



Physical Education Informatization Method Based on Big Data Analysis

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ABSTRACT

In order to adapt to the development and changes in the era of big data, many industries are undergoing reforms or are about to face reforms, including the education industry. In the era of big data, the teaching informatization level of many teachers needs to be improved, and the educational informatization methods of many schools also need to be improved, especially PE (sports) in schools. The purpose of this paper is to study the informatization of physical education courses based on data analysis technology. Using BDT to obtain data information in physical education courses and analyze the results of teaching information satisfaction, we selected two physical education colleges, C and D, with different teaching methods. Experimental research shows that the teaching performance of C college is significantly better than that of D college in one academic year. The highest score of College C is 96 and the lowest is 83. The highest score of D College is 77 points and the lowest score is 63 points. The teachers of College C are also satisfied with the new teaching method implemented by the whole school. The total proportion of satisfaction with the new teaching method is 61%. This method can help sports innovation and reform.

Keywords: Big Data Era, Physical Education, Information Method, BDT technology

1. INTRODUCTION

In the era of information index explosion and the development of Internet industry, various new Internet technologies have emerged. BDT is one of these technological waves [8]. In the environment of big data, many schools have also undergone unprecedented reform. Nowadays, the reform of information method of PE is also imminent. Many schools are paying more and more attention to PE in order to respond to the call of the times [9]. Nowadays, many schools are trying to find new ways to carry out the reform of PE, so as to cultivate excellent sports talents. Based on this background, this paper carries on the experimental research, in order to explore whether the university PE information method can be improved and optimized under the background of BDT, so as to improve the overall quality of PE at present [10].

BDT provides many free and open channels for college PE to obtain information. Thus, it helps the PE teachers to innovate the existing PE methods, so that all kinds of data resources can be effectively integrated, and at the same time, the content of PE is enriched. Based

on the possibility of the development of college sports in the era of big data, we have made a deep investigation and analysis of the development strategy of college sports in the era of big data. First, we should improve the uniqueness and suitability of teaching methods of PE departments, build sports resources database and network platform, make full use of independent teaching methods, so as to provide guidance and suggestions for better sports activities [11]. Educational informatization has become the focus of a new round of educational reform. Using BDT, we can analyze the students' learning status and their thoughts effectively and quickly, which can help the teachers to carry out teaching activities better and design a teaching scheme that makes most students satisfied. The educational experts began to try to use BDT to search and master the dynamic direction of students' behavior in real time, so as to help students to learn efficiently and obtain a better learning result. The concept of PE learning evaluation is changing with the change of the times. The traditional sports evaluation standard is single and the evaluation method is old, which is no longer suitable for the requirements of sports evaluation. Therefore, we need to improve the existing PE teaching methods, so as to find

a method that both teachers and students are satisfied with [4][12].

In the era of big data, the development of various teaching activities is a new trend to promote the improvement of education and teaching level, and is a solid foundation for training comprehensive talents with core competitiveness. This paper will elaborate the meaning extraction of big data and its application in sports activities, and provide a good basis for the application of big data in sports activities. In order to study the phenomena, problems or performance characteristics of the application value of big data in PE, and some imperfections hidden in the practice of PE [1][5]. We use BDT to improve our ability to collect information, and we can analyze the information results accurately and quickly by using BDT, so as to help us make more favorable decisions more quickly. This method is the same in sports education. We analyze and process useful information, then extract the reference value, uncover the essence of educational phenomenon, find out the law of teaching methods, so as to help the PE innovation and Reform [6][7].

2. METHOD

2.1. BDT Technology

Blockchain digital technology is BDT. From a narrow (data) point of view, blockchain is a data structure that combines the generated data blocks into a blockchain-like data structure in chronological order, based on cryptography to ensure that the existing data cannot be tampered with and cannot be forged. From a broad (technical) point of view, blockchain is a method of using a block-chain data structure to store data, generate data based on a distributed consensus mechanism, ensure data transmission and access security based on cryptography, and use smart contracts to a new distributed infrastructure and computing paradigm for encoding and manipulating data. In a typical blockchain system, data is generated and stored in blocks, each block records all transaction information that occurs within a period of time, and its structure is divided into two parts: the block header and the block body. Among them, the block header mainly contains the previous block hash, Merkel root, timestamp and one-time random number. The block header is used to link the previous block and ensure the integrity of the existing data through the timestamp mechanism; the block body contains all verified transaction information generated during the block creation process (the transaction record leads to the block chain). The behavior of the operation that changes the state). The status of each node is equal, and all nodes jointly conduct data verification, storage and maintenance of the blockchain system. Usually, the generation of new blocks needs to be approved by the majority of nodes in

the entire network (the number depends on the specific consensus mechanism), and broadcast to the entire network to achieve synchronization of the entire network. Once a data block is generated, it cannot be changed or deleted [2].

