

The application of AI Agent in China's higher vocational public English classroom teaching

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Abstract: This paper explores the application of AI Agent in China's higher vocational public English classroom teaching. It analyzes the current situation and challenges of higher vocational public English teaching, introduces the concept and characteristics of AI Agent, and discusses the specific application of AI Agent in teaching scenarios such as listening, speaking, reading, and writing. The paper also studies the impact of AI Agent on teaching effectiveness and students' learning experience, and puts forward corresponding strategies and suggestions for optimizing the application of AI Agent in teaching. Finally, it looks forward to the future development trend of AI Agent in higher vocational public English teaching, aiming to provide reference for the reform and innovation of higher vocational public English teaching.

Keywords: AI Agent; higher vocational public English; classroom teaching; teaching effectiveness; learning experience

1 Introduction

This paper aims to deeply explore the application of AI Agent in higher vocational public English classroom teaching and analyze its impact on teaching effectiveness and students' learning experiences. Theoretically, this research enriches the theoretical system of AI + education and provides a new perspective for the study of intelligent teaching models. Practically, it provides specific implementation paths and strategies for the optimization of higher vocational public English teaching, helping to improve teaching quality and students' language abilities [1]. At the same time, the research results can also serve as a reference for other disciplines and educational stages in the exploration of intelligent teaching, contributing to the overall development of educational informatization and intelligence.

2 Literature review

AI Agent, as a cutting-edge application of artificial intelligence in education, refers to intelligent entities that can perceive, reason, act, and adapt to educational environments. Studies on AI Agent in education have centered on their roles as tutors, facilitators, and motivators. As intelligent tutors, AI Agents provide personalized guidance and feedback, helping students overcome learning difficulties and achieve better outcomes. For instance, virtual dialogue systems create immersive language practice scenarios, enabling students to engage in realistic conversations with AI characters. This not only enhances language skills but also boosts confidence and motivation. In terms of application scenarios, AI Agents have been successfully implemented in various educational settings, including higher vocational colleges. For example, they can assist teachers in managing classroom activities, automating administrative tasks, and analyzing student performance data. However, despite these promising results, significant gaps in the research still remain. One key area that needs further exploration is the long-term impact of AI Agent on students' critical thinking and creativity. Another challenge lies in the

design of more user-friendly interfaces that enhance human-AI collaboration without causing technological overload. Future studies should also address issues related to equity and access, ensuring that AI Agents benefit all learners regardless of their background or ability level.

3 Current challenges of higher vocational public English teaching

The existing problems in higher vocational public English teaching can be summarized as follows: First, the single teaching mode hinders students' development of comprehensive language skills and critical thinking abilities. Next, the absence of personalized teaching fails to accommodate students' individual differences, resulting in a one-size-fits-all approach that does not meet the specific needs of each learner. At last, the low learning enthusiasm among students reflects a broader problem of insufficient motivation and engagement, which is further exacerbated by the lack of interactive and practical teaching activities. One of the most prominent challenges is the rapid development of information technology, which has transformed the educational landscape and redefined the roles of teachers and students. With the rapid advancement of artificial intelligence, online learning platforms, as well as digital resources, traditional teaching methods are increasingly inadequate to meet the evolving demands of modern education [2].

In light of these challenges, it is clear that higher vocational public English teaching is at a critical juncture that requires innovative solutions and bold reforms. To overcome the shortcomings of traditional teaching models and prepare students for the demands of the 21st-century workplace, educators must embrace new technologies, update teaching content, and diversify teaching methods.

4 Concept and characteristics of AI Agent

AI Agent exhibits several key characteristics, including intelligence, autonomy, interactivity, and personalization, which are crucial for meeting the needs of higher vocational public English teaching and improving teaching effectiveness. First, its intelligence is reflected in the ability to simulate human thinking and decision-making processes. For example, it can automatically analyze students' learning behaviors and generate targeted teaching strategies. This characteristic makes it possible to implement precise teaching and improve teaching quality. Second, the autonomy of AI Agent allows it to operate independently without excessive human intervention. It can automatically adapt teaching content and methods according to students' learning progress, thus reducing teachers' workload and improving teaching efficiency.

5 The integration of AI Agents into public English classroom teaching in China's higher vocational education

5.1 Application in speaking and listening teaching

In the field of speaking and listening teaching, AI Agent plays a crucial role in creating virtual dialogue scenarios, providing real-time oral evaluation and feedback, and simulating authentic foreign language communication environments. By leveraging natural language processing (NLP) and speech recognition technologies, AI Agent can generate interactive dialogue scenarios that mimic real-life situations, such as job interviews, customer service interactions, or daily conversations. These scenarios enable students to practice their oral expression skills in a low-pressure environment while receiving instant feedback on their pronunciation, grammar, and fluency. Furthermore, AI Agent can analyze students' speech patterns and provide personalized suggestions for improvement, helping them overcome common challenges such as vocabulary limitations or cultural misunderstandings. Through continuous interaction with the AI system, students can gradually build confidence in their ability to communicate effectively in English. The immersive nature of these virtual scenarios also contributes to the development of cross-cultural communication skills, which are essential for vocational education.

