Reform and Practice of College Physical Education Teaching Model Based on Big Data

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ABSTRACT. *Under the background of the era of big data, my country's economic development is very rapid, and my country's college physical education and teaching have also made a certain degree of reform in response to the current era of big data. This article combines the current problems in physical education, discusses the content and significance of physical education reform under the background of answer data, in order to provide reform measures that are more in line with the development of practice, and continue to promote the development of current college physical education. This research takes the undergraduate talent training model of physical education major in the University of Physical Education as the comparative research object. Through the use of literature research, questionnaire method, comparative analysis, mathematical statistics and other methods, to master the undergraduate talent training model of physical education major in ordinary universities under the background of big data The status quo and similarities and differences of the university's physical education teaching model under the background of big data have been discovered. Taking the status quo of university physical education reform as the starting point, the application of modern education technology is an inevitable discussion of deepening the reform of university physical education. , Put forward several countermeasures and suggestions for applying modern education technology to deepen the reform of college physical education. The experimental research results show that, in the context of the rapid development of this era of big data, the popularization and improvement of college sports also needs to open up new ideas to innovate, and it also requires every school sportsman to actively think and challenge.*

KEYWORDS: *Big data, Higher education, Physical education teaching, Physical education reform*

1. Introduction

Big data has changed the society and the times, and it is also destined to change the existing comprehensive situation of education development and teaching mode, and especially in college education, college education must make

positive changes in response to the development of the times [1]. Especially for related physical education and teaching, the training of relevant talents directly affects the development of the times. In order to further meet the comprehensive and specific needs of the development of the times and social progress, it is necessary to objectively recognize the role of big data in this process. Role and value, and then actively apply relevant measures to reform teaching, promote the comprehensive strengthening and improvement of teaching quality, teaching effectiveness, and talent training effectiveness, and optimize the final teaching effect. College physical education needs to make active and effective changes in the context of big data. [2-3].

Especially at this stage, the development of "big data" is very rapid, and its role and value are relatively obvious. In the specific teaching and related operations, it is necessary to actively construct and construct an information platform to form a good online correlation. Teaching management mode, improve the actual effect and final effect of final management and teaching work [4-5]. Teaching activity management now needs to be gradually diversified and comprehensive, especially in practical teaching and other aspects. It is necessary to fully recognize the value and significance of related technologies, effectively implement practical applications, and improve the final management and teaching effects. Physical education in colleges and universities is an important part of our country's education and teaching, an important link to realize the all-round development of talents, and an important way to realize students' lifelong sports and physical health. More and more college physical education workers find that the existing physical education model has great defects, the physical health of students has not been effectively improved, and the interest of students in participating in physical exercise has not been improved [6].

In response to this series of problems, sports life is to integrate physical education activities into the lives of students, to achieve the purpose of physical exercise in life [7]. As the elite of society and the pillar of the future country, college students are representatives of advanced culture. The development of their sports lifestyle has a demonstrative effect on the future social lifestyle [8]. In the reform of the teaching model of physical education in colleges and universities, it is necessary to actively integrate school physical education into the overall education reform and development, integrate the development goals, paths and power structure of the physical education reform and development, and play a supporting role, not necessarily as a separate project. Do it. The overall goal of college sports is to promote the overall development of people and the overall progress of society [9]. College physical education needs to do something in four aspects. First, it is physical health; second, master the basic knowledge and sports skills of sports and health; third, reflect the value of school sports through a wide range of mass sports; fourth, Cultivate students' sound personality. These four aspects constitute the goal of the "four in one" and have very close internal connections [10].

