

Research on Application of Computer Virtual Technology in Basketball Training

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Abstract. Sports training is an important way to improve the level of sports competition. By giving full play to the advantages of the application of virtual technology, it can improve the training results of various sports events and enable athletes to master sports details, to help athletes adjust their movements in time, improve the level of basketball skills. In the process of basketball sports training, giving full play to the advantages of the application of computer virtual technology not only reconstructs the basketball training system, but also greatly improves the students' understanding and understanding of basketball, has realized the basketball training system the comprehensive sublimation. Based on the application background of computer virtual technology in basketball sports training and combining with the requirements of basketball sports training, this paper puts forward the application strategy of computer virtual technology.

Keywords: Basketball, Sports training, Computer, Virtual technology, Applied research

In modern basketball games, People's physical and mental stimulation almost reached the limit, the victory or defeat is often only in the narrow margin, only strong muscles and good competitive state has been very difficult to win, athletes are increasingly relying on the wisdom of scientists, coaches and advanced science and Technology. In basketball training, players can make their limbs interact with the environment by using computer virtual technology, and realize the organic integration of virtual method and real sports training.

1 ANALYSIS OF APPLICATION CHARACTERISTICS OF COMPUTER VIRTUAL REALITY TECHNOLOGY

1.1 Information interaction features

Modern science and technology, represented by computer technology, is exerting great energy and infiltrating into every field of modern sports with strong affinity. This technology can integrate different information models, and construct a space artistic conception for teaching effectively through two-way information interaction rule. In this process, the teacher can create an effective spatial model with the help of the Operation Command, which can systematically reflect the different landscape features. At the same time, the technology links the real scene and the virtual scene, and sums up the information of the two in the corresponding way, which can make the students transform the atmosphere in the different scenes, and make clear the central value of the corresponding scene.

1.2 Perceptual features

Virtual reality technology uses integrated information management mode to present different scenes in the form of images. At the same time, VR technology integrates the theories of the same subject from different perspectives, and uses the contents of induction mechanics and electromagnetism to process and judge different action forms with specific information models, with the help of different signal models, students are guided to perceive learning in the holographic space environment.

1.3 Immersion experience characteristics

VR technology can simulate different situations according to people's needs, touch the sense of body with the idea of spirit, thus fully meet the students' basic needs for the situation. This technology can make the situation more lifelike, and guide the students to experience the charm of the physical education curriculum deeply by constructing an ideal space form. Computer virtual technology is a new type of technology which has emerged in the background of the development of science and Technology. This technology mainly consists of sensing technology, computer technology, simulation technology and so on, to better simulate the real world. By simulating real vision and various actions, users can deepen their understanding of a certain thing, feel the various phenomena constructed by the virtual world, and strengthen the communication between users and the virtual environment, more of the real world.

2 THE APPLICATION VALUE OF COMPUTER VIRTUAL TECHNIQUE IN BASKETBALL TRAINING

As a forward-looking science and technology, virtual technology plays an increasingly important role in modern sports, which shows the superiority of traditional sports teaching and training. There will be some accidents in the course of daily training, so for this kind of sports events can be effectively combined with computer virtual technology, which can effectively solve many problems in the course of sports, reduce the occurrence of unnecessary safety accidents. Through the virtual skills to improve the overall sports skills, correct the training of non-standard movements, improve the training effect. The computer virtual technology can make the sports movement virtual, can handle the difficult movement flexibly, and avoid the serious injury to the athletes' body caused by the complicated movement, to allow athletes to experiment with new moves.

Make up for the deficiency of modern basketball teaching and training conditions. In the modern basketball teaching and training, often because of the weather, venue, equipment

Material, funding and other reasons, which makes some teaching and training courses can not be carried out. The use of virtual reality system can make up for these deficiencies, and students can understand basketball techniques and tactics without leaving home, and gain the same experience as the real feeling, thus enriching perceptual knowledge, deepen the understanding of the teaching content. Avoid sports injuries caused by difficult and complicated technical movements. With the high development of modern basketball technology, the competition of basketball and high-altitude competition is more and more intense, and the technical difficulty is more and more high. The use of virtual reality technology for virtual action experiments can eliminate this concern.

Break the limit of space and time completely. Using the virtual reality technology, we can break the limitation of time and space completely, and can watch the technique and tactics of the world's excellent athletes and the technique instruction of the world's famous coaches and experience the modern basketball idea. Yeah, avatars. Virtual reality system can virtual world famous athletes and coaches and other images, to create a human learning environment. In the virtual classroom learning atmosphere, we can also exchange and discuss with the virtual coaches, teachers, athletes and so on, discuss the problems of various techniques and tactics in learning and training, and carry out cooperative learning.

Virtual reality technology can provide students and athletes with a vivid and lifelike learning environment, students and athletes can become a participant in the virtual environment and play a role in the virtual environment, they can compete together with the world's famous athletes and coaches, which will arouse the enthusiasm of students and athletes in learning, and break through the key points and difficulties in techniques and tactics, the development of Students' skills will play a positive role. Virtual simulation technology can simulate famous athletes and coaches in the world, as well as the techniques of famous athletes and the tactics of famous coaches, so that sports training can be free from the pure state of relying on experience, into the theoretical, digital era.

