

Multimedia Teaching Technology and Immersive Virtual Reality Technology

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Abstract—The key content of college English teaching reform under the current new situation has been created at this time due to a number of reforms and developments, including the reform of educational technology, the reform of the overall teaching mode, the reform of teaching methods, the improvement of teachers' comprehensive quality, etc. With the aid of immersive virtual reality and multimedia teaching technologies, China will undoubtedly succeed in its significant objective of educational reform. A new kind of college English teaching environment in the contemporary manner is called an immersion virtual English teaching environment. Its primary goal is to resolve the present issue with the application of immersion English instruction. The current environment can help the classic immersion college English teaching mode overcome time and space limits and progressively evolve into a new immersion college English teaching mode backed by cutting-edge computer science and technology.

Keywords-Multimedia teaching technology; Immersive virtual reality technology

I. INTRODUCTION

The foundation of both national renewal and society's ongoing progress is education. It relies on the desire of millions of individuals for a better living and is a significant means of advancing human growth overall. Knowledge has started to continuously refresh and develop together with science and technology, and this has emerged as the key component to bolstering overall national power. Every nation in the world is currently vying for exceptional talent. It is evident that the most valuable resources in the twenty-first century are talent resources. In addition to being a required foundational course for all college students, college English also serves to increase students' awareness of various cultures and fields of study. Currently, most college English instruction in China consists on explaining diverse English language knowledge and abilities while combining different teaching modalities and approaches. In order to develop students' intercultural communicative competence, the Chinese

Ministry of Education makes it abundantly evident that the fundamental goal of college English instruction in China is to enable students to learn English on their own and enhance their proficiency in many areas. This will also allow students to continuously improve their overall quality and develop global talents for our nation. Every language is developed via practice during the course of life and production. Different civilizations and ideas are represented by different languages. There is a wealth of humanistic knowledge and philosophy in language. Language comprises background information and context in addition to basic words. Therefore, teachers should help college students understand that learning English is more than just learning the language; it also requires them to expand their horizons, comprehend the local conditions and customs of different countries, and gain a thorough understanding of the background knowledge contained in the language. Furthermore, the traditional method of teaching English in our nation focuses mostly on teaching students how to respond to textual questions rather than how to use English in everyday situations.

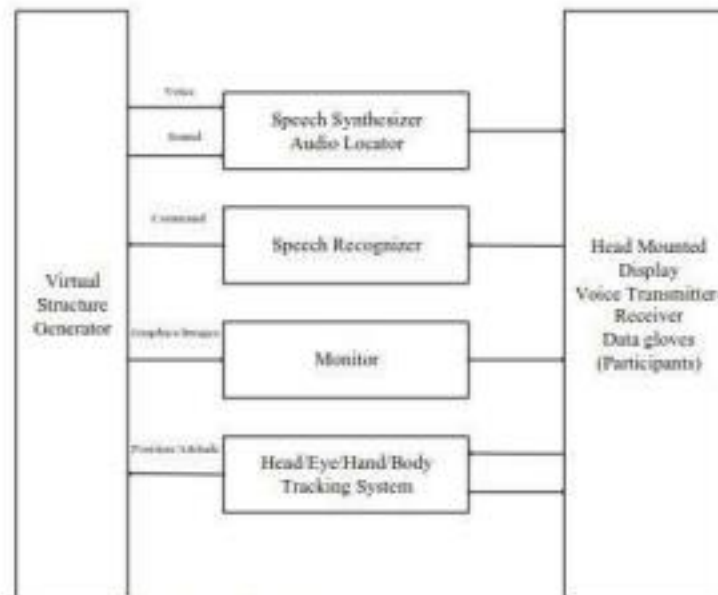


Figure 1. The Structure Diagram of Virtual Reality

II. STATUS OF DEVELOPMENT

The frequency of China's foreign exchange operations is increasing. As a result, a comprehensive overhaul of college English instruction has commenced. The Chinese Ministry of Education has not established a specific objective for the reform of college English instruction since it issued The Requirements for College English Teaching in July 2007. It emphasizes that the college English curriculum includes a variety of teaching modalities and approaches and is primarily founded on English teaching theory, with an emphasis on English and cross-cultural understanding. Therefore, in order to give college students a first-rate environment for studying languages, it is essential to use cutting-edge science and technology and create a variety of computer and Internet-based courses. The immersion education approach started to gain traction in the 1960s. It broke through the traditional English teaching model based on teacher explanation and placed an emphasis on creating a real language environment in conjunction with the natural learning method. This approach may effectively meet the needs of China's English curriculum reform.

