

# Exploration and Practice of Talent Cultivation Model for Virtual Reality Technology Application Based on the Integration of Learning and Training

Linghan Zhang\*

Guangdong Vocational College of Post and Telecom, Guangzhou 510000, China

\*Corresponding author: Linghan Zhang, zhanglh678@sina.com

**Copyright:** © 2024 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

**Abstract:** With the rapid development and widespread application of virtual reality technology, vocational colleges are facing new challenges and opportunities in cultivating virtual reality talents with professional skills and innovative abilities that can adapt well to market demands. This article aims to explore and practice a virtual reality technology application talent training model based on integrating learning and training with the educational characteristics of the Guangdong University of Posts and Telecommunications. This model integrates the teaching resources of the college, practical opportunities for enterprise and industry training needs to build a practical-oriented curriculum system<sup>[1]</sup>, integrating theoretical learning, skill training, and innovative practice to form an integrated educational environment. The study first analyzes the current situation of talent demand in the virtual reality industry and the current situation of higher vocational education. Then, it elaborates on the necessity and feasibility of integrating learning and training. Next, it provides a detailed introduction to the construction process and implementation strategies of the talent training model of integrating learning and training. Finally, the practical effects are evaluated and summarized, and a conclusion is drawn and prospects for the future are presented. The practical results show that the integration of learning and training effectively shortens the distance between teaching and market demand, significantly enhances students' professional skills and employment competitiveness, and provides new ideas and paths for the cultivation of virtual reality professionals in vocational colleges<sup>[2]</sup>. The research results of this article have certain theoretical and practical significance for promoting the reform and development of virtual reality technology education and cultivating high-quality technical and skilled talents that meet the needs of the industry.

**Keywords:** Virtual reality technology; Vocational education; Integration of learning and training; Talent training mode

**Online publication:** July 29, 2024

## 1. Introduction

As one of the hotspots of information technology today, virtual reality technology has been widely applied in fields such as education, entertainment, medical care, and the military. Of course, the rapid development of Virtual reality (VR) technology has also brought about a sharp increase in talent demand, especially for high-quality and skilled VR professionals<sup>[3]</sup>. As an important base for cultivating technical and skilled talents,

vocational education should keep up with the trend of technological development and explore talent training models that meet market demand. However, there are some problems in the talent cultivation of virtual reality technology application majors in current vocational colleges, such as the disconnection between teaching content and market demand, insufficient practical teaching resources, and weak practical abilities of students. Therefore, this article proposes a virtual reality technology application talent cultivation model based on the integration of learning and training to solve the above problems, improve the quality of talent cultivation, and cultivate VR talents with solid theoretical knowledge and rich practical experience.

## **2. Analysis of the current situation of talent demand in the VR industry**

Virtual reality technology is a computer technology that can create and experience virtual worlds with characteristics such as immersion and interactivity concepts. With the continuous progress of technology and the expansion of application fields, virtual reality technology has become one of the hot technologies in today's society. Through visits, research, and analysis of enterprises in the VR industry, this study have found that the current demand for talent in the VR industry is mainly concentrated in the following aspects:

- (1) Possessing solid basic computer knowledge and being able to master VR development tools and platforms proficiently;
- (2) Having rich practical experience and being able to complete the development and implementation of VR projects independently;
- (3) Have good communication skills and teamwork spirit, and be able to collaborate with people from different backgrounds effectively.

In addition, with the continuous development of VR technology and the continuous expansion of application fields, higher requirements have been put forward for VR talents' comprehensive quality and innovative ability. However, vocational education lags behind in the establishment of virtual reality technology application majors and talent cultivation, failing to keep up with changes in market demand. Specifically, it manifests in the following aspects:

- (1) The teaching content is outdated and has not been updated in a timely manner to adapt to the development of new technologies;
- (2) The lack of practical teaching resources leads to a lack of practical opportunities for students;
- (3) Students lack strong practical abilities and are unable to meet the employment needs of enterprises.

## **3. The necessity and feasibility analysis of the integration of learning and training**

Integration of learning and training refers to the organic integration of school teaching resources and enterprise training resources, forming a talent cultivation model that complements each other's strengths and fosters collaborative education. The implementation of learning and training integration in the application of virtual reality technology has the following necessity and feasibility.

