Application of VR Simulation in Chinese Universities' Spanish Interpretation Class

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Abstract: As the economic and trade ties between China and Spanish-speaking countries have become closer, Spanish has become a popular course in Chinese universities. Simultaneously, with the rapid development of information technology, VR simulation has become an essential educational aid. This article first analyzes the problems encountered in Spanish courses in Chinese universities and then lists the successful virtual simulation cases in language learning. Then, under the framework of the theory of situated cognition, affective filter hypothesis, and experimental learning, the application scenarios and methods of VR simulation in Spanish courses in Chinese universities are discussed, which provides a reference for future research.

1. Introduction

Spanish is the official language of more than twenty countries and regions in the world. In terms of the number of native speakers, its users have reached 437 million, occupying the second place in the world, just after Chinese.[1] Since the 21st century, with the continuous deepening of China’s Reform and Opening and the steady progress of the “One Belt, One Road” initiative, the exchanges and cooperation between China and the Spanish-speaking countries in economic, trade, cultural, political, and other fields are more and more frequent. China has become the most important partner of most Spanish-speaking countries in trading and foreign direct investment. In this context, the demand for employees with qualified Spanish skills in China's economy and society also increases. Such demand makes Spanish teaching in colleges and universities face new challenges in teaching mode, teaching quality, and teaching efficiency. Accelerating the formation of interdisciplinary talents with high humanities, language skills, and cross-cultural communication awareness has become an essential Spanish teaching task.

Interpretation is a subject with high applicability in the Spanish undergraduate major. Its theoretical knowledge system integrates closely with other professional knowledge, such as politics, economy, science, technology, humanities, history, cultural customs, and other fields. Application and practice are required teaching methods of interpretation courses. However, compared with the considerable demand for Spanish talents in China's economy and society, there is still a significant shortage of Spanish interpreting teaching in China. Gao Bo has surveyed Spanish teachers and students in many universities in China and has found that the current Spanish interpreting courses face unreasonable class hours, insufficient corpus, unclear course positioning, simple teaching methods, limited teaching capacity, unreasonable assessment method alone with other problems.[2]

Most colleges and universities in China that offer Spanish undergraduate majors still use traditional thematic interpretation teaching methods. That is, teachers organize the course according to the themes while students learn in advance the relevant materials. The teachers read the textbooks in order or out of order in the class, and students take turns to interpret. Although a minimal number of colleges and universities also use audiovisual materials, computer-assisted methods, and other multimedia equipment in the class, due to the lack of real environment and effective methods for interpreting teaching, it is still impossible for learners to experience and train in real interpreting situations (ibid.). In summary, the shortcomings are mainly four: the lack of updated continuously visual teaching materials, the application-oriented teaching environment, the lack of interactive teaching methods, the lack of opportunities and experience for interpretation practice.

With the development of information technology, many teaching reform projects based on the

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Internet, such as MOOC, SPOC, and flipped classrooms have appeared. The rapid development and popularization of VR technology have also created great opportunities for reforming traditional Spanish interpretation courses. In traditional Spanish interpreting teaching, due to the classroom environment's constraints and other objective conditions, it is always difficult to truly create an immersive cross-cultural communication scene. So, it is not easy to stimulate learners' interest in learning, and it is also challenging to enhance the interaction and vividness of interpreting learning. The effectiveness of students' interpreting skills acquisition will naturally be significantly reduced. However, with VR simulation's help, teachers can break through time and space limitations and create simulation scenarios, allowing students to learn interpretation skills in a nearly real interactive experience. Meanwhile, it also changes passive acceptance into active exploration, one-way memory into two-way experience, simple book learning into multi-dimensional practice, which stimulates the interest of independent learning and improves the effect of acquiring interpreting skills.

2. VR Simulation and Its Application in Foreign Language Learning

Virtual Reality (VR for short) is a multidisciplinary comprehensive high-end technology developed in recent years and a new research paradigm beyond the traditional research category. Through the connection of the computer and sensor gloves, 3D controllers, stereo glasses, sensors, and other supporting equipment, VR simulation can generate a unique environment that makes an immersive and interactive scene through sight, hearing, and touch. As a product of the comprehensive development of technologies such as artificial intelligence, computer networks, and information processing, VR simulation has the characteristics of multi-sensing, immersive, interactive, and conceptual. It can build a fluent, interactive, and immersive learning environment, which has made it a crucial modern educational technology.

The application of VR simulation has brought new research fields to foreign language teaching. With the unique advantages of immersion, interaction and imagination of this technology (Fig. 1), it can provide foreign language learners customized target language scenes that integrate contextualization, diversification, assistance, and individuality. This application allows learners to immerse themselves in the cognitive experience of foreign language learning, reduces the anxiety caused by language communication in the real environment, and stimulates learners' potential for active thinking, active learning, and problem-solving capacity and promotes the accumulation of memory and the transfer of knowledge to the actual language application environment.