However, the implementation of the immersion teaching method in English classes at major Chinese colleges has proven challenging in recent years due to the underdeveloped state of Chinese universities. Thus, one of the most crucial challenges now is how to guarantee the seamless implementation of immersion college English instruction. Our nation's degree of education modernization and globalization is continuously rising in tandem with the ongoing advancements in science and technology. Recent advancements in computer virtual reality technology have the potential to address present issues, enhance immersion-based English instruction, and offer a solid foundation for the development of immersion-based virtual English learning environments.

III. INTRODUCTION OF VIRTUAL REALITY TECHNOLOGY Over the past 20 years, virtual reality has emerged as a comprehensive and multidisciplinary high-end technology. In addition, it offers a novel paradigm for study that goes beyond the conventional domains of qualitative and quantitative inquiry. Virtual reality technology has gained widespread acceptance and usage over the last 10 years in a variety of industries, including medical, entertainment, education, and the military. Virtual reality technology encompasses a range of unique gadgets, including tracking systems, data gloves, and helmet-mounted displays. In order to create a powerful sense of super-lifelike presence and human-computer interaction experience in the three-dimensional high-simulation virtual environment, it is primarily an advanced artificial synthetic computer user interface that can simulate the real world through a variety of perceptual ways. High-speed three dimensional image technology, voice feedback technology, tactile feedback technology, and other cutting-edge technologies are all combined in virtual reality technology to create an incredibly engaging interactive environment with a range of features, including immersion, interaction, imagination, and more. Additionally, users can fully immerse themselves in a variety of activities by integrating into the virtual reality environment as a whole.

IV. THE REFORM OF HOLISTIC TEACHING MODE

The revision of the conventional English teaching method has a solid basis and conditions thanks to modern science and technology. In order to include the Internet into English classes and alter the way that they are taught, we should fully utilize current network and information technologies. Students should be the primary group, and we should insist on it. There should be greater

interaction and

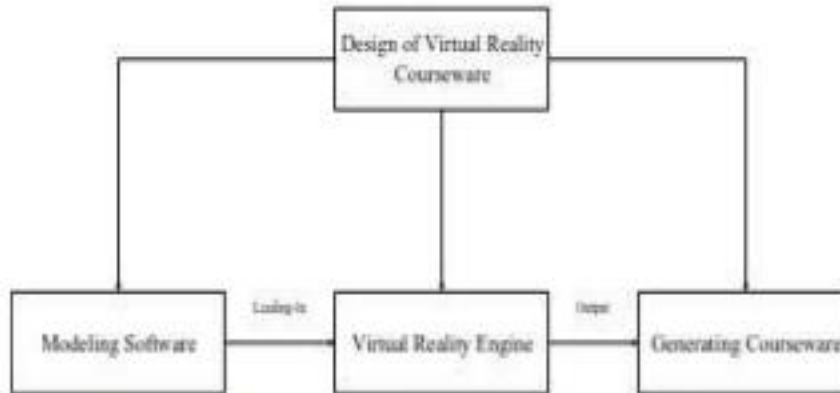


Figure 2. The Realization of Virtual Reality Courseware

communication between educators and students. Both professors and students are crucial to the teaching process at certain points in time. In addition to offering advice and support, teachers often motivate and mentor pupils when they are struggling to think of the correct response. In addition to teaching pupils according to their potential, teachers should never stop praising and encouraging their students. Furthermore, the new teaching approach fully utilizes computer network and immersive reality technologies to help English instruction transcend the time and location constraints of the conventional teaching approach and to support its ongoing evolution and advancement toward diversification. In order to realize the practicability, knowledge, and interest of the English classroom and thereby increase students' interest in learning, teachers can specifically create different teaching scenarios and software based on students' English proficiency, use grading schemes, and adhere to English teaching principles.

