

ENHANCING WRITING SKILLS THROUGH CHATGPT: AN EXPERIMENTAL STUDY IN THE CONTEXT OF ERGONOMICS

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Abstract

Proficiency in advanced writing is a crucial element that influences both academic excellence and future professional competence. This research paper aims at investigating the effectiveness of ChatGPT, an artificial intelligence (AI) language model, in improving the writing skills of individuals. The aim of this study is to analyze the outcome that interactive conversations with ChatGPT will have on its users' writing skills. A well-structured questionnaire comprising ten questions was mailed to the learners of English at a Graduate College, Bhopal, the capital of the state of Madhya Pradesh, located in the heart of India. This study contributes to the field of AI-assisted learning and offers valuable insights for educators and individuals seeking to improve their writing skills. ChatGPT enhances the ergonomic aspect of writing by easing cognitive strain with instant writing assistance, fostering a more efficient and mentally comfortable learning environment. It streamlines the writing process, allowing learners to concentrate on creativity and content flow.

Keywords: artificial intelligence (AI), ChatGPT, writing skills, experimental study, language model, ergonomics, linguistic competence

Rezumat

Competența în scrisul avansat este un element crucial, care influențează atât excelența academică, cât și viitoarea competență profesională a filologului. În acest articol, ne propunem să investigăm eficiența ChatGPT, un model de limbaj de inteligență artificială (IA), în îmbunătățirea abilităților de scriere ale indivizilor. Scopul acestui studiu este de a analiza impactul pe care conversațiile interactive cu ChatGPT îl vor avea asupra abilităților de scriere ale utilizatorilor săi. Un chestionar bine structurat, cuprinzând zece întrebări, a fost trimis studenților care învață limba engleză la un colegiu din Bhopal, capitala statului Madhya Pradesh, situat în inima Indiei. Acest studiu contribuie la dezvoltarea învățării asistate de IA și oferă informații valoroase pentru pedagogi și persoanele care doresc să-și îmbunătățească abilitățile de scriere. ChatGPT îmbunătățește aspectul ergonomic al scrisului prin micșorarea tensiunii cognitive în cadrul dezvoltării acestuia, promovând un mediu de învățare mai

eficient și mai confortabil din punct de vedere mental. El eficientizează procesul de scriere, permițând studenților să se concentreze asupra creativității și fluxului de conținut.

Cuvinte-cheie: *inteligență artificială (IA), ChatGPT, abilități de scriere, studiu experimental, model glotic, ergonomie, competență glotică*

1. Introduction

Writing is a technical skill that never goes out of fashion. A well written text is an outcome of one's refined language, memory and thinking ability. It involves the difficult task of memory retrieval and domain-specific knowledge. Not only does this require decent language skills to express the ideas and thoughts related to the content of the essential matter, but with the ever-evolving field of education, new technological innovations are helping learners to grow and keep pace with the changes. Artificial intelligence (AI) is one such technical revolution that is transforming every industry, be it medicine, education, business, or space technology.

The development of intelligent systems that can perform tasks that require human-like ability and intelligence is called AI. Artificial intelligence is a huge breakthrough in various fields, including language processing, by providing innovative solutions to enhance human capabilities. Written communication skills can improve significantly owing to the new possibilities offered by AI technologies. Processing the language comes within the radar of AI, which is well trained in understanding, interpreting, and generating human language. AI tools like ChatGPT (Generative Pretrained Transformer) are developed to understand human languages and help humans to enhance their linguistic abilities. ChatGPT has the ability to generate creative content, hence providing a personalized yet engaging environment for users, especially language learners. With a rise in the number of learners aspiring to enter the workforce, language-processing tools could act as a big breakthrough since they are capable of processing language in a conversational model.

Incorporating ChatGPT into the development of writing skills aligns with ergonomic principles by reducing the cognitive load on learners. This AI tool offers a seamless, interactive platform that assists with grammar, structure, and vocabulary, allowing writers to focus on refining their ideas rather than getting bogged down by the mechanics of writing.

