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Discuss on the Application of Computer Virtual Reality Technology in College Sports Training

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Abstract. With the computer technology slowly infiltrated into various industries, sports teaching also began to use the computer virtual reality technology for sports training. Cognition of sports teams to virtual reality training system with the computer software developers and investigate the cooperation between sports teams, and computer virtual reality technology is also being used in training such as diving or trampolining, the application is able to help athletes improve the motion precision, reduce the risk in daily training.

Keywords: Computer Virtual Technology, Physical Education, Computer Application

1. Einleitung

Virtual reality technology is used to simulate various images, movements, postures and so on in real time, and to establish the interactive relationship with athletes. Athletes can use virtual technology to see the real world reflected through this technology, and feel the same sounds, actions and even smells as the real world. Virtual reality technology mainly includes three aspects: one is to simulate the feeling of entity, With the help of computer technology, sound and taste can be realized in the real world; Secondly, the natural function communication of athletes can be realized through simulated reality technology, that is, the athletes' senses can be used to interact with the virtual environment. The third is to use 3d technology or sensing technology for virtual construction [1]. Virtual technology realizes the interaction with athletes through computer technology, which will bring athletes the most real situational experience. Virtual reality technology breaks the traditional computer interface technology and enables athletes to realize real experience in virtual environment interaction. The interactivity of virtual technology breaks the passivity brought by traditional 3D technology to athletes, and enables athletes to realize the feeling of real environment through virtual environment through the transformation of environment [2].

2. The computer virtual reality technology is applied to sports training

Literature method: To retrieve the relevant data of the use of virtual reality in sports training. Logical analysis method: Through the logical analysis of the obtained data, this paper puts forward the problems existing in the computer virtual reality technology in sports training. Investigation method:



through the investigation of the diving team and trampoline team, the actual analysis [3]. Comparative analysis method: The virtual reality results were compared with the actual training to find out the gap.

3. The concrete application of computer virtual reality technology in sports training

3.1. Sports teams' cognition of virtual reality training system

In fact, it is very difficult to apply virtual reality technology in physical education teaching, many aspects of virtual reality software has not been developed in the more complex sports virtual training. Only a few sports schools have built a virtual physical training environment, and most of the computer virtual reality of sports colleges and universities is still in the theoretical stage. At present, except the National trampoline team, the National Diving team and the National Gymnastics team, most of the sports teams have not used the computer virtual reality technology in their daily training. This also leads to the computer virtual reality technology can not be well applied to the actual physical training. By investigating the actual situation of relevant coaches and athletes, the questionnaire of computer virtual reality technology cognition was obtained, as shown in Table 1:

Table 1. computer Virtual Reality technology cognition Questionnaire

profession	Know the percentage of virtual reality training	Percentage that think virtual reality training is important	Percentage of people who have used virtual reality training	Percentage who think virtual reality training is helpful to them
coach	98%	60%	20%	50%
Training Unit leader	99%	40%	10%	40%
primary athlete	95%	80%	5%	80%
Senior athlete	95%	30%	20%	10%

As can be seen from the table above, nearly half of the coaches believe that virtual reality technology is not helpful for physical training. But half of the coaches felt the need to use virtual reality in their physical training. In the course of the survey, few sports teams practiced virtual reality. Only < 30% of units have plans to set up a virtual reality training environment. Most of the coaches did not use virtual reality in their physical training [4].

3.2. Cooperation between computer software developers and sports teams

At present, most sports projects have not successfully developed virtual reality training systems, and the most important reason is that there are problems in the cooperation methods among coaches, athletes and computer software developers. The development of sports virtual reality training system needs the close cooperation of sports technology, training experience and computer virtual reality technology. But in practice, the athlete is difficult to have a lot of time with the development, research and development of the coach didn't understand the main functional purpose, computer software developers to actual sports training the lack of experience and technology, this led to the cooperation in the process of system development is difficult, according to the survey of computer virtual reality technology in sports training development skills [5], as shown in table 2:

Table 2. computer virtual reality technology in sports training development skills

profession	Have the theory of physical training	Sports training experience	Have relevant computer development technology
Sports simulation software developer	<50%	<5%	100%
sportsman	50%	100%	<1%
coach	100%	100%	<5%

4. The application of computer virtual reality technology in sports training

In the process of investigation, it is found that less than 50% of the existing computer virtual training systems have good practicability. As an important index of computer virtual training system, accuracy has become a difficult problem in the development of computer virtual training system. Some developed computer virtual training systems cannot meet the actual needs of physical training due to the limitation of model and system training time. At present, the establishment of computer virtual training system is mainly through the collection of sports information; The second is the statistics and analysis of on-the-spot data. In daily training, researchers analyze relevant data through computer-aided training to realize real-time monitoring of athletes' respiration, heart rate, fatigue degree and other data [6].