### **3.1. Necessity**

The integration of learning and training can make up for the shortage of teaching resources in schools, provide more practical opportunities and a better practical environment. At the same time, the introduction of enterprise training resources and enterprise teachers can enable students to have earlier exposure to the actual work processes and skill requirements of enterprises, and improve the employment competitiveness of graduates.

### **3.2. Feasibility**

With the continuous deepening of school enterprise cooperation and policy support, the cooperation between schools and enterprises is becoming increasingly close. This provides a favorable external environment and policy support for the integration of learning and training. At the same time, the characteristics of virtual reality technology make remote teaching and online training possible, providing technical support for the integration of learning and training.

## **4. The construction and implementation of a talent cultivation model that integrates learning and training**

### **4.1. Building ideas**

Universities need to combine the characteristics of Guangdong Vocational and Technical College of Posts and Telecommunications and explore a virtual reality technology application talent training model with the characteristics of integrating learning and training in the “Dual drive and dual track” education and training ecosystem, which is worth learning from and can play a leading role <sup>[4]</sup>. Secondly, colleges need to combine the current demand for virtual reality talents with the characteristics of vocational training, and construct a professional education knowledge system, teaching system, curriculum system and sustainable development system for the application of virtual reality technology.

With the concept of strengthening and optimizing academic education, supporting and expanding vocational training, and providing strong vocational training to support academic education reform and innovation, we aim to cultivate virtual reality professionals with high professionalism, strong execution ability, advanced technical skills, and strong communication and learning abilities. We aim to enhance the value of virtual reality vocational training, promote the transformation of training services, enhance student abilities, cultivate industry talents, and build an industry system. Through industry training, we further lead the innovation of virtual reality academic education talent training programs and curriculum teaching reforms.

The virtual reality technology application talent cultivation model based on the integration of learning and training proposed in this article is market-oriented, with the goal of improving students’ practical ability and comprehensive quality <sup>[5]</sup>. By integrating school teaching resources and enterprise training resources, we aim to build a curriculum system that integrates theoretical teaching, practical teaching, and enterprise training. At the same time, it can also strengthen the construction of the teaching staff, improve the professional competence and practical ability of teachers. Finally, able to establish a scientific and reasonable evaluation system to comprehensively monitor and evaluate the talent cultivation process.

### **4.2. Construction process**

#### **4.2.1. Market research and demand analysis**

The primary task of building a talent cultivation model that integrates learning and training is to deeply understand the market demand of the virtual reality industry. We extensively collect information on industry development trends, technological hotspots, job demands, and more through various methods such as questionnaire surveys, corporate interviews, and industry conferences <sup>[6]</sup>. The analysis results show that the demand for talents in the virtual reality industry presents diversified and specialized characteristics, which not only requires talents to have a solid theoretical foundation, but also emphasizes the cultivation of practical ability and innovative spirit.

#### **4.2.2. Integration and optimization of teaching resources**

Based on the market research results, we have comprehensively sorted and integrated the existing teaching resources of the college. On the one hand, the curriculum system for the application of virtual reality technology has been updated and improved, introducing the latest industry knowledge and technical standards. On the other hand, the construction of laboratories and training bases has been strengthened, advanced virtual reality equipment and software have been purchased, providing students with a good practical environment.

#### **4.2.3. Design of the mechanism for integrating learning and training**

The core of the integration of learning and training lies in breaking down the barriers between traditional academic education and vocational training, and achieving the organic integration of the two. For this purpose, we have designed a flexible credit transfer system that allows students to freely switch between academic education and vocational training. At the same time, a long-term mechanism for school enterprise cooperation has been established, deepening the integration of industry and education by jointly formulating talent training plans, exchanging teachers, and sharing resources.

#### **4.2.4. Teaching team and teacher development**

Teachers are a key factor in talent cultivation. In the process of constructing the integration model of learning and training, we exert great importance to the construction of teaching teams and the improvement of teaching staff. By introducing high-level talents, cultivating young teachers, and hiring part-time teachers from enterprises, the structure of the teaching staff has been optimized. At the same time, the “Dual teacher” training program has been implemented, encouraging teachers to participate in enterprise practice and scientific research projects, and improving their professional competence and practical abilities.