1. ChatGPT and its Impact on Feelings while Learning Language Skills w.e.f. Writing Skills

ChatGPT emerges as a useful instrument in the language learning toolkit, particularly when it comes to advancing writing skills. Picture a learner who faces challenges in writing down prose in a language they're not yet fluent in. The inherently patient and unbiased nature of ChatGPT presents a learn-

ing environment that is devoid of intimidation. Learners receive prompt and encouraging responses on their writing structure, vocabulary, and syntax, which foster a sense of achievement and motivation. Moreover, ChatGPT's ability to propose original and stimulating writing scenarios can propel a learner's enthusiasm and creativity. As learners elaborate on these scenarios with the aid of ChatGPT, they don't just sharpen their linguistic skills; they also cultivate the assurance needed to convey complex concepts and tales in writing. By providing a safe space away from the fear of critical judgment, ChatGPT becomes an emotionally supportive resource, especially valuable for those aiming to elevate their writing abilities in a new language.

2. Using ChatGPT in Enhancing Writing Skills: Advantages and Limitations

ChatGPT is as an important tool for those looking to enhance their writing capabilities in a new language, providing the distinct advantage of being available anytime, which caters well to individuals with hectic schedules. Its extensive reservoir of linguistic structures is beneficial in helping learners pinpoint and rectify prevalent mistakes, fostering a better grasp of grammar. Yet, ChatGPT has its limitations. The platform does not replicate the tailored and insightful critique that a language educator might offer, which is tailored to the learner's distinct style of absorbing information. Peer reviews, which are integral for fine-tuning writing finesse, are beyond ChatGPT's capabilities since it cannot fully grasp the subtleties of tone and personal expression. Furthermore, while ChatGPT is a marvel of technology, it does not engage with the emotional and motivational aspects of learning as a human mentor would—elements that are often essential for perseverance and success in language mastery. This emotional guidance and personalized encouragement are crucial for overcoming the complex barriers that learners often encounter on their linguistic journeys.

3. Review of Literature

Chen Lijia, Chen Pingping and Lin Zhijian (2020) observed in their study the effectiveness of AI in improving instructional and learning outcomes. Rishi Bommasani *et alii* discuss the opportunities and risks of foundation models, arguing that there is a need to develop safeguards to mitigate the risks while also ensuring that one can reap the benefits that they offer. In their paper they called these AI models as 'Foundation models', they are large language models (LLMs) that are trained on an enormous dataset of text and code. They can be used to perform a variety of tasks, including generating text, translating languages, content writing, and generating informative answers. Ashok Mona, Madan Rohit, Joha Anton and Sivarajah

Uthayasankar (2022) proposed an ethical framework for AI and DT that is based on the principles of Beneficence, non-maleficence, justice, autonomy and transparency. Their paper also discussed the complexity of AI and DT, lack of consensus on ethical principles and competing interests of stakeholders as some of the challenges in implementing the ethical framework. Yang Lin (2023) explored the practical application of ChatGPT in English online courses. The research paper suggested three scenarios of ChatGPT application with intelligent tutoring, live question and answer and language simulation dialogue. Lin also discusses some ways to overcome the limitations of ChatGPT, such as combining it with teacher interaction and ensuring that it is continuously improved and updated. Sarin Sok and Kimkong Heng (2023) in their paper mentioned the preliminary stage of using ChatGPT which could be beneficial for learners and educators in developing formative and summative evaluation, brain storming ideas for articles and essays etc., towards the end they mention the shortcomings of such transformative tools suggesting the researchers to start utilizing ChatGPT in order to understand its advantages and flaws.

