Research and Prospect on the integration of virtual simulation into the teaching mode of Logistics Vocational Education

Fang Li[1], Yingqian Huang[2]
1.School of Management, Guangdong Vocational College of Science and Trade,Qingyuan, Guangdong 511518
2.School of Information, Guangdong Vocational College of Science and Trade,Qingyuan, Guangdong 511518

Abstract: with the development of blockchain technology, virtual reality technology, artificial intelligence technology and other technologies, virtual simulation has attracted more and more attention. The use of virtual simulation technology can simulate various situations and operations in the real world. In such an environment, the teaching mode of logistics vocational education can achieve a more realistic, interactive and experiential teaching method. Based on virtual simulation technology, this paper focuses on the analysis of the teaching mode of Logistics Vocational Education, analyzes the corresponding technology and its advantages, and deeply discusses the application of its technology in the field of Logistics Vocational Education, so as to achieve the purpose of making Logistics Vocational Education Students dynamic, visualized and specific. Finally, the paper discusses the development of Logistics Vocational Education Teaching Mode under the future virtual simulation technology.

Key words: virtual simulation; Logistics; Vocational education; teaching model

Introduction

In recent years, with the rapid development of information technology, the Internet, big data, artificial intelligence and other new generation information technologies are profoundly affecting the development of traditional logistics industry. In this context, how to use virtual simulation technology to improve the teaching quality and efficiency of Logistics Vocational Education has become an important problem to be solved. The purpose of this study is to explore the teaching mode of Logistics Vocational Education Based on virtual simulation technology, and explore how to apply virtual simulation technology to the teaching of Logistics Vocational Education. Through the exploration and practice of this study, we hope to provide new ideas and methods for the innovation of logistics vocational education teaching mode, and provide more intellectual support and talent training for the development of logistics industry.

1. Construction of Logistics Vocational Teaching Mode Based on Virtual Simulation Technology

1.The change of logistics vocational education brought by virtual simulation technology

There are some problems in the current logistics vocational education mode. First of all, the traditional teaching methods pay too much attention to the teaching of theoretical knowledge, lack of practical teaching and case analysis, and students lack the ability of practical operation and application. Secondly, the existing logistics vocational education generally lacks close contact with enterprises and the market, and is unable to adapt to the development and changes of the industry in time, making the teaching content disconnected from the actual demand. In order to solve these problems, the introduction of virtual simulation technology in the application of logistics vocational education plays an important role. The integration of virtual simulation technology into Logistics Vocational Education has the following advantages:

(1) Strong practicality: the traditional logistics vocational education can only provide limited practical opportunities, while the virtual simulation technology can simulate the real logistics scene, allowing students to carry out practical operations in the virtual world, such as simulating the packaging, loading and unloading of goods, warehouse management, etc. In this way, students can gain more practical experience and improve their practical ability.

(2) Good interactivity: virtual simulation technology can enable students to interact with other students and teachers in the virtual world, carry out cooperative learning, competition and other activities, and enhance the communication ability between students.

(3) High safety: in logistics operation, there are some risks, such as cargo damage, personal injury, etc. in the virtual simulation environment, students can conduct simulation operation, avoiding the risks and dangers that may exist in the real operation.

(4) High degree of visualization: through virtual simulation technology, logistics vocational education can realize the visualization of the logistics process, so that students can more intuitively understand each link of the logistics process, so as to better understand the relevant knowledge of logistics.

(5) Low time and space constraints: the traditional logistics vocational education usually requires students to go to the field for learning. There are limitations in time and space, while the virtual simulation technology can enable students to learn at any time and any place, which improves the flexibility and convenience of learning.

2.Cognitive theory of Logistics Vocational Teaching Mode Based on Virtual Simulation Technology

Virtual reality technology and logistics management are combined to build a virtual logistics system. The cognitive theory of virtual simulation Logistics Vocational Education teaching mode can be discussed from the following aspects:

(1) Constructivist learning theory: according to constructivist learning theory, students learn by actively participating in the learning process and constructing their own knowledge structure. In the teaching of virtual simulation Logistics Vocational Education, students can

actively participate in learning through the simulation operation of virtual logistics system, and build their own knowledge structure through practice.

(2) Professional quality theory: according to the professional quality theory, vocational education should focus on cultivating students' professional quality, including professional ethics, professional skills and professional mentality. In the teaching of virtual simulation Logistics Vocational Education, students can not only improve their logistics skills, but also cultivate their professional ethics and professional mentality through the practical operation of virtual logistics system.

(3) Cognitive load theory: according to cognitive load theory, learners' cognitive resources are limited. When the cognitive load is too high, the learning effect will decline. In the teaching of virtual simulation Logistics Vocational Education, the simulation operation of virtual logistics system can reduce the cognitive load of students and improve the learning effect.

(4) Social learning theory: according to social learning theory, students learn through observation, imitation and participation. In the teaching of virtual simulation Logistics Vocational Education, students can observe and imitate the operation of professional coaches or other students through the practical operation of virtual logistics system, so as to learn and improve their skills.

(5) Science and Technology Acceptance Model: the science and technology acceptance model believes that people will be affected by various factors when accepting new technologies, including the ease of use, usefulness, social impact, etc. In the teaching of virtual simulation Logistics Vocational Education, we should pay attention to the ease of use and usefulness of the virtual logistics system, but also pay attention to its social impact to avoid negative impact on students.

3. Logistics Vocational Teaching Process Based on Virtual Simulation Technology

The teaching process in the teaching mode of virtual simulation logistics vocational education generally includes the following aspects:

(1) Pre teaching preparation: teachers need to understand the background, needs and objectives of students, formulate teaching plans, syllabus and textbooks, and prepare corresponding teaching resources and tools.

