



# Enhancing English Language Education with ChatGPT

Yuxin Shen<sup>1</sup>

<sup>1</sup> Experimental Art and Technological Art, Central Academy of Fine Arts, Beijing, 100102, China

1810200013@stu.hrbust.edu.cn

**Abstract.** This paper examines the role of Chat Generative Pre-Trained Transformer (ChatGPT) as a chatbot in the context of teaching English as a second language, particularly for non-native speakers who face learning difficulties. The emergence of ChatGPT provides significant support to English teachers in lesson preparation and offers students ample opportunities to practice their language skills. This paper delves into the pre-training of ChatGPT's language model and its applications in English education. ChatGPT's structural characteristics make it suitable for tasks such as generating guided writing prompts, providing oral prompts for spoken English practice, structuring outlines, and consolidating fragmented knowledge. Additionally, the outcomes of this research underscore the capacity of ChatGPT to foster an interactive and captivating learning atmosphere. The incorporation of artificial intelligence (AI) in education has the potential to cater to the unique requirements of students by providing personalized feedback and adapting learning trajectories. However, the utilization of chatbots in education also presents challenges that need to be addressed, such as maintaining academic integrity, resolving copyright issues, and ensuring the responsible utilization of AI assets. In the pursuit of enhancing English language education, it is crucial to prioritize the formulation of strategies that effectively tackle these challenges and fully unleash the potential of ChatGPT. Despite the obstacles encountered, the numerous advantages of judiciously utilizing ChatGPT within educational environments outweigh any drawbacks. This holds the promise of bringing about a transformative impact on the methods and outcomes of English language teaching and learning.

**Keywords:** ChatGPT, English Language Teaching, AI, Prompt Engineering, Academic Integrity.

## 1 Introduction

On November 30, 2022, OpenAI launched an artificial intelligence chatbot program called Chat Generative Pre-Trained Transformer (ChatGPT). Its capabilities in generating text, providing automatic question answering, and generating automatic summaries have provided convenience for learning English as a foreign language. ChatGPT has been seamlessly integrated into various online educational platforms,

including Khan Academy and Duolingo 5, enhancing their functionalities [1]. Many teachers have expressed profound concern regarding the prevalence of unoriginal writing, which poses a challenge as existing applications often fail to detect it effectively. Nonetheless, obtaining a comprehensive understanding of the new technology is essential in order to grasp the complete spectrum of both the challenges and opportunities it presents [2]. ChatGPT has the potential to revolutionize and disrupt the stagnant teaching and assessment methods in the realm of higher learning., ushering in a new era of transformative approaches.

Research indicates that ChatGPT-4 has demonstrated significantly superior performance over non-native English-speaking students in high school English exams. As time progresses, it is highly likely that ChatGPT or similar models will become even more intelligent [3,4]. In Computer-Assisted Language Learning (CALL) research, it is widely agreed upon that rule-based, scripted speech systems are notably beneficial for language learning objectives. The prevalent chatbots utilized in language learning contexts typically encompass three primary features. The first is round-the-clock availability to provide continuous support to users/students, which may not be feasible for a human partner. Then, access to extensive language resources that surpass the capabilities of human partners. And, serving as an assistant to handle repetitive tasks like addressing common queries and facilitating language practice.

Contemporary educators can explore the potential of ChatGPT as a virtual writing mentor for students. This tool enables students to promptly evaluate their writing without the need to wait for teacher feedback. Moreover, students can actively engage with the artificial intelligence (AI) tool to request specific actions for editing and refining their compositions. Furthermore, it serves as an exceptional tool for organizing written content seamlessly, enhancing the overall writing process [5,6]. A framework named Data Graph, Information Graph, Knowledge Graph, Wisdom Graph, Purpose Graph (DIKWP) undertook a comprehensive analysis of Generative Pre-trained Transformer (GPT) [7], examining its performance and ethical implications. Leveraging the language comprehension and generation capabilities of chat-based GPT, the field of language translation holds the promise of being revolutionized by the potential impact of this technology. By effortlessly grasping the structure of diverse texts, it can swiftly generate well-structured and detailed outlines with just a few clicks. As a result, it enables seamless communication among individuals and organizations who speak different languages, eliminating the need for human translation [8].