4. Method of Data Collection

This study aims to find out how ChatGPT affects the writing skills of students ranging in the age group of 18-21. A well-structured questionnaire was prepared. The first part enquired about the learners' demographics and the second part had ten questions about the research study. The first part enquired about learners' Name, Age Group, Stream and Medium. 37 respondents were from the first year, from the age group of 18-19, 30 from the second year ranging from 19-20 years and 33 from the final year, aged around 20-21 years. 40% of learners were of Science stream, 35% of Commerce and 25% of Arts Stream while 70% of learners were from Hindi medium background, 30% were from English Medium background. The questionnaire was mailed to 140 learners studying in ABC graduate college in Bhopal, capital of Madhya Pradesh. 105 learners responded. Finally, for the purpose of this study 100 duly filled questionnaire were selected. Out of 100 respondents, 45 were girls and 55 were boys. Random sampling method was used to select the participants, as it was not known in advance which of the learners would be asked to fill out the questionnaires.

5. Research Methodology

Primary and secondary data have been used in this research. Primary data were collected from the response received from the learners of ABC Graduate College, Bhopal through survey method. The secondary data were collected through journals, magazines and websites.

6. Data Interpretation and Analysis

Learners' response in using ChatGPT as a tool to enhance their writing skills were studied and recorded, and presented bellow:

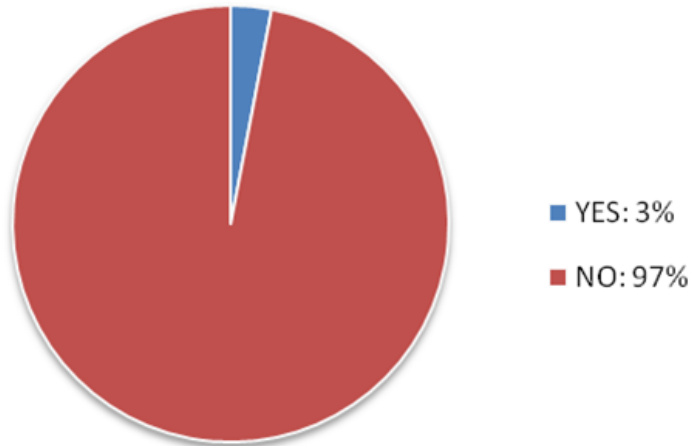


Figure 1: Responses to the question "Do you have paid/free version of ChatGPT"?¹

The vast majority of people (97%) used the free version, while only 3% used the paid version. Suggesting that most learners are satisfied with the free version of ChatGPT and do not feel any need to upgrade their version. The paid version offers some additional features, such as the ability to generate longer and more complex text formats, but these features may not be necessary for everyone.

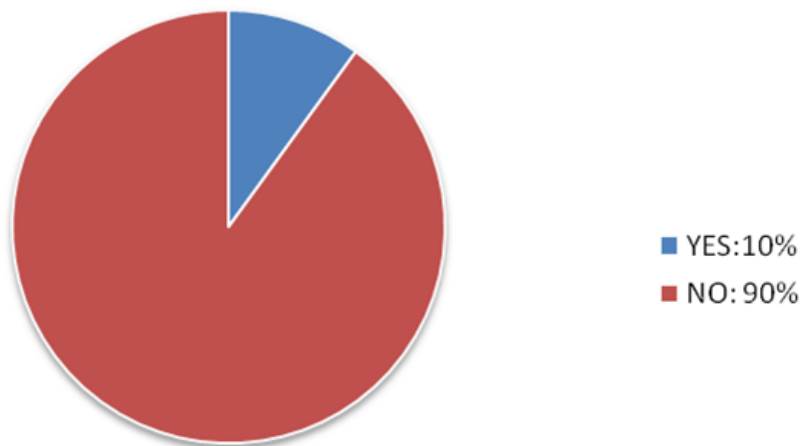


Figure 2: Responses to the question "Have you attended any workshop for using ChatGPT"?

¹All the figures presented in this article are based on the data collected through questionnaire.

The above diagram shows that 90% of people have not attended any workshop for using ChatGPT, while only 10% have attended it. This suggests that most people are either self-taught in using ChatGPT, or they have learned how to use it from other sources, such as online tutorials or documentation.