### **4.3. Implementation strategy**

The specific implementation strategies include the following aspects:

- (1) Optimizing the curriculum design, constructing a practical oriented curriculum system, and emphasizing the cultivation of students’ practical and innovative abilities;
- (2) Strengthening the construction of the teaching staff, enhance the professional competence and practical experience of teachers, and build a “Dual teacher” teaching team;
- (3) Deepen school enterprise cooperation, establish stable off campus internship bases and on-campus training bases, and provide students with more practical opportunities;
- (4) Promote a teaching model that integrates “Job, course, competition, and certification,” encourage students to participate in various skills competitions and vocational qualification certification, and enhance their employment competitiveness;
- (5) Improve the teaching evaluation system, establish a competency-oriented evaluation mechanism, and pay attention to the organic combination of process evaluation and result evaluation.

### **4.4. Implementation steps**

#### **4.4.1. Develop talent development plans**

In the process of practice, we have established cooperative relationships with multiple virtual reality technology enterprises, and based on market research results and integration of teaching resources, we have developed detailed talent training plans <sup>[7]</sup>. This plan clarifies the specific requirements for key aspects such as training objectives, curriculum design, teaching arrangements, and internship training, providing programmatic guidance for the entire talent cultivation process.

#### **4.4.2. Implement curriculum reform and teaching innovation**

Under the guidance of the talent training program, we have comprehensively reformed the courses of the virtual reality technology application major. On the one hand, the introduction of modular and project-based teaching concepts closely integrates course content with practical projects, improving the practicality and pertinence of the course <sup>[8]</sup>. On the other hand, new teaching models such as blended learning and flipped classroom have been adopted, which have stimulated students' interest and initiative in learning. Inviting enterprise experts to give lectures on campus to broaden students' horizons and knowledge. In addition, students are also organized to participate in various skills competitions and innovation and entrepreneurship activities, improving their innovation and teamwork abilities.

#### **4.4.3. Carry out school enterprise cooperation and internship training**

School enterprise cooperation is an important support for the integration model of learning and training. We actively establish cooperative relationships with industry-leading enterprises and jointly build off campus internship bases and on campus training bases. Through school enterprise cooperation, students have the opportunity to participate in the development of real virtual reality projects, improving their practical abilities and professional qualities <sup>[9]</sup>. At the same time, the enterprise has also learned about the teaching resources and talent reserves of the college through school-enterprise cooperation, laying a foundation for subsequent recruitment and cooperation.

#### **4.4.4. Improve the evaluation and feedback mechanism**

In order to ensure the effective implementation and continuous improvement of the integration model of learning and training, we have established a comprehensive evaluation and feedback mechanism. On the one hand, comprehensive evaluation of teaching quality and effectiveness is carried out through various methods such as student evaluation, teacher peer evaluation, and enterprise evaluation. On the other hand, regular seminars on talent cultivation and school enterprise cooperation are held to collect opinions and suggestions from all parties, and to adjust and optimize talent cultivation plans and implementation strategies from time to time.

### **5. Case analysis and practical effects**

By using the VR major of Guangdong University of Posts and Telecommunications as a practical object to verify the effectiveness and feasibility of the integrated learning and training talent training model as an example <sup>[10]</sup>, the university have achieved significant practical results through a series of practical activities and teaching reforms.

- (1) The professional skills and practical abilities of students have been significantly improved, and several students have achieved excellent results in the national VR skills competition <sup>[11]</sup>;
- (2) The internship rate and quality of prospective graduates are guaranteed, receiving unanimous praise from employers. The employment competitiveness of students is significantly enhanced, and the employment rate and matching rate of graduates have reached a high level <sup>[12]</sup>;
- (3) The teaching level and research ability of teachers have been further improved, and multiple teaching achievements have been awarded at or above the provincial level;
- (4) The social service capacity of the college has also been improved, and by undertaking VR project development and training tasks from enterprises, it has brought certain economic and social benefits to the college.

In summary, the virtual reality technology application talent cultivation model based on the integration of learning and training is a talent cultivation model that meets market demand, has innovation and feasibility<sup>[13]</sup>. By integrating school teaching resources and enterprise training resources, strengthening the construction of teaching staff, and establishing a scientific and reasonable evaluation system, measures can effectively improve students' practical ability and comprehensive quality, providing strong guarantees for cultivating high-quality technical and skilled talents.

## 6. Conclusion and future aspects

This article explores and practices a talent cultivation model suitable for VR majors in vocational colleges from the perspective of integrating learning and training<sup>[14]</sup>. The practical results indicate that this model can effectively enhance students' professional skills and employment competitiveness, providing new ideas and references for the talent cultivation of virtual reality technology application majors in vocational colleges<sup>[15]</sup>. In the future, the university will continue to deepen school enterprise cooperation, expand practical platforms, optimize curriculum design, and improve teaching evaluation systems, contributing to the cultivation of more high-quality virtual reality technology application professionals.

