Exploration of the Application of Artificial Intelligence in High School English Speaking Teaching

Qianyu Men[1,a,*]

[1]*College of Foreign Languages, Capital Normal University, Beijing, 100089, China*
a. MenqianyuCrystal@126.com
*corresponding author

Abstract: With the remarkable strides in artificial intelligence (AI) technology, a range of sophisticated techniques and products have sprung forth, including speech recognition and semantic analysis. These advancements have propelled the application of AI to new heights, particularly in the realm of education. Notably, AI applications such as speech recognition, human-computer interaction, and automated evaluation have revolutionized traditional English speaking teaching, introducing unprecedented changes to the way students learn and interact. The paper aims to investigate how AI might enhance high school pupils' English-speaking proficiency, which employs a literature review methodology to examine and illustrate the smooth integration of AI technology with high school English speaking instruction. This approach enhances speaking learning materials and fosters creativity in teaching strategies and assessment techniques. In addition, it creates room for the evolution of the oral teaching style and broadens the learning environment. This intelligent transformation of the oral teaching mode is expected to effectively enhance the effectiveness of high school oral English teaching and ultimately improve students' language proficiency.

Keywords: Artificial Intelligence, High School English, Oral English Teaching, Application Inquiry

1.   Introduction

The oral English, a basic element of language communication, occupies a pivotal position in high school English education, which, as an important part of the curriculum, aims to cultivate students' ability to communicate in English as well as their ability to use grammar and vocabulary effectively. However, as English is not the native language of the majority of students, learning it can be a daunting task, often leading to a degree of reluctance and resistance towards English learning. This reluctance presents a significant challenge to the teaching of spoken English, necessitating the implementation of innovative and adaptable methodologies. The reform of spoken English teaching has been a continuous and dynamic process, yet it also faces limitations due to the evolving times and changing environments [1]. The limitations of traditional spoken English teaching methods are often compounded by constraints on resources and the energy of teachers, which makes it challenging to achieve a comprehensive cultivation of students' oral English abilities. Fortunately, the advent of artificial intelligence (AI) technology has revitalized the field of spoken English teaching. The integration of AI has led to a revolution in the diversity, enrichment, and personalization of teaching concepts, methodologies, and materials. The objective of this study is to conduct a comprehensive

review of the literature on the application of AI in high school spoken English teaching. The objective of this study is to provide theoretical support and practical guidance for the reform and innovation of high school spoken English teaching. As a result, the paper aims to improve student outcomes and enhance the learning experience.

2. Quo Status of Oral English Teaching in High Schools

2.1. Importance of Oral English Teaching in High Schools

The Ministry of Education issued the *English Curriculum Standard for General High Schools* (2017 edition) on January 16, 2018, which stipulates the implementation of the listening and speaking test nationwide. As a selective test, the English section of the college entrance examination will be more difficult and more differentiated. Especially in Beijing, the *Implementation Plan for Deepening the Reform of the Enrollment System in Beijing* states that from 2021 onwards, an oral English test will be added to the college entrance examination, and the total score of the English section will remain unchanged, with a total of 50 points for the speaking and listening test. The addition of an oral English test and a computerized listening test is inevitable. Obviously, spoken English has become an important part of English learning and examination [2].

However, previously, since the college entrance examination did not include an oral English test, most schools did not prioritize oral English teaching to meet the examination requirements. Traditional English teaching often focuses on grammar and vocabulary and ignores the importance of oral practice, which leads to many students' serious lack of English speaking ability, confidence and fluency. With the introduction of the oral English test in the college entrance examination, schools need to re-examine their English teaching strategies and strengthen their oral English teaching to ensure the all-round development of students' English ability to meet the needs of the future society.