V. EDUCATIONAL TECHNOLOGY REFORM

A. Multimedia Assisted Instruction Technology

The technology for multimedia-assisted training has advanced significantly in the last several years. The majority of elementary, secondary, and university institutions in our nation have built multimedia learning environments, which have had a significant impact on teaching theory and practices while also having a favourable effect. The foundation of multimedia teaching is computer and classroom English multimedia instruction, which places a strong emphasis on teacher-student interaction during the learning process. Additionally, the position of teachers and students in the classroom has changed significantly as a result of the adjustments made to the teaching process.

Students are now the primary participants in the teaching process, with teachers serving as mentors and assistants. Multimedia instruction has the advantage of resolving the primary conflict between conventional teaching materials and class schedules. It is effective and time-saving, and it covers a lot of ground. It may overcome time and space constraints and provide a positive learning environment for students. Students are given the instructional material in a thorough and methodical manner using words, images, audio, and video. In order to increase students' focus and boost their academic achievement, it gives them the opportunity to experience both the newest instructional technologies and cutting edge science and technology in the classroom.

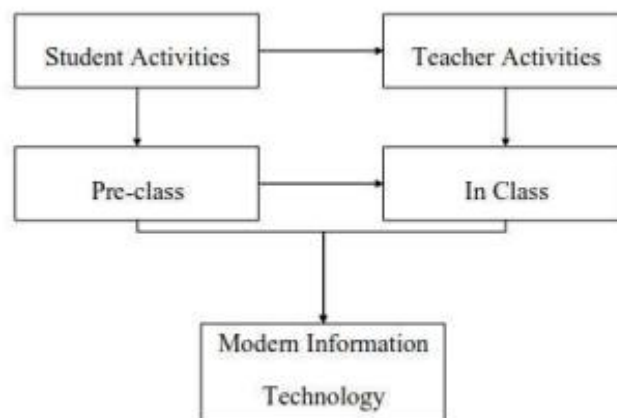


Figure 3. Multimedia Assisted Instruction Technology

B.Immersion Virtual Reality Technology

Immersion virtual reality technology offers a more realistic and immersive experience than traditional multimedia technologies. This cutting-edge virtual reality technology allows users to experience reality in all directions. However, immersive virtual reality technology also makes use of a number of cutting-edge scientific and technological advancements, including tactile feedback technology, and blends them with contemporary computer technology to create an incredibly lifelike interactive environment that is hard to tell apart from reality. Furthermore, a range of cutting edge teaching theories, including cooperative learning theory and immersive learning theory, are used as guiding principles in the immersive virtual English environment. This allows students to experience the real world firsthand before actively studying and thinking in the classroom. Simulating a real language setting and creating realistic teaching scenarios can also help students overcome psychological obstacles, gain confidence, and form positive habits of speaking English freely, all of which will enhance their proficiency in the language. Immersion virtual learning environments are currently being used extensively in the teaching of foreign subjects, with positive outcomes. However, immersive virtual learning environments have not been implemented in college English classrooms in China because of university restrictions. Nonetheless, a few colleges have started to conduct pilot programs, which offer a solid foundation for China's eventual complete adoption of immersive virtual English learning environments.