The primary objective of this study is to investigate the role of ChatGPT in English education. The article focuses on how the core concept of constructivism is integrated into English language teaching through ChatGPT, and how it simplifies the assessment process, saving educators both time and energy. Notably, prominent institutions like the Educational Testing Service (ETS), which administers the TOEFL test, have already incorporated AI-driven scoring engines, such as their E-rater, into their assessment systems. This integration underscores the growing trust in the reliability and validity of AI-powered evaluation tools. When used appropriately, leveraging AI—specifically ChatGPT—can significantly aid teachers in providing

enhanced support to their learners. Therefore, Section 2 will analyze the process of incorporating ChatGPT into English education, including its working structure and workflow. Moving on to Section 3, it will provide a recap and summary of the preceding sections while exploring future development trends in this field.

## **2 Methodology**

### **2.1 Dataset Description and Preprocessing**

The primary source of data for this section is derived from an extensive evaluation of ChatGPT's reasoning abilities, hallucination tendencies, and interactivity levels. The evaluation encompasses a multitask approach, incorporating multiple languages and modalities [9]. These datasets comprise 50 open-ended dialogues based on knowledge paths. Evaluation of these multimodal datasets indicates that ChatGPT is capable of generating multimodal content from textual prompts through intermediate code generation steps. In addition, 634 samples from 10 different categories of inference were used to test the performance of ChatGPT in logical deduction, non-textual inference, and everyday reasoning. These datasets encompass a substantial number of language samples and reasoning questions, making valuable resources as case studies and examples in English teaching. ChatGPT originates from the generative pre-trained Transformer architecture, specifically GPT-3.5, which undergoes initial training on a blend of textual and code datasets before undergoing fine-tuning. It utilizes Reinforcement Learning from Human Feedback (RLHF) technique, incorporating human feedback, making it one of the most promising approaches to aligning large-scale language models with human intent [10].

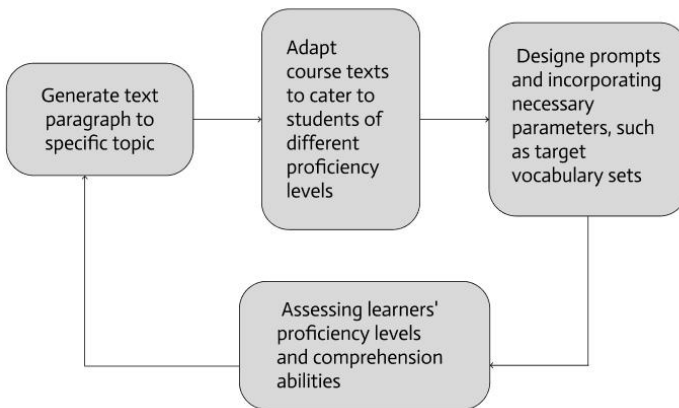
### **2.2 Proposed Approach**

ChatGPT has the potential to generate novel possibilities in delivering personalized assistance to learners as progress in their second (or subsequent) language development. It can define unfamiliar words, generate dialogues, and adapt accordingly based on different proficiency levels. It can also provide explanations of vocabulary using the student's native language. The Stanford Graduate School of Education has undertaken a project (n.d.) known as "Curricular Resources about AI for Teaching". This initiative offers educators access to an extensive array of resources, encompassing reading materials, curriculum plans, videos, and interactive materials, all aimed at facilitating the teaching of artificial intelligence. Next will be a detailed description of how ChatGPT trains the model from the input data and how it assists in teaching English.

#### **ChatGPT**

Research indicates that ChatGPT exhibits limited proficiency in spatial and mathematical reasoning but performs well in temporal reasoning. Moreover, compared to non-textual semantic reasoning, it demonstrates relatively stronger