2. Method

2.1 Online Learning Algorithm of Perceptron

In the current online learning algorithms based on big data analysis, many different algorithms have been produced. However, in terms of the scope of application, the application of perceptron is the most extensive one. Then, for all misclassified samples, the penalty is implemented by summation, which can be specifically based on the following algorithm formula:

$$Jp(W) = \sum_{i\epsilon r}(-W^T X_i) \tag{1}$$

$$W(x,i) = (1 - \alpha) + \alpha \frac{D_{si}}{LX} \tag{2}$$

$$r(x,j) = \sum_{i\epsilon I_x} W(j,I)xsim(i,j) \tag{3}$$

For the given resource, the recommendation degree calculated according to the above formula is as follows:

$$r(x,j) = \sum_{i\epsilon I_x} Wsim(i,j) \tag{4}$$

From the perspective of the classification of online learning algorithms, the perceptron algorithm is essentially a reward and punishment algorithm. This algorithm is widely used to solve linearly separable problems; and as a relatively basic online learning algorithm, the emergence of the perceptron algorithm is very important for promotion and learning. In addition, with the continuous development of the perceptron algorithm, a more convergent second-order perceptron appears. This is a calculation method that can continuously update the formula. It should have a wider application prospect in the future.

2.2 Use Big Data as a Teaching Background to Speed UP the Construction of a Physical Education Network Platform

Using big data, cloud computing and other Internet technologies to continuously enrich the sports network teaching platform, thereby changing the backward state of sports teaching. On this basis, the transition from teacher-centered to student-centered, give full play to the role of student-based learning. At the same time, the use of computers and network multimedia to create a learning mechanism, using platform feedback functions, real-time interactive exchanges between teachers and students, and accelerate the transformation of traditional physical education teaching methods. Further use the multimedia network to accelerate the construction of resources, enrich the content of physical education, and interconnect with other schools to share high-quality resources. When designing sports network teaching content, we should create rich templates and teaching resources, and easily realize the construction of the website, so that it can solve most of the sports subject database, courseware database and other content. Secondly, make full use of the network for dynamic management of sports network teaching. On this basis, fully

develop sports network teaching courseware, establish high-quality sports network teaching courses, and do a good job in sports data sorting and network management.

2.3 Change the Traditional Teaching Mode and Skillfully Use the New Era Network Teaching Methods

In view of the rapid development of big data technology and the needs of college physical education, we should fully transform the current physical education network teaching methods and use the rich network to realize students' independent learning. To be specific, from network media management to class teachers, they should give full play to the reforms brought by network technology to physical education and change teaching concepts. At the same time, physical education management personnel and teachers should fully promote the use of the network platform, and design targeted physical education teaching methods for this platform to promote students' independent learning, thereby changing the learning methods. In addition, pay attention to cultivating students' interactive practical ability, give full play to the role of the network platform, and promote the effective development of student sports activities. The construction of sports network teaching platforms in many schools is based on the perspectives of teaching evaluation and declaration. As a result, the platform construction is not suitable for students to use, and the effect of sports teaching has not been further improved. In addition, real-time resource exchange between universities can enable high-quality physical education resources to be shared through a unified platform.

3. Experiment

3.1 Experimental Research Objects

In order to be able to analyze more in-depth methods and methods of college physical education teaching model based on the background of big data, this article selects two classes of physical education university for experiment, divided into online class and control class. There are 37 students in the network class and the control class. 33 people, 70 students in two classes. After the staged teaching and learning, conduct a questionnaire on their knowledge test and network teaching to the students in the network class and conduct a questionnaire on the teaching influence of the big data model, further improve the problems of the reform of the physical education teaching model, and understand the physical education university The current status of the teaching model, to solve some of the problems existing in the current practice teaching model, this research is aimed at investigating and researching the junior college students of physical education.

3.2 Experimental Research Design

This research focuses on the practical teaching of two classes in the University of Physical Education. The online class adopts the current new method of physical education reform based on the background of big data, while the control class adopts the traditional physical education model. After the practical teaching is completed, compare the knowledge mastery of the two classes and analyze the comparative method. Then, the "Questionnaire on the Practical Teaching Effect of College Students" was distributed to the students. The practical survey is aimed at a series of links such as students' practical teaching courses. It surveys the status quo of the physical education model in physical education universities. A total of 70 questionnaires were distributed. 69 valid questionnaires were recovered, with a recovery rate of 98.57%. In this paper, data analysis and text processing are conducted on the questionnaire responses. Although this questionnaire can learn a lot of information, there are also cases of incomplete or insufficient information. Therefore, on the basis of this questionnaire, this article still uses the method of literature research through the views of domestic and foreign scholars on the status quo and existing models of the reform of physical education teaching mode under the background of big data. The purpose is to be more comprehensive and accurate. Understand the reform measures.