2.2. Problems in Existing Teaching Models

English, a subject that requires strong communication skills, must be mastered through constant practice and application. The primary factor that affects the English learners' speaking ability is the environment. Since most of the learning time of spoken English occurs in school, a good English conversation environment is essential for good oral English learning [3]. However, for high school students, they are often challenged by the lack of a good English conversation environment. Foreign language learning takes time, and in order to achieve results in a short period of time, it is necessary to keep practicing, consolidating and improving [4]. In the classroom, despite the efforts of English teachers to teach grammar and vocabulary, opportunities for real conversational practice are relatively limited. Outside the classroom, high school students often find it difficult to find suitable English communication partners due to various reasons such as academic pressure and limited social circles. This environment restricts the development of students' English speaking ability and makes many students feel overwhelmed in English communication. Therefore, creating a good English conversation environment for high school students has become an urgent problem.

3. Application of Intelligent Oral English Teaching System

The application of artificial intelligence technology in high school oral language teaching again is discussed in this Chapter. The intelligent oral English teaching system primarily encompass four fundamental modules:

3.1. Speech Recognition and Evaluation Module

The module recognizes and evaluates students' pronunciation in real time. After a student reads a text, word or sentence aloud, the module evaluates the pronunciation and helps the student to identify his/her pronunciation weaknesses so that he/she can practice in a targeted way.

3.2. Intelligent Assisted Teaching Module

This module employs artificial intelligence technology to facilitate the teaching process by analyzing students' oral expressions. Teachers can gain a more profound comprehension of their students' oral English proficiency and any associated issues, which in turn enables them to devise more efficacious teaching plans and methodologies. In addition, the module enables educators to monitor their students' progress in oral English proficiency, thereby facilitating the identification of any shortcomings and the implementation of more effective teaching methodologies.

3.3. Personalized Learning Module

This module tailors personalized oral English training plans based on students' proficiency and learning needs, providing vast resources for oral practice to help students enhance their spoken English expression capabilities.

3.4. Virtual Reality Simulation Module

This module employs virtual reality technology to provide students with immersive English learning experiences. By simulating real-world scenarios such as shopping, making phone calls, cooking, and asking for directions, the module enables students to engage in fluent English communication in familiar settings, thereby enhancing their motivation to learn.

The most significant contribution of applying artificial intelligence to middle school English listening and speaking instruction is the ability to focus on learners' individual differences, track changes in their learning process, provide teachers with corresponding teaching insights, achieve personalized teaching goals through intelligent means, and ultimately optimize the teaching effect of high school English [5]. In the novel human-computer interaction teaching paradigm enabled by artificial intelligence, the machine serves not only as a practice partner but also as a guide, referee, diagnostician, and material processor [6].

4. Impact of AI-Assisted Teaching on High School Students' English Speaking Skills

Relevant studies have pointed out that "what to learn", "how to learn" and "where to learn" are the basic problems of education [7]. Specifically, English oral learning refers to the learning resources, methods of "teaching" and "learning", and teaching environment related to oral training. The effective integration of artificial intelligence technology and oral teaching enriches oral learning resources, innovates oral teaching methods and evaluation, and expands the oral learning environment. It not only helps to implement the student-centered teaching concept and promote students' personalized development, but also strongly promotes the reform of the oral teaching mode, promotes the development of oral teaching in the direction of intelligence, and effectively improves the level of oral teaching [8].

The application of artificial intelligence technology has opened up a plethora of new possibilities for teaching English as a foreign language. And it is anticipated that these possibilities will enhance students' oral expression through the effects of personalized learning support, enrich environments, and stimulated learning interests.

4.1. Personalized Learning Supports

In recent years, there has been a growing number of research studies on the application of artificial intelligence technology in English-speaking instruction. Among these, speech recognition technology, natural language processing, chatbots, and virtual character technologies have all provided innovative solutions for English-speaking instruction. These technologies not only permit students to receive real-time assessments of their oral pronunciation, providing accurate feedback and suggestions, but also simulate authentic conversational scenarios, offering a rich environment for students to practice their speaking skills. For example, speech recognition technology enables teachers to evaluate students' oral pronunciation in real-time, thereby facilitating the improvement of pronunciation and the reduction of the impact of accents. Furthermore, natural language processing and chatbots can facilitate personalized speaking practice environments, engaging in interactive dialogues with students to assist them in enhancing their spoken response abilities.

