Research on College Sports Training Based on Computer Virtual Reality Technology

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Abstract. First of all, teachers should fully understand the connotation and application advantages of computer virtual reality technology, and explore the goal combined with the network background in the new era, so as to effectively grasp the content of physical education in the new period. Therefore, it is necessary to optimize the design of physical education curriculum. This frame design should focus on the method of avoiding leg muscle strain, which can not only improve students' core cognition of basketball skills, but also let students understand the special value of the main frame with empathy in space, thus improving students' self-protection consciousness. Secondly, it is necessary to optimize the sports skills and projects, develop the corresponding hardware equipment in VR technology, so that students can watch the practice skills and action posture in different forms with the help of the equipment. At this time, teachers need to input relevant code programs effectively to clarify the comprehensive value of various images in virtual space technology, so as to gradually improve students' perception and experience ability. Finally, teachers need to integrate the module attributes of different dimensions, integrate the framework model of physical education into the main database, and effectively formulate a more scientific physical education teaching system with the help of the analysis, integration and diagnosis system of the database.

Keywords: Machine Learning, Computer Vision, Cancer Bioinformatics

1. The main problems of physical training in Colleges and Universities

At present, more training items and less physical education courses are the most significant characteristics of college sports training, which also makes the traditional teaching methods and ideas can not effectively meet the basic requirements of society for college sports. In addition, the traditional teaching methods pay more attention to students' physical education level, do not realize the important influence of comprehensive quality on students, and the training method is too single, which leads to the students' interest in learning difficult to be improved.[1]

Through this technology, teachers can also analyze and process students' assessment results, which has an important impact on the improvement of objectivity and accuracy of performance audit.
2. Application of virtual reality technology in college education

Virtual reality technology mainly refers to the three-dimensional information artificial virtual environment composed of various sensor devices, hardware and computer software. In short, virtual reality technology is the use of high-end technology and equipment to create a virtual environment, so that people have the feeling of "being in it", but also can realize the interaction with the virtual environment.

The concept of computer virtual reality is different from augmented reality, but the effects pursued by the two technologies have something in common. Although both technologies need to be realized with the help of computers, sensors and other equipment, virtual reality technology emphasizes the use of technology to create a completely virtual environment, giving people the feeling of "immersive". Because the application of augmented reality technology needs highly skilled personnel and cutting-edge technology and equipment, it is not widely used at present, the application of virtual reality technology is more practical.

At present, there are two types of application of computer virtual reality technology in sports training system. One is immersion, that is, the trainer needs to use three-dimensional helmet, stereo glasses, stereo surround sound headset and other equipment to experience a more realistic three dimensional environment. The other is non immersion, which usually only needs the help of computer to create a plane virtual environment for the trainer to learn, such as making training video. (As shown in Figure 1)

![Figure 1. Virtual reality in life](image)

3. Virtual reality technology and sports training

The computer virtual technology is to use the computer to carry on the quantitative analysis to the movement technology, and displays the result by the way of graph. This analysis includes the specific analysis elements such as the speed and displacement of the technical action to ensure a comprehensive analysis of the motion process. On the basis of the analysis results, the computer will have a deeper understanding of the differences between each movement and the sample movement of the students. The comparative analysis of students' technical movements and standard movements of computer models is conducive to the improvement of students' own technical shortcomings, and teachers' intuitive and systematic grasp and analysis of students' learning conditions, which plays a very important role in promoting the overall improvement of students' sports quality and sports ability.
4. Application strategy of computer virtual reality technology in college sports training

4.1. Creating virtual training situation

Although any form of sports has a set of systematic training rules, the situations encountered in the training are still changeable. In addition, the differences in students' understanding and acceptance of knowledge will lead to the reduction of teachers' oral explanation effect. However, if teachers can use computer virtual reality technology to make teaching video of training situation, it can not only show the training situation intuitively for students, In order to save material investment and make up for the limitation of practical conditions, we can even try to send teaching videos to students in advance. On the premise of not affecting the training effect, we should encourage students to learn by themselves and cultivate their ability to train and learn independently. The scientific and reasonable application of computer virtual reality technology, for students, can not only increase the interest of learning, but also improve learning efficiency; for teachers, on the one hand, it can make their teaching achieve twice the result with half the effort, on the other hand, it can continuously improve computer operation skills.