5.2 Application in reading teaching

The application of AI Agent in reading instruction primarily focuses on three key areas: personalized reading material recommendation, analysis of reading difficulties, and intelligent reading guidance. Drawing on big data analysis and machine learning algorithms, AI Agent can effectively curate reading materials that align with students' interests, language level, and academic requirements. For instance, platforms like "Superstar Learning" and MOOCs offer a wide range of resources, including foreign original videos, articles, and e-books, which help students broaden their horizons and deepen their understanding of different cultures. In addition, AI Agent can identify and analyze students' reading difficulties, such as complex sentence structures or unfamiliar vocabulary, and provide targeted explanations and exercises to address these issues. Intelligent reading guidance is further enhanced through features such as automatic summarization, keyword extraction, and comprehension quizzes, which help students develop critical thinking skills and improve their reading comprehension ability. By fostering good reading habits and enhancing students' engagement with texts, AI Agent contribute significantly to the cultivation of lifelong learning abilities.

5.3 Application in writing teaching

The integration of AI Agent in writing teaching offers multifaceted support, including the provision of writing templates, intelligent grammar checking, and personalized evaluation and suggestions. Writing templates serve as a foundation for students to structure their ideas and organize content effectively, particularly for those who struggle with initial planning or coherence. AI Agent's intelligent grammar checking functions employs advanced algorithms to detect and rectify errors in syntax, punctuation, and word usage, thus helping students improve the accuracy of their writing [3]. Moreover, personalized writing evaluation goes beyond surface-level corrections by analyzing the overall quality of the text, including its logic, coherence, and rhetorical devices. This not only helps students enhance their writing skills but also boosts their confidence in expressing complex ideas in English. Through consistent practice with AI-assisted writing tools, students can develop a more nuanced understanding of language usage and achieve higher levels of proficiency.

6 Future development trend

AI Agent is expected to bring significant innovations to the teaching model of higher vocational public English teaching. First, it can facilitate the realization of more personalized and diversified teaching. By deeply analyzing students' learning data, AI Agent can accurately identify individual differences in learning abilities, interests, and needs, and design personalized learning paths and content for each student. This helps to address the problem of insufficient personalized teaching in traditional classes and meet the diverse learning needs of students. Second, AI Agent can promote the deep integration of online and offline teaching [4]. Through the construction of a smart teaching platform, AI Agent can connect online learning resources with offline teaching activities, breaking the limitations of time and space and providing students with a more flexible and efficient learning environment. Third, AI Agent can help build a collaborative teaching ecosystem. By connecting teachers, students, and teaching resources, AI Agent can facilitate multi-subject collaboration and resource sharing, thus improving the overall teaching efficiency and quality [5]. For example, teachers can collaborate with AI Agent to design teaching plans, while students can interact with each other and AI Agent to complete learning tasks, forming a teaching community characterized by mutual promotion and common progress [6].

7 Conclusion

This paper focuses on the application of AI Agent in higher vocational public English classroom teaching, aiming to explore its potential value and impact on teaching and learning. The introduction of AI Agent, with its characteristics of intelligence, autonomy, interactivity, and personalization, provides new ideas and methods for teaching reform. The research shows that AI Agent can be effectively applied in teaching scenarios such as listening, speaking, reading, and

writing, significantly improving teaching effectiveness and optimizing students' learning experience. For example, in listening teaching, AI Agent can provide personalized materials and intelligent evaluation; in speaking teaching, it can create virtual dialogue scenarios and provide real-time feedback; in reading teaching, it can recommend personalized reading materials and offer intelligent guidance; in writing teaching, it can provide writing templates and personalized evaluation. These applications not only help students improve their English ability but also enhance their learning interest and motivation. In addition, this paper puts forward corresponding strategies and suggestions for optimizing the application of AI Agent in teaching from the perspectives of teachers, schools, and students, emphasizing the collaborative efforts of all parties to promote the deep integration of technology and teaching.

Based on these limitations, future research can be carried out in the following directions: further exploring the deep integration of AI Agent and teaching, such as how to better combine AI Agent with teaching design and evaluation; studying the long-term impact of AI Agent on students' learning, including its impact on students' comprehensive language ability and learning habits; developing more effective application models to meet the diverse needs of teaching.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

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