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Design and Practice of Virtual Reality Talent Training Model in Higher Education

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Abstract: He development of virtual reality technology urgently needs to cultivate innovative and applied professionals who can adapt to industrial transformation and upgrading. Based on the analysis of the current situation and problems of talent training in virtual reality technology, this study proposes the undergraduate talent training model of virtual reality, namely Learning, Creation, Competition, Production, Research (LCCPR). Combined with the practical experience of virtual reality teaching at Anqing Normal University, this paper profoundly discusses virtual reality's training mode.

1. Introduction

Virtual reality technology [1] is a modern and highly new technology with computer technology as the core, involving computer graphics [2], human-computer interaction technology [3], artificial intelligence [4], spatial positioning technology [5], etc. With the help of proprietary related devices simulating the construction of realistic visual, auditory, haptic and other simulated virtual environments, and interacting with objects in the virtual world in a natural and realistic state [6].

In recent years, virtual reality technology has continued to generate a boom, and major technology companies have started to develop virtual reality technology and related products. The acquisition of the Oculus virtual reality headset by FaceBook for US$2 billion has pushed virtual reality technology to the forefront, and the joint launch of the HTC Vive (a VR headset) by HTC and VALVE has opened up a golden age of virtual reality technology [7]. Body poses interaction technology by Kinect set off a boom in the application of human-computer interaction [8]. Augmented reality technology enhances the entertainment activities of many people [9]. The advent of mixed reality technology brought virtual reality technology to a new virtual experience [10]. These technologies have greatly expanded the research and application of virtual reality technology. The China Electronic Information Industry Development Research Institute released the "White Paper on Virtual Reality Industry Development (2021)", in which the core technology-related products of virtual reality tend to be perfected, while the demand for non-contact economy is also

increasing. Under the joint promotion of both, the virtual reality industry is developing rapidly and is driven into a new round of mania [11]. Domestic and foreign technology giants have been launching the impact on the virtual reality industry based on the concept of "Metaverse", which is the core of virtual reality technology. And because the industry chain of virtual reality-related technologies involves many fields, including gradually mature sensing, interaction, modeling, holographic projection, etc., and shows more and more mature integration in many industries, which causes the demand for talents in the virtual reality industry to blow up [12].

Higher education is an important part of virtual reality talent cultivation, and how to effectively improve the cultivation of virtual reality talents has been an important research content of relevant virtual reality education. This paper analyzes the problems encountered in cultivating virtual reality talents and proposes a model of Learning, Creation, Competition, Production, and Research (LCCPR) applied to practical teaching. Through the practice of virtual reality education at Anqing Normal University, better results are achieved, providing a case reference for virtual reality talent cultivation.

2. The Current Status and Challenges of Virtual Reality Talent Training

Compared with western countries, virtual reality technology in China started late. The training mode of virtual reality talents in many domestic universities is mainly borrowed from western countries and then combined with their teaching conditions, and there are certain limitations in the training method. There are five main shortcomings.

1) Virtual reality disciplines are highly cross-cutting and virtually difficult. Virtual reality technology involves many fields such as computer, game development, art, modeling, animation, and photography [13-14]. And students should learn to use professional software and understand it from the principle to have more in-depth learning of professional knowledge and skills.

2) The virtual reality talent training system is ambiguous and difficult to learn from. As virtual reality talent training is often transformed by practitioners in computer science, film and television special effects, animation, and game development to teach and practice, there are significant differences in virtual reality technology talent training.

3) Students are not highly motivated to learn. As virtual reality technology requires various skills such as art, content design, and computer program development, students need to work in teams for learning and production.

4) The training of professional talents can hardly meet the needs of social enterprises. Virtual reality technology and equipment are developing rapidly, and updating iterations are fast, so the school curriculum and software are quickly out of touch with society. As a result, it is difficult for trained professionals to integrate into the needs of enterprises rapidly. There is a severe incongruity between universities and enterprises.

5) Insufficient mastery of the core technology of virtual reality. In recent years, many core technologies and concepts of virtual reality mainly come from western countries, such as Oculus, Kinect interaction, Hololens, Metaverse, and other technologies. Therefore, there is a need to enhance students' research skills in basic theory and skills.

3. LCCPR Talent Training Model

3.1. LCCPR Content

To solve the current problems of virtual reality education in universities, we design the LCCPR talent model as follows.

1) Establishing a learning system and learning mapping to systematically promote student learning by analyzing and organizing virtual reality expertise, the curriculum and sequence are set up rationally. Clarify the content and relevance of the curriculum. Establish a learning map of course knowledge to provide students with a macro and micro understanding of learning content.

2) Propose course innovation work requirements to encourage team creation. We propose the "Hulu Brothers" learning approach, where 1-2 special skills are mastered on top of the basic skills. Student component teams are encouraged to collaborate, promote mutual understanding through course work and course assessment, and master more specialized skills in the shortest possible time.

3) Students must participate in competitions to enhance their learning motivation and technical level. There have been more types of competitions related to virtual reality technology in recent years. We guide students to carry out subject competitions in various aspects such as technology and content to promote students' learning initiatives and create a good atmosphere for their training.

4) Joint enterprise co-teaching to improve production requirements. Virtual reality technology and equipment are developing rapidly, updating iterations are fast, and the school curriculum and software are quickly out of touch with society. We fully investigate the market demand and introduce real technicians and product managers to participate in the teaching of students, in an online or offline way, to guide students to participate more in practical learning and enhance the development ability of actual products.

5) Research and explore the core technologies of virtual reality. In our teaching, we constantly guide students to establish a sense of independent innovation and create core technologies that lead the development of the industry. Students will have deeper learning of specialist skills and be able to cope with the future development of core technologies. Undergraduate students are guided to conduct experimental exploration and encouraged to publish research papers.

3.2. Practice and Effectiveness of LCCPR

The paper size must be set to A4 (210x297 mm). The document margins must be the following LCCPR starts from the five aspects of school-enterprise disconnection, professional knowledge, core technology, innovation and entrepreneurship, and competition, thoroughly explores the characteristics of virtual reality talent training, and effectively promotes the development of the virtual reality field.

Virtual reality teaching at Anqing Normal University has been explored and taught in practice since 2016, with remarkable results. From the perspective of technical research, the faculty team has carried out in-depth technical research and obtained two national fund projects to conduct in-depth research around virtual reality technology. Students were guided to carry out experimental exploration, and students participated in publishing research papers. From the perspective of disciplinary competitions, the participation rate of students reached over 80%, and the award rate reached 70%, effectively encouraging the learning and practice of students' professional skills, and students' innovative and entrepreneurial projects were actively carried out. From the perspective of social services, virtual reality design and development were carried out around the actual needs of enterprises and local characteristics, and virtual reality applications of the excellent history and culture of the Wanjiang River region, the red culture of the old revolutionary area in Dabie Mountain, the advanced culture of socialism with Chinese characteristics in the new era, the culture of Huangmei opera and the venues of major local scenic spots were widely noticed and well received by the society. The good effect of talent cultivation and high quality of graduates. Employers evaluate graduates as "strong in professional and technical skills, and strong in practical innovation", and the satisfaction rate of graduates reaches 98%. The employment rate of the major has exceeded 95% for six consecutive years.

4. Conclusions

This paper introduces the model and practice of LCCPR to cultivate talents in virtual reality technology. The LCCPR talent training model is easy to promote and implement. Virtual reality talent training for LCCPR applications has gradually formed a curriculum system and teaching material system on the one hand and a stable training model on the other, which can be used as a reference for other schools and is also applicable to other cross-disciplines

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