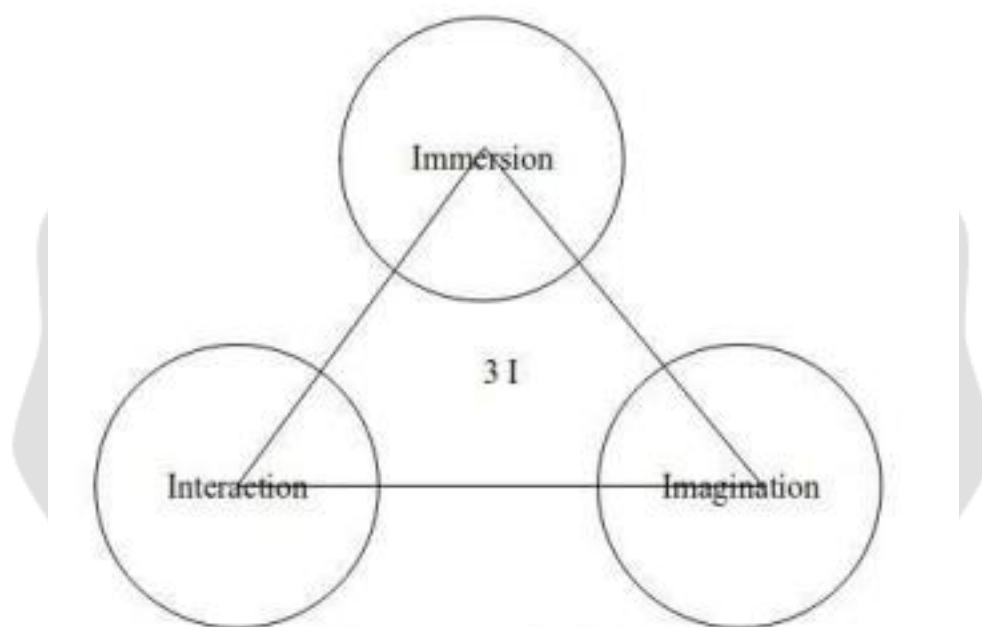


Figure 4. Immersion Virtual Reality Technology

VI.TEACHING METHOD REFORM

Traditional constructivist learning theory is expanded upon and extended by constructivist learning theory based on computer virtual reproduction. Immersion virtual learning and a multimedia educational environment are its building conditions. This idea makes it abundantly evident that, in the context of advanced technology, college students' acquisition of English should be a process of autonomously acquiring new information at the level of prior knowledge, which also serves to enhance their cognitive and cultural proficiency in the language. It also aims to enhance their capacity for self-learning. Traditional constructivist learning theory is expanded upon and extended by constructivist learning theory based on computer virtual reproduction. Immersion virtual learning and a multimedia educational environment are its building conditions. This idea makes it abundantly evident that, in the context of advanced technology, college students' acquisition of English should be a process of autonomously acquiring new information at the level of prior knowledge, which also serves to enhance their cognitive and cultural proficiency in the language. It also aims to enhance their capacity for self-learning.

VII. IMPROVING THE COMPREHENSIVE QUALITY OF TEACHERS

Constructivist sweeping Higher standards are expected of teachers using the English teaching technique, which also means that they must deal with new teaching methods, content, and evaluation procedures. You must first take care of yourself if you wish to instruct students.

As a result, educators must closely adhere to legal requirements, teach students in line with cutting-edge educational

theories, focus on role-transformation, prioritize students as the primary audience, improve the interaction, vividness, visualization, and operability of the English teaching process, and raise students' cultural literacy. In order to implement network and multimedia technologies in English teaching classrooms, educators must also stay up to date with current trends and comprehend how to use them. In order to foster the development of students' correct values and their overall growth, teachers must improve their communication and interaction with students while creating an environment for second language acquisition. They must also gain an understanding of the learning and living circumstances of various students. Even with the constant advancement and renewal of modern science and technology, which are also widely utilized in people's daily lives and production, teachers will always be necessary since they provide pupils with moral instruction in addition to knowledge. Teachers should be acutely aware, nevertheless, that as science and technology advance, contemporary education will also eliminate those who lack the necessary teaching abilities. In order to gradually convert the traditional teaching environment into a multimedia and immersive virtual English teaching environment, college English teachers should also keep learning about various forms of modern advanced information science and technology. They should also use high-tech assisted teaching and contemporary advanced educational concepts to create a positive learning environment.

VIII. CONCLUSION

Teachers who are not computer majors have started to become proficient in immersive virtual reality and multimedia technology due to the ongoing advancements in science and technology. Even while creating an immersive virtual teaching environment and a multimedia learning environment currently costs more, these expenses are progressively going down as time goes on and science and technology continue to advance. Multimedia teaching tools and immersive virtual teaching technologies will soon be able to be completely implemented and promoted in colleges across the nation. It must be acknowledged that the full development of a virtual reality laboratory in the future will be able to offer top-notch technical assistance for the implementation of multimedia and immersive virtual English teaching environments in Chinese colleges. In order to accomplish the goal of college English teaching reform in China, immersive virtual reality technology and multimedia teaching tools can unquestionably optimize and modify the conventional college English teaching mode, overcome time and space constraints, and increase students' interest in learning.

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