Research on Oral English Teaching System Based on VR in the Background of AI

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Abstract: 2016 is a year when AI (Artificial Intelligence) technology has made a significant breakthrough. The language service products of AI and VR (virtual reality) technology are increasingly appearing in the commercial market, which has brought a huge impact on the language service industry. Based on the analysis of the current principles and development status of the language service products of artificial intelligence and VR (virtual reality), this paper attempts to explore the enlightenment of new technology to language service, especially in oral English teaching, while oral English Corpus needs to be built. This research designs a set of oral English training system based on artificial intelligence and VR (virtual reality) technology, which makes oral English teaching conform to the requirements of the times. The research result is that it can improve the efficiency of oral English training.

1. Introduction
In the era of artificial intelligence (AI), driven by big data, cloud computing, deep learning, neural network, speech recognition, machine translation, virtual reality (VR), augmented reality (AR) and other technologies, structural changes have taken place in the language service and language teaching industries.

1.1 Artificial Intelligence and Language Service
Artificial intelligence (AI) was first proposed in 1956. After more than 70 years of development, it has become a strategic technology leading the future. Countries all over the world regard the development of artificial intelligence as a major strategy to enhance their national core competitiveness. In 2016, the United States released the report "Preparing for the Future of Artificial Intelligence"; the United Kingdom released the report "Artificial Intelligence: Opportunities and Impacts of Future Decision-making"; in 2017, China released “the Development Plan of a New Generation of Artificial Intelligence, and the Japanese government formulated “the Industrialization Route of Artificial Intelligence”; in 2018, Germany put forward “the Key Points of Artificial Intelligence Strategy of Federal Government”.

The ultimate goal of artificial intelligence is to make machines reach the level of human understanding of natural language. There are three stages for AI to solve language problems. The first stage is the era of traditional AI, which deals with language problems based on language rules; the second stage is the era of concept statistical learning, which deals with natural language by using deep
learning. The application of artificial intelligence in language service industry is mainly natural language processing, including neural network machine translation and speech recognition (Wang Wanqi, 2018:22).

At present, the researches mainly focus on the application of artificial intelligence in the field of translation, especially in the field of interpretation services (Xu Qilu, 2017; Wang Huashu, 2019; Li Zhi, 2019), less on the application of artificial intelligence in oral English teaching.

1.2 VR(virtual reality) Technology and Language Teaching
VR(virtual reality) technology is a new technology at present. VR(virtual reality) technology is a new means of human-computer interaction with the help of computers and sensors. It allows people to immerse in the virtual world constructed by computer equipment and simulate the effects of vision, hearing, taste and gravity in the real world. VR(virtual reality) technology can give people a sense of experience. It has three basic characteristics: interactivity, immersion and imagination (Ding Nan, 2017). At present, there are business translation teaching (Mei Mingyu, 2019), higher vocational teaching (Wu Xiaowei, etc., 2018) and other aspects of teaching research based on VR(virtual reality) technology. There is no oral English Teaching Research Based on VR(virtual reality) technology.

2. Design and Practice of Oral English Teaching System Based on VR(virtual reality)

2.1 Design of Oral English Teaching System Based on VR(virtual reality)

2.1.1 Construction of Spoken English Corpus
With the coming of the era of big data and artificial intelligence, the application of corpus is becoming more and more popular. At present, most of the existing corpus or corpus research is based on the parallel text of translation (Ren Jinghui, 2015). There are few spoken English related text and audio-video corpus, so it is urgent to build spoken English corpus.

The training materials of spoken English should meet at least four standards: timeliness; authentic; meet the characteristics of oral expression; meet the needs of different levels of teaching. In addition, the construction of corpus should consider multimodal development. Multimodal sensory system, including vision, hearing and touch, operates simultaneously and synchronously in the current behavior, and generates integrated experience through the processing of central nervous system (Xu Qilu, 2017).

2.1.2 Personalized Oral English Training System Based on VR(virtual reality)
Under the background of artificial intelligence, based on VR(virtual reality) technology, a personalized and effective oral English training system OETS(oral English training system) is designed. This OETS covers all stages of oral English training, and each stage is related to each other. As shown in Figure 1.
Figure 1: oral English training system based on VR (virtual reality)

Figure 1 constructs a VR (virtual reality) based oral English training system. First, through the physical environment, cross-cultural environment, emotional environment and VR (virtual reality) environment, students can immerse in the oral English task environment. Secondly, on the basis of VR (virtual reality) and various network resources, students' perception is connected with various elements of virtual reality. They can effectively transform and experience between real space and virtual space. Thirdly, the system can expand students' perception experience of oral practice.

2.2 Practice of Oral English Teaching System Based on VR (virtual reality)
In order to verify the effectiveness of the proposed oral English teaching system OETS based on VR (virtual reality), we conducted a questionnaire survey on the degree of interest of VR (virtual reality) technology teaching mode. Among them, the degree of interest is very interested, interested, not interested and very not interested (single choice). A total of 100 questionnaires were distributed and 95 valid questionnaires were recovered. The statistical results are shown in Figure 2. Figure 2 the results of interest survey show that about 92.7% of the students are interested in or very interested in the new teaching mode of VR (virtual reality) technology.
Figure 2: Analysis of the Statistical Results of Interest survey of Oral English Training System Based on VR(virtual reality)

More than 80% of the functions of human brain are used to process visual information. When people process visual information, the cognitive load is very low, and the effort is very small. In addition, because the information that people perceive with vision and touch at the same time is more comprehensive and profound than with vision alone, and the retention time is longer, the oral English training system based on VR(virtual reality) (oral English training system) is helpful to obtain good learning effect. VR(virtual reality) can provide a more natural interactive way through continuous improvement of computer simulation technology, human-computer interface technology and sensor technology, and carry out efficient, safe and economic learning practice in an open and free space (Zhang Fengjun, 2016). VR(virtual reality) technology enables learners to experience the objective world of simulation through the virtual process of digitizing the objective environment and external information.

The core purpose of language learning is to form language ability, which is based on real language materials. The whole teaching activity must have a natural and real language environment. By using VR(virtual reality) technology, text, picture, sound, image and other information are integrated to create a three-dimensional language environment and teaching content, forming a linear and non-linear curriculum teaching system, so as to activate students' perception ability and mobilize students' interest in learning.

OETS provides students with an all-round and autonomous learning environment, and their learning progress will be completely recorded by the cloud platform of OETS. Cloud platform will provide suitable learning content according to students' learning situation, and teachers can answer questions and solve doubts for students through cloud platform.

3. Conclusion
In the era of artificial intelligence, the breakthrough of VR(virtual reality) technology has greatly improved the efficiency of language learning, which also brings us a lot of enlightenment in oral English teaching. Whether the efficiency of technology can be effectively used, and whether the talent training mode can be updated to meet the needs of the era of artificial intelligence will determine the survival and development of English education in the future. At the same time, language teaching, linguistics and language brain mechanism will be organically combined with the basic theory of artificial intelligence to realize the teaching of oral English with technology, and to promote the innovation and development of oral English education mode and English professional training mechanism.
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