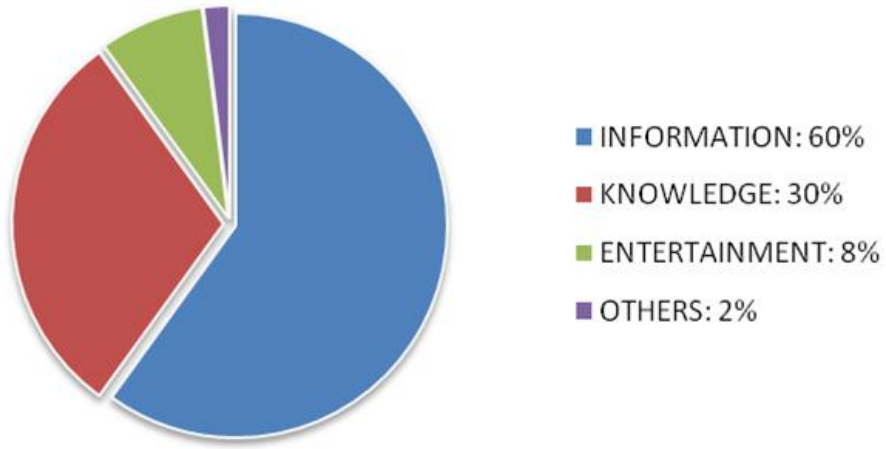


Figure 3: Responses to the question “What is your purpose of using ChatGPT”?

As per the above diagram, the most popular purpose of using ChatGPT is for information and knowledge (60%), followed by entertainment (8%), learning (30%), and others (2%). This suggests that ChatGPT is an apt tool that can be put to use for a variety of purposes. Learners can use it to learn new things, for entertainment and for information.

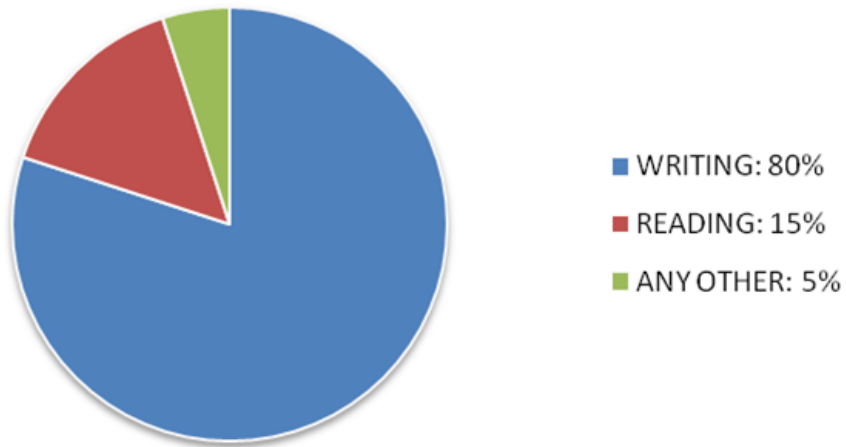


Figure 4: Responses to the question “What purpose does ChatGPT serve to your English learning”?

The most popular purpose for using ChatGPT in English learning is for writing (80%), followed by reading (15%), and other 5% used it for developing their critical, thinking and analytical learning. This suggests that ChatGPT is a valuable tool for learners who are looking to improve their writing skills.

