package for the Social

Sciences (SPSS) software was used. Researchers chose the Wilcoxon Rank Sum test to conduct the analysis. This choice was because of the lack of randomisation when selecting the sample what represented a violation of one of the parametric testing assumptions.

This research adhered to ethical research consideration, including participants permission and awareness of the procedures, privacy and confidentiality, and fair treatment.

3.2. Results and Discussion

3.2.1. Results

The current study investigated the effectiveness of using ChatGPT to generate ideas for EFL paragraph writing to enhance EFL learners' creativity. It aimed at exploring how AI tools, specifically ChatGPT, can assist EFL learners in comprehending and exploiting their innovative potential for generating ideas in writing assignments aiding in harnessing the writing creativity skills among Master one (M1) English students of University Mohammed Khider of Biskra. A quasi-quantitative experimental design was implemented to accomplish the target objective using a pre-post testing technique to gather data. The sample consisted of thirteen (13) undergraduate M1 students (10 females, 3 males) with an average age between 22 and 24 years old.

In order to grade participants' writing, researchers created a list of key answers in which they wrote all the possible ideas that can be probably recorded by participants. Then, researchers counted the number of ideas written in participants' paragraphs based on the answer key.

The descriptive statistical results demonstrated a noticeable difference in the mean and the standard deviation between the pre-test ($M= 2.92$, $SD=1 .188$) and post-test ($M=3.62$, $SD= 1.044$) indicating a significant difference between the pre-test scores and the post-test ones and an increase in the number of ideas recorded by participants in their paragraphs. In addition, the results indicated a rise in the median and mode values from the pre-test (median=3, mode=3)

to the post-test (median =4, mode=4). This indicates that the average number of ideas written by most of the participants rose from 3 ideas to 4 ideas. Also, The Kolmogorov-Smirnov test revealed a normal distribution of data in the pretest scores with a level of significance ($p=.091$) (Figure 3.2). However, the test indicated a significance degree ($p=.021$) in the post-test indicating a non-normal distribution of data (Figure 3.3).

Figure 3.2.

Scores Distribution: Pre-test

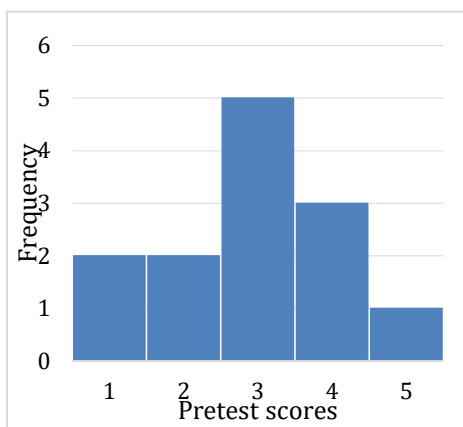


Figure 3.3

Scores Distribution: Post-test



Figure 3.4 and Table 3.1 represent the total differences between the group pre-test and post-test.

