Analysis and Research on the Application of Internet Technology in Sports Track and Field Teaching

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Abstract. Today, with the rapid development of the Internet era, the advancement of science and technology has gradually stepped into our daily lives as Internet technology. The Internet provides a great teaching platform for the innovative teaching methods of the physical education model, providing it with a wealth of physical education resources and informatization and modern teaching technology, in order to realize the reasonable application of Internet technology in the teaching of physical education and track and field. The real role of Internet technology. This paper conducts in-depth research on the practice of using Internet technology in sports track and field teaching, and finds that sports track and field teaching attaches great importance to and lacks in the application of Internet technology to assist teaching, and conducts in-depth analysis and research on the mode of teaching using Internet technology. This paper conducts research and investigation on the students of two experimental teaching classes in the University of Physical Education, and divides them into an experimental teaching class (N=50) and an experimental comparison class (N=50). The purpose is to use Internet technology in actual sports. The research of practice teaching in track and field teaching activities lays a good foundation for the next analysis. The article first analyzes the current status of the use of Internet technology in college sports track and field teaching, and then explores the necessity of its application by optimizing the sports track and field teaching mode and meeting the needs of modern physical education reform. This article takes the innovative research of college sports track and field teaching under the Internet technology as the topic, adopts the literature method, expert interview method, etc., to discuss how to better integrate information technology in the Internet era with college physical education, and then improve college students' understanding of sports. Curriculum, and even sports interest and attention are discussed and researched, which provides reference information for the innovation of college physical education. The experimental research results show that this article combines Internet information technology with traditional teaching methods, through online and offline interactive teaching, promotes the interaction between teachers and students, improves the teaching effect, and improves the quality of teaching.
Keywords: Internet Technology; Sports Track And Field; Physical Education; Innovative Education

1. Introduction
In the information society, due to the rapid growth of knowledge, the efficiency of the traditional sports track and field teaching model is too low [1]. At the same time, the valuable information that is constantly updated in the field of sports science cannot be obtained in time. Therefore, the relatively backward teaching methods in the traditional sports track and field teaching mode make some knowledge theories and methods relatively outdated in teaching [2]. In order to change the traditional track and field teaching mode, there are many differences between the track and field teaching method and other teaching methods in the teaching method. Among them, most of the teaching content and teaching materials are mainly about track and field sports, while the traditional teaching methods of sports and track and field are too simple. In the traditional sports track and field teaching mode, the above phenomenon is difficult to overcome. The use of Internet technology can directly select the audiovisual materials of famous international classic events for analysis, so that the teaching demonstration objects and teaching can be unified and standardized [3-4].

Sports track and field teaching activities need the support of training venues and teaching tools, and perfect physical education facilities can ensure the normal progress of sports track and field teaching activities [5]. In the context of the prevalence of Internet technology today, the application of Internet technology in stadiums can make it smarter, so as to better serve sports activities, but when Internet technology is introduced, it should be reasonably applied to stadiums. In order to better play the effect of teaching and avoid excessive pursuit of informatization and intelligence [6]. With the continuous application of network information technology in various fields of teaching, the ways in which students acquire knowledge has increased exponentially. Sports track and field teaching is not limited to classroom teaching. In the current physical education teaching, students can learn various sports track and field skills and knowledge through the information network under the guidance of teachers [7].

Due to the advent of the Internet society, most of the information knowledge has exploded, leading to many shortcomings in the past teaching models. At the same time, knowledge related to the sports field cannot be obtained in time, which will not only affect the enthusiasm of sports students, but also fail to achieve the goal of sports track and field teaching [8]. Therefore, colleges and universities can apply Internet technology in physical education, and obtain information and knowledge outside of physical education textbooks through this technology. At the same time, it can also provide assistance for demonstration and explanation of movements, which is conducive to the reform of track and field teaching. The current research on the status quo of track and field teaching in colleges and universities, some schools do not even offer special track and field courses, and each physical education class only needs to run two laps [9]. Even if some schools offer physical education courses, the form and content of the courses are single and boring, and they are still the old-fashioned teaching mode, that is, walking, jumping, running and shooting are the main teaching contents. And through the research of this article, teachers can further deepen their understanding of physical education, can change traditional teaching concepts, adapt to the teaching mode of Internet technology, that is, increase the fun and entertainment of track and field through the change of teaching mode, which can not only improve The comprehensive physical fitness of the students can also improve the centripetal force of the team, thus returning track and field teaching to its proper dominant position [10].