Virtual reality technology can only be used as an auxiliary means in basketball games, and should be properly used in auxiliary teaching, technical design and analysis, tactical simulation and analysis, as well as application training and result display, etc. , not too much emphasis on or even replace the traditional basketball teaching and training. At present, although virtual reality system hardware equipment is still relatively expensive, virtual reality technology is not yet popular. However, with the continuous development and improvement of virtual reality technology, as well as the continuous reduction of hardware equipment prices, virtual reality technology as a new teaching platform, with its own strong teaching advantages and potential, it can be applied not only in the teaching of basketball technique, but also in the teaching of other technical movements, which will play an important role in the whole field of sports.

3 APPLICATION STRATEGY OF COMPUTER VIRTUAL TECHNOLOGY IN BASKETBALL TRAINING

In the rapid development of modern basketball, not only a large number of direct and vivid teaching materials are needed, but also basketball skills are constantly improved, it is difficult for the ordinary teachers and coaches to complete the demonstration movements in teaching and training, and it is also difficult for the coaches to express clearly some tactics because of the complicated and changeable contents. At the same time, in the process of teaching and training, athletes sometimes need to have a lot of observation, imitation, feedback, correction and other sensory signals in addition to proprioception, especially audio-visual sense. The virtual simulation technology based on computer 3D can not only assist the traditional teaching and training methods, but also stimulate the interest of the athletes in learning and training and the ability of recognizing the role of the main body, it is beneficial to the acquisition of knowledge and the effective organization and management of teaching and training information, and provides an ideal environment for teaching and training.

Virtual reality technology is widely used in the training of coaches and referees. As a brand-new technology, virtual reality technology has brought us brand-new educational thinking and solved problems that we could not solve before. In the traditional training of coaches and referees, the traditional teaching method, indoor theory introduction and field on-the-spot guidance are usually adopted. And as a brand-new technology, virtual reality not only makes up for the deficiencies of traditional basketball teaching, but also provides a brand-new teaching platform, which makes you feel as if you are in the same place without leaving home, the new 3D virtual animation technology enables complex content to be expressed in simple ways, making it easier for teachers to express their teaching ideas and content, and making learners more intuitive and visual, it is easier to understand the teaching thoughts and contents of the teachers.

As a brand-new science and technology, virtual simulation technology not only makes up the deficiency of modern basketball teaching methods, but also enriches teaching methods and means. Modern basketball techniques and tactics are complex and changeable, when teachers and coaches are teaching and training, it is sometimes difficult to express these complicated and changeable techniques and tactics clearly in simple language, then it will have an unexpected effect. Build virtual simulation character and virtual environment. Using virtual simulation technology can simulate the world's best athletes and coaches, using the characteristics of interaction can compete with them. Three-dimensional virtual simulation technology action. By means of visualization, athletes can master the main points of technical movements more easily and quickly, so as to improve the overall skill level of athletes. New Movement design and technical movement standardization. It can edit, modify and design new movements. It must be combined with the practice of basketball and human body science and the laws of human body motion, through this tool, coaches can also design their own "ideal" movements in mind, according to the establishment of standard technical movements for teaching and training, improve competition results.

Technical motion analysis. Can Do quantitative analysis of the technical action, and graphical display of the analysis results, including displacement, speed, force and so on. This paper makes a deep analysis of the "ideal" movement and the athlete's technical movement, and gives the guiding opinions of improving the athlete's technical movement. Tactical Simulation and analysis. Modern basketball techniques and tactics are rich and complex and changeable. Coaches can use simulation technology to simulate the tactical changes and characteristics of virtual opponents and display them with intuitive and lifelike 3D animation simulation technology, in this way, the athletes can observe the tactical characteristics of their opponents vividly and vividly, thus enabling the coach to formulate corresponding tactics and countermeasures for cracking the opponents according to their characteristics, it makes it easier to win the game.

In the process of optimizing the function design of computer virtual reality technology, it is necessary to construct an effective target experience function and simulate it fully with the actual situation of different scenarios. If the scientific presentation of grass, cement, plastic track and field, basketball court and other aspects of the venue information, the three-dimensional quota information into the functional requirements. In this process, we need to accurately analyze the experience of students. Therefore, it is necessary to make an effective comparison between the technical requirements and the actual conditions of the sports events, to carry out practical optimization in combination with the policy design of different scenarios, and to formulate the projects around the advantages of the technology, so the design requirement of specific function is clear.

According to the request mode in the background of computer, we should divide the basic request of different action, construct an effective communication space, so as to improve the effectiveness of physical education teaching. In particular, attention should be paid to the integration of training requirements and simulation training, and to the comparison of methods with the data structure of cloud network, so as to improve the validity of simulation function. In the design of sports scene, it is necessary to develop an effective simulation training environment according to the students' reception. At the same time, teachers need to combine the form of multimedia physical education, let students feel the charm value of the actual scene through multimedia equipment, so as to faster cognition of the goal-oriented sports scene. In particular, it is necessary to use this technology to design three-dimensional data models with different structures, and to integrate the corresponding context design content to design effective competition standards and competition situations, let students in VR technology understand the rules of different events and the training objectives and methods of the events in the field, which subtly deepen students' understanding of different sports.

4 CONCLUSION

To carry out basketball training, it is necessary for athletes to train their ability of holding the ball and team cooperation and reaction. In the application of computer virtual technology in basketball training, it is necessary to catch the individual wrong movements of the athletes, and then the coaches need to explain the wrong movements for the athletes and analyze the causes of the problems in the training, highlight the important points of tactical coordination that can occur as a result of the error in the video, allowing it to explore the different details of the movement.

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