Figure 3.4

Scores Differences: Pre-test vs Post-test

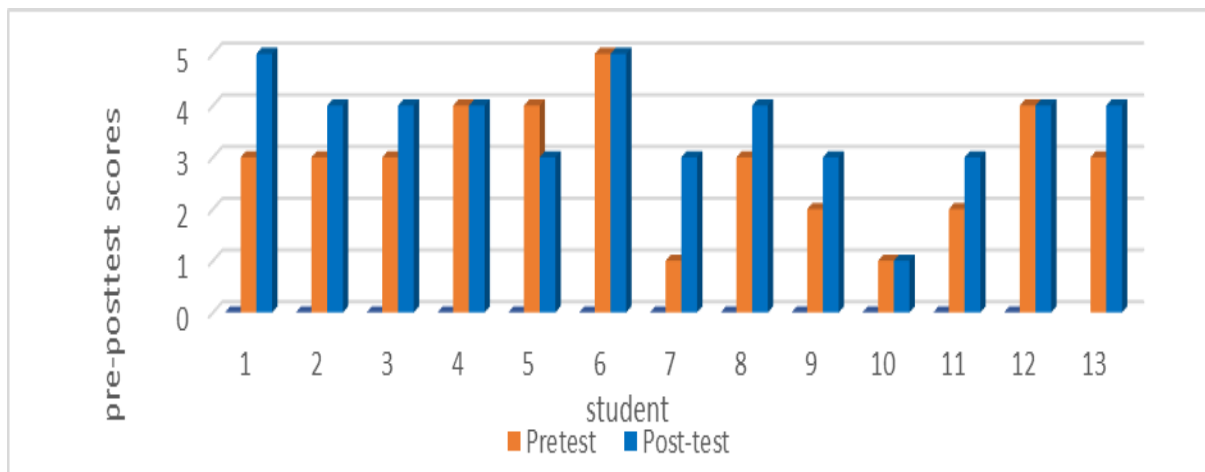


Table 3.1*Participants' Scores' Differences Between the Pretest and the Post-test*

participants	Pretest	Post-test	Difference
participant 1	3	5	2
participant 2	3	4	1
participant 3	3	4	1
participant 4	4	4	0
participant 5	4	3	-1
participant 6	5	5	0
participant 7	1	3	2
participant 8	3	4	1
participant 9	2	3	1
participant 10	1	1	0
participant 11	2	3	1
participant 12	4	4	0
participant 13	3	4	1

The graph and the table illustrated that out of the total sample size of thirteen (13), there were eight (08) positive differences observed in the number of ideas within paragraphs. Specifically, two participants demonstrated an increase of two extra ideas in their post-test paragraphs, while six students showed an increase of only one idea. Additionally, the data revealed that four participants (04) maintained an equal number of ideas in their written pieces. However, one participant (01) exhibited a negative difference between the pretest and the post-test, showing a decrease of one idea in their paragraph.

Wilcoxon Signed Rank test was used to test the degree of the differences between the related samples pretest and post-test. The test displayed a significant difference with a degree of ($p=.021$) suggesting the rejection of the null hypothesis "ChatGPT has no significant effect on fostering writing creativity among Master one EFL learners at the University Mohammed Khider of Biskra while doing their assignments."

Besides the increase in the number of ideas, the results displayed an increase in the total number of words in nine (09) participants' paragraphs after the intervention with ChatGPT. For example, in the case of Student 6, the number of words increased from 173 to 246. Also, for Student 8, the number increased by 25 words, and for Student 12, it increased by 39. While it remained the same for Student Seven. However, it decreased for the other three participants.

Furthermore, the comparison between the pretest and the post-test of the pieces of writing showed that six (06) participants used longer sentences after the use of ChatGPT. This is accompanied by the use of more explanations and exemplifications of the ideas.

3.2.2. Discussion and Interpretation

The statistical analyses conducted on the pre-test and post-test scores of M1 English students at the University Mohammed Khider of Biskra revealed significant insights concerning the influence of utilising ChatGPT as a writing idea generator on the diversity and number of ideas in paragraph writing. The comparison between the means as well as the comparison of each student's scores of the pretest and the post-test indicated a noticeable increase in the number of ideas per paragraph for eight participants after the intervention with ChatGPT. This suggests a positive influence of ChatGPT on the process of idea generation among learners. Therefore, these findings can give a positive answer to the first research question "Can generated ideas using ChatGPT help in expanding the diversity of concepts in paragraph writing among M1 English students at Mohammed Khider University?". This question seeks to explore if ChatGPT has the ability to aid M1 EFL learners of University Mohammed Khider of Biskra in improving their writing assignments by increasing their paragraphs' number of ideas. The results indicate that ChatGPT can be a powerful tool for generating ideas and can significantly help learners foster their creativity and expand the diversity of their ideas. These findings align with the results of a study by Harunasari (2023). Her study shows that ChatGPT has been successfully incorporated into Creative and Media

Writing classes to help EFL students with idea generation, story planning, and grammar and spelling correction. Marzuki et al. (2023) also supported this by stating in their study that AI programs and tools prove to have potential when it comes to the area of content, including idea generation and articulation. Furthermore, the shift in median and mode values from the pre-test to the post-test corroborated this increase, with the majority of participants exhibiting a rise in the number of ideas generated.