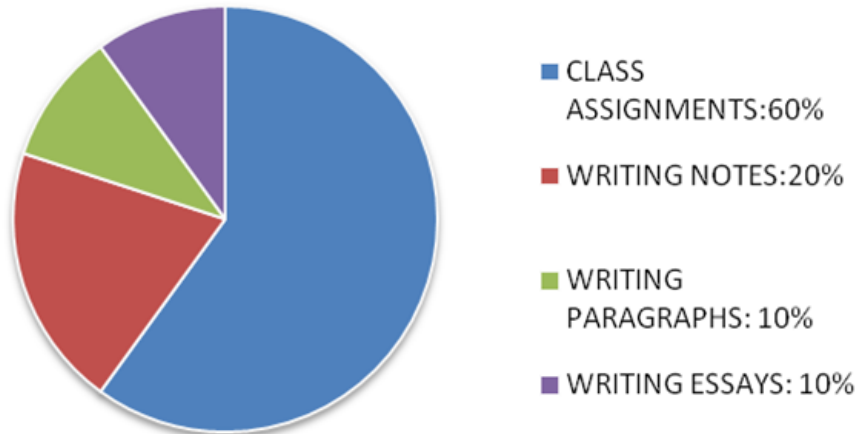


Figure 5: Responses to the question "How do you use ChatGPT for improving your writing skills"?

It shows how learners use ChatGPT to improve their writing skills. The largest slice of the pie (60%) is for class assignments. This means that most learners use ChatGPT to help them with their homework and 20% used it for writing notes, 10% for paragraph writing, and 10% used it for writing essays. It also shows that learners use ChatGPT for a variety of writing tasks. It is a versatile tool that can help learners to improve their writing skills in many different areas.

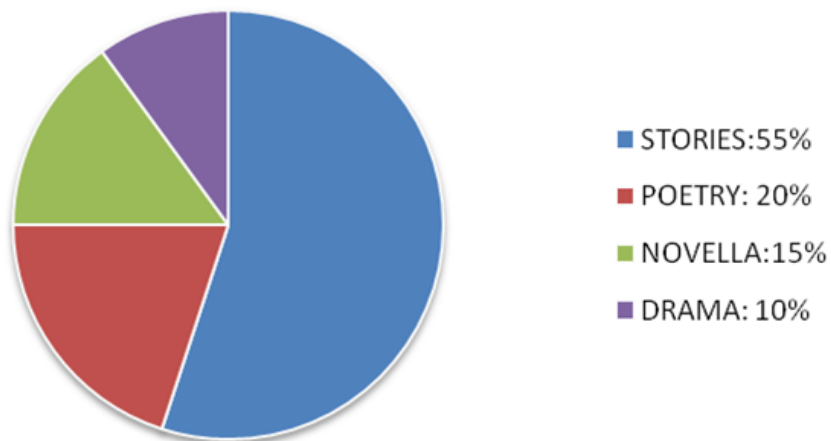


Figure 6: Responses to the question "Do you use ChatGPT for Creative Writing"?

The above diagram shows that 55% used it for generating stories, 20% used it for poetry, 15% for novella and remaining 10% applied it for writing drama. This suggests that ChatGPT is a popular tool for creative writers of all genres. It can help writers to generate new ideas, to develop their characters and plots, and to improve their writing style.

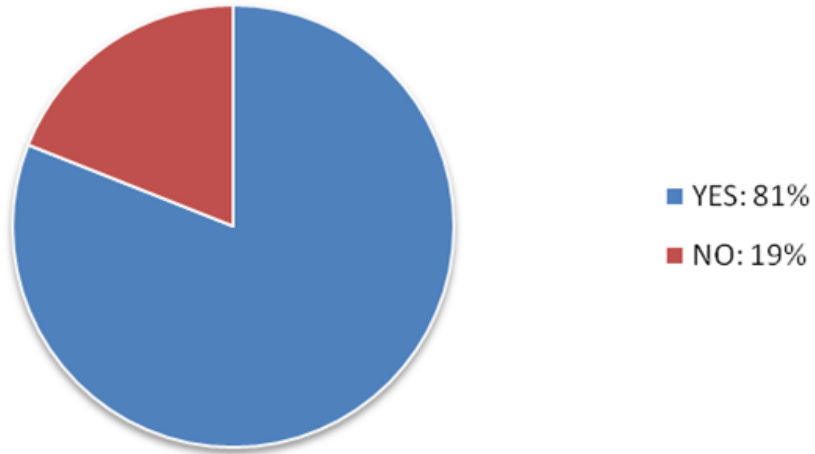


Figure 7: Responses to the question
"Do you use ChatGPT for Rephrasing and Revising your Writing"?