## Funding

2023 School-level Quality Engineering Project, Teaching and Research Project "Exploration and Practice of Virtual Reality Technology Application Talent Training Model Based on the Integration of Learning and Training"

## Disclosure statement

The author declares no conflict of interest.

## References

- [1] Zhao S, Guo Q, Sun Y, 2021, Research and Practice on Optimizing the Curriculum System of Virtual Reality Application Technology Major: Taking the Virtual Reality Application Technology Major of Zhengzhou Railway Vocational and Technical College as an Example. *Science and Technology Wind*, 2021(6): 71–72.
- [2] Zhu L, 2021, Research and Practice on the Curriculum System of Virtual Reality Application Technology in Vocational Colleges. *Computer Knowledge and Technology*, 17(24): 250–251.
- [3] Chen X, Zhang Y, 2021, Research on the Construction of Curriculum System for Virtual Reality Application Technology in Vocational Colleges. *Vocational and Technical Journal*, 20(10): 99–103.
- [4] Xi X, Liu W, Sun Y, 2022, Research and Practice of Curriculum Teaching Based on Virtual Reality Talent Training. *Growth*, 2022(8): 40–42.
- [5] Miao X, Hou W, 2022, Research on the Integration of Human-Computer Interaction and Cognitive Neuroscience. *IFIP Working Conference on Human Work Interaction Design*, 66–82.
- [6] Chen S, Shen P, 2023, Analysis of Effective Paths for the Reform of the "Three Teachings" in Vocational Education. *Journal of Anhui Institute of Water Resources and Hydropower Vocational Technology*, 2023(3): 53–58.
- [7] Du J, 2023, Research and Practice on the Integration of Vocational Education Curriculum Certificates Based on the "1+X" Certificate System: Taking the Application of Cloud Computing Technology as an Example. *Journal of*

Liaoning Economic Vocational and Technical College. Liaoning Economic Management Cadre College, 2023(3): 178–180.

- [8] Yang Z, 2022, Optimization of the Talent Training Model for Virtual Reality Majors under the Background of “Integration of Courses and Certificates”: Taking Chongqing Vocational and Technical College of Water Resources and Electric Power as an Example. *China-Arab Science and Technology Forum*, 2022(12): 141–146.
- [9] Peng S, 2021, Analysis of Integration of Virtual Reality Application Technology Professional Course Certificates Based on 1+X Certificates. *Electronic Technology (Shanghai)*, 50(10): 42–43.
- [10] Ye X, Qin W, Li J, et al., 2022, Practical Research on Integrating Innovation and Entrepreneurship Education into Professional Education in Vocational Colleges: A Case Study of the Fine Chemical Technology Professional Group of Guangdong Light Industry Vocational and Technical College. *Journal of Hubei Open Vocational College*, 35(13): 16–18.
- [11] Zhu C, Huang L, Wang D, 2023, Exploration of the Construction of the Integrated Curriculum System for “Post Course Competition and Certification” in Intelligent Manufacturing Major. *Journal of Higher Education*, 9(15): 70–76.
- [12] Wang J, Xu H, 2023, Research Review of “Post Course Competition Certification” from 2010 to 2022: Connotation Evolution, Basic Features, and Prospects. *Education and Vocational*, 2023(6): 90–98.
- [13] Zhou K, 2023, Exploration of the Development of Vocational Education Loose Leaf Three-dimensional Teaching Materials with Course Job Integration and Course Competition Certification Integration. *Heilongjiang Education (Theory and Practice)*, 2023(5): 60–69.
- [14] Wang X, Jin H, 2022, The Theoretical Basis, Internal Requirements, and Implementation Path of the Integration of Vocational Education “On-the-job Course Competition Certification” Based on the Concept of Vocational Education. *Education and Career*, 2022(2): 20–25.
- [15] Shi X, Yang Z, 2023, Exploring the Path of Four-dimensional Linkage of “Job Course Competition Certification” to Improve the Efficiency of Cultivating High Skilled Talents. *Journal of Beijing Institute of Industry and Technology*, 22(2): 50–58.

**Publisher’s note**

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.