The rise in the mode value from the pre-test (3) to the post-test (4) can be due to the shortage of time of the research so that the student cannot remember many ideas. This can provide an answer for the second research question “To what extent can ChatGPT increase the number of ideas per paragraph among M1 English students at Mohammed Khider University?”. The integration of ChatGPT could help most of the learners add one idea to their writing assignments.

However, it is important to mention that while the pre-test data displayed a normal distribution, the post-test data showed a non-normal distribution of data. This shift might be due to the intervention of ChatGPT, which may have influenced the distribution and the number of ideas in participants' writing,

The data indicated different levels of improvement in idea generation. While the majority of students demonstrated positive differences, a few kept the same number of ideas, and one student exhibited a decrease. This variation can be due to the difference between learners' learning styles and strategies. It can be also affected by the amount of practice and proficiency using ChatGPT because not all students have the same experience and duration of utilising ChatGPT. So, researchers should take into account the importance of considering individual learning preferences and differences when integrating ChatGPT as a writing tool.

Moreover, the results also revealed an increase in the number of words, length of sentences, and explanation. These findings are similar to findings by Athanassopoulos et al. (2023) that demonstrate that using ChatGPT as a feedback tool could increase the total number of words, unique words, and words per sentence in students' texts compared with their original ones before integrating ChatGPT.

The comparison between the group's pretest and post-test medians using the Wilcoxon Rank SUM test shows a significance degree of ($p=.021$) which suggests the rejection of the null hypothesis. These findings declare the effectiveness of using ChatGPT as an idea generator for writing leading to acceptance of the researchers' suggested hypothesis that "ChatGPT has the potential to significantly foster writing creativity among Master one EFL learners at the University Mohammed Khider of Biskra while doing their assignments".

In conclusion, the analyses of this study's results highlight the significant potential of integrating ChatGPT as a writing aid for M1 English students at the University Mohammed Khider of Biskra. ChatGPT showed its efficacy in fostering the creativity of learners affecting both the breadth and quality of ideas within individual paragraphs. Thus, ChatGPT can indeed serve as a valuable writing assistant for M1 English students at the University Mohammed Khider of Biskra, leading them to enhance their writing skills and contributing to the acceleration of getting further language expertise.

General Conclusion

This research sought mainly to examine how AI tools, specifically ChatGPT, can assist EFL learners in comprehending and exploiting their innovative potential for generating ideas in writing assignments aiding in harnessing the writing creativity skills among Master one (M1) English students of University Mohammed Khider of Biskra.

Two theoretical chapters were written to build a comprehensive understanding for this research. The first chapter was about the usage of Artificial Intelligence (AI) and its different tools in the foreign language context. Also, it provided an overview of ChatGPT and its uses in the EFL context particularly in writing. The second chapter involved the importance of writing in higher education and specifically in the EFL context. It tackled the main approaches to writing and finally it contained the previous studies regarding the use of ChatGPT in writing.

This study employed a quasi-experimental design with quantitative research using a pre-post-testing technique. Pre-test and post-test were conducted, with participants asked to write paragraphs before and after a brief intervention that included the use of ChatGPT to generate ideas for writing. Then researchers analyse and compare the results using the SPSS software. The findings of this study revealed three main points. First, ChatGPT has the ability to provide M1 EFL learners with new ideas for their writing tasks which can help in diverging and increasing the number of ideas per paragraph. Second, it increases the number of words and helps in expanding the length of sentences in the paragraphs. Third, ChatGPT allows learners to state examples and explanations to their paragraphs. This can help the reader better understand the ideas in particular and the whole topic in general.