4.2. Collect and measure the motion data

The Olympic spirit of "higher, faster and stronger" fully embodies the significance of sports. Therefore, the collection and measurement of motion data is very important, and in many projects, the motion data is the key measurement standard of sports effect to a large extent. Compared with using traditional tools to collect and measure the motion data, using computer virtual reality technology to collect and measure the motion data is faster, more accurate and more comprehensive. It is worth noting that the use of traditional collection tools can only collect students' external data, but not psychological data. For a long time, teachers can only grasp the psychological status of students according to their own observation, and the data obtained is not accurate, and will vary greatly due to teachers' level and experience. Using intelligent instruments and other equipment in computer virtual reality technology, we can not only easily collect accurate psychological data, but also scientifically analyze these data.

4.3. Course playback and analysis of training effect

Different students need different time to accept the same knowledge, and sports training is no exception, but sports training is different from the study of ordinary culture class. Learning culture class can check notes outside the classroom, and even master knowledge through self-study. However, sports training is more demonstrative, and miss classroom learning, or can not master the training content in class. If students want to learn again, it is unrealistic to ask teachers to demonstrate repeatedly after class. But the use of computer virtual reality technology can be easily realized, students can watch the training content at any time, convenient for students to learn at the same time, but also can reduce the teacher's class tired, and even can avoid many unnecessary training injuries, help students complete more difficult training tasks. As a course, physical training requires students to achieve certain training effect. How to accurately analyze the training situation of students is very important. Using computer virtual reality technology, we can not only quantify the students' movement, but also show the movement effect, such as movement speed, position movement, etc. (As shown in Figure 2)
Figure 2. Hardware and software structure of multimedia computer

5. Examples of the application of virtual reality technology in actual sports training

According to foreign media reports, like the application of virtual reality technology in universities and other professional sports, it is becoming an important part of the training of American Football League (NFL) players. Virtual reality technology has become a reality and has been proved to be an effective tool for athletes' training. Its 360 degree panoramic image can let athletes try new jobs, master sports skills in similar real scenes, improve reaction speed, and there is no risk of injury. Strivr has opened up a new field of sports training using virtual reality technology, which is committed to adding technology to teams and sports. Derek belch, a former Stanford player and coach, founded strivr based on his master's thesis. Trent Edwards, a former NFL QUARTERBACK, has improved the equipment by combining football and other agonistic sports. At present, all kinds of athletes and coaches, including rugby, have used this technique for training. As of September last year, six NFL teams, including Dallas Cowboys and Minnesota Vikings, have used virtual reality technology. And there will be more teams using it next season. Eon sports is another virtual reality technology company that promotes sports training in NFL teams. Among the company's top executives are a group of rugby experts, including forward attack coordinator Terry Shea of the Chicago Bears, who has long been a professional quarterback coach. Shea is willing to help eon create a more immersive virtual reality experience for athletes. Tampa Bay Buccaneers have begun to use eon's sidekik system to train its quarterback, james Winston, and Dirk koetter, the team's new coach, last year used the new technology to make athletes better adapt to the new NFL rules. Carter let athletes wear virtual reality helmet, real-time interpretation of offensive and defensive tactics, achieved good results.

6. Conclusion

With the continuous development of computer related technology, virtual reality technology is applied more and more in various fields. The application of virtual reality technology in college education can improve the teaching environment, teaching effect and the level of campus information construction. Although it has many advantages, it also has many shortcomings. In practical application, we should carry out research according to our own actual needs to avoid excessive pursuit of new technology and waste of resources. I believe that in the near future, virtual reality technology will be widely used in
college education, so that education technology to a higher level.

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