(2) Theoretical knowledge teaching: teachers teach relevant theoretical knowledge required by virtual simulation Logistics Vocational Education, including logistics management, supply chain management, data analysis, etc., through explanation, demonstration, interaction, etc.

(3) Practical operation teaching: in order to improve students' practical operation ability, teachers need to combine virtual reality technology and game teaching methods to provide students with practical operation opportunities under the virtual simulation logistics scene, so that students can simulate operation and experience the process.

(4) Team cooperation training: virtual simulation logistics tasks need to be completed by multiple people. Therefore, teachers need to train students' cooperation ability, communication ability and leadership ability through team cooperation training, so that students can learn team cooperation in practice.

(5) Assessment and feedback: teachers need to formulate corresponding assessment methods to assess students' learning, including theoretical knowledge, practical operation ability, team cooperation ability, etc. At the same time, teachers need to give timely feedback to students, guide students to find and improve their own shortcomings, and improve students' learning effect.

4. Evaluation of Logistics Vocational Teaching Based on Virtual Simulation Technology

The evaluation module of virtual simulation Logistics Vocational Education teaching mode should include the following aspects:

(1) Assessment of learning objectives: assess students' understanding of the course objectives and whether they have mastered the necessary knowledge and skills.

(2) Assessment of classroom participation: assess students' participation and contribution in the classroom, including discussion, questions, answers, etc.

(3) Assessment of classroom assignments: assess the quality and completion of assignments submitted by students and whether they can be submitted on time.

(4) Evaluation of course project: evaluate the performance of students in the course project, including scheme design, cooperation ability, execution ability, achievement quality, etc.

(5) Evaluation of examination results: evaluate students' performance in the examination, including knowledge mastery, problem solving ability, time management, etc.

(6) Evaluation of students' feedback: collect students' feedback on the course and teaching mode to improve the teaching effect and course content.

5. Realization of Logistics Vocational Teaching Mode Based on Virtual Simulation Technology

Virtual simulation technology can bring many innovations and changes to the logistics vocational teaching mode. Here are some implementation methods:

(1) Virtual simulation teaching: virtual simulation technology can create a virtual logistics environment in which students can practice and learn, so as to improve their practical ability and experience. This virtual simulation teaching can provide students with more real learning experience and better learning effect.

(2) Cross regional collaborative learning: virtual simulation technology can break the restrictions of time and space, allowing students and students from different regions to carry out cross regional collaborative learning. By establishing a virtual logistics scene in the system, students can discuss, study and communicate together, so as to improve their cooperation and communication ability.

(3) Real time monitoring and data analysis: virtual simulation technology can input real-time logistics data into the system for

monitoring and analysis, so as to help students understand the actual situation of logistics operation and improve their understanding and grasp of logistics links. At the same time, students can use virtual simulation technology to analyze data, dig out the problems and bottlenecks in logistics operation, and put forward optimization schemes.

(4) Intelligent logistics simulation: virtual simulation technology can integrate intelligent logistics technology into logistics simulation, allowing students to learn how to use Internet of things, artificial intelligence and other technologies to improve logistics efficiency and quality. At the same time, students can experiment and test through virtual simulation technology to understand the application and effect of these technologies.

2. Outlook and summary

The Logistics Vocational Education Mode Based on virtual simulation technology will become an important trend of Logistics Vocational Education in the future. Future research can be carried out from the following aspects:

(1) The application of virtual simulation technology. Explore how to better apply virtual simulation technology, create a more real and immersive logistics vocational education environment, and improve students' practical ability and professional quality.

(2) Teaching mode. Study the design of teaching content, how to design logistics scenes and tasks closer to the reality, and how to use virtual reality technology to provide students with highly immersive teaching experience. Research the innovation of teaching methods and explore logistics vocational teaching methods, such as scene based teaching, personalized teaching and social learning, in order to improve the learning effect of students and meet the learning needs of different students. This paper studies the standards and methods of teaching evaluation, and how to scientifically and objectively evaluate the integration of virtual simulation into logistics vocational education mode, so as to evaluate students' learning achievements and teaching effects.

In a word, the Logistics Vocational Education Mode Based on virtual simulation technology is one of the important trends of future education. It is necessary to explore more innovative teaching methods, contents and evaluation system to improve students' professional quality and practical ability, and meet the demand for high-quality talents in the logistics industry in the future.

References:

[1] Changbin Chen,Zuchang Zhong,Jin Qin Analysis of logistics training room construction based on Shenzhen Logistics professional vocational education [j] Logistics engineering and management, 2009,31 (05): 155-158

[2] Yun Zhan Research and practice of "1 + X" talent training mode for modern logistics management major in undergraduate level vocational education [j] China logistics and procurement, 2022, no.652 (15): 61-62

[3] Yawen Wang,Li Yan,Changyuan Wang,Guohui Wang Discussion on experimental teaching in the field of educational meta universe [j]Research on higher engineering education, 2022 (04): 96-101

[4] Yajun Guo,Yiming Yuan,Yiruo Guo,Zefeng Li Research on knowledge transfer mechanism of virtual education from the perspective of meta universe [j] Information science, 2022,40 (01): 3-9+24

[5] Shangming Liu Research on the application of 3D virtual simulation teaching mode in Vocational Education [j]Guangdong Vocational and technical education and research, 2018, No.53 (05): 12-14

[6] Jun Zhai Research on the integration of vr virtual reality simulation technology into vocational education training teaching mode [j]China Equipment Engineering, 2021, no.473 (11): 254-255

About the author: Li Fang (1994 -), female, Han, from Guigang, Guangxi, is a postgraduate student of Guangdong Vocational College of science and trade, a full-time teacher of modern logistics management, and a research on logistics platform decision-making,