The study gave significant insights concerning the impact of using ChatGPT in EFL writing. The results indicated that the use of ChatGPT to generate ideas for writing can be helpful in fostering M1 EFL learners' creativity as well as enhancing the overall quality of the piece of writing. This study presented a valuable contribution by demonstrating the efficiency

of using ChatGPT as a writing assistant to generate ideas for their assignments. It can decrease the burden of finding what to write in their writing assignments.

1. Pedagogical Implication

The research discussed in this work demonstrated that ChatGPT can be used as an effective writing assistant and has the ability to significantly enhance the EFL learners' writing performance. The results of this study gave insights to some implications for the EFL academic society. For learners, they can exploit the ChatGPT potentials in their learning process. ChatGPT has the ability to help learners refine their writing assignments as well as foster their creative abilities and enhance their writing achievements. In addition, it is valuable to aid EFL learners find new ways to generate ideas when they face the writer's block. As for teachers, they can incorporate ChatGPT and other AI tools into the EFL classroom and encourage their learners to use them to help them gain more proficiency in their writing skills. Also, this research encourages the development of digital literacy skills. Thus, Teachers are encouraged to support the integration of technology into the EFL context and encourage learners to incorporate it in their learning process but in a judicious manner.

2. Limitations of the Study

In this study, researchers investigated the effectiveness of utilising ChatGPT as a tool to generate ideas for writing on enhancing English as a Foreign Language (EFL) learners' writing endeavours. This research demonstrated the potentials and the positive impact of ChatGPT in the process of generating ideas on improving the writing skills as well as it proves its efficiency in enhancing the quality of the piece of writing. Although this research provided significant insights to this area of research; however, it is essential to acknowledge certain constraints and limitations related to the methodology, objective, findings, etc.

- a. **Sample Size:** This study might be conducted with a relatively small group that may limit and constraint the generalizability of findings. With only thirteen participants, the results may not be representative of the broader population of EFL learners.
- b. **Selection Bias:** While purposive sampling can be useful for attaining specific characteristics in the sample, it can also introduce bias. By selecting participants who already know ChatGPT, the sample that is not representative of the broader population of EFL learners. This could lead to limiting the generalizability of the findings.
- c. **Lack of Control Group:** The absence of a control group makes it challenging to correspond any observed changes only to the use of ChatGPT. It's difficult to determine whether the improvements in creativity are due to ChatGPT or other factors, such as prior knowledge or external influence.
- d. **Short-Time Duration:** Conducting research within a short-limited time can affect the depth and scope of the study. Additionally, short research periods may not allow for adequate time for the assessment of the effectiveness of using ChatGPT in enhancing EFL learners' creativity. Also, there would not be enough exposure to ChatGPT and its effective use.
- e. **Restricted Context Setting:** Conducting the study at a single university limits the generalizability of the findings. The results may be influenced by specific contextual factors restricted to University Mohammed Khider of Biskra and may not be applicable to other educational settings.
- f. **Ethical Considerations:** Investigate ethical considerations related to the use of AI tools like ChatGPT in language learning contexts, such as issues of intellectual property, plagiarism and cheating, and dependency on technology.

Considering these limitations, future research can get deeper in this research subject matter and give better insights to it.