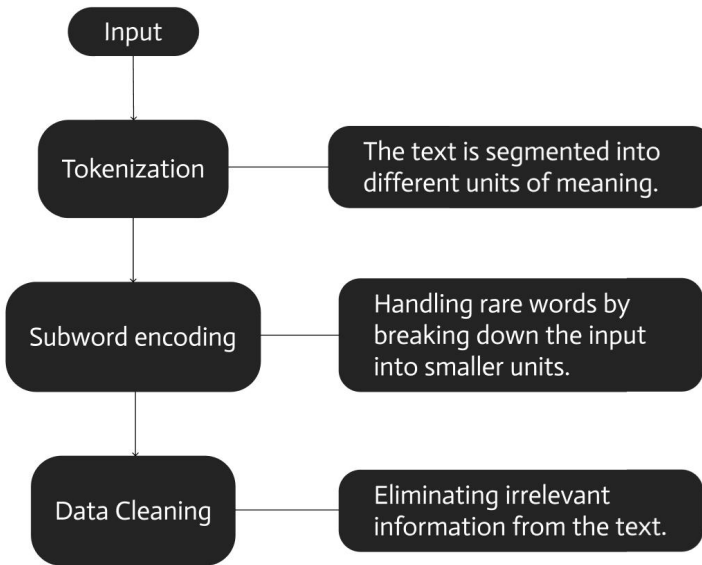
performance in common-sense reasoning. This is why ChatGPT's advantages are particularly prominent in English language education [9]. Another advantage of ChatGPT is its ability to answer questions that cannot be found online, as the model undergoes training using an extensive volume of input data. With extensive training on diverse datasets and the incorporation of numerous parameters, ChatGPT excels in various benchmarks for natural language processing capabilities [11]. The training corpus is sourced from a wide range of materials, including books, articles, comments, online conversations, and artificially generated data. The extensive dataset empowers the model to actively participate in intricate dialogues and deliver precise information spanning a wide spectrum of subjects. Therefore, ChatGPT exhibits significant advantages in the domain of language instruction. Due to its wide range of sources, ChatGPT absorbs knowledge that also possesses a certain degree of universality, which is beneficial for expanding both everyday vocabulary and specialized terminology in language learning. Using ChatGPT for English teaching involves inputting text instructions and then refining the learning experience based on the feedback provided. The integration process for text generation in English language teaching typically includes generating text paragraphs on specific themes or topics to meet individual learners' needs, adapting existing texts to cater to different proficiency levels, strategically devising prompts and incorporating essential parameters such as targeted vocabulary sets, and constructing vocabulary-centered assessments in various formats to evaluate learners' proficiency and comprehension, as shown in the Fig. 1.



**Fig. 1.** The process of creating tutorials using ChatGPT (Photo/Picture credit: Original).

It is necessary to explain the preprocessing and training process of text data for ChatGPT. The text data for ChatGPT undergoes a series of procedures during the preprocessing stage, including tokenization, subword encoding, and data cleaning [11]. In the realm of natural language processing, tokenization plays a pivotal role as an essential first step. Textual content is divided into individual units called tokens, with each token representing a unique component of meaning. The objective of this procedure is to simplify the subsequent handling of the text by the model. Subword

encoding is employed to handle rare words or words not present in the vocabulary by fragmenting the input text into smaller components to enable the model's processing. Fig. 2 demonstrates the utilization of data cleaning, which involves eliminating extraneous details from the text. During this process, various tasks are undertaken, including the elimination of punctuation marks, numbers, and special characters, as well as the correction of grammar and spelling errors. Additionally, the text is transformed into a standardized format [11].



**Fig. 2.** The text data preprocessing for ChatGPT (Photo/Picture credit: Original).

But ChatGPT also has its limitations. If simulating direct human-to-human interactions, ChatGPT is unable to maintain the belief state consistently across multiple turns in the interaction [9]. Moreover, ChatGPT often generates excessive illusory information. This is also the reason why it can only assist in teaching rather than fully replace human agency.