4.1. Apply virtual reality technology to specific diving training

At present, the computer virtual reality technology is mainly used in the diving training to help the athletes to obtain 3d motion information and to simulate the 3d reality of the athletes. The technical analysis of athletes is all based on the acquisition of three-dimensional motion information. By capturing and analyzing the techniques collected by the athletes in the diving process, the athletes can be better trained and guided. Active tracking method is mainly used in obtaining 3d information of divers. By means of observing the diver in the process of sports, the diver can be observed. Because of the rapid development of modern information capture technology, it has now changed from using machine operations to using electromagnetic technology to capture. And this technology also plays a certain role in the entire sports training. But in the process of obtaining, the labels on the athletes will have a certain impact on their skills. Therefore, for diving and other sports events, it has become a big problem to clearly capture the three-dimensional information of athletes without labeling. In order to solve this problem, multiple cameras were set in the training field to collect all-round information of athletes' movement process. Video information was cut and pasted, segmented, coded, superimposed, and noise removed to obtain three-dimensional data, and the real sports scenes were presented in a virtual environment [7].

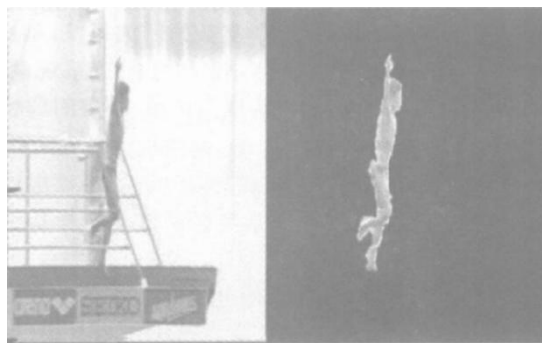


Figure 1. Motion capture influence of diving technique

Through three-dimensional virtual reality simulation of diving athletes' movements, different action levels are presented in a real sense. This helps to reduce the risk of athletes' personal experience during the process of movement and technical innovation. The movement design is transformed into 3d virtual reality movement, and through the athletes' experience of virtual reality movement, the design movement is analyzed whether it conforms to the athletes' physical quality. The virtual reality training system is used to calculate the function of athletes' nervous system reconstruction. The training movements and programs are written theoretically, Then continuously use new techniques to strengthen training according to the athlete's training situation. In the training process, we must constantly pay attention to the athlete's situation and collect sports data, and use virtual reality technology to process these data., improve the technical performance [8].

4.2. The specific application and situation of virtual reality technology in trampoline training

At present, the computer virtual reality technology is mainly used in creating the trampoline player's digital athlete body and obtaining the athlete's data to choreograph the movement [9]. The computer processing system is used to analyze the movement memory of athletes from multiple angles and time and space. Virtualized athletes are segmented by athletes' movements, photos are collected of different parts of athletes, and then the collected data are combined by computer virtual technology to reconstruct a THREE-DIMENSIONAL model. There is a certain difference between the virtual model and the real athletes, which to some extent limits the accuracy of using the virtual model for sports simulation training. If using the athlete as the research object of ontology, access to information can more truly show the dynamic information, athletes to athletes in sports organizations in the process of drawing muscles, joints, the bend of data collection, through the virtual technology to deal with access to the data, to the perfect degree of the trampoline training athlete's daily training and guidance in the process of play an important role. The optical device captures the data of the trampoline players [10], as shown in Figure 2:

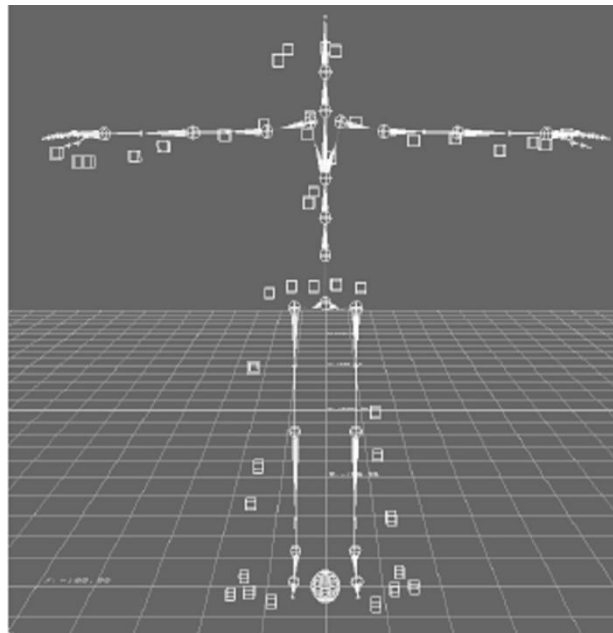


Figure 2. The optical device captures the trampoline player's data

5. Conclusion

Although many sports academies have begun to apply computer virtual reality technology in the sports training of athletes, according to the current application situation and time, the application of this technology in training is still in its infancy, and there are many problems. Relevant researchers need continuous research and update. Of course, after using this technology, it is not difficult to see through the results that it has better improved the training accuracy of athletes, and also effectively reduced the risk of athletes in the process of sports training, so As far as the current situation is concerned, the application of computer virtual realization technology to the physical education curriculum has indeed greatly improved the quality and effect of the physical education curriculum.

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