3. Recommendations for Further Research

Based on these research results and limitations, researchers suggest some recommendations for future research. First, researchers in the field should consider the long-time duration of the research. A longitudinal study can be conducted to examine the impact of ChatGPT in an extended research period. This can give participants more practice and exposure to ChatGPT. Also, a longer period of time can give the opportunity to researchers to assess participants in multiple testing points to test the enhancement of the EFL learners' creativity in the long-term effect. Second, further research is needed in order to incorporate the qualitative approach beside the quantitative one. This can allow researchers to explore the learners' and teachers' perceptions and experiences with using ChatGPT to generate ideas for their writing assignments and its impact on writing in general. Third, future research can be conducted to determine the impact of using ChatGPT as a tool to generate ideas with larger research samples. Using a large number of participants would make the sample more representative giving better results to better understanding and insights for the research. This may lead to the generalisation of findings to the broader population. Finally, researchers should take into consideration the variation of the research context to guarantee the ability to generate the finding to the broader EFL community. Thus, by addressing these areas, future studies can deepen understanding of the impact of ChatGPT on the writing skill and contribute to the EFL sector. Also, further research in these areas will advance knowledge and strategies in the EFL field.

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Appendices

Appendix A: ChatGPT Prompt Engineering

1. ChatGPT

“ChatGPT is a language model developed by OpenAI, specifically designed for generating human-like text in a conversational manner. It utilizes the GPT (Generative Pre-trained Transformer) architecture, which is trained on diverse internet text to understand and generate coherent responses across various topics in natural language conversations” (OpenAI, 2024, n.d.)

2. What is a prompt engineering:

It is the process of giving the AI machines a specific instruction, problem, question that the researcher wants to find a solution for. In other words, it is the input the user gives to the Generative AI in order to get an output or response.

3. Types of AI prompts for ChatGPT:

1. **Instructional prompt:** requesting for step-by-step guidance.
 - Explain the process of writing.
2. **Creative prompt:** request to generate a creative and imaginative content: story, YouTube video, etc. based on a given scenario.
 - Write a short story about a lonely woman lives in mercury.
3. **Problem solving prompt:** Tasking the model with generating ideas or solutions for real-world problems.
 - Suggest ways to reduce air pollution in urban areas.
4. **Language translation prompt:** requesting translation from language to another.
 - Translate the following Spanish sentence to English: [...]
5. **Question-answer prompt:** asking a direct question and seek a direct and clear answer.
 - User: what is 1+1?
ChatGPT: 2
6. **Role-Playing Prompts:** Creating simulated role-playing scenarios for the model to respond in character.
 - act as Shakespeare, deliver speech about artificial intelligence.
7. **Comparative Analysis Prompts:** Asking the model to analyse and compare different aspects of two or more subjects.
 - Compare and contrast the advantages and the disadvantages of using ChatGPT versus Perplexity

4. Components of a prompt

- a. **Task:** It refers to what desired job the user wants the Generative AI to perform. The task should be explicitly mentioned which can help in getting accurate responses.

- b. **Context:** The user should incorporate the relevant details that are related to the task. You can include the background information about the task.
- c. **Create rules:** The task should be limited. The user should create constraints to the task.

For example, in our case, you can request the generative AI to be ACADEMIC.

- d. **Format:** In what format the user wants the output to be look like
- e. **Persona:** Assigning a role to play can help in getting much better result.
- f. **Clarity:** do not be ambiguous
- g. **Specificity:** be direct to the point.

5. Ethical use of ChatGPT

Notice that ChatGPT should be just an assistant but not an alternate

To ethically use Chat GPT to generate ideas for writing you can:

- ✓ Inspire not copy: understand the idea well then expand it using your own words
- ✓ Paraphrase and reformulate the structure of the sentence.
- ✓ Make a mixture between you own ideas and the generated ideas by ChatGPT.

Examples of bad and good prompts:

- 1- Original Prompt: "Give me ideas for an essay about technology"
 - Improved Version: "Provide three specific ways in which technology has impacted communication in the workplace and suggest potential writing ideas for an essay on this topic."
- 2- Original Prompt "What are the benefits of reading books?"
 - Improved Version: "Explore the cognitive, emotional, and social benefits of reading books, providing specific examples and anecdotes to support each point."
- 3- Original Prompt: "Discuss the importance of education."
 - Improved Version: "Analyse the role of education in shaping individuals' career prospects, personal growth, and societal development, citing relevant studies or examples to support your arguments"