### **ChatGPT-based English Proficiency**

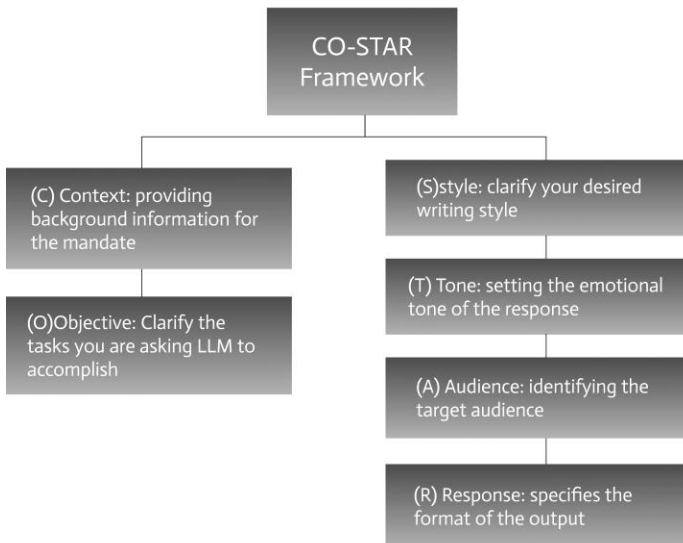
It is worth mentioning here the English proficiency test conducted on ChatGPT by individuals in the Netherlands. ChatGPT utilizes conditional generation by reflecting on previously generated words to predict the next word [3]. The mean grade achieved by all students who participated in the examination in the Netherlands was 6.5. Remarkably, GPT4 achieved a score of 8.3 without the need for rephrasing. By incorporating a "temperature" parameter, ChatGPT introduces randomness into its guiding method, effectively enabling self-recognition of potential erroneous answers. This demonstrates that the current ChatGPT model possesses English proficiency well beyond that of an average student.

The Netherlands, being one of the non-English-speaking countries with the highest English proficiency worldwide, provides a compelling experimental case that effectively supports ChatGPT's capability to assist ordinary English learners in their educational journey.

### Research on Prompt Engineering in English Education

Generally speaking, the means of utilizing ChatGPT for English language instruction typically involve generation and modification. For instance, in the realm of English language instruction, ChatGPT can be employed to facilitate the creation of outlines by converting unstructured data into structured formats. By inputting the original text into the tool and succinctly specifying the desired outcome, ChatGPT adeptly generates well-organized paragraphs with essential details of utmost significance [6].

The Singapore Government Technology Agency (GovTech) organized the inaugural GPT-4 prompt engineering competition, in which the champion utilized the framework, which contents context, objective, style, tone, audience, response (CO-STAR). The framework's content, as depicted in Fig. 3, is highly beneficial for utilizing ChatGPT in English language instruction. The CO-STAR framework is organized into five sections.



**Fig. 3.** The CO-STAR Framework Content (Photo/Picture credit: Original).

Similarly, providing background information, input instructions, and specifying the target audience to ChatGPT allows to generate the content. ChatGPT can generate sets of related questions for students to solve together. Alternatively, students can independently construct these questions. This approach encourages students to collaborate and test their theories, refining various ways to strengthen their understanding of the topic.

### 3 Results and Discussion

This section primarily analyzes how ChatGPT can become self-aware of its educational role and examines the advantages and disadvantages of using AI to assist English language education. Currently, the main application of ChatGPT in English language education is primarily focused on individuals, and there hasn't been widespread official adoption. Specific use cases include students preparing for IELTS or TOEFL utilizing Chat-GPT4 to practice spoken English, teachers using it to assist lesson planning and creating teaching materials, and so on. Possible reasons for this limited adoption may include the relative novelty of the technology and concerns regarding academic misconduct involving the use of AI to replace personal effort.

#### 3.1 The Self-Reflection of AI in English Language Education

Below is a Q&A table instructing ChatGPT on how to inquire about its own approach to English language education [12].

**Table 1.** The answer by ChatGPT for the question “How can ChatGPT be useful for English education?”.

<b>Prompt:</b> How can chat GPT be useful for English education? List ten points.	
<b>Response:</b> ChatGPT can be useful for English education in the following ten ways:	
1	Language Practice: Students can engage in conversational practice with ChatGPT, improving their speaking and listening skills.
2	Writing Assistance: ChatGPT can provide writing prompts, suggestions, and feedback to enhance students' writing abilities.
3	Vocabulary Expansion: Students can explore and learn new words and expressions through interactions with ChatGPT.
4	Grammar and Syntax: ChatGPT can help clarify grammar rules and provide examples for better understanding.
5	Pronunciation Practice: Students can receive pronunciation guidance and practice through ChatGPT's audio capabilities.
6	Cultural Knowledge: ChatGPT can offer insights into English-speaking cultures, customs, and idiomatic expressions.
7	Immediate Feedback: Students receive instant feedback on their language usage, allowing for immediate correction and improvement.
8	Personalized Learning: Tailored to individual learning styles, preferences, and pace, ChatGPT offers customized learning experiences by adapting to the unique needs of learners.
9	24/7 Availability: ChatGPT is accessible anytime, allowing students to practice English at their convenience.
10	ChatGPT can complement traditional classroom instruction, textbooks, and other learning materials, providing an invaluable supplementary learning resource.

