Evaluation System of College Physical Education Practice
Teaching Based on Big Data

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Abstract. With the development of the era of big data as the background, the physical education methods of universities have greatly improved. For other educational software like MOOC, some universities use the Internet to innovate the educational methods of sports theory courses, innovating educational software to improve the educational level of physical education theory course in Colleges and Universities Effectively enable students in the era of big data. After years of reform and practice, college physical education has achieved certain results, but in recent years, the physical health of college students has shown a downward trend. The physical health of college students depends on the students' awareness of physical fitness, the process of participating in physical exercise, and the lifestyle habits they develop. The cultivation of these factors is closely related to college physical education activities, and is also the task of college physical education activities. And goals. Students' behaviors in all aspects of life can be recorded in the form of big data. This article explores how to use big data to better reform physical education. Improve the scientificity and rationality of physical education. Use detailed data to objectively reflect the existing problems of college physical education, and explore the direction and path of college physical education reform.

Keywords: Big data, colleges, sports practice, reform

1. Introduction
The advent of the era of big data has provided massive reference data and information feedback for the work of all walks of life [1]. Combining the advantages of big data, in the process of physical education curriculum reform, the collected college students' overall physical fitness data, teaching activity effect feedback, and students' personal physical exercise interest tendencies can be intuitively analyzed through the comparison of comprehensive data: physical education curriculum Whether the teaching work achieved the expected teaching effect, whether the students' physical understanding and physical strength have improved [2-3]. As the saying goes: "The body is the capital of the revolution," especially modern college students. In the process of cultural education for students, physical quality
training cannot be ignored. Expansion training is a very important part of physical education, colleges and universities must do a good job in related work, implement the expansion training to the fullest. It is necessary to find the key direction of teaching reform and carry out work in a planned way[4]. And through the teaching shortcomings derived from the data, it analyzes the bottleneck faced by the current teaching development, and finds out the scientific teaching methods that suit the individual needs of students and the direction of teaching reform.

The cultivation of social sports talents is a very complicated process. Therefore, as a university teacher, not only need to find a way that suits students to learn, but also need to constantly transform traditional teaching concepts on the basis of educating students, and effectively implement social sports guidance and management professional practice teaching based on students' learning characteristics and social development trends. [5]. Moreover, teachers need to continuously improve students' awareness of the professional practice of social sports guidance and management, so that not only can more efficiently improve students' learning enthusiasm, but also a large number of comprehensive talents can be cultivated for the society. However, in actual teaching, many college teachers often only focus on teaching students a lot of knowledge, instead of focusing on the students' own social sports guidance and management professional practice. This will make students gradually reduce their interest in learning and make the classroom very rigid. Such talents are not what the society needs, it will cause great social contradictions [6]. Therefore, in order to solve these contradictions, university teachers should gradually carry out social sports guidance and management professional internship education, improve students' overall learning enthusiasm, help students establish learning directions, and help students better adapt to the society.

MOOC is very open, and teachers make maximum use of the advantages of network resources in physical education. It can bring new vitality to the teaching and learning of college physical education, making teaching more convenient and effective, and making learning more free, flexible and personalized [7]. The application of MOOC is conducive to the development of teaching modes and methods such as the learning community, and provides a standard, flexible, multi-interactive teaching foundation for the construction of various teaching modes. Therefore, it is very important for teachers to apply the concept of MOOC in physical education[8]. However, due to the limitations of traditional teaching concepts, methods and equipment, and network platforms, when colleges and universities carry out physical education based on the concept of MOOC, there are many imbalances in teaching concepts, goals, and methods, which cannot achieve effective educational connection. Insufficient, the quality of teaching is greatly reduced [9]. Therefore, based on the concept of MOOC, teachers must explore practical strategies suitable for themselves according to the actual situation. Through exquisite organization and perfect and reasonable evaluation, teachers fully respect the subjectivity and autonomy of students, adopt diversified scientific teaching methods, and get rid of the adverse effects of traditional teaching concepts and methods on the PE reform based on MOOC, so that students can pass The network obtains high-quality and sufficient learning resources, which combines sports theory and practical teaching to effectively improve students' physical strength, sports skills and overall quality [10].