الملخص

تُعتبر الكتابة باللغة الإنجليزية تُعتبر مهارة مهمة لطلاب اللغة الإنجليزية كلغة أجنبية خاصة في التعليم العالي. ومع ذلك، قد يجد الطلاب أحياناً صعوبة كبيرة في أداء مهام الكتابة الخاصة بهم، خاصة في المرحلة الأولى من عملية الكتابة. في حين تمت محاولة استخدام تقنيات مختلفة لمساعدة الطلاب على تجاوز مثل هذه المشكلات، فإن استخدام تقنيات الذكاء الاصطناعي قد لفت الانتباه مؤخراً بشكل أكبر. لذلك، تهدف هذه الدراسة إلى فحص ما إذا كانت أدوات الذكاء الاصطناعي، على وجه التحديد ChatGPT، يمكن أن تساعد طلاب اللغة الإنجليزية كلغة أجنبية في فهم واستغلال الإمكانيات الابتكارية لتوليد الأفكار لمهام الكتابة باللغة الإنجليزية. ولتحقيق هذا الهدف، تم اعتماد تصميم شبه تجريبي بنهج كمي. تم جمع البيانات باستخدام تقنية الاختبار القبلي والاختبار البعدي الذي تم إجراؤه مع ثلاثة عشر (13) طالباً في السنة الأولى من الماجستير (IM) في قسم اللغة الإنجليزية في جامعة محمد خضير ببسكرة. تضمنت الاختبارات كتابة فقرات، مع تدخل حيث تم استخدام ChatGPT لتوليد الأفكار للكتابة. قام الباحثون بحساب عدد الأفكار في الاختبار القبلي والاختبار اللاحق ثم قارنوها. تم تحليل البيانات المحصلة ومقارنتها باستخدام برنامج التحليل الإحصائي في العلوم الاجتماعية (SPSS) استخدم الباحثون SPSS لحساب الإحصائيات الوصفية لكل من الاختبار القبلي والاختبار البعدي. بالإضافة إلى ذلك، ساعد SPSS في مقارنة البيانات بين الاختبار القبلي والاختبار البعدي باستخدام اختبار Wilcoxon Signed-Rank، مما ساعد في استخلاص الاستنتاجات. أظهر البحث نتائج مهمة بالنسبة لتأثير ChatGPT على كتابة طلاب اللغة الإنجليزية كلغة أجنبية طور الماجستير سنة أولى. أولاً، يمكن لـ ChatGPT أن يقدم أفكاراً جديدة لطلاب اللغة الإنجليزية كلغة أجنبية لمهام كتابتهم، مما يساعد في تنوع وزيادة عدد الأفكار داخل فقراتهم. بالإضافة إلى ذلك، يسهل توسيع طول الجملة وإجمالي عدد الكلمات في الفقرة. علاوة على ذلك، يمكن لـ ChatGPT أن يمكن الطلاب من صياغة أمثلة وتفسيرات داخل فقراتهم، مما يعزز توصيل الأفكار. أعطى هذا البحث نظرات ملحوظة بخصوص فعالية دمج ChatGPT كمولد للأفكار في مجال الكتابة باللغة الإنجليزية كلغة أجنبية. يمكن لـ ChatGPT، بإمكانياته القيمة، أن يكون مساعداً جيداً في الكتابة لمساعدة طلاب اللغة الإنجليزية كلغة أجنبية على أداء مهام كتابتهم بطريقة سهلة وفعالة. أثبت ChatGPT، في هذا البحث، كفاءته وإمكانياته التي يمكن أن تساعد طلاب اللغة الإنجليزية كلغة أجنبية على تعزيز إبداعهم في الكتابة.

الكلمات الرئيسية: الكتابة باللغة الإنجليزية كلغة أجنبية، ChatGPT، توليد الأفكار، إبداع الكتابة، أدوات الذكاء الاصطناعي