It shows that 81% of learners use ChatGPT for rephrasing and revising their writing, while 19% do not, indicating that ChatGPT is a popular tool for rephrasing and revising writing. ChatGPT can be used to improve the clarity and conciseness of writing, to identify and correct grammar errors, and to improve the overall flow and structure of writing.

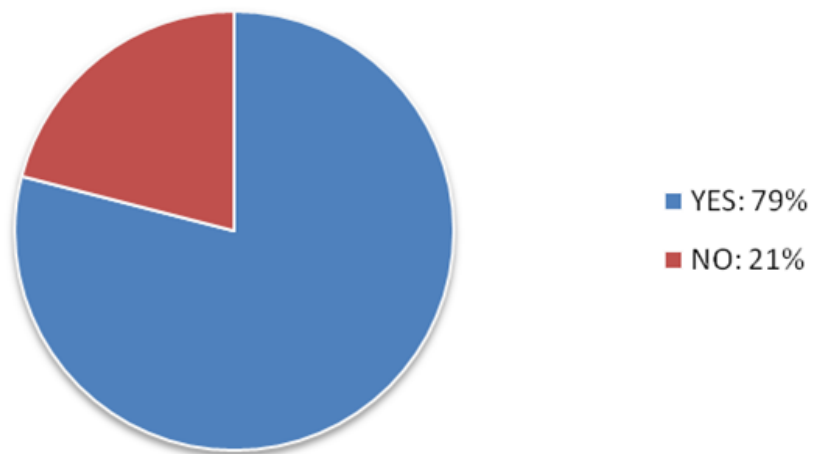


Figure 8: Responses to the question
"Do you use ChatGPT for checking Grammar and Language Rules"?

79% of learners use ChatGPT for checking grammar and language rules, while 21% do not use it. The result of the study suggests that ChatGPT is a popular tool for checking grammar and language rules. ChatGPT can identify and correct a variety of grammatical errors, including spelling, punctuation, and syntax errors. It can also identify and correct common language errors.

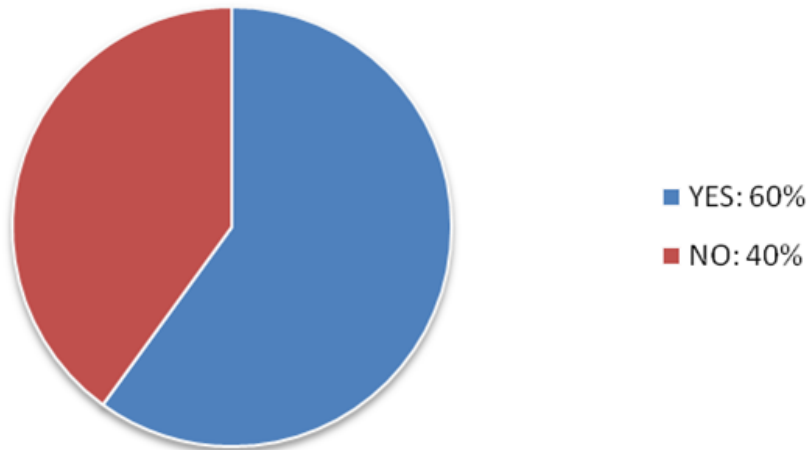


Figure 9: Responses to the question "Do you think ChatGPT is better, faster and more accurate for traditional classrooms"?

The results reveal that 60% of learners think ChatGPT is better, faster, and more accurate for traditional classrooms, while 40% do not, which suggests that ChatGPT is a popular tool for traditional classrooms. ChatGPT can be used to provide learners with personalized instructions, helping them to learn at their own pace, provide learners with immediate feedback and help learners to develop their critical thinking skills.