2. Method

2.1 Fuzzy mathematical model algorithm

The fuzzy expression formula of health indicators:

\[ W = f(X_1, X_2, \ldots, X_n) \]  

In the formula: \( W \) is a health indicator; \( X_1, X_2, X_3, \ldots, X_n \) are factors that affect people's health, such as height, weight, and vital capacity. Let the universe \( M \) be the health index element, the expression is:

\[ M = \{X_1, X_2, \ldots, X_n\} \]
Set up the evaluation vector $V$, the expression is as follows:

$$V = \{\text{High, high, medium, low, low}\}$$

(3)

Comprehensive evaluation of health indicators:

$$W = A^R$$

(4)

In the formula $(n=1,2,\ldots,n; j=1,2,3,4,5,6,7,8)$ represents the $j$-level evaluation value of $n$ elements.

It can be determined by the membership function. This article uses the ascending (descending) semi-trapezoidal linear membership function to calculate the membership value of each single factor. The membership function expression is:

$$\phi_1(x) = \begin{cases} 
1( \leq x_{i1} or x \geq x_{i1}) \\
\frac{x - x_{i1}}{x_{i1} - x_{i2}} \left( x_{i1} \leq x \leq x_{i2} or x \geq x_{i2} \right) \\
0(x \geq x_{i2} or x \leq x_{i2}) 
\end{cases}$$

(6)

$$\phi_2(x) = \begin{cases} 
\frac{x - x_{i,j-1}}{x_{i,j-1} - x_{i,j}} \left( x_{i,j-1} \leq x \leq x_{i,j} \right) \leq x \geq x_{i,j} \\
\frac{x - x_{i,j+1}}{x_{i,j+1} - x_{i,j}} \left( x \leq x_{i,j+1} \right) \leq x \geq x_{i,j+1} \\
0(x \leq x_{i,j}, x \geq x_{i,j+1} or x \leq x_{i,j+1}, x \geq x_{i,j+1}) 
\end{cases}$$

(7)

$$\phi_3(x) = \begin{cases} 
\frac{x - x_{i,n}}{x_{i,n} - x_{i,n-1}} \left( x \leq x_{i,n} \right) \leq x \geq x_{i,n} \\
1(x \geq x_{i,n} or x \leq x_{i,n}) \\
0(x \leq x_{i,n-1} or x \geq x_{i,n-1}) 
\end{cases}$$

(8)

The weight formula used is as follows:

$$W_j = \frac{a_j b_j}{\sum_{i=1}^{m} a_j b_j}$$

(9)

2.2 Improve teaching methods and improve teaching quality

With the difference of teacher's ability and professor's experience, the teaching effect in the classroom is determined to a certain extent. Through the optimization and integration of resources. In addition, big data technology can also be used for classroom teaching. The classroom can be summarized as a place for generalization, communication, and display, and become an object. Various sports models are gradually accepted and recognized by students and parents. Therefore, actively promoting and using big data-related technologies in the field of university sports can more effectively improve the quality of sports, extracurricular sports activities, and sports training, and improve the physical fitness of college students in all aspects.

2.3 Set up a physical fitness test system for college students

Our country has established a variety of physical health evaluation systems for universities, junior high schools, and elementary schools. Although it seems that the physical health of young people is
very important, this has not completely changed the physical health of our students. There are still many problems in the physical examination of our students. First, the annual physical examination of students requires a lot of human, material, financial and other resources in regions and schools. Universities, elementary schools, and junior high schools do not consider students’ mental health problems. Recently, students’ development has been greatly restricted due to mental health problems. In other words, most of the current school physical examination work is in countries or countries. Many teachers and students did not actually pay attention to the physical test according to the instructions and topics of the superior. But by using big data technology, students' indicators can be understood in time. In addition, the application of big data can conduct a comprehensive and objective physical examination of students' personality, interpersonal relationship, willpower, judgment and other psychological factors. Therefore, the rational and effective use of big data technology has become an urgent problem that schools need to overcome. For example, related physical strength, optimize and adjust the relevant content of physical education courses, and provide target guides for all aspects of students' physical strength.