4. Results

### 4.1 Experimental Investigation and Analysis Results

Table 1 Investigation and Comparison of the Hours and Credits of Students' Physical Education Courses

	Pingpong	Basketball	Badminton	Aerobics
Number of experimental class	13	8	9	7
Class hours	36	36	36	36
Percentage	35.13%	21.62%	24.32%	18.93
Number of selected experimental class	15	6	9	3
Class hours	36	36	36	36
Percentage	45.45%	18.18%	27.27%	9.1%

According to the survey data in Table 1, we can classify and summarize the experimental investigation reports collected by the control class and the online class. The data shows that students have their own views on the choice of physical education, but in general, the students in the two classes mainly prefer ball physical education, and 85% of students in the comprehensive data university like ball physical education. With a total of 36 hours of school hours alone, all 70 students completed the tasks. According to the statistics of students' responses from the

survey, the methods of physical education in colleges and universities in the era of big data far exceed the traditional physical education model in terms of teaching methods and class efficiency. Due to the well-developed communication facilities, students can Learning can be done anytime and anywhere, and the traditional teaching method is not only boring in the teaching mode and method, but the teaching efficiency is far less than the new era of online teaching methods.

In the era of big data, the reform of college physical education still needs to further improve the framework and motivation structure, which is mainly manifested in the continuous stimulating of the enthusiasm of the government and schools, stimulating the enthusiasm of students and parents, and allowing them to actively participate in physical exercise. Third, in terms of social propaganda, what kind of support policies are needed to enable everyone to pay more attention to, pay attention to, support, and publicize school sports. Finally, we must continue to introduce new evaluation and supervision measures. In the new era, new requirements are put forward, and work must be promoted in accordance with the standards and requirements of the new era. Many standards need to be developed from scratch. For example, teaching quality standards must be based on different school stages or even different grades. Corresponding physical education teaching standards must be proposed. Any policy needs evaluation and supervision. To ensure that every reform measure can be implemented, this is an important feature of the new era.
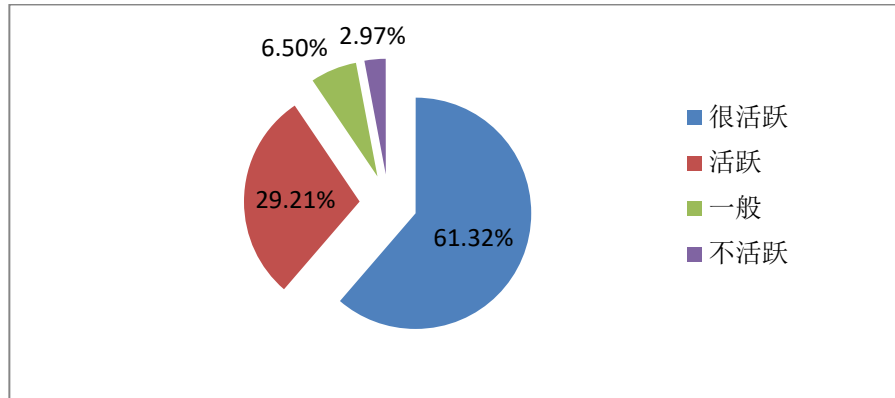
Fig.1 Evaluation of the Active Atmosphere of Physical Education in the Experimental Class
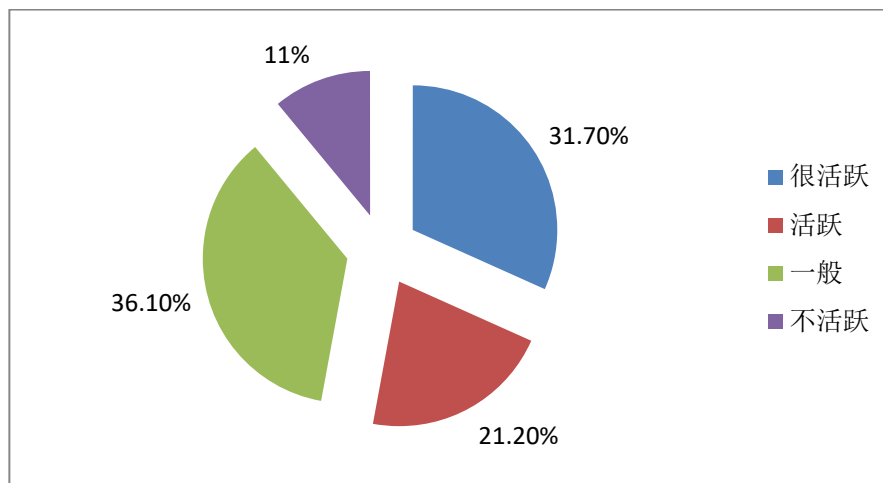
Fig.2 Evaluation of the Active Atmosphere of Physical Education in the Control Class

