Research on the School-Enterprise Integration Education Model in Vocational and Technical Colleges: Taking the Virtual Reality Technology Application Major as an Example

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Abstract: With the development of the digital economy, virtual reality (VR) technology has gradually become one of the core components of information technology in the new era, widely used in education, medical care and other fields. The market has put forward an urgent demand for VR technical talents with practical and industry adaptability. Vocational and technical colleges shoulder the mission of cultivating skilled talents, and the teaching effect of their VR technology application major affects the talent supply for industry development. However, they also face problems such as disconnection from the industry and insufficient experience of teachers, making it difficult for students to meet the requirements of positions. The application of the school-enterprise integration education model helps break this predicament, promote the connection between education and enterprise practice, give play to the advantages of both parties, and form a new education pattern. From the perspective of the VR technology application major, this paper analyzes the application value of the school-enterprise integration education model and puts forward specific educational practices, aiming to provide reference for colleges and universities to adjust professional education plans.

Keywords: Vocational and technical colleges; School-enterprise integration; Virtual reality technology application major

1. Introduction

As the virtual reality industry enters an accelerated development stage, China has included VR technology in the key areas of the digital economy development plan and issued relevant policies to clearly cultivate high-quality skilled talents in this field. Vocational and technical colleges take serving regional economy and cultivating skilled talents as their school-running orientation and shoulder the mission of cultivating VR technology application talents. From the actual situation of professional talent training, they are facing many challenges.

For example, the rapid update of technology and the continuous upgrading of requirements for talent skills, but the curriculum setting of vocational and technical colleges is difficult to keep up with the needs of industry and technology development, which is likely to cause disconnection between teaching and enterprise practical application. Based on this, the application of the school-enterprise integration education model has become an important choice for the VR technology application major to break the development bottleneck. School-enterprise integration emphasizes the cooperation between schools and enterprises, promotes the integration of enterprise production, technical standards, and post needs with talent training, and facilitates the connection between learning, practice, and employment. The implementation of the school-enterprise integration model allows schools to leverage enterprise advantages to optimize practical teaching conditions. Teachers actively participate in enterprise work to improve their professional capabilities, helping students accumulate experience and enhance their skill levels.

2. Application significance of school-enterprise integration in the Virtual Reality technology application major of vocational and technical colleges

2.1. Comply with the development trend of the VR industry and alleviate the contradiction between supply and demand of industry talents

China's VR industry is in a stage of rapid development, with the industrial scale expanding day by day. The industry has put forward higher demands for technical talents, including VR content production and equipment debugging, resulting in an obvious talent gap [1]. However, the education activities of vocational and technical colleges are disconnected from industry needs. Although many graduates have certain practical skills, they lack practical and industry adaptability, making it difficult to meet the requirements of enterprise positions, which is likely to cause problems such as difficulty in recruiting workers and employment difficulties. The implementation of school-enterprise integration enables vocational and technical colleges to establish good cooperative relationships with VR enterprises, set talent training plans in combination with enterprise post needs, appropriately adjust courses and teaching content, and ensure that the trained students master the skills required by enterprises [2]. At the same time, enterprises can actively participate in the teaching of the VR technology application major in schools, provide students with post and project guidance, facilitate students to contact cutting-edge industry technologies, adapt to the work rhythm after graduation, and greatly shorten the post-adaptation period. The application of this model can not only cultivate a large number of technical talents for the VR industry, alleviate the contradiction between supply and demand of talents, but also accelerate the development pace of the VR industry.

2.2. Improve the school-running quality of vocational and technical colleges and enhance professional competitiveness

From the perspective of vocational and technical colleges, the VR technology application major is one of the emerging majors, and its school-running effect and professional competitiveness affect the long-term development goals of the school. The school-enterprise integration education model provides an important way for schools to adjust school-running conditions and improve teaching quality [3]. On the one hand, VR enterprises can provide schools with advanced equipment, software, and teaching resources, helping schools build professional training bases and optimize practical teaching conditions. For example, enterprises can provide VR headsets and motion capture equipment to facilitate students in carrying out immersive practical

operations and improve their practical skills. On the other hand, enterprise experts can actively participate in school curriculum construction and teaching reform, help schools formulate curriculum systems that meet industry standards, promote the transformation of real enterprise projects into teaching cases, and effectively expand teaching content [4]. In addition, through school-enterprise integration, vocational and technical colleges can strengthen the construction of teacher teams. Schools can select professional teachers to take temporary positions in enterprises, participate in enterprise project development and technological research and development, and improve teachers' practical ability and industry experience.

3. Practical countermeasures of the school-enterprise integration education model for the Virtual Reality technology application major

3.1. Construct a "School-enterprise collaborative" talent training system

To promote the implementation of the school-enterprise integration education model, it is necessary to attach importance to the construction of a school-enterprise collaborative talent training system. Vocational and technical colleges cooperate with VR enterprises to jointly formulate education plans, adjust curriculum systems, and actively develop teaching resources to ensure the consistency between education goals and enterprise post needs [5]. From the perspective of formulating education plans, colleges and universities can invite technical backbones of enterprises to participate in the formulation process. Enterprises put forward requirements for talent training, knowledge, and skills in combination with their own positions and development conditions. Schools convert enterprise needs and set corresponding education goals in combination with their own school-running orientation and teaching resources to improve the rationality of education activities. For example, for VR content production positions, enterprises can require students to master skills such as 3D modeling, animation production, and VR engine development [6].

