

The Research of Sports Digital Training System

Yanxiu Wang¹, Yipai Jiang^{1,a}

¹College of Humanities and Social Sciences, Jingdezhen Ceramic Institute, Jingdezhen, Jiangxi, China

^ajyp333000@126.com

Keywords: Digital Technology, Physical education, Training System.

Abstract. This article uses documents and comprehensive analysis method, on the current situation of the application of virtual reality technology in sports conducted a study and preliminary analysis of the role of virtual reality technology in sports, and the necessity of its application in sports. Think of virtual reality technology as new experimental techniques, will ultimately be widely used and play a significant role in the field of sports.

Introduction

Digital technology is an integrated technology that computer technology-based, comprehensive utilization of three-dimensional computer graphics technology, simulation technology, sensor technology, human-machine interface technology, display technology, servo technology, to generate a realistic three-dimensional visual, tactile and smell and other sensory world, where "the world" refers to a realistic three-dimensional graphics, it can be a true representation of a particular real world, it can be conceived in the world [1].

Digitization is to construct a realistic image of the model in the computer. Practitioners can be visual, auditory, tactile, force and other produce to interact with them, thereby enabling practitioners to have a "virtual reality" effect, so the interactive digital technology to provide a new interactive media [2]. Digital systems with multiple output formats, able to handle a variety of input devices, and the ability to carry out collision detection, real-time interaction, viewpoint control and complex behavior modeling.

Characteristics of digital technology

First, VR system based on a variety of information, including images, graphics, sound, position, attitude, force feedback, tactile, etc., rather than the digital information. Second, HMI system by means of conventional keyboard, mouse, or a dedicated control device (such as various types of training simulation system), practitioners issued a password, the device performs passwords belonging people to adapt to the computer. VR system is a computer adaptation stressed people, the computer can recognize people's position, posture, gestures, even the man-machine can "talk", helmets, data gloves, clothing and other data become the basic means of natural human-computer interaction [3]. Finally, the ideal of VR system should reach people in a virtual environment as in a real environment, "the same" or "nearly the same" feeling, that in addition to three-dimensional visual sense, but also with automatic positioning of feeling, touch, motion sensing, etc. even with a sense of taste, smell and so on.

Digital 3 "I" features that are immersive, interactive, imaginative, these three properties as shown at right, shown in Fig 1.

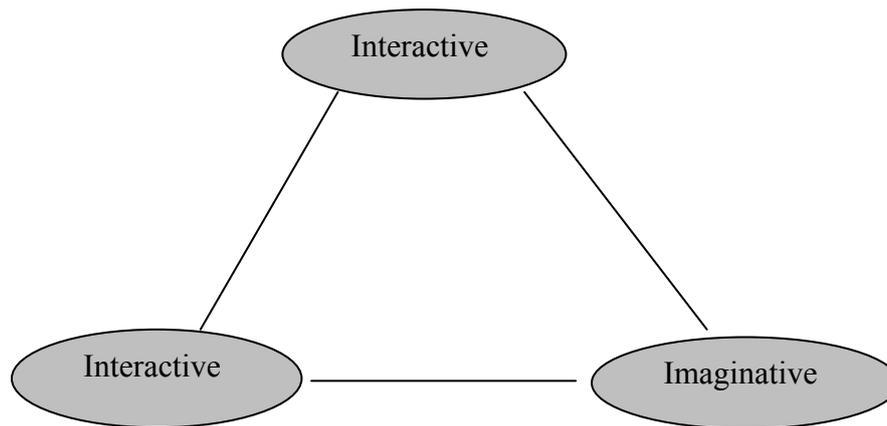


Fig.1 Thefeature among immersive, interactive and imaginative

Immersion means that people in the virtual environment and to have the same feeling in a real environment; interaction in a virtual environment, people are not passive experience, but to change the content of feelings through their own actions; imagination is at virtual environment, the human imagination, and thus can be used to achieve certain goals of use [3].

Status of digital technology in the use of analysis in sports

Application of Digital Technology in Basketball Teaching. The traditional basketball teaching is mainly through teacher explanation and demonstration to carry out, along with advances in technology, digital technology is also applied to the basketball teaching courseware and classroom teaching. This will not only complete knowledge of professors, and professors can complete action and skills [4]. As long as there is an appropriate model library and the corresponding instruments, students can make use of digital multimedia technology to see the full process of action, and because of this process is controlled by computer, so students can adjust the speed, continuously and repeatedly, there is choose to watch from different angles and even went to the site to participate in the operation process.

In teaching, students can choose according to their own wishes Skill simulation exercises, it can also be based on body language communication inside virtual human model library technical requirements. If necessary, with the world's top superstars face to face combat exercises. Thereby increasing interest in learning, improve the effectiveness of learning and teaching quality [4].

Application in Volleyball Teaching. The traditional process is mainly Volleyball Demonstrations by teachers for technical mastery is affected by many factors. The situation for students to master technology teacher by the naked eye, which makes teaching effectiveness has been greatly affected [3]. The digital technology can provide a new environment for the teaching process, as explained Overhand Serve Skill, the students can take advantage of digital technology can while viewing the technical operation of virtual-case, side with the virtual human exchange of body language, feelings efforts to force parts of the body, the sequence and range of motion, resulting in a total sense of movement. This will not only enable students to learn the correct method of operation, and can understand when serving to force the muscles, the students on a virtual human body language to communicate with the process if the student body deviated from the virtual body of technical requirements, then the whole exchange process is stalled [5]. After repeated so immersive experience, students will master the technical movements faster and more accurate.

