

# The Application of ChatGPT in Improving English Education

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## Abstract:

Nowadays, people are getting more aware of the importance of English education as English is the most predominant language in the world. Traditional English learning methods has their limitations. The emergence of the new Artificial Intelligence (AI) technologies gave rise to proposals on combining English education with AI. This paper discussed how learners could use Chat Generative Pre-Trained Transformer (ChatGPT) to help with their English studying in four categories. In reading and writing, this paper illustrated how the basic abilities of ChatGPT can aid in the two skills. Comparisons with commercial products and human tutoring were also made to show the advantages and drawbacks of the model. In listening and speaking, this paper introduced the app version of ChatGPT, and how its designs are specifically suitable for listening and speaking practices. This paper also mentioned how the app can work together with other softwares in detail optimization, like Text-to-Speech (TTS) tools that provide higher audio quality in listening. The applications have displayed the feasibility of this combination, despite the potential limitations and challenges caused by the lack of refinement on the model. Algorithms are designed to solve the issues, and the future in this field is only going to be more promising.

**Keywords:** ChatGPT; machine learning; English teaching.

## 1. Introduction

English is widely considered as the universal language. Being the most commonly used language, there are a total of 67 countries that recognize English as an official language [1]. Therefore, English education should be highly valued by governments, schools, and parents in every nation. However, con-

ventional methods of English learning are faced with a lot of challenges including the lack of an immersive language environment and the high cost of training. In this case, it is necessary to consider combining new technologies and English education to increase the latter's efficiency. Artificial Intelligence (AI) is powerful in both feature extraction and prediction, which makes it a suitable technology to be employed

in English education.

In recent years, considerable progress has been made in the field of AI. The development of some typical models and algorithms, for example neural networks and random forests, has shown this progress. More recently, there was the development of a Large Language Model (LLM), Chat Generative Pre-Trained Transformer (ChatGPT). ChatGPT was launched by OpenAI in November 2022 [2]. It soon became the fastest-growing app in history, reaching a user number of 100 million in just two months after its release [3]. Since its release, ChatGPT is already widely used in various fields, especially in the field of English education, with a variety of related careers and products present in the market already. For instance, Tlili mentions that ChatGPT extends far beyond its intended functions, and is able to “create new things, such as a poem, story or novel, or act like anything within its capability” [4]. “With ChatGPT’s ability to create an array of output, there are tremendous implications for educators,” concluded by Kostka et al. [4]. To demonstrate their willingness to combine ChatGPT with education, OpenAI has introduced ChatGPT Edu, a product which deploys AI more broadly for education purposes in universities. This version of ChatGPT provides more advanced tools, improved language capabilities, and better data security [5]. When asked about the thoughts of utilizing ChatGPT in their English learning, most of the students provide positive feedback, many of which said the use of ChatGPT is “motivating and engaging” [4]. One specific interviewee mentioned that the use of AI in education will be a “trend”, so it is important for students to “learn to use it in the right way” [4]. Not only for the students, as an educator, language specialist Meniado claimed ChatCPT to be helpful for teachers as well. He listed a number of ways teachers may use it for: lecture preparation, improving convenience when teaching, providing academic materials, and evaluating and giving feedback after each lesson [6]. Given the importance of this field and some of the latest applications, it is necessary to make a comprehensive review of it.

In the later parts of this review, methods, discussions, and conclusion will be included. Under methods, there will be an introduction on ChatGPT, and how it is employed aiming to help someone improve the four language skills of English: reading, listening, writing, and speaking. The discussions will be about current challenges this combination is faced with and optimizing the roadmap of it. The conclusion will be a summary of the full paper.

## 2. Method

### 2.1 Introduction of ChatGPT

ChatGPT is an AI chatbot that can have human-like conversations. It is developed to imitate human responses and generate them based on the tasks given. In order to achieve this, ChatGPT’s LLM uses Natural Language Processing (NLP) so it can understand human language, not just machine language [7]. In the earlier versions of ChatGPT, its functions were limited to language related tasks, including summarization, translation, and generation of texts. However, presently, after the release of the GPT-4, the most updated version of the model, more complex tasks like the creation of poems and even images, can be performed. This makes it more reliable for more serious and professional applications, such as education in English.

### 2.2 The Application of ChatGPT in English Reading

Students who are non-native speakers can use ChatGPT to translate words and texts into their own languages when reading. According to OpenAI, ChatGPT supports 58 languages [8]. It allows students to extract specific parts of a text, so they can focus on their weaknesses. What is more worth noticing is the reliability in the accuracy of translation when using ChatGPT, researchers have found that the model’s performance when translating is not inferior to commercial products like Google Translate, and it even outperformed the latter in some respects [9]. Besides that, the model is able extract main content and summarize texts for students who need an overview of them. In this way they can be trained to mimic the AI’s methods, master this skill, and use it independently. Other applications like the provision of reference information and annotations, also play a crucial role in helping students understand the texts and therefore improving their reading skills.