2.2. Current Situation of College PE

College PE teaching methods mainly focus on the technical explanation of sports and the teaching of some basic sports knowledge. In fact, this kind of education mode is more or less affected by competitive education. Finally, students demonstrate by themselves [3]. This traditional PE teaching method is no longer suitable for the current sports requirements of the new era. PE needs to be reformed and innovated, in order to coordinate the relationship between PE and competitive sports, as well as the current entertainment sports, so as to find a perfect balance. Some obvious intolerance in PE teaching are taught by teachers and teaching materials. The most important thing is to emphasize speech among teachers, ignore students' practice in strict organization and discipline, and students are in a passive classroom position, which affects the effect of education to a certain extent. Moreover, the teaching method of PE is too single as a whole, and the explanation and demonstration method is relatively backward, which can not meet the requirements of school education reform. Although some colleges and universities recognize these problems and actively promote the innovation of teaching materials and methods, they still largely ignore the reasonable setting of curriculum and the students' interest and educational influence. The era of big data provides new opportunities and platforms for the innovation of teaching methods in Colleges and universities. Therefore, we should make every effort to promote the combination of big data and college sports, and build a more advanced sports teaching system.

2.3. Characteristic Analysis of College Sports Informatization Service

College sports informatization: "college sports informatization" has not yet formed a unified definition. By summarizing the definitions of its superordinate concepts "educational informatization" and "national informatization", it is found that both contain two meanings: take information as the basic element of the development of related fields; give full play to the role of information technology. Therefore, our definition of "college sports informatization" is summarized as: in the field of college sports, take information as a basic element of its development, and make extensive use of information technology in various fields of college sports to promote the process of college sports modernization. In this research, we also regard college sports informatization service as a part of the development of college sports informatization.

(1)Hardware equipment and software technology are closely integrated: provide accurate information services for students in need through mobile phones, assess students' extracurricular exercise, record students' various information related to sports since college, all of which can be realized under today's hardware and technical conditions.

(2)College sports informatization services involve a wide range and variety: college sports work is carried out for tens of thousands of students in the whole school, involving a large number of people. In terms of specific work for students, college sports work involves many aspects such as physical education, physical fitness testing, group activities, extracurricular sports assessment, and stadium management. None of the existing information release methods and methods can efficiently and accurately cover all kinds of people and various work aspects, and the process and method of college sports information service need to be optimized and adjusted.

(3)College sports informatization service requires high timeliness: the timeliness refers to the time difference between the occurrence of the event and the information issued as the main body. Information such as course adjustment, examination time arrangement, exercise timing point adjustment, etc., a slight delay in notification will cause unnecessary trouble to the relevant personnel, and over time will also leave a bad impression of inaction by the school sports department. If the relevant information is not notified to the parties after the event occurs and the "news" becomes "old news", then it is impossible to talk about information services.

2.4. Some Algorithm Formulas Involved in the Experimental Investigation in this Paper

In order to ensure the accuracy and objectivity of the experimental data, and to explore whether the distribution of the experimental data is reasonable and whether the experimental data can reflect the nature and laws of certain things, we often use some calculation formulas in probability theory and mathematical statistics:

$$\int_{-\infty}^{+\infty} f(x)dx = 1 \quad (1)$$

$$P(X = k) = \frac{\lambda^k}{k!} e^{-\lambda}, (k = 0, 1, \dots) \quad (2)$$

$$f(x) = \frac{1}{b-a} (a \leq x \leq b) \quad (3)$$

3. EXPERIMENT

3.1. Selection of Research Objects

In order to explore the different means of obtaining information in the background of BDT, and what effect it will cause, we specially selected two sports colleges as experimental research objects, one of which C applied BDT in its university PE, while PE college D applied the conventional teaching method in its university PE. We also randomly selected 160 teachers in the two colleges as the subjects of investigation, and asked their opinions on the two teaching methods, so as to explore the general attitude of the overall teachers towards the two teaching methods.

3.2. Experimental Research Index

We take the PE teaching achievement of two universities for one year as the experimental index, which is given by the relevant authoritative Education Department; we also take the views of teachers of two schools on the two teaching methods as the experimental basis to explore which teaching is more popular.

4. DISCUSSION

4.1. Teaching Achievements in Two Colleges and Universities

We take the teaching results of two schools for one year as the experimental survey object, and then divide the teaching results of the whole academic year into four groups by month. The final teaching results are as follows:

Table1:An analysis of the teaching achievements of two universities

	Institution C	Institution D
Group one	83	75
Group two	88	63
Group three	92	77
Group four	96	69