3. Experiment

3.1 Subject
The subjects selected for this experiment are students from a certain university, so as to conduct a sample survey. By selecting some students to conduct a questionnaire survey to understand whether the students are satisfied with the school’s physical fitness test system, what are the advantages and disadvantages, and finally collect statistics, integrate the data, and analyze the current college physical fitness test system which is worthy of improvement. What aspects need to be developed. The questionnaire survey is a paper questionnaire survey of four grades from freshman to senior. There are 100 students in each grade. The male to female ratio is 1:1 and the total number is 400. The conclusions drawn through data analysis put forward appropriate suggestions for the school physical fitness test system, and provide new ideas and directions for the development of the college physical fitness test system. Let it develop better.

3.2 Experimental design
This experiment uses paper questionnaires to conduct surveys, edit the questionnaires and distribute them to all selected surveyors. There are 400 questionnaires in total, and 400 were actually collected. The questionnaires investigated whether the sports test items are satisfactory and whether the physical fitness test system is convenient or not. The collected questionnaires are processed and analyzed, and the current students’ views on the physical fitness test system in schools are obtained by using statistics and comparison methods, and the development problems encountered by the physical fitness test system in colleges and universities in the era of big data are derived based on these Questions to find new breakthroughs in the physical fitness testing system.

4. Results

4.1 Experimental investigation results
Figure 1. Whether students are satisfied with the physical test items

From the data analysis in Figure 1, it can be seen that there are still major problems in the current sports test items, and there are many students who are not satisfied with the current situation of the sports test items. Only a few students are satisfied with the current sports test items. Most of them think that the current sports test items are good or not bad, but they are satisfied or average. From the data in the figure, it can be seen that the school sports test project cannot make the majority of students realize the school's physical fitness test system, which needs to be improved.

Figure 2. Whether the physical fitness test system is convenient

From the data analysis in Figure 1, it can be seen that there are still major problems in the current sports test items, and there are many students who are not satisfied with the current situation of the sports test items. Only a few students are satisfied with the current sports test items. Most of them think that the current sports test items are good or not bad, but they are satisfied or average. From the data in the figure, it can be seen that the school sports test project cannot make the majority of students realize the school's physical fitness test system, which needs to be improved.

From the data analysis in Figure 2, it can be seen that the current physical fitness test system has problems, which makes it inconvenient for students to use. Affected the students' experience, so that these students have more opinions on the school's physical fitness test system. If the school physical health test system wants to better manage the physical health information of students, it needs to improve the system and give these students a better teaching experience, so that students can learn better and improve their own abilities. It can also develop better.

Table 1. Are boys and girls satisfied with the physical fitness test system

| gender | satisfaction | good | general | Not satisfied |
|--------|--------------|------|---------|---------------|
| male   | 63           | 44   | 53      | 40            |
According to the questionnaire survey data in Table 1, there are gender differences in the degree of satisfaction between men and women with the school physical health test system. Boys are relatively satisfied with the physical health test system than girls. Most of the students are not satisfied with the physical fitness test system. Therefore, gender will have very different levels of satisfaction with the physical fitness test system, which is also an important factor we have learned based on the results of this survey. Therefore, in the construction of the physical fitness test system, more consideration should be given to the ideas of some girls. This will be of great help to the construction and development of the physical fitness test system in colleges and universities.

5. Conclusion
In summary, with the big data era as the background, the university's sports theory education methods will develop with the development of educational technology. The big data era effectively promotes the diversification of university sports theory education methods. Through the analysis of this article, the educational methods of college sports theory courses in the era of big data include MOOC and other educational software, which effectively improves the education level of college sports theory courses. The development of university sports activities has many characteristics that subvert traditional education methods, which have an important impact on the construction of the education evaluation system. Through this teaching mode, not only can comprehensively improve students' own quality, but also can effectively change students' learning strategies. Allow students to develop in a better direction in the future. Moreover, people are more and more aware of the importance of exercise at this stage. Therefore, facing the rapidly developing socialist market economy, all aspects of university physical education activities must work together to change the various elements of the existing education evaluation model. Separated state. Based on the big data platform, through data analysis, evaluation indicators should be determined scientifically. The scientific development of physical education in universities has laid a solid foundation. Therefore, relevant college teachers need to gradually focus on the current social and economic development to effectively improve students' awareness of sports, and college teachers can also better train students through social sports guidance and management, which will not only allow students to be more comprehensive in the future The development can also effectively improve the various qualities of students.

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