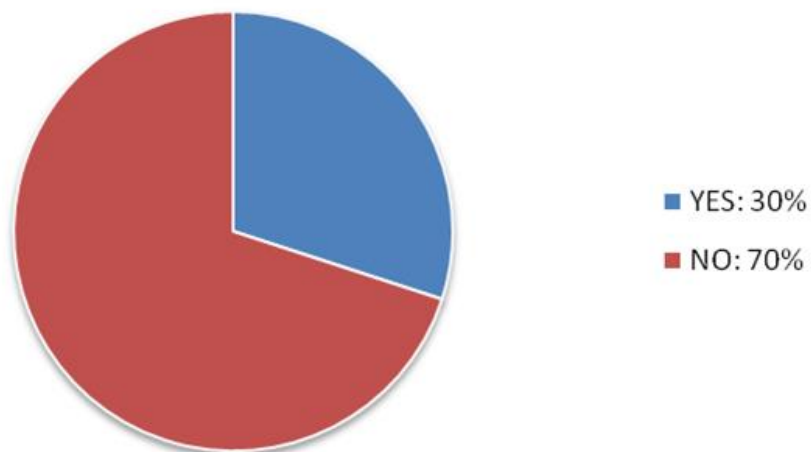


Figure 10: Responses to the question "Do you think ChatGPT can substitute a teacher from a language learning class"?

It clearly indicates that 70% of learners think ChatGPT cannot substitute a teacher from a language learning class, while 30% of learners think it can. This suggests that most people believe that ChatGPT cannot become a replacement for human teachers.

Concluding Remarks

Thus, the present study discloses that ChatGPT can be a useful tool for enhancing learners' writing skills in a number of ways. Its ability to provide learners with personalized feedback on their writing, assists learners in identifying their strengths and weaknesses and develop strategies for improvement. ChatGPT can also be used to learn language and grammar concepts. It is trained on huge data of text and code, so it is able to identify and correct language and grammatical errors with high accuracy.

The result of the study reveals that ChatGPT can help learners to develop their creativity by generating creative text formats, such as poems, scripts, and stories. This can help learners to improve their language skills and develop their own unique writing style. ChatGPT can also help learners to learn about different English writing patterns and styles by analyzing and generating texts in different styles, such as academic writing, creative writing, and business writing.

ChatGPT can also aid in reading comprehension by generating summaries and rephrasing complex texts. This can help learners to better understand what they are reading and advance their critical thinking skills. Additionally, ChatGPT can expose learners to new perspectives, helping them to learn about different ways of thinking and writing and to develop global perspectives.

Ergonomically speaking, ChatGPT can be used to minimize mental fatigue during the writing process, providing suggestions and corrections that streamline the learning curve and help maintain a focus on creative expression. This can lead to a more efficient and comfortable writing experience, especially during extended periods of learning or content creation.

To conclude, it is found that ChatGPT is a valuable tool for learners who seek to enhance their English writing skills. It can be used to provide learners with personalized feedback, help them to learn new vocabulary and grammar concepts, develop their critical thinking skills, creativity, fluency, and new perspectives.

7. Limitations

It is important to note that this empirical study is based on a limited sample size, so the results may not be representative of the entire population of English learners who applied ChatGPT in these language learning activities.

8. Future Scope of Study

Future studies could investigate the long-term effects of ChatGPT use on writing skills, the effects of ChatGPT on different types of writing and dif-

ferent populations, and the mechanisms through which ChatGPT improves writing skills. Additionally, researchers could explore the integration of ChatGPT with other teaching methods, as well as the ethical implications of using ChatGPT in writing instruction, how ChatGPT can be used to promote equity and inclusion in writing education, and how ChatGPT can be used to prepare learners for the future of work and society.

By addressing these questions, future research can help to realize the full potential of ChatGPT to enhance writing skills and promote learning.

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