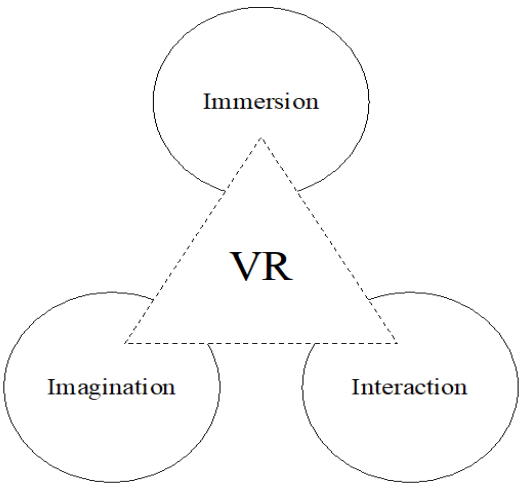

Fig.1 Virtual Reality Triangle

Under VR simulation, foreign language learning is a complex process that involves computer simulation,[3-4] computer graphics, sensing and measurement technology, language psychology, and other disciplines. Among the existing studies, the most representative ones are the EU's VILL@GE project and Russia's 3D Multi-user Virtual World. The VILL@GE (Virtual Language Learning Edutainment Activities)

project, funded by the European Union from 2007 to 2013, was developed based on the Second Life platform, an online virtual game developed in the United States, where users can interact with other users in a virtual interactive community. Harvard University, Stanford University, Princeton University, and other world-renowned universities have established their virtual campuses in the mentioned platform. There is a virtual island divided into the UK, Greece, and Hungary in the VILL@GE project. The island is equipped with characteristic buildings of various target languages, supermarkets, zoos, clothing stores, banks, real estate companies, travel agencies, and similar scenes. Students can exercise their language ability and cross-cultural communication skills through meetings, communication, and game activities in virtual scenes. Russia's 3D Multi-user Virtual World was developed by Russia's St. Petersburg University and other institutions using VRML/X3D software in 2003. It aims to provide Russian learners with an approximate real language environment and stimulate learning motivation and interest in Russian culture. To improve Russian learners' communicative competence, and has achieved remarkable results in the teaching of Russian as a foreign language. In addition to the two most representative projects mentioned above, in recent years, with the gradual maturity of VR simulation, scholars from more and more different language countries, including the United States, Spain, Portugal, Argentina, Etc. have begun to try to use this technology to assist language teaching.

3. The Theoretical Basis of Application of Vr Simulation in Spanish Interpretation Course

3.1 The Theory of Situated Cognition

The theory of situated cognition emphasizes that all knowledge comes from individual activities and the exchange of situations. Learning is not only to obtain pure factual knowledge but also to apply this knowledge to the practice of social life. It requires that the learner be placed in a specific social context of knowledge production and construct new identities in a simulated work environment [5-7] Through the help of peers, teachers, and professional personals, students acquire gradually the professional concepts and standards of the discipline they learn and thus possess the primary qualities of professional practitioners.[8]

3.2 Affective Filter Hypothesis

The affective filter is a hypothesis of second-language acquisition theory and a field of interest in educational psychology and general education. According to this theory, foreign language acquisition must be achieved by receiving many understandable target languages. Therefore, if the learner's emotional state is positive, the filter threshold can be effectively reduced, and more target language input can be received, thereby improving the language learning effect. On the contrary, if the learner encounters negative emotions such as anxiety or tension during the learning process, it will significantly increase the emotional filtering threshold, thereby preventing the cognitive system from accepting purpose and meaningful input.[9] Generally speaking, foreign language learners' dynamic filtering has a decisive influence on culture shock, learning motivation, and learning expectations.[10] Specifically, when the learner feels more unfamiliar with the social and cultural elements in the target language context, the less motivation for foreign language learning.[11-13] With the aid of VR simulation, students can face cross-cultural communication tasks directly in the target language context, thereby stimulating their potential verbal communication motivation; teachers can filter the interfering factors in communication according to the learning progress, and improve students' anxiety on the spot. Besides, teachers can also adjust communication difficulty according to students' actual ability and smoothly run the ability test throughout the language course to truly teach students following their aptitude.

3.3 Experiential Learning

Experiential learning, also known as (EXL), is the process of learning through experience and is more specifically defined as learning through reflection on doing. The experiential learning theory emphasizes that learning is not only a process of acquiring and delivering content, but also a process of knowledge creation by transforming experience.[14] According to this theory, learning is an innate skill and an experiential process.[15] Foreign language learners can complete listening, speaking, reading, writing, and related foreign language learning activities through personal

experience, and transform the acquired experience into their internal knowledge. VR simulation can provide foreign language learners with an experiential learning environment similar to reality, enabling foreign language learners to obtain a learning experience close to reality, and learn and observe in the interaction with other learners.[16] This kind of practical, experiential learning can not only increase the interest of foreign language learning but also stimulate the interest of foreign language learners, thereby effectively improving the efficiency of foreign language learning.

