Analysis and Research on the Combination of Virtual Reality Technology (VR) and College Sports Training

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Abstract: The combination of virtual reality technology (VR) and college sports training makes college sports training continue to innovate with the help of emerging technologies and receive good results. Virtual reality technology combines traditional technology advantages in various fields with sensor technology, three-dimensional animation technology, and network communication technology. Through research and innovation, through virtual reality technology, computer communication technology is used to achieve an effective fit between sports training and virtual reality technology. It is used to improve the technical level and training quality of college athletes, give full play to their technological advantages, and contribute to the reserve of reserve talents for competitive sports in China.

1. Introduction
With the continuous advancement of science and technology, virtual reality has been applied in various fields. It adopts a new type of technical expression technique, which is well combined in technology and practical application. It uses computer virtual reality technology to compare with college sports training. In combination, we have a good practical experience in improving the overall level of student training and doing a good job in sports development.

2. Virtual Reality Technology Overview
Virtual reality technology is referred to as VR. It is currently a hotspot of technology, the development of the computer industry and the Internet has reached a certain height. It has been developed to use VR technology to expand various computers, and to develop somatosensory cognition, artificial intelligence, neural network algorithms, computer networks and other technological advantages, virtual reality technology has made epoch-making changes in the computer field. VR technology continues to innovate in the form of development, and continuously improves the update speed of computer applications. Under the premise of its own algorithm improvement and optimization, VR has further innovated the traditional learning method. For example, in sports, the application of computer virtual technology, through the construction of a virtual sports training scene, combined with the actual sports training needs, the environment is manufactured by virtual projection, and the trainer does not need to carry out actual equipment. By using them, it is possible to achieve training that meets its own conditions and meets the needs of athletes in different situations. From the perspective of development in recent years, student trainers have combined with virtual equipment and sports plans in a virtual environment, and the training effect has been greatly improved. Through the self-learning of virtual technology, the computer improves and optimizes the self-algorithm, which brings about tremendous changes in the traditional learning method. After the development and optimization of the learning method, the learning method is improved, and the functional learning is greatly improved the overall performance. In the process of physical training, through the simulation of virtual venues and
equipment, the environment is truly embodied, and the trainer can not only protect himself from harm, but also be able to carry out training in accordance with his own conditions. The student trainer uses the virtual equipment to perform the corresponding fitness in the virtual environment, and after the better integration into the environment, the intensity of the physical training is continuously expanded, and the virtual platform built by the computer virtual system is enhanced in the case of the cross-cutting of the field. Physical fitness, changing the overall mental outlook, has greatly improved physical fitness. Student trainers also pay attention to the precautions of fitness when using virtual equipment for exercise. There is a deeper understanding of how to improve the training effect [1].

3. Advantages of Virtual Reality Technology in Sports Training

Through virtual reality technology, it is possible to prevent accidental injuries in sports training, such as combat training and karate training. In the process of training the virtual environment, students can break through the limitations of the time and space reserved in the traditional study, and use the equipment created by computer virtual technology and virtual props in the training room to carry out risky sports training. It is very good to avoid injuries. By using virtual reality technology, high-intensity sports injuries can be avoided, allowing athletes to reduce the risk of injury and avoiding the training injuries that can be caused by difficult movements. In the virtual environment, the training exercises are performed. The trainer only needs to use virtual reality technology to freely train various technical actions and challenge difficult movements [2].

Virtual reality has 3I features: immersive, interactive, and imaginative effects. In the process of interweaving these three characteristics, people can experience the feeling of change of action in the virtual environment, and provide a way for the imagination of people in the virtual environment to play. The computer can recognize the person's position, posture, gesture, and even human-machine dialogue according to various technologies. In a virtual environment, the person feels like touching the real scene, has an automatic positioning experience, and has motion perception and tactile taste. At the same time, it also has the sense of smell, etc., to create a three-dimensional visual sensation [3].

