Research on the Application of Computer Virtual Technology in Basketball Sports Training

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Abstract. Virtual this word presumably everybody is not strange. Alibaba has created another miracle on Singles' Day, with its Taobao and other virtual stores benefiting people all over the country. The virtual world in the game makes countless young people bow down unexpectedly. Recently the World Cup is in full swing, so that countless fans are excited about the Internet to bet on their favorite team, in fact, all these behind the virtual technology can be said to be of no use. In today's society, virtual technology can be seen in almost all fields. In the process of teaching, the application of virtual technology in physical training is more intuitive. Based on this, this paper discusses the application of computer virtual technology in basketball sports training.

Keywords: Computer Virtual Reality Technology, Basketball Sports Training, Application

1. Introduction

Did you ever imagine that the oasis in Ready Player One was actually possible? Ever dreamed of traveling across deserts, across forests, and in search of treasure where no man has gone before without leaving your home? Have you ever imagined that one day you could be anything, like Captain America or the Queen of the Elves? Or any creature, like a bird, a tree, or a tall, cold cat? Virtual Reality (VR, Virtual Reality) can help you realize any of your imagination and desire, like Aladdin lamp, let you have any one thing in the digital world, become any person, the difference is that the latter can only help you three times, while the former is infinite. With the vigorous development of science and technology, especially electronic technology, human's attempt to simulate reality has not been interrupted for a moment, and gradually formed an independent field of science and technology.

2. Virtual Reality Technology
Virtual reality technology is referred to as VR technology, also known as spiritual technology. VR technology is to use the computer to make three-dimensional animation, to generate a simulation training ground similar to the real basketball training ground, and to make users interact with the virtual environment in visual, tactile, auditory and other senses to form a real training feeling. The application of VR technology in basketball sports is scientific, interactive, imaginative and so on.

2.1. The technical design basis of virtual reality technology in basketball training

Modeling software is based on D modeling software: the tool of MAX, CAD, Poser8.0i interaction is EON stud ℃, and the running environment of virtual modeling software mainly includes windows7, windows XP. The

Poser8.0i. Make human MAX, 3ds software is widely used in human body modeling, among which poser8.0i. is the most suitable for human body modeling Because it is more convenient and flexible than other software operation and software interface. In operation, only three main steps are needed to select the model of human body, then to verify the virtual posture of human body, and finally to design the posture of virtual human, which can not only improve the efficiency of design, but also reduce the design time. Because the skeleton of human body plays a main role in motion, the system software should give full consideration to simulating the activity of human skeleton and ensuring the movement posture. When poser8.0 modeling, a system specially built for skeletal lines can be built intuitively and hierarchically, and software such as MAX, 3ds is added to complete the more complex and real operation process.

2.2. Main techniques of virtual modeling

Virtual modeling technology mainly includes motion human body modeling technology, virtual scene modeling technology, interaction technology. Human body modeling technology is the key to simulate human body motion. Layering divides the human body into three structures: flesh, bone, and skin. Through the establishment of internal structure to promote the simulation of human motion, better control of the simulation of human motion posture. The modeling of virtual basketball court includes physical object, virtual person and the change of lighting field. The physical object is mainly the design of basketball, basketball court facilities and so on. The establishment of human-computer interaction refers to the use of three-dimensional interactive equipment for basketball to issue operational instructions, while virtual equipment responds to instructions. Users can communicate with the system through this technology and obtain synchronous feedback of training in a simulated environment.

3. Analysis on the Role of VR Techniques in Basketball Training

VR technology has the characteristics of science, interactivity and imagination in basketball training, and has obvious training efficiency and low training risk. Virtual technology not only provides teaching guidance in basketball teaching, but also reduces athletes' sports risk and interferes with athletes in basketball training. VR skills in basketball have the following functions:
3.1. Building highly realistic simulation training ground

VR technology is to build a simulation training ground with the help of three-dimensional image base to create a real and vivid training environment for basketball trainers and strengthen the reality of the scene. The environment includes the basketball court background, the venue configuration, the basketball match scene and the virtual person model establishment. The virtual basketball training ground is a three-dimensional environment almost similar to the real training ground created by multiple images, data and pictures. Trainees in this environment can experience a lot of competition and emergencies in advance, and reduce the probability of friction and injury in real competition. According to the system construction, we can get the virtual basketball training system as shown in figure 2:

3.2. Strengthening Special Training for Athletes
VR technology is the use of many leading high-tech, such as 3D graphics visualization generation system graphics workstation, 3D interactive platform, helmet display and other technologies. The three-dimensional image visualization system can synthesize the wind direction, wind size, temperature and moderate natural environment, and establish a highly simulated virtual training environment. In the training of athletes, it can help to detect and analyze the actual situation of athletes in single training. For example, the sensor used to test physiology and biochemistry of the system can analyze the damage of the body during exercise, analyze and give advice on the action of athletes' super-strength overload. The basic condition of the individual basketball players is tested in time, and the training contents and training time are arranged according to their physical condition.

3.3. Strengthen the team's presence

Effective match formation can help the team to use freely in the game is conducive to the degree of harmony between the players. Before the ball game, the coach usually trains the players, organizes the formation to be used in advance and what formation to take to improve the combat effectiveness between the players. Virtual system plays a unique role in array arrangement. Through this system, several kinds of array data of basketball match are input, and suitable training of various array organizations is designed for match opponents. The simulation system can not only design a new match array for opponents according to the array operation. The system can strengthen the training of team members, maximize the coordination of training habits and personal level between players. The system carries on the data analysis to each trainee's physical ability and the level, designs a set of suitable table basketball match intensity combination member's tactics to promote the entire team basketball skill breakthrough.

3.4. Stimulate athletes' potential

Virtual reality technology can not only reduce the risk of basketball training, but also design a set of training programs that meet the training of trainees and stimulate their potential. According to the data provided by the system, users can recognize their own advantages and disadvantages, improve the weakness, at the same time, the VR system can accurately test the bone growth and development of athletes, monitor, analyze and adjust the trainees to adjust their competition status and sports posture in time, and get good competition effect. Virtual training monitors all aspects of athletes' training, and makes scientific analysis from competition preparation to competition. It is of great significance to the individual of basketball recognition, and greatly exerts its potential. Make it a step closer to success.

3.5. Strengthening the skills of core athletes

Although basketball is a group game completed by physical cooperation, basketball players play different roles in the process of competition. A good basketball team must have the core players to complete the difficult ball-snatching pass, and so on. Virtual reality technology is different from practical training in the training of core athletes, mainly using stereoscopic glasses and data gloves to counter opponents and find suitable tactics. There is no essential difference between the simulated scene and the real basketball game. The competition atmosphere and the audio-visual effect of the athletes are all set according to the actual competition. Core athletes can not only carry out realistic training, but also use the system to adjust tactics to find the best training method.

4. Application of Computer Virtual Technology in College Basketball Sports Training
The integration of virtual reality technology in the course of basketball sports training in colleges and universities is also a systematic and strong work, so in the process of implementation, there will inevitably be various problems, in order to improve the effectiveness of basketball sports training, Problems can be studied in the following links:

**Figure 3. Application of Computer Virtual Technology in College Basketball Sports Training**

5. **Conclusion**

From the above discussion, it is not difficult to find that the application of computer virtual technology in the field of basketball sports training is like a fish in water. The combination of the two brings a new look to the training of basketball and solves some difficult problems. Through this technology, the basketball ability of trainees can be improved better and faster, and everyone's enthusiasm for learning can also be enhanced.

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