Schools can set corresponding professional and practical content to help students master relevant skills and meet post needs. For the design of the curriculum system, docking national professional standards, taking post capabilities as the orientation, and formulating a modular curriculum system. Decompose the post capabilities of the VR industry into several capability modules, and each capability module corresponds to a corresponding curriculum module [7]. For example, divide the post capabilities of the VR technology application major into VR basic capabilities, VR content production capabilities, VR equipment debugging capabilities, VR scene development capabilities and other modules, and set corresponding courses for each module, such as Fundamentals of Virtual Reality Technology. In terms of teaching resource development, schools and enterprises should jointly develop teaching resources such as textbooks, courseware, and training projects. Textbook compilation should combine real enterprise projects and cases, integrate the latest industry technologies and practical experience into textbook content, and ensure the practicality and timeliness of textbooks. Courseware production should adopt multimedia technology, integrate VR videos, animations and other elements to enhance the intuitiveness and interest of teaching [8]. Training project development should be based on real enterprise projects, allowing students to carry out practical operations in simulated work scenarios to improve practical capabilities.

3.2. Build "School-enterprise co-constructed" training bases

First, from the perspective of the construction of on-campus training bases, vocational and technical colleges can actively build professional training centers with the support of enterprise funds and equipment. In the

training center, VR equipment and software, such as VR headsets and 3D scanners, can be equipped to meet students' needs for VR content production [9]. At the same time, enterprises can select technical personnel to participate in the construction and management of the training center, facilitating schools to formulate relevant management and training plans, ensuring the operation of the training center, and improving the quality of practical teaching.

Second, for the construction of off-campus training bases, schools need to select VR enterprises with a certain scale and technical capabilities as off-campus training bases. Off-campus training bases can provide students with real work and practical scenarios, facilitating students to participate in project development, production practice, and other links under the guidance of mentors [10]. Schools strengthen cooperation with off-campus training bases, sign relevant agreements, clarify the rights and obligations of both parties, and actively build a good management and training assessment system. For example, schools cooperate with VR game development enterprises to actively build off-campus training bases, encouraging students to practice in enterprises in the second semester of their junior year. Under the guidance of enterprise mentors, students can carry out VR game character design, program development and other work. After the internship, enterprises can issue relevant internship appraisals based on students' performance and combine internship results with students' academic performance.

Third, the construction of "virtual training bases" can also be explored. Use VR technology to build virtual training scenarios, and students enter the virtual scenarios through VR equipment for practical operations [11]. Virtual training bases have the advantages of high safety and reusability, which can make up for the deficiencies of physical training bases. For example, for training in the VR medical field, due to the involvement of real patients and medical equipment, physical training has certain risks and costs. Through virtual training bases, students can carry out practical operations such as VR surgical simulation and medical record diagnosis in virtual hospital scenarios, which not only ensures the safety and effectiveness of training but also reduces training costs [12].

3.3. Build a "Dual-qualified and dual-capable" teachers' team

The teachers' team is the key to the implementation of the school-enterprise integration education model. Vocational and technical colleges should strengthen the construction of the teacher's team for the VR technology application major, building a "dual-qualified and dual-capable" teacher team with solid theoretical knowledge and rich industry practical experience [13]. On the one hand, strengthen the training of the practical capabilities of on-campus teachers. Schools should formulate teacher practical training plans, regularly select professional teachers to take temporary positions in cooperative enterprises, participate in project development or technological research and development. During their practice in enterprises, teachers should deeply understand the production process, technical standards and post needs of enterprises, learn cutting-edge industry technologies and practical experience, and integrate them into the teaching process. For example, schools can sign teacher practice cooperation agreements with VR enterprises, selecting 3-5 professional teachers to practice in enterprises for 3–6 months every year. Teachers participate in the development and production of VR projects in enterprises. After the practice, teachers need to submit practice reports and transform practice results into teaching cases for classroom teaching. At the same time, schools can also encourage teachers to participate in VR industry training, seminars and technical certification exams to improve teachers' professional level and industry recognition.

On the other hand, attach importance to the introduction of enterprise technical backbones and encourage them to serve as part-time teachers. Schools strengthen cooperation with VR enterprises, actively invite enterprise technical backbones and industry experts to serve as part-time teachers, helping students master professional courses and training projects. Part-time teachers often have rich industry experience and can integrate enterprise cases and technologies with professional teaching to improve the problem of on-campus teachers' lack of practical experience [14]. For example, schools actively hire technical directors of VR enterprises to serve as part-time teachers, helping students understand the development trends of the VR industry and the application of the technology in different fields. Schools can also invite enterprise project supervisors to serve as training instructors, encouraging students to carry out VR project training and helping them solve problems encountered. At the same time, schools actively build a part-time teacher management mechanism, clarifying the positions, teaching requirements, and assessment standards of part-time teachers to effectively ensure teaching quality.

In addition, through the construction of a school-enterprise teacher sharing platform, the sharing of school-enterprise teacher resources can be promoted, and the allocation can be optimized [15]. With the help of the platform, on-campus teachers and enterprise part-time teachers can carry out experience exchange and technical seminars to effectively improve teaching levels. For example, the platform regularly organizes school-enterprise teachers to conduct teaching seminars, analyzing the teaching methods and training plans of VR professional courses.

4. Conclusion

In summary, the school-enterprise integration education carried out by the VR technology application major in vocational and technical colleges can not only meet the development of the VR industry and alleviate the supply-demand contradiction of the industry, but also help improve the school-running effect of colleges and universities and enhance industrial market competitiveness. By building a school-enterprise collaborative education system and training bases, we can create a good environment for students to explore knowledge and help them master the knowledge and skills required by the market. With the development of the school-enterprise integration model, the VR technology application major is facing new development prospects. It is necessary to grasp the concept of school-enterprise integration education and actively carry out teaching innovation.

Disclosure statement

The author declares no conflict of interest.

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