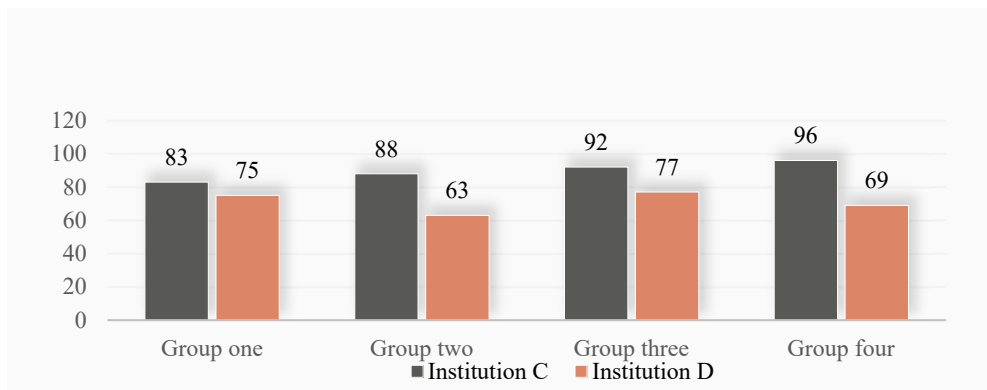


Figure1.An analysis of the teaching achievements of two universities

From Figure 1 and Table 1, we can clearly and intuitively see that no matter the horizontal comparison or the vertical comparison, the teaching performance of D University is far inferior to that of C University as a whole. First of all, looking at Figure 1, we can see that from each group, the teaching performance of College C is higher than that of College D. The results of the first group are 83, the second group are 88, the third group are 92, the fourth group are 96. These achievement data can show to a certain extent that the relevant education departments are quite satisfied with the P.E. teaching achievements of C college in this academic year, so they give such a high score. By analyzing the teaching performance of D University, we can see that the teaching performance of the first group of D University

is 75 points, the second group is 63 points, the third group is 77 points, and the fourth group is 69 points. These scores do not seem to be satisfactory, which reflects the shortcomings of the teaching methods of D college, and some teaching problems need to be solved, so as to improve the teaching methods of the college and improve its PE teaching results.

4.2. Teachers' Opinion Evaluation of the Two Universities

We recorded the views of the teachers of these two colleges on their school teaching methods, in order to see the overall teachers' attitude towards these two kinds of PE teaching methods.

Table 2: Comments on the views of teachers in two universities

	Institution C	Institution D
Very elated	23%	11%
elated	38%	22%
general	30%	35%
disgusting	9%	32%

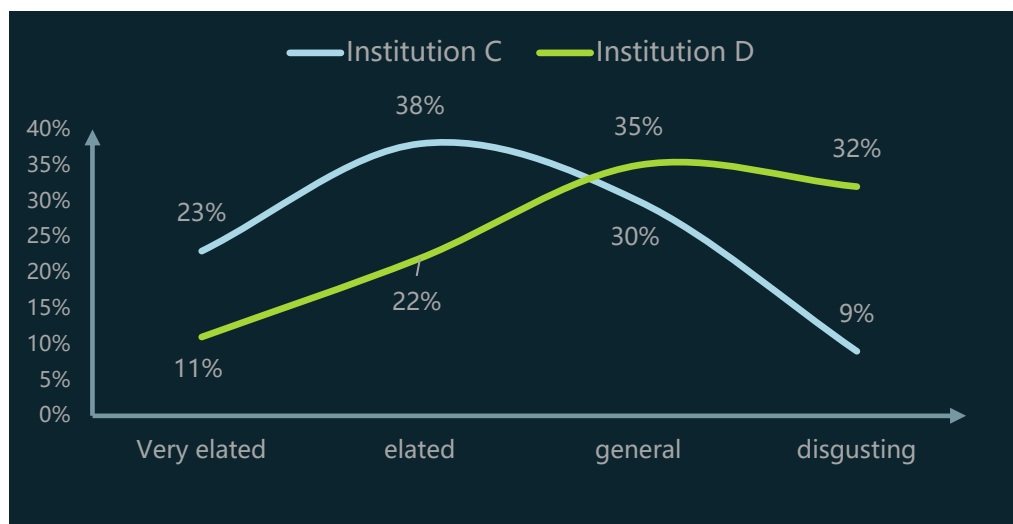


Figure2.Comments on the views of teachers in two universities

From the picture above, we can clearly see that the teachers in College C are generally satisfied with the

way physical education is taught in their school. Among the 160 teachers surveyed in the school, the proportion

of teachers who like the new teaching method very much is 23%, and the proportion of teachers who like the new teaching method is 38%. Number of teachers 30% were not interested in the improved new teaching method, and only 9% were disliked. When we observe the opinions and evaluations given by the teachers of University D, we can see that the number of teachers who are very satisfied with the traditional physical education teaching method is very small, accounting for 11% of the total number of respondents. The proportion of teachers who are satisfied is only 22%, that is, ordinary teachers account for 35%, and teachers who are disgusted account for 32%, which is equivalent to one-third of the total number of respondents, which is a considerable proportion. Therefore, the relevant departments of d university should attach great importance to this phenomenon and actively look for a good way to break this situation.

5. CONCLUSIONS

In short, the current sports efficient educators should timely recognize the great role of big data, especially in the aspect of sports education information management, and at the same time, they should actively explore a good method to achieve the goal of how to apply BDT to sports teaching and let BDT in sports teaching it plays the most important role in the development of science and technology. By using BDT, we can timely grasp the latest sports dynamic development, and apply it to the information management of PE, which can also help us quickly collect and analyze the data information content we want. At the same time, we can also timely understand the students' interests by using BDT, so as to design a more user-friendly platform based on this Students can raise interest in learning teaching programs. These are the current sports workers should focus on the problem, and then through one by one to solve these problems, so as to build a more perfect and advanced sports teaching system, promote the development of sports teaching.

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