4. The Application of Vr Simulation in the Teaching of Spanish Interpretation

4.1 The Construction of Virtual Simulation Platform

Based on the characteristic of the high simulation of virtual reality technology, we can design any communication circumstance in the real world. In the simulation scenario, students can exercise their Spanish interpretation skills. According to the division of the course content, we can divide the scenes into different categories, including business negotiations, foreign affairs meetings, tourism interpretation, and cultural exchanges. Through the unification of online and offline sessions, the course format covers both in-class and extra-curricular: the in-class part includes the contextual simulation interpreting teaching software used in classroom teaching with the head-mounted display (HMD), and the extra-curricular part includes interpretation self-learning courses supported by the mobile phone, tablets and other mobile terminals.

4.2 Material Preparation

Teachers divide this semester's interpretation courses into modules such as business negotiation, foreign affairs meetings, tourism interpretation, Etc. Students need to prepare in advance relevant Spanish terms and expressions. The interpretation video prepared by the teacher in advance should have options for adjusting the difficulty, such as reducing the speed, using more simple terms, and using multiple short sentences instead of compound sentences. Students also need to collect relevant speech manuscripts and slides according to the course's subject for simulated interactive exercises in the DVEs environment.

4.3 Classroom Training

Classroom training is generally divided into man-machine interpretation training and interpersonal interpretation training in the DVEs environment.

4.3.1 Human-Machine Interpreting Training

Students can immerse themselves in various scenes for interpretation after putting on virtual simulation equipment in-classroom training. Teachers can change or increase or decrease scene elements according to the teaching progress and students' abilities, guide students to explore vocabulary and expression methods in other similar scenes, and realize the transformation from short-term memory to long-term memory, from knowledge to ability. As shown in Fig. 2 and Fig. 3, the students, facing the audience, can feel the podium's height, the gaze of the audience, the seriousness of the lecture hall, and the pressure of the time limit, which improves their language proficiency and non-verbal communication skills, such as visual contacts, gestures, and body movements. In the advanced training, teachers can gradually increase the intensity, adding interference factors such as audience communication, lighting changes, audience walking, answering the phone, Q&A session, Etc., to further exercise students' comprehensive cross-cultural communication skills.

4.3.2 Interpersonal Interpretation Training in Dves Environment

Based on human-machine virtual simulation training, teachers can arrange simulation interactive exercises among students in the DVEs environment. One student serves as the speaker in the simulation environment, using the pre-prepared speech manuscripts and slide materials for the presentation, and the other student serves as the interpreter. Compared with human-machine interpreting training, interpersonal interpreting training can better simulate the interpretation scene

and guide students to pay attention to non-linguistic elements, such as gestures, expressions, body movements, and so on.

4.3.3 Recording and Playback of Course Training Videos

Through the video of the classroom training process, students can review and reflect on their interpretation. For some excellent cases, teachers can share with all students in the course.

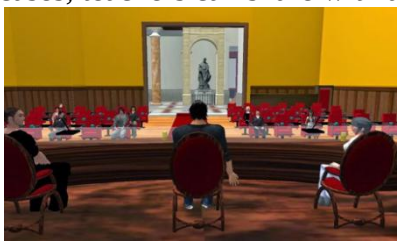

Fig.2 Nference Interpretation Simulation

Fig. 3 Round Table Meeting Interpretation Simulation

4.4 Autonomous Training after Class

After class, students can use personal VR terminals for independent training through the sharing of teaching resources. In traditional interpretation courses, the motivation and effects of students' self-training are not ideal. Through the virtual simulation classroom, students can get rid of time and space constraints, complete independent training, so that interpreting training can genuinely integrate into their daily lives. Through the Smart Classroom connection, the process of after-school training can be recorded, so students can evaluate and learn from each other, and teachers can also guide students' training.

4.5 Evaluation Method

With the VR technology, teachers can apply continuous evaluation, including students' pre-class preparation, classroom training, self-training after class, online learning, group collaboration, personal performance, Etc., in the general evaluation. A more scientific, constructive, and objective evaluation of the student's learning process can be made through it.

5. Conclusion

Under the guidance of the theory of situational cognition, affective filter hypothesis, and the theory of experiential learning, this research puts forward the idea of teaching Spanish interpreting with VR simulation. Compared with the traditional Spanish interpreting teaching model, the virtual simulation teaching model can reduce students' interpreting anxiety, stimulate learning motivation, improve learning autonomy, and obtain better learning results and finally realize the improvement of their comprehensive interpreting ability. At the same time, through the connection with the smart classroom, on the one hand, it realizes self-training after class, which fits the teaching concept of “flipped classroom”; on the other hand, it realizes more scientific, more constructive, and more objective continuous evaluation.

This study also has its shortcomings. Since empirical research has not been conducted, it is not possible to conduct a more specific quantitative analysis of the model's actual effects; besides, the more in-depth design is needed to optimize the efficiency of students' autonomous learning after class. The above shortcomings leave a huge space for our further research in the future.

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