From the data in Figure 1 and Figure 2, comparing the data in Figure 1 and Figure 2, we can find that the so-called classroom atmosphere refers to a specific situation developed in the teaching process. The concrete manifestation of the effect. According to the survey results of the sports classroom atmosphere of the experimental class and the control class, the enthusiasm of the control class is far less than that of the experimental class. We conducted visits and surveys to the students of the two classes respectively, and then classified the research based on the results of the survey. We found that the networked teaching model adopted by the experimental class can quickly integrate students into the current teaching model, while facing traditional methods. The physical education model will be much better.

4.2 Reform Direction of Physical Education Model under the Background of Big Data

In the current college physical education process, the use of "big data" can better carry out diversified teaching, so as to assist the evaluation index and evaluation system to be more scientific and reasonable, optimize the final effect and final evaluation effect, and assist students in the existing physical education. A certain degree of mastery of the knowledge and skills. The lack of attention to students' autonomy and subjectivity in the teaching process of physical education has led to the lack of comprehensiveness and practicality in the overall education and teaching, which has brought great problems to the teaching effect. After the online and offline connection, the application of a three-dimensional hybrid teaching mode can be used to assist students in learning, stimulate students' interest in learning, and make the teaching form flexible and

changeable, optimize and improve the final teaching quality and Teaching effectiveness. In the teaching process, the program can also be changed to a certain extent. The previous method of teaching first and then learning can be transformed into a mode of teaching first and then teaching. Organize and target self-study before class, and actively focus on problems in class. Continue to follow up online after class. It can be seen that the practice of physical education reform under the background of big data focuses on comprehensive reforms, adheres to the reform of physical education in colleges and universities, and helps students to cultivate all aspects of physical fitness, psychological quality, learning attitude, and moral quality.

5. Conclusion

As mentioned above, under the big data-based environment, college physical education also needs to gradually become diversified and open. In the specific operation process, it is necessary to first clarify the meaning of the operation, combine the actual situation, first build an information platform, and secondly practice three-dimensional Mixed teaching mode. There are still many problems in college physical education in my country, and it is difficult to promote the sustainable development of college physical education in China. For this reason, corresponding measures should be put forward in response to existing problems. Specifically, teachers should strengthen their full understanding of quality education, correctly establish the concept of quality education, optimize the curriculum system, and also continuously improve their professional quality capabilities to strengthen physical education teachers in colleges and universities. Team, comprehensively carry out efficient physical education, and continuously improve the learning effect of students, thereby training more high-quality talents. Improving the reform of college physical education will help colleges and universities train college students in terms of physical fitness, psychological quality, learning attitude, and moral quality. However, the reform of physical education in colleges and universities needs to be gradually improved. For the problems and deficiencies that arise in the reform process, we need to explore the problems with a correct attitude and a rational perspective to make the reform of physical education in colleges and universities in our country move in the correct scientific direction and help colleges and universities. Cultivate more talents that meet the needs of society.

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