At present, virtual reality technology can be divided into desktop virtual, real-world immersive virtual reality system, distributed virtual reality system, and mixed reality system according to its function level. With the help of CAD, CAM architectural design, table games, Internet resources, etc., the above system can use the experience of different places to experience the use of the experience, so that people have an immersive feeling, combining the real environment and the virtual environment. It is technically advantageous to produce an immersive virtual reality and use it for advanced training in sports training.

4. Application of Virtual Reality Technology in Sports Training

For example, traditional basketball teaching must be carried out through teaching explanations and demonstrations, but through virtual reality technology, virtual courseware production and courseware teaching can be completed in basketball training. The teacher can select the props needed for the whole process of the whole action training in the appropriate model library and the corresponding instrument library, and the student can feel the complete process of the whole action by using the virtual reality multimedia technology. Through computer control, students can adjust the speed, perform repeated and repeated exercises on various motion techniques, and also perform multiple observations after live action demonstrations from different angles. In the teaching process, according to their own wishes, students can choose technical exercises for simulation exercises, or choose the simulation technology in the virtual library to communicate with the body language. Besides, it also face-to-face combat exercises with some top stars to enhance learning interest, improve the quality and effectiveness of learning.

①In the teaching of the back-sliding shot put, the traditional multimedia track and field teaching cannot use the computer input to control the screen. For example, how to realize three-dimensional interaction on the media screen is a technical problem, and there are some key actions in the teaching of the back-sliding shot put. If the reality is not demonstrated, there will be a vague phenomenon, which is
not conducive to the learner. The key technologies are mastered. After adopting virtual reality technology, the demonstration teaching movements are realistically simulated. The 3D interactive 3D presentation media are used instead of the traditional technical movements. The film will completely push the shots and the key points of the technology to virtual as the way to demonstrate. In the technical film, by playing, stopping, pausing, etc., the trainer can carry out repeated and repeated exercises on various links [4].

The camera is used to record the daily training of the athletes, build a model based on the material, and construct a virtual recognition device. After wearing the device, students can operate the mouse and keyboard according to their own wishes, analyze and view the movements at different angles and different distances, and finally meet the technical requirements. The virtual identification device opens and acquires and presents the virtual classroom training software in the virtual application server and its real-time change after the user wears. The virtual interaction operation device receives the user instruction and converts into an operation instruction to perform interactive operation on the virtual classroom training software. The motion capture mechanism recognizes the user voice and captures the user action and interacts with the virtual classroom training software. The virtual application server recognizes the virtual recognition device, and receives the operation instruction of the virtual interaction device and the voice and motion of the voice and motion capture mechanism interact and interactively update and present the interactive virtual classroom training software.

In the application of volleyball practice teaching, traditional volleyball teaching often has to be explained by teachers. It is influenced by many factors and can only be observed by the naked eye, which easily affects the teaching effect. Virtual reality technology can set the teaching process environment. For example, the front-end service technology can use the virtual reality technology to observe the basic movements in the virtual situation. The order, the magnitude and intensity of the action can communicate with the virtual human body to understand the body parts resulting in a sense of movement. In virtual reality technology, students can communicate with the virtual human body in body language, understand the muscle force at the time of serving, and master the correct action method. For the virtual human body technology, students are required to imitate the limbs. Through the whole process of imitation, they can practice repeatedly and experience the immersive feeling, thus helping students to master the technical movements more quickly and accurately. In the process of volleyball teaching, teachers can also use virtual reality technology to build a new and innovative teaching environment, providing students with a self-explored learning environment and intuitive teaching methods to enhance the quality and effectiveness of teaching.

