Research on the Innovation of Physical Education Teaching in Colleges and Universities under the Background of Digital Sports

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Abstract: In the context of digital sports, physical education teaching in colleges and universities is facing many opportunities and challenges. To better adapt to this change, colleges and universities need to innovate physical education to improve students' physical fitness, promote their physical and mental health, and develop lifelong physical habits. This paper will discuss the background of digital physical education, the existing problems of physical education teaching in colleges and universities, and the innovative research of physical education teaching in colleges and universities, aiming to improve the quality of physical education teaching in colleges and universities and the learning effect of students, and provide strong support for cultivating high-quality talents.

Keywords: digital sports; college sports; Pedagogical innovation

Introduction:In the digital age, digital sports has become an important background of physical education in colleges and universities. Through the use of advanced technology and big data analysis and other means, college physical education can achieve more personalized and differentiated teaching methods, and provide more abundant teaching resources and methods. However, there are still many problems in college physical education, such as the lag of traditional teaching mode and insufficient teaching resources. Therefore, the innovation research of college physical education teaching is at the forefront of the field. Among them, the use of big data and artificial intelligence technology for teaching analysis, virtual reality (VR) and augmented reality (AR) teaching, etc., are currently more popular teaching models and means. In the future, the interdisciplinary cooperation and online teaching of college physical education will also become an important direction of teaching innovation. Only by continuously promoting digital teaching can we better adapt to the demand for talents in the digital age.

1. Background of digital sports

Digital sports refers to the use of digital technology to upgrade and transform traditional sports to make them more in line with the needs and habits of modern people. With the continuous development of technologies such as the Internet and mobile devices, digital sports has become an irreversible trend. It can not only improve the efficiency and effectiveness of physical activities, but also increase the fun and interactivity of physical activities and attract more people to participate in them. Digital sports mainly have the following characteristics: Data: Digital sports emphasizes the collection and analysis of various technical data of athletes, which can include sports performance, physiological indicators, sports skills, etc., to provide athletes with more accurate and objective training feedback. Intelligent: With the help of artificial intelligence, machine learning and other technologies, digital sports can realize in-depth mining and analysis of athletes' training and competition data, and provide athletes with personalized training suggestions and guidance. Virtualization: Digital sports use virtual reality (VR), augmented reality (AR) and other technologies to bring athletes into a virtual competition and training environment, improving athletes' perception and understanding of technology. Socialization: Digital sports use technologies such as the internet and social media to connect athletes with coaches, teammates, and sports enthusiasts in general, facilitating communication and interaction.

2. Problems in physical education teaching in colleges and universities

At present, although some achievements have been made in physical education teaching in colleges and universities, there are still some problems.

Single teaching content: In the traditional physical education teaching in colleges and universities, only the learning and training of sports skills are often emphasized, while ignoring the cultivation of students' physical and mental health and hobbies. In contrast, digital sports focus more on diversified and personalized teaching content, which can better meet the needs of students.

Outdated teaching methods: Traditional college physical education often adopts a single lecture and demonstration method, which lacks interactivity and innovation. Digital sports, on the other hand, can provide a more vivid and vivid teaching experience through virtual reality, augmented reality and other technologies, and improve students' interest and participation in learning.

Lack of personalized teaching: Traditional college physical education often adopts a "one-size-fits-all" approach, lacking attention to the physical conditions and athletic abilities of different students and personalized teaching. In contrast, digital sports can use technologies such as big data analysis and intelligent recommendation to tailor personalized teaching plans for each student to improve teaching effectiveness and student engagement.

Ignoring students' emotional and psychological experience: Traditional college physical education often only focuses on students' physical exercise and technical mastery, but ignores students' emotional and psychological experience in the process of sports. In contrast, digital sports can enhance students' emotional connection and social experience through gamification, socialization, etc., and increase students' interest and participation in sports.

To sum up, the problems of physical education teaching in colleges and universities are mainly manifested in the single teaching

content, outdated teaching methods, lack of personalized teaching, and ignoring students' emotional and psychological experience. Compared with digital sports, traditional physical education teaching in colleges and universities can no longer meet the needs of modern society for physical education, and needs to be innovated and reformed.