4.2. Enriched Practice Environments

Multiple studies have shown that AI-assisted instruction can effectively enhance high school students' English speaking abilities. Firstly, AI-assisted instruction provides personalized learning support for students. The most significant innovation in applying AI to English listening and speaking instruction in secondary schools lies in its focus on learners' individual differences, tracking changes in the learning process, and providing teachers with corresponding pedagogical insights to achieve personalized teaching goals through intelligent means, ultimately optimizing teaching effectiveness [5]. By analyzing students' learning data, AI systems can offer customized learning paths and feedback, which helps students to train and improve their speaking skills in a targeted manner. Secondly, AI-assisted instruction provides students with a richer and more real-time speaking practice environment. The simulated teaching environment created by virtual technology greatly enhances user interaction, achieving a deeper integration of physical schools and virtual learning spaces, which makes teaching more immersive, interactive, imaginative, and intelligent [7]. By simulating real-life conversational scenarios, AI systems permit students to engage in speaking practice within a virtual environment, thereby enhancing their fluency and language comprehension.

4.3. Stimulated Learning Interests

The incorporation of AI-assisted instruction can stimulate students' interest and self-confidence, thereby enhancing their learning motivation and participation [9]. As the era of AI approaches, English-speaking resources are becoming increasingly dispersed, allowing students disinterested in traditional textbooks to broaden their knowledge through a variety of media, including movies, celebrity speeches, and English entertainment. For students, the integration of text and images in classroom teaching is more effective than traditional classroom instruction alone. In the AI era, teachers are no longer merely transmitters of knowledge; they are organizers and leaders of human-machine interactive teaching activities. In the classroom, teachers arrange learning tasks according to students' characteristics, enabling them to engage in autonomous learning and team activities. For instance, before an oral lesson, teachers can display relevant vocabulary and sentence patterns online, allowing students to follow the pronunciation for reading and review. This approach facilitates more effective communication between teachers and students, ensuring that speaking classes continue from the beginning to the end of the class, allowing for sufficient time for oral practice. At the same time, teachers can utilize smart devices to arrange various speaking exercises such as dubbing English movies, role-playing, and speech debates, thereby comprehensively enhancing students' English speaking abilities [2].

5.　　Limitations and Future Prospects

The advent of artificial intelligence technology presents an opportunity for the advancement of English-language instruction. It is therefore incumbent upon educators to capitalize on this favorable circumstance by actively implementing pedagogical reforms and effectively addressing the deficiencies in the English-language proficiency of high school students [10]. Though there are numerous advantages to AI-assisted oral English teaching, there are also some limitations. As AI technology continues to evolve, its application in spoken English teaching will become increasingly pervasive and sophisticated. Future research should further explore the integration of AI technology and spoken English teaching, as well as the optimal use of AI technology in spoken English teaching. Empirical studies on the impact of AI-assisted teaching on high school students' English speaking ability are still relatively few, and thus, further empirical studies are needed to verify the effectiveness of this approach. Furthermore, AI-assisted teaching is confronted with challenges pertaining to technical limitations and data privacy concerns in enhancing high school students' oral English proficiency. These challenges necessitate further research for their resolution.

6.　　Conclusion

In conclusion, the integration of AI-assisted instruction into the English language curriculum at the high school level offers a promising avenue for enhancing students' speaking abilities. By providing personalized learning support and a rich speaking practice environment, AI-assisted instruction helps students improve their pronunciation, enhance speaking fluency and language sense, and stimulate their interest and self-confidence. Nevertheless, future research must continue to investigate the potential for deeper integration of AI technology and English language teaching, while also addressing existing technological limitations and data privacy concerns.

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