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In the process of aerobics teaching, traditional aerobics is a health and beauty sports project that combines music and dance gymnastics. It is artistic. In the teaching process, students need to master flexible and coordinated movements, and students’ thinking also have developed and cultivated. When the teacher uses the language description, the students are prone to the inability to grasp the content, and use the virtual reality multimedia technology to convert the basic actions into videos. Through the
teacher's comments and explanations, the students repeatedly watch and simulate in the video. It is easy to form clear and complete technical movements in the mind, intuitively understand relevant technical points, and actively find errors during practice, and find the cause of the wrong action. Therefore, the use of virtual reality technology in the process of sports training can help students to improve their enthusiasm and initiative, explain and provide technical support for teachers. Relative to the traditional teaching mode, such as badminton training, table tennis training, swimming training, tennis training, they all can achieve the improvement of teaching effect through the application of virtual technology.

⑤In the normal teaching process of sports dance, the focus of sports dance beginners is basic technology, like basic stance, transposition rotation, center of gravity shift, basic footwork, etc., they all using virtual reality technology. In sports dance teaching, teachers use the method of real person shooting simulates the real scene of the usual class and psychologically establishes cognitive institutions for the learners. For example, when teaching the Rumba dance, the position where the students stand, the explanation of the teaching can be produced by the method of real human shooting, and the video teaching method is generated. Since then the students have an immersive feeling and use the computer to generate three-dimensional stereoscopic images. Let people be in a virtual environment, just like the real objective world. Students feel that they are part of the virtual world, they can learn all kinds of movements in the environment created by virtual reality, and feel the multi-directional stimulation of the virtual world. At the same time, human-computer interaction stimulates the motive force of learning motivation. Using virtual reality technology equipment, the virtual teaching video is post-production, and the effective interactive assistance is generated. It also allows students to learn virtual teaching videos after downloading the app. The sharing of teaching resources provides a platform for sharing. Learning the teacher's correct demonstration movements, including some repetitive basic movements, through the help of virtual reality system, it has played a very good auxiliary effect on sports training [5]. Students have increased the amount of practice in repeated exercises, and the understanding and absorption of knowledge is reflected in the mastery of the key details of technical skills. In addition, through the effective pre-class review, the students' interest in sports dance and their concentration have been improved, and the teachers have been liberated to a certain extent, which has reduced the work intensity of teachers and improved the learning effect. For example, in the pre-shooting process, the teacher first provided the teaching plan, and set the shooting angle of the difficult and difficult scenes to determine the technical movements and technical difficulties of each lesson. Real-time viewfinder on computer and mobile phone, panoramic video production of video, mid-range synthesis, panoramic video and panorama settings according to teaching scenarios, 2D interface output and interactive animation using VR technology. The way in which the PNG sequence 2D interface elements are cut out forms the stitching work of the panorama. By writing the code, we can realize the interaction logic, output the interactive VR content according to the needs. And we also can configure the commentary on the post-network release, continuously improve the content of the logic test BUG. Present the VR video content through the VR player, in the new course under the guidance, the setting of teaching objectives and content includes the design of dance types of various sports dance projects, analysis of learning ability, basic technical level of dance, learning experience, competition experience and so on. Preliminary grasping the basic learning situation of students, we can use virtual reality technology to impart and practice the difficult points in basic teaching, improve self-learning ability and reducing learning difficulty [6].

5. Conclusion
Using VR eyepieces in teaching feedback, VR technology can be used as an auxiliary means of teaching in the teaching process, to control the learning time of students. VR technology also can constantly improve their teaching mode, to follow the development of virtual reality technology and the update of sports dance technology. At the same time, it also can improve teaching resources and the effectiveness of teaching. With the continuous improvement of the quality of physical education in ordinary colleges and universities, the evaluation methods are diversified. At present, the application
of virtual reality technology in physical education is continuously explored, and virtual reality technology is used for pre-study and after-school review to deepen students. The understanding of the teaching content effectively increases the practice density and shortens the learning cycle. Students can better understand and master the technical intelligence, continuously improve the level of self-confidence and interest in physical education, and greatly reduce the labor intensity of teachers through VR technology. Therefore, as an auxiliary means, virtual reality technology is adopted in sports training to meet the particularity of sports training, combined with traditional training, to give full play to their respective advantages and achieve the most teaching effect.

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