As shown in the Table 1, the suggestions offered by ChatGPT provide a valuable foundation for initiating insightful discussions. From its own responses, it can be seen that these contents cover the most fundamental aspects. While the content covered in this response is focused on students, it is equally applicable to teachers as well. In the

near future, this paper can expect to see a wide range of AI-assisted tools for English language education being introduced in the market. For example, dos Santos et al. provided an account of utilizing ChatGPT in English language education to enhance L2 writing instruction [12]. In the realm of personalized learning (PL) and personal learning environments (PLE), ChatGPT has the potential to make considerable strides forward.

### **3.2 Discussion: Problems and Solutions**

As mentioned earlier, personalized learning and personal learning environments require a substantial amount of data and student feedback as their foundation. This entails high costs in terms of usage and development, making it challenging for many existing platforms to provide such functionality. Chatbots excel in both these aspects, possessing vast data sources and the ability to continuously learn from feedback. The utilization of large language models, such as ChatGPT, in higher education poses challenges as it may introduce bias and disseminate falsified information during the information processing stage. Insufficient training of data sets can result in biases in the model and its output, potentially reinforcing learners' misconceptions rather than aiding in constructing accurate knowledge. For instance, when a student is preparing a research paper, might seek assistance from ChatGPT, asking it to provide some references for their paper. However, the content of the papers it provides could very well be fabricated by the model and not authored by real individuals. These falsified references can easily mislead students. The method to avoid such issues is to verify every piece of information provided by ChatGPT instead of accepting it as an established fact. Despite the announcement by OpenAI regarding the support of plugins in the upcoming version of ChatGPT, which would grant access to the latest information and data, it is important to acknowledge that these advancements do not invalidate the potential issues related to biases discussed earlier.

Another prominent concern is the issue of academic integrity, as many educators worry that students may resort to cheating using ChatGPT or lose their ability to independently complete assignments and retrieve information as a result [12]. Therefore, more scholars are considering new forms of assignments. As an illustration, assigning students tasks that emphasize the application of knowledge, interactive elements, or opportunities for discussion, rather than solely writing an essay or completing specific questions. However, the use of ChatGPT tends to incline students towards passive learning, wherein acquire knowledge by seeking information and instructions from the AI through inquiries. This still calls for educators to seek countermeasures by reflecting on their teaching methods and considering whether can foster sufficient initiative in students.

## **4 Conclusion**

This paper introduces the principles and applications of ChatGPT in teaching English as a foreign language (EFL). Exploring ChatGPT's role in education is crucial for



fostering students' adaptability to the world of artificial intelligence. While AI cannot replace educators in developing real language skills and social abilities due to the dynamic nature of language learning and social interaction, it can serve as a valuable tool to alleviate educators' workload. In Chinese high schools, English teachers typically handle two to three classes, comprising over a hundred students in total. This makes it challenging for teachers to provide individualized attention, especially given the varying levels of English proficiency among students. Since English is a second language for Chinese students, their oral skills are often relatively weak due to limited opportunities for daily English communication. ChatGPT addresses this issue by leveraging its conversational capabilities to provide targeted training for students' oral skills, among other areas.

Generative artificial intelligence, including ChatGPT, faces numerous challenges that were previously unexplored, such as intellectual property rights and the illusion of AI. A more appropriate application of ChatGPT lies in tasks involving non-original work, such as education, transforming it into a tool for assisting teaching and learning rather than a substitute for human involvement and creativity. Future research should focus on addressing existing challenges, such as finding ways to mitigate academic misconduct among students using ChatGPT. Teachers may consider assigning more interactive assignments to foster student engagement and reduce reliance on automated language models.

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