The use of digital technology in the teaching process of volleyball can not only help teachers build a new, changing teaching environment, but also provide students with an intuitive learning environment and methods of self-exploration, thereby improving the quality of students' interest in learning and teaching and effect.

Necessity of digital technology implemented in sports

Compensate for the lack of modern teaching and training conditions. In teaching and training, often because of weather, space, equipment, funds, etc., so that some teaching and training sessions impossible [2]. The use of digital technology system, you can make up for these areas, students can better understanding of tactics, to get the real feel the same experience to enrich perceptions and deepen understanding of the content of the teaching.

Avoid difficult and complex technical action brought by sports injuries. With the height of the development of modern technology, and technical difficulty confrontational sports are also increasing. Using digital technology for virtual experiments can be exempted from this action concerns. Participants in a virtual lab environment, you can safely do all kinds of difficult movements. For example, the high-altitude difficult dunks, air tumbling action, high-tech and other action to pull the ball [1].

Completely break space constraints, time. The use of digital technology, you can completely break time and space constraints, we can stay at home to watch the technical and tactical and technical guidance of the world's elite athletes and coaches and experience the world-famous modern sports concept. And train with the world's top athletes, coaches enjoys excellent treatment [3].

Avoid physical education and training accident injuries. For boxing, taekwondo and other highly confrontational student favorite sports, in teaching is difficult to avoid the occurrence of injuries, many schools simply do not offer courses. Using digital technology for virtual practice is exempt from such concerns. Students in the digital environment, you can safely go and fight virtual opponents, but do not worry about any danger [4]. At the same time it will make the evaluation of the student movement, pointing out deficiencies, improve training efficiency.

Digital technology - the future of sports science technology. Application of digital technology in the field of sports will lead to a revolution of sports, it will sport from a single type to comprehensive, so sports training from experience-based integrated high-tech training to make sports to entertainment from monotonic type, universal type, so that a single exercise to exercise therapy [5].

Application of digital technology for the new sport, sports entertainment, digital technology has opened the game system available, will create a wide range of sports realm humans give birth to many to send virtual technology as the main Olympic sports, new competition system and sports entertainment; sports training reduces the risk of competition (such as alpine skiing, racing, boarding sport if done intensive training or competition adaptive indoors, it will not appear personnel avalanche, caused by the roll-over, etc. casualties, athletes in growing and before the game, reducing injuries during race training); the creation of objective factors cannot reach the realm, in order to make adaptation for athletes training for the object of the game, devised tactics to beat his opponent, the object of an adversary as regular training, will undoubtedly increase the success rate of athletes [6]. Due to factors region, country cannot do this training, and their players do not have the level of opponents, digital technology can solve this problem, it can create a well-known athletes and the reality of exactly the same virtual athlete, even a team, their technical characteristics, appearance, degree of simulation character are so sure of the athletes, which will reach a highly targeted training purposes; analog nature, so people living in the modern city into nature, return to nature, with the number of technology to simulate a variety of natural sites. At the same time, you can also imitate drive space to simulate mountaineering site, simulated skiing, scientific selection, protect the people, to achieve advanced training, reducing the blindness of athletes during training; develop new test methods [6].

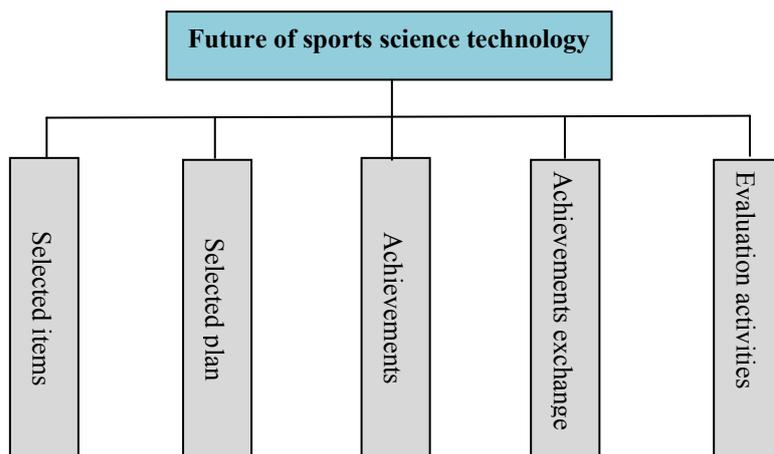


Fig. 2 The future of sports science technology

In summary, the important role of digital technology in sport, as well as its application in various sports, so sports field there is a major change, which has important implications for the future of sports and sports expansion, while also further demonstrate the use of digital technology in sport is essential.

Summary

Although digital technology has an important role in teaching and training, but in the current conditions, there are still many problems waiting to be solved: Digital technology is not mature, with certain limitations, the degree of interaction should be further developed; at present, digital equipment most of the production from abroad and the price is quite expensive. Therefore, we need independent development of digital hardware and software resources; and enhance teachers' understanding of digital technology, the use of. Although digital technology in the application there are many problems and high degree of difficulty, but the use of digital technology to further social development is an inevitable trend.

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