3. Research on innovation in physical education teaching in colleges and universities

3.1 Use big data and artificial intelligence technology for teaching analysis

Under the background of digital sports, the innovative research of college physical education has become increasingly important. Among them, the use of big data and artificial intelligence technology for teaching analysis has become a striking method. In-depth insights can be gained by collecting and analyzing large amounts of instructional data, including student athletic performance, learning progress, and feedback. Combined with AI technology, teachers can use this data to identify potential problems with students, develop personalized lesson plans, and provide real-time feedback and guidance. In addition, big data and artificial intelligence technology can also help teachers evaluate teaching effects and optimize teaching content and methods to enhance students' learning outcomes and sports skills. This kind of teaching analysis method based on data and artificial intelligence will bring new possibilities and challenges to physical education in colleges and universities, and provide strong support for cultivating outstanding sports talents.

By collecting and analysing students' exercise data, teachers can better understand students' fitness status and movement skills so they can provide more targeted guidance and recommendations. For example, teachers can develop personalized training plans and goals based on data such as students' running speed, heart rate, cadence, etc. At the same time, through artificial intelligence technology, teachers can intelligently analyze and predict students' learning in order to adjust teaching strategies in a timely manner.

3.2 Carry out virtual reality (VR) and augmented reality (AR) teaching

Under the background of digital sports, the innovative research of college physical education is moving towards the direction of virtual reality (VR) and augmented reality (AR) teaching. Through the use of VR and AR technology, immersive virtual sports environments can be created, enabling students to experience a variety of sports without the need for actual fields and equipment. This new way of teaching not only stimulates students' interest in learning, but also provides a safer and more controlled practice environment.

Through the use of VR and AR technology, students can train in various sports in a virtual environment, improve their motor skills, and enhance the fun of learning. For example, in basketball teaching, teachers can use VR technology to simulate game scenarios, allowing students to play virtual games and improve their practical skills. At the same time, AR technology can combine motor skills and theoretical knowledge to provide students with a more intuitive and visual learning experience. VR and AR teaching is of great significance to the innovation of physical education in colleges and universities. It can not only enrich the teaching content, improve the learning effect of students, but also cultivate students' innovative thinking and teamwork ability. However, to achieve this goal, a large amount of technical equipment and resources will need to be invested, and teachers will need to be trained to use these technologies proficiently. Therefore, universities need to actively promote relevant research and cooperation, jointly explore the application potential of VR and AR in physical education teaching, and provide students with a better educational experience.

3.3 Interdisciplinary cooperation in teaching and research

Under the background of digital sports, the innovative research of college sports teaching needs interdisciplinary cooperation. Traditional physical education often focuses on skill training and physical training, but in the digital age, teaching research needs a more comprehensive and comprehensive perspective. Therefore, collaboration with other subject areas has become essential.

Experts in computer science, data science, psychology, and other disciplines can be invited to work with PE teachers to study how to use digital technology to improve PE teaching. This interdisciplinary collaboration can organically combine knowledge and technology from different fields and inject new vitality into physical education teaching. For example, algorithms and models in the field of computer science can be used for the analysis and prediction of motion data; Visualization techniques in the field of data science can be used for the presentation and analysis of motion data; Knowledge in the field of psychology can be used for psychological counseling and support for students. To sum up, the innovative research of college physical education under the background of digital sports needs interdisciplinary cooperation with other disciplines. Such cooperation can provide technical support, in-depth study of students' learning process and cognitive mechanism, and explore the impact of physical education on students' comprehensive quality and social development. Through interdisciplinary cooperation, it can provide a more comprehensive and diversified perspective for the innovation of college physical education.

3.4 Carry out online teaching

Under the background of digital sports, the innovation research of college physical education needs to carry out online teaching. With the continuous development of Internet technology, network education has become an important way of education. Through online teaching, students can learn anytime, anywhere, saving time and space costs, while also enjoying more flexible and diverse teaching resources.

Using the online platform, teachers can offer a variety of online physical education courses so that students can study at any time and from any location. Online teaching can not only break through the limitations of time and space, but also provide students with a more flexible way of learning. At the same time, teachers can collect students' learning data and feedback through the online platform in order to better adjust the teaching content and methods.

In short, online teaching is an important direction of innovation in college physical education under the background of digital sports. Through the use of Internet technology, more flexible, diversified and efficient teaching resources and assessment methods can be provided

for students to provide more high-quality and comprehensive physical education.

4. Conclusion:

The research on the innovation of physical education in colleges and universities under the background of digital sports puts forward new challenges and opportunities for physical education in colleges and universities.Through the use of big data and artificial intelligence technology for teaching analysis, virtual reality (VR) and augmented reality (AR) teaching, interdisciplinary cooperation in teaching research, online teaching and other means, the digital and intelligent transformation of physical education teaching in colleges and universities can be realized. This will help improve the quality of physical education teaching in colleges and universities and the learning effect of students, and provide strong support for the cultivation of high-quality talents.

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