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Virtual reality: innovation drive of Chinese teaching reform

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Abstract: As the "Internet Plus Education" model gains popularity, educational reforms shift towards intelligence and information technology. Now, Chinese classrooms face challenges such as difficulties in learning classical Chinese, a lack of emotional engagement, and ineffective teaching methods. Incorporating information technology into Chinese instruction is crucial for educational progress. VR, a cutting-edge technology of the 21st century, holds significant potential for reforming and enhancing Chinese teaching, offering a novel and immersive learning experience. This paper outlines the fundamental features of virtual reality, examines the current challenges in Chinese classrooms, highlights the benefits and application strategies of integrating virtual reality, and explores the anticipated challenges and countermeasures for its future implementation in Chinese classrooms.

Key words: virtual reality; Chinese teaching; education reform; immersive experience

1 Introduction

In the age of educational informatization, virtual reality is gradually finding its way into education, revolutionizing teaching methods. Chinese literature, as a core subject, aims to cultivate students' aesthetic and humanistic sensibilities, enhancing their literary proficiency and knowledge. However, due to the unique nature of its content, traditional teaching methods have proven challenging to innovate. Nowadays, Chinese literature teaching remains rigid, despite the new curriculum's emphasis on integrating it with information technology to unlock its reform potential. Therefore, introducing virtual reality into Chinese literature classrooms can offer students an immersive experience, enabling them to genuinely appreciate the author's artistic vision, igniting their curiosity, and transforming the traditional one-way teaching model.

2 Virtual reality drives educational progress

Virtual reality (VR) is a cutting-edge technology that combines simulation, multimedia, AI and sensors with computer science. It creates a realistic virtual world, offering immersive visual, tactile, and auditory experiences with interactive capabilities. Its key features are immersion, where users can feel fully immersed in a 3D simulated environment, with interactivity allowing natural interaction with virtual objects and receiving real-time natural feedback; and multi-sensory perception simulating not just vision but also auditory, olfactory, tactile, and even gustatory experiences. VR, introduced by Jaron Lanier in 1989, leads future educational innovation [1]. Foreign research on VR is extensive, with applications in fighter cockpit design and Alzheimer's treatment. Schools and companies abroad are integrating VR with education for a novel learning experience [2]. In China, VR introduction and application lagged, but but with the "Internet Plus Education"

trend, VR-teaching exploration began. However, due to equipment funding, VR teaching is more focused on higher education, facing challenges in primary and secondary schools. As a 21st-century technology, VR is widely used in military, medical, gaming, and other fields, showing a rapid rise in education. It innovates educational methods and revitalizes reform.

In the *13th Five-Year Plan for the Development of National Education* issued by the State Council of China in 2017, it emphasizes innovative, coordinated, green, open and shared development. It proposes tasks such as improving education quality, structural reform of education, deepening education reform and modernization. The plan also supports smart campuses and exploring new models of future education with technology integration [3]. The Ministry of Education formulated *Chinese Curriculum Standards for Compulsory Education* in 2022, emphasizing the integration of modern information technology with Chinese teaching. It specifically mentioned leveraging information technology in language teaching reform [4]. Introducing VR into secondary school Chinese courses is not only a teaching reform attempt but also necessary to keep up with the times and era's development.

3 The current predicament of Chinese classroom

3.1 The taste of classical Chinese is low

The Chinese course, a core subject throughout primary and secondary education, emphasizes both humanistic and practical aspects. Among its diverse content, the teaching of classical Chinese is particularly significant as it carries the essence of Chinese culture. However, due to its complex vocabulary and grammar, students often find it difficult to engage with and understand, leading to a lack of interest. Traditional teaching methods, which are often rigid and teacher-centered, further hinder students' ability to grasp the deeper meanings of the texts. Even with the use of visuals and narratives, students struggle to connect with the described scenarios due to limited life experiences. Therefore, it is imperative to innovate teaching methods to spark students' interest and improve their efficiency in learning classical Chinese, enabling them to appreciate and understand this vital aspect of Chinese culture.

3.2 Lack of emotional perception

The Chinese curriculum aims to achieve not just knowledge education but also ideological guidance and aesthetic taste cultivation, fostering students' positive values and moral character. However, in traditional Chinese classrooms, teachers often dominate, with students passively receiving knowledge and lacking meaningful interaction. This results in a one-sided teaching dynamic, hindering the development of students' emotional perception abilities. Although education reform has led to the integration of various teaching methods, students still lack opportunities for personal participation and practical exploration, leading to a decline in their sense of discovery and immersion. Consequently, students struggle to deeply grasp the emotional depth of texts, resulting in boredom towards Chinese learning and a stagnation in their emotional perception skills.

4 The application strategy of VR integrating Chinese teaching

4.1 Simulate three-dimensional space and time, immerse oneself in it

In Chinese teaching, the focus is on fostering students' humanistic spirit and emotional education [5]. To address students' low interest in classical Chinese, teachers can use VR to create immersive virtual scenes tailored to the learning materials and student characteristics. This immersive experience makes up for their limited experiences and allows students to actively explore, interact with people and events in the scene, and participate in historical events, while feeling the depth of Chinese civilization. "The immersive experience and rich interactive experience promote the cognitive processing and knowledge construction process of students, and help achieve deep understanding [6]." Take the challenging text *The land of Peach Blossom* as an example, its intricate language and abstract concepts are difficult to

grasp in real life. However, with VR simulating three-dimensional scenes, the text's scenic descriptions come alive in a vivid simulation environment. Coupled with audio-visual effects and human-computer interaction, students can delve deeper into the Taoyuan world, perceiving the beauty and the essence of the text's message. VR shatters the barriers of time and space. By integrating VR into Chinese classrooms, students immerse themselves and experience emotions and artistic conception through multi-sensory experiences.

4.2 Connect with historical stories to evoke emotional connections

Chinese teaching focuses on language skills. The new curriculum standards highlight active language accumulation, sorting, and application in real-life situations [7]. VR creates simulated scenes, placing students in dramas, poems, and articles, making them the story's protagonist. This encourages active speaking, character interaction, and writing/speaking practice. VR creates an immersive learning environment, enhancing language application. In this virtual scene, students are not just learners but also controllers. In a VR environment, students engage in realistic interactions and oral practices. They immerse themselves in dramas, playing roles and collaborating to improve communication skills and better grasp emotional and artistic nuances. VR also allows students to interact with virtual characters, experiencing historical or literary scenarios. For example, when learning ancient literature, students can observe the living scenes, costumes, and customs of ancient people through VR. They can also ask questions or talk to virtual characters. This interactive approach helps them understand the plots and characters of the work while practicing oral expression in a realistic context. Through multi-sensory experience, students can not only watch real scenes, but also master knowledge in practice, transforming plane teaching into immersive teaching.

5 Conclusion

VR, as an emerging intelligent tool, holds significant advantages in enhancing Chinese classroom teaching. However, there are many challenges in integrating it into classrooms. Firstly, while virtual reality research and theory are advancing in education, talent scarcity, financial constraints, and management challenges persist. Large-scale implementation in classrooms is still in exploratory stage, and teachers need training to effectively use it. Secondly, VR teaching resources are scarce, with many borrowed from abroad. These may not align with Chinese teaching methods, especially for Chinese, a subject with high resource demands. And this integration is a necessary trend for educational modernization. With the continuous progress of VR technology, it's anticipated that, after exploration and practice, it will propel Chinese classroom reform to new heights, enhance student engagement and classroom effectiveness, and foster more innovative and practical learners.

Conflicts of interest

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

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