### 2.3 The Application of ChatGPT in English Listening

In English listening, ChatGPT has a mobile app with conversational mode. Under this mode, users can actually listen to the responses in the form of voice messages, like in conversations [10]. By pairing up Text-to-Speech (TTS) tools with ChatGPT, deeper responses generated can be transformed into audio. The advantage of TTS tools is that they provide a variety of different voices and accents when reading [11]. A problem that the ChatGPT mobile app has is that it talks only in American accent and with almost no tone alteration [10], which makes it sound like a

robot instead of a human. TTS solves the issue by perfectly simulating real-life scenarios, aiming to produce higher quality resources for learners to practice.

## 2.4 The Application of ChatGPT in English Writing

ChatGPT's current application in English education is considered to be mostly on writing skills. The finalization process is very important before people submit an essay or publish a paper. In the past, people would pay someone else to edit their work for them. Nowadays, ChatGPT replaces them and does the editing work. One can simply paste their final draft into the chat box and ask ChatGPT to help correct spelling and grammar mistakes, repetition, give revising opinions and even rewrite the draft. For those struggling to write a word, they can ask for an outline from the chatbot, helping them brainstorm for a topic or the content. Yuan et al. have interviewed students who are already using ChatGPT in their English writing with question in four different dimensions and found it to be generally beneficial [12]. Mahapatra mentions in his study that he lets his students use ChatGPT to help with their coursework writing, believing that AI makes English writing faster and easier [13].

## 2.5 The Application of ChatGPT in English Oral Speaking

The ChatGPT mobile app creates a platform for oral conversions, user can speak through a microphone when inputting a request instead of typing on a keyboard. When users ask the model to help them practice their English speaking, the model offers dynamic conversations and specific real-life scenarios to help training [10]. Moreover, users can basically treat ChatGPT as a tutor or a native speaker, so they can communicate with the model once they get confused, like asking for skills they might use in a speaking exam such as TOFEL or IELTS, or some expressions or slangs that native speakers might use.

## 3. Discussion

With the above being the ideal situation when ChatGPT and English education combines, uncontrollable factors in real life will lead to limitations and challenges when this is put into use. Interpretability is one major issue that people might face. When the model generates their responses, sometimes people might have a hard time understanding the content or the reasoning behind it. They do not know what the responses are based on and why do they get generated. This lack of deep understanding will cause misinterpretation of the responses and therefore failure in the

aim of learning something. Another problem is the model's applicability in this field. One thing about ChatGPT is that it does not directly pull facts out of reliable databases, instead, it is trained to respond by mixing sources from multiple databases. Some of these databases might contain unreliable information or be outdated, so when ChatGPT is asked to perform tasks like analyzing a story or a poem, there is a risk that it misinterprets the text based on unreliable sources and generates an inaccurate response. Also, as previously mentioned, the ChatGPT mobile app supports only American accent with limited tone shifts. The experience of speaking to the model may not be the same as speaking to a native speaker face to face. The limited number of supported languages may also be a problem for people living in certain regions of the world [10]. Besides all this, people are also having concerns about privacy issues. According to General Data Protection Regulation (GDPR), the OpenAI company does not provide adequate methods for user's personal data protection and may use the data in the AI system's learning process or even share them with a third party [14]. Wu has found out that ChatGPT's algorithm has limitations in the detection of sensitive information and found that it recorded his identity card number. He later asked it to give his date of birth, and the model provided the exact date based on the ID number, though refusing to admit that it stored Wu's ID number [14].

Despite the presence of these limitations and challenges, under the rapid development of AI currently, some potential solutions can be considered. A variety of methods and algorithms have been developed to eliminate the problems and refine the system. Several expert systems have been introduced, which are AI programs designed to simulate behaviors of human experts in their field of expertise [15]. The SHapley Additive exPlanations (SHAP) is an example of the expert system that calculates the reward of each feature to the prediction and decides the most important features to the prediction [16]. This algorithm improves the interpretability of the model, making it much easier for people to interact with it. One other method will be Transfer Learning. Transfer Learning is using the ideas learned from one machine learning case in another [17]. One example of this is Domain Adaptation. It is the type of Transfer Learning that only involves the change of data domain [17] without having to alter the algorithm itself, speeding up the learning process to increase the machine's adaptability. A technique named Federated Learning trains data from edge devices instead of a central server [14]. This means that user data will not be shared, and the risk of data leakage will be lower. Consequently, data privacy and data security can be guaranteed.

## 4. Conclusion

This paper proposed the theory that AI technologies can be applied in assisting English education for both learners and educators. This paper explained in detail on how the model's functions are linked with each of the four language skills of English: reading, listening, writing, and speaking. Based on the feedback given by students and teachers who actually tried using ChatGPT in their English studying and teaching, the combination of AI and English is seen to be generally successful. The combination does have some limitations and problems regarding interpretability, applicability, privacy, data security, and academic integrity. However, there has already been some very well-developed algorithms, for example Transfer Learning and Federated Learning, designed specifically for finding the solution to these problems. In the next couple of years, the system of AI will be further optimized, and most importantly, if AI is used in the correct way, ninety percent of the safety and plagiarizing issues will be addressed.

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