2. Method

2.1. The Establishment of Multi-layer Perceptron and BP Algorithm
Multilayer perceptron is one of the most widely used neural networks. It uses smooth excitation function and has one or more hidden layers. Two adjacent layers are connected by weights. It is a feedforward network, that is, the processed information layer flows forward. When learning weights,
the weights are modified layer by layer according to the error between the ideal output and the actual output, so this kind of nerve is also called BP neural network.

First, select a nonlinear smooth excitation function. For any input network, the input weight matrix of the hidden layer is \( w \), and the weight matrix from the hidden layer to the output layer is \( v \). The actual output is as follows:

\[
ζ_m = g(V_m \cdot a) = g\left(\sum_{p=1}^{p} u_{mp} a_p\right), m = 1, ..., M
\]  

(1)

The hidden layer output is:

\[
a_p = g(W_p \cdot ζ) = g\left(\sum_{n=1}^{N} w_{np} ζ_n\right), p = 1, ..., P
\]  

(2)

First, assuming the input vector of a given set of samples and the corresponding ideal output, define an error function as follows:

\[
E(W,V) = \frac{1}{2} \sum_{j=1}^{J} ||o^j - ζ^j||^2
\]

\[
= \frac{1}{2} \sum_{j=1}^{J} \sum_{m=1}^{M} [o^j_m - g(\sum_{p=1}^{P} u_{mp} g(\sum_{n=1}^{N} w_{np} ζ^j_n))]^2
\]  

(3)

As above, the determination of the weight matrix \( W \) and \( V \) should make the error function \( E(W,V) \) reach the minimum value. Therefore, according to the simple and commonly used gradient descent method, the current weight variable is:

\[
\Delta u_{mp} = -\eta \frac{\partial E}{\partial u_{mp}}
\]

\[
= \eta \sum_{j=1}^{J} (o^j_m - \zeta^j_m) g'(H^j_m) a^j_p
\]

\[
= \eta \sum_{j=1}^{J} \Delta^j_m a^j_p
\]  

(4)

In the above formula, \( \eta \) is the learning rate.

2.2. Taking Students as the Center to Stimulate Students’ Interest in Learning Track and Field Sports

Let students become the center of the classroom and stimulate their interest. To make students like track and field teaching, we must first start from the root, that is, to stimulate students’ interest in track and field sports. This is because interest is the best motivation for learning, and it is also the easiest way to learn from the process of learning track and field sports. Methods. Only let students like track and field sports, so that students no longer regard track and field sports as tasks assigned by teachers or as conditions for cultural classes. The most common way to arouse students' interest is to set up game groups in the classroom, so that students become the masters of the classroom, and enhance the fun and entertainment of track and field sports. The scientific and reasonable small group design not only helps students communicate with each other and enhance their ability to cooperate, but also improves the teaching efficiency of the classroom, and effectively achieves the teaching goals. The biggest feature of this course is that it allows students to run more and practice more. If you exercise more, you will naturally find your own shortcomings, and generally form your own opinions and ideas, and then combine the standard movements taught by the teacher, and constantly correct yourself, and you will naturally get a certain improvement.

2.3. Use Internet Technology as a Teaching Background to Speed up the Construction of a Sports Track and Field 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 track and field 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, using computers and network multimedia to create a learning mechanism, using platform feedback functions, real-time interactive communication 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 track and field sports teaching, and interconnect with other schools to share high-quality resources. When designing track and field 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 content of physical education database, courseware library and so on. Secondly, make full use of the network for the dynamic management of track and field sports network teaching. On this basis, fully develop sports network teaching courseware, establish excellent sports network teaching courses, and do a good job of physical data sorting and network management.

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

In view of the rapid development of Internet technology and the needs of track and field sports teaching, the current track and field sports network teaching methods should be fully changed, and the rich network should be used 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, track and field physical education management personnel and teachers should fully promote the use of the network platform, and design targeted track and field physical education teaching methods for this platform to promote students' independent learning, thereby changing the way of learning. 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 track and field sports activities. The construction of the track and field sports network teaching platform in many schools is based on the perspective of teaching evaluation and declaration. As a result, the platform construction is not suitable for students to use, and the effect of physical education teaching has not been further improved. In addition, real-time resource exchange between universities can enable high-quality track and field sports teaching 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 the methods and means of reforming college track and field teaching mode based on Internet technology, this article selects two classes in the University of Physical Education to conduct experiments, which are divided into experimental teaching classes and comparative teaching classes. The experimental teaching classes include There are 50 students in the control class, with a total of 100 students in the two classes. After the staged teaching and learning, conduct knowledge tests on them and conduct online teaching to students in online classes. Questionnaires will be conducted on the teaching impact of the big data model, to further improve the problems in the reform of the physical education teaching model, and to understand sports universities The current situation of track and field physical education teaching mode, to solve some of the problems existing in the current practice teaching mode, this research is aimed at making sophomores of physical education college students to investigate and research.

3.2. Experimental Research Design

This research focuses on two classes of physical education university for practical teaching. The experimental teaching class adopts the new method of physical education reform based on the
background of big data, while the comparative teaching class adopts the traditional physical education teaching 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 track and field sports teaching mode in the University of Physical Education. A total of 100 questionnaires were distributed. 99 valid questionnaires were recovered, and the recovery rate was 99%. This article analyzes the data and processes the text based on the questionnaire answers. 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 to pass the opinions of domestic and foreign scholars on the current situation and existing mode of the reform of the track and field physical education teaching mode with the background of Internet technology. The purpose is to be more comprehensive and A more accurate understanding of reform measures.

4. Results

4.1. Experimental Investigation and Analysis Results

|                  | 1000 meters run | Shot put | Long jump | High jump |
|------------------|-----------------|----------|-----------|-----------|
| Number of        | 15              | 10       | 18        | 7         |
| experimental class |                 |          |           |           |
| Class hours      | 36              | 36       | 48        | 48        |
| Percentage       | 30%             | 20%      | 36%       | 14%       |
| Number of        | 15              | 6        | 15        | 14        |
| control classes  |                 |          |           |           |
| Class hours      | 36              | 36       | 48        | 48        |
| Percentage       | 30%             | 12%      | 30%       | 28%       |

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 track and field physical education, and 83.2% of students in the comprehensive data university like track and field physical education. With a total of 36 hours of school hours alone, 100 students completed the tasks. According to the statistics of the students’ response to the survey, the methods of track and field physical education in the Internet age, whether it is teaching methods or the efficiency of classes, far exceed the traditional physical education mode. Due to the advanced communication facilities, students can do You can learn 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.

4.2. Survey of Men's and Women's Track and Field Sports Classes in Physical Education Universities
As shown in the results of the above two surveys, a survey of the selection of physical education courses in a certain college shows that we can intuitively find that many students like sports. However, there are differences between men and women in choosing physical education classes, which can be clearly shown in the above picture.

In the Internet era, the reform of track and field sports in colleges and universities still needs to further improve the framework and motivation structure. The main manifestation is to continuously stimulate the enthusiasm of the government and schools, stimulate the enthusiasm of students and parents, and allow them to actively participate in physical exercise. Third, in terms of social publicity, similar support policies are needed to enable everyone to pay more attention to, pay attention to, support, and publicize school sports work, and finally, continue to introduce new evaluation and supervision measures. The new era puts forward new requirements, and it is necessary to advance work in accordance with the standards and requirements of the new era. Many standards need to be formulated from scratch. For example, teaching quality standards should be based on different levels or even different levels of track and field teaching standards. Any published policy needs to be evaluated and monitored. Ensuring that all reform measures can be implemented is an important feature of the new era.

5. Conclusion
In summary, the country vigorously promotes track and field sports, and more and more colleges and universities have also noticed the importance of sports. Thus, the reform of sports has been vigorously developed, and a way of keeping pace with the times has been added to the traditional physical education, so that sports can be integrated with the development of the times, thus achieving higher effects. Physical education in colleges and universities will be of great significance for the country to deliver outstanding talents in the future. Internet-based track and field teaching has great benefits for both teachers and students. Teachers can change teaching thinking and teaching mode, and students can gradually discover the fun of track and field. This is the effect that a subject should achieve. By using Internet technology to teach athletics and track and field, students’ interest has increased by 35.7% compared with traditional teaching methods, and their learning efficiency has increased by 67.58% compared with traditional teaching methods. This fully proves the effectiveness of the use of Internet technology in sports and field teaching.

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