# *On the Application of Big Data Technology in College Physical Education*

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*Abstract:* Research the application methods of big data technology in college physical education. Combining the characteristics of big data technology, teaching conditions, etc., analyze the problems existing in the teaching of college physical education, aiming to use the big data analysis system to clarify the reform direction of college physical education through the design of the teaching framework and the coordination of the evaluation plan, and to require physical education teachers under the guidance of the teaching framework, it analyzes the complex problems in teaching, gradually improves the teaching mechanism of physical education courses, and shows the advantages of college physical education courses. Integrating big data with college physical education courses can improve the quality of course teaching and provide a reference for the reform of education models.

## 1. Introduction

In the context of new curriculum education, big data as the guiding content of curriculum teaching can combine the characteristics of curriculum teaching, set teaching goals, teaching plans, and continuously innovate teaching methods to create a good learning environment for students and gradually improve students' comprehensive quality. However, due to the particularity of physical education in colleges and universities, in actual teaching, some teachers mainly focus on a single teaching method and do not pay attention to students' learning conditions, which will ultimately affect the effect of curriculum teaching and fail to achieve the purpose of innovation in physical education curriculum. Therefore, for college physical education teachers, in the actual course teaching, the advantages of big data technology should be combined, according to the current teaching situation of college physical education courses, data collection, data storage and data processing technology should be used to gradually improve the curriculum teaching guidance program, provide guarantee for the improvement of teaching methods and the innovation of education quality.

## 2. Big Data Technology and Big Data Education Technology

### 2.1 Big Data Technology

For big data technology, it mainly refers to large amounts of data and massive data resources. The characteristics of big data are as follows: First, massiveness. According to the characteristics of the use of big data technology, due to the rapid expansion of data resources, mobile networks and service tools are the main sources of data. Through the design of functional algorithms and data processing platforms, it can fully meet the large-scale use of big data resources and display data the processing value of statistics, analysis and forecasting. Second, high speed. In the use of big data technology, there is the characteristic of high-speed computing. In the logical processing of data, the 1s law will be followed to ensure the rapid use and efficient use of data to meet the high-quality development needs of the industry. Third, diversity. Through the use of big data resources, we can combine the characteristics of the use of the system to structure and diversify the processing of various data, and improve the efficiency of data analysis and acquisition [1].

## 2.2 Big Data Education Technology

Combining the characteristics of the use of big data education technology, the actual application of technology mainly includes direct processing and sequential storage processing. Through the analysis of these two educational technologies, the advantages of educational technology processing can be fully demonstrated to meet the continuous operation of the industry and economic development needs. In general, big data education technology includes: First, education analysis technology. For educational analysis technology, students are mainly used as the main body, through the use of online platforms and terminal mobile software, data collection and mining of students' learning process, and create a good learning environment for students, and gradually improve the quality of students' learning, and finally realize the purpose of students' ability mining and ability expansion; second, deep learning technology. In the use of deep learning technology, through the use of neural networks and backward propagation technology, it is possible to set online learning time for students through the use of voice recognition, face recognition and other systems to show the purpose of network activity education and behavior analysis; third, visualization technology. According to the basic characteristics of big data education, it can be used in curriculum teaching to analyze large-scale, high-latitude and dynamic data, and then through the visual analysis of data resources, provide users with data support and decision feedback systems. To achieve the purpose of personalized processing of educational information, and gradually improve the quality of physical education curriculum [2].

## 3. Problems Existing in the Teaching of Physical Education Courses in Colleges and Universities

### 3.1 The Problem of Teaching Resources

According to the teaching characteristics of physical education courses in colleges and universities, in the actual curriculum teaching, the problem of insufficient educational resources is reflected in the following aspects: First, students are affected by the lack of human resources in the physical education curriculum in the learning of professional sports knowledge, which leads to physical education teachers' energy is relatively limited, unable to take full advantage of the instructional advantages in the classroom, eventually leading to imbalanced teaching of physical education in colleges and universities, and unable to meet the needs of the training of physical

education professionals in colleges and universities; second, limited by teaching resources, due to the particularity of physical education courses, in actual In teaching management, some college administrators did not realize the importance of physical education courses, which led to insufficient investment in sports infrastructure and sports funding, and reduced the teaching quality of physical education courses in colleges and universities [3].

## 3.2 Relatively Lagging Teaching Mode

In the teaching of physical education in colleges and universities, most of the teaching methods are based on the training of students' skills. In actual teaching, teachers mainly use demonstrations to allow students to imitate and repeat movements, and finally master motor skills. In the application of this teaching method, due to the differences between the main body of students, in actual teaching, there is a problem of inconsistent teaching effects. Although some colleges and universities recognize the importance of professional knowledge in the teaching of physical education courses, However, the teaching guidance of teachers is still the mainstay. Students in this state of activity cannot improve their own creativity and inquiry ability, and reduce the quality of physical education teaching. Therefore, in the reform of physical education curriculum, teachers should recognize the problems in the past curriculum teaching, provide students with a good inquiry environment through the use of diversified teaching methods, and realize the purpose of physical education reform and educational innovation [4].

## 3.3 The Problem of Big Data Resources

Along with the educational reform of college physical education curriculum, through the use of big data technology, a single curriculum teaching mode can be changed, and a good space for sports exploration can be created for students. However, in the actual use of big data education technology, the following problems are often encountered: First, the data collection rate is low. According to the educational characteristics of college physical education courses, the data is generated all the time, resulting in a large amount of data. In the low situation, the processing of various data resources and mobile phones will not be possible, which will ultimately affect the use of big data technology and fail to achieve the teaching purpose of big data technology in college physical education courses; second, due to the particularity of the big data environment, network security issues are more common. If the security management is not in place in the use of big data technology in physical education courses, it will leak student information and cause serious economic and life problems for students [5].

## 4. The Application of Big Data Technology in College Physical Education

## 4.1 Enriching Teaching and Teaching Resources with Big Data Technology

In the teaching of physical education in colleges and universities, through the use of big data technology, students can be taken as the main body. Through the analysis of student sports situation, a good activity exploration environment can be set up for students to help students set up a good physical activity environment and improve student sports. At the same time, the professional skills are strengthened to strengthen physical education, and realize the purpose of physical education teaching [6]. First,

for college physical education teachers, they should master the advantages of big data technology and establish data awareness in actual course teaching. With the development of network information technology, teachers need to innovate the teaching methods of physical education courses in colleges and universities. Through Internet technology, mobile technology and the design of MOOCs courses, students can set up online course teaching modules for students. Students can expand students' experience through the use of this learning system. Learning space, and in the use of big data technology, you can also use the network platform to automatically collect the time when students watch the video, the situation of the problem discussion, etc., through the comprehensive utilization of these data, the system will timely feedback the data, and realize the purpose of continuous innovation in curriculum education [7]. Second, in the use of big data technology, you can use the OneNet system to analyze the learning situation of students, and then adjust the curriculum and teaching concepts to achieve the integration of educational resources and the density of educational method innovation. For example, in the use of the learning analysis system, the system can analyze students' learning rules and learning conditions based on big data technology, and through the prediction, collection and evaluation of the content of physical education courses, it can set up a comprehensive type for students' learning. Data analysis resources, steadily improving the quality of course teaching, providing support for the improvement of educational methods and the innovation of educational models. Third, in the use of big data technology, in order to better enrich the curriculum teaching resources, teachers should change the past teaching concepts in actual curriculum teaching, transform the past curriculum education resources, and create for students through big data technology. Diversified teaching resources, under the background of massive teaching resources, students should improve the ability of screening and distinguishing information, gradually improve students' learning literacy, and realize the purpose of physical education teaching and resource integration [8].

## 4.2 Set up a Diversified Physical Education Curriculum

Combining the characteristics of curriculum education, in the reform of college physical education curriculum, teachers should change the single teaching form, aiming at the current teaching situation of physical education curriculum, and create a good environment for students to explore physical activities, and then set up personalized teaching according to the differences of students the environment helps students improve their physical literacy and demonstrates the advantages of big data technology in the teaching of physical education courses in colleges and universities. Under normal circumstances, in the setting of diversified physical education courses, it is necessary to achieve: First, in the use of big data technology, teachers need to set up personalized teaching guidance methods according to the differences of students. For example, according to students' study time, geographical restrictions and other issues, the reform of curriculum teaching methods, and reasonable arrangement of sports knowledge under the use of network information resources, helps students use the results of big data analysis to choose a reasonable time for independent learning, so that students arrange study time reasonably to show the reform advantages of curriculum education[9]; Second, in the evaluation of students' learning process, teachers should set up pre-class tests and after-class evaluations according to students' learning conditions and classroom performance, and require students to complete the course time within the specified time, and publish the results on the network platform

in time to realize the evaluation of the students' comprehensive ability. For example, in the use of big data technology, teachers should combine the characteristics of the physical education curriculum to analyze the problems in the teaching of the curriculum, and then provide a good space for students to explore through the setting of research sports technology activities. For example, in the teaching of table tennis in college physical education courses, teachers can use the collection of teaching content in big data technology to set up Blackboard online classrooms. In the classroom, they can use the flipped classroom concept to give play to the data collection function. The system will follow the students' learning time, learning efficiency and learning interest, etc., collect various parameter information in time. Through the setting of this data platform, it can help physical education teachers to grasp the students' sports situation in time, and at the same time, they can also conduct excavator evaluation of students' learning ability for education system reform and education model innovation provide support [10].

## 4.3 Perfecting the Educational Evaluation Mechanism of Physical Education Courses in Colleges and Universities

According to the basic situation of physical education in colleges and universities, in the actual education reform and the application of big data technology, in order to show the advantages of curriculum education, teachers should recognize the important value of teaching evaluation in actual teaching innovation, according to the basic characteristics of students, innovate education evaluation methods, show the purpose of curriculum education integration and education evaluation innovation. First of all, in the evaluation of college physical education, the main frame mechanism should be set up in accordance with the characteristics of curriculum education. For example, in the design of the evaluation framework, self-evaluation and others' evaluation should be the focus, and teachers and students should be guided to grasp the problems in physical education teaching in the evaluation. Secondly, physical education teachers should also master the content of self-evaluation. In the self-evaluation, teachers should conduct self-feedback based on the teaching status of physical education courses and the curriculum teaching goals. The setting of this evaluation model can help teachers realize the teaching of the curriculum, and change the previous teaching mode to achieve the goal of curriculum education reform and education improvement. Finally, in the student self-evaluation module, big data network resources should be analyzed according to the students' learning process and learning quality, etc., to help students improve their own subjective initiative in problem practice and problem reflection, and continuously stimulate students' forms of inquiry. Realize the purpose of the reform of physical education curriculum in colleges and universities. It should be noted that in sports evaluation under big data technology, the subject of evaluation in teaching should be clarified, and a comprehensive evaluation management model should be created according to the main characteristics of teachers, students, and administrators, so as to realize the perfection and improvement of physical education curriculum. The purpose of educational innovation is to promote the high-quality development of college physical education courses [11].

## 5. Conclusion

In short, in the teaching of physical education in colleges and universities, in order to achieve the purpose of innovation in physical education, educators should combine the development and changes of the times, and through the use of big data technology,

create a good exploration environment for students, and gradually improve their physical education. Provide technical support for the reform of physical education curriculum under the background of the new curriculum. In general, in the innovation of physical education curriculum, teachers should combine the advantages of big data technology to master the problems in the past curriculum teaching, and constantly enrich teaching resources, and improve the physical education under the background of big data through the diversified setting of physical education curriculum. The curriculum evaluation model emphasizes the subjectivity of students, provides support for the improvement of students' comprehensive literacy and strengthening of comprehensive capabilities, and